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Design Analysis Cover Sheet

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1. PURPOSE

The objective of this analysis is to explore the Advanced Uncanistered Fuel (AUCF) Design waste package (WP) resistance to a seismic input at different levels of degradation. This analysis will also be used to determine the minimum thicknesses of various WP components required to withstand a seismic input in the geologic repository. The purpose of this analysis is to document the models and methods used in the calculations. The results of this analysis are not intended to show direct compliance with any design requirements.

2. QUALITY ASSURANCE

The Quality Assurance (QA) program applies to this analysis. The work reported in this document is part of the preliminary design structural analysis that will eventually support the License Application Design phase. This activity, when appropriately confirmed, can affect the proper functioning of the Mined Geologic Disposal System (MGDS) waste package; the waste package has been identified as an MGDS Q-List item important to safety and waste isolation (pp. 5, 16, Ref. 5.1). The waste package is on the Q-List by direct inclusion by the Department of Energy (DOE); a QAP-2-3 evaluation has yet to be conducted. The work performed for this analysis is covered by a Waste Package Development (WPD) QAP-2-0 work control Activity Evaluation entitled "Perform Criticality, Thermal, Structural, and Shielding Analyses" (Ref. 5.2). The QAP-2-0 evaluation determined that such activities are subject to Quality Assurance Requirements and Description (QARD) (Ref. 5.3) controls. Applicable procedural controls are listed in the activity evaluation.

All design inputs which are identified in this document are for preliminary or conceptual design and, excluding codes and standards, shall be treated as unqualified data; these design inputs will require subsequent qualification (or superseding inputs) as the waste package design proceeds. This document will not directly support any construction, fabrication, or procurement activity and therefore is not required to be procedurally controlled as TBV (to be verified). In addition, the inputs associated with this analysis are not required to be procedurally controlled as TBV. However, use of any data from this analysis for input into documents supporting construction, fabrication, or procurement is required to be controlled as TBV in accordance with the appropriate procedures.

3. METHOD

A spectrum analysis finite-element solution of the seismic problem was introduced by making use of the commercially available ANSYS finite element code. After the finite-element model was constructed, a modal solution was obtained to determine the natural frequencies and mode shapes of the geometry. The results of the modal analysis were then used in a response-spectrum analysis. In the response spectrum analysis, the seismic loads were applied to the model to determine stresses, strains, and deflections.

4. DESIGN INPUTS

All design inputs are for conceptual or preliminary designs; these design inputs, excluding codes and standards, will require subsequent qualification (or superseding inputs) as the waste package design proceeds to the final design.

4.1 Design Parameters

4.1.1. Dimensions

A three-dimensional finite-element model of the 21 Pressurized Water Reactor (PWR) AUCF WP was developed using dimensions taken from sketches generated by WPD.

Outer Barrier, Outer Diameter = 1.6619 m (Attachment XXXIX-1)
Outer Barrier, Skirt Inner Diameter = 1.5419 m (Attachment XXXIX-1)
Outer Barrier, Inner Diameter = 1.4619 m (Attachment XXXIX-1)
Outer Barrier, Skirt Height = 0.225 m (Attachment XXXIX-1)
Outer Barrier Lid, Thickness = 0.110 m (Attachment XXXIX-2)
Inner Barrier, Outer Diameter = 1.4619 m (Attachment XXXIX-3)
Inner Barrier, Inner Diameter = 1.4219 m (Attachment XXXIX-3)
Inner Barrier Lid, Thickness = 0.025 m (Attachment XXXIX-4)
Inner Barrier Length = 4.635 m (Attachment XXXIX-3)
Package Length = 5.335 m (Attachment XXXIX-1)
Tube Thickness = 0.005 m (Attachment XXXIX-5)
Outer Tube Width = 0.2385 m (Attachment XXXIX-5)
Tube Length = 4.575 m (Attachment XXXIX-5)
Criticality Control Plate Thickness = 0.007 m (Attachments XXXIX-6, XXXIX-7, and XXXIX-8)
Corner Guide Thickness = 0.010 m (Attachment XXXIX-9)
Side Guide Thickness = 0.010 m (Attachments XXXIX-10 and XXXIX-11)

4.1.2. Materials

The materials used in the manufacture of the waste package components are taken from the sketches generated by WPD.

Outer Barrier: A 516 Grade 70 Carbon Steel (Ref. 5.4)
Outer Barrier Lids: A 516 Grade 70 Carbon Steel (Ref. 5.4)
Inner Barrier: Alloy 625 (Ref. 5.4)
Inner Barrier Lids: Alloy 625 (Ref. 5.4)
Tube: A 516 Grade 70 Carbon Steel (Ref. 5.4)
Criticality Control Plates: 316B6A Stainless Steel Boron (Ref. 5.4)
Corner Guide: A 516 Grade 70 Carbon Steel (Ref. 5.4)

Side Guide: A 516 Grade 70 Carbon Steel (Ref. 5.4)

4.1.3. Material Properties

The material properties listed in this section are based on the assumption that the temperature of all waste package components is ambient temperature, 20°C, see Assumption 4.3.1.

ASTM A 516 carbon steel (grade 70) (outer barrier material):

Density = 8131 kg/m³ (Ref. 5.5, p. 670)

Poisson's ratio = 0.3 (Ref. 5.6, p. 374) (see Assumption 4.3.2)

Modulus of elasticity = 206 GPa (calculated from English Unit, $30 \times 10^6 \text{ psi} \times 6895 \times 10^{-9} \text{ GPa/psi}$) (Ref. 5.6, p. 374) (see Assumption 4.3.2)

Tensile Strength = 485 MPa (Ref. 5.7) (see Assumption 4.3.3)

Yield strength = 260 MPa (Ref. 5.7)

Elongation % in 2 in. = 21 (Ref. 5.7)

Design stress intensity = 23.3 ksi = 161 MPa (Ref. 5.11, Table 2A, p. 300)

Alloy 625 (inner barrier material):

Density = 8442 kg/m³ (Ref. 5.8)

Poisson's ratio = 0.278 (Ref. 5.9, p.143)

Modulus of elasticity = 208 GPa (Ref. 5.9, p.143)

Tensile Strength = 758 MPa (Ref. 5.8)

Yield strength = 379 MPa (Ref. 5.8)

Elongation % in 2 in. = 30 (Ref. 5.8)

Design stress intensity = 36.6 ksi = 252 MPa (Ref. 5.11, Table 2B, p. 408)

316B6A (316L Stainless Steel properties assumed, see Assumption 4.3.4) (structural members of the basket assembly):

Density = 7953 kg/m³ (Ref. 5.10)

Poisson's ratio = 0.298 (Ref. 5.9, p. 755) (Assumption 4.3.5)

Modulus of elasticity = 195 GPa (Ref. 5.11, Table TM-1)

Tensile Strength = 482 MPa (70 ksi) (Ref. 5.10)

Yield strength = 172 MPa (25 ksi) (Ref. 5.10)

Elongation % in 2 in. = 40 (Ref. 5.10)

Design stress intensity = 16.7 ksi = 115 MPa (Ref. 5.11, Table 2A, p. 340)

4.1.4. Spent Nuclear Fuel Load

One PWR fuel assembly: 1720 lbs (730 kg), Ref. 5.12.

4.1.5. Backfill Load Inputs

Rock (TSw2) density = 2297 kg/m³ (Ref. 5.22)

Rock Porosity = 12.1%, (Ref. 5.15, Assumption Identifier TDSS 012)

Backfill Porosity = 25% minimum, (see Attachment XXXVII, p. 3-15 and Assumption 4.3.14)

Backfill thickness perpendicular to slope of backfill surface = 0.6 m (Attachment XXXVI, Assumption 4.3.12)

Slope of backfill surface = 30° (see Assumption 4.3.12)

4.1.6. Seismic Input

The seismic loads were applied as acceleration loads at supports. In the response-spectrum analysis, the seismic loads were applied to the model to determine stresses, strains and deflections. The input to the response spectrum is in the form of a table of acceleration versus frequency, thus making it a frequency-domain solution. The acceleration of the waste package in the y-direction is selected as the type of spectrum for the seismic analysis and a constant peak ground acceleration (PGA) of 0.66g is used for a frequency range from 0.1 Hz to 100 Hz (Ref. 5.13, Assumption 4.3.6). The first eight mode shapes and corresponding natural frequencies fall into the frequency range and are used in this analysis. The reason for selecting this frequency range is to characterize the waste package response by including a sufficient number of modes in the solution phase. Using a large number of modes provides a more accurate solution. It is verified from the mode combination files of each finite-element solution (Attachments XIV, XVIII, and XXII) that the first six modes of the WP have the largest scale factors for their contributions to the spectrum solution, so using eight modes is more than adequate. The subsequent modes of the WP have no significant effect in the solution.

4.1.7. Degradation Products Inputs

Atomic Weights:

Fe	55.85 grams/mole	(Ref. 5.25)
O	16.00 grams/mole	(Ref. 5.25)
H	1.01 grams/mole	(Ref. 5.25)

4.2 Criteria

The following criteria are directly applicable to the design subject; however, it is not the intent of these analyses to show direct compliance with the following requirements from the Engineered Barrier Design Requirements Document (EBDRD) (Ref. 5.14):

- 4.2.1 “Packages for SNF and HLW shall be designed so that the in situ chemical, physical, and nuclear properties of the waste package and its interactions with the emplacement environment do not compromise the function of the waste packages or the performance of the underground facility or the geologic setting.”

[EBDRD 3.7.1.A]

With regard to Requirement 3.7.1.A, the analyses performed in support of this document

examine the physical properties of the WP and its ability to function properly in the emplacement environment under seismic loads as it degrades. This requirement is addressed throughout the document.

- 4.2.2 “The design of waste packages shall include, but not be limited to, consideration of the following factors: solubility, oxidation/reduction reactions, corrosion, hydriding, gas generation, thermal effects, mechanical strength, mechanical stress, radiolysis, radiation damage, radionuclide retardation, leaching, fire and explosion hazards, thermal loads, and synergistic interactions.”

[EBDRD 3.7.1.B]

Requirement 3.7.1.B items addressed in this design analysis are considerations of corrosion, mechanical strength, and mechanical stress. The purpose of this document is to report the results of structural analyses while taking into account the effects of corrosion. These issues are addressed throughout the document.

- 4.2.3 “The waste package shall contribute to limiting the dispersal of radioactive waste materials in the event of accidents or other dynamic effects.”

[EBDRD 3.7.1.H]

The dynamic effects of the seismic loading on the WP are analyzed and addressed throughout this document.

- 4.2.4 “Seismic loads (TBD) shall not decrease the postclosure performance of the waste form.”

[EBDRD 3.7.1.1.G]

The seismic analysis of the WP is performed in this document in order to determine the performance of the WP subjected to seismic loads. This requirement is addressed throughout the document.

- 4.2.5 “The container shall contain the radioactive waste materials during all normal handling and emplacement operations and, in the event of accidents or other dynamic effects, contribute to limiting dispersal of the waste. The container shall also have the mechanical integrity to sustain routine handling and transportation loads (TBD).”

[EBDRD 3.7.1.2.A]

The requirement 3.7.1.2.A items which are addressed are that the waste package shall contribute to limiting dispersal of waste in the event of accidents or dynamic effects. These requirements are addressed throughout the document.

- 4.2.6 “The container shall contribute (TBD) to controlling the release of radionuclides during the period of isolation.”

[EBDRD 3.7.1.2.C]

The WP barriers analyses performed in this document aid in determining the degree to which the container will contribute to controlling the release of radionuclides during the period of isolation. This requirement is addressed throughout the document.

- 4.2.7 “The container shall be designed so that neither its in situ chemical, physical and nuclear properties, nor its interactions with the waste form and the emplacement environment, compromise the function of the waste package or the performance of the natural barriers or engineered barriers.”

[EBDRD 3.7.1.2.G]

With regard to Requirement 3.7.1.2.G, the analyses performed in support of this document examine the physical properties of the WP and its ability to function properly in the emplacement environment as it degrades. This requirement is addressed throughout the document.

- 4.2.8 “The internal structure of the waste package shall be configured to accommodate the spent fuel waste form, provide mechanical stability of the waste form, and facilitate loading of the waste form into the waste package.”

[EBDRD 3.7.1.3.B]

The internal structure is analyzed in this analysis to determine how much structural integrity it will provide to the waste as the basket components degrade. This requirement is addressed throughout the document.

The notation "TBD" in EBDRD requirements 3.7.1.1.G, 3.7.1.2.A, and 3.7.1.2.C will not be carried to the conclusions of this analysis based on the rationale that the conclusions derived by this analysis are for conceptual or preliminary design that will not be used as input into documents supporting construction, fabrication, or procurement.

4.3 Assumptions

In the course of developing this document, several assumptions were made regarding the seismic analysis of the waste package. These assumptions along with the assumptions contained in the Controlled Design Assumptions (CDA) Document (Ref. 5.15) (TBV-221-DD) are identified below. Documents which use data from this document as input must carry this TBV forward if they are developed in support of construction, fabrication, or procurement.

A review of the CDA identified the following assumptions (Ref. 5.15):

Assumption Identifier: Key 011

Subject: Horizontal In-Drift Emplacement

Waste packages will be emplaced in-drift in a horizontal mode.

Assumption Identifier: Key 046**Subject:** Backfill in Emplacement Drifts

Current design assumes no backfill in emplacement drifts. Options for backfill will be considered based on ongoing and future backfill studies.

Assumption Identifier: EBDRD 3.7.1.1.G **Subject:**Post Closure Seismic Loads on
Waste Package

Waste package seismic design for postclosure (through the substantially complete containment phase) performance shall be compatible with Design Basis Earthquake for surface and subsurface repository. Potential Repository peak accelerations for design are currently estimated at 0.75 g for surface and 0.4 g for subsurface.

Assumption Identifier: EBDRD 3.7.1.2.C **Subject:**Controlled Release During Period of
Isolation

The container shall contribute to controlling the release rate of radionuclides during the period of isolation.

Assumption Identifier: TDSS 012

Porosity of intact rock - TSw2: 0.121

All of the following assumptions are for conceptual or preliminary designs; all of these assumptions will require qualification/confirmation as the waste package design proceeds.

- 4.3.1 Levels of degradation have not been related to the time at which they will occur, therefore, the temperatures of waste package components at various levels of degradation cannot be specified. For this reason, room temperature (20°C) material properties are used in these analyses. The impact of using room temperature material properties is small because while allowable stresses would decrease with increasing temperature, stress results would also decrease due to the decrease in the elastic modulus. Therefore, for this initial set of calculations, use of room temperature properties is adequate. This Assumption is used in Section 4.1.3.
- 4.3.2 The elastic modulus of cast carbon steel is assumed for A 516 carbon steel. Since the physical properties of wrought steel are generally similar to those of cast carbon steel, the elastic modulus and Poisson's ratio of cast carbon steel can be used for A 516 carbon steel (Ref. 5.6). This assumption is used in Section 4.1.3.
- 4.3.3 The lower limit of the given ultimate tensile strength range (Ref. 5.7) is used in this analysis. This is a conservative assumption and used in Section 4.1.3.

- 4.3.4 Material properties of 316L stainless steel are assumed to apply for 316B6A stainless steel-boron. 316L stainless steel is the closest material for which properties are available. The use of 316L stainless steel properties in place of 316B6A properties is also based on the observation that for the material properties which are used in the finite-element analysis, 304B6A properties are essentially the same as those for 304L stainless steel (Refs. 5.11 and 5.24). This assumption is used in Section 4.1.3.
- 4.3.5 Because Poisson's ratio for 316L stainless steel was unavailable, and because of the similarities between 316L stainless steel and 316 stainless steel, Poisson's ratio for 316 stainless steel is assumed to apply for 316L stainless steel and therefore for 316B6A. This assumption is used in Section 4.1.3.
- 4.3.6 The seismic design values for peak ground acceleration are given in Table 2 on page 13 of the document "Seismic Design Inputs for the Exploratory Studies Facility at Yucca Mountain" (Ref. 5.13). The ground motion reduction factors as a function of depth for ESF Design are also provided in Table 3 on page 17 of the same document. Instead of using the reduction factors for changing depth, the subsurface peak ground acceleration is conservatively assumed to be 0.66g. The frequency range of seismic input is also selected from a recommended design spectrum from 0.1 Hz to 100 Hz in Figure C-18 on page C-26. It should be noted that the PGA value of 0.66g is higher than the 0.4g PGA currently specified as the design basis earthquake for the WP in CDA Assumption EBD RD 3.7.1.1.G, which was based on an earlier recommendation for ESF design (Ref. 5.15). This assumption is used in Section 4.1.6.
- 4.3.7 The WP is symmetric about a plane that runs along the longitudinal axis. Assuming that one end of the WP with the gap between the inner barrier lid and the basket assembly also exists at the other end, the WP is also symmetric along the lateral axis. This is a conservative assumption and used in Section 7.2.
- 4.3.8 The outer barrier is assumed to be degraded completely prior to any pitting on the inner barrier. Degradation of the basket assembly does not begin until there is full penetration of the inner barrier material due to degradation. This can be assumed to occur at some intermediate level of degradation of the inner barrier because degradation does not necessarily occur as general thinning. Degradation of the basket assembly is treated as if the carbon steel tubes and an equivalent thickness of the guides will degrade prior to the beginning of degradation of the stainless steel-boron plates. Therefore, no structural credit is taken for the tubes although their masses are incorporated into the SS-B plates providing a conservative approach for analysis. This assumption is used in Section 7.2.
- 4.3.9 The weight of the degradation products is assumed to be the same as the weight of the original materials. The maximum stress is obtained at a location between the inner barrier, inner lid, and upper side guide (see Figure I-10). The magnitude of stress in this region, where the failure is observed in the guides, is an order of magnitude higher than

the rest of the WP. An increase in the basket load does not cause an increase in the stress magnitudes in this region since upper parts of the WP do not see loads due to weights on the basket assembly. In fact, the results of a separate ANSYS run showed that the stress magnitudes are lower when degradation product masses are included in the finite-element solution (see Section 8). Thus, this assumption does not have a significant effect in the results. This assumption is used in Section 7.2.

- 4.3.10 One of the assumptions in the finite-element model is that the material properties and displacement solution to the problem are linear. Because of the complex nature of spectrum analysis, the ANSYS code allows only linear solutions to this type of analysis. Therefore, an elastic solution is obtained and allowable material stresses are based on the failure criteria given in Section 7.1. This assumption is used in Section 7.2.
- 4.3.11 There is no structural damping in the materials used for this simulation. Attenuation of stress waves is not of interest because the failure criteria are based solely on the comparison of maximum stress with the allowable stress. However, absence of structural damping also provides conservative results to the FEA since the peak stress magnitudes will be larger. This assumption is used in Section 7.2.
- 4.3.12 Concept sketches indicate that the backfill surface will peak above the axis of the waste package and slope off to the sides. The perpendicular distance from the surface of the WP to the surface of the backfill is assumed from the sketch to be 0.6 m. The slope of the surface is assumed to be 30° (Attachment XXXVI). This assumption is used in Section 7.4.
- 4.3.13 The distance from the WP surface to the peak is calculated as 0.82 m in Section 7.4. This thickness of backfill is assumed to cover the entire waste package. Since the amount of backfill is actually less than this value, this assumption is conservative and it is used in Section 7.4.
- 4.3.14 The porosity of backfill is assumed to be 25%. This is based on the minimum value for the range given in Attachment XXXVII for porosities obtained in large scale tests. This assumption is used in Section 7.4.
- 4.3.15 Based on the velocity histories of Little Skull Mountain aftershock and a Rock Valley earthquake recorded at Midway Valley, the time duration for a typical seismic activity near the Yucca Mountain Site is assumed to be 50 sec. (Ref. 5.13, p. B-22). This assumption is used in Section 7.6.
- 4.3.16 The ANSYS finite-element solution to seismic problems involves a linear spectrum analysis. Thus, the secondary stresses caused by temperature differences are not considered in this analysis. This assumption is used in Section 7.6.

- 4.3.17 Two unyielding waste package supports were assumed to be positioned symmetrically from the longitudinal center of the waste package leaving an unsupported span equal to approximately half the length of the basket assembly. The use of two supports is assumed because the use of more supports would require precise leveling to avoid point loads on the WP. The support spacing is assumed because keeping the supports in from the ends reduces the unsupported span and because it will make emplacement easier by reducing the required precision. Symmetry is assumed so that a quarter symmetry model may be used. Because the WP supports have not yet been designed, structural information about them is unavailable, therefore, they have been conservatively assumed to be perfectly rigid. This assumption is used in Section 7.2.

Based on the rationale that the conclusions derived by this analysis are for conceptual or preliminary design that will not be used as input into documents supporting construction, fabrication, or procurement, TBV-221-DD which is carried by Ref. 5.15 (Assumption 4.3.6) will not be carried to the conclusions of this analysis.

4.4 Codes and Standards

The use of codes and standards for the design of the waste package is restricted to being a source for material properties, specifically for A 516 Carbon Steel, Alloy 625, and 316L Stainless Steel (American Society for Testing and Materials (ASTM)), and for providing the criteria for the failure analysis of containment barriers (ASME Boiler and Pressure Vessel Code). The specific codes and standards used, along with identification of all other sources used regarding material properties, are listed in Section 5.

5. REFERENCES

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- 5.2 *Perform Criticality, Thermal, Structural, and Shielding Analyses*, Document Identifier (DI) Number: BB0000000-01717-2200-00025 REV 02, Civilian Radioactive Waste Management System (CRWMS) Management and Operating Contractor (M&O).
- 5.3 *Quality Assurance Requirements and Description*, DOE/RW-0333P, Rev 5, U.S. Department of Energy (DOE) Office of Civilian Radioactive Waste Management (OCRWM).
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- 5.8 *Standard Specification for Nickel-Chromium-Molybdenum-Columbium Alloy (UNS N06625) Plate, Sheet, and Strip*, ASTM Designation: B 443 - 93, American Society for Testing and Materials.
- 5.9 *Metals Handbook Ninth Edition, Volume 3, Properties and Selection: Stainless Steels, Tool Materials and Special-Purpose Metals*, American Society for Metals, Metals Park, OH, 1980.
- 5.10 *Structural Alloys Handbook*, Vol. 2, 1992 Edition, John M. Holt, Harold Mindlin, and C.Y. Ho, Cindas / Purdue University, 1992.
- 5.11 *1992 ASME Boiler and Pressure Vessel Code*, Section II, American Society of Mechanical Engineers, 1992.
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- 5.14 *Engineered Barrier Design Requirements Document*, YMP/CM-0024 Rev. 0, ICN 1, Yucca Mountain Site Characterization Project.
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- 5.16 *Software Qualification Report for ANSYS Version 5.1HP* (CSCI: 30003 V5.1HP), DI Number: 30003-2006 REV 01, CRWMS M&O.
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- 5.21 *ANSYS User's Manual for Revision 5.1, Volume III, Elements*, DN-R300:51-3 Upd0 2nd Revision, Swanson Analysis Systems Inc., September 30, 1994.
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- 5.26 *1992 ASME Boiler and Pressure Vessel Code*, Section III, Division 1, Appendix F, American Society of Mechanical Engineers, 1992.

6. USE OF COMPUTER SOFTWARE

The FEA computer code used for this analysis is ANSYS version (V) 5.1 which is identified with the Computer Software Configuration Item (CSCI) 30003 V5.1HP and was obtained from Software Configuration Management in accordance with appropriate procedures. ANSYS is a commercially available finite-element analysis code and is appropriate for structural analysis of waste packages as performed in this analysis. The analyses using the ANSYS software were executed on a Hewlett-Packard 9000 Series 735 workstation. The software qualification of the ANSYS software, including problems of the type analyzed in this report, is summarized in the Software Qualification Report for ANSYS Version 5.1HP (Ref. 5.16). The ANSYS evaluations performed for this design are fully within the range of the validation performed for the ANSYS V5.1 code. Access to and use of the code for the analysis is granted and performed in accordance with the Life Cycle Plan for ANSYS Version 5.1HP (Ref. 5.17) and the QAP-SI series procedures.

The input/output files, figures, and results for all computer analyses performed in this report are presented in Attachments I through XXXV, XXXVIII, and XL through XLVII.

7. DESIGN ANALYSIS

7.1 Failure Criteria

The criteria for the failure analysis of containment barriers are obtained from the ASME Boiler and Pressure Vessel Code. S_u and S_m are defined as the ultimate tensile strength and design stress intensity values of the materials, respectively. The failure criteria for the elastic analysis are described in the ASME Boiler and Pressure Vessel Code as follows (Ref. 5.26, Article F-1331.1 and Ref. 5.19, Article NB-3225):

The general primary membrane stress intensity shall not exceed the lesser of $2.4 S_m$ and $0.7S_u$, and the primary membrane plus primary bending stress intensity (P_b) shall not exceed 150% of the limit for general primary membrane stress intensity, P_m . Therefore,

Maximum Membrane Stress $< 0.7 S_u$ or $2.4 S_m$

Maximum Membrane + Bending Stress $< 1.05 S_u$ or $3.6 S_m$

will be satisfied for all materials in the WP.

S_m values for selected materials are given in the ASME Code, Section II, Tables 2A and 2B, Ref. 5.11. For the analyses performed, the temperature used is room temperature (20°C) (Assumption 4.3.1). Therefore, the limits are as follows:

Table 7-1. Design Stresses (Room Temperature)

Material	S_m	Page of Ref. 5.11
A 516 Grade 70	23.3 ksi (161 MPa)	Table 2A, p. 300
Alloy 625	36.6 ksi (252 MPa)	Table 2B, p. 408
316B6A (316L)	16.7 ksi (115 MPa)	Table 2A, p. 340

Table 7-2 is provided below in order to summarize the failure criteria obtained from the ASME Boiler and Pressure Vessel Code.

Table 7-2. Calculated Allowable Stress Limits ($S_{\text{allowable}}$) (Room Temperature)

Material	S_m	S_u	$2.4S_m$	$0.7S_u$	Limit for P_m	Limit for P_m+P_b
A 516 Grade 70	161	485	386	340	340	510
Alloy 625	252	758	605	531	531	797
316B6A (316L)	115	482	276	337	276	414

* All units are in MPa

The margin of safety for the stress magnitudes is defined as follows (Ref. 5.20, p. 11):

$$\text{margin of safety} = (S_{\text{allowable}} / \sigma) - 1$$

where σ is the maximum stress on the containment barriers.

7.2 Advanced Uncanistered Fuel Waste Package Finite-Element Model Description

The ANSYS 5.1 finite-element analysis code is used for the seismic analysis of the WP under various degrees of material degradation. The models developed for this analysis are one-quarter and one-half symmetry three-dimensional finite-element models.

The analysis incorporates the waste package outer barrier and lids, inner barrier and lids, basket tubes, criticality control plates, side guides, and corner guides. Material specifications of each WP component are defined by their individual property tables. The component materials are as stipulated in Section 4.1.2.

The waste package model is a three-dimensional solid constructed of brick elements (SOLID45 elements, Ref. 5.21). The waste package is assumed to be resting on two pedestal supports. The supports are placed inside of the lids, leaving a span approximately half of the length of the outer barrier, excluding the skirts (Assumption 4.3.17). The solutions were run with backfill.

The WP is symmetric about a plane that runs along the longitudinal axis. Assuming that one end of the WP with the gap between the inner barrier lid and the basket assembly also exists at the other end (Assumption 4.3.7), the WP is also symmetric along the lateral axis. Therefore, a one-quarter WP model can be developed using the symmetry boundary conditions (Figure I-1 in Attachment I). Taking advantage of the symmetry reduces the model size, allowing more detail in the part that is modeled. However, even with the symmetric model, the element mesh must remain somewhat coarse in order to reduce solution times and output file sizes. Therefore, some other simplifications have been made to the model.

- For the present WP conceptual designs, the outer and inner barriers are fabricated as one piece (the inner barrier clad to the outer barrier). Thus, there is no need for contact

elements between the inner and outer barriers. It is best to avoid the use of contact elements wherever possible to prevent convergence problems and to reduce the model size and run times. While the inner and outer barriers are treated as contiguous, there is an element border between the inner and outer barrier and the appropriate material properties are used for each barrier, see Sections 4.1.2 and 4.1.3.

- The basket components are modeled as a solid piece and also rigidly connected to the inner barrier. Since nonlinear contact elements cannot be used in a spectrum analysis, this simplification is necessary for the finite-element solution.
- The backfill load is included in the model by increasing the density of the outermost barrier for that particular solution (outer barrier when present, inner barrier for cases where the outer barrier has completely degraded). Since the additional backfill load is included in the mass of the containment barriers, this analysis is conservative compared to an analysis performed without the backfill load.

The pressure of SNF assemblies cannot be incorporated into the modal or response spectrum analyses in terms of external pressure since the natural frequency and mode shapes are not dependent on external forces applied to the system. Therefore, the spent fuel assembly mass is added into the basket assembly components for each seismic finite-element solution.

The seismic loads were applied as acceleration loads at the emplacement supports. After the model was constructed, a modal solution was obtained to find the natural frequencies and mode shapes of the geometry. The results of the modal analysis were then used in a response-spectrum analysis. In the response-spectrum analysis, the seismic loads were applied to the model to determine stresses, strains and deflections. The input to the response spectrum is in the form of a table of acceleration versus frequency, thus making it a frequency-domain solution. A single-point response-spectrum is used, meaning that all supports of the model will experience the same ground movement. Displacement constraints at the emplacement support locations serve as the points of excitation in the vertical y-direction.

A large amplitude horizontal component of the seismic input would cause the WP to move on the emplacement supports along the axis of the WP. Similarly, a lateral movement on the horizontal plane would cause the WP to rotate with respect to the point of contact with the emplacement support and, therefore, would not result in a significant change in the stress distribution over the WP. The vertical displacement of the pedestals, however, causes bending and local deformation in the WP. Therefore, the vertical component of the acceleration is selected to be the only seismic input used in the finite-element analysis.

The outer barrier is assumed to be degraded completely prior to any pitting on the inner barrier. Degradation of the basket assembly does not begin until there is full penetration of the inner barrier material due to degradation. This can be assumed to occur at some intermediate level of degradation of the inner barrier because degradation does not necessarily occur as general

thinning. Degradation of the basket assembly is, therefore, treated as if the carbon steel tubes and an equivalent thickness of the guides will degrade prior to the beginning of degradation of the stainless steel-boron plates (Assumption 4.3.8). Therefore, no structural credit is taken for the tubes although their masses are incorporated into the SS-B plates providing a conservative approach for analysis.

The weight of the degradation products is assumed to be the same as the weight of the original materials (Assumption 4.3.9).

One of the assumptions in the finite-element model is that the material properties and displacement solution to the problem are linear (Assumption 4.3.10). Because of the complex nature of spectrum analysis, the ANSYS code allows only linear solution to this type of analysis. Therefore, an elastic solution is obtained and allowable material stresses are based on the failure criteria given in Section 7.1.

There is no damping specified in this finite-element analysis solution. Therefore, the results are conservative since the stress magnitudes will be larger due to the absence of damping in the waste package structure (Assumption 4.3.11).

The response spectrum includes the first eight mode shapes and corresponding natural frequencies. The mode shapes were selected to characterize the waste package response by including a sufficient number of modes in the solution phase. Eight modes are more than enough to provide an accurate solution, see Section 4.1.6.

The response spectrum curve is defined by the frequency range versus spectral value on the horizontal and vertical axes, respectively. The acceleration of the waste package in the y-direction is selected as the type of spectrum for the seismic analysis. Seismic loading with a peak ground acceleration of 0.66g in the vertical direction is used for the seismic acceleration input to the finite-element model (see Section 4.1.6).

The output from the finite-element solution consists of the participation factor table and the mode combination file. The participation factor is a combination of the normalized eigenvector, mass matrix, and a vector describing the excitation direction. The participation factor table lists the participation factors, mode coefficients, and the mass distribution for each mode. The mode coefficients are used to multiply the mode shapes to obtain the maximum response of each mode.

The final sequence of the solution process involves the combination of the maximum modal responses as specified by the mode combination file of ANSYS to calculate the overall response of the structure. The overall response consists of the overall displacements, stresses, strains, and reaction forces.

7.3 Calculation of the Mass Increase Due to Corrosion

Carbon steel contains primarily Iron, Fe. Iron corrodes to form a variety of oxides. The oxide which cause the greatest mass increase is $\text{Fe}(\text{OH})_2$. The atomic weights of these elements are:

Fe	55.85 grams/mole	(see Section 4.1.7)
O	16.00 grams/mole	(see Section 4.1.7)
H	1.01 grams/mole	(see Section 4.1.7)

The molecular mass of $\text{Fe}(\text{OH})_2$ is therefore:

$$55.85 + 2(16.00 + 1.01) = 89.87 \text{ grams/mole}$$

The ratio of the molecular mass of $\text{Fe}(\text{OH})_2$ to Fe is:

$$89.87/55.85 = 1.61$$

Thus, to account for the mass increase due to corrosion of iron, the mass of the corroded material must be multiplied by 1.61. This ratio is used in part of the calculations given in Sections 7.4 and 7.5.

7.4 Calculations to Adjust Barrier Densities to Include Backfill Mass

In order to determine the backfill mass above the waste packages, some assumptions have to be made. The first assumption is the depth of the backfill above the package. Concept sketches included as Attachment XXXVI indicate that the backfill surface will peak above the axis of the waste package and slope off to the sides. The perpendicular distance from the surface of the WP to the surface of the backfill is assumed from the sketch to be 0.6 m. The slope of the surface is assumed to be 30° (Attachment XXXVI, Assumption 4.3.12). The WP radius is 0.83095 m. Therefore, the minimum distance from the axis of the WP to the backfill surface is:

$$0.83095 + 0.60 = 1.43 \text{ m}$$

The distance to the peak is:

$$1.43/\cos(30^\circ) = 1.65 \text{ m}$$

Thus, the distance from the WP surface to the peak is:

$$1.65 - 0.83095 = 0.82 \text{ m}$$

This thickness of backfill is assumed to cover the entire waste package (Assumption 4.3.13). The horizontal area over which this thickness applies depends on the level of degradation. For

no degradation of the barriers, the area is equal to the total waste package length times the outer barrier diameter. As the waste package corrodes, the area shrinks. The density of the backfill has been approximated based on rock density data, rock porosity data, and backfill porosity data.

The saturated density of TSw2 rock is 2297 kg/m³, see Section 4.1.5.

Rock Porosity = 12.1%, (see Section 4.1.5)

Backfill Porosity = 25% minimum (see Section 4.1.5, Assumption 4.3.14)

The percentage of backfill that is solid rock is calculated as follows:

$$(1-0.25) / (1-0.121) = 0.85 \text{ or } 85\%$$

$$\text{Backfill Density: } (2297)(0.85) = 1952.45 \text{ kg/m}^3$$

The following table contains the values to calculate the backfill mass at various levels of degradation using the following equations:

$$\text{Volume} = \text{Depth} \times \text{Length} \times \text{Diameter}$$

$$\text{Mass} = \text{Volume} \times \text{Density}$$

The length of the WP can be found by subtracting the corrosion depth at each end from the length of the waste package. The corrosion depth at each end is determined by multiplying the percentage of corrosion by the original thickness of the outer barrier. Between 25% and 50% outer barrier corrosion, the skirts corrode completely and are subtracted from the length. At 100% outer barrier corrosion, the WP length is equal to the inner barrier length.

Table 7-3. Calculation of Backfill Masses Based on Level of Degradation

Level of Degradation	Depth of Backfill (m)	Length of WP (m)	Diameter of WP (m)	Volume (m ³)	Density (kg/m ³)	Backfill Mass (kg)
OB-0, IB-0	0.82	5.335	1.6619	7.27	1952.45	14,195
OB-100, IB-75	0.82	4.605	1.4319	5.41	1952.45	10,557
OB-100, IB-90	0.82	4.599	1.4259	5.38	1952.45	10,504

The original mass of the section to which the backfill mass is added is calculated below. The following variables and values are used in the following equations:

Table 7-4. Parameters Used in Backfill Mass Calculations

Variable	Value	Representation	Source
OBOR	0.83095 m	Outer barrier outer radius	Section 4.1.1
OBIR	0.73095 m	Outer barrier inner radius /Inner barrier outer radius	Section 4.1.1
OBSR	0.77095 m	Outer barrier skirt radius	Section 4.1.1
IBIR	0.71095 m	Inner barrier inner radius	Section 4.1.1
Angle	80.44 deg.	Encompassing angle of section to which backfill mass is added.	See calculation below
LENBOD	4.885 m	Length of WP excluding skirts	Section 4.1.1
LENTOT	4.635 m	Length of inner barrier	Section 4.1.1
DENS _{ob}	8131 kg/m ³	Density of outer barrier material	Section 4.1.1
DENS _{ib}	8442 kg/m ³	Density of inner barrier material	Section 4.1.1

Angle Calculation:

The encompassing angle is the angle between vertical and the contact point between the inner side of the B-guide and the inner barrier nearest to horizontal from the center of the waste package. This angle can be determined by finding the coordinates of the contact point. The coordinates are found by summing the component widths and thicknesses which are taken from Section 4.1.1.

$$\begin{aligned}
 x: & 2.5(\text{Tube Outer Width}) + 2 (\text{Criticality Control Plate Thickness}) + (\text{A-Guide Thickness}) + \\
 & (\text{B-Guide Width}) = 2.5(0.2385) + 2(0.007) + (0.010) + (0.0809) \\
 & = 0.701 \text{ m}
 \end{aligned}$$

$$\begin{aligned}
 Y: & \quad 0.5(\text{Tube Outer Width}) + 0.5(\text{Criticality Control Plate Thickness}) - 0.5(\text{B-Guide Thickness}) \\
 & \quad = 0.5(0.2385) + 0.5(0.007) - 0.5(0.010) \\
 & \quad = 0.118 \text{ m}
 \end{aligned}$$

$$\text{Ang} = 90 - \arctan(0.118/0.701) = 80.44 \text{ deg.}$$

A_1 = Section Area of Skirt (The section is that contained by the Angle)

A_2 = Section Area of Outer Barrier excluding the Skirt

V_1 = Section Volume of A_1

V_2 = Section Volume of A_2

The adjusted density for the upper section (which is the portion of the barrier to which backfill mass will be added) of the outer barrier is calculated by adding the section mass with the backfill mass and outer barrier mass (one half for half symmetry is considered in the calculations, however, the same densities are used in the quarter model) and dividing the sum by the section volume.

Degradation Level: 0% Outer Barrier, 0% Inner Barrier

$$\begin{aligned}
 A_1 &= \pi(\text{OBOR}^2 - \text{OBSR}^2)(\text{Angle}/360) \\
 A_1 &= \pi(0.83095^2 - 0.77095^2)(80.44/360) = 0.06747 \text{ m}^2
 \end{aligned}$$

$$V_1 = A_1 \times \text{LENTOT} = 0.06747 \times 5.335 = 0.360 \text{ m}^3$$

$$\begin{aligned}
 A_2 &= \pi(\text{OBSR}^2 - \text{OBIR}^2)(\text{Angle}/360) \\
 A_2 &= \pi(0.77095^2 - 0.73095^2)(80.44/360) = 0.04217 \text{ m}^2
 \end{aligned}$$

$$V_2 = A_2 \times \text{LENBOD} = 0.04217 \times 4.885 = 0.206 \text{ m}^3$$

$$\text{Section Volume} = V_1 + V_2 = 0.566 \text{ m}^3$$

$$\text{Section Mass} = \text{Section Volume} \times \text{DENS}_{\text{ob}} = 4602 \text{ kg}$$

$$\text{Outer barrier mass} = 4602 \text{ kg}$$

$$\text{Backfill mass} = 14,195 \text{ kg}$$

$$\text{Adjusted Density} = (\text{OB mass} + \text{Backfill mass}/2) / \text{Section volume}$$

$$\text{Adjusted Density} = (4602 + 14,195/2)/0.566 = 20,670 \text{ kg/m}^3 \text{ (Attachment XXVIII, p. 3)}$$

Level of Degradation: 100% Outer Barrier, 75% Inner Barrier

$$\begin{aligned}
 \text{OB Section Area} &= \pi(\text{OBOR}^2 - \text{OBIR}^2)(\text{Angle}/360) \\
 &= \pi(0.83095^2 - 0.73095^2)(80.44/360) = 0.10964 \text{ m}^2
 \end{aligned}$$

$$\text{OB Section Volume} = 0.10964 * (\text{LENTOT} - (2 * 0.015)) = 0.5049 \text{ m}^3$$

$$\text{OB Section Mass} = \text{Section Volume} * \text{DENS}_{\text{ob}} = (0.5049)(8131) = 4105 \text{ kg}$$

$$\text{IB Section Area} = \pi(\text{OBIR}^2 - \text{IBIR}^2)(\text{Angle}/360)$$

$$\text{IB Section Area} = 0.02024 \text{ m}^2$$

$$\text{IB Section Volume} = (0.02024)(4.635 - (2 * 0.015)) = 0.09321 \text{ m}^3$$

$$\text{IB Section Mass} = (0.09321)(8442) = 787 \text{ kg}$$

$$\text{Corroded IB Section Area} = \pi(0.71595^2 - 0.71095^2)(80.44/360) = 0.00501 \text{ m}^2$$

$$\text{Corroded IB Section Volume} = (0.00501)(4.635 - (2 * 0.015)) = 0.02307 \text{ m}^3$$

$$\text{IB Section Mass} = 787 \text{ kg}$$

$$\text{OB Section Mass} = 4105 \text{ kg}$$

$$\text{Backfill Mass} = 10,557 \text{ kg}$$

$$\text{Adjusted Density} = (787 + 4105 + 10,557/2)/0.02307 = 440,854 \text{ kg/m}^3 \text{ (440,860 used)}$$

(Attachment XI, p. 4)

Level of Degradation: 100% Outer Barrier, 90% Inner Barrier

$$\text{OB Section Area} = 0.10964 \text{ m}^2 \text{ (constant)}$$

$$\text{OB Section Volume} = (0.10964)(4.635 - (2 * 0.018)) = 0.5042 \text{ m}^3$$

$$\text{OB Section Mass} = (0.5042)(8131) = 4100 \text{ kg}$$

$$\text{Scaled mass value for increase in the mass due to corrosion} = 1.61 * 4100 = 6601 \text{ kg (see Section 7.3)}$$

$$\text{IB Section Area} = 0.02024 \text{ m}^2 \text{ (constant)}$$

$$\text{IB Section Volume} = (0.02024)(4.635 - (2 * 0.018)) = 0.09308 \text{ m}^3$$

$$\text{IB Section Mass} = (0.09308)(8442) = 786 \text{ kg}$$

$$\text{Scaled mass value for increase in the mass due to corrosion} = 786 + 8442 * 0.61 * (0.09308 - 0.00920) = 1218 \text{ kg}$$

$$\text{Corroded IB Section Area} = \pi((0.73095 - 0.018)^2 - 0.71095^2)(80.44/360) = 0.00200 \text{ m}^2$$

$$\text{Corroded IB Section Volume} = (0.00200)(4.635 - (2 * 0.018)) = 0.00920 \text{ m}^3$$

$$\text{Adjusted Density} = (786 + 4100 + 10,504/2)/0.00920 = 1,101,957 \text{ kg/m}^3 \text{ (1,101,960 used)}$$

(Attachments XV, p. 4 and XIX, p. 4)

$$\text{Adjusted density value for increase in the mass due to corrosion} = (1218 + 6601 + 10504/2) / 0.00920 = 1,420,761 \text{ kg/m}^3 \text{ (1,420,770 used)}$$

7.5 Calculations to Adjust Basket Assembly Component Densities to Include SNF Assembly Load

Mass of one tube = $((0.2385)^2 - (0.2285)^2) * 4.575 * 8131 = 173.72 \text{ kg}$

Mass of one SNF assembly = $(1720 \text{ lb}) * (0.4536 \text{ kg/lb}) = 780.19 \text{ kg}$

For the half symmetry finite-element model with original waste package dimensions, weight of the SNF assemblies is added to the weight of the basket assembly tubes by the following calculations:

Actual density of the tubes = 8131 kg/m^3 (Section 4.1.3)

Corresponding ANSYS calculated mass = 1824.11 kg (Attachment XXXVIII, p. 140)

Total mass of the tubes and SNF assemblies = $(1824.11 + 780.19 * 21/2) = 10,016.105 \text{ kg}$

Adjusted density of SS-B plates = $8131 * 10016.105 / 1824.11 = 44646.96 \text{ kg/m}^3$ (Attachment XXVIII, p. 3)

For the quarter symmetry model of 100% degradation in the outer barrier, 75% in the inner barrier, 100% in the tubes, 50% in guides, and 0% in SS-B plates, the following adjustment is made in the mass of SS-B plates:

Total mass of the tube and SNF assembly to be added in the SS-B plates = $(173.72 + 780.19) * 21 / 4 = 5008.03 \text{ kg}$

Actual density of SS-B plates = 7953 kg/m^3 (Section 4.1.3)

Corresponding ANSYS calculated mass = 491.306 kg (Attachment XXIII, p. 103)

Adjusted density of SS-B plates = $7953 * ((5008.03 + 491.306) / 491.306) = 89020.33 \text{ kg/m}^3$

The third case run with the 90% inner barrier degradation includes the same adjusted density value (Attachment XV, p. 3). However, the fourth finite-element solution includes 50% thickness of the SS-B plates, therefore, the density is doubled in order to account for the change in the total volume of plates (Attachment XIX, p. 3).

The second ANSYS run for 100% outer barrier, 90% inner barrier, 100% tube, 50% guide, and 50% SS-B plate degradation with increased mass due to corrosion products is performed by using following calculations:

Total mass of the tube and SNF assembly to be added in the SS-B plates =

$$(173.72 * 1.61 + 780.19) * 21 / 4 = 5564.4 \text{ kg}$$

$$\text{Adjusted density of SS-B plates} = 7953 * (5564.4 + 491.306/2 + (491.306/2) * 0.61) / 491.306$$

$$= 100,452.2 \text{ kg/m}^3 \text{ (Attachment XLIII, p. 3) } 96,475.71 \text{ kg/m}^3 \text{ see note at the bottom of the page}^*$$

$$\text{Adjusted density of guides} = 16262/2 + (16262/2) * 1.61 = 21221.91 \text{ kg/m}^3 \text{ (Attachment XLIII, p. 3) } \text{E.C. } 06/14/96$$

7.6 Calculations for the Fatigue Analysis of the WP

Due to the cyclic nature of the problem, a fatigue analysis is also performed to determine if the WP can withstand specified cyclic loads obtained from the seismic analysis. The allowable alternating stress is obtained from the ASME Code as follows:

Upper end of the frequency range used in analysis = 100 Hz (Attachment XV, p. 17)

Assumed time duration for the seismic input = 50 sec. (see Assumption 4.3.15)

Thus, number of cycles = $100 * 50 = 5000$ cycles per seismic event

Using this number of cycles, from ASME Code, Fig. I-9.2.1 (Ref. 5.23), the allowable alternating stress for the Alloy 625 and 316B6A Stainless Steel Boron is determined as 75 ksi (517 MPa).

The alternating stress allowable for A. 516 Carbon Steel, however, is determined using Figure I-9.1 of the same Section of the ASME Code as 50 ksi (345 MPa).

The analysis for cyclic operation is described in articles NG-3222.4 (Ref. 5.18) and NB-3222.4 (Ref. 5.19) in such a way that one-half of the peak stress determined from the FEA is to be compared to the alternating stress allowables in order to determine the failure in the system due to cyclic loading. Table 7-5 summarizes these stress magnitudes and allowables. A comparison of these values shows that the load fluctuation is insignificant. In addition to this, the conditions stipulated in the same article related to the temperature difference effects are not evaluated in this document (see Assumption 4.3.16). Therefore, no analysis for cyclic service is required, and the peak stress limit discussed above has been satisfied by compliance with the applicable requirements of this ASME subsection.

The result of this calculation is revised to $96,475.71 \text{ kg/m}^3$. The ANSYS run was performed to determine the effect of an increase in the mass of the waste package due to degradation products. A comparison of the stresses between the results of the finite-element models with and without increased mass showed that an increase in the mass results in lower stress magnitudes. The bounding results of the analyses are obtained from the analyses without the increased mass and are given in the results of the design analysis (see Section 8 and Assumption 4.3.9). Since $100,452.2 \text{ kg/m}^3$ is larger than $96,475.71 \text{ kg/m}^3$, the same conclusion can be made conservatively. Therefore, this change does not have any impact in the results of the design analysis.

E.C. 06/14/96

Table 7-5. Stress Peaks and Allowables for Fatigue Analysis

WP Components	Percent Degradation	Peak Stress / 2 (MPa) (Attachment-page #)	Alternating Stress Allowables (MPa)
Outer Barrier	100%	N/A	N/A
Inner Barrier	90%	325 (V-1)	517
Tubes	100%	N/A	N/A
Guides	50%	175 (VI-1)	345
SS-B Plates	0%	11 (VII-1)	517

8. CONCLUSIONS

As identified in Sections 2.0 and 4.0, this analysis is based on unqualified/unconfirmed input data, and use of any data from this analysis for input into documents supporting construction, fabrication, or procurement is required to be controlled as TBV in accordance with the appropriate procedures.

The stress path for each finite-element model is defined including the node at which the stress intensity is maximum. This procedure is applied to the outer barrier, inner barrier, tubes, guides, and the criticality control plates; related postprocessing files are included in the Attachments. The resulting membrane and membrane plus bending stress magnitudes are presented in Table 8-1 for four different degradation levels in the WP with references to the Attachments.

The first eight mode shapes and corresponding natural frequencies of the WP are presented in Figures I-2 through I-9. It is verified from the mode combination files of each case run (Attachments XIV, XVIII, and XXII) that the first six modes of the WP generally have the largest scale factors for their contributions to the spectrum solution. Therefore, the subsequent modes of the WP have no significant effect in the solution.

The failure criteria were explained in Section 7.1. Thus, the maximum stresses from the ANSYS solution are compared to the stress allowables in order to determine the critical WP dimensions for different levels of degradation. Table 8-1 shows the maximum values of the membrane stress, membrane plus bending stress, and allowable stress magnitudes.

Input parameter calculations of a separate ANSYS run were given in Sections 7.3, 7.4, and 7.5. This analysis was performed to determine the effect of an increase in the mass of the WP due to degradation products. The fourth level of degradation given in Table 8-1 was used to obtain the maximum effect of degradation product mass on the results. A comparison of the stresses between the results of the finite-element models with and without increased mass showed that an increase in the mass results in lower stress magnitudes. As it is observed from Attachments XL, XLI, and XLII, the stress magnitudes are lower compared to the stresses obtained from Table 8-1, fourth column.

A comparison of allowable stresses with the maximum stresses shows that there is no failure in the material for the first three degradation levels of the outer barrier, inner barrier, tubes, and the criticality control plates. However, the fourth level of degradation by 50% thinning of the SS-B plates results in the failure of the side guide (see Table 8-1, fourth column). For the same degradation level, the margin of safety for the inner barrier is determined to be 34% in terms of the allowable membrane stress. It is concluded from the results in Table 8-1 that the failure of the side guide takes place before any failure is observed in the inner barrier. Therefore, allowable percent degradation levels of various WP components are obtained from the third degradation level which are presented in the same table.

The first column of the Table 8-1 gives the results of the FEA with no degradation in the WP. The reason for observing such small magnitudes of stresses in the WP is because of the full thicknesses of the inner and outer barriers and the resulting fact that none of the natural frequencies of this structure is in the frequency range that is critical for the WP (see Attachment XXVIII, p. 145). Therefore, these negligible stresses and very high margin of safety values are presented in this table for no degradation of the WP.

The third column of degradation level of Table 8-1 has been used to analyze the effects of seismic input and the location of maximum stress in the WP can be observed from Figure I-10. It is concluded from the same figure that the maximum spectrum response of the WP is obtained at a location between the inner barrier, inner lid, and upper side guide.

Attachment and page numbers of all stress magnitudes are provided in parentheses in Table 8-1. The margin of safety values were calculated according to the relation given in Section 7-1 and provided in the same table.

It is concluded from the seismic structural analysis of the WP that a WP with a degradation level of 100% in the outer barrier, 90% in the inner barrier, 100% in the tubes, 50% in the guides, and 0% in the SS-B plates (which have not begun to degrade significantly at this level) will not fail in any component when subjected to a seismic load of 0.66g peak ground acceleration. The results of fatigue analysis also show that there is no failure in the WP for a seismic input for a time duration of 50 seconds per seismic event (see Section 7.6). This is the maximum degradation level analyzed for which there was no failure in any WP component.

Table 8-1. Seismic Analysis Results

Barrier Analysis at Different Degradation Levels		Percent Degradation (General Thinning of Outer Barrier, Pitting of Inner Barrier). It is assumed that the outer barrier degrades completely prior to any pitting on the inner barrier. The numbers next to the stresses represent: (Attachment #-page #).			
Outer Barrier Degradation		0%	100%	100%	100%
Inner Barrier Degradation		0%	75%	90%	90%
Tube Degradation		0%	100%	100%	100%
Guide Degradation		0%	50%	50%	50%
SS-B Plate Degradation		0%	0%	0%	50%
Membrane Stress in Outer Barrier	3 (XXIV-1)	N/A	N/A	N/A	N/A
Membrane Stress Allowable in Outer Barrier Margin of Safety	340 112.33	N/A	N/A	N/A	N/A
Membrane Plus Bending Stress in Outer Barrier	5 (XXIV-1)	N/A	N/A	N/A	N/A
Membrane Plus Bending Stress Allowable in Outer Barrier Margin of Safety	510 101.00	N/A	N/A	N/A	N/A
Membrane Stress in Inner Barrier	3 (XV-1)	72 (II-1)	295 (V-1)	395 (VIII-1)	
Membrane Stress Allowable in Inner Barrier Margin of safety	531 176.00	531 6.38	531 0.80	531 0.34	
Membrane Plus Bending Stress in Inner Barrier	4 (XXV-1)	82 (II-1)	321 (V-1)	435 (VIII-1)	
Membrane Plus Bending Stress Allowable in Inner Barrier Margin of safety	797 198.25	797 8.72	797 1.48	797 0.83	
Membrane Stress in Guides	5 (XXVI-1)	68 (III-1)	293 (VI-1)	369 (IX-1)	
Membrane Stress Allowable in Guides Margin of Safety	340 67.00	340 4.00	340 0.16	340 fails	
Membrane Plus Bending Stress in Guides	6 (XXVI-1)	70 (III-1)	300 (VI-1)	376 (IX-1)	
Membrane Plus Bending Stress Allowable in Guides Margin of safety	510 84.00	510 6.29	510 0.70	510 0.36	
Membrane Stress in SS-B Plates	3 (XXVII-1)	15 (IV-1)	20 (VII-1)	46 (X-1)	
Membrane Stress Allowable in SS-B Plates Margin of Safety	276 91.00	276 17.40	276 12.80	276 5.00	
Membrane Plus Bending Stress in SS-B Plates	3 (XXVII-1)	16 (IV-1)	21 (VII-1)	48 (X-1)	
Membrane Plus Bending Stress Allowable in SS-B Plates Margin of safety	414 137.00	414 24.88	414 18.71	414 7.63	

*All stress magnitudes are in MPa

9. ATTACHMENTS

The following Attachments are provided in this section :

Attachment I (10 pages): Figures obtained from ANSYS V5.1.

Attachment II (1 page): Linearized stresses in the inner barrier with 100% outer barrier, 75% inner barrier, 100% tube, 50% guide, and 0% SS-B plate degradation: ibstress: Apr 10 1996

Attachment III (1 page): Linearized stresses in guides with 100% outer barrier, 75% inner barrier, 100% tube, 50% guide, and 0% SS-B plate degradation: bktstres: Apr 10 1996

Attachment IV (1 page): Linearized stresses in SS-B plates with 100% outer barrier, 75% inner barrier, 100% tube, 50% guide, and 0% SS-B plate degradation: pltstres: Apr 10 1996

Attachment V (1 page): Linearized stresses in the inner barrier with 100% outer barrier, 90% inner barrier, 100% tube, 50% guide, and 0% SS-B plate degradation: ibstress: Apr 11 1996

Attachment VI (1 page): Linearized stresses in guides with 100% outer barrier, 90% inner barrier, 100% tube, 50% guide, and 0% SS-B plate degradation: bktstres: Apr 11 1996

Attachment VII (1 page): Linearized stresses in SS-B plates with 100% outer barrier, 90% inner barrier, 100% tube, 50% guide, and 0% SS-B plate degradation: pltstres: Apr 11 1996

Attachment VIII (1 page): Linearized stresses in the inner barrier with 100% outer barrier, 90% inner barrier, 100% tube, 50% guide, and 50% SS-B plate degradation: ibstress: Apr 10 1996

Attachment IX (1 page): Linearized stresses in guides with 100% outer barrier, 90% inner barrier, 100% tube, 50% guide, and 50% SS-B plate degradation: bktstres: Apr 10 1996

Attachment X (1 page): Linearized stresses in SS-B plates with 100% outer barrier, 90% inner barrier, 100% tube, 50% guide, and 50% SS-B plate degradation: pltstres: Apr 10 1996

Attachment XI (108 pages): Input/output files for the finite-element analysis of the WP with 100% outer barrier, 75% inner barrier, 100% tube, 50% guide, and 0% SS-B plate degradation: seism3.old.out: Apr 09 1996

Attachment XII (6 pages): Postprocessing input/output files for the finite-element analysis of the WP with 100% outer barrier, 75% inner barrier, 100% tube, 50% guide, and 0% SS-B plate degradation: postf3.old.out: Apr 10 1996

Attachment XIII (8 pages): Postprocessing input/output files for the finite-element analysis of the WP with 100% outer barrier, 75% inner barrier, 100% tube, 50% guide, and 0% SS-B plate degradation: postlin3.old.out: Apr 10 1996

Attachment XIV (1 page): Mode combination file for the finite-element analysis of the WP with 100% outer barrier, 75% inner barrier, 100% tube, 50% guide, and 0% SS-B plate degradation: seism3.mcom: Apr 09 1996

Attachment XV (111 pages): Input/output files for the finite-element analysis of the WP with 100% outer barrier, 90% inner barrier, 100% tube, 50% guide, and 0% SS-B plate degradation: seism2.old.out: Apr 11 1996

Attachment XVI (6 pages): Postprocessing input/output files for the finite-element analysis of the WP with 100% outer barrier, 90% inner barrier, 100% tube, 50% guide, and 0% SS-B plate degradation: postf2.old.out: Apr 11 1996

Attachment XVII (8 pages): Postprocessing input/output files for the finite-element analysis of the WP with 100% outer barrier, 90% inner barrier, 100% tube, 50% guide, and 0% SS-B plate degradation: postlin2.old.out: Apr 11 1996

Attachment XVIII (1 page): Mode combination file for the finite-element analysis of the WP with 100% outer barrier, 90% inner barrier, 100% tube, 50% guide, and 0% SS-B plate degradation: seism2.mcom: Apr 11 1996

Attachment XIX (112 pages): Input/output files for the finite-element analysis of the WP with 100% outer barrier, 90% inner barrier, 100% tube, 50% guide, and 50% SS-B plate degradation: seism4.old.out: Apr 10 1996

Attachment XX (6 pages): Postprocessing input/output files for the finite-element analysis of the WP with 100% outer barrier, 90% inner barrier, 100% tube, 50% guide, and 50% SS-B plate degradation: postf4.old.out: Apr 10 1996

Attachment XXI (8 pages): Postprocessing input/output files for the finite-element analysis of the WP with 100% outer barrier, 90% inner barrier, 100% tube, 50% guide, and 50% SS-B plate degradation: postlin4.old.out: Apr 10 1996

Attachment XXII (1 page): Mode combination file for the finite-element analysis of the WP with 100% outer barrier, 90% inner barrier, 100% tube, 50% guide, and 50% SS-B plate degradation: seism4.mcom: Apr 10 1996

Attachment XXIII (110 pages): Input/output files for the mass adjustment of the finite-element analysis with 100% outer barrier, 90% inner barrier, 100% tube, 50% guide, and 0% SS-B plate degradation: adjust.old1.out: Apr 11 1996

Attachment XXIV (1 page): Linearized stresses in the outer barrier using the model of no degradation: obstress: Apr 20 1996

Attachment XXV (1 page): Linearized stresses in the inner barrier using the model of no degradation: ibstress: Apr 20 1996

Attachment XXVI (1 page): Linearized stresses in the guides using the model of no degradation: bktstres: Apr 20 1996

Attachment XXVII (1 page): Linearized stresses in the SS-B plates using the model of no degradation: pltstres: Apr 20 1996

Attachment XXVIII (149 pages): Input/output files for the finite-element analysis of the waste package with no degradation: seism5.old1.out: Apr 20 1996

Attachment XXIX (6 pages): Postprocessing input/output files for the finite-element analysis of the WP with no degradation: postf5.old1.out: Apr 20 1996

Attachment XXX (8 pages): Postprocessing input/output files for the finite-element analysis of the WP with no degradation: postlin5 old1.out: Apr 20 1996

Attachment XXXI (1 page): Mode combination file for the finite-element analysis of the WP with no degradation: seism5.mcom: Apr 20 1996

Attachment XXXII (3 pages): Output file to obtain the maximum stress intensity locations in the WP components (no degradation): seism4.res: Apr 20 1996

Attachment XXXIII (3 pages): Output file to obtain the maximum stress intensity locations in the WP components (100%outer barrier, 75% inner barrier, 100% tube, 50% guide, and 0% SS-B plate degradation): seism3.res: Apr 10 1996

Attachment XXXIV (3 pages): Output file to obtain the maximum stress intensity locations in the WP components (100%outer barrier, 90% inner barrier, 100% tube, 50% guide, and 0% SS-B plate degradation): seism2.res: Apr 11 1996

Attachment XXXV (3 pages): Output file to obtain the maximum stress intensity locations in the WP components (100%outer barrier, 90% inner barrier, 100% tube, 50% guide, and 50% SS-B plate degradation): seism4.res: Apr 10 1996

Attachment XXXVI (1 page): Backfill profile of a typical waste emplacement drift

Attachment XXXVII (2 pages): Bench-scale experimental determination of the thermal diffusivity of crushed tuff. Excerpts from draft of SAND 94-2320.

Title: Seismic Analysis of Waste Package at Different Levels of Degradation

Document Identifier: BBAA00000-01717-0200-00013 REV 00

Page 34 of 35

Attachment XXXVIII (143 pages): ANSYS calculated mass of the tubes corresponding to actual density for the model with no degradation: seism5.old2.out: Jun 01 1996

The sketches for the waste package are provided in the below Attachment:

XXXIX: Sketches (11 pages)

XXXIX-1: Waste Package Tube Design (21-PWR) Outer Barrier Preliminary Sketch.

XXXIX-2: Waste Package Tube Design (21-PWR) Outer Barrier Lid Preliminary Sketch

XXXIX-3: Waste Package Tube Design (21-PWR) Inner Barrier Preliminary Sketch

XXXIX-4: Waste Package Tube Design (21-PWR) Inner Barrier Lid Preliminary Sketch

XXXIX-5: Waste Package Tube Design (21-PWR) Tube Preliminary Sketch

XXXIX-6: Waste Package Tube Design (21-PWR) A-Plate Preliminary Sketch

XXXIX-7: Waste Package Tube Design (21-PWR) B-Plate Preliminary Sketch

XXXIX-8: Waste Package Tube Design (21-PWR) C-Plate Preliminary Sketch

XXXIX-9: Waste Package Tube Design (21-PWR) Corner Guide Preliminary Sketch

XXXIX-10: Waste Package Tube Design (21-PWR) A-Guide Preliminary Sketch

XXXIX-11: Waste Package Tube Design (21-PWR) B-Guide Preliminary Sketch

Attachment XL (1 page): Linearized stresses in the inner barrier using the model of no degradation: ibstress2: Jun 09 1996

Attachment XLI (1 page): Linearized stresses in the guides using the model of no degradation: bktstres2: Jun 09 1996

Attachment XLII (1 page): Linearized stresses in the SS-B plates using the model of no degradation: pltstres2: Jun 09 1996

Attachment XLIII (112 pages): Input/output files for the finite-element analysis of the waste package with no degradation: seism4.old2.out: Jun 09 1996

Attachment XLIV (6 pages): Postprocessing input/output files for the finite-element analysis of the WP with no degradation: postf4.old2.out: Jun 09 1996

Attachment XLV (8 pages): Postprocessing input/output files for the finite-element analysis of the WP with no degradation: postlin4.old2.out: Jun 09 1996

Attachment XLVI (1 page): Mode combination file for the finite-element analysis of the WP with no degradation: seism4.mcom2: Jun 09 1996

Attachment XLVII (3 pages): Output file to obtain the maximum stress intensity locations in the WP components (no degradation): seism4.res2: Jun 09 1996

ANSYS 5.1
APR 15 1996

ELEMENTS

Figure I-1. Two-plane symmetry finite-element model of the WP (with degradation)

ANSYS 5.1
APR 15 1996

DISPLACEMENT
STEP=1
SUB =1
FREQ=21.913

Figure I-2. First natural frequency and mode shape of a degraded WP

ANSYS 5.1
APR 15 1996

DISPLACEMENT
STEP=1
SUB =2
FREQ=24.639

Figure I-3. Second natural frequency and mode shape of a degraded WP

ANSYS 5.1
APR 15 1996

DISPLACEMENT
STEP=1
SUB =3
FREQ=29

Figure I-4. Third natural frequency and mode shape of a degraded WP

ANSYS 5.1
APR 15 1996

DISPLACEMENT
STEP=1
SUB =4
FREQ=30.743

Figure I-5. Fourth natural frequency and mode shape of a degraded WP

ANSYS 5.1
APR 15 1996

DISPLACEMENT
STEP=1
SUB =5
FREQ=34.376

Figure I-6. Fifth natural frequency and mode shape of a degraded WP

ANSYS 5.1
APR 15 1996

DISPLACEMENT
STEP=1
SUB =6
FREQ=35.912
RSYS=0

Figure I-7. Sixth natural frequency and mode shape of a degraded WP

ANSYS 5.1
APR 15 1996

DISPLACEMENT
STEP=1
SUB =7
FREQ=38.79

Figure I-8. Seventh natural frequency and mode shape of a degraded WP

ANSYS 5.1
APR 15 1996

DISPLACEMENT
STEP=1
SUB =8
FREQ=48.843

Figure I-9. Eighth natural frequency and mode shape of a degraded WP

ANSYS 5.1
APR 15 1996

NODAL SOLUTION
STRESS
SINT (Pa)

SMN =65256
SMX =0.650E+09
65256
0.722E+08
0.144E+09
0.217E+09
0.289E+09
0.361E+09
0.433E+09
0.505E+09
0.578E+09
0.650E+09

Figure I-10. Maximum stress intensity location in the WP

Inner Barrier Linearized Stresses at Location of Peak Stress

PRINT LINEARIZED STRESS THROUGH A SECTION DEFINED BY LPATH COMMAND. DSYS= 0
1

***** ANSYS - ENGINEERING ANALYSIS SYSTEM REVISION 5.1 24 *****
38303 VERSION=HP 9000/7XX 09:36:46 APR 10, 1996 CP= 100.860
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21 PWR Tube Seismic Analysis With Backfill

***** POST1 LINEARIZED STRESS LISTING *****
INSIDE NODE = 12757 OUTSIDE NODE = 12761

CALCULATED LOAD CASE= 0

THE FOLLOWING X,Y,Z STRESSES ARE IN GLOBAL COORDINATES.

```

** MEMBRANE **
      SX      SY      SZ      SXY      SYZ      SXZ
0.3021E+08 0.1858E+08 0.4972E+08 0.6980E+07 0.3158E+08 0.5170E+07
      S1      S2      S3      SINT      SEQV
0.7096E+08 0.2894E+08 -0.1393E+07 0.7235E+08 0.6293E+08

** BENDING ** I=INSIDE C=CENTER O=OUTSIDE
      SX      SY      SZ      SXY      SYZ      SXZ
I -0.1137E+08 0.2686E+07 0.1816E+08 -0.3375E+07 0.2097E+07 -0.7077E+06
C 0.0000E+00 0.0000E+00 0.0000E+00 0.0000E+00 0.0000E+00 0.0000E+00
O 0.1137E+08 -0.2686E+07 -0.1816E+08 0.3375E+07 -0.2097E+07 0.7077E+06
      S1      S2      S3      SINT      SEQV
I 0.1849E+08 0.3133E+07 -0.1214E+08 0.3062E+08 0.2652E+08
C 0.0000E+00 0.0000E+00 0.0000E+00 0.0000E+00 0.0000E+00
O 0.1214E+08 -0.3133E+07 -0.1849E+08 0.3062E+08 0.2652E+08

** MEMBRANE PLUS BENDING ** I=INSIDE C=CENTER O=OUTSIDE
      SX      SY      SZ      SXY      SYZ      SXZ
I 0.1885E+08 0.2126E+08 0.6788E+08 0.3605E+07 0.3367E+08 0.4463E+07
C 0.3021E+08 0.1858E+08 0.4972E+08 0.6980E+07 0.3158E+08 0.5170E+07
O 0.4158E+08 0.1589E+08 0.3155E+08 0.1036E+08 0.2948E+08 0.5878E+07
      S1      S2      S3      SINT      SEQV
I 0.8600E+08 0.1846E+08 0.3534E+07 0.8246E+08 0.7611E+08
C 0.7096E+08 0.2894E+08 -0.1393E+07 0.7235E+08 0.6293E+08
O 0.6065E+08 0.3561E+08 -0.7237E+07 0.6788E+08 0.5946E+08

** PEAK ** I=INSIDE C=CENTER O=OUTSIDE
      SX      SY      SZ      SXY      SYZ      SXZ
I 0.1585E+08 0.4915E+05 0.4006E+08 0.2511E+07 0.1145E+06 0.8064E+06
C -0.1586E+08 -0.4799E+05 -0.4006E+08 -0.2513E+07 -0.1136E+06 -0.8067E+06
O 0.1586E+08 0.4682E+05 0.4005E+08 0.2514E+07 0.1127E+06 0.8070E+06
      S1      S2      S3      SINT      SEQV
I 0.4009E+08 0.1621E+08 -0.3403E+06 0.4043E+08 0.3521E+08
C 0.3418E+06 -0.1622E+08 -0.4008E+08 0.4042E+08 0.3520E+08
O 0.4008E+08 0.1622E+08 -0.3433E+06 0.4042E+08 0.3519E+08

** TOTAL ** I=INSIDE C=CENTER O=OUTSIDE
      SX      SY      SZ      SXY      SYZ      SXZ
I 0.3470E+08 0.2131E+08 0.1079E+09 0.6116E+07 0.3379E+08 0.5269E+07
C 0.1436E+08 0.1853E+08 0.9661E+07 0.4467E+07 0.3146E+08 0.4364E+07
O 0.5744E+08 0.1594E+08 0.7160E+08 0.1287E+08 0.2959E+08 0.6685E+07
      S1      S2      S3      SINT      SEQV      TEMP
I 0.1201E+09 0.3479E+08 0.9036E+07 0.1111E+09 0.1007E+09 0.0000E+00
C 0.4706E+08 0.1317E+08 -0.1768E+08 0.6474E+08 0.5609E+08
O 0.8858E+08 0.5479E+08 0.1600E+07 0.8698E+08 0.7595E+08 0.0000E+00

```

Basket Tubes and Guides Linearized Stresses at Location of Peak Stress

PRINT LINEARIZED STRESS THROUGH A SECTION DEFINED BY LPATH COMMAND. DSYS= 0
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21 PWR Tube Seismic Analysis With Backfill

***** POST1 LINEARIZED STRESS LISTING *****
INSIDE NODE = 4388 OUTSIDE NODE = 4310

CALCULATED LOAD CASE= 0

THE FOLLOWING X,Y,Z STRESSES ARE IN GLOEAL COORDINATES.

** MEMBRANE **

	SX	SY	SZ	SXY	SYZ	SXZ
I	0.4724E+07	0.6369E+08	0.1747E+07	0.2824E+07	0.1408E+08	0.1786E+07
C	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
O	-0.1616E+06	-0.7331E+06	0.1922E+06	0.6529E+06	-0.1216E+06	-0.7657E+06
	S1	S2	S3	SINT	SEQV	
I	0.6689E+08	0.4781E+07	-0.1519E+07	0.6841E+08	0.6549E+08	

** BENDING ** I=INSIDE C=CENTER O=OUTSIDE

	SX	SY	SZ	SXY	SYZ	SXZ
I	0.1616E+06	0.7331E+06	-0.1922E+06	-0.6529E+06	0.1216E+06	0.7657E+06
C	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
O	-0.1616E+06	-0.7331E+06	0.1922E+06	0.6529E+06	-0.1216E+06	-0.7657E+06
	S1	S2	S3	SINT	SEQV	
I	0.1251E+07	0.4120E+06	-0.9600E+06	0.2211E+07	0.1933E+07	
C	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	
O	0.9600E+06	-0.4120E+06	-0.1251E+07	0.2211E+07	0.1933E+07	

** MEMBRANE PLUS BENDING ** I=INSIDE C=CENTER O=OUTSIDE

	SX	SY	SZ	SXY	SYZ	SXZ
I	0.4885E+07	0.6442E+08	0.1555E+07	0.2171E+07	0.1420E+08	0.2552E+07
C	0.4724E+07	0.6369E+08	0.1747E+07	0.2824E+07	0.1408E+08	0.1786E+07
O	0.4562E+07	0.6295E+08	0.1940E+07	0.3477E+07	0.1396E+08	0.1020E+07
	S1	S2	S3	SINT	SEQV	
I	0.6759E+08	0.5375E+07	-0.2106E+07	0.6970E+08	0.6627E+08	
C	0.6689E+08	0.4781E+07	-0.1519E+07	0.6841E+08	0.6549E+08	
O	0.6621E+08	0.4362E+07	-0.1114E+07	0.6732E+08	0.6476E+08	

** PEAK ** I=INSIDE C=CENTER O=OUTSIDE

	SX	SY	SZ	SXY	SYZ	SXZ
I	-0.2080E+06	0.1297E+07	0.1077E+07	0.3344E+05	0.6627E+05	-1218.
C	0.2081E+06	-0.1297E+07	-0.1077E+07	-0.3372E+05	-0.6621E+05	1550.
O	-0.2081E+06	0.1296E+07	0.1077E+07	0.3400E+05	0.6616E+05	-1883.
	S1	S2	S3	SINT	SEQV	
I	0.1316E+07	0.1059E+07	-0.2087E+06	0.1525E+07	0.1414E+07	
C	0.2088E+06	-0.1059E+07	-0.1316E+07	0.1525E+07	0.1414E+07	
O	0.1315E+07	0.1059E+07	-0.2089E+06	0.1524E+07	0.1414E+07	

** TOTAL ** I=INSIDE C=CENTER O=OUTSIDE

	SX	SY	SZ	SXY	SYZ	SXZ
I	0.4677E+07	0.6572E+08	0.2632E+07	0.2204E+07	0.1427E+08	0.2551E+07
C	0.4932E+07	0.6239E+08	0.6705E+06	0.2790E+07	0.1401E+08	0.1788E+07
O	0.4354E+07	0.6425E+08	0.3017E+07	0.3511E+07	0.1402E+08	0.1019E+07
	S1	S2	S3	SINT	SEQV	TEMP
I	0.6891E+08	0.5282E+07	-0.1162E+07	0.7007E+08	0.6708E+08	0.0000E+00
C	0.6558E+08	0.4955E+07	-0.2545E+07	0.6813E+08	0.6470E+08	
O	0.6752E+08	0.4158E+07	-0.5688E+05	0.6758E+08	0.6557E+08	0.0000E+00

Criticality Control Plates Linearized Stresses at Location of Peak Stress

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***** ANSYS - ENGINEERING ANALYSIS SYSTEM REVISION 5.1 24 *****
38303 VERSION=HP 9000/7XX 09:36:49 APR 10, 1996 CP= 103.080
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21 PWR Tube Seismic Analysis With Backfill

***** POST1 LINEARIZED STRESS LISTING *****
INSIDE NODE = 940 OUTSIDE NODE = 1064

CALCULATED LOAD CASE= 0

THE FOLLOWING X,Y,Z STRESSES ARE IN GLOBAL COORDINATES.

```

** MEMBRANE **
      SX      SY      SZ      SXY      SYZ      SXZ
0.5519E+06 0.1464E+08 0.1233E+07 0.6384E+06 0.2117E+07 0.2774E+06
      S1      S2      S3      SINT      SEGV
0.1500E+08 0.9750E+06 0.4518E+06 0.1455E+08 0.1429E+08

** BENDING ** I=INSIDE C=CENTER O=OUTSIDE
      SX      SY      SZ      SXY      SYZ      SXZ
I -0.6795E+05 0.1701E+07 0.5551E+06 -0.2949E+06 0.2707E+05 0.1712E+05
C 0.0000E+00 0.0000E+00 0.0000E+00 0.0000E+00 0.0000E+00 0.0000E+00
O 0.6795E+05 -0.1701E+07 -0.5551E+06 0.2949E+06 -0.2707E+05 -0.1712E+05
      S1      S2      S3      SINT      SEGV
I 0.1749E+07 0.5552E+06 -0.1165E+06 0.1866E+07 0.1637E+07
C 0.0000E+00 0.0000E+00 0.0000E+00 0.0000E+00 0.0000E+00
O 0.1165E+06 -0.5552E+06 -0.1749E+07 0.1866E+07 0.1637E+07

** MEMBRANE PLUS BENDING ** I=INSIDE C=CENTER O=OUTSIDE
      SX      SY      SZ      SXY      SYZ      SXZ
I 0.4839E+06 0.1634E+08 0.1788E+07 0.3435E+06 0.2144E+07 0.2945E+06
C 0.5519E+06 0.1464E+08 0.1233E+07 0.6384E+06 0.2117E+07 0.2774E+06
O 0.6198E+06 0.1294E+08 0.6777E+06 0.9333E+06 0.2090E+07 0.2603E+06
      S1      S2      S3      SINT      SEGV
I 0.1666E+08 0.1534E+07 0.4194E+06 0.1624E+08 0.1571E+08
C 0.1500E+08 0.9750E+06 0.4518E+06 0.1455E+08 0.1429E+08
O 0.1336E+08 0.5888E+06 0.2893E+06 0.1307E+08 0.1292E+08

** PEAK ** I=INSIDE C=CENTER O=OUTSIDE
      SX      SY      SZ      SXY      SYZ      SXZ
I -4485. 0.8379E+05 0.6287E+05 -457.3 -2115. -125.9
C 4455. -0.8305E+05 -0.6263E+05 329.2 2127. 133.3
O -4426. 0.8231E+05 0.6239E+05 -201.2 -2139. -140.8
      S1      S2      S3      SINT      SEGV
I 0.8400E+05 0.6266E+05 -4487. 0.8849E+05 0.7999E+05
C 4457. -0.6241E+05 -0.8327E+05 0.8773E+05 0.7938E+05
O 0.8254E+05 0.6217E+05 -4427. 0.8697E+05 0.7878E+05

** TOTAL ** I=INSIDE C=CENTER O=OUTSIDE
      SX      SY      SZ      SXY      SYZ      SXZ
I 0.4794E+06 0.1642E+08 0.1851E+07 0.3431E+06 0.2142E+07 0.2944E+06
C 0.5563E+06 0.1456E+08 0.1170E+07 0.6387E+06 0.2120E+07 0.2776E+06
O 0.6154E+06 0.1302E+08 0.7401E+06 0.9331E+06 0.2088E+07 0.2602E+06
      S1      S2      S3      SINT      SEGV      TEMP
I 0.1674E+08 0.1595E+07 0.4182E+06 0.1632E+08 0.1577E+08 0.0000E+00
C 0.1492E+08 0.9211E+06 0.4461E+06 0.1447E+08 0.1424E+08
O 0.1344E+08 0.5968E+06 0.3410E+06 0.1310E+08 0.1297E+08 0.0000E+00

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Inner Barrier Linearized Stresses at Location of Peak Stress

PRINT LINEARIZED STRESS THROUGH A SECTION DEFINED BY LPATH COMMAND. DSYS= 0

1

***** ANSYS - ENGINEERING ANALYSIS SYSTEM REVISION 5.1 24 *****
 38303 VERSION=HP 9000/7XX 08:28:03 APR 11, 1996 CP= 102.480
 FOR SUPPORT CALL ROBERT BAHNEY PHONE (702) 794-5337 FAX (702) 794-1844

21 PWR Tube Seismic Analysis With Backfill

***** POST1 LINEARIZED STRESS LISTING *****
 INSIDE NODE = 12757 OUTSIDE NODE = 12761

CALCULATED LOAD CASE= 0

THE FOLLOWING X,Y,Z STRESSES ARE IN GLOBAL COORDINATES.

```

** MEMBRANE **
      SX      SY      SZ      SXY      SYZ      SXZ
I 0.1526E+09 0.1527E+09 0.3974E+09 0.2899E+08 0.6161E+08 0.2445E+08
C 0.0000E+00 0.0000E+00 0.0000E+00 0.0000E+00 0.0000E+00 0.0000E+00
O 0.4156E+09 0.1666E+09 0.1205E+09 0.2951E+09 0.2750E+09 0.0000E+00
      S1      S2      S3      SINT      SEQV
I 0.4156E+09 0.1666E+09 0.1205E+09 0.2951E+09 0.2750E+09 0.0000E+00
C 0.0000E+00 0.0000E+00 0.0000E+00 0.0000E+00 0.0000E+00 0.0000E+00
O 0.4156E+09 0.1666E+09 0.1205E+09 0.2951E+09 0.2750E+09 0.0000E+00

** BENDING ** I=INSIDE C=CENTER O=OUTSIDE
      SX      SY      SZ      SXY      SYZ      SXZ
I 0.1092E+08 0.2164E+07 0.4410E+08 -0.9446E+07 -0.2672E+07 0.3837E+07
C 0.0000E+00 0.0000E+00 0.0000E+00 0.0000E+00 0.0000E+00 0.0000E+00
O -0.1092E+08 -0.2164E+07 -0.4410E+08 0.9446E+07 0.2672E+07 -0.3837E+07
      S1      S2      S3      SINT      SEQV
I 0.4489E+08 0.1617E+08 -0.3870E+07 0.4876E+08 0.4245E+08 0.0000E+00
C 0.0000E+00 0.0000E+00 0.0000E+00 0.0000E+00 0.0000E+00 0.0000E+00
O 0.3870E+07 -0.1617E+08 -0.4489E+08 0.4876E+08 0.4245E+08 0.0000E+00

** MEMBRANE PLUS BENDING ** I=INSIDE C=CENTER O=OUTSIDE
      SX      SY      SZ      SXY      SYZ      SXZ
I 0.1635E+09 0.1548E+09 0.4415E+09 0.1955E+08 0.5894E+08 0.2829E+08
C 0.1526E+09 0.1527E+09 0.3974E+09 0.2899E+08 0.6161E+08 0.2445E+08
O 0.1417E+09 0.1505E+09 0.3533E+09 0.3844E+08 0.6428E+08 0.2061E+08
      S1      S2      S3      SINT      SEQV
I 0.4566E+09 0.1677E+09 0.1356E+09 0.3209E+09 0.3062E+09 0.0000E+00
C 0.4156E+09 0.1666E+09 0.1205E+09 0.2951E+09 0.2750E+09 0.0000E+00
O 0.3760E+09 0.1658E+09 0.1037E+09 0.2723E+09 0.2472E+09 0.0000E+00

** PEAK ** I=INSIDE C=CENTER O=OUTSIDE
      SX      SY      SZ      SXY      SYZ      SXZ
I 0.9027E+08 0.5299E+07 0.3486E+09 0.8295E+07 -0.6147E+06 0.1190E+08
C -0.9027E+08 -0.5298E+07 -0.3486E+09 -0.8299E+07 0.6135E+06 -0.1190E+08
O 0.9026E+08 0.5297E+07 0.3486E+09 0.8303E+07 -0.6124E+06 0.1190E+08
      S1      S2      S3      SINT      SEQV
I 0.3491E+09 0.9054E+08 0.4488E+07 0.3447E+09 0.3107E+09 0.0000E+00
C -0.4486E+07 -0.9053E+08 -0.3491E+09 0.3446E+09 0.3107E+09 0.0000E+00
O 0.3491E+09 0.9053E+08 0.4484E+07 0.3446E+09 0.3107E+09 0.0000E+00

** TOTAL ** I=INSIDE C=CENTER O=OUTSIDE
      SX      SY      SZ      SXY      SYZ      SXZ
I 0.2538E+09 0.1601E+09 0.7901E+09 0.2784E+08 0.5832E+08 0.4019E+08
C 0.6233E+08 0.1474E+09 0.4884E+08 0.2069E+08 0.6222E+08 0.1255E+08
O 0.2319E+09 0.1558E+09 0.7019E+09 0.4674E+08 0.6367E+08 0.3251E+08
      S1      S2      S3      SINT      SEQV      TEMP
I 0.7988E+09 0.2561E+09 0.1491E+09 0.6497E+09 0.6033E+09 0.0000E+00
C 0.1823E+09 0.5763E+08 0.1861E+08 0.1637E+09 0.1481E+09 0.0000E+00
O 0.7122E+09 0.2473E+09 0.1301E+09 0.5820E+09 0.5332E+09 0.0000E+00
  
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Basket Tubes and Guides Linearized Stresses at Location of Peak Stress

PRINT LINEARIZED STRESS THROUGH A SECTION DEFINED BY LPATH COMMAND. DSYS= 0
1

***** ANSYS - ENGINEERING ANALYSIS SYSTEM REVISION 5.1 24 *****
38303 VERSION=HP 9000/7XX C8:28:04 APR 11, 1996 CP= 103.610
FOR SUPPORT CALL ROBERT BAHNEY PHONE (702) 794-5337 FAX (702) 794-1844

21 PWR Tube Seismic Analysis With Backfill

***** POST1 LINEARIZED STRESS LISTING *****
INSIDE NODE = 6133 OUTSIDE NODE = 6069

CALCULATED LOAD CASE= 0

THE FOLLOWING X,Y,Z STRESSES ARE IN GLOBAL COORDINATES.

** MEMBRANE **

	SX	SY	SZ	SXY	SYZ	SXZ
I	0.1177E+09	0.1097E+09	0.3406E+09	0.2378E+08	0.8156E+08	0.1669E+08
C	0.1177E+09	0.1097E+09	0.3406E+09	0.2378E+08	0.8156E+08	0.1669E+08
O	0.1177E+09	0.1097E+09	0.3406E+09	0.2378E+08	0.8156E+08	0.1669E+08
	S1	S2	S3	SINT	SEQV	
I	0.3686E+09	0.1233E+09	0.7604E+08	0.2926E+09	0.2720E+09	
C	0.3686E+09	0.1233E+09	0.7604E+08	0.2926E+09	0.2720E+09	
O	0.3686E+09	0.1233E+09	0.7604E+08	0.2926E+09	0.2720E+09	

** BENDING ** I=INSIDE C=CENTER O=OUTSIDE

	SX	SY	SZ	SXY	SYZ	SXZ
I	-0.1220E+07	-0.3987E+07	0.7955E+06	-0.6547E+07	0.7130E+07	0.7826E+06
C	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
O	0.1220E+07	0.3987E+07	-0.7955E+06	0.6547E+07	-0.7130E+07	-0.7826E+06
	S1	S2	S3	SINT	SEQV	
I	0.7450E+07	0.4240E+06	-0.1229E+08	0.1974E+08	0.1733E+08	
C	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	
O	0.1229E+08	-0.4240E+06	-0.7450E+07	0.1974E+08	0.1733E+08	

** MEMBRANE PLUS BENDING ** I=INSIDE C=CENTER O=OUTSIDE

	SX	SY	SZ	SXY	SYZ	SXZ
I	0.1165E+09	0.1058E+09	0.3414E+09	0.1723E+08	0.8869E+08	0.1748E+08
C	0.1177E+09	0.1097E+09	0.3406E+09	0.2378E+08	0.8156E+08	0.1669E+08
O	0.1189E+09	0.1137E+09	0.3398E+09	0.3033E+08	0.7443E+08	0.1591E+08
	S1	S2	S3	SINT	SEQV	
I	0.3729E+09	0.1174E+09	0.7329E+08	0.2996E+09	0.2802E+09	
C	0.3686E+09	0.1233E+09	0.7604E+08	0.2926E+09	0.2720E+09	
O	0.3644E+09	0.1314E+09	0.7656E+08	0.2879E+09	0.2647E+09	

** PEAK ** I=INSIDE C=CENTER O=OUTSIDE

	SX	SY	SZ	SXY	SYZ	SXZ
I	0.1372E+07	0.8983E+06	0.9830E+07	0.4697E+07	0.3247E+08	0.5745E+07
C	-0.1373E+07	-0.9000E+06	-0.9830E+07	-0.4700E+07	-0.3247E+08	-0.5745E+07
O	0.1373E+07	0.9018E+06	0.9829E+07	0.4703E+07	0.3247E+08	0.5745E+07
	S1	S2	S3	SINT	SEQV	
I	0.3958E+08	-0.6568E+05	-0.2742E+08	0.6700E+08	0.5835E+08	
C	0.2741E+08	0.6590E+05	-0.3958E+08	0.6699E+08	0.5834E+08	
O	0.3958E+08	-0.6613E+05	-0.2741E+08	0.6699E+08	0.5834E+08	

** TOTAL ** I=INSIDE C=CENTER O=OUTSIDE

	SX	SY	SZ	SXY	SYZ	SXZ
I	0.1178E+09	0.1066E+09	0.3512E+09	0.2193E+08	0.1212E+09	0.2322E+08
C	0.1163E+09	0.1088E+09	0.3307E+09	0.1908E+08	0.4909E+08	0.1095E+08
O	0.1203E+09	0.1146E+09	0.3496E+09	0.3503E+08	0.1069E+09	0.2166E+08
	S1	S2	S3	SINT	SEQV	TEMP
I	0.4042E+09	0.1169E+09	0.5463E+08	0.3495E+09	0.3229E+09	0.0000E+00
C	0.3421E+09	0.1253E+09	0.8849E+08	0.2536E+09	0.2373E+09	
O	0.3949E+09	0.1276E+09	0.6203E+08	0.3329E+09	0.3054E+09	0.0000E+00

Criticality Control Plates Linearized Stresses at Location of Peak Stress

PRINT LINEARIZED STRESS THROUGH A SECTION DEFINED BY LPATH COMMAND. DSYS= 0
1

***** ANSYS - ENGINEERING ANALYSIS SYSTEM REVISION 5.1 24 *****
38303 VERSION=HP 9000/7XX 08:28:05 APR 11, 1996 CP= 104.720
FOR SUPPORT CALL ROBERT BAHNEY PHONE (702) 794-5337 FAX (702) 794-1844

21 PWR Tube Seismic Analysis With Backfill

***** POST1 LINEARIZED STRESS LISTING *****
INSIDE NODE = 3813 OUTSIDE NODE = 3877

CALCULATED LOAD CASE= 0

THE FOLLOWING X,Y,Z STRESSES ARE IN GLOBAL COORDINATES.

** MEMBRANE **

SX	SY	SZ	SXY	SYZ	SXZ
0.4585E+07	0.1862E+08	0.1104E+07	0.3691E+07	0.3095E+07	0.8288E+06
S1	S2	S3	SINT	SEQV	
0.2007E+08	0.3675E+07	0.5621E+06	0.1951E+08	0.1815E+08	

** BENDING ** I=INSIDE C=CENTER O=OUTSIDE

SX	SY	SZ	SXY	SYZ	SXZ
I -0.1894E+07	-0.1601E+07	0.3000E+05	-0.5528E+06	0.9027E+06	-0.1753E+05
C 0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
O 0.1894E+07	0.1601E+07	-0.3000E+05	0.5528E+06	-0.9027E+06	0.1753E+05
S1	S2	S3	SINT	SEQV	
I 0.4567E+06	-0.1464E+07	-0.2458E+07	0.2915E+07	0.2566E+07	
C 0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	
O 0.2458E+07	0.1464E+07	-0.4567E+06	0.2915E+07	0.2566E+07	

** MEMBRANE PLUS BENDING ** I=INSIDE C=CENTER O=OUTSIDE

SX	SY	SZ	SXY	SYZ	SXZ
I 0.2691E+07	0.1702E+08	0.1134E+07	0.3138E+07	0.3997E+07	0.8112E+06
C 0.4585E+07	0.1862E+08	0.1104E+07	0.3691E+07	0.3095E+07	0.8288E+06
O 0.6480E+07	0.2022E+08	0.1074E+07	0.4243E+07	0.2192E+07	0.8463E+06
S1	S2	S3	SINT	SEQV	
I 0.1863E+08	0.2034E+07	0.1829E+06	0.1844E+08	0.1759E+08	
C 0.2007E+08	0.3675E+07	0.5621E+06	0.1951E+08	0.1815E+08	
O 0.2169E+08	0.5285E+07	0.7985E+06	0.2089E+08	0.1905E+08	

** PEAK ** I=INSIDE C=CENTIER O=OUTSIDE

SX	SY	SZ	SXY	SYZ	SXZ
I 0.1368E+07	-0.3130E+07	0.4373E+06	9846.	-0.1621E+06	0.1030E+06
C -0.1369E+07	0.3129E+07	-0.4373E+06	-0.1009E+05	0.1625E+06	-0.1030E+06
O 0.1370E+07	-0.3129E+07	0.4373E+06	0.1033E+05	-0.1628E+06	0.1030E+06
S1	S2	S3	SINT	SEQV	
I 0.1379E+07	0.4334E+06	-0.3137E+07	0.4517E+07	0.4126E+07	
C 0.3137E+07	-0.4335E+06	-0.1380E+07	0.4517E+07	0.4126E+07	
O 0.1381E+07	0.4335E+06	-0.3136E+07	0.4517E+07	0.4126E+07	

** TOTAL ** I=INSIDE C=CENTER O=OUTSIDE

SX	SY	SZ	SXY	SYZ	SXZ
I 0.4059E+07	0.1389E+08	0.1572E+07	0.3148E+07	0.3835E+07	0.9142E+06
C 0.3216E+07	0.2175E+08	0.6670E+06	0.3681E+07	0.3257E+07	0.7258E+06
O 0.7849E+07	0.1709E+08	0.1512E+07	0.4254E+07	0.2029E+07	0.9493E+06
S1	S2	S3	SINT	SEQV	TEMP
I 0.1589E+08	0.3151E+07	0.4749E+06	0.1542E+08	0.1427E+08	0.0000E+00
C 0.2295E+08	0.2516E+07	0.1635E+06	0.2279E+08	0.2171E+08	
O 0.1904E+08	0.6194E+07	0.1222E+07	0.1781E+08	0.1592E+08	0.0000E+00

Inner Barrier Linearized Stresses at Location of Peak Stress

PRINT LINEARIZED STRESS THROUGH A SECTION DEFINED BY LPATH COMMAND. DSYS= 0

1

***** ANSYS - ENGINEERING ANALYSIS SYSTEM REVISION 5.1 24 *****
 38303 VERSION=HP 9000/7XX 19:39:17 APR 10, 1996 CP= 110.460
 FOR SUPPORT CALL ROBERT BAHNEY PHONE (702) 794-5337 FAX (702) 794-1844

21 PWR Tube Seismic Analysis With Backfill

***** POST1 LINEARIZED STRESS LISTING *****
 INSIDE NODE = 8632 OUTSIDE NODE = 8626

CALCULATED LOAD CASE= 0

THE FOLLOWING X,Y,Z STRESSES ARE IN GLOBAL COORDINATES.

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** MEMBRANE **
      SX      SY      SZ      SXY      SYZ      SXZ
I 0.2017E+09 0.2057E+09 0.5358E+09 0.3370E+08 0.8480E+08 0.3282E+08
C 0.0000E+00 0.0000E+00 0.0000E+00 0.0000E+00 0.0000E+00 0.0000E+00
O -0.1475E+08 -0.3150E+07 -0.6111E+08 0.8897E+07 0.4109E+07 -0.5683E+07
      S1      S2      S3      SINT      SEQV
I 0.5608E+09 0.2168E+09 0.1656E+09 0.3952E+09 0.3722E+09
C 0.0000E+00 0.0000E+00 0.0000E+00 0.0000E+00 0.0000E+00
O 0.1685E+07 -0.1844E+08 -0.6225E+08 0.6394E+08 0.5663E+08

** BENDING ** I=INSIDE C=CENTER O=OUTSIDE
      SX      SY      SZ      SXY      SYZ      SXZ
I 0.1475E+08 0.3150E+07 0.6111E+08 -0.8897E+07 -0.4109E+07 0.5683E+07
C 0.0000E+00 0.0000E+00 0.0000E+00 0.0000E+00 0.0000E+00 0.0000E+00
O -0.1475E+08 -0.3150E+07 -0.6111E+08 0.8897E+07 0.4109E+07 -0.5683E+07
      S1      S2      S3      SINT      SEQV
I 0.6225E+08 0.1844E+08 -0.1685E+07 0.6394E+08 0.5663E+08
C 0.0000E+00 0.0000E+00 0.0000E+00 0.0000E+00 0.0000E+00
O 0.1685E+07 -0.1844E+08 -0.6225E+08 0.6394E+08 0.5663E+08

** MEMBRANE PLUS BENDING ** I=INSIDE C=CENTER O=OUTSIDE
      SX      SY      SZ      SXY      SYZ      SXZ
I 0.2164E+09 0.2088E+09 0.5969E+09 0.2480E+08 0.8069E+08 0.3851E+08
C 0.2017E+09 0.2057E+09 0.5358E+09 0.3370E+08 0.8480E+08 0.3282E+08
O 0.1869E+09 0.2025E+09 0.4747E+09 0.4259E+08 0.8891E+08 0.2714E+08
      S1      S2      S3      SINT      SEQV
I 0.6176E+09 0.2216E+09 0.1831E+09 0.4345E+09 0.4166E+09
C 0.5608E+09 0.2168E+09 0.1656E+09 0.3952E+09 0.3722E+09
O 0.5058E+09 0.2122E+09 0.1462E+09 0.3596E+09 0.3316E+09

** PEAK ** I=INSIDE C=CENTER O=OUTSIDE
      SX      SY      SZ      SXY      SYZ      SXZ
I 0.1260E+09 0.7258E+07 0.4701E+09 0.8588E+07 -0.6454E+06 0.1516E+08
C -0.1260E+09 -0.7256E+07 -0.4701E+09 -0.8592E+07 0.6436E+06 -0.1516E+08
O 0.1260E+09 0.7255E+07 0.4701E+09 0.8596E+07 -0.6418E+06 0.1516E+08
      S1      S2      S3      SINT      SEQV
I 0.4708E+09 0.1260E+09 0.6634E+07 0.4642E+09 0.4175E+09
C -0.6632E+07 -0.1260E+09 -0.4708E+09 0.4641E+09 0.4175E+09
O 0.4707E+09 0.1260E+09 0.6630E+07 0.4641E+09 0.4174E+09

** TOTAL ** I=INSIDE C=CENTER O=OUTSIDE
      SX      SY      SZ      SXY      SYZ      SXZ
I 0.3425E+09 0.2161E+09 0.1067E+10 0.3339E+08 0.8004E+08 0.5367E+08
C 0.7566E+08 0.1984E+09 0.6572E+08 0.2510E+08 0.8544E+08 0.1766E+08
O 0.3130E+09 0.2098E+09 0.9448E+09 0.5119E+08 0.8826E+08 0.4230E+08
      S1      S2      S3      SINT      SEQV      TEMP
I 0.1079E+10 0.3440E+09 0.2028E+09 0.8761E+09 0.8147E+09 0.0000E+00
C 0.2457E+09 0.7073E+08 0.2341E+08 0.2222E+09 0.2028E+09
O 0.9588E+09 0.3259E+09 0.1828E+09 0.7760E+09 0.7153E+09 0.0000E+00
  
```

Basket Tubes and Guides Linearized Stresses at Location of Peak Stress

PRINT LINEARIZED STRESS THROUGH A SECTION DEFINED BY LPATH COMMAND. DSYS= 0
1

***** ANSYS - ENGINEERING ANALYSIS SYSTEM REVISION 5.1 24 *****
38303 VERSION=HP 9000/7XX 19:39:18 APR 10, 1996 CP= 111.630
FOR SUPPORT CALL ROBERT BAHNEY PHONE (702) 794-5337 FAX (702) 794-1844

21 PWR Tube Seismic Analysis With Backfill

***** POST1 LINEARIZED STRESS LISTING *****
INSIDE NODE = 4355 OUTSIDE NODE = 4293

CALCULATED LOAD CASE= 0

THE FOLLOWING X,Y,Z STRESSES ARE IN GLOBAL COORDINATES.

```

** MEMBRANE **
      SX      SY      SZ      SXY      SYZ      SXZ
I 0.1471E+09 0.1405E+09 0.4258E+09 0.2924E+08 0.1077E+09 0.2064E+08
C 0.1471E+09 0.1405E+09 0.4258E+09 0.2924E+08 0.1077E+09 0.2064E+08
O 0.1471E+09 0.1405E+09 0.4258E+09 0.2924E+08 0.1077E+09 0.2064E+08
      S1      S2      S3      SINT      SEQV
I 0.4646E+09 0.1535E+09 0.9536E+08 0.3692E+09 0.3438E+09
C 0.4646E+09 0.1535E+09 0.9536E+08 0.3692E+09 0.3438E+09
O 0.4646E+09 0.1535E+09 0.9536E+08 0.3692E+09 0.3438E+09

** BENDING ** I=INSIDE C=CENTER O=OUTSIDE
      SX      SY      SZ      SXY      SYZ      SXZ
I -0.2656E+07 -0.4826E+07 -0.1250E+07 -0.1005E+08 0.8785E+07 0.2535E+07
C 0.0000E+00 0.0000E+00 0.0000E+00 0.0000E+00 0.0000E+00 0.0000E+00
O 0.2656E+07 0.4826E+07 0.1250E+07 0.1005E+08 -0.8785E+07 -0.2535E+07
      S1      S2      S3      SINT      SEQV
I 0.8662E+07 0.6485E+06 -0.1804E+08 0.2670E+08 0.2373E+08
C 0.0000E+00 0.0000E+00 0.0000E+00 0.0000E+00 0.0000E+00
O 0.1804E+08 -0.6485E+06 -0.8662E+07 0.2670E+08 0.2373E+08

** MEMBRANE PLUS BENDING ** I=INSIDE C=CENTER O=OUTSIDE
      SX      SY      SZ      SXY      SYZ      SXZ
I 0.1445E+09 0.1357E+09 0.4246E+09 0.1920E+08 0.1165E+09 0.2318E+08
C 0.1471E+09 0.1405E+09 0.4258E+09 0.2924E+08 0.1077E+09 0.2064E+08
O 0.1498E+09 0.1454E+09 0.4271E+09 0.3929E+08 0.9896E+08 0.1811E+08
      S1      S2      S3      SINT      SEQV
I 0.4682E+09 0.1441E+09 0.9240E+08 0.3758E+09 0.3528E+09
C 0.4646E+09 0.1535E+09 0.9536E+08 0.3692E+09 0.3438E+09
O 0.4611E+09 0.1664E+09 0.9466E+08 0.3664E+09 0.3363E+09

** PEAK ** I=INSIDE C=CENTER O=OUTSIDE
      SX      SY      SZ      SXY      SYZ      SXZ
I 0.1179E+07 0.9758E+05 0.1084E+08 0.6634E+07 0.4377E+08 0.8418E+07
C -0.1181E+07 -0.9968E+05 -0.1084E+08 -0.6639E+07 -0.4377E+08 -0.8417E+07
O 0.1182E+07 0.1018E+06 0.1084E+08 0.6643E+07 0.4377E+08 0.8416E+07
      S1      S2      S3      SINT      SEQV
I 0.5183E+08 -0.1072E+07 -0.3864E+08 0.9047E+08 0.7873E+08
C 0.3864E+08 0.1072E+07 -0.5183E+08 0.9047E+08 0.7872E+08
O 0.5183E+08 -0.1072E+07 -0.3863E+08 0.9046E+08 0.7871E+08

** TOTAL ** I=INSIDE C=CENTER O=OUTSIDE
      SX      SY      SZ      SXY      SYZ      SXZ
I 0.1456E+09 0.1358E+09 0.4354E+09 0.2583E+08 0.1603E+09 0.3160E+08
C 0.1459E+09 0.1404E+09 0.4150E+09 0.2261E+08 0.6397E+08 0.1223E+08
O 0.1509E+09 0.1455E+09 0.4379E+09 0.4593E+08 0.1427E+09 0.2652E+08
      S1      S2      S3      SINT      SEQV      TEMP
I 0.5092E+09 0.1430E+09 0.6461E+08 0.4446E+09 0.4111E+09 0.0000E+00
C 0.4301E+09 0.1571E+09 0.1141E+09 0.3161E+09 0.2969E+09 0.0000E+00
O 0.5011E+09 0.1602E+09 0.7300E+08 0.4281E+09 0.3918E+09 0.0000E+00

```

Criticality Control Plates Linearized Stresses at Location of Peak Stress

PRINT LINEARIZED STRESS THROUGH A SECTION DEFINED BY LPATH COMMAND. DSYS= 0
1

***** ANSYS - ENGINEERING ANALYSIS SYSTEM REVISION 5.1 24 *****
38303 VERSION=HP 9000/7XX 19:39:21 APR 10, 1996 CP= 112.720
FOR SUPPORT CALL ROBERT BAHNEY PHONE (702) 794-5337 FAX (702) 794-1844

21 PWR Tube Seismic Analysis With Backfill

***** POST1 LINEARIZED STRESS LISTING *****
INSIDE NODE = 3878 OUTSIDE NODE = 3830

CALCULATED LOAD CASE= 0

THE FOLLOWING X,Y,Z STRESSES ARE IN GLOBAL COORDINATES.

```

** MEMBRANE **
      SX      SY      SZ      SXY      SYZ      SXZ
I  0.4471E+07  0.4632E+08  0.3238E+07  0.3216E+07  0.7746E+07  0.2414E+06
C  0.0000E+00  0.0000E+00  0.0000E+00  0.0000E+00  0.0000E+00  0.0000E+00
O  0.4791E+08  0.4275E+07  0.1847E+07  0.4606E+08  0.4490E+08
      S1      S2      S3      SINT      SEQV
I  0.4791E+08  0.4275E+07  0.1847E+07  0.4606E+08  0.4490E+08

** BENDING ** I=INSIDE C=CENTER O=OUTSIDE
      SX      SY      SZ      SXY      SYZ      SXZ
I  0.3870E+06  0.2471E+07  0.7155E+06  0.6338E+06  -0.2948E+06  -0.6948E+05
C  0.0000E+00  0.0000E+00  0.0000E+00  0.0000E+00  0.0000E+00  0.0000E+00
O  -0.3870E+06  -0.2471E+07  -0.7155E+06  -0.6338E+06  0.2948E+06  0.6948E+05
      S1      S2      S3      SINT      SEQV
I  0.2695E+07  0.6696E+06  0.2091E+06  0.2486E+07  0.2291E+07
C  0.0000E+00  0.0000E+00  0.0000E+00  0.0000E+00  0.0000E+00
O  -0.2091E+06  -0.6696E+06  -0.2695E+07  0.2486E+07  0.2291E+07

** MEMBRANE PLUS BENDING ** I=INSIDE C=CENTER O=OUTSIDE
      SX      SY      SZ      SXY      SYZ      SXZ
I  0.4858E+07  0.4880E+08  0.3954E+07  0.3850E+07  0.7451E+07  0.1720E+06
C  0.4471E+07  0.4632E+08  0.3238E+07  0.3216E+07  0.7746E+07  0.2414E+06
O  0.4084E+07  0.4385E+08  0.2523E+07  0.2582E+07  0.8041E+07  0.3109E+06
      S1      S2      S3      SINT      SEQV
I  0.5032E+08  0.4640E+07  0.2644E+07  0.4768E+08  0.4671E+08
C  0.4791E+08  0.4275E+07  0.1847E+07  0.4606E+08  0.4490E+08
O  0.4553E+08  0.3932E+07  0.1004E+07  0.4452E+08  0.4313E+08

** PEAK ** I=INSIDE C=CENTER O=OUTSIDE
      SX      SY      SZ      SXY      SYZ      SXZ
I  0.4062E+05  0.9307E+05  0.9657E+05  97.52  -0.1900E+05  -3593.
C  -0.4046E+05  -0.9199E+05  -0.9626E+05  177.7  0.1887E+05  3563.
O  0.4029E+05  0.9092E+05  0.9595E+05  -452.9  -0.1874E+05  -3533.
      S1      S2      S3      SINT      SEQV
I  0.1140E+06  0.7590E+05  0.4037E+05  0.7363E+05  0.6378E+05
C  -0.4019E+05  -0.7532E+05  -0.1132E+06  0.7302E+05  0.6325E+05
O  0.1124E+06  0.7473E+05  0.4001E+05  0.7242E+05  0.6273E+05

** TOTAL ** I=INSIDE C=CENTER O=OUTSIDE
      SX      SY      SZ      SXY      SYZ      SXZ
I  0.4899E+07  0.4889E+08  0.4050E+07  0.3850E+07  0.7432E+07  0.1684E+06
C  0.4431E+07  0.4623E+08  0.3142E+07  0.3216E+07  0.7765E+07  0.2450E+06
O  0.4125E+07  0.4394E+08  0.2619E+07  0.2582E+07  0.8022E+07  0.3074E+06
      S1      S2      S3      SINT      SEQV      TEMP
I  0.5041E+08  0.4685E+07  0.2742E+07  0.4767E+08  0.4673E+08  0.0000E+00
C  0.4783E+08  0.4233E+07  0.1746E+07  0.4608E+08  0.4489E+08
O  0.4561E+08  0.3973E+07  0.1106E+07  0.4450E+08  0.4314E+08  0.0000E+00

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PRESS <CR> OR <ENTER> TO CONTINUE

***** ANSYS COMMAND LINE ARGUMENTS *****

INITIAL JOBNAME = seism3
MEMORY REQUESTED (MB) = 64.0
BATCH MODE REQUESTED = LIST
START-UP FILE MODE = READ

*** NOTE *** CP= 0.160 TIME= 15:52:46
There are no parameters and no abbreviations defined.

38303 VERSION=HP 9000/7XX REVISION= 5.1 24
FOR SUPPORT CALL ROBERT BAHNEY PHONE (702) 794-5337 FAX (702) 794-1844
CURRENT JOBNAME=seism3 15:52:46 APR 09, 1996 CP= 0.160

```

1 /com,*****
2 /com,*****
3 /com,***** Seismic Analysis of 21 PWR Waste Package Under Degradation *****
4 /com,***** Degree of Degradation in Outer Barrier: 100% *****
5 /com,***** Degree of Degradation in Inner Barrier: 75% *****
6 /com,***** Degree of Degradation in Basket Assembly: Tubes 100% *****
7 /com,***** Guides 50% *****
8 /com,***** SS-B Plates 0% *****
9 /com,***** Backfill Present, Backfill Porosity: 25%, Rock Porosity: 10% *****
10 /com,***** Quarter Symmetry Model *****
11 /com,*****
12 /com,*****
13 /com,*****
14 /config,nvpag,512
15 /units,si
16 /prep7
17 /title, 21 PWR Tube Seismic Analysis With Backfill
18 /vcon,,0
19 /com, Define Parameters
20 ibir=0.71095 ! Inner Barrier Inner Radius (DIA = 1.4219 m)
21 obir=0.71595 ! Outer Barrier Inner Radius (DIA = 1.4619 m)
22 obsr=0.77095 ! Outer Barrier Skirt Radius (DIA = 1.5419 m)
23 obor=0.78095 ! Outer Barrier Outer Radius (DIA = 1.6619 m)
24 ts1=.007 ! SS-B Plate Thickness
25 ts2=.005 ! CS Tube Thickness
26 ts3=.005 ! Corner Guide Thickness
27 ts4=.005 ! End Guide Thickness
28 egih=0.0855 ! End Guide Fin Inner Height(0.0809+0.005-2.5*tan10)
29 pie=3.1415926 ! Pi
30 ang1=30*pie/180 ! Angle on end of end guide
31 ang2=80*pie/180 ! Angle on end of end guide fin
32 ang3=58*pie/180 ! Angle on end of corner guide
33 tw=0.2285 ! Tube Inner Side Width
34 pos1=tw/2 ! Dimension to Keypoint Position 1
35 pos2=pos1+ts2 ! Dimension to Keypoint Position 2
36 pos3=pos2+ts1 ! Dimension to Keypoint Position 3
37 pos4=pos3+ts2 ! Dimension to Keypoint Position 4
38 pos5=pos4+tw ! Dimension to Keypoint Position 5
39 pos6=pos5+ts2 ! Dimension to Keypoint Position 6
40 pos7=pos6+ts1 ! Dimension to Keypoint Position 7
41 pos8=pos7+ts2 ! Dimension to Keypoint Position 8
42 pos9=pos8+tw ! Dimension to Keypoint Position 9
43 pos10=pos9+ts2 ! Dimension to Keypoint Position 10
44 pos11=pos10+ts4 ! Dimension to Keypoint Position 11
45 posg=pos6+ts3 ! Dimension to Keypoint on Corner Guide
46 posei=pos11+egih ! Dimension to Keypoint on End Guide Fin Inner
47 poseo=posei-(ts4/tan(ang2)) ! Dimension to Keypoint on End Guide Fin Outer
48 posen=pos2+ts1/2-ts4/2 ! Dimension to Keypoint on End Guide Near Side
49 posef=pos2+ts1/2+ts4/2 ! Dimension to Keypoint on End Guide Far Side
50 poseg=pos6-(ts4/tan(ang1)) ! Dimension to Keypoint on End Guide Side

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51 poscg=pos10-(ts3/tan(ang3)) ! Dimension to Keypoint on Corner Guide Side
52 bkht=4.575/2 ! Basket Height (Half Height)
53 ibht=bkht+0.01 ! Inner barrier cavity height
54 lbgh=ibht-bkht ! Basket Gap Height
55 iblt=0.01 ! inner lid height
56 elev1=ibht+iblt ! Elevation of Top of Inner Barrier
57 ltigh=0.030 ! Lid to Lid Gap Height
58 elev2=elev1+ltigh ! Elevation of Bottom of Upper Outer Barrier Lid
59 oblht=0.06 ! outer lid height
60 elev3=elev2+oblht ! Elevation of Top of Upper Outer Barrier Lid
61 stht=0.225 ! skirt height
62 elev4=elev3+stht ! Elevation of Top of Waste Package
63 elev5=-(iblt+oblht) ! Elevation of Bottom of Lower Outer Barrier Lid
64 elev6=elev5-stht ! Elevation of Bottom of Waste Package
65 /com, Line Divisions
66 shd=1 ! Skirt Height Divisions
67 oblht=1 ! Outer Barrier Lid Divisions
68 gd=2 ! Gap Divisions
69 ibld=2 ! Inner Barrier Lid Divisions
70 bd=15 ! Basket Divisions
71 htwd=4 ! Half Tube Width Divisions
72 twd=4 ! Tube Width Divisions
73 thd=4 ! Tube Height Divisions
74 egfd=4 ! End Guide Fin Divisions
75 ptd=2 ! Plate Thickness Divisions
76 ttd=1 ! Tube Thickness Divisions
77 a1d=4 ! Arc 1 Divisions
78 a2d=4 ! Arc 2 Divisions
79 a3d=4 ! Arc 3 Divisions
80 a4d=4 ! Arc 4 Divisions
81 a5d=4 ! Arc 5 Divisions
82 a6d=4 ! Arc 6 Divisions
83 a7d=4 ! Arc 7 Divisions
84 a8d=4 ! Arc 8 Divisions
85 a9d=4 ! Arc 9 Divisions
86 ibtd=2 ! Inner Barrier Thickness Divisions
87 oblht=2 ! Outer Barrier Inner Thickness Divisions
88 std=2 ! Skirt Thickness Divisions
89 /com, Define Element Properties
90 et,1,solid45 ! Carbon Steel Tube
91 et,2,solid45 ! Stainless Steel - Boron Plate
92 et,3,solid45 ! Carbon Steel End Guide
93 et,4,solid45 ! Carbon Steel Corner Guide
94 et,5,solid45 ! Alloy 625 Inner Barrier
95 et,6,solid45 ! Alloy 625 Inner Barrier (Upper w/Backfill Weight)
96 !et,6,solid45 ! A 516 Carbon Steel Outer Barrier
97 !et,7,solid45 ! A 516 Carbon Steel Outer Barrier w/Backfill Weight
98 /com, ratio of static to dynamic coeff. of friction fact=1.298, Area Tol.=15%
99 /com, Room Temperature Properties of Materials
100 mp,ex,1,206e9 ! A516 Carbon Steel Tube
101 mp,ex,2,195e9 ! 316B6A Stainless Steel - Boron Plate (316L Properties)
102 mp,ex,3,206e9 ! A516 Carbon Steel End Guide
103 mp,ex,4,206e9 ! A516 Carbon Steel Corner Guide
104 mp,ex,5,208e9 ! Alloy 625 Inner Barrier
105 mp,ex,6,208e9 ! Alloy 625 Inner Barrier (Upper w/Backfill Weight)
106 !mp,ex,6,206e9 ! A516 Carbon Steel Outer Barrier
107 !mp,ex,7,206e9 ! A516 Carbon Steel Outer Barrier w/Backfill Weight
108 mp,nuxy,1,0.3 ! A516 Carbon Steel Tube
109 mp,nuxy,2,0.298 ! 316B6A Stainless Steel - Boron Plate (316 Properties)
110 mp,nuxy,3,0.3 ! A516 Carbon Steel End Guide
111 mp,nuxy,4,0.3 ! A516 Carbon Steel Corner Guide
112 mp,nuxy,5,0.278 ! Alloy 625 Inner Barrier
113 mp,nuxy,6,0.278 ! Alloy 625 Inner Barrier (Upper w/Backfill Weight)
114 !mp,nuxy,6,0.3 ! A516 Carbon Steel Outer Barrier
115 !mp,nuxy,7,0.3 ! A516 Carbon Steel Outer Barrier w/Backfill Weight
116 mp,dens,1,8131 ! A516 Carbon Steel Tube
117 mp,dens,2,89020.33 ! 316B6A Stainless Steel - Boron Plate (Adjusted to include tube and SNF masses)
118 mp,dens,3,16262 ! A516 Carbon Steel End Guide
119 mp,dens,4,16262 ! A516 Carbon Steel Corner Guide
120 mp,dens,5,8442 ! Alloy 625 Inner Barrier

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121 mp,dens,6,440860 ! Alloy 625 Inner Barrier (Upper w/Backfill Weight)
122 !mp,dens,6,8131 ! A516 Carbon Steel Outer Barrier
123 !mp,mu,7,0.57 ! Coefficient of Friction (Steel on Steel Assumed)
124 !tb,biso,1
125 !tbdata,,260e6,1.078e9 ! A 516 Carbon Steel Tubes
126 !tb,biso,2
127 !tbdata,,172e6,0.7767e9 ! 316L Stainless Steel
128 !tb,biso,3
129 !tbdata,,260e6,1.078e9 ! A 516 Carbon Steel End Guide
130 !tb,biso,4
131 !tbdata,,260e6,1.078e9 ! A 516 Carbon Steel Corner Guide
132 !tb,biso,5
133 !tbdata,,379e6,1.271e9 ! Alloy 625
134 !tb,biso,6
135 !tbdata,,260e6,1.078e9 ! A 516 Carbon Steel Outer Barrier
136 !tb,biso,7
137 !tbdata,,260e6,1.078e9 ! A 516 Carbon Steel Outer Barrier w/Backfill Weight
138 /com
139 /com, Define keypoints in the basket assembly
140 csys,0
141 k,1,0,0
142 k,2,pos1,0
143 k,3,pos2,0
144 k,4,pos3,0
145 k,5,pos4,0
146 k,6,pos5,0
147 k,7,pos6,0
148 k,8,pos7,0
149 k,9,pos8,0
150 k,10,pos9,0
151 k,11,pos10,0
152 k,12,pos11,0
153 k,13,pos1,pos1
154 k,14,pos4,pos1
155 k,15,pos5,pos1
156 k,16,pos8,pos1
157 k,17,pos9,pos1
158 k,18,pos2,pos2
159 k,19,pos3,pos2
160 k,20,pos6,pos2
161 k,21,pos7,pos2
162 k,22,pos10,pos2
163 k,23,pos11,posef
164 !k,24,posei,posef
165 csys,1
166 k,24,ibir,(180/pie)*atan(posef/posei)
167 csys,0
168 k,25,pos3,pos3
169 k,26,pos6,pos3
170 k,27,pos7,pos3
171 k,28,pos10,pos3
172 k,29,pos11,posef
173 !k,30,poseo,posef
174 csys,1
175 k,30,ibir,(180/pie)*atan(posef/poseo)
176 csys,0
177 k,31,pos4,pos4
178 k,32,pos5,pos4
179 k,33,pos8,pos4
180 k,34,pos9,pos4
181 k,35,pos5,pos5
182 k,36,pos8,pos5
183 k,37,pos9,pos5
184 !k,38,pos11,poseg
185 csys,1
186 k,38,ibir,(180/pie)*atan(poseg/pos11)
187 csys,0
188 k,39,pos6,pos6
189 k,40,pos7,pos6
190 !k,41,pos10,pos6

```



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191 csys,1
192 k,41,ibir,(180/pie)*atan(pos6/pos10)
193 csys,0
194 k,42,posg,posg
195 lk,43,poscg,posg
196 csys,1
197 k,43,ibir,(180/pie)*atan(posg/poscg)
198 k,44,ibir,0
199 k,45,ibir,45
200 k,46,obir,0
201 k,47,obir,(180/pie)*atan(posen/posei)
202 k,48,obir,(180/pie)*atan(posef/poseo)
203 k,49,obir,(180/pie)*atan(poseg/pos11)
204 k,50,obir,(180/pie)*atan(pos6/pos10)
205 k,51,obir,(180/pie)*atan(posg/poscg)
206 k,52,obir,45
207 k,53,obsr,0
208 k,54,obsr,(180/pie)*atan(posen/posei)
209 k,55,obsr,(180/pie)*atan(posef/poseo)
210 k,56,obsr,(180/pie)*atan(poseg/pos11)
211 k,57,obsr,(180/pie)*atan(pos6/pos10)
212 k,58,obsr,(180/pie)*atan(posg/poscg)
213 k,59,obsr,45
214 k,60,obor,0
215 k,61,obor,(180/pie)*atan(posen/posei)
216 k,62,obor,(180/pie)*atan(posef/poseo)
217 k,63,obor,(180/pie)*atan(poseg/pos11)
218 k,64,obor,(180/pie)*atan(pos6/pos10)
219 k,65,obor,(180/pie)*atan(posg/poscg)
220 k,66,obor,45
221 local,11,0,0,0,0,45,0,0,
222 ksymm,y,all,,,0,0,0
223 nummrg,kp
224 csys,0
225 ksymm,y,all,,,0,0,0
226 nummrg,kp
227 kdel,2,12,1
228 k,1001,0,0,bkht
229 l,1,1001 ! Line 1 for VDRAG of Basket
230 lesize,all,,,bd,.2,0
231 k,2001,0,0,ibht
232 l,1001,2001 ! Line 2 for VDRAG of Basket to Inner Barrier Lid Gap
233 lesize,all,,,gd,1,0
234 k,3001,0,0,elev1
235 l,2001,3001 ! Line 3 for VDRAG of Inner Barrier Upper Lid
236 lesize,all,,,ibld,1,0
237 k,4001,0,0,elev2
238 l,3001,4001 ! Line 4 for VDRAG of Lid to Lid Gap
239 lesize,all,,,gd,1,0
240 k,5001,0,0,elev3
241 l,4001,5001 ! Line 5 for VDRAG of Outer Barrier Upper Lid
242 lesize,all,,,obld,1,0
243 k,6001,0,0,elev4
244 l,5001,6001 ! Line 6 for VDRAG of Upper Skirt
245 lesize,all,,,shd,1,0
246 k,7001,0,0,-iblt
247 l,1,7001 ! Line 7 for VDRAG of IB Lower Lid
248 lesize,all,,,ibld,1,0
249 k,8001,0,0,elev5
250 l,7001,8001 ! Line 8 for VDRAG of OB Lower Lid
251 lesize,all,,,obld,1,0
252 k,9001,0,0,elev6
253 l,8001,9001 ! Line 9 for VDRAG of Lower Skirt
254 lesize,all,,,shd,1,0
255 /com, line set 1 Tube Width for Half Tubes on Symmetry Plane
256 L, 197, 206 ! Line 10
257 L, 196, 205
258 L, 195, 201
259 L, 194, 200
260 L, 193, 204

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261	L,	192,	203
262	L,	191,	199
263	L,	190,	198
264	L,	189,	202
265	L,	188,	138
266	L,	187,	133 ! 20
267	L,	68,	13
268	L,	69,	18
269	L,	70,	85
270	L,	71,	80
271	L,	72,	81
272	L,	73,	86
273	L,	74,	87
274	L,	75,	82
275	L,	76,	83
276	L,	77,	88 ! 30
277	L,	78,	89
278	lesize,all,,,htwd,1,0		
279	/com, line set 2 Tube Widths		
280	L,	211,	218
281	L,	210,	220
282	L,	215,	217
283	L,	214,	216
284	L,	209,	219
285	L,	208,	159
286	L,	213,	155
287	L,	151,	152
288	L,	145,	146 ! 40
289	L,	139,	140
290	L,	134,	135
291	L,	14,	15
292	L,	19,	20
293	L,	25,	26
294	L,	31,	32
295	L,	98,	35
296	L,	92,	39
297	L,	93,	106
298	L,	99,	102 ! 50
299	L,	100,	103
300	L,	94,	107
301	L,	95,	104
302	lesize,all,,,twd,1,0		
303	/com, line set 3 Tube Widths on End Column		
304	L,	162,	163
305	L,	160,	161
306	L,	156,	157
307	L,	153,	154
308	L,	147,	148
309	L,	141,	142
310	L,	136,	137 ! 60
311	L,	16,	17
312	L,	21,	22
313	L,	27,	28
314	L,	33,	34
315	L,	36,	37
316	L,	40,	41
317	L,	42,	43
318	lesize,all,,,twd,1,0		
319	/com, line set 4 Tube Heights		
320	L,	201,	200
321	L,	205,	204
322	L,	210,	209 ! 70
323	L,	215,	214
324	L,	217,	216
325	L,	220,	219
326	L,	221,	162
327	L,	199,	198
328	L,	203,	202
329	L,	208,	145
330	L,	213,	151

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331 L, 155, 152
332 L, 159, 146 ! 80
333 L, 160, 147
334 L, 156, 153
335 L, 157, 154
336 L, 161, 148
337 L, 133, 13
338 L, 138, 18
339 L, 139, 19
340 L, 134, 14
341 L, 135, 15
342 L, 140, 20 ! 90
343 L, 141, 21
344 L, 136, 16
345 L, 137, 17
346 L, 142, 22
347 L, 143, 23
348 L, 80, 81
349 L, 85, 86
350 L, 25, 92
351 L, 31, 98
352 L, 32, 35 ! 100
353 L, 26, 39
354 L, 27, 40
355 L, 33, 36
356 L, 34, 37
357 L, 28, 41
358 L, 29, 38
359 L, 82, 83
360 L, 87, 88
361 L, 93, 94
362 L, 99, 100 ! 110
363 L, 102, 103
364 L, 106, 107
365 L, 42, 109
366 L, 158, 149
367 lesize,all,,,thd,1,0
368 /com, line set 5 End Guide Fins
369 L, 207, 206
370 L, 212, 211
371 L, 150, 149
372 L, 144, 143
373 L, 24, 23
374 L, 30, 29 ! 120
375 L, 96, 95
376 L, 90, 89
377 lesize,all,,,egfd,1,0
378 /com, line set 6 SS-B Plate Thickness
379 L, 197, 196
380 L, 206, 205
381 L, 211, 210
382 L, 207, 212
383 L, 206, 211
384 L, 205, 210
385 L, 218, 220
386 L, 220, 221 ! 130
387 L, 193, 192
388 L, 204, 203
389 L, 209, 208
390 L, 204, 209
391 L, 203, 208
392 L, 219, 159
393 L, 162, 160
394 L, 163, 161
395 L, 161, 158
396 L, 219, 162 ! 140
397 L, 159, 160
398 L, 189, 188
399 L, 202, 138
400 L, 145, 139

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401	L,	202,	145	
402	L,	138,	139	
403	L,	146,	140	
404	L,	147,	141	
405	L,	146,	147	
406	L,	140,	141	! 150
407	L,	148,	142	
408	L,	149,	143	
409	L,	148,	149	
410	L,	142,	143	
411	L,	150,	144	
412	L,	69,	70	
413	L,	18,	85	
414	L,	19,	25	
415	L,	18,	19	
416	L,	85,	25	! 160
417	L,	20,	26	
418	L,	21,	27	
419	L,	20,	21	
420	L,	26,	27	
421	L,	22,	28	
422	L,	22,	23	
423	L,	28,	29	
424	L,	23,	29	
425	L,	24,	30	
426	L,	73,	74	! 170
427	L,	86,	87	
428	L,	92,	93	
429	L,	86,	92	
430	L,	87,	93	
431	L,	39,	106	
432	L,	40,	42	
433	L,	39,	40	
434	L,	106,	42	
435	L,	38,	41	
436	L,	41,	43	! 180
437	L,	77,	78	
438	L,	88,	89	
439	L,	94,	95	
440	L,	88,	94	
441	L,	89,	95	
442	L,	90,	96	
443	L,	109,	107	
444	L,	107,	104	
445	L,	224,	225	
446	L,	230,	231	! 190
447	L,	236,	237	
448	L,	226,	227	
449	L,	227,	228	
450	L,	232,	233	
451	L,	233,	234	
452	L,	238,	239	
453	L,	239,	240	
454	L,	171,	170	
455	L,	170,	169	
456	L,	178,	177	! 200
457	L,	177,	176	
458	L,	185,	184	
459	L,	184,	183	
460	L,	168,	167	
461	L,	175,	174	
462	L,	182,	181	
463	L,	47,	48	
464	L,	54,	55	
465	L,	61,	62	
466	L,	49,	50	! 210
467	L,	50,	51	
468	L,	56,	57	
469	L,	57,	58	
470	L,	63,	64	

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471 L,      64,      65
472 L,     117,     116
473 L,     116,     115
474 L,     124,     123
475 L,     123,     122
476 L,     131,     130 ! 220
477 L,     130,     129
478 L,     114,     113
479 L,     121,     120
480 L,     128,     127
481 lesize,all,,,ptd,1,0
482 /com, line set 7 tube thickness
483 L,     196,     195
484 L,     205,     201
485 L,     204,     200
486 L,     193,     194
487 L,     210,     215
488 L,     220,     217 ! 230
489 L,     219,     216
490 L,     209,     214
491 L,     192,     191
492 L,     203,     199
493 L,     202,     198
494 L,     189,     190
495 L,     208,     213
496 L,     159,     155
497 L,     146,     152
498 L,     145,     151 ! 240
499 L,     160,     156
500 L,     161,     157
501 L,     148,     154
502 L,     147,     153
503 L,     188,     187
504 L,     138,     133
505 L,      18,      13
506 L,      69,      68
507 L,     139,     134
508 L,     140,     135 ! 250
509 L,      20,      15
510 L,      19,      14
511 L,     141,     136
512 L,     142,     137
513 L,      22,      17
514 L,      21,      16
515 L,      70,      71
516 L,      85,      80
517 L,      86,      81
518 L,      73,      72 ! 260
519 L,      25,      31
520 L,      26,      32
521 L,      39,      35
522 L,      92,      98
523 L,      27,      33
524 L,      28,      34
525 L,      41,      37
526 L,      40,      36
527 L,      74,      75
528 L,      87,      82 ! 270
529 L,      88,      83
530 L,      77,      76
531 L,      93,      99
532 L,     106,     102
533 L,     107,     103
534 L,      94,     100
535 lesize,all,,,ttd,1,0
536 csys,1
537 /com, line set 8, arc 1 bottom
538 L,     222,     207
539 L,     223,     224
540 L,     229,     230

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541 L,      235,      236 ! 280
542 lesize,all,,,a1d,1,0
543 /com, line set 9, arc 2 side arcs
544 L,      212,      218
545 L,      225,      226
546 L,      231,      232
547 L,      237,      238
548 lesize,all,,,a2d,1,0
549 /com, line set 10, arc 3 side arcs
550 L,      221,      163
551 L,      228,      171
552 L,      234,      178
553 L,      240,      185
554 lesize,all,,,a3d,1,0
555 /com, line set 11, arc 4 side arcs
556 L,      158,      150
557 L,      169,      168 ! 290
558 L,      176,      175
559 L,      183,      182
560 lesize,all,,,a4d,1,0
561 /com, line set 12, arc 5 side arcs
562 L,      144,      24
563 L,      167,      47
564 L,      174,      54
565 L,      181,      61
566 lesize,all,,,a5d,1,0
567 /com, line set 13, arc 6 side arcs
568 L,      30,      38
569 L,      48,      49
570 L,      55,      56
571 L,      62,      63 ! 300
572 lesize,all,,,a6d,1,0
573 /com, line set 14, arc 7 side arcs
574 L,      43,      109
575 L,      51,      117
576 L,      58,      124
577 L,      65,      131
578 lesize,all,,,a7d,1,0
579 /com, line set 15, arc 8 side arcs
580 L,      104,      96
581 L,      115,      114
582 L,      122,      121
583 L,      129,      128
584 lesize,all,,,a8d,1,0
585 /com, line set 16, arc 9 top arcs
586 L,      90,      110
587 L,      113,      112 ! 310
588 L,      120,      119
589 L,      127,      126
590 lesize,all,,,a9d,1,0
591 csys,0
592 /com, line set 17 IB thickness
593 L,      222,      223
594 L,      207,      224
595 L,      212,      225
596 L,      218,      226
597 L,      220,      227
598 L,      221,      228
599 L,      163,      171
600 L,      161,      170 ! 320
601 L,      158,      169
602 L,      150,      168
603 L,      144,      167
604 L,      24,      47
605 L,      30,      48
606 L,      38,      49
607 L,      41,      50
608 L,      43,      51
609 L,      109,      117
610 L,      107,      116 ! 330

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611 L,      104,      115
612 L,      96,       114
613 L,      90,       113
614 L,     110,       112
615 lesize,all,,,ibtd,1,0
616 /com, line set 18 08 inner thickness
617 L,     223,       229
618 L,     224,       230
619 L,     225,       231
620 L,     226,       232
621 L,     227,       233
622 L,     228,       234 ! 340
623 L,     171,       178
624 L,     170,       177
625 L,     169,       176
626 L,     168,       175
627 L,     167,       174
628 L,      47,        54
629 L,      48,        55
630 L,      49,        56
631 L,      50,        57
632 L,      51,        58 ! 350
633 L,     117,       124
634 L,     116,       123
635 L,     115,       122
636 L,     114,       121
637 L,     113,       120
638 L,     112,       119
639 lesize,all,,,obitd,1,0
640 /com, line set 19 skirt thickness
641 L,     229,       235
642 L,     230,       236
643 L,     231,       237
644 L,     232,       238 ! 360
645 L,     233,       239
646 L,     234,       240
647 L,     178,       185
648 L,     177,       184
649 L,     176,       183
650 L,     175,       182
651 L,     174,       181
652 L,      54,        61
653 L,      55,        62
654 L,      56,        63 ! 370
655 L,      57,        64
656 L,      58,        65
657 L,     124,       131
658 L,     123,       130
659 L,     122,       129
660 L,     121,       128
661 L,     120,       127
662 L,     119,       126
663 lesize,all,,,std,1,0
664 /com, lines to fill in lids
665 /com, lines tube height
666 l,195,194          ! 379
667 l,191,190          ! 380
668 l,187,68           ! 381
669 l,71,72            ! 382
670 l,75,76            ! 383
671 lesize,all,,,thd,1,0
672 /com, end lines
673 l,222,197          ! 384
674 l,78,110           ! 385
675 lesize,all,,,egfd,1,0
676 /com, area set 1, tubes
677 a,195,196,205,201
678 a,200,201,205,204
679 a,193,194,200,204
680 a,191,192,203,199

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681 a,198,199,203,202
682 a,189,190,198,202
683 a,187,188,138,133
684 a,133,138,18,13
685 a,69,68,13,18
686 a,71,70,85,80
687 a,80,85,86,81
688 a,73,72,81,86
689 a,75,74,87,82
690 a,82,87,88,83
691 a,77,76,83,88
692 a,209,210,215,214
693 a,215,210,220,217
694 a,216,217,220,219
695 a,209,214,216,219
696 a,145,208,213,151
697 a,213,208,159,155
698 a,152,155,159,146
699 a,145,151,152,146
700 a,134,139,140,135
701 a,135,140,20,15
702 a,19,14,15,20
703 a,19,139,134,14
704 a,92,25,31,98
705 a,31,25,26,32
706 a,32,26,39,35
707 a,92,98,35,39
708 a,94,93,99,100
709 a,99,93,106,102
710 a,102,106,107,103
711 a,94,100,103,107
712 a,156,160,161,157
713 a,157,161,148,154
714 a,147,153,154,148
715 a,147,160,156,153
716 a,136,141,142,137
717 a,137,142,22,17
718 a,21,16,17,22
719 a,21,141,136,16
720 a,33,27,28,34
721 a,34,28,41,37
722 a,40,36,37,41
723 a,40,27,33,36
724 /com, area set 2, plates
725 a,204,205,210,209
726 a,192,193,204,203
727 a,203,204,209,208
728 a,208,209,219,159
729 a,202,203,208,145
730 a,146,159,160,147
731 a,188,189,202,138
732 a,138,202,145,139
733 a,139,145,146,140
734 a,140,146,147,141
735 a,141,147,148,142
736 a,18,138,139,19
737 a,20,140,141,21
738 a,70,69,18,85
739 a,85,18,19,25
740 a,25,19,20,26
741 a,26,20,21,27
742 a,27,21,22,28
743 a,86,85,25,92
744 a,39,26,27,40
745 a,74,73,86,87
746 a,87,86,92,93
747 a,93,92,39,106
748 a,88,87,93,94
749 /com, area set 3, end guides
750 a,196,197,206,205

751 a,205,206,211,210
752 a,206,207,212,211
753 a,210,211,218,220
754 a,148,161,158,149
755 a,142,148,149,143
756 a,143,149,150,144
757 a,22,142,143,23
758 a,28,22,23,29
759 a,29,23,24,30
760 a,41,28,29,38
761 a,95,94,107,104
762 a,89,88,94,95
763 a,90,89,95,96
764 a,78,77,88,89
765 /com, area set 4, corner guides
766 a,219,220,221,162
767 a,159,219,162,160
768 a,160,162,163,161
769 a,107,106,42,109
770 a,106,39,40,42
771 a,42,40,41,43
772 csys,1
773 /com, area set 5, inner barrier
774 a,222,223,224,207
775 a,207,224,225,212
776 a,212,225,226,218
777 a,218,226,227,220
778 a,220,227,228,221
779 a,221,228,171,163
780 a,163,171,170,161
781 a,161,170,169,158
782 a,158,169,168,150
783 a,150,168,167,144
784 a,144,167,47,24
785 a,24,47,48,30
786 a,30,48,49,38
787 a,38,49,50,41
788 a,41,50,51,43
789 a,43,51,117,109
790 a,109,117,116,107
791 a,107,116,115,104
792 a,104,115,114,96
793 a,90,96,114,113
794 a,90,113,112,110
795 /com, area set 6, outer barrier
796 !a,223,229,230,224
797 !a,224,230,231,225
798 !a,225,231,232,226
799 !a,226,232,233,227
800 !a,227,233,234,228
801 !a,228,234,178,171
802 !a,171,178,177,170
803 !a,170,177,176,169
804 !a,169,176,175,168
805 !a,168,175,174,167
806 !a,167,174,54,47
807 !a,47,54,55,48
808 !a,48,55,56,49
809 !a,49,56,57,50
810 !a,50,57,58,51
811 !a,51,58,124,117
812 !a,117,124,123,116
813 !a,116,123,122,115
814 !a,115,122,121,114
815 !a,114,121,120,113
816 !a,113,120,119,112
817 !a,229,235,236,230
818 !a,236,237,231,230
819 !a,231,237,238,232
820 !a,238,239,233,232

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821 !a,239,240,234,233
822 !a,240,185,178,234
823 !a,185,184,177,178
824 !a,184,183,176,177
825 !a,176,183,182,175
826 !a,175,182,181,174
827 !a,174,181,61,54
828 !a,54,61,62,55
829 !a,55,62,63,56
830 !a,56,63,64,57
831 !a,57,64,65,58
832 !a,58,65,131,124
833 !a,124,131,130,123
834 !a,123,130,129,122
835 !a,122,129,128,121
836 !a,121,128,127,120
837 !a,120,127,126,119
838 csys,0
839 vdrag,all,,,,,1 ! Drag Basket
840 asel,s,loc,z,bkht
841 csys,1
842 asel,u,loc,x,0,ibir-0.03
843 csys,0
844 vdrag,all,,,,,2 ! Drag Basket to Lid Gap
845 /com, copy areas from top of basket to bottom of lid
846 asel,s,loc,z,bkht-0.01
847 csys,1
848 asel,r,loc,x,0,ibir-0.03
849 csys,0
850 agen,2,all,,,,,0.01
851 nummrg,kp
852 /com, generate lines to fill in lid at top of WP
853 /com, lines tube height
854 L,414,421 ! 1121
855 L,422,429 ! 1124
856 L,430,437 ! 1125
857 L,438,445 ! 1131
858 L,446,453 ! 1138
859 lesize,all,,,thd,1,0
860 /com, end lines
861 L,370,518 ! 1141
862 L,539,413 ! 1151
863 lesize,all,,,egfd,1,0
864 al,832,1116,1120,1141
865 al,936,937,941,1121
866 al,946,947,951,1124
867 al,956,959,961,1125
868 al,966,969,971,1131
869 al,976,979,981,1138
870 al,932,1143,1147,1151
871 al,842,1122,1123
872 al,985,989,990,993
873 al,997,1001,1002,1005
874 al,1010,1013,1015,1018
875 al,1021,1025,1028,1029
876 al,1033,1037,1040,1041
877 al,922,1144,1148
878 al,857,1153,1156
879 al,1046,1049,1051,1054
880 al,1058,1061,1063,1066
881 al,1070,1073,1075,1078
882 al,907,1159,1163
883 al,872,1126,1130
884 al,882,1132,1133,1137
885 al,892,1139,1140
886 asel,s,loc,z,ibht+0.01
887 vdrag,all,,,,,3 ! Drag Inner Barrier Upper Lid
888 !asel,s,loc,z,elev1+0.015
889 !csys,1
890 !asel,r,loc,x,obir,obor

```

```

891 !csys,0
892 !vdrag,all,,,,,4      ! Drag Lid to Lid Gap
893 !asel,s,loc,z,elev1+0.015
894 !asel,r,loc,z,elev1-0.015
895 !csys,1
896 !asel,r,loc,x,0,obir
897 !csys,0
898 !agen,2,all,,,,,ltlgh
899 !nummrg,kp
900 !asel,s,loc,z,elev2+0.015
901 !vdrag,all,,,,,5      ! Drag Outer Barrier Upper Lid
902 !asel,s,loc,z,elev3
903 !csys,1
904 !asel,r,loc,x,obsr,obor
905 !csys,0
906 !vdrag,all,,,,,6      ! Drag Upper Skirt
907 /com, lines at bottom lid used to be here
908 !al,10,115,277,384
909 !al,12,13,68,379
910 !al,16,17,75,380
911 !al,20,21,85,381
912 !al,24,25,96,382
913 !al,28,29,107,383
914 !al,31,122,309,385
915 !al,32,116,281
916 !al,34,35,71,72
917 !al,38,39,78,79
918 !al,42,43,88,89
919 !al,46,47,99,100
920 !al,50,51,110,111
921 !al,53,121,305
922 !al,54,74,285
923 !al,56,57,82,83
924 !al,60,61,92,93
925 !al,64,65,103,104
926 !al,67,113,301
927 !al,114,117,289
928 !al,95,118,119,293
929 !al,106,120,297
930 !asel,s,loc,z,0
931 !vdrag,all,,,,,7      ! Drag Inner Barrier Lower Lid
932 !csys,0
933 !asel,s,loc,z,-iblt
934 !vdrag,all,,,,,8      ! Drag Outer Barrier Lower Lid
935 !asel,s,loc,z,elev5
936 !csys,1
937 !asel,r,loc,x,obsr,obor
938 !csys,0
939 !vdrag,all,,,,,9      ! Drag Lower Skirt
940 /com
941 /com, Mesh Volumes
942 /com
943 /com, Mesh the CS Tubes
944 /com
945 !vsel,s,volu,,1,47
946 !type,1
947 !mat,1
948 !vmesh,all
949 /com, Mesh SS-B Plates
950 vsel,s,volu,,48,71
951 type,2
952 mat,2
953 vmesh,all
954 /com, Mesh End Guides
955 vsel,s,volu,,72,86
956 type,3
957 mat,3
958 vmesh,all
959 /com, Mesh Corner Guides
960 vsel,s,volu,,87,92

```

```

961 type,4
962 mat,4
963 vmesh,all
964 /com, Mesh Inner Barrier
965 vsel,s,loc,z,0,elev1
966 csys,1
967 vsel,r,loc,x,0,obir
968 vsel,u,volu,,1,92
969 vsel,u,loc,x,ibir-0.02,obir
970 vsel,a,loc,y,-90,5
971 vsel,u,volu,,1,92
972 vsel,u,loc,x,obir,obor
973 vsel,r,loc,z,-iblt,elev1
974 csys,0
975 type,5
976 mat,5
977 vmesh,all
978 /com, Mesh Upper Inner Barrier Adding Backfill Mass
979 vsel,inve
980 csys,1
981 vsel,u,loc,x,obir,obor
982 vsel,r,loc,z,0,elev1
983 vsel,u,volu,,1,92
984 csys,0
985 type,6
986 mat,6
987 vmesh,all
988 /com, Mesh Lower Outer Barrier and Lids
989 !vsel,inve
990 !vsel,u,volu,,1,92
991 !csys,1
992 !vsel,u,loc,x,obir,obor
993 !vsel,a,loc,y,-90,5
994 !vsel,u,volu,,1,92
995 !vsel,u,type,,5
996 !type,6
997 !mat,6
998 !vmesh,all
999 /com, mesh upper outer barrier adding backfill mass
1000 !vsel,inve
1001 !vsel,u,type,,1,5
1002 !type,7
1003 !mat,7
1004 !vmesh,all
1005 /com
1006 /com, Apply Symmetry Constraints
1007 csys,0
1008 nsel,s,loc,x,0
1009 dsym,symm,x,0
1010 nsel,s,loc,z,0
1011 dsym,symm,z,0
1012 /com, Apply Constraints at Support Locations
1013 /com, Span approximately half of basket height, width = 0.305 m
1014 csys,1
1015 nsel,s,loc,z,(7*bkht/bd),(10*bkht/bd)+0.02
1016 nsel,r,loc,x,obir-0.001,obir+0.001
1017 nsel,r,loc,y,-70,-50
1018 csys,0
1019 d,all,uy,0
1020 allsel
1021 save
1022 fini
1023
1024 /sol
1025 antype,modal
1026 modopt,subsp,8
1027 outres,all,1
1028 save
1029 solve
1030 fini

```

```
1031
1032 /sol
1033 expass,on
1034 mxpand,8,,,yes
1035 solve
1036 fini
1037
1038 /sol
1039 antype,spectr
1040 spopt,sprs,,on
1041 sed,,1
1042 svtyp,2
1043 freq,0.1,100
1044 sv,,16.285,16.285
1045 mcomb,srss,1e-8
1046 outres,all,1
1047 save
1048 solve
1049 fini
1050 /exit
1051 /eof
```

RUN SETUP PROCEDURE FROM FILE= /ansys51/docu/start.ans

/INPUT FILE= /ansys51/docu/start.ans LINE= 0

ABBREVIATION= REplot /REplot

PARAMETER PI = 3.141593

ANSYS STARTUP FILE start.ans

ABBREVIATION= VEC /show,,,1,
ABBREVIATION= RAS /show,,,0,
ABBREVIATION= INP /input,,inp,
ABBREVIATION= ESC /exit,nosav,
ABBREVIATION= K1 /pnum,kp ,1,
ABBREVIATION= K0 /pnum,kp ,0,
ABBREVIATION= L1 /pnum,line,1,
ABBREVIATION= L0 /pnum,line,0,
ABBREVIATION= A1 /pnum,area,1,
ABBREVIATION= A0 /pnum,area,0,
ABBREVIATION= V1 /pnum,volu,1,
ABBREVIATION= V0 /pnum,volu,0,
ABBREVIATION= N1 /pnum,node,1,
ABBREVIATION= N0 /pnum,node,0,
ABBREVIATION= E1 /pnum,elem,1,
ABBREVIATION= E0 /pnum,elem,0,
ABBREVIATION= M1 /pnum,mat ,1,
ABBREVIATION= M0 /pnum,mat ,0,
ABBREVIATION= R1 /pnum,real,1,

```

ABBREVIATION= R0      /pnum,real,0,
ABBREVIATION= T1      /pnum,type,1,
ABBREVIATION= T0      /pnum,type,0,
ABBREVIATION= C1      /number,1,
ABBREVIATION= CO      /number,0,
ABBREVIATION= X3D      /show,3d,
ABBREVIATION= X11      /show,x11,
ABBREVIATION= X11C     /show,x11c,
ABBREVIATION= ON       /menu,on,
XYZ TRIAD DISPLAY SET TO OFF

```

VIEW CONE ANGLE FOR WINDOW 1 25.00

```

*****
END start.ans
*****

```

To start ANSYS menu:

```

type:  x3d for console
       x11 for X-term color
       x11c for X-term color contour

```

```

type:  on

```

```

*****
*****
***** Seismic Analysis of 21 PWR Waste Package Under Degradation *****
***** Degree of Degradation in Outer Barrier: 100% *****
***** Degree of Degradation in Inner Barrier: 75% *****
***** Degree of Degradation in Basket Assembly: Tubes 100% *****
*****                                         Guides 50% *****
*****                                         SS-B Plates 0% *****
***** Backfill Present, Backfill Porosity: 25%, Rock Porosity: 10% *****
***** Quarter Symmetry Model *****
*****
*****
*****

```

NUMBER OF DATA BASE PAGES IN MEMORY (NVPAGE)= 512

SI UNITS SPECIFIED FOR INTERNAL

```

LENGTH      (L) = METER(M)
MASS         (M) = KILOGRAM(KG)
TIME         (t) = SECOND(SEC)
TEMPERATURE  (T) = KELVIN(K)
TOFFSET      = 0.0 KELVIN
CHARGE       (Q) = COULOMB
CURRENT      (i) = AMPERE (COULOMBS/SEC)
FORCE        (f) = NEWTON(N) (KG-M/SEC2)
PRESSURE     = PASCAL (NEWTON/M**2)
ENERGY       (W) = JOULE (N-M)
POWER        (P) = WATT (N-M/SEC)
CAPACITANCE  (C) = FARAD
INDUCTANCE   (L) = HENRY
MAGNETIC FLUX = WEBER
RESISTANCE   (R) = OHM
ELECTRIC POTENTIAL = VOLT

```

INPUT UNITS ARE ALSO SET TO SI

1

***** ANSYS - ENGINEERING ANALYSIS SYSTEM REVISION 5.1 24 *****
38303 VERSION=HP 9000/7XX 15:52:46 APR 09, 1996 CP= 0.380
FOR SUPPORT CALL ROBERT BAHNEY PHONE (702) 794-5337 FAX (702) 794-1844

***** ANSYS ANALYSIS DEFINITION (PREP7) *****

TITLE=

21 PWR Tube Seismic Analysis With Backfill

VIEW CONE ANGLE FOR WINDOW 1 0.00

Define Parameters

PARAMETER IBIR = 0.7109500
PARAMETER OBIR = 0.7159500
PARAMETER OBSR = 0.7709500
PARAMETER OBOR = 0.7809500
PARAMETER TS1 = 0.7000000E-02
PARAMETER TS2 = 0.5000000E-02
PARAMETER TS3 = 0.5000000E-02
PARAMETER TS4 = 0.5000000E-02
PARAMETER EGIH = 0.8550000E-01
PARAMETER PIE = 3.141593
PARAMETER ANG1 = 0.5235988
PARAMETER ANG2 = 1.396263
PARAMETER ANG3 = 1.012291
PARAMETER TW = 0.2285000
PARAMETER POS1 = 0.1142500
PARAMETER POS2 = 0.1192500
PARAMETER POS3 = 0.1262500
PARAMETER POS4 = 0.1312500
PARAMETER POS5 = 0.3597500
PARAMETER POS6 = 0.3647500
PARAMETER POS7 = 0.3717500
PARAMETER POS8 = 0.3767500
PARAMETER POS9 = 0.6052500
PARAMETER POS10 = 0.6102500
PARAMETER POS11 = 0.6152500
PARAMETER POSG = 0.3697500

PARAMETER POSEI	=	0.7007500
PARAMETER POSEO	=	0.6998684
PARAMETER POSEN	=	0.1202500
PARAMETER POSEF	=	0.1252500
PARAMETER POSEG	=	0.3560897
PARAMETER POSCG	=	0.6071257
PARAMETER BKHT	=	2.287500
PARAMETER IBHT	=	2.297500
PARAMETER IBLT	=	0.1000000E-01
PARAMETER ELEV1	=	2.307500
PARAMETER LTLGH	=	0.3000000E-01
PARAMETER ELEV2	=	2.337500
PARAMETER OBLT	=	0.6000000E-01
PARAMETER ELEV3	=	2.397500
PARAMETER SHTT	=	0.2250000
PARAMETER ELEV4	=	2.622500
PARAMETER ELEV5	=	-0.7000000E-01
PARAMETER ELEV6	=	-0.2950000
Line Divisions		
PARAMETER SHD	=	1.000000
PARAMETER OBLD	=	1.000000
PARAMETER GD	=	2.000000
PARAMETER IBLD	=	2.000000
PARAMETER BD	=	15.00000
PARAMETER HTWD	=	4.000000
PARAMETER TWD	=	4.000000
PARAMETER THD	=	4.000000
PARAMETER EGFD	=	4.000000
PARAMETER PTD	=	2.000000
PARAMETER TTD	=	1.000000
PARAMETER A1D	=	4.000000
PARAMETER A2D	=	4.000000
PARAMETER A3D	=	4.000000
PARAMETER A4D	=	4.000000
PARAMETER A5D	=	4.000000
PARAMETER A6D	=	4.000000

PARAMETER A7D = 4.000000

PARAMETER A8D = 4.000000

PARAMETER A9D = 4.000000

PARAMETER IBTD = 2.000000

PARAMETER OBITD = 2.000000

PARAMETER STD = 2.000000

Define Element Properties

ELEMENT TYPE 1 IS SOLID45 3-D STRUCTURAL SOLID
KEYOPT(1-12)= 0 0 0 0 0 0 0 0 0 0 0 0

CURRENT NODAL DOF SET IS UX UY UZ
THREE-DIMENSIONAL MODEL

ELEMENT TYPE 2 IS SOLID45 3-D STRUCTURAL SOLID
KEYOPT(1-12)= 0 0 0 0 0 0 0 0 0 0 0 0

CURRENT NODAL DOF SET IS UX UY UZ
THREE-DIMENSIONAL MODEL

ELEMENT TYPE 3 IS SOLID45 3-D STRUCTURAL SOLID
KEYOPT(1-12)= 0 0 0 0 0 0 0 0 0 0 0 0

CURRENT NODAL DOF SET IS UX UY UZ
THREE-DIMENSIONAL MODEL

ELEMENT TYPE 4 IS SOLID45 3-D STRUCTURAL SOLID
KEYOPT(1-12)= 0 0 0 0 0 0 0 0 0 0 0 0

CURRENT NODAL DOF SET IS UX UY UZ
THREE-DIMENSIONAL MODEL

ELEMENT TYPE 5 IS SOLID45 3-D STRUCTURAL SOLID
KEYOPT(1-12)= 0 0 0 0 0 0 0 0 0 0 0 0

CURRENT NODAL DOF SET IS UX UY UZ
THREE-DIMENSIONAL MODEL

ELEMENT TYPE 6 IS SOLID45 3-D STRUCTURAL SOLID
KEYOPT(1-12)= 0 0 0 0 0 0 0 0 0 0 0 0

CURRENT NODAL DOF SET IS UX UY UZ
THREE-DIMENSIONAL MODEL
ratio of static to dynamic coeff. of friction fact=1.298, Area Tol.=15%
Room Temperature Properties of Materials

MATERIAL 1 EX = 0.2060000E+12

MATERIAL 2 EX = 0.1950000E+12

MATERIAL 3 EX = 0.2060000E+12

MATERIAL 4 EX = 0.2060000E+12

MATERIAL 5 EX = 0.2080000E+12

MATERIAL 6 EX = 0.2080000E+12

MATERIAL 1 NUXY = 0.3000000

MATERIAL 2 NUXY = 0.2980000

MATERIAL 3 NUXY = 0.3000000

MATERIAL 4 NUXY = 0.3000000
MATERIAL 5 NUXY = 0.2780000
MATERIAL 6 NUXY = 0.2780000
MATERIAL 1 DENS = 8131.000
MATERIAL 2 DENS = 89020.33
MATERIAL 3 DENS = 16262.00
MATERIAL 4 DENS = 16262.00
MATERIAL 5 DENS = 8442.000
MATERIAL 6 DENS = 440860.0

Define keypoints in the basket assembly

ACTIVE COORDINATE SYSTEM SET TO 0 (CARTESIAN)

KEYPOINT 1 X,Y,Z= 0.000000E+00 0.000000E+00 0.000000E+00 IN CSYS= 0
KEYPOINT 2 X,Y,Z= 0.114250 0.000000E+00 0.000000E+00 IN CSYS= 0
KEYPOINT 3 X,Y,Z= 0.119250 0.000000E+00 0.000000E+00 IN CSYS= 0
KEYPOINT 4 X,Y,Z= 0.126250 0.000000E+00 0.000000E+00 IN CSYS= 0
KEYPOINT 5 X,Y,Z= 0.131250 0.000000E+00 0.000000E+00 IN CSYS= 0
KEYPOINT 6 X,Y,Z= 0.359750 0.000000E+00 0.000000E+00 IN CSYS= 0
KEYPOINT 7 X,Y,Z= 0.364750 0.000000E+00 0.000000E+00 IN CSYS= 0
KEYPOINT 8 X,Y,Z= 0.371750 0.000000E+00 0.000000E+00 IN CSYS= 0
KEYPOINT 9 X,Y,Z= 0.376750 0.000000E+00 0.000000E+00 IN CSYS= 0
KEYPOINT 10 X,Y,Z= 0.605250 0.000000E+00 0.000000E+00 IN CSYS= 0
KEYPOINT 11 X,Y,Z= 0.610250 0.000000E+00 0.000000E+00 IN CSYS= 0
KEYPOINT 12 X,Y,Z= 0.615250 0.000000E+00 0.000000E+00 IN CSYS= 0
KEYPOINT 13 X,Y,Z= 0.114250 0.114250 0.000000E+00 IN CSYS= 0
KEYPOINT 14 X,Y,Z= 0.131250 0.114250 0.000000E+00 IN CSYS= 0
KEYPOINT 15 X,Y,Z= 0.359750 0.114250 0.000000E+00 IN CSYS= 0
KEYPOINT 16 X,Y,Z= 0.376750 0.114250 0.000000E+00 IN CSYS= 0
KEYPOINT 17 X,Y,Z= 0.605250 0.114250 0.000000E+00 IN CSYS= 0
KEYPOINT 18 X,Y,Z= 0.119250 0.119250 0.000000E+00 IN CSYS= 0
KEYPOINT 19 X,Y,Z= 0.126250 0.119250 0.000000E+00 IN CSYS= 0
KEYPOINT 20 X,Y,Z= 0.364750 0.119250 0.000000E+00 IN CSYS= 0
KEYPOINT 21 X,Y,Z= 0.371750 0.119250 0.000000E+00 IN CSYS= 0
KEYPOINT 22 X,Y,Z= 0.610250 0.119250 0.000000E+00 IN CSYS= 0
KEYPOINT 23 X,Y,Z= 0.615250 0.120250 0.000000E+00 IN CSYS= 0

ACTIVE COORDINATE SYSTEM SET TO 1 (CYLINDRICAL)

```

KEYPOINT    24  X,Y,Z=  0.710950      9.73722      0.000000E+00  IN CSYS=  1
                0.700708      0.120243      0.000000E+00  IN CSYS=  0
ACTIVE COORDINATE SYSTEM SET TO      0 (CARTESIAN)
KEYPOINT    25  X,Y,Z=  0.126250      0.126250      0.000000E+00  IN CSYS=  0
KEYPOINT    26  X,Y,Z=  0.364750      0.126250      0.000000E+00  IN CSYS=  0
KEYPOINT    27  X,Y,Z=  0.371750      0.126250      0.000000E+00  IN CSYS=  0
KEYPOINT    28  X,Y,Z=  0.610250      0.126250      0.000000E+00  IN CSYS=  0
KEYPOINT    29  X,Y,Z=  0.615250      0.125250      0.000000E+00  IN CSYS=  0
ACTIVE COORDINATE SYSTEM SET TO      1 (CYLINDRICAL)
KEYPOINT    30  X,Y,Z=  0.710950      10.1464      0.000000E+00  IN CSYS=  1
                0.699831      0.125243      0.000000E+00  IN CSYS=  0
ACTIVE COORDINATE SYSTEM SET TO      0 (CARTESIAN)
KEYPOINT    31  X,Y,Z=  0.131250      0.131250      0.000000E+00  IN CSYS=  0
KEYPOINT    32  X,Y,Z=  0.359750      0.131250      0.000000E+00  IN CSYS=  0
KEYPOINT    33  X,Y,Z=  0.376750      0.131250      0.000000E+00  IN CSYS=  0
KEYPOINT    34  X,Y,Z=  0.605250      0.131250      0.000000E+00  IN CSYS=  0
KEYPOINT    35  X,Y,Z=  0.359750      0.359750      0.000000E+00  IN CSYS=  0
KEYPOINT    36  X,Y,Z=  0.376750      0.359750      0.000000E+00  IN CSYS=  0
KEYPOINT    37  X,Y,Z=  0.605250      0.359750      0.000000E+00  IN CSYS=  0
ACTIVE COORDINATE SYSTEM SET TO      1 (CYLINDRICAL)
KEYPOINT    38  X,Y,Z=  0.710950      30.0611      0.000000E+00  IN CSYS=  1
                0.615321      0.356131      0.000000E+00  IN CSYS=  0
ACTIVE COORDINATE SYSTEM SET TO      0 (CARTESIAN)
KEYPOINT    39  X,Y,Z=  0.364750      0.364750      0.000000E+00  IN CSYS=  0
KEYPOINT    40  X,Y,Z=  0.371750      0.364750      0.000000E+00  IN CSYS=  0
ACTIVE COORDINATE SYSTEM SET TO      1 (CYLINDRICAL)
KEYPOINT    41  X,Y,Z=  0.710950      30.8670      0.000000E+00  IN CSYS=  1
                0.610251      0.364751      0.000000E+00  IN CSYS=  0
ACTIVE COORDINATE SYSTEM SET TO      0 (CARTESIAN)
KEYPOINT    42  X,Y,Z=  0.369750      0.369750      0.000000E+00  IN CSYS=  0
ACTIVE COORDINATE SYSTEM SET TO      1 (CYLINDRICAL)
KEYPOINT    43  X,Y,Z=  0.710950      31.3421      0.000000E+00  IN CSYS=  1
                0.607206      0.369799      0.000000E+00  IN CSYS=  0
KEYPOINT    44  X,Y,Z=  0.710950      0.000000E+00  0.000000E+00  IN CSYS=  1
                0.710950      0.000000E+00  0.000000E+00  IN CSYS=  0

```

KEYPOINT	45	X,Y,Z=	0.710950	45.0000	0.000000E+00	IN CSYS= 1
			0.502718	0.502718	0.000000E+00	IN CSYS= 0
KEYPOINT	46	X,Y,Z=	0.715950	0.000000E+00	0.000000E+00	IN CSYS= 1
			0.715950	0.000000E+00	0.000000E+00	IN CSYS= 0
KEYPOINT	47	X,Y,Z=	0.715950	9.73722	0.000000E+00	IN CSYS= 1
			0.705636	0.121088	0.000000E+00	IN CSYS= 0
KEYPOINT	48	X,Y,Z=	0.715950	10.1464	0.000000E+00	IN CSYS= 1
			0.704753	0.126124	0.000000E+00	IN CSYS= 0
KEYPOINT	49	X,Y,Z=	0.715950	30.0611	0.000000E+00	IN CSYS= 1
			0.619649	0.358636	0.000000E+00	IN CSYS= 0
KEYPOINT	50	X,Y,Z=	0.715950	30.8670	0.000000E+00	IN CSYS= 1
			0.614543	0.367316	0.000000E+00	IN CSYS= 0
KEYPOINT	51	X,Y,Z=	0.715950	31.3421	0.000000E+00	IN CSYS= 1
			0.611476	0.372400	0.000000E+00	IN CSYS= 0
KEYPOINT	52	X,Y,Z=	0.715950	45.0000	0.000000E+00	IN CSYS= 1
			0.506253	0.506253	0.000000E+00	IN CSYS= 0
KEYPOINT	53	X,Y,Z=	0.770950	0.000000E+00	0.000000E+00	IN CSYS= 1
			0.770950	0.000000E+00	0.000000E+00	IN CSYS= 0
KEYPOINT	54	X,Y,Z=	0.770950	9.73722	0.000000E+00	IN CSYS= 1
			0.759844	0.130391	0.000000E+00	IN CSYS= 0
KEYPOINT	55	X,Y,Z=	0.770950	10.1464	0.000000E+00	IN CSYS= 1
			0.758893	0.135813	0.000000E+00	IN CSYS= 0
KEYPOINT	56	X,Y,Z=	0.770950	30.0611	0.000000E+00	IN CSYS= 1
			0.667251	0.386186	0.000000E+00	IN CSYS= 0
KEYPOINT	57	X,Y,Z=	0.770950	30.8670	0.000000E+00	IN CSYS= 1
			0.661753	0.395534	0.000000E+00	IN CSYS= 0
KEYPOINT	58	X,Y,Z=	0.770950	31.3421	0.000000E+00	IN CSYS= 1
			0.658450	0.401008	0.000000E+00	IN CSYS= 0
KEYPOINT	59	X,Y,Z=	0.770950	45.0000	0.000000E+00	IN CSYS= 1
			0.545144	0.545144	0.000000E+00	IN CSYS= 0
KEYPOINT	60	X,Y,Z=	0.780950	0.000000E+00	0.000000E+00	IN CSYS= 1
			0.780950	0.000000E+00	0.000000E+00	IN CSYS= 0
KEYPOINT	61	X,Y,Z=	0.780950	9.73722	0.000000E+00	IN CSYS= 1
			0.769699	0.132082	0.000000E+00	IN CSYS= 0
KEYPOINT	62	X,Y,Z=	0.780950	10.1464	0.000000E+00	IN CSYS= 1


```

0.768737 0.137575 0.000000E+00 IN CSYS= 0
KEYPOINT 63 X,Y,Z= 0.780950 30.0611 0.000000E+00 IN CSYS= 1
0.675906 0.391196 0.000000E+00 IN CSYS= 0
KEYPOINT 64 X,Y,Z= 0.780950 30.8670 0.000000E+00 IN CSYS= 1
0.670337 0.400664 0.000000E+00 IN CSYS= 0
KEYPOINT 65 X,Y,Z= 0.780950 31.3421 0.000000E+00 IN CSYS= 1
0.666991 0.406209 0.000000E+00 IN CSYS= 0
KEYPOINT 66 X,Y,Z= 0.780950 45.0000 0.000000E+00 IN CSYS= 1
0.552215 0.552215 0.000000E+00 IN CSYS= 0

```

COORDINATE SYSTEM 11 DEFINITION. TYPE= 0 (CARTESIAN)
 XC,YC,ZC= 0.000000E+00 0.000000E+00 0.000000E+00
 ANGLES= 45.00 0.00 0.00 PARAMETERS= 1.000 1.000
 ORIENTATION= 0.71 0.71 0.00 -0.71 0.71 0.00 0.00 0.00 1.00

ACTIVE COORDINATE SYSTEM SET TO 11 (CARTESIAN)

SYMMETRY TRANSFORMATION OF KEYPOINTS USING COMPONENT Y
 SET IS ALL SELECTED KEYPOINTS

MERGE COINCIDENT KEYPOINTS WITHIN TOLERANCE OF 0.10000E-03

```

KEYPOINT 1 USED FOR KEYPOINT(S) 67
KEYPOINT 13 USED FOR KEYPOINT(S) 79
KEYPOINT 18 USED FOR KEYPOINT(S) 84
KEYPOINT 25 USED FOR KEYPOINT(S) 91
KEYPOINT 31 USED FOR KEYPOINT(S) 97
KEYPOINT 35 USED FOR KEYPOINT(S) 101
KEYPOINT 39 USED FOR KEYPOINT(S) 105
KEYPOINT 42 USED FOR KEYPOINT(S) 108
KEYPOINT 45 USED FOR KEYPOINT(S) 111
KEYPOINT 52 USED FOR KEYPOINT(S) 118
KEYPOINT 59 USED FOR KEYPOINT(S) 125
KEYPOINT 66 USED FOR KEYPOINT(S) 132

```

ACTIVE COORDINATE SYSTEM SET TO 0 (CARTESIAN)

SYMMETRY TRANSFORMATION OF KEYPOINTS USING COMPONENT Y
 SET IS ALL SELECTED KEYPOINTS

MERGE COINCIDENT KEYPOINTS WITHIN TOLERANCE OF 0.10000E-03

```

KEYPOINT 1 USED FOR KEYPOINT(S) 67
KEYPOINT 2 USED FOR KEYPOINT(S) 79
KEYPOINT 3 USED FOR KEYPOINT(S) 84
KEYPOINT 4 USED FOR KEYPOINT(S) 91
KEYPOINT 5 USED FOR KEYPOINT(S) 97
KEYPOINT 6 USED FOR KEYPOINT(S) 101
KEYPOINT 7 USED FOR KEYPOINT(S) 105
KEYPOINT 8 USED FOR KEYPOINT(S) 108
KEYPOINT 9 USED FOR KEYPOINT(S) 111
KEYPOINT 10 USED FOR KEYPOINT(S) 118
KEYPOINT 11 USED FOR KEYPOINT(S) 125
KEYPOINT 12 USED FOR KEYPOINT(S) 132
KEYPOINT 44 USED FOR KEYPOINT(S) 164
KEYPOINT 46 USED FOR KEYPOINT(S) 166
KEYPOINT 53 USED FOR KEYPOINT(S) 173
KEYPOINT 60 USED FOR KEYPOINT(S) 180

```

DELETE SELECTED KEYPOINTS FROM 2 TC 12 BY 1

```

KEYPOINT 1001 X,Y,Z= 0.000000E+00 0.000000E+00 2.28750 IN CSYS= 0

```

LINE CONNECTS KEYPOINTS 1 1001

LINE NO.= 1 KP1= 1 TAN1= 0.0000 0.0000 -1.0000
KP2= 1001 TAN2= 0.0000 0.0000 1.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
TO NDIV = 15, SPACING RATIO = 0.200

KEYPOINT 2001 X,Y,Z= 0.000000E+00 0.000000E+00 2.29750 IN CSYS= 0

LINE CONNECTS KEYPOINTS 1001 2001
LINE NO.= 2 KP1= 1001 TAN1= 0.0000 0.0000 -1.0000
KP2= 2001 TAN2= 0.0000 0.0000 1.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
TO NDIV = 2, SPACING RATIO = 1.000

KEYPOINT 3001 X,Y,Z= 0.000000E+00 0.000000E+00 2.30750 IN CSYS= 0

LINE CONNECTS KEYPOINTS 2001 3001
LINE NO.= 3 KP1= 2001 TAN1= 0.0000 0.0000 -1.0000
KP2= 3001 TAN2= 0.0000 0.0000 1.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
TO NDIV = 2, SPACING RATIO = 1.000

KEYPOINT 4001 X,Y,Z= 0.000000E+00 0.000000E+00 2.33750 IN CSYS= 0

LINE CONNECTS KEYPOINTS 3001 4001
LINE NO.= 4 KP1= 3001 TAN1= 0.0000 0.0000 -1.0000
KP2= 4001 TAN2= 0.0000 0.0000 1.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
TO NDIV = 2, SPACING RATIO = 1.000

KEYPOINT 5001 X,Y,Z= 0.000000E+00 0.000000E+00 2.39750 IN CSYS= 0

LINE CONNECTS KEYPOINTS 4001 5001
LINE NO.= 5 KP1= 4001 TAN1= 0.0000 0.0000 -1.0000
KP2= 5001 TAN2= 0.0000 0.0000 1.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
TO NDIV = 1, SPACING RATIO = 1.000

KEYPOINT 6001 X,Y,Z= 0.000000E+00 0.000000E+00 2.62250 IN CSYS= 0

LINE CONNECTS KEYPOINTS 5001 6001
LINE NO.= 6 KP1= 5001 TAN1= 0.0000 0.0000 -1.0000
KP2= 6001 TAN2= 0.0000 0.0000 1.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
TO NDIV = 1, SPACING RATIO = 1.000

KEYPOINT 7001 X,Y,Z= 0.000000E+00 0.000000E+00 -0.100000E-01 IN CSYS= 0

LINE CONNECTS KEYPOINTS 1 7001
LINE NO.= 7 KP1= 1 TAN1= 0.0000 0.0000 1.0000
KP2= 7001 TAN2= 0.0000 0.0000 -1.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
TO NDIV = 2, SPACING RATIO = 1.000

KEYPOINT 8001 X,Y,Z= 0.000000E+00 0.000000E+00 -0.700000E-01 IN CSYS= 0

LINE CONNECTS KEYPOINTS 7001 8001
LINE NO.= 8 KP1= 7001 TAN1= 0.0000 0.0000 1.0000
KP2= 8001 TAN2= 0.0000 0.0000 -1.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
TO NDIV = 1, SPACING RATIO = 1.000

KEYPOINT 9001 X,Y,Z= 0.000000E+00 0.000000E+00 -0.295000 IN CSYS= 0

LINE CONNECTS KEYPOINTS 8001 9001
 LINE NO.= 9 KP1= 8001 TAN1= 0.0000 0.0000 1.0000
 KP2= 9001 TAN2= 0.0000 0.0000 -1.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
 TO NDIV = 1, SPACING RATIO = 1.000
 line set 1 Tube Width for Half Tubes on Symmetry Plane

LINE CONNECTS KEYPOINTS 197 206
 LINE NO.= 10 KP1= 197 TAN1= -1.0000 0.0000 0.0000
 KP2= 206 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 196 205
 LINE NO.= 11 KP1= 196 TAN1= -1.0000 0.0000 0.0000
 KP2= 205 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 195 201
 LINE NO.= 12 KP1= 195 TAN1= -1.0000 0.0000 0.0000
 KP2= 201 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 194 200
 LINE NO.= 13 KP1= 194 TAN1= -1.0000 0.0000 0.0000
 KP2= 200 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 193 204
 LINE NO.= 14 KP1= 193 TAN1= -1.0000 0.0000 0.0000
 KP2= 204 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 192 203
 LINE NO.= 15 KP1= 192 TAN1= -1.0000 0.0000 0.0000
 KP2= 203 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 191 199
 LINE NO.= 16 KP1= 191 TAN1= -1.0000 0.0000 0.0000
 KP2= 199 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 190 198
 LINE NO.= 17 KP1= 190 TAN1= -1.0000 0.0000 0.0000
 KP2= 198 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 189 202
 LINE NO.= 18 KP1= 189 TAN1= -1.0000 0.0000 0.0000
 KP2= 202 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 188 138
 LINE NO.= 19 KP1= 188 TAN1= -1.0000 0.0000 0.0000
 KP2= 138 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 187 133
 LINE NO.= 20 KP1= 187 TAN1= -1.0000 0.0000 0.0000
 KP2= 133 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 68 13
 LINE NO.= 21 KP1= 68 TAN1= -1.0000 0.0000 0.0000
 KP2= 13 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 69 18
 LINE NO.= 22 KP1= 69 TAN1= -1.0000 0.0000 0.0000
 KP2= 18 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 70 85
 LINE NO.= 23 KP1= 70 TAN1= -1.0000 0.0000 0.0000
 KP2= 85 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 71 80
 LINE NO.= 24 KP1= 71 TAN1= -1.0000 0.0000 0.0000
 KP2= 80 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 72 81

LINE NO.= 25 KP1= 72 TAN1= -1.0000 0.0000 0.0000
 KP2= 81 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 73 86
 LINE NO.= 26 KP1= 73 TAN1= -1.0000 0.0000 0.0000
 KP2= 86 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 74 87
 LINE NO.= 27 KP1= 74 TAN1= -1.0000 0.0000 0.0000
 KP2= 87 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 75 82
 LINE NO.= 28 KP1= 75 TAN1= -1.0000 0.0000 0.0000
 KP2= 82 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 76 83
 LINE NO.= 29 KP1= 76 TAN1= -1.0000 0.0000 0.0000
 KP2= 83 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 77 88
 LINE NO.= 30 KP1= 77 TAN1= -1.0000 0.0000 0.0000
 KP2= 88 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 78 89
 LINE NO.= 31 KP1= 78 TAN1= -1.0000 0.0000 0.0000
 KP2= 89 TAN2= 1.0000 0.0000 0.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
 TO NDIV = 4, SPACING RATIO = 1.000
 line set 2 Tube Widths

LINE CONNECTS KEYPOINTS 211 218
 LINE NO.= 32 KP1= 211 TAN1= -1.0000 0.0003 0.0000
 KP2= 218 TAN2= 1.0000 -0.0003 0.0000

LINE CONNECTS KEYPOINTS 210 220
 LINE NO.= 33 KP1= 210 TAN1= -1.0000 0.0000 0.0000
 KP2= 220 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 215 217
 LINE NO.= 34 KP1= 215 TAN1= -1.0000 0.0000 0.0000
 KP2= 217 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 214 216
 LINE NO.= 35 KP1= 214 TAN1= -1.0000 0.0000 0.0000
 KP2= 216 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 209 219
 LINE NO.= 36 KP1= 209 TAN1= -1.0000 0.0000 0.0000
 KP2= 219 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 208 159
 LINE NO.= 37 KP1= 208 TAN1= -1.0000 0.0000 0.0000
 KP2= 159 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 213 155
 LINE NO.= 38 KP1= 213 TAN1= -1.0000 0.0000 0.0000
 KP2= 155 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 151 152
 LINE NO.= 39 KP1= 151 TAN1= -1.0000 0.0000 0.0000
 KP2= 152 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 145 146
 LINE NO.= 40 KP1= 145 TAN1= -1.0000 0.0000 0.0000
 KP2= 146 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 139 140
 LINE NO.= 41 KP1= 139 TAN1= -1.0000 0.0000 0.0000
 KP2= 140 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 134 135
 LINE NO.= 42 KP1= 134 TAN1= -1.0000 0.0000 0.0000
 KP2= 135 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 14 15
 LINE NO.= 43 KP1= 14 TAN1= -1.0000 0.0000 0.0000
 KP2= 15 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 19 20
 LINE NO.= 44 KP1= 19 TAN1= -1.0000 0.0000 0.0000
 KP2= 20 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 25 26
 LINE NO.= 45 KP1= 25 TAN1= -1.0000 0.0000 0.0000
 KP2= 26 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 31 32
 LINE NO.= 46 KP1= 31 TAN1= -1.0000 0.0000 0.0000
 KP2= 32 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 98 35
 LINE NO.= 47 KP1= 98 TAN1= -1.0000 0.0000 0.0000
 KP2= 35 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 92 39
 LINE NO.= 48 KP1= 92 TAN1= -1.0000 0.0000 0.0000
 KP2= 39 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 93 106
 LINE NO.= 49 KP1= 93 TAN1= -1.0000 0.0000 0.0000
 KP2= 106 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 99 102
 LINE NO.= 50 KP1= 99 TAN1= -1.0000 0.0000 0.0000
 KP2= 102 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 100 103
 LINE NO.= 51 KP1= 100 TAN1= -1.0000 0.0000 0.0000
 KP2= 103 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 94 107
 LINE NO.= 52 KP1= 94 TAN1= -1.0000 0.0000 0.0000
 KP2= 107 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 95 104
 LINE NO.= 53 KP1= 95 TAN1= -1.0000 -0.0003 0.0000
 KP2= 104 TAN2= 1.0000 0.0003 0.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
 TO NDIV = 4, SPACING RATIO = 1.000
 Line set 3 Tube Widths on End Column

LINE CONNECTS KEYPOINTS 162 163
 LINE NO.= 54 KP1= 162 TAN1= -1.0000 0.0002 0.0000
 KP2= 163 TAN2= 1.0000 -0.0002 0.0000

LINE CONNECTS KEYPOINTS 160 161
 LINE NO.= 55 KP1= 160 TAN1= -1.0000 0.0000 0.0000
 KP2= 161 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 156 157
 LINE NO.= 56 KP1= 156 TAN1= -1.0000 0.0000 0.0000
 KP2= 157 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 153 154
 LINE NO.= 57 KP1= 153 TAN1= -1.0000 0.0000 0.0000
 KP2= 154 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 147 148

LINE NO.=	58	KP1=	147	TAN1=	-.0000	0.0000	0.0000
		KP2=	148	TAN2=	-.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 141 142							
LINE NO.=	59	KP1=	141	TAN1=	-.0000	0.0000	0.0000
		KP2=	142	TAN2=	-.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 136 137							
LINE NO.=	60	KP1=	136	TAN1=	-.0000	0.0000	0.0000
		KP2=	137	TAN2=	-.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 16 17							
LINE NO.=	61	KP1=	16	TAN1=	-.0000	0.0000	0.0000
		KP2=	17	TAN2=	-.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 21 22							
LINE NO.=	62	KP1=	21	TAN1=	-.0000	0.0000	0.0000
		KP2=	22	TAN2=	-.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 27 28							
LINE NO.=	63	KP1=	27	TAN1=	-.0000	0.0000	0.0000
		KP2=	28	TAN2=	-.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 33 34							
LINE NO.=	64	KP1=	33	TAN1=	-.0000	0.0000	0.0000
		KP2=	34	TAN2=	-.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 36 37							
LINE NO.=	65	KP1=	36	TAN1=	-1.0000	0.0000	0.0000
		KP2=	37	TAN2=	1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 40 41							
LINE NO.=	66	KP1=	40	TAN1=	-1.0000	0.0000	0.0000
		KP2=	41	TAN2=	1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 42 43							
LINE NO.=	67	KP1=	42	TAN1=	-1.0000	-0.0002	0.0000
		KP2=	43	TAN2=	1.0000	0.0002	0.0000
SET DIVISIONS ON ALL SELECTED UNMESHED LINES							
TO NDIV = 4, SPACING RATIO = 1.000							
line set 4 Tube Heights							
LINE CONNECTS KEYPOINTS 201 200							
LINE NO.=	68	KP1=	201	TAN1=	0.0000	-1.0000	0.0000
		KP2=	200	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 205 204							
LINE NO.=	69	KP1=	205	TAN1=	0.0000	-1.0000	0.0000
		KP2=	204	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 210 209							
LINE NO.=	70	KP1=	210	TAN1=	0.0000	-1.0000	0.0000
		KP2=	209	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 215 214							
LINE NO.=	71	KP1=	215	TAN1=	0.0000	-1.0000	0.0000
		KP2=	214	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 217 216							
LINE NO.=	72	KP1=	217	TAN1=	0.0000	-1.0000	0.0000
		KP2=	216	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 220 219							
LINE NO.=	73	KP1=	220	TAN1=	0.0000	-1.0000	0.0000
		KP2=	219	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 221 162							
LINE NO.=	74	KP1=	221	TAN1=	0.0002	-1.0000	0.0000
		KP2=	162	TAN2=	-0.0002	1.0000	0.0000

LINE CONNECTS KEYPOINTS	199	198			
LINE NO.= 75 KP1=	199	TAN1=	0.0000	-1.0000	0.0000
KP2=	198	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS	203	202			
LINE NO.= 76 KP1=	203	TAN1=	0.0000	-1.0000	0.0000
KP2=	202	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS	208	145			
LINE NO.= 77 KP1=	208	TAN1=	0.0000	-1.0000	0.0000
KP2=	145	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS	213	151			
LINE NO.= 78 KP1=	213	TAN1=	0.0000	-1.0000	0.0000
KP2=	151	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS	155	152			
LINE NO.= 79 KP1=	155	TAN1=	0.0000	-1.0000	0.0000
KP2=	152	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS	159	146			
LINE NO.= 80 KP1=	159	TAN1=	0.0000	-1.0000	0.0000
KP2=	146	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS	160	147			
LINE NO.= 81 KP1=	160	TAN1=	0.0000	-1.0000	0.0000
KP2=	147	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS	156	153			
LINE NO.= 82 KP1=	156	TAN1=	0.0000	-1.0000	0.0000
KP2=	153	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS	157	154			
LINE NO.= 83 KP1=	157	TAN1=	0.0000	-1.0000	0.0000
KP2=	154	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS	161	148			
LINE NO.= 84 KP1=	161	TAN1=	0.0000	-1.0000	0.0000
KP2=	148	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS	133	13			
LINE NO.= 85 KP1=	133	TAN1=	0.0000	-1.0000	0.0000
KP2=	13	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS	138	18			
LINE NO.= 86 KP1=	138	TAN1=	0.0000	-1.0000	0.0000
KP2=	18	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS	139	19			
LINE NO.= 87 KP1=	139	TAN1=	0.0000	-1.0000	0.0000
KP2=	19	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS	134	14			
LINE NO.= 88 KP1=	134	TAN1=	0.0000	-1.0000	0.0000
KP2=	14	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS	135	15			
LINE NO.= 89 KP1=	135	TAN1=	0.0000	-1.0000	0.0000
KP2=	15	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS	140	20			
LINE NO.= 90 KP1=	140	TAN1=	0.0000	-1.0000	0.0000
KP2=	20	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS	141	21			
LINE NO.= 91 KP1=	141	TAN1=	0.0000	-1.0000	0.0000
KP2=	21	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS	136	16			

LINE NO.=	92	KP1=	136	TAN1=	0.0000	-1.0000	0.0000
		KP2=	16	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 137 17							
LINE NO.=	93	KP1=	137	TAN1=	0.0000	-1.0000	0.0000
		KP2=	17	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 142 22							
LINE NO.=	94	KP1=	142	TAN1=	0.0000	-1.0000	0.0000
		KP2=	22	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 143 23							
LINE NO.=	95	KP1=	143	TAN1=	0.0000	-1.0000	0.0000
		KP2=	23	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 80 81							
LINE NO.=	96	KP1=	80	TAN1=	0.0000	-1.0000	0.0000
		KP2=	81	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 85 86							
LINE NO.=	97	KP1=	85	TAN1=	0.0000	-1.0000	0.0000
		KP2=	86	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 25 92							
LINE NO.=	98	KP1=	25	TAN1=	0.0000	-1.0000	0.0000
		KP2=	92	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 31 98							
LINE NO.=	99	KP1=	31	TAN1=	0.0000	-1.0000	0.0000
		KP2=	98	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 32 35							
LINE NO.=	100	KP1=	32	TAN1=	0.0000	-1.0000	0.0000
		KP2=	35	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 26 39							
LINE NO.=	101	KP1=	26	TAN1=	0.0000	-1.0000	0.0000
		KP2=	39	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 27 40							
LINE NO.=	102	KP1=	27	TAN1=	0.0000	-1.0000	0.0000
		KP2=	40	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 33 36							
LINE NO.=	103	KP1=	33	TAN1=	0.0000	-1.0000	0.0000
		KP2=	36	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 34 37							
LINE NO.=	104	KP1=	34	TAN1=	0.0000	-1.0000	0.0000
		KP2=	37	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 28 41							
LINE NO.=	105	KP1=	28	TAN1=	0.0000	-1.0000	0.0000
		KP2=	41	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 29 38							
LINE NO.=	106	KP1=	29	TAN1=	-0.0003	-1.0000	0.0000
		KP2=	38	TAN2=	0.0003	1.0000	0.0000
LINE CONNECTS KEYPOINTS 82 83							
LINE NO.=	107	KP1=	82	TAN1=	0.0000	-1.0000	0.0000
		KP2=	83	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 87 88							
LINE NO.=	108	KP1=	87	TAN1=	0.0000	-1.0000	0.0000
		KP2=	88	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 93 94							
LINE NO.=	109	KP1=	93	TAN1=	0.0000	-1.0000	0.0000
		KP2=	94	TAN2=	0.0000	1.0000	0.0000

LINE CONNECTS KEYPOINTS 99 100
 LINE NO.= 110 KP1= 99 TAN1= 0.0000 -1.0000 0.0000
 KP2= 100 TAN2= 0.0000 1.0000 0.0000

LINE CONNECTS KEYPOINTS 102 103
 LINE NO.= 111 KP1= 102 TAN1= 0.0000 -1.0000 0.0000
 KP2= 103 TAN2= 0.0000 1.0000 0.0000

LINE CONNECTS KEYPOINTS 106 107
 LINE NO.= 112 KP1= 106 TAN1= 0.0000 -1.0000 0.0000
 KP2= 107 TAN2= 0.0000 1.0000 0.0000

LINE CONNECTS KEYPOINTS 42 109
 LINE NO.= 113 KP1= 42 TAN1= -0.0002 -1.0000 0.0000
 KP2= 109 TAN2= 0.0002 1.0000 0.0000

LINE CONNECTS KEYPOINTS 158 149
 LINE NO.= 114 KP1= 158 TAN1= 0.0003 -1.0000 0.0000
 KP2= 149 TAN2= -0.0003 1.0000 0.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
 TO NDIV = 4, SPACING RATIO = 1.000
 Line set 5 End Guide Fins

LINE CONNECTS KEYPOINTS 207 206
 LINE NO.= 115 KP1= 207 TAN1= -0.0001 -1.0000 0.0000
 KP2= 206 TAN2= 0.0001 1.0000 0.0000

LINE CONNECTS KEYPOINTS 212 211
 LINE NO.= 116 KP1= 212 TAN1= -0.0001 -1.0000 0.0000
 KP2= 211 TAN2= 0.0001 1.0000 0.0000

LINE CONNECTS KEYPOINTS 150 149
 LINE NO.= 117 KP1= 150 TAN1= 1.0000 0.0001 0.0000
 KP2= 149 TAN2= -1.0000 -0.0001 0.0000

LINE CONNECTS KEYPOINTS 144 143
 LINE NO.= 118 KP1= 144 TAN1= 1.0000 0.0001 0.0000
 KP2= 143 TAN2= -1.0000 -0.0001 0.0000

LINE CONNECTS KEYPOINTS 24 23
 LINE NO.= 119 KP1= 24 TAN1= 1.0000 -0.0001 0.0000
 KP2= 23 TAN2= -1.0000 0.0001 0.0000

LINE CONNECTS KEYPOINTS 30 29
 LINE NO.= 120 KP1= 30 TAN1= 1.0000 -0.0001 0.0000
 KP2= 29 TAN2= -1.0000 0.0001 0.0000

LINE CONNECTS KEYPOINTS 96 95
 LINE NO.= 121 KP1= 96 TAN1= -0.0001 1.0000 0.0000
 KP2= 95 TAN2= 0.0001 -1.0000 0.0000

LINE CONNECTS KEYPOINTS 90 89
 LINE NO.= 122 KP1= 90 TAN1= -0.0001 1.0000 0.0000
 KP2= 89 TAN2= 0.0001 -1.0000 0.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
 TO NDIV = 4, SPACING RATIO = 1.000
 Line set 6 SS-B Plate Thickness

LINE CONNECTS KEYPOINTS 197 196
 LINE NO.= 123 KP1= 197 TAN1= 0.0000 -1.0000 0.0000
 KP2= 196 TAN2= 0.0000 1.0000 0.0000

LINE CONNECTS KEYPOINTS 206 205
 LINE NO.= 124 KP1= 206 TAN1= 0.1961 -0.9806 0.0000
 KP2= 205 TAN2= -0.1961 0.9806 0.0000

LINE CONNECTS KEYPOINTS 211 210

LINE NO.= 125	KP1= 211	TAN1= -0.1961	-0.9806	0.0000
	KP2= 210	TAN2= 0.1961	0.9806	0.0000
LINE CONNECTS KEYPOINTS 207 212				
LINE NO.= 126	KP1= 207	TAN1= -0.9850	-0.1726	0.0000
	KP2= 212	TAN2= 0.9850	0.1726	0.0000
LINE CONNECTS KEYPOINTS 206 211				
LINE NO.= 127	KP1= 206	TAN1= -1.0000	0.0000	0.0000
	KP2= 211	TAN2= 1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 205 210				
LINE NO.= 128	KP1= 205	TAN1= -1.0000	0.0000	0.0000
	KP2= 210	TAN2= 1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 218 220				
LINE NO.= 129	KP1= 218	TAN1= -0.8619	-0.5070	0.0000
	KP2= 220	TAN2= 0.8619	0.5070	0.0000
LINE CONNECTS KEYPOINTS 220 221				
LINE NO.= 130	KP1= 220	TAN1= -0.8562	-0.5166	0.0000
	KP2= 221	TAN2= 0.8562	0.5166	0.0000
LINE CONNECTS KEYPOINTS 193 192				
LINE NO.= 131	KP1= 193	TAN1= 0.0000	-1.0000	0.0000
	KP2= 192	TAN2= 0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 204 203				
LINE NO.= 132	KP1= 204	TAN1= 0.0000	-1.0000	0.0000
	KP2= 203	TAN2= 0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 209 208				
LINE NO.= 133	KP1= 209	TAN1= 0.0000	-1.0000	0.0000
	KP2= 208	TAN2= 0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 204 209				
LINE NO.= 134	KP1= 204	TAN1= -1.0000	0.0000	0.0000
	KP2= 209	TAN2= 1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 203 208				
LINE NO.= 135	KP1= 203	TAN1= -1.0000	0.0000	0.0000
	KP2= 208	TAN2= 1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 219 159				
LINE NO.= 136	KP1= 219	TAN1= 0.0000	-1.0000	0.0000
	KP2= 159	TAN2= 0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 162 160				
LINE NO.= 137	KP1= 162	TAN1= -0.3714	-0.9285	0.0000
	KP2= 160	TAN2= 0.3714	0.9285	0.0000
LINE CONNECTS KEYPOINTS 163 161				
LINE NO.= 138	KP1= 163	TAN1= -0.5166	-0.8562	0.0000
	KP2= 161	TAN2= 0.5166	0.8562	0.0000
LINE CONNECTS KEYPOINTS 161 158				
LINE NO.= 139	KP1= 161	TAN1= -0.5070	-0.8619	0.0000
	KP2= 158	TAN2= 0.5070	0.8619	0.0000
LINE CONNECTS KEYPOINTS 219 162				
LINE NO.= 140	KP1= 219	TAN1= -0.9285	-0.3714	0.0000
	KP2= 162	TAN2= 0.9285	0.3714	0.0000
LINE CONNECTS KEYPOINTS 159 160				
LINE NO.= 141	KP1= 159	TAN1= -1.0000	0.0000	0.0000
	KP2= 160	TAN2= 1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 189 188				
LINE NO.= 142	KP1= 189	TAN1= 0.0000	-1.0000	0.0000
	KP2= 188	TAN2= 0.0000	1.0000	0.0000

LINE CONNECTS KEYPOINTS	202	138			
LINE NO.= 143	KP1= 202	TAN1= 138	0.0000	-1.0000	0.0000
	KP2= 138	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS	145	139			
LINE NO.= 144	KP1= 145	TAN1= 139	0.0000	-1.0000	0.0000
	KP2= 139	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS	202	145			
LINE NO.= 145	KP1= 202	TAN1= 145	-1.0000	0.0000	0.0000
	KP2= 145	TAN2=	1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS	138	139			
LINE NO.= 146	KP1= 138	TAN1= 139	-1.0000	0.0000	0.0000
	KP2= 139	TAN2=	1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS	146	140			
LINE NO.= 147	KP1= 146	TAN1= 140	0.0000	-1.0000	0.0000
	KP2= 140	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS	147	141			
LINE NO.= 148	KP1= 147	TAN1= 141	0.0000	-1.0000	0.0000
	KP2= 141	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS	146	147			
LINE NO.= 149	KP1= 146	TAN1= 147	-1.0000	0.0000	0.0000
	KP2= 147	TAN2=	1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS	140	141			
LINE NO.= 150	KP1= 140	TAN1= 141	-1.0000	0.0000	0.0000
	KP2= 141	TAN2=	1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS	148	142			
LINE NO.= 151	KP1= 148	TAN1= 142	0.0000	-1.0000	0.0000
	KP2= 142	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS	149	143			
LINE NO.= 152	KP1= 149	TAN1= 143	0.0000	-1.0000	0.0000
	KP2= 143	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS	148	149			
LINE NO.= 153	KP1= 148	TAN1= 149	-0.9806	-0.1961	0.0000
	KP2= 149	TAN2=	0.9806	0.1961	0.0000
LINE CONNECTS KEYPOINTS	142	143			
LINE NO.= 154	KP1= 142	TAN1= 143	-0.9806	0.1961	0.0000
	KP2= 143	TAN2=	0.9806	-0.1961	0.0000
LINE CONNECTS KEYPOINTS	150	144			
LINE NO.= 155	KP1= 150	TAN1= 144	-0.1726	-0.9850	0.0000
	KP2= 144	TAN2=	0.1726	0.9850	0.0000
LINE CONNECTS KEYPOINTS	69	70			
LINE NO.= 156	KP1= 69	TAN1= 70	0.0000	-1.0000	0.0000
	KP2= 70	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS	18	85			
LINE NO.= 157	KP1= 18	TAN1= 85	0.0000	-1.0000	0.0000
	KP2= 85	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS	19	25			
LINE NO.= 158	KP1= 19	TAN1= 25	0.0000	-1.0000	0.0000
	KP2= 25	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS	18	19			
LINE NO.= 159	KP1= 18	TAN1= 19	-1.0000	0.0000	0.0000
	KP2= 19	TAN2=	1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS	85	25			

LINE NO.= 160	KP1= 85	TAN1= -1.0000	0.0000	0.0000
	KP2= 25	TAN2= 1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 20 26				
LINE NO.= 161	KP1= 20	TAN1= 0.0000	-1.0000	0.0000
	KP2= 26	TAN2= 0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 21 27				
LINE NO.= 162	KP1= 21	TAN1= 0.0000	-1.0000	0.0000
	KP2= 27	TAN2= 0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 20 21				
LINE NO.= 163	KP1= 20	TAN1= -1.0000	0.0000	0.0000
	KP2= 21	TAN2= 1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 26 27				
LINE NO.= 164	KP1= 26	TAN1= -1.0000	0.0000	0.0000
	KP2= 27	TAN2= 1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 22 28				
LINE NO.= 165	KP1= 22	TAN1= 0.0000	-1.0000	0.0000
	KP2= 28	TAN2= 0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 22 23				
LINE NO.= 166	KP1= 22	TAN1= -0.9806	-0.1961	0.0000
	KP2= 23	TAN2= 0.9806	0.1961	0.0000
LINE CONNECTS KEYPOINTS 28 29				
LINE NO.= 167	KP1= 28	TAN1= -0.9806	0.1961	0.0000
	KP2= 29	TAN2= 0.9806	-0.1961	0.0000
LINE CONNECTS KEYPOINTS 23 29				
LINE NO.= 168	KP1= 23	TAN1= 0.0000	-1.0000	0.0000
	KP2= 29	TAN2= 0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 24 30				
LINE NO.= 169	KP1= 24	TAN1= 0.1726	-0.9850	0.0000
	KP2= 30	TAN2= -0.1726	0.9850	0.0000
LINE CONNECTS KEYPOINTS 73 74				
LINE NO.= 170	KP1= 73	TAN1= 0.0000	-1.0000	0.0000
	KP2= 74	TAN2= 0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 86 87				
LINE NO.= 171	KP1= 86	TAN1= 0.0000	-1.0000	0.0000
	KP2= 87	TAN2= 0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 92 93				
LINE NO.= 172	KP1= 92	TAN1= 0.0000	-1.0000	0.0000
	KP2= 93	TAN2= 0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 86 92				
LINE NO.= 173	KP1= 86	TAN1= -1.0000	0.0000	0.0000
	KP2= 92	TAN2= 1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 87 93				
LINE NO.= 174	KP1= 87	TAN1= -1.0000	0.0000	0.0000
	KP2= 93	TAN2= 1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 39 106				
LINE NO.= 175	KP1= 39	TAN1= 0.0000	-1.0000	0.0000
	KP2= 106	TAN2= 0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 40 42				
LINE NO.= 176	KP1= 40	TAN1= 0.3714	-0.9285	0.0000
	KP2= 42	TAN2= -0.3714	0.9285	0.0000
LINE CONNECTS KEYPOINTS 39 40				
LINE NO.= 177	KP1= 39	TAN1= -1.0000	0.0000	0.0000
	KP2= 40	TAN2= 1.0000	0.0000	0.0000

LINE CONNECTS KEYPOINTS	106	42			
LINE NO.= 178 KP1=	106	TAN1=	-0.9285	0.3714	0.0000
KP2=	42	TAN2=	0.9285	-0.3714	0.0000
LINE CONNECTS KEYPOINTS	38	41			
LINE NO.= 179 KP1=	38	TAN1=	0.5070	-0.8619	0.0000
KP2=	41	TAN2=	-0.5070	0.8619	0.0000
LINE CONNECTS KEYPOINTS	41	43			
LINE NO.= 180 KP1=	41	TAN1=	0.5166	-0.8562	0.0000
KP2=	43	TAN2=	-0.5166	0.8562	0.0000
LINE CONNECTS KEYPOINTS	77	78			
LINE NO.= 181 KP1=	77	TAN1=	0.0000	-1.0000	0.0000
KP2=	78	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS	88	89			
LINE NO.= 182 KP1=	88	TAN1=	-0.1961	-0.9806	0.0000
KP2=	89	TAN2=	0.1961	0.9806	0.0000
LINE CONNECTS KEYPOINTS	94	95			
LINE NO.= 183 KP1=	94	TAN1=	0.1961	-0.9806	0.0000
KP2=	95	TAN2=	-0.1961	0.9806	0.0000
LINE CONNECTS KEYPOINTS	88	94			
LINE NO.= 184 KP1=	88	TAN1=	-1.0000	0.0000	0.0000
KP2=	94	TAN2=	1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS	89	95			
LINE NO.= 185 KP1=	89	TAN1=	-1.0000	0.0000	0.0000
KP2=	95	TAN2=	1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS	90	96			
LINE NO.= 186 KP1=	90	TAN1=	-0.9850	0.1726	0.0000
KP2=	96	TAN2=	0.9850	-0.1726	0.0000
LINE CONNECTS KEYPOINTS	109	107			
LINE NO.= 187 KP1=	109	TAN1=	0.8562	-0.5166	0.0000
KP2=	107	TAN2=	-0.8562	0.5166	0.0000
LINE CONNECTS KEYPOINTS	107	104			
LINE NO.= 188 KP1=	107	TAN1=	0.8619	-0.5070	0.0000
KP2=	104	TAN2=	-0.8619	0.5070	0.0000
LINE CONNECTS KEYPOINTS	224	225			
LINE NO.= 189 KP1=	224	TAN1=	-0.9850	-0.1726	0.0000
KP2=	225	TAN2=	0.9850	0.1726	0.0000
LINE CONNECTS KEYPOINTS	230	231			
LINE NO.= 190 KP1=	230	TAN1=	-0.9850	-0.1726	0.0000
KP2=	231	TAN2=	0.9850	0.1726	0.0000
LINE CONNECTS KEYPOINTS	236	237			
LINE NO.= 191 KP1=	236	TAN1=	-0.9850	-0.1726	0.0000
KP2=	237	TAN2=	0.9850	0.1726	0.0000
LINE CONNECTS KEYPOINTS	226	227			
LINE NO.= 192 KP1=	226	TAN1=	-0.8619	-0.5070	0.0000
KP2=	227	TAN2=	0.8619	0.5070	0.0000
LINE CONNECTS KEYPOINTS	227	228			
LINE NO.= 193 KP1=	227	TAN1=	-0.8562	-0.5166	0.0000
KP2=	228	TAN2=	0.8562	0.5166	0.0000
LINE CONNECTS KEYPOINTS	232	233			
LINE NO.= 194 KP1=	232	TAN1=	-0.8619	-0.5070	0.0000
KP2=	233	TAN2=	0.8619	0.5070	0.0000
LINE CONNECTS KEYPOINTS	233	234			

LINE NO.=	195	KP1=	233	TAN1=	-0.8562	-0.5166	0.0000
		KP2=	234	TAN2=	0.8562	0.5166	0.0000
LINE CONNECTS KEYPOINTS 238 239							
LINE NO.=	196	KP1=	238	TAN1=	-0.8619	-0.5070	0.0000
		KP2=	239	TAN2=	0.8619	0.5070	0.0000
LINE CONNECTS KEYPOINTS 239 240							
LINE NO.=	197	KP1=	239	TAN1=	-0.8562	-0.5166	0.0000
		KP2=	240	TAN2=	0.8562	0.5166	0.0000
LINE CONNECTS KEYPOINTS 171 170							
LINE NO.=	198	KP1=	171	TAN1=	-0.5166	-0.8562	0.0000
		KP2=	170	TAN2=	0.5166	0.8562	0.0000
LINE CONNECTS KEYPOINTS 170 169							
LINE NO.=	199	KP1=	170	TAN1=	-0.5070	-0.8619	0.0000
		KP2=	169	TAN2=	0.5070	0.8619	0.0000
LINE CONNECTS KEYPOINTS 178 177							
LINE NO.=	200	KP1=	178	TAN1=	-0.5166	-0.8562	0.0000
		KP2=	177	TAN2=	0.5166	0.8562	0.0000
LINE CONNECTS KEYPOINTS 177 176							
LINE NO.=	201	KP1=	177	TAN1=	-0.5070	-0.8619	0.0000
		KP2=	176	TAN2=	0.5070	0.8619	0.0000
LINE CONNECTS KEYPOINTS 185 184							
LINE NO.=	202	KP1=	185	TAN1=	-0.5166	-0.8562	0.0000
		KP2=	184	TAN2=	0.5166	0.8562	0.0000
LINE CONNECTS KEYPOINTS 184 183							
LINE NO.=	203	KP1=	184	TAN1=	-0.5070	-0.8619	0.0000
		KP2=	183	TAN2=	0.5070	0.8619	0.0000
LINE CONNECTS KEYPOINTS 168 167							
LINE NO.=	204	KP1=	168	TAN1=	-0.1726	-0.9850	0.0000
		KP2=	167	TAN2=	0.1726	0.9850	0.0000
LINE CONNECTS KEYPOINTS 175 174							
LINE NO.=	205	KP1=	175	TAN1=	-0.1726	-0.9850	0.0000
		KP2=	174	TAN2=	0.1726	0.9850	0.0000
LINE CONNECTS KEYPOINTS 182 181							
LINE NO.=	206	KP1=	182	TAN1=	-0.1726	-0.9850	0.0000
		KP2=	181	TAN2=	0.1726	0.9850	0.0000
LINE CONNECTS KEYPOINTS 47 48							
LINE NO.=	207	KP1=	47	TAN1=	0.1726	-0.9850	0.0000
		KP2=	48	TAN2=	-0.1726	0.9850	0.0000
LINE CONNECTS KEYPOINTS 54 55							
LINE NO.=	208	KP1=	54	TAN1=	0.1726	-0.9850	0.0000
		KP2=	55	TAN2=	-0.1726	0.9850	0.0000
LINE CONNECTS KEYPOINTS 61 62							
LINE NO.=	209	KP1=	61	TAN1=	0.1726	-0.9850	0.0000
		KP2=	62	TAN2=	-0.1726	0.9850	0.0000
LINE CONNECTS KEYPOINTS 49 50							
LINE NO.=	210	KP1=	49	TAN1=	0.5070	-0.8619	0.0000
		KP2=	50	TAN2=	-0.5070	0.8619	0.0000
LINE CONNECTS KEYPOINTS 50 51							
LINE NO.=	211	KP1=	50	TAN1=	0.5166	-0.8562	0.0000
		KP2=	51	TAN2=	-0.5166	0.8562	0.0000
LINE CONNECTS KEYPOINTS 56 57							
LINE NO.=	212	KP1=	56	TAN1=	0.5070	-0.8619	0.0000
		KP2=	57	TAN2=	-0.5070	0.8619	0.0000

LINE CONNECTS KEYPOINTS 57 58
 LINE NO.= 213 KP1= 57 TAN1= 0.5166 -0.8562 0.0000
 KP2= 58 TAN2= -0.5166 0.8562 0.0000

LINE CONNECTS KEYPOINTS 63 64
 LINE NO.= 214 KP1= 63 TAN1= 0.5070 -0.8619 0.0000
 KP2= 64 TAN2= -0.5070 0.8619 0.0000

LINE CONNECTS KEYPOINTS 64 65
 LINE NO.= 215 KP1= 64 TAN1= 0.5166 -0.8562 0.0000
 KP2= 65 TAN2= -0.5166 0.8562 0.0000

LINE CONNECTS KEYPOINTS 117 116
 LINE NO.= 216 KP1= 117 TAN1= 0.8562 -0.5166 0.0000
 KP2= 116 TAN2= -0.8562 0.5166 0.0000

LINE CONNECTS KEYPOINTS 116 115
 LINE NO.= 217 KP1= 116 TAN1= 0.8619 -0.5070 0.0000
 KP2= 115 TAN2= -0.8619 0.5070 0.0000

LINE CONNECTS KEYPOINTS 124 123
 LINE NO.= 218 KP1= 124 TAN1= 0.8562 -0.5166 0.0000
 KP2= 123 TAN2= -0.8562 0.5166 0.0000

LINE CONNECTS KEYPOINTS 123 122
 LINE NO.= 219 KP1= 123 TAN1= 0.8619 -0.5070 0.0000
 KP2= 122 TAN2= -0.8619 0.5070 0.0000

LINE CONNECTS KEYPOINTS 131 130
 LINE NO.= 220 KP1= 131 TAN1= 0.8562 -0.5166 0.0000
 KP2= 130 TAN2= -0.8562 0.5166 0.0000

LINE CONNECTS KEYPOINTS 130 129
 LINE NO.= 221 KP1= 130 TAN1= 0.8619 -0.5070 0.0000
 KP2= 129 TAN2= -0.8619 0.5070 0.0000

LINE CONNECTS KEYPOINTS 114 113
 LINE NO.= 222 KP1= 114 TAN1= 0.9850 -0.1726 0.0000
 KP2= 113 TAN2= -0.9850 0.1726 0.0000

LINE CONNECTS KEYPOINTS 121 120
 LINE NO.= 223 KP1= 121 TAN1= 0.9850 -0.1726 0.0000
 KP2= 120 TAN2= -0.9850 0.1726 0.0000

LINE CONNECTS KEYPOINTS 128 127
 LINE NO.= 224 KP1= 128 TAN1= 0.9850 -0.1726 0.0000
 KP2= 127 TAN2= -0.9850 0.1726 0.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
 TO NDIV = 2, SPACING RATIO = 1.000
 line set 7 tube thickness

LINE CONNECTS KEYPOINTS 196 195
 LINE NO.= 225 KP1= 196 TAN1= 0.0000 -1.0000 0.0000
 KP2= 195 TAN2= 0.0000 1.0000 0.0000

LINE CONNECTS KEYPOINTS 205 201
 LINE NO.= 226 KP1= 205 TAN1= 0.7071 -0.7071 0.0000
 KP2= 201 TAN2= -0.7071 0.7071 0.0000

LINE CONNECTS KEYPOINTS 204 200
 LINE NO.= 227 KP1= 204 TAN1= 0.7071 0.7071 0.0000
 KP2= 200 TAN2= -0.7071 -0.7071 0.0000

LINE CONNECTS KEYPOINTS 193 194
 LINE NO.= 228 KP1= 193 TAN1= 0.0000 1.0000 0.0000
 KP2= 194 TAN2= 0.0000 -1.0000 0.0000

LINE CONNECTS KEYPOINTS 210 215

LINE NO.=	229	KP1=	210	TAN1=	-0.7071	-0.7071	0.0000
		KP2=	215	TAN2=	0.7071	0.7071	0.0000
LINE CONNECTS KEYPOINTS 220 217							
LINE NO.=	230	KP1=	220	TAN1=	0.7071	-0.7071	0.0000
		KP2=	217	TAN2=	-0.7071	0.7071	0.0000
LINE CONNECTS KEYPOINTS 219 216							
LINE NO.=	231	KP1=	219	TAN1=	0.7071	0.7071	0.0000
		KP2=	216	TAN2=	-0.7071	-0.7071	0.0000
LINE CONNECTS KEYPOINTS 209 214							
LINE NO.=	232	KP1=	209	TAN1=	-0.7071	0.7071	0.0000
		KP2=	214	TAN2=	0.7071	-0.7071	0.0000
LINE CONNECTS KEYPOINTS 192 191							
LINE NO.=	233	KP1=	192	TAN1=	0.0000	-1.0000	0.0000
		KP2=	191	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 203 199							
LINE NO.=	234	KP1=	203	TAN1=	0.7071	-0.7071	0.0000
		KP2=	199	TAN2=	-0.7071	0.7071	0.0000
LINE CONNECTS KEYPOINTS 202 198							
LINE NO.=	235	KP1=	202	TAN1=	0.7071	0.7071	0.0000
		KP2=	198	TAN2=	-0.7071	-0.7071	0.0000
LINE CONNECTS KEYPOINTS 189 190							
LINE NO.=	236	KP1=	189	TAN1=	0.0000	1.0000	0.0000
		KP2=	190	TAN2=	0.0000	-1.0000	0.0000
LINE CONNECTS KEYPOINTS 208 213							
LINE NO.=	237	KP1=	208	TAN1=	-0.7071	-0.7071	0.0000
		KP2=	213	TAN2=	0.7071	0.7071	0.0000
LINE CONNECTS KEYPOINTS 159 155							
LINE NO.=	238	KP1=	159	TAN1=	0.7071	-0.7071	0.0000
		KP2=	155	TAN2=	-0.7071	0.7071	0.0000
LINE CONNECTS KEYPOINTS 146 152							
LINE NO.=	239	KP1=	146	TAN1=	0.7071	0.7071	0.0000
		KP2=	152	TAN2=	-0.7071	-0.7071	0.0000
LINE CONNECTS KEYPOINTS 145 151							
LINE NO.=	240	KP1=	145	TAN1=	-0.7071	0.7071	0.0000
		KP2=	151	TAN2=	0.7071	-0.7071	0.0000
LINE CONNECTS KEYPOINTS 160 156							
LINE NO.=	241	KP1=	160	TAN1=	-0.7071	-0.7071	0.0000
		KP2=	156	TAN2=	0.7071	0.7071	0.0000
LINE CONNECTS KEYPOINTS 161 157							
LINE NO.=	242	KP1=	161	TAN1=	-0.7071	-0.7071	0.0000
		KP2=	157	TAN2=	-0.7071	0.7071	0.0000
LINE CONNECTS KEYPOINTS 148 154							
LINE NO.=	243	KP1=	148	TAN1=	0.7071	0.7071	0.0000
		KP2=	154	TAN2=	-0.7071	-0.7071	0.0000
LINE CONNECTS KEYPOINTS 147 153							
LINE NO.=	244	KP1=	147	TAN1=	-0.7071	0.7071	0.0000
		KP2=	153	TAN2=	0.7071	-0.7071	0.0000
LINE CONNECTS KEYPOINTS 188 187							
LINE NO.=	245	KP1=	188	TAN1=	0.0000	-1.0000	0.0000
		KP2=	187	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 138 133							
LINE NO.=	246	KP1=	138	TAN1=	0.7071	-0.7071	0.0000
		KP2=	133	TAN2=	-0.7071	0.7071	0.0000

LINE CONNECTS KEYPOINTS	18	13			
LINE NO.= 247 KP1=	18	TAN1=	0.7071	0.7071	0.0000
KP2=	13	TAN2=	-0.7071	-0.7071	0.0000
LINE CONNECTS KEYPOINTS	69	68			
LINE NO.= 248 KP1=	69	TAN1=	0.0000	1.0000	0.0000
KP2=	68	TAN2=	0.0000	-1.0000	0.0000
LINE CONNECTS KEYPOINTS	139	134			
LINE NO.= 249 KP1=	139	TAN1=	-0.7071	-0.7071	0.0000
KP2=	134	TAN2=	0.7071	0.7071	0.0000
LINE CONNECTS KEYPOINTS	140	135			
LINE NO.= 250 KP1=	140	TAN1=	0.7071	-0.7071	0.0000
KP2=	135	TAN2=	-0.7071	0.7071	0.0000
LINE CONNECTS KEYPOINTS	20	15			
LINE NO.= 251 KP1=	20	TAN1=	0.7071	0.7071	0.0000
KP2=	15	TAN2=	-0.7071	-0.7071	0.0000
LINE CONNECTS KEYPOINTS	19	14			
LINE NO.= 252 KP1=	19	TAN1=	-0.7071	0.7071	0.0000
KP2=	14	TAN2=	0.7071	-0.7071	0.0000
LINE CONNECTS KEYPOINTS	141	136			
LINE NO.= 253 KP1=	141	TAN1=	-0.7071	-0.7071	0.0000
KP2=	136	TAN2=	0.7071	0.7071	0.0000
LINE CONNECTS KEYPOINTS	142	137			
LINE NO.= 254 KP1=	142	TAN1=	0.7071	-0.7071	0.0000
KP2=	137	TAN2=	-0.7071	0.7071	0.0000
LINE CONNECTS KEYPOINTS	22	17			
LINE NO.= 255 KP1=	22	TAN1=	0.7071	0.7071	0.0000
KP2=	17	TAN2=	-0.7071	-0.7071	0.0000
LINE CONNECTS KEYPOINTS	21	16			
LINE NO.= 256 KP1=	21	TAN1=	-0.7071	0.7071	0.0000
KP2=	16	TAN2=	0.7071	-0.7071	0.0000
LINE CONNECTS KEYPOINTS	70	71			
LINE NO.= 257 KP1=	70	TAN1=	0.0000	-1.0000	0.0000
KP2=	71	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS	85	80			
LINE NO.= 258 KP1=	85	TAN1=	0.7071	-0.7071	0.0000
KP2=	80	TAN2=	-0.7071	0.7071	0.0000
LINE CONNECTS KEYPOINTS	86	81			
LINE NO.= 259 KP1=	86	TAN1=	0.7071	0.7071	0.0000
KP2=	81	TAN2=	-0.7071	-0.7071	0.0000
LINE CONNECTS KEYPOINTS	73	72			
LINE NO.= 260 KP1=	73	TAN1=	0.0000	1.0000	0.0000
KP2=	72	TAN2=	0.0000	-1.0000	0.0000
LINE CONNECTS KEYPOINTS	25	31			
LINE NO.= 261 KP1=	25	TAN1=	-0.7071	-0.7071	0.0000
KP2=	31	TAN2=	0.7071	0.7071	0.0000
LINE CONNECTS KEYPOINTS	26	32			
LINE NO.= 262 KP1=	26	TAN1=	0.7071	-0.7071	0.0000
KP2=	32	TAN2=	-0.7071	0.7071	0.0000
LINE CONNECTS KEYPOINTS	39	35			
LINE NO.= 263 KP1=	39	TAN1=	0.7071	0.7071	0.0000
KP2=	35	TAN2=	-0.7071	-0.7071	0.0000
LINE CONNECTS KEYPOINTS	92	98			

LINE NO.= 264 KP1= 92 TAN1= -0.7071 0.7071 0.0000
 KP2= 98 TAN2= 0.7071 -0.7071 0.0000

LINE CONNECTS KEYPOINTS 27 33
 LINE NO.= 265 KP1= 27 TAN1= -0.7071 -0.7071 0.0000
 KP2= 33 TAN2= 0.7071 0.7071 0.0000

LINE CONNECTS KEYPOINTS 28 34
 LINE NO.= 266 KP1= 28 TAN1= 0.7071 -0.7071 0.0000
 KP2= 34 TAN2= -0.7071 0.7071 0.0000

LINE CONNECTS KEYPOINTS 41 37
 LINE NO.= 267 KP1= 41 TAN1= 0.7071 0.7071 0.0000
 KP2= 37 TAN2= -0.7071 -0.7071 0.0000

LINE CONNECTS KEYPOINTS 40 36
 LINE NO.= 268 KP1= 40 TAN1= -0.7071 0.7071 0.0000
 KP2= 36 TAN2= 0.7071 -0.7071 0.0000

LINE CONNECTS KEYPOINTS 74 75
 LINE NO.= 269 KP1= 74 TAN1= 0.0000 -1.0000 0.0000
 KP2= 75 TAN2= 0.0000 1.0000 0.0000

LINE CONNECTS KEYPOINTS 87 82
 LINE NO.= 270 KP1= 87 TAN1= 0.7071 -0.7071 0.0000
 KP2= 82 TAN2= -0.7071 0.7071 0.0000

LINE CONNECTS KEYPOINTS 88 83
 LINE NO.= 271 KP1= 88 TAN1= 0.7071 0.7071 0.0000
 KP2= 83 TAN2= -0.7071 -0.7071 0.0000

LINE CONNECTS KEYPOINTS 77 76
 LINE NO.= 272 KP1= 77 TAN1= 0.0000 1.0000 0.0000
 KP2= 76 TAN2= 0.0000 -1.0000 0.0000

LINE CONNECTS KEYPOINTS 93 99
 LINE NO.= 273 KP1= 93 TAN1= -0.7071 -0.7071 0.0000
 KP2= 99 TAN2= 0.7071 0.7071 0.0000

LINE CONNECTS KEYPOINTS 106 102
 LINE NO.= 274 KP1= 106 TAN1= 0.7071 -0.7071 0.0000
 KP2= 102 TAN2= -0.7071 0.7071 0.0000

LINE CONNECTS KEYPOINTS 107 103
 LINE NO.= 275 KP1= 107 TAN1= 0.7071 0.7071 0.0000
 KP2= 103 TAN2= -0.7071 -0.7071 0.0000

LINE CONNECTS KEYPOINTS 94 100
 LINE NO.= 276 KP1= 94 TAN1= -0.7071 0.7071 0.0000
 KP2= 100 TAN2= 0.7071 -0.7071 0.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
 TO NDIV = 1, SPACING RATIO = 1.000

ACTIVE COORDINATE SYSTEM SET TO 1 (CYLINDRICAL)
 Line set 8, arc 1 bottom

LINE CONNECTS KEYPOINTS 222 207
 LINE NO.= 277 KP1= 222 TAN1= -1.0000 0.0000 0.0000
 KP2= 207 TAN2= 0.9856 0.1691 0.0000

LINE CONNECTS KEYPOINTS 223 224
 LINE NO.= 278 KP1= 223 TAN1= -1.0000 0.0000 0.0000
 KP2= 224 TAN2= 0.9856 0.1691 0.0000

LINE CONNECTS KEYPOINTS 229 230
 LINE NO.= 279 KP1= 229 TAN1= -1.0000 0.0000 0.0000
 KP2= 230 TAN2= 0.9856 0.1691 0.0000

LINE CONNECTS KEYPOINTS 235 236

LINE NO.= 280 KP1= 235 TAN1= -1.0000 0.0000 0.0000
 KP2= 236 TAN2= 0.9856 0.1691 0.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
 TO NDIV = 4, SPACING RATIO = 1.000
 line set 9, arc 2 side arcs

LINE CONNECTS KEYPOINTS 212 218
 LINE NO.= 281 KP1= 212 TAN1= -0.9844 -0.1762 0.0000
 KP2= 218 TAN2= 0.8655 0.5009 0.0000

LINE CONNECTS KEYPOINTS 225 226
 LINE NO.= 282 KP1= 225 TAN1= -0.9844 -0.1762 0.0000
 KP2= 226 TAN2= 0.8655 0.5009 0.0000

LINE CONNECTS KEYPOINTS 231 232
 LINE NO.= 283 KP1= 231 TAN1= -0.9844 -0.1762 0.0000
 KP2= 232 TAN2= 0.8655 0.5009 0.0000

LINE CONNECTS KEYPOINTS 237 238
 LINE NO.= 284 KP1= 237 TAN1= -0.9844 -0.1762 0.0000
 KP2= 238 TAN2= 0.8655 0.5009 0.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
 TO NDIV = 4, SPACING RATIO = 1.000
 line set 10, arc 3 side arcs

LINE CONNECTS KEYPOINTS 221 163
 LINE NO.= 285 KP1= 221 TAN1= -0.8541 -0.5201 0.0000
 KP2= 163 TAN2= 0.5201 0.8541 0.0000

LINE CONNECTS KEYPOINTS 228 171
 LINE NO.= 286 KP1= 228 TAN1= -0.8541 -0.5201 0.0000
 KP2= 171 TAN2= 0.5201 0.8541 0.0000

LINE CONNECTS KEYPOINTS 234 178
 LINE NO.= 287 KP1= 234 TAN1= -0.8541 -0.5201 0.0000
 KP2= 178 TAN2= 0.5201 0.8541 0.0000

LINE CONNECTS KEYPOINTS 240 185
 LINE NO.= 288 KP1= 240 TAN1= -0.8541 -0.5201 0.0000
 KP2= 185 TAN2= 0.5201 0.8541 0.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
 TO NDIV = 4, SPACING RATIO = 1.000
 line set 11, arc 4 side arcs

LINE CONNECTS KEYPOINTS 158 150
 LINE NO.= 289 KP1= 158 TAN1= -0.5009 -0.8655 0.0000
 KP2= 150 TAN2= 0.1762 0.9844 0.0000

LINE CONNECTS KEYPOINTS 169 168
 LINE NO.= 290 KP1= 169 TAN1= -0.5009 -0.8655 0.0000
 KP2= 168 TAN2= 0.1762 0.9844 0.0000

LINE CONNECTS KEYPOINTS 176 175
 LINE NO.= 291 KP1= 176 TAN1= -0.5009 -0.8655 0.0000
 KP2= 175 TAN2= 0.1762 0.9844 0.0000

LINE CONNECTS KEYPOINTS 183 182
 LINE NO.= 292 KP1= 183 TAN1= -0.5009 -0.8655 0.0000
 KP2= 182 TAN2= 0.1762 0.9844 0.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
 TO NDIV = 4, SPACING RATIO = 1.000
 line set 12, arc 5 side arcs

LINE CONNECTS KEYPOINTS 144 24
 LINE NO.= 293 KP1= 144 TAN1= -0.1691 -0.9856 0.0000
 KP2= 24 TAN2= -0.1691 0.9856 0.0000

LINE CONNECTS KEYPOINTS 167 47
 LINE NO.= 294 KP1= 167 TAN1= -0.1691 -0.9856 0.0000
 KP2= 47 TAN2= -0.1691 0.9856 0.0000

LINE CONNECTS KEYPOINTS 174 54
 LINE NO.= 295 KP1= 174 TAN1= -0.1691 -0.9856 0.0000
 KP2= 54 TAN2= -0.1691 0.9856 0.0000

LINE CONNECTS KEYPOINTS 181 61
 LINE NO.= 296 KP1= 181 TAN1= -0.1691 -0.9856 0.0000
 KP2= 61 TAN2= -0.1691 0.9856 0.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
 TO NDIV = 4, SPACING RATIO = 1.000
 line set 13, arc 6 side arcs

LINE CONNECTS KEYPOINTS 30 38
 LINE NO.= 297 KP1= 30 TAN1= 0.1762 -0.9844 0.0000
 KP2= 38 TAN2= -0.5009 0.8655 0.0000

LINE CONNECTS KEYPOINTS 48 49
 LINE NO.= 298 KP1= 48 TAN1= 0.1762 -0.9844 0.0000
 KP2= 49 TAN2= -0.5009 0.8655 0.0000

LINE CONNECTS KEYPOINTS 55 56
 LINE NO.= 299 KP1= 55 TAN1= 0.1762 -0.9844 0.0000
 KP2= 56 TAN2= -0.5009 0.8655 0.0000

LINE CONNECTS KEYPOINTS 62 63
 LINE NO.= 300 KP1= 62 TAN1= 0.1762 -0.9844 0.0000
 KP2= 63 TAN2= -0.5009 0.8655 0.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
 TO NDIV = 4, SPACING RATIO = 1.000
 line set 14, arc 7 side arcs

LINE CONNECTS KEYPOINTS 43 109
 LINE NO.= 301 KP1= 43 TAN1= 0.5201 -0.8541 0.0000
 KP2= 109 TAN2= -0.8541 0.5201 0.0000

LINE CONNECTS KEYPOINTS 51 117
 LINE NO.= 302 KP1= 51 TAN1= 0.5201 -0.8541 0.0000
 KP2= 117 TAN2= -0.8541 0.5201 0.0000

LINE CONNECTS KEYPOINTS 58 124
 LINE NO.= 303 KP1= 58 TAN1= 0.5201 -0.8541 0.0000
 KP2= 124 TAN2= -0.8541 0.5201 0.0000

LINE CONNECTS KEYPOINTS 65 131
 LINE NO.= 304 KP1= 65 TAN1= 0.5201 -0.8541 0.0000
 KP2= 131 TAN2= -0.8541 0.5201 0.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
 TO NDIV = 4, SPACING RATIO = 1.000
 line set 15, arc 8 side arcs

LINE CONNECTS KEYPOINTS 104 96
 LINE NO.= 305 KP1= 104 TAN1= 0.8655 -0.5009 0.0000
 KP2= 96 TAN2= -0.9844 0.1762 0.0000

LINE CONNECTS KEYPOINTS 115 114
 LINE NO.= 306 KP1= 115 TAN1= 0.8655 -0.5009 0.0000
 KP2= 114 TAN2= -0.9844 0.1762 0.0000

LINE CONNECTS KEYPOINTS 122 121
 LINE NO.= 307 KP1= 122 TAN1= 0.8655 -0.5009 0.0000
 KP2= 121 TAN2= -0.9844 0.1762 0.0000

LINE CONNECTS KEYPOINTS 129 128

LINE NO.= 308 KP1= 129 TAN1= 0.8655 -0.5009 0.0000
 KP2= 128 TAN2= -0.9844 0.1762 0.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
 TO NDIV = 4, SPACING RATIO = 1.000
 line set 16, arc 9 top arcs

LINE CONNECTS KEYPOINTS 90 110
 LINE NO.= 309 KP1= 90 TAN1= 0.9856 -0.1691 0.0000
 KP2= 110 TAN2= -1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 113 112
 LINE NO.= 310 KP1= 113 TAN1= 0.9856 -0.1691 0.0000
 KP2= 112 TAN2= -1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 120 119
 LINE NO.= 311 KP1= 120 TAN1= 0.9856 -0.1691 0.0000
 KP2= 119 TAN2= -1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 127 126
 LINE NO.= 312 KP1= 127 TAN1= 0.9856 -0.1691 0.0000
 KP2= 126 TAN2= -1.0000 0.0000 0.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
 TO NDIV = 4, SPACING RATIO = 1.000

ACTIVE COORDINATE SYSTEM SET TO 0 (CARTESIAN)
 line set 17 IB thickness

LINE CONNECTS KEYPOINTS 222 223
 LINE NO.= 313 KP1= 222 TAN1= 0.0000 1.0000 0.0000
 KP2= 223 TAN2= 0.0000 -1.0000 0.0000

LINE CONNECTS KEYPOINTS 207 224
 LINE NO.= 314 KP1= 207 TAN1= -0.1691 0.9856 0.0000
 KP2= 224 TAN2= 0.1691 -0.9856 0.0000

LINE CONNECTS KEYPOINTS 212 225
 LINE NO.= 315 KP1= 212 TAN1= -0.1762 0.9844 0.0000
 KP2= 225 TAN2= 0.1762 -0.9844 0.0000

LINE CONNECTS KEYPOINTS 218 226
 LINE NO.= 316 KP1= 218 TAN1= -0.5009 0.8655 0.0000
 KP2= 226 TAN2= 0.5009 -0.8655 0.0000

LINE CONNECTS KEYPOINTS 220 227
 LINE NO.= 317 KP1= 220 TAN1= -0.5130 0.8584 0.0000
 KP2= 227 TAN2= 0.5130 -0.8584 0.0000

LINE CONNECTS KEYPOINTS 221 228
 LINE NO.= 318 KP1= 221 TAN1= -0.5201 0.8541 0.0000
 KP2= 228 TAN2= 0.5201 -0.8541 0.0000

LINE CONNECTS KEYPOINTS 163 171
 LINE NO.= 319 KP1= 163 TAN1= -0.8541 0.5201 0.0000
 KP2= 171 TAN2= 0.8541 -0.5201 0.0000

LINE CONNECTS KEYPOINTS 161 170
 LINE NO.= 320 KP1= 161 TAN1= -0.8584 0.5130 0.0000
 KP2= 170 TAN2= 0.8584 -0.5130 0.0000

LINE CONNECTS KEYPOINTS 158 169
 LINE NO.= 321 KP1= 158 TAN1= -0.8655 0.5009 0.0000
 KP2= 169 TAN2= 0.8655 -0.5009 0.0000

LINE CONNECTS KEYPOINTS 150 168
 LINE NO.= 322 KP1= 150 TAN1= -0.9844 0.1762 0.0000
 KP2= 168 TAN2= 0.9844 -0.1762 0.0000

LINE CONNECTS KEYPOINTS 144 167

LINE NO.=	323	KP1=	144	TAN1=	-0.9856	0.1691	0.0000
		KP2=	167	TAN2=	0.9856	-0.1691	0.0000
LINE CONNECTS KEYPOINTS 24 47							
LINE NO.=	324	KP1=	24	TAN1=	-0.9856	-0.1691	0.0000
		KP2=	47	TAN2=	0.9856	0.1691	0.0000
LINE CONNECTS KEYPOINTS 30 48							
LINE NO.=	325	KP1=	30	TAN1=	-0.9844	-0.1762	0.0000
		KP2=	48	TAN2=	0.9844	0.1762	0.0000
LINE CONNECTS KEYPOINTS 38 49							
LINE NO.=	326	KP1=	38	TAN1=	-0.8655	-0.5009	0.0000
		KP2=	49	TAN2=	0.8655	0.5009	0.0000
LINE CONNECTS KEYPOINTS 41 50							
LINE NO.=	327	KP1=	41	TAN1=	-0.8584	-0.5130	0.0000
		KP2=	50	TAN2=	0.8584	0.5130	0.0000
LINE CONNECTS KEYPOINTS 43 51							
LINE NO.=	328	KP1=	43	TAN1=	-0.8541	-0.5201	0.0000
		KP2=	51	TAN2=	0.8541	0.5201	0.0000
LINE CONNECTS KEYPOINTS 109 117							
LINE NO.=	329	KP1=	109	TAN1=	-0.5201	-0.8541	0.0000
		KP2=	117	TAN2=	0.5201	0.8541	0.0000
LINE CONNECTS KEYPOINTS 107 116							
LINE NO.=	330	KP1=	107	TAN1=	-0.5130	-0.8584	0.0000
		KP2=	116	TAN2=	0.5130	0.8584	0.0000
LINE CONNECTS KEYPOINTS 104 115							
LINE NO.=	331	KP1=	104	TAN1=	-0.5009	-0.8655	0.0000
		KP2=	115	TAN2=	0.5009	0.8655	0.0000
LINE CONNECTS KEYPOINTS 96 114							
LINE NO.=	332	KP1=	96	TAN1=	-0.1762	-0.9844	0.0000
		KP2=	114	TAN2=	0.1762	0.9844	0.0000
LINE CONNECTS KEYPOINTS 90 113							
LINE NO.=	333	KP1=	90	TAN1=	-0.1691	-0.9856	0.0000
		KP2=	113	TAN2=	0.1691	0.9856	0.0000
LINE CONNECTS KEYPOINTS 110 112							
LINE NO.=	334	KP1=	110	TAN1=	0.0000	-1.0000	0.0000
		KP2=	112	TAN2=	0.0000	1.0000	0.0000
SET DIVISIONS ON ALL SELECTED UNMESHED LINES							
TO NDIV = 2, SPACING RATIO = 1.000							
Line set 18 OB inner thickness							
LINE CONNECTS KEYPOINTS 223 229							
LINE NO.=	335	KP1=	223	TAN1=	0.0000	1.0000	0.0000
		KP2=	229	TAN2=	0.0000	-1.0000	0.0000
LINE CONNECTS KEYPOINTS 224 230							
LINE NO.=	336	KP1=	224	TAN1=	-0.1691	0.9856	0.0000
		KP2=	230	TAN2=	0.1691	-0.9856	0.0000
LINE CONNECTS KEYPOINTS 225 231							
LINE NO.=	337	KP1=	225	TAN1=	-0.1762	0.9844	0.0000
		KP2=	231	TAN2=	0.1762	-0.9844	0.0000
LINE CONNECTS KEYPOINTS 226 232							
LINE NO.=	338	KP1=	226	TAN1=	-0.5009	0.8655	0.0000
		KP2=	232	TAN2=	0.5009	-0.8655	0.0000
LINE CONNECTS KEYPOINTS 227 233							
LINE NO.=	339	KP1=	227	TAN1=	-0.5130	0.8584	0.0000
		KP2=	233	TAN2=	0.5130	-0.8584	0.0000

LINE CONNECTS KEYPOINTS		228	234			
LINE NO.=	340	KP1=	228	TAN1=	-0.5201	0.8541 0.0000
		KP2=	234	TAN2=	0.5201	-0.8541 0.0000
LINE CONNECTS KEYPOINTS		171	178			
LINE NO.=	341	KP1=	171	TAN1=	-0.8541	0.5201 0.0000
		KP2=	178	TAN2=	0.8541	-0.5201 0.0000
LINE CONNECTS KEYPOINTS		170	177			
LINE NO.=	342	KP1=	170	TAN1=	-0.8584	0.5130 0.0000
		KP2=	177	TAN2=	0.8584	-0.5130 0.0000
LINE CONNECTS KEYPOINTS		169	176			
LINE NO.=	343	KP1=	169	TAN1=	-0.8655	0.5009 0.0000
		KP2=	176	TAN2=	0.8655	-0.5009 0.0000
LINE CONNECTS KEYPOINTS		168	175			
LINE NO.=	344	KP1=	168	TAN1=	-0.9844	0.1762 0.0000
		KP2=	175	TAN2=	0.9844	-0.1762 0.0000
LINE CONNECTS KEYPOINTS		167	174			
LINE NO.=	345	KP1=	167	TAN1=	-0.9856	0.1691 0.0000
		KP2=	174	TAN2=	0.9856	-0.1691 0.0000
LINE CONNECTS KEYPOINTS		47	54			
LINE NO.=	346	KP1=	47	TAN1=	-0.9856	-0.1691 0.0000
		KP2=	54	TAN2=	0.9856	0.1691 0.0000
LINE CONNECTS KEYPOINTS		48	55			
LINE NO.=	347	KP1=	48	TAN1=	-0.9844	-0.1762 0.0000
		KP2=	55	TAN2=	0.9844	0.1762 0.0000
LINE CONNECTS KEYPOINTS		49	56			
LINE NO.=	348	KP1=	49	TAN1=	-0.8655	-0.5009 0.0000
		KP2=	56	TAN2=	0.8655	0.5009 0.0000
LINE CONNECTS KEYPOINTS		50	57			
LINE NO.=	349	KP1=	50	TAN1=	-0.8584	-0.5130 0.0000
		KP2=	57	TAN2=	0.8584	0.5130 0.0000
LINE CONNECTS KEYPOINTS		51	58			
LINE NO.=	350	KP1=	51	TAN1=	-0.8541	-0.5201 0.0000
		KP2=	58	TAN2=	0.8541	0.5201 0.0000
LINE CONNECTS KEYPOINTS		117	124			
LINE NO.=	351	KP1=	117	TAN1=	-0.5201	-0.8541 0.0000
		KP2=	124	TAN2=	0.5201	0.8541 0.0000
LINE CONNECTS KEYPOINTS		116	123			
LINE NO.=	352	KP1=	116	TAN1=	-0.5130	-0.8584 0.0000
		KP2=	123	TAN2=	0.5130	0.8584 0.0000
LINE CONNECTS KEYPOINTS		115	122			
LINE NO.=	353	KP1=	115	TAN1=	-0.5009	-0.8655 0.0000
		KP2=	122	TAN2=	0.5009	0.8655 0.0000
LINE CONNECTS KEYPOINTS		114	121			
LINE NO.=	354	KP1=	114	TAN1=	-0.1762	-0.9844 0.0000
		KP2=	121	TAN2=	0.1762	0.9844 0.0000
LINE CONNECTS KEYPOINTS		113	120			
LINE NO.=	355	KP1=	113	TAN1=	-0.1691	-0.9856 0.0000
		KP2=	120	TAN2=	0.1691	0.9856 0.0000
LINE CONNECTS KEYPOINTS		112	119			
LINE NO.=	356	KP1=	112	TAN1=	0.0000	-1.0000 0.0000
		KP2=	119	TAN2=	0.0000	1.0000 0.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES

TO NDIV = 2, SPACING RATIO = 1.000
line set 19 skirt thickness

LINE CONNECTS KEYPOINTS	229	235			
LINE NO.= 357 KP1=	229	TAN1=	0.0000	1.0000	0.0000
KP2=	235	TAN2=	0.0000	-1.0000	0.0000
LINE CONNECTS KEYPOINTS	230	236			
LINE NO.= 358 KP1=	230	TAN1=	-0.1691	0.9856	0.0000
KP2=	236	TAN2=	0.1691	-0.9856	0.0000
LINE CONNECTS KEYPOINTS	231	237			
LINE NO.= 359 KP1=	231	TAN1=	-0.1762	0.9844	0.0000
KP2=	237	TAN2=	0.1762	-0.9844	0.0000
LINE CONNECTS KEYPOINTS	232	238			
LINE NO.= 360 KP1=	232	TAN1=	-0.5009	0.8655	0.0000
KP2=	238	TAN2=	0.5009	-0.8655	0.0000
LINE CONNECTS KEYPOINTS	233	239			
LINE NO.= 361 KP1=	233	TAN1=	-0.5130	0.8584	0.0000
KP2=	239	TAN2=	0.5130	-0.8584	0.0000
LINE CONNECTS KEYPOINTS	234	240			
LINE NO.= 362 KP1=	234	TAN1=	-0.5201	0.8541	0.0000
KP2=	240	TAN2=	0.5201	-0.8541	0.0000
LINE CONNECTS KEYPOINTS	178	185			
LINE NO.= 363 KP1=	178	TAN1=	-0.8541	0.5201	0.0000
KP2=	185	TAN2=	0.8541	-0.5201	0.0000
LINE CONNECTS KEYPOINTS	177	184			
LINE NO.= 364 KP1=	177	TAN1=	-0.8584	0.5130	0.0000
KP2=	184	TAN2=	0.8584	-0.5130	0.0000
LINE CONNECTS KEYPOINTS	176	183			
LINE NO.= 365 KP1=	176	TAN1=	-0.8655	0.5009	0.0000
KP2=	183	TAN2=	0.8655	-0.5009	0.0000
LINE CONNECTS KEYPOINTS	175	182			
LINE NO.= 366 KP1=	175	TAN1=	-0.9844	0.1762	0.0000
KP2=	182	TAN2=	0.9844	-0.1762	0.0000
LINE CONNECTS KEYPOINTS	174	181			
LINE NO.= 367 KP1=	174	TAN1=	-0.9856	0.1691	0.0000
KP2=	181	TAN2=	0.9856	-0.1691	0.0000
LINE CONNECTS KEYPOINTS	54	61			
LINE NO.= 368 KP1=	54	TAN1=	-0.9856	-0.1691	0.0000
KP2=	61	TAN2=	0.9856	0.1691	0.0000
LINE CONNECTS KEYPOINTS	55	62			
LINE NO.= 369 KP1=	55	TAN1=	-0.9844	-0.1762	0.0000
KP2=	62	TAN2=	0.9844	0.1762	0.0000
LINE CONNECTS KEYPOINTS	56	63			
LINE NO.= 370 KP1=	56	TAN1=	-0.8655	-0.5009	0.0000
KP2=	63	TAN2=	0.8655	0.5009	0.0000
LINE CONNECTS KEYPOINTS	57	64			
LINE NO.= 371 KP1=	57	TAN1=	-0.8584	-0.5130	0.0000
KP2=	64	TAN2=	0.8584	0.5130	0.0000
LINE CONNECTS KEYPOINTS	58	65			
LINE NO.= 372 KP1=	58	TAN1=	-0.8541	-0.5201	0.0000
KP2=	65	TAN2=	0.8541	0.5201	0.0000
LINE CONNECTS KEYPOINTS	124	131			
LINE NO.= 373 KP1=	124	TAN1=	-0.5201	-0.8541	0.0000
KP2=	131	TAN2=	0.5201	0.8541	0.0000

LINE CONNECTS KEYPOINTS 123 130
 LINE NO.= 374 KP1= 123 TAN1= -0.5130 -0.8584 0.0000
 KP2= 130 TAN2= 0.5130 0.8584 0.0000

LINE CONNECTS KEYPOINTS 122 129
 LINE NO.= 375 KP1= 122 TAN1= -0.5009 -0.8655 0.0000
 KP2= 129 TAN2= 0.5009 0.8655 0.0000

LINE CONNECTS KEYPOINTS 121 128
 LINE NO.= 376 KP1= 121 TAN1= -0.1762 -0.9844 0.0000
 KP2= 128 TAN2= 0.1762 0.9844 0.0000

LINE CONNECTS KEYPOINTS 120 127
 LINE NO.= 377 KP1= 120 TAN1= -0.1691 -0.9856 0.0000
 KP2= 127 TAN2= 0.1691 0.9856 0.0000

LINE CONNECTS KEYPOINTS 119 126
 LINE NO.= 378 KP1= 119 TAN1= 0.0000 -1.0000 0.0000
 KP2= 126 TAN2= 0.0000 1.0000 0.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
 TO NDIV = 2, SPACING RATIO = 1.000
 lines to fill in lids
 lines tube height

LINE CONNECTS KEYPOINTS 195 194
 LINE NO.= 379 KP1= 195 TAN1= 0.0000 -1.0000 0.0000
 KP2= 194 TAN2= 0.0000 1.0000 0.0000

LINE CONNECTS KEYPOINTS 191 190
 LINE NO.= 380 KP1= 191 TAN1= 0.0000 -1.0000 0.0000
 KP2= 190 TAN2= 0.0000 1.0000 0.0000

LINE CONNECTS KEYPOINTS 187 68
 LINE NO.= 381 KP1= 187 TAN1= 0.0000 -1.0000 0.0000
 KP2= 68 TAN2= 0.0000 1.0000 0.0000

LINE CONNECTS KEYPOINTS 71 72
 LINE NO.= 382 KP1= 71 TAN1= 0.0000 -1.0000 0.0000
 KP2= 72 TAN2= 0.0000 1.0000 0.0000

LINE CONNECTS KEYPOINTS 75 76
 LINE NO.= 383 KP1= 75 TAN1= 0.0000 -1.0000 0.0000
 KP2= 76 TAN2= 0.0000 1.0000 0.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
 TO NDIV = 4, SPACING RATIO = 1.000
 end lines

LINE CONNECTS KEYPOINTS 222 197
 LINE NO.= 384 KP1= 222 TAN1= 0.0000 -1.0000 0.0000
 KP2= 197 TAN2= 0.0000 1.0000 0.0000

LINE CONNECTS KEYPOINTS 78 110
 LINE NO.= 385 KP1= 78 TAN1= 0.0000 -1.0000 0.0000
 KP2= 110 TAN2= 0.0000 1.0000 0.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
 TO NDIV = 4, SPACING RATIO = 1.000
 area set 1, tubes

DEFINE AREA BY LIST OF KEYPOINTS
 KEYPOINT LIST = 195 196 205 201
 AREA NUMBER = 1

DEFINE AREA BY LIST OF KEYPOINTS
 KEYPOINT LIST = 200 201 205 204

AREA NUMBER = 2

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 193 194 200 204

AREA NUMBER = 3

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 191 192 203 199

AREA NUMBER = 4

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 198 199 203 202

AREA NUMBER = 5

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 189 190 198 202

AREA NUMBER = 6

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 187 188 138 133

AREA NUMBER = 7

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 133 138 18 13

AREA NUMBER = 8

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 69 68 13 18

AREA NUMBER = 9

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 71 70 85 80

AREA NUMBER = 10

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 80 85 86 81

AREA NUMBER = 11

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 73 72 81 85

AREA NUMBER = 12

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 75 74 87 82

AREA NUMBER = 13

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 82 87 88 83

AREA NUMBER = 14

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 77 76 83 88

AREA NUMBER = 15

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 209 210 215 214

AREA NUMBER = 16
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 215 210 220 217
AREA NUMBER = 17
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 216 217 220 219
AREA NUMBER = 18
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 209 214 216 219
AREA NUMBER = 19
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 145 208 213 51
AREA NUMBER = 20
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 213 208 159 55
AREA NUMBER = 21
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 152 155 159 46
AREA NUMBER = 22
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 145 151 152 46
AREA NUMBER = 23
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 134 139 140 135
AREA NUMBER = 24
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 135 140 20 15
AREA NUMBER = 25
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 19 14 15 20
AREA NUMBER = 26
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 19 139 134 14
AREA NUMBER = 27
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 92 25 31 98
AREA NUMBER = 28
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 31 25 26 32
AREA NUMBER = 29
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 32 26 39 35

AREA NUMBER = 30
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 92 98 35 39
AREA NUMBER = 31
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 94 93 99 100
AREA NUMBER = 32
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 99 93 106 102
AREA NUMBER = 33
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 102 106 107 103
AREA NUMBER = 34
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 94 100 103 107
AREA NUMBER = 35
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 156 160 161 157
AREA NUMBER = 36
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 157 161 148 154
AREA NUMBER = 37
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 147 153 154 148
AREA NUMBER = 38
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 147 160 156 153
AREA NUMBER = 39
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 136 141 142 137
AREA NUMBER = 40
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 137 142 22 17
AREA NUMBER = 41
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 21 16 17 22
AREA NUMBER = 42
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 21 141 136 16
AREA NUMBER = 43
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 33 27 28 34

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AREA NUMBER = 44
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 34 28 41 37
AREA NUMBER = 45
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 40 36 37 41
AREA NUMBER = 46
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 40 27 33 36
AREA NUMBER = 47
area set 2, plates
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 204 205 210 209
AREA NUMBER = 48
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 192 193 204 203
AREA NUMBER = 49
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 203 204 209 208
AREA NUMBER = 50
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 208 209 219 159
AREA NUMBER = 51
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 202 203 208 145
AREA NUMBER = 52
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 146 159 160 147
AREA NUMBER = 53
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 188 189 202 138
AREA NUMBER = 54
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 138 202 145 139
AREA NUMBER = 55
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 139 145 146 140
AREA NUMBER = 56
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 140 146 147 141
AREA NUMBER = 57
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 141 147 148 142
```

AREA NUMBER = 58

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 18 138 139 19

AREA NUMBER = 59

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 20 140 141 21

AREA NUMBER = 60

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 70 69 18 85

AREA NUMBER = 61

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 85 18 19 25

AREA NUMBER = 62

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 25 19 20 26

AREA NUMBER = 63

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 26 20 21 27

AREA NUMBER = 64

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 27 21 22 28

AREA NUMBER = 65

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 86 85 25 92

AREA NUMBER = 66

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 39 26 27 40

AREA NUMBER = 67

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 74 73 86 87

AREA NUMBER = 68

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 87 86 92 93

AREA NUMBER = 69

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 93 92 39 106

AREA NUMBER = 70

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 88 87 93 94

AREA NUMBER = 71

area set 3, end guides

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 196 197 206 205

AREA NUMBER = 72

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 205 206 211 210

AREA NUMBER = 73

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 206 207 212 211

AREA NUMBER = 74

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 210 211 218 220

AREA NUMBER = 75

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 148 161 158 149

AREA NUMBER = 76

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 142 148 149 143

AREA NUMBER = 77

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 143 149 150 144

AREA NUMBER = 78

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 22 142 143 23

AREA NUMBER = 79

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 28 22 23 29

AREA NUMBER = 80

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 29 23 24 30

AREA NUMBER = 81

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 41 28 29 38

AREA NUMBER = 82

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 95 94 107 104

AREA NUMBER = 83

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 89 88 94 95

AREA NUMBER = 84

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 90 89 95 96

AREA NUMBER = 85

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 78 77 88 89

AREA NUMBER = 86
area set 4, corner guides

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 219 220 221 162

AREA NUMBER = 87

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 159 219 162 160

AREA NUMBER = 88

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 160 162 163 161

AREA NUMBER = 89

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 107 106 42 109

AREA NUMBER = 90

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 106 39 40 42

AREA NUMBER = 91

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 42 40 41 43

AREA NUMBER = 92

ACTIVE COORDINATE SYSTEM SET TO 1 (CYLINDRICAL)
area set 5, inner barrier

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 222 223 224 207

AREA NUMBER = 93

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 207 224 225 212

AREA NUMBER = 94

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 212 225 226 218

AREA NUMBER = 95

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 218 226 227 220

AREA NUMBER = 96

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 220 227 228 221

AREA NUMBER = 97

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 221 228 171 163

AREA NUMBER = 98

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 163 171 170 161

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AREA NUMBER = 99
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 161 170 169 158
AREA NUMBER = 100
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 158 169 168 150
AREA NUMBER = 101
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 150 168 167 144
AREA NUMBER = 102
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 144 167 47 24
AREA NUMBER = 103
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 24 47 48 30
AREA NUMBER = 104
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 30 48 49 38
AREA NUMBER = 105
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 38 49 50 41
AREA NUMBER = 106
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 41 50 51 43
AREA NUMBER = 107
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 43 51 117 109
AREA NUMBER = 108
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 109 117 116 107
AREA NUMBER = 109
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 107 116 115 104
AREA NUMBER = 110
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 104 115 114 96
AREA NUMBER = 111
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 90 96 114 113
AREA NUMBER = 112
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 90 113 112 110
```


AREA NUMBER = 113
area set 6, outer barrier

ACTIVE COORDINATE SYSTEM SET TO 0 (CARTESIAN)

DRAG ALL SELECTED AREAS
ALONG LINES
1,

*** WARNING *** CP= 5.120 TIME= 15:52:54
Area 1 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.130 TIME= 15:52:54
Area 2 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.130 TIME= 15:52:54
Area 3 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.130 TIME= 15:52:54
Area 4 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.130 TIME= 15:52:54
Area 5 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.130 TIME= 15:52:54
Area 6 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.130 TIME= 15:52:54
Area 7 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.130 TIME= 15:52:54
Area 8 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.130 TIME= 15:52:54
Area 9 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.130 TIME= 15:52:54
Area 10 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.130 TIME= 15:52:54
Area 11 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.130 TIME= 15:52:54
Area 12 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.140 TIME= 15:52:54
Area 13 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.140 TIME= 15:52:54
Area 14 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.140 TIME= 15:52:54
Area 15 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.140 TIME= 15:52:54
Area 16 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.140 TIME= 15:52:54
Area 17 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.140 TIME= 15:52:54
Area 18 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.150 TIME= 15:52:54
Area 19 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.150 TIME= 15:52:54
Area 20 is not meshed. Volume will be generated without elements.

```
*** WARNING ***           CP=      5.150  TIME= 15:52:54
Area 21 is not meshed. Volume will be generated without elements.

*** WARNING ***           CP=      5.150  TIME= 15:52:54
Area 22 is not meshed. Volume will be generated without elements.

*** WARNING ***           CP=      5.150  TIME= 15:52:54
Area 23 is not meshed. Volume will be generated without elements.

*** WARNING ***           CP=      5.150  TIME= 15:52:54
Area 24 is not meshed. Volume will be generated without elements.

*** WARNING ***           CP=      5.150  TIME= 15:52:54
Area 25 is not meshed. Volume will be generated without elements.

*** WARNING ***           CP=      5.150  TIME= 15:52:54
Area 26 is not meshed. Volume will be generated without elements.

*** WARNING ***           CP=      5.150  TIME= 15:52:54
Area 27 is not meshed. Volume will be generated without elements.

*** WARNING ***           CP=      5.150  TIME= 15:52:54
Area 28 is not meshed. Volume will be generated without elements.

*** WARNING ***           CP=      5.150  TIME= 15:52:54
Area 29 is not meshed. Volume will be generated without elements.

*** WARNING ***           CP=      5.150  TIME= 15:52:54
Area 30 is not meshed. Volume will be generated without elements.

*** WARNING ***           CP=      5.160  TIME= 15:52:54
Area 31 is not meshed. Volume will be generated without elements.

*** WARNING ***           CP=      5.160  TIME= 15:52:54
Area 32 is not meshed. Volume will be generated without elements.

*** WARNING ***           CP=      5.160  TIME= 15:52:54
Area 33 is not meshed. Volume will be generated without elements.

*** WARNING ***           CP=      5.160  TIME= 15:52:54
Area 34 is not meshed. Volume will be generated without elements.

*** WARNING ***           CP=      5.160  TIME= 15:52:54
Area 35 is not meshed. Volume will be generated without elements.

*** WARNING ***           CP=      5.160  TIME= 15:52:54
Area 36 is not meshed. Volume will be generated without elements.

*** WARNING ***           CP=      5.160  TIME= 15:52:54
Area 37 is not meshed. Volume will be generated without elements.

*** WARNING ***           CP=      5.160  TIME= 15:52:54
Area 38 is not meshed. Volume will be generated without elements.

*** WARNING ***           CP=      5.160  TIME= 15:52:54
Area 39 is not meshed. Volume will be generated without elements.

*** WARNING ***           CP=      5.160  TIME= 15:52:54
Area 40 is not meshed. Volume will be generated without elements.

*** WARNING ***           CP=      5.160  TIME= 15:52:54
Area 41 is not meshed. Volume will be generated without elements.

*** WARNING ***           CP=      5.170  TIME= 15:52:54
Area 42 is not meshed. Volume will be generated without elements.

*** WARNING ***           CP=      5.170  TIME= 15:52:54
Area 43 is not meshed. Volume will be generated without elements.

*** WARNING ***           CP=      5.170  TIME= 15:52:54
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Area 44 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.170 TIME= 15:52:54
Area 45 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.170 TIME= 15:52:54
Area 46 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.170 TIME= 15:52:54
Area 47 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.170 TIME= 15:52:54
Area 48 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.170 TIME= 15:52:54
Area 49 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.170 TIME= 15:52:54
Area 50 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.170 TIME= 15:52:54
Area 51 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.170 TIME= 15:52:54
Area 52 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.180 TIME= 15:52:54
Area 53 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.180 TIME= 15:52:54
Area 54 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.180 TIME= 15:52:54
Area 55 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.180 TIME= 15:52:54
Area 56 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.180 TIME= 15:52:54
Area 57 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.180 TIME= 15:52:54
Area 58 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.180 TIME= 15:52:54
Area 59 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.180 TIME= 15:52:54
Area 60 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.180 TIME= 15:52:54
Area 61 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.190 TIME= 15:52:54
Area 62 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.190 TIME= 15:52:54
Area 63 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.190 TIME= 15:52:54
Area 64 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.200 TIME= 15:52:54
Area 65 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.200 TIME= 15:52:54
Area 66 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.200 TIME= 15:52:54
Area 67 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.200 TIME= 15:52:54
Area 68 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.200 TIME= 15:52:54
Area 69 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.200 TIME= 15:52:54
Area 70 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.200 TIME= 15:52:54
Area 71 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.200 TIME= 15:52:54
Area 72 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.200 TIME= 15:52:54
Area 73 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.200 TIME= 15:52:54
Area 74 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.200 TIME= 15:52:54
Area 75 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.200 TIME= 15:52:54
Area 76 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.210 TIME= 15:52:54
Area 77 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.210 TIME= 15:52:54
Area 78 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.210 TIME= 15:52:54
Area 79 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.210 TIME= 15:52:54
Area 80 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.210 TIME= 15:52:54
Area 81 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.210 TIME= 15:52:54
Area 82 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.210 TIME= 15:52:54
Area 83 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.210 TIME= 15:52:54
Area 84 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.210 TIME= 15:52:54
Area 85 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.210 TIME= 15:52:54
Area 86 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.210 TIME= 15:52:54
Area 87 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.210 TIME= 15:52:54
Area 88 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.220 TIME= 15:52:54
Area 89 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.220 TIME= 15:52:54
Area 90 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.220 TIME= 15:52:54
Area 91 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.220 TIME= 15:52:54
Area 92 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.220 TIME= 15:52:54
Area 93 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.220 TIME= 15:52:54
Area 94 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.220 TIME= 15:52:54
Area 95 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.220 TIME= 15:52:54
Area 96 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.220 TIME= 15:52:54
Area 97 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.220 TIME= 15:52:54
Area 98 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.220 TIME= 15:52:54
Area 99 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.230 TIME= 15:52:54
Area 100 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.230 TIME= 15:52:54
Area 101 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.230 TIME= 15:52:54
Area 102 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.230 TIME= 15:52:54
Area 103 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.230 TIME= 15:52:54
Area 104 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.230 TIME= 15:52:54
Area 105 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.230 TIME= 15:52:54
Area 106 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.230 TIME= 15:52:54
Area 107 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.230 TIME= 15:52:54
Area 108 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.230 TIME= 15:52:54
Area 109 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.230 TIME= 15:52:54
Area 110 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.230 TIME= 15:52:54
Area 111 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.230 TIME= 15:52:54
Area 112 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.240 TIME= 15:52:54
Area 113 is not meshed. Volume will be generated without elements.

SELECT FOR ITEM=LOC COMPONENT=Z BETWEEN 2.2875 AND 2.2875

KABS= 0. TOLERANCE= 0.114375E-01

113 AREAS (OF 509 DEFINED) SELECTED BY ASEL COMMAND.

ACTIVE COORDINATE SYSTEM SET TO 1 (CYLINDRICAL)

UNSELECT FOR ITEM=LOC COMPONENT=X BETWEEN 0.00000E+00 AND 0.68095
KABS= 0. TOLERANCE= 0.000000E+00

21 AREAS (OF 509 DEFINED) SELECTED BY ASEL COMMAND.

ACTIVE COORDINATE SYSTEM SET TO 0 (CARTESIAN)

DRAG ALL SELECTED AREAS
ALONG LINES
2,

*** WARNING *** CP= 12.250 TIME= 15:53:07
Area 441 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 12.250 TIME= 15:53:07
Area 444 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 12.250 TIME= 15:53:07
Area 448 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 12.250 TIME= 15:53:07
Area 451 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 12.250 TIME= 15:53:07
Area 454 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 12.250 TIME= 15:53:07
Area 458 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 12.250 TIME= 15:53:07
Area 461 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 12.250 TIME= 15:53:07
Area 464 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 12.250 TIME= 15:53:07
Area 468 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 12.250 TIME= 15:53:07
Area 471 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 12.260 TIME= 15:53:07
Area 475 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 12.260 TIME= 15:53:07
Area 478 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 12.260 TIME= 15:53:07
Area 482 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 12.260 TIME= 15:53:07
Area 485 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 12.260 TIME= 15:53:07
Area 488 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 12.260 TIME= 15:53:07
Area 492 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 12.260 TIME= 15:53:07
Area 495 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 12.260 TIME= 15:53:07
Area 498 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 12.260 TIME= 15:53:07
Area 502 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 12.260 TIME= 15:53:07
Area 505 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 12.260 TIME= 15:53:07
Area 509 is not meshed. Volume will be generated without elements.
copy areas from top of basket to bottom of lid

SELECT FOR ITEM=LOC COMPONENT=Z BETWEEN 2.2775 AND 2.2775
KABS= 0. TOLERANCE= 0.113875E-01

113 AREAS (OF 594 DEFINED) SELECTED BY ASEL COMMAND.

ACTIVE COORDINATE SYSTEM SET TO 1 (CYLINDRICAL)

RESELECT FOR ITEM=LOC COMPONENT=X BETWEEN 0.00000E+00 AND 0.68095
KABS= 0. TOLERANCE= 0.000000E+00

92 AREAS (OF 594 DEFINED) SELECTED BY ASEL COMMAND.

ACTIVE COORDINATE SYSTEM SET TO 0 (CARTESIAN)

GENERATE 2 TOTAL SETS OF AREAS
SET IS ALL SELECTED AREAS
DX,DY,DZ= 0.000E+00 0.000E+00 0.100E-01 CSYS= 0

MERGE COINCIDENT KEYPOINTS WITHIN TOLERANCE OF 0.10000E-03

KEYPOINT 373 USED FOR KEYPOINT(S) 521
KEYPOINT 375 USED FOR KEYPOINT(S) 522
KEYPOINT 377 USED FOR KEYPOINT(S) 523
KEYPOINT 379 USED FOR KEYPOINT(S) 458
KEYPOINT 381 USED FOR KEYPOINT(S) 540
KEYPOINT 383 USED FOR KEYPOINT(S) 542
KEYPOINT 385 USED FOR KEYPOINT(S) 496
KEYPOINT 387 USED FOR KEYPOINT(S) 524
KEYPOINT 389 USED FOR KEYPOINT(S) 527
KEYPOINT 391 USED FOR KEYPOINT(S) 528
KEYPOINT 393 USED FOR KEYPOINT(S) 531
KEYPOINT 395 USED FOR KEYPOINT(S) 532
KEYPOINT 397 USED FOR KEYPOINT(S) 533
KEYPOINT 399 USED FOR KEYPOINT(S) 514
KEYPOINT 401 USED FOR KEYPOINT(S) 545
KEYPOINT 403 USED FOR KEYPOINT(S) 544
KEYPOINT 405 USED FOR KEYPOINT(S) 492
KEYPOINT 407 USED FOR KEYPOINT(S) 535
KEYPOINT 409 USED FOR KEYPOINT(S) 538
KEYPOINT 410 USED FOR KEYPOINT(S) 537

LINE 837 USED FOR LINE(S) 1121
LINE 847 USED FOR LINE(S) 1124
LINE 852 USED FOR LINE(S) 1152
LINE 862 USED FOR LINE(S) 1157
LINE 867 USED FOR LINE(S) 1125
LINE 877 USED FOR LINE(S) 1131
LINE 887 USED FOR LINE(S) 1138
LINE 897 USED FOR LINE(S) 1141
LINE 902 USED FOR LINE(S) 1162
LINE 912 USED FOR LINE(S) 1160
LINE 917 USED FOR LINE(S) 1143
LINE 923 USED FOR LINE(S) 1149

generate lines to fill in lid at top of WP
lines tube height

LINE CONNECTS KEYPOINTS 414 421
LINE NO.= 1121 KP1= 414 TAN1= 0.0000 -1.0000 0.0000
KP2= 421 TAN2= 0.0000 1.0000 0.0000

LINE CONNECTS KEYPOINTS 422 429

LINE NO.= 1124 KP1= 422 TAN1= 0.0000 -1.0000 0.0000
 KP2= 429 TAN2= 0.0000 1.0000 0.0000

LINE CONNECTS KEYPOINTS 430 437
 LINE NO.= 1125 KP1= 430 TAN1= 0.0000 -1.0000 0.0000
 KP2= 437 TAN2= 0.0000 1.0000 0.0000

LINE CONNECTS KEYPOINTS 438 445
 LINE NO.= 1131 KP1= 438 TAN1= 0.0000 -1.0000 0.0000
 KP2= 445 TAN2= 0.0000 1.0000 0.0000

LINE CONNECTS KEYPOINTS 446 453
 LINE NO.= 1138 KP1= 446 TAN1= 0.0000 -1.0000 0.0000
 KP2= 453 TAN2= 0.0000 1.0000 0.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
 TO NDIV = 4, SPACING RATIO = 1.000
 end lines

LINE CONNECTS KEYPOINTS 370 518
 LINE NO.= 1141 KP1= 370 TAN1= 0.0000 -1.0000 0.0000
 KP2= 518 TAN2= 0.0000 1.0000 0.0000

LINE CONNECTS KEYPOINTS 539 413
 LINE NO.= 1143 KP1= 539 TAN1= 0.0000 -1.0000 0.0000
 KP2= 413 TAN2= 0.0000 1.0000 0.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
 TO NDIV = 4, SPACING RATIO = 1.000

DEFINE AREA BY LIST OF LINES
 LINE LIST = 832 1116 1120 1141
 (TRAVERSED IN SAME DIRECTION AS LINE: 832)

AREA NUMBER = 687

DEFINE AREA BY LIST OF LINES
 LINE LIST = 936 937 941 1121
 (TRAVERSED IN SAME DIRECTION AS LINE: 936)

AREA NUMBER = 688

DEFINE AREA BY LIST OF LINES
 LINE LIST = 946 947 951 1124
 (TRAVERSED IN SAME DIRECTION AS LINE: 946)

AREA NUMBER = 689

DEFINE AREA BY LIST OF LINES
 LINE LIST = 956 959 961 1125
 (TRAVERSED IN SAME DIRECTION AS LINE: 956)

AREA NUMBER = 690

DEFINE AREA BY LIST OF LINES
 LINE LIST = 966 969 971 1131
 (TRAVERSED IN SAME DIRECTION AS LINE: 966)

AREA NUMBER = 691

DEFINE AREA BY LIST OF LINES
 LINE LIST = 976 979 981 1138
 (TRAVERSED IN SAME DIRECTION AS LINE: 976)

AREA NUMBER = 692

DEFINE AREA BY LIST OF LINES
 LINE LIST = 932 1143 1147 1151
 (TRAVERSED IN SAME DIRECTION AS LINE: 932)

AREA NUMBER = 693

DEFINE AREA BY LIST OF LINES

LINE LIST = 842 1122 1123
(TRAVERSED IN SAME DIRECTION AS LINE 842)

AREA NUMBER = 694

DEFINE AREA BY LIST OF LINES

LINE LIST = 985 989 990 993
(TRAVERSED IN SAME DIRECTION AS LINE 985)

AREA NUMBER = 695

DEFINE AREA BY LIST OF LINES

LINE LIST = 997 1001 1002 1005
(TRAVERSED IN SAME DIRECTION AS LINE 997)

AREA NUMBER = 696

DEFINE AREA BY LIST OF LINES

LINE LIST = 1010 1013 1015 1018
(TRAVERSED IN SAME DIRECTION AS LINE 1010)

AREA NUMBER = 697

DEFINE AREA BY LIST OF LINES

LINE LIST = 1021 1025 1028 1029
(TRAVERSED IN SAME DIRECTION AS LINE 1021)

AREA NUMBER = 698

DEFINE AREA BY LIST OF LINES

LINE LIST = 1033 1037 1040 1041
(TRAVERSED IN SAME DIRECTION AS LINE 1033)

AREA NUMBER = 699

DEFINE AREA BY LIST OF LINES

LINE LIST = 922 1144 1148
(TRAVERSED IN SAME DIRECTION AS LINE 922)

AREA NUMBER = 700

DEFINE AREA BY LIST OF LINES

LINE LIST = 857 1153 1156
(TRAVERSED IN SAME DIRECTION AS LINE 857)

AREA NUMBER = 701

DEFINE AREA BY LIST OF LINES

LINE LIST = 1046 1049 1051 1054
(TRAVERSED IN SAME DIRECTION AS LINE 1046)

AREA NUMBER = 702

DEFINE AREA BY LIST OF LINES

LINE LIST = 1058 1061 1063 1066
(TRAVERSED IN SAME DIRECTION AS LINE 1058)

AREA NUMBER = 703

DEFINE AREA BY LIST OF LINES

LINE LIST = 1070 1073 1075 1078
(TRAVERSED IN SAME DIRECTION AS LINE 1070)

AREA NUMBER = 704

DEFINE AREA BY LIST OF LINES

LINE LIST = 907 1159 1163

(TRAVERSED IN SAME DIRECTION AS LINE 907)

AREA NUMBER = 705

DEFINE AREA BY LIST OF LINES

LINE LIST = 872 1126 1130

(TRAVERSED IN SAME DIRECTION AS LINE 872)

AREA NUMBER = 706

DEFINE AREA BY LIST OF LINES

LINE LIST = 882 1132 1133 1137

(TRAVERSED IN SAME DIRECTION AS LINE 882)

AREA NUMBER = 707

DEFINE AREA BY LIST OF LINES

LINE LIST = 892 1139 1140

(TRAVERSED IN SAME DIRECTION AS LINE 892)

AREA NUMBER = 708

SELECT FOR ITEM=LOC COMPONENT=Z BETWEEN 2.3075 AND 2.3075
KABS= 0. TOLERANCE= 0.115375E-01

135 AREAS (OF 708 DEFINED) SELECTED BY ASEL COMMAND.

DRAG ALL SELECTED AREAS
ALONG LINES
3,

*** WARNING *** CP= 16.330 TIME= 15:53:14
Area 514 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.330 TIME= 15:53:14
Area 518 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.340 TIME= 15:53:14
Area 522 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.340 TIME= 15:53:14
Area 526 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.340 TIME= 15:53:14
Area 530 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.340 TIME= 15:53:14
Area 534 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.340 TIME= 15:53:14
Area 538 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.340 TIME= 15:53:14
Area 542 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.340 TIME= 15:53:14
Area 546 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.340 TIME= 15:53:14
Area 550 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.340 TIME= 15:53:14
Area 554 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.340 TIME= 15:53:14
Area 558 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.340 TIME= 15:53:14
Area 562 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.340 TIME= 15:53:14
Area 566 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.350 TIME= 15:53:14
Area 570 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.350 TIME= 15:53:14
Area 574 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.350 TIME= 15:53:14
Area 578 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.350 TIME= 15:53:14
Area 582 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.350 TIME= 15:53:14
Area 586 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.350 TIME= 15:53:14
Area 590 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.350 TIME= 15:53:14
Area 594 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.350 TIME= 15:53:14
Area 595 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.350 TIME= 15:53:14
Area 596 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.350 TIME= 15:53:14
Area 597 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.350 TIME= 15:53:14
Area 598 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.360 TIME= 15:53:14
Area 599 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.360 TIME= 15:53:14
Area 600 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.360 TIME= 15:53:14
Area 601 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.360 TIME= 15:53:14
Area 602 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.360 TIME= 15:53:14
Area 603 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.360 TIME= 15:53:14
Area 604 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.360 TIME= 15:53:14
Area 605 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.360 TIME= 15:53:14
Area 606 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.360 TIME= 15:53:14
Area 607 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.360 TIME= 15:53:14
Area 608 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.360 TIME= 15:53:14
Area 609 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.360 TIME= 15:53:14

Area 610 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.360 TIME= 15:53:14
Area 611 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.370 TIME= 15:53:14
Area 612 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.370 TIME= 15:53:14
Area 613 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.370 TIME= 15:53:14
Area 614 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.370 TIME= 15:53:14
Area 615 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.370 TIME= 15:53:14
Area 616 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.370 TIME= 15:53:14
Area 617 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.370 TIME= 15:53:14
Area 618 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.370 TIME= 15:53:14
Area 619 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.370 TIME= 15:53:14
Area 620 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.370 TIME= 15:53:14
Area 621 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.370 TIME= 15:53:14
Area 622 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.380 TIME= 15:53:14
Area 623 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.380 TIME= 15:53:14
Area 624 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.380 TIME= 15:53:14
Area 625 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.380 TIME= 15:53:14
Area 626 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.380 TIME= 15:53:14
Area 627 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.380 TIME= 15:53:14
Area 628 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.380 TIME= 15:53:14
Area 629 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.380 TIME= 15:53:14
Area 630 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.380 TIME= 15:53:14
Area 631 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.380 TIME= 15:53:14
Area 632 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.380 TIME= 15:53:14
Area 633 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.390 TIME= 15:53:14
Area 634 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.390 TIME= 15:53:14
Area 635 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.390 TIME= 15:53:14
Area 636 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.390 TIME= 15:53:14
Area 637 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.390 TIME= 15:53:14
Area 638 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.390 TIME= 15:53:14
Area 639 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.390 TIME= 15:53:14
Area 640 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.390 TIME= 15:53:14
Area 641 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.390 TIME= 15:53:14
Area 642 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.390 TIME= 15:53:14
Area 643 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.390 TIME= 15:53:14
Area 644 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.400 TIME= 15:53:14
Area 645 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.400 TIME= 15:53:14
Area 646 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.400 TIME= 15:53:14
Area 647 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.400 TIME= 15:53:14
Area 648 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.400 TIME= 15:53:14
Area 649 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.400 TIME= 15:53:14
Area 650 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.400 TIME= 15:53:14
Area 651 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.400 TIME= 15:53:14
Area 652 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.400 TIME= 15:53:14
Area 653 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.400 TIME= 15:53:14
Area 654 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.400 TIME= 15:53:14
Area 655 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.400 TIME= 15:53:14
Area 656 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.410 TIME= 15:53:15
Area 657 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.410 TIME= 15:53:15
Area 658 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.410 TIME= 15:53:15
Area 659 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.410 TIME= 15:53:15
Area 660 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.410 TIME= 15:53:15
Area 661 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.410 TIME= 15:53:15
Area 662 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.410 TIME= 15:53:15
Area 663 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.410 TIME= 15:53:15
Area 664 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.410 TIME= 15:53:15
Area 665 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.410 TIME= 15:53:15
Area 666 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.420 TIME= 15:53:15
Area 667 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.420 TIME= 15:53:15
Area 668 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.420 TIME= 15:53:15
Area 669 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.420 TIME= 15:53:15
Area 670 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.420 TIME= 15:53:15
Area 671 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.420 TIME= 15:53:15
Area 672 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.420 TIME= 15:53:15
Area 673 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.420 TIME= 15:53:15
Area 674 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.420 TIME= 15:53:15
Area 675 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.420 TIME= 15:53:15
Area 676 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.420 TIME= 15:53:15
Area 677 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.420 TIME= 15:53:15
Area 678 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.420 TIME= 15:53:15
Area 679 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.420 TIME= 15:53:15

Area 680 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.420 TIME= 15:53:15
Area 681 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.430 TIME= 15:53:15
Area 682 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.430 TIME= 15:53:15
Area 683 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.430 TIME= 15:53:15
Area 684 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.430 TIME= 15:53:15
Area 685 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.430 TIME= 15:53:15
Area 686 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.430 TIME= 15:53:15
Area 687 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.430 TIME= 15:53:15
Area 688 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.430 TIME= 15:53:15
Area 689 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.430 TIME= 15:53:15
Area 690 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.430 TIME= 15:53:15
Area 691 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.430 TIME= 15:53:15
Area 692 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.430 TIME= 15:53:15
Area 693 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.430 TIME= 15:53:15
Area 694 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.430 TIME= 15:53:15
Area 695 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.430 TIME= 15:53:15
Area 696 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.430 TIME= 15:53:15
Area 697 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.440 TIME= 15:53:15
Area 698 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.440 TIME= 15:53:15
Area 699 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.440 TIME= 15:53:15
Area 700 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.440 TIME= 15:53:15
Area 701 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.440 TIME= 15:53:15
Area 702 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.440 TIME= 15:53:15
Area 703 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.440 TIME= 15:53:15
Area 704 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.440 TIME= 15:53:15
Area 705 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.450 TIME= 15:53:15
Area 706 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.450 TIME= 15:53:15
Area 707 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.450 TIME= 15:53:15
Area 708 is not meshed. Volume will be generated without elements.
lines at bottom lid used to be here

Mesh Volumes

Mesh the CS Tubes

Mesh SS-B Plates

SELECT FOR ITEM=VOLU COMPONENT=
IN RANGE 48 TO 71 STEP 1

24 VOLUMES (OF 269 DEFINED) SELECTED BY VSEL COMMAND.

ELEMENT TYPE SET TO 2

MATERIAL NUMBER SET TO 2

GENERATE NODES AND ELEMENTS IN ALL SELECTED VOLUMES

*** WARNING *** CP= 26.030 TIME= 15:53:35
Meshing of volume 50 produced 36 elements with excessive aspect ratio.
Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 50 WITH EXCESSIVE ASPECT RATIO ***

241	242	243	244	245	246	247	248
249	250	251	252	253	254	255	256
257	258	271	272	273	274	275	276
277	278	279	280	281	282	283	284
285	286	287	288				

*** WARNING *** CP= 27.710 TIME= 15:53:38
Meshing of volume 55 produced 36 elements with excessive aspect ratio.
Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 55 WITH EXCESSIVE ASPECT RATIO ***

781	782	783	784	785	786	787	788
789	790	791	792	793	794	795	796
797	798	811	812	813	814	815	816
817	818	819	820	821	822	823	824
825	826	827	828				

*** WARNING *** CP= 28.260 TIME= 15:53:39
Meshing of volume 57 produced 36 elements with excessive aspect ratio.
Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 57 WITH EXCESSIVE ASPECT RATIO ***

961	962	963	964	965	966	967	968
969	970	971	972	973	974	975	976
977	978	991	992	993	994	995	996
997	998	999	1000	1001	1002	1003	1004
1005	1006	1007	1008				

*** WARNING *** CP= 29.960 TIME= 15:53:42
 Meshing of volume 62 produced 36 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 62 WITH EXCESSIVE ASPECT RATIO ***

1501	1502	1503	1504	1505	1506	1507	1508
1509	1510	1511	1512	1513	1514	1515	1516
1517	1518	1531	1532	1533	1534	1535	1536
1537	1538	1539	1540	1541	1542	1543	1544
1545	1546	1547	1548				

*** WARNING *** CP= 30.580 TIME= 15:53:43
 Meshing of volume 64 produced 36 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 64 WITH EXCESSIVE ASPECT RATIO ***

1681	1682	1683	1684	1685	1686	1687	1688
1689	1690	1691	1692	1693	1694	1695	1696
1697	1698	1711	1712	1713	1714	1715	1716
1717	1718	1719	1720	1721	1722	1723	1724
1725	1726	1727	1728				

*** WARNING *** CP= 32.210 TIME= 15:53:46
 Meshing of volume 69 produced 36 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 69 WITH EXCESSIVE ASPECT RATIO ***

2221	2222	2223	2224	2225	2226	2227	2228
2229	2230	2231	2232	2233	2234	2235	2236
2237	2238	2251	2252	2253	2254	2255	2256
2257	2258	2259	2260	2261	2262	2263	2264
2265	2266	2267	2268				

NUMBER OF VOLUMES MESHED = 24
 MAXIMUM NODE NUMBER = 4000
 MAXIMUM ELEMENT NUMBER = 2520
 Mesh End Guides

SELECT FOR ITEM=VOLUME COMPONENT=
 IN RANGE 72 TO 86 STEP 1

15 VOLUMES (OF 269 DEFINED) SELECTED BY VSEL COMMAND.

ELEMENT TYPE SET TO 3

MATERIAL NUMBER SET TO 3

GENERATE NODES AND ELEMENTS IN ALL SELECTED VOLUMES

*** WARNING *** CP= 33.580 TIME= 15:53:48
 Meshing of volume 72 produced 8 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 72 WITH EXCESSIVE ASPECT RATIO ***

2521	2536	2551	2566	2581	2596	2611	2626
------	------	------	------	------	------	------	------

*** WARNING *** CP= 33.820 TIME= 15:53:48
 Meshing of volume 73 produced 46 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 73 WITH EXCESSIVE ASPECT RATIO ***

2641	2642	2643	2644	2645	2646	2647	2648
2649	2650	2651	2652	2653	2654	2655	2656
2657	2658	2659	2660	2661	2662	2663	2671
2672	2673	2674	2675	2676	2677	2678	2679
2680	2681	2682	2683	2684	2685	2686	2687

2688 2689 2690 2691 2692 2693

*** WARNING *** CP= 34.170 TIME= 15:53:49
 Meshing of volume 74 produced 24 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 74 WITH EXCESSIVE ASPECT RATIO ***

2701	2702	2703	2716	2717	2718	2731	2732
2733	2746	2747	2748	2761	2762	2763	2776
2777	2778	2791	2792	2793	2806	2807	2808

*** WARNING *** CP= 34.290 TIME= 15:53:49
 Volume 75 area 75 has a corner angle of 150 degrees. This is not
 recommended for hexahedral elements.

*** WARNING *** CP= 34.300 TIME= 15:53:49
 Volume 75 area 380 has a corner angle of 150 degrees. This is not
 recommended for hexahedral elements.

*** WARNING *** CP= 34.520 TIME= 15:53:50
 Meshing of volume 75 produced 60 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 75 WITH EXCESSIVE DISTORTION ***

2881	2882	2883	2884	2885	2886	2887	2888
2889	2890	2891	2892	2893	2894	2895	2896
2897	2898	2899	2900	2901	2902	2903	2904
2905	2906	2907	2908	2909	2910	2911	2912
2913	2914	2915	2916	2917	2918	2919	2920
2921	2922	2923	2924	2925	2926	2927	2928
2929	2930	2931	2932	2933	2934	2935	2936
2937	2938	2939	2940				

*** WARNING *** CP= 34.650 TIME= 15:53:50
 Volume 76 area 76 has a corner angle of 30 degrees. This is not
 recommended for hexahedral elements.

*** WARNING *** CP= 34.670 TIME= 15:53:50
 Volume 76 area 384 has a corner angle of 30 degrees. This is not
 recommended for hexahedral elements.

*** WARNING *** CP= 34.890 TIME= 15:53:50
 Meshing of volume 76 produced 60 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 76 WITH EXCESSIVE DISTORTION ***

2941	2942	2945	2946	2949	2950	2953	2954
2957	2958	2961	2962	2965	2966	2969	2970
2973	2974	2977	2978	2981	2982	2985	2986
2989	2990	2993	2994	2997	2998	3001	3002
3005	3006	3009	3010	3013	3014	3017	3018
3021	3022	3025	3026	3029	3030	3033	3034
3037	3038	3041	3042	3045	3046	3049	3050
3053	3054	3057	3058				

*** WARNING *** CP= 35.130 TIME= 15:53:51
 Meshing of volume 77 produced 46 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 77 WITH EXCESSIVE ASPECT RATIO ***

3061	3062	3063	3064	3065	3066	3067	3068
3069	3070	3071	3072	3073	3074	3075	3076
3077	3078	3079	3080	3081	3082	3091	3092
3093	3094	3095	3096	3097	3098	3099	3100
3101	3102	3103	3104	3105	3106	3107	3108
3109	3110	3111	3112	3113	3114		

*** WARNING *** CP= 35.450 TIME= 15:53:51
 Meshing of volume 78 produced 24 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 78 WITH EXCESSIVE ASPECT RATIO ***

3121	3122	3123	3124	3125	3126	3151	3152
3153	3154	3155	3156	3181	3182	3183	3184
3185	3186	3211	3212	3213	3214	3215	3216

*** WARNING *** CP= 36.030 TIME= 15:53:52
 Meshing of volume 80 produced 46 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 80 WITH EXCESSIVE ASPECT RATIO ***

3361	3362	3363	3364	3365	3366	3367	3368
3369	3370	3371	3372	3373	3374	3375	3376
3377	3378	3379	3380	3381	3382	3391	3392
3393	3394	3395	3396	3397	3398	3399	3400
3401	3402	3403	3404	3405	3406	3407	3408
3409	3410	3411	3412	3413	3414		

*** WARNING *** CP= 36.370 TIME= 15:53:53
 Meshing of volume 81 produced 24 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 81 WITH EXCESSIVE ASPECT RATIO ***

3421	3422	3423	3424	3425	3426	3451	3452
3453	3454	3455	3456	3481	3482	3483	3484
3485	3486	3511	3512	3513	3514	3515	3516

*** WARNING *** CP= 36.480 TIME= 15:53:53
 Volume 82 area 82 has a corner angle of 150 degrees. This is not
 recommended for hexahedral elements.

*** WARNING *** CP= 36.490 TIME= 15:53:53
 Volume 82 area 404 has a corner angle of 150 degrees. This is not
 recommended for hexahedral elements.

*** WARNING *** CP= 36.740 TIME= 15:53:53
 Meshing of volume 82 produced 60 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 82 WITH EXCESSIVE DISTORTION ***

3543	3544	3547	3548	3551	3552	3555	3556
3559	3560	3563	3564	3567	3568	3571	3572
3575	3576	3579	3580	3583	3584	3587	3588
3591	3592	3595	3596	3599	3600	3603	3604
3607	3608	3611	3612	3615	3616	3619	3620
3623	3624	3627	3628	3631	3632	3635	3636
3639	3640	3643	3644	3647	3648	3651	3652
3655	3656	3659	3660				

*** WARNING *** CP= 36.850 TIME= 15:53:54
 Volume 83 area 83 has a corner angle of 30 degrees. This is not
 recommended for hexahedral elements.

*** WARNING *** CP= 36.860 TIME= 15:53:54
 Volume 83 area 408 has a corner angle of 30 degrees. This is not
 recommended for hexahedral elements.

*** WARNING *** CP= 37.080 TIME= 15:53:54
 Meshing of volume 83 produced 60 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 83 WITH EXCESSIVE DISTORTION ***

3721	3722	3723	3724	3725	3726	3727	3728
3729	3730	3731	3732	3733	3734	3735	3736
3737	3738	3739	3740	3741	3742	3743	3744

3745	3746	3747	3748	3749	3750	3751	3752
3753	3754	3755	3756	3757	3758	3759	3760
3761	3762	3763	3764	3765	3766	3767	3768
3769	3770	3771	3772	3773	3774	3775	3776
3777	3778	3779	3780				

*** WARNING *** CP= 37.300 TIME= 15:53:54
 Meshing of volume 84 produced 46 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 84 WITH EXCESSIVE ASPECT RATIO ***

3781	3782	3783	3784	3785	3786	3787	3788
3789	3790	3791	3792	3796	3797	3798	3799
3800	3801	3802	3803	3804	3805	3806	3811
3812	3813	3814	3815	3816	3817	3818	3819
3820	3821	3822	3826	3827	3828	3829	3830
3831	3832	3833	3834	3835	3836		

*** WARNING *** CP= 37.680 TIME= 15:53:55
 Meshing of volume 85 produced 24 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 85 WITH EXCESSIVE ASPECT RATIO ***

3841	3842	3843	3856	3857	3858	3871	3872
3873	3886	3887	3888	3901	3902	3903	3916
3917	3918	3931	3932	3933	3946	3947	3948

*** WARNING *** CP= 38.040 TIME= 15:53:56
 Meshing of volume 86 produced 8 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 86 WITH EXCESSIVE ASPECT RATIO ***

3961	3976	3991	4006	4021	4036	4051	4066
------	------	------	------	------	------	------	------

NUMBER OF VOLUMES MESHED = 15
 MAXIMUM NODE NUMBER = 6448
 MAXIMUM ELEMENT NUMBER = 4080
 Mesh Corner Guides

SELECT FOR ITEM=VOLU COMPONENT=
 IN RANGE 87 TO 92 STEP 1

6 VOLUMES (OF 269 DEFINED) SELECTED BY VSEL COMMAND.

ELEMENT TYPE SET TO 4

MATERIAL NUMBER SET TO 4

GENERATE NODES AND ELEMENTS IN ALL SELECTED VOLUMES

*** WARNING *** CP= 38.800 TIME= 15:53:57
 Meshing of volume 88 produced 44 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 88 WITH EXCESSIVE ASPECT RATIO ***

4201	4202	4203	4204	4205	4206	4207	4208
4209	4210	4211	4212	4213	4214	4215	4216
4217	4218	4219	4220	4221	4231	4232	4233
4234	4235	4236	4237	4238	4239	4240	4241
4242	4243	4244	4245	4246	4247	4248	4249
4250	4251	4252	4253				

*** WARNING *** CP= 39.730 TIME= 15:53:58
 Meshing of volume 91 produced 44 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 91 WITH EXCESSIVE ASPECT RATIO ***

4501	4502	4503	4504	4505	4506	4507	4508
4509	4510	4511	4512	4513	4514	4515	4516
4517	4518	4519	4520	4522	4531	4532	4533
4534	4535	4536	4537	4538	4539	4540	4541
4542	4543	4544	4545	4546	4547	4548	4549
4550	4551	4552	4554				

NUMBER OF VOLUMES MESHED = 6
 MAXIMUM NODE NUMBER = 7280
 MAXIMUM ELEMENT NUMBER = 4680
 Mesh Inner Barrier

SELECT FOR ITEM=LOC COMPONENT=Z BETWEEN 0.00000E+00 AND 2.3075
 KABS= 0. TOLERANCE= 0.000000E+00

269 VOLUMES (OF 269 DEFINED) SELECTED BY VSEL COMMAND.

ACTIVE COORDINATE SYSTEM SET TO 1 (CYLINDRICAL)

RESELECT FOR ITEM=LOC COMPONENT=X BETWEEN 0.00000E+00 AND 0.71595
 KABS= 0. TOLERANCE= 0.000000E+00

269 VOLUMES (OF 269 DEFINED) SELECTED BY VSEL COMMAND.

UNSELECT FOR ITEM=VOLU COMPONENT=
 IN RANGE 1 TO 92 STEP 1

177 VOLUMES (OF 269 DEFINED) SELECTED BY VSEL COMMAND.

UNSELECT FOR ITEM=LOC COMPONENT=X BETWEEN 0.69095 AND 0.71595
 KABS= 0. TOLERANCE= 0.000000E+00

114 VOLUMES (OF 269 DEFINED) SELECTED BY VSEL COMMAND.

ALSO SELECT FOR ITEM=LOC COMPONENT=Y BETWEEN -90.000 AND 5.0000
 KABS= 0. TOLERANCE= 0.000000E+00

197 VOLUMES (OF 269 DEFINED) SELECTED BY VSEL COMMAND.

UNSELECT FOR ITEM=VOLU COMPONENT=
 IN RANGE 1 TO 92 STEP 1

147 VOLUMES (OF 269 DEFINED) SELECTED BY VSEL COMMAND.

UNSELECT FOR ITEM=LOC COMPONENT=X BETWEEN 0.71595 AND 0.78095
 KABS= 0. TOLERANCE= 0.000000E+00

147 VOLUMES (OF 269 DEFINED) SELECTED BY VSEL COMMAND.

RESELECT FOR ITEM=LOC COMPONENT=Z BETWEEN -0.10000E-01 AND 2.3075
 KABS= 0. TOLERANCE= 0.000000E+00

147 VOLUMES (OF 269 DEFINED) SELECTED BY VSEL COMMAND.

ACTIVE COORDINATE SYSTEM SET TO 0 (CARTESIAN)

ELEMENT TYPE SET TO 5

MATERIAL NUMBER SET TO 5

GENERATE NODES AND ELEMENTS IN ALL SELECTED VOLUMES

*** WARNING *** CP= 44.220 TIME= 15:54:10
 Meshing of volume 93 produced 8 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 93 WITH EXCESSIVE ASPECT RATIO ***

4681 4696 4711 4726 4741 4756 4771 4786

*** WARNING *** CP= 44.450 TIME= 15:54:10
 Meshing of volume 94 produced 48 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 94 WITH EXCESSIVE ASPECT RATIO ***

4801	4802	4803	4804	4805	4806	4807	4808
4809	4810	4811	4812	4813	4814	4815	4816
4817	4818	4819	4820	4821	4822	4823	4824
4831	4832	4833	4834	4835	4836	4837	4838
4839	4840	4841	4842	4843	4844	4845	4846
4847	4848	4849	4850	4851	4852	4853	4854

*** WARNING *** CP= 45.160 TIME= 15:54:12
 Meshing of volume 96 produced 36 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 96 WITH EXCESSIVE ASPECT RATIO ***

4981	4982	4983	4984	4985	4986	4987	4988
4989	4990	4991	4992	4993	4994	4995	4996
4997	4998	5011	5012	5013	5014	5015	5016
5017	5018	5019	5020	5021	5022	5023	5024
5025	5026	5027	5028				

*** WARNING *** CP= 45.380 TIME= 15:54:12
 Meshing of volume 97 produced 44 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 97 WITH EXCESSIVE ASPECT RATIO ***

5041	5042	5043	5044	5045	5046	5047	5048
5049	5050	5051	5052	5053	5054	5055	5056
5057	5058	5059	5060	5061	5062	5071	5072
5073	5074	5075	5076	5077	5078	5079	5080
5081	5082	5083	5084	5085	5086	5087	5088
5089	5090	5091	5092				

*** WARNING *** CP= 46.100 TIME= 15:54:14
 Meshing of volume 99 produced 44 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 99 WITH EXCESSIVE ASPECT RATIO ***

5221	5222	5223	5224	5225	5226	5227	5228
5229	5230	5231	5232	5233	5234	5235	5236
5237	5238	5239	5240	5241	5242	5251	5252
5253	5254	5255	5256	5257	5258	5259	5260
5261	5262	5263	5264	5265	5266	5267	5268
5269	5270	5271	5272				

*** WARNING *** CP= 46.320 TIME= 15:54:15
 Meshing of volume 100 produced 36 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 100 WITH EXCESSIVE ASPECT RATIO ***

5281	5282	5283	5284	5285	5286	5287	5288
5289	5290	5291	5292	5293	5294	5295	5296
5297	5298	5311	5312	5313	5314	5315	5316
5317	5318	5319	5320	5321	5322	5323	5324
5325	5326	5327	5328				

*** WARNING *** CP= 46.990 TIME= 15:54:16
 Meshing of volume 102 produced 48 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 102 WITH EXCESSIVE ASPECT RATIO ***

5461	5462	5463	5464	5465	5466	5467	5468
5469	5470	5471	5472	5473	5474	5475	5476
5477	5478	5479	5480	5481	5482	5483	5484
5491	5492	5493	5494	5495	5496	5497	5498
5499	5500	5501	5502	5503	5504	5505	5506
5507	5508	5509	5510	5511	5512	5513	5514

*** WARNING *** CP= 56.890 TIME= 15:54:36
Volume 230 area 669 has a corner angle of 150 degrees. This is not recommended for hexahedral elements.

*** WARNING *** CP= 56.900 TIME= 15:54:37
Volume 230 area 1058 has a corner angle of 150 degrees. This is not recommended for hexahedral elements.

*** WARNING *** CP= 56.950 TIME= 15:54:37
Meshing of volume 230 produced 8 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 230 WITH EXCESSIVE DISTORTION ***

6657	6658	6659	6660	6661	6662	6663	6664
------	------	------	------	------	------	------	------

*** WARNING *** CP= 56.990 TIME= 15:54:37
Volume 231 area 670 has a corner angle of 30 degrees. This is not recommended for hexahedral elements.

*** WARNING *** CP= 57.000 TIME= 15:54:37
Volume 231 area 1061 has a corner angle of 30 degrees. This is not recommended for hexahedral elements.

*** WARNING *** CP= 57.050 TIME= 15:54:37
Meshing of volume 231 produced 8 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 231 WITH EXCESSIVE DISTORTION ***

6665	6666	6669	6670	6673	6674	6677	6678
------	------	------	------	------	------	------	------

*** WARNING *** CP= 57.570 TIME= 15:54:38
Volume 237 area 676 has a corner angle of 150 degrees. This is not recommended for hexahedral elements.

*** WARNING *** CP= 57.580 TIME= 15:54:38
Volume 237 area 1078 has a corner angle of 150 degrees. This is not recommended for hexahedral elements.

*** WARNING *** CP= 57.640 TIME= 15:54:38
Meshing of volume 237 produced 8 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 237 WITH EXCESSIVE DISTORTION ***

6747	6748	6751	6752	6755	6756	6759	6760
------	------	------	------	------	------	------	------

*** WARNING *** CP= 57.700 TIME= 15:54:38
Volume 238 area 677 has a corner angle of 30 degrees. This is not recommended for hexahedral elements.

*** WARNING *** CP= 57.710 TIME= 15:54:38
Volume 238 area 1081 has a corner angle of 30 degrees. This is not recommended for hexahedral elements.

*** WARNING *** CP= 57.760 TIME= 15:54:38
Meshing of volume 238 produced 8 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 238 WITH EXCESSIVE DISTORTION ***

6769	6770	6771	6772	6773	6774	6775	6776
------	------	------	------	------	------	------	------

*** WARNING *** CP= 59.610 TIME= 15:54:42

Volume 255 area 694 has a corner angle of 30 degrees. This is not recommended for hexahedral elements.

*** WARNING *** CP= 59.630 TIME= 15:54:42
Volume 255 area 1119 has a corner angle of 30 degrees. This is not recommended for hexahedral elements.

*** WARNING *** CP= 59.700 TIME= 15:54:42
Meshing of volume 255 produced 14 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 255 WITH EXCESSIVE DISTORTION ***
7121 7122 7123 7124 7125 7126 7127 7128
7130 7132 7134 7136 7138 7142

*** WARNING *** CP= 60.410 TIME= 15:54:43
Volume 261 area 700 has a corner angle of 30 degrees. This is not recommended for hexahedral elements.

*** WARNING *** CP= 60.430 TIME= 15:54:43
Volume 261 area 1125 has a corner angle of 30 degrees. This is not recommended for hexahedral elements.

*** WARNING *** CP= 60.490 TIME= 15:54:43
Meshing of volume 261 produced 14 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 261 WITH EXCESSIVE DISTORTION ***
7306 7310 7313 7314 7317 7318 7321 7322
7323 7324 7325 7326 7327 7328

*** WARNING *** CP= 60.600 TIME= 15:54:44
Meshing of volume 262 produced 2 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 262 WITH EXCESSIVE DISTORTION ***
7338 7342

*** WARNING *** CP= 61.190 TIME= 15:54:45
Meshing of volume 266 produced 2 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 266 WITH EXCESSIVE DISTORTION ***
7458 7462

*** WARNING *** CP= 61.210 TIME= 15:54:45
Volume 267 area 706 has a corner angle of 30 degrees. This is not recommended for hexahedral elements.

*** WARNING *** CP= 61.220 TIME= 15:54:45
Volume 267 area 1131 has a corner angle of 30 degrees. This is not recommended for hexahedral elements.

*** WARNING *** CP= 61.290 TIME= 15:54:45
Meshing of volume 267 produced 14 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 267 WITH EXCESSIVE DISTORTION ***
7474 7478 7481 7482 7485 7486 7489 7490
7491 7492 7493 7494 7495 7496

*** WARNING *** CP= 61.530 TIME= 15:54:45
Volume 269 area 708 has a corner angle of 30 degrees. This is not recommended for hexahedral elements.

*** WARNING *** CP= 61.540 TIME= 15:54:45
Volume 269 area 1133 has a corner angle of 30 degrees. This is not recommended for hexahedral elements.

*** WARNING *** CP= 61.600 TIME= 15:54:45

Meshing of volume 269 produced 14 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 269 WITH EXCESSIVE DISTORTION ***
 7529 7530 7531 7532 7533 7534 7535 7536
 7538 7540 7542 7544 7546 7550

NUMBER OF VOLUMES MESHED = 147
 MAXIMUM NODE NUMBER = 11541
 MAXIMUM ELEMENT NUMBER = 7552
 Mesh Upper Inner Barrier Adding Backfill Mass

INVERT FOR ITEM=VOLU COMPONENT=
 IN RANGE 1 TO 269 STEP 1

122 VOLUMES (OF 269 DEFINED) SELECTED BY VSEL COMMAND.

ACTIVE COORDINATE SYSTEM SET TO 1 (CYLINDRICAL)

UNSELECT FOR ITEM=LOC COMPONENT=X BETWEEN 0.71595 AND 0.78095
 KABS= 0. TOLERANCE= 0.000000E+00

122 VOLUMES (OF 269 DEFINED) SELECTED BY VSEL COMMAND.

RESELECT FOR ITEM=LOC COMPONENT=Z BETWEEN 0.00000E+00 AND 2.3075
 KABS= 0. TOLERANCE= 0.000000E+00

122 VOLUMES (OF 269 DEFINED) SELECTED BY VSEL COMMAND.

UNSELECT FOR ITEM=VOLU COMPONENT=
 IN RANGE 1 TO 92 STEP 1

30 VOLUMES (OF 269 DEFINED) SELECTED BY VSEL COMMAND.

ACTIVE COORDINATE SYSTEM SET TO 0 (CARTESIAN)

ELEMENT TYPE SET TO 6

MATERIAL NUMBER SET TO 6

GENERATE NODES AND ELEMENTS IN ALL SELECTED VOLUMES

*** WARNING *** CP= 62.490 TIME= 15:54:47
 Meshing of volume 104 produced 48 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 104 WITH EXCESSIVE ASPECT RATIO ***
 7553 7554 7555 7556 7557 7558 7559 7560
 7561 7562 7563 7564 7565 7566 7567 7568
 7569 7570 7571 7572 7573 7574 7575 7576
 7583 7584 7585 7586 7587 7588 7589 7590
 7591 7592 7593 7594 7595 7596 7597 7598
 7599 7600 7601 7602 7603 7604 7605 7606

*** WARNING *** CP= 63.210 TIME= 15:54:49
 Meshing of volume 106 produced 36 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 106 WITH EXCESSIVE ASPECT RATIO ***
 7733 7734 7735 7736 7737 7738 7739 7740
 7741 7742 7743 7744 7745 7746 7747 7748
 7749 7750 7763 7764 7765 7766 7767 7768
 7769 7770 7771 7772 7773 7774 7775 7776
 7777 7778 7779 7780

*** WARNING *** CP= 63.440 TIME= 15:54:49
 Meshing of volume 107 produced 44 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 107 WITH EXCESSIVE ASPECT RATIO ***

7793	7794	7795	7796	7797	7798	7799	7800
7801	7802	7803	7804	7805	7806	7807	7808
7809	7810	7811	7812	7813	7814	7823	7824
7825	7826	7827	7828	7829	7830	7831	7832
7833	7834	7835	7836	7837	7838	7839	7840
7841	7842	7843	7844				

*** WARNING *** CP= 64.120 TIME= 15:54:51
 Meshing of volume 109 produced 44 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 109 WITH EXCESSIVE ASPECT RATIO ***

7973	7974	7975	7976	7977	7978	7979	7980
7981	7982	7983	7984	7985	7986	7987	7988
7989	7990	7991	7992	7993	7994	8003	8004
8005	8006	8007	8008	8009	8010	8011	8012
8013	8014	8015	8016	8017	8018	8019	8020
8021	8022	8023	8024				

*** WARNING *** CP= 64.350 TIME= 15:54:51
 Meshing of volume 110 produced 36 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 110 WITH EXCESSIVE ASPECT RATIO ***

8033	8034	8035	8036	8037	8038	8039	8040
8041	8042	8043	8044	8045	8046	8047	8048
8049	8050	8063	8064	8065	8066	8067	8068
8069	8070	8071	8072	8073	8074	8075	8076
8077	8078	8079	8080				

*** WARNING *** CP= 65.030 TIME= 15:54:52
 Meshing of volume 112 produced 48 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 112 WITH EXCESSIVE ASPECT RATIO ***

8213	8214	8215	8216	8217	8218	8219	8220
8221	8222	8223	8224	8225	8226	8227	8228
8229	8230	8231	8232	8233	8234	8235	8236
8243	8244	8245	8246	8247	8248	8249	8250
8251	8252	8253	8254	8255	8256	8257	8258
8259	8260	8261	8262	8263	8264	8265	8266

*** WARNING *** CP= 65.410 TIME= 15:54:53
 Meshing of volume 113 produced 8 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 113 WITH EXCESSIVE ASPECT RATIO ***

8273	8274	8303	8304	8333	8334	8363	8364
------	------	------	------	------	------	------	------

NUMBER OF VOLUMES MESHED = 30
 MAXIMUM NODE NUMBER = 12897
 MAXIMUM ELEMENT NUMBER = 8616
 Mesh Lower Outer Barrier and Lids
 mesh upper outer barrier adding backfill mass

Apply Symmetry Constraints

ACTIVE COORDINATE SYSTEM SET TO 0 (CARTESIAN)

SELECT FOR ITEM=LOC COMPONENT=X BETWEEN 0.00000E+00 AND 0.00000E+00
 KABS= 0. TOLERANCE= 0.100000E-05

555 NODES (OF 12897 DEFINED) SELECTED BY NSEL COMMAND.

SYMMETRY CONSTRAINTS FOR COORDINATE SYSTEM 0 IN DIRECTION X
ON SURFACE DEFINED BY ALL SELECTED NODES

*** NOTE *** CP= 67.880 TIME= 15:54:58
Nodes on symmetry surfaces are rotated into coordinate system 0.

TOTAL SPECIFIED CONSTRAINTS= 555

SELECT FOR ITEM=LOC COMPONENT=Z BETWEEN 0.00000E+00 AND 0.00000E+00
KABS= 0. TOLERANCE= 0.100000E-05

606 NODES (OF 12897 DEFINED) SELECTED BY NSEL COMMAND.

SYMMETRY CONSTRAINTS FOR COORDINATE SYSTEM 0 IN DIRECTION Z
ON SURFACE DEFINED BY ALL SELECTED NODES

*** NOTE *** CP= 68.310 TIME= 15:54:59
Nodes on symmetry surfaces are rotated into coordinate system 0.

TOTAL SPECIFIED CONSTRAINTS= 1161
Apply Constraints at Support Locations
Span approximately half of basket height, width = 0.305 m

ACTIVE COORDINATE SYSTEM SET TO 1 (CYLINDRICAL)

SELECT FOR ITEM=LOC COMPONENT=Z BETWEEN 1.0675 AND 1.5450
KABS= 0. TOLERANCE= 0.000000E+00

1818 NODES (OF 12897 DEFINED) SELECTED BY NSEL COMMAND.

RESELECT FOR ITEM=LOC COMPONENT=X BETWEEN 0.71495 AND 0.71695
KABS= 0. TOLERANCE= 0.000000E+00

183 NODES (OF 12897 DEFINED) SELECTED BY NSEL COMMAND.

RESELECT FOR ITEM=LOC COMPONENT=Y BETWEEN -70.000 AND -50.000
KABS= 0. TOLERANCE= 0.000000E+00

24 NODES (OF 12897 DEFINED) SELECTED BY NSEL COMMAND.

ACTIVE COORDINATE SYSTEM SET TO 0 (CARTESIAN)

SPECIFIED CONSTRAINT UY FOR SELECTED NODES 1 TO 12897 BY 1
REAL= 0.000000000E+00 IMAG= 0.000000000E+00

SELECT ALL ENTITIES OF TYPE= ALL AND BELOW

ALL SELECT FOR ITEM=VOLU COMPONENT=
IN RANGE 1 TO 269 STEP 1

269 VOLUMES (OF 269 DEFINED) SELECTED BY VSEL COMMAND.

ALL SELECT FOR ITEM=AREA COMPONENT=
IN RANGE 1 TO 1133 STEP 1

1133 AREAS (OF 1133 DEFINED) SELECTED BY ASEL COMMAND.

ALL SELECT FOR ITEM=LINE COMPONENT=
IN RANGE 1 TO 1604 STEP 1

1604 LINES (OF 1604 DEFINED) SELECTED BY LSEL COMMAND.

ALL SELECT FOR ITEM=KP COMPONENT=
IN RANGE 1 TO 9001 STEP 1

690 KEYPOINTS (OF 690 DEFINED) SELECTED BY KSEL COMMAND.

ALL SELECT FOR ITEM=ELEM COMPONENT=
IN RANGE 1 TO 8616 STEP 1

8616 ELEMENTS (OF 8616 DEFINED) SELECTED BY ESEL COMMAND.

ALL SELECT FOR ITEM=NODE COMPONENT=
IN RANGE 1 TO 12897 STEP 1

12897 NODES (OF 12897 DEFINED) SELECTED BY NSEL COMMAND.

ALL CURRENT ANSYS DATA WRITTEN TO FILE NAME= seism3.db
FOR POSSIBLE RESUME FROM THIS POINT

***** ROUTINE COMPLETED ***** CP = 77.040

***** ANSYS SOLUTION ROUTINE *****

PERFORM A MODAL ANALYSIS
THIS WILL BE A NEW ANALYSIS

USE SUBSPACE ITERATION METHOD
EXTRACT 8 MODES
NORMALIZE THE MODE SHAPES TO THE MASS MATRIX

WRITE ALL ITEMS TO THE DATABASE WITH A FREQUENCY OF 1
FOR ALL APPLICABLE ENTITIES

ALL CURRENT ANSYS DATA WRITTEN TO FILE NAME= seism3.db
FOR POSSIBLE RESUME FROM THIS POINT

***** ANSYS SOLVE COMMAND *****

*** WARNING *** CP= 88.350 TIME= 15:55:38
Element 2881 has an angle between adjacent edges of 36.9687852 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.350 TIME= 15:55:38
Element 2881 has an angle between adjacent edges of 143.022369 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.350 TIME= 15:55:38
Element 2882 has an angle between adjacent edges of 36.9602219 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.360 TIME= 15:55:38
Element 2882 has an angle between adjacent edges of 143.031215 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.360 TIME= 15:55:38
Element 2883 has an angle between adjacent edges of 36.9687852 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.370 TIME= 15:55:38
Element 2883 has an angle between adjacent edges of 143.022369 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.370 TIME= 15:55:38
Element 2884 has an angle between adjacent edges of 36.9602219 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.370 TIME= 15:55:38
Element 2884 has an angle between adjacent edges of 143.031215 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.370 TIME= 15:55:38
Element 2885 has an angle between adjacent edges of 36.9687852 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.370 TIME= 15:55:38
Element 2885 has an angle between adjacent edges of 143.022369 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.380 TIME= 15:55:38
Element 2886 has an angle between adjacent edges of 36.9602219 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.380 TIME= 15:55:38
Element 2886 has an angle between adjacent edges of 143.031215 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.380 TIME= 15:55:38
Element 2887 has an angle between adjacent edges of 36.9687852 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.380 TIME= 15:55:38
Element 2887 has an angle between adjacent edges of 143.022369 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.380 TIME= 15:55:38
Element 2888 has an angle between adjacent edges of 36.9602219 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.380 TIME= 15:55:38
Element 2888 has an angle between adjacent edges of 143.031215 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.380 TIME= 15:55:38
Element 2889 has an angle between adjacent edges of 36.9687852 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.380 TIME= 15:55:38
Element 2889 has an angle between adjacent edges of 143.022369 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.380 TIME= 15:55:38
Element 2890 has an angle between adjacent edges of 36.9602219 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.380 TIME= 15:55:38
Element 2890 has an angle between adjacent edges of 143.031215 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.390 TIME= 15:55:38
Element 2891 has an angle between adjacent edges of 36.9687852 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.390 TIME= 15:55:38
Element 2891 has an angle between adjacent edges of 143.022369 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.400 TIME= 15:55:38
Element 2892 has an angle between adjacent edges of 36.9602219 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.400 TIME= 15:55:38
Element 2892 has an angle between adjacent edges of 143.031215 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.400 TIME= 15:55:38
Element 2893 has an angle between adjacent edges of 36.9687852 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.400 TIME= 15:55:38
Element 2893 has an angle between adjacent edges of 143.022369 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.400 TIME= 15:55:38
Element 2894 has an angle between adjacent edges of 36.9602219 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.410 TIME= 15:55:38
Element 2894 has an angle between adjacent edges of 143.031215 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.410 TIME= 15:55:38
Element 2895 has an angle between adjacent edges of 36.9687852 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.410 TIME= 15:55:38
Element 2895 has an angle between adjacent edges of 143.022369 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.410 TIME= 15:55:38
Element 2896 has an angle between adjacent edges of 36.9602219 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.410 TIME= 15:55:38
Element 2896 has an angle between adjacent edges of 143.031215 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.410 TIME= 15:55:38
Element 2897 has an angle between adjacent edges of 36.9687852 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.420 TIME= 15:55:38
Element 2897 has an angle between adjacent edges of 143.022369 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.420 TIME= 15:55:38
Element 2898 has an angle between adjacent edges of 36.9602219 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.420 TIME= 15:55:38
Element 2898 has an angle between adjacent edges of 143.031215 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.420 TIME= 15:55:38
Element 2899 has an angle between adjacent edges of 36.9687852 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.420 TIME= 15:55:38
Element 2899 has an angle between adjacent edges of 143.022369 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.430 TIME= 15:55:38
Element 2900 has an angle between adjacent edges of 36.9602219 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.430 TIME= 15:55:38
Element 2900 has an angle between adjacent edges of 143.031215 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.430 TIME= 15:55:38
Element 2901 has an angle between adjacent edges of 36.9687852 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.430 TIME= 15:55:38
Element 2901 has an angle between adjacent edges of 143.022369 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.430 TIME= 15:55:38
Element 2902 has an angle between adjacent edges of 36.9602219 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.430 TIME= 15:55:38
Element 2902 has an angle between adjacent edges of 143.031215 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.440 TIME= 15:55:38
Element 2903 has an angle between adjacent edges of 36.9687852 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.440 TIME= 15:55:38
Element 2903 has an angle between adjacent edges of 143.022369 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.440 TIME= 15:55:38
Element 2904 has an angle between adjacent edges of 36.9602219 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.440 TIME= 15:55:38
Element 2904 has an angle between adjacent edges of 143.031215 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.440 TIME= 15:55:38
Element 2905 has an angle between adjacent edges of 36.9687852 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.450 TIME= 15:55:38
Element 2905 has an angle between adjacent edges of 143.022369 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.450 TIME= 15:55:38
Element 2906 has an angle between adjacent edges of 36.9602219 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.450 TIME= 15:55:38
Element 2906 has an angle between adjacent edges of 143.031215 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.450 TIME= 15:55:38
Element 2907 has an angle between adjacent edges of 36.9687852 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.450 TIME= 15:55:38
Element 2907 has an angle between adjacent edges of 143.022369 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.450 TIME= 15:55:38
Element 2908 has an angle between adjacent edges of 36.9602219 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.460 TIME= 15:55:38
Element 2908 has an angle between adjacent edges of 143.031215 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.460 TIME= 15:55:38
Element 2909 has an angle between adjacent edges of 36.9687852 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.460 TIME= 15:55:38
Element 2909 has an angle between adjacent edges of 143.022369 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.460 TIME= 15:55:38
Element 2910 has an angle between adjacent edges of 36.9602219 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.460 TIME= 15:55:38
Element 2910 has an angle between adjacent edges of 143.031215 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.460 TIME= 15:55:38
Element 2911 has an angle between adjacent edges of 30.4729354 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.470 TIME= 15:55:38
Element 2911 has an angle between adjacent edges of 149.518219 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.470 TIME= 15:55:38
Element 2912 has an angle between adjacent edges of 30.464372 on face 2
which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 88.470 TIME= 15:55:38

Element 2912 has an angle between adjacent edges of 149.527065 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 88.470 TIME= 15:55:38
Element 2913 has an angle between adjacent edges of 30.4729354 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 88.470 TIME= 15:55:38
Element 2913 has an angle between adjacent edges of 149.518219 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 88.470 TIME= 15:55:38
Element 2914 has an angle between adjacent edges of 30.464372 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 88.480 TIME= 15:55:38
Element 2914 has an angle between adjacent edges of 149.527065 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 88.480 TIME= 15:55:38
Element 2915 has an angle between adjacent edges of 30.4729354 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 88.480 TIME= 15:55:38
Element 2915 has an angle between adjacent edges of 149.518219 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 88.480 TIME= 15:55:38
Element 2916 has an angle between adjacent edges of 30.464372 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 88.480 TIME= 15:55:38
Element 2916 has an angle between adjacent edges of 149.527065 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 88.480 TIME= 15:55:38
Element 2917 has an angle between adjacent edges of 30.4729354 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 88.490 TIME= 15:55:38
Element 2917 has an angle between adjacent edges of 149.518219 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 88.490 TIME= 15:55:38
Element 2918 has an angle between adjacent edges of 30.464372 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 88.490 TIME= 15:55:38
Element 2918 has an angle between adjacent edges of 149.527065 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 88.490 TIME= 15:55:38
Element 2919 has an angle between adjacent edges of 30.4729354 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 88.490 TIME= 15:55:38
Element 2919 has an angle between adjacent edges of 149.518219 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 88.500 TIME= 15:55:38
Element 2920 has an angle between adjacent edges of 30.464372 on face 2
which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 88.500 TIME= 15:55:38
Element 2920 has an angle between adjacent edges of 149.527065 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.500 TIME= 15:55:38
Element 2921 has an angle between adjacent edges of 30.4729354 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.500 TIME= 15:55:38
Element 2921 has an angle between adjacent edges of 149.518219 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.500 TIME= 15:55:38
Element 2922 has an angle between adjacent edges of 30.464372 on face 2
which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 88.500 TIME= 15:55:38
Element 2922 has an angle between adjacent edges of 149.527065 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.500 TIME= 15:55:38
Element 2923 has an angle between adjacent edges of 30.4729354 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.500 TIME= 15:55:38
Element 2923 has an angle between adjacent edges of 149.518219 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.510 TIME= 15:55:38
Element 2924 has an angle between adjacent edges of 30.464372 on face 2
which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 88.510 TIME= 15:55:38
Element 2924 has an angle between adjacent edges of 149.527065 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.510 TIME= 15:55:38
Element 2925 has an angle between adjacent edges of 30.4729354 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.520 TIME= 15:55:38
Element 2925 has an angle between adjacent edges of 149.518219 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.520 TIME= 15:55:38
Element 2926 has an angle between adjacent edges of 30.464372 on face 2
which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 88.520 TIME= 15:55:38
Element 2926 has an angle between adjacent edges of 149.527065 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.520 TIME= 15:55:38
Element 2927 has an angle between adjacent edges of 30.4729354 on face
2 which is outside the recommended range of 90 plus or minus 45

degrees.

*** WARNING *** CP= 88.520 TIME= 15:55:38
Element 2927 has an angle between adjacent edges of 149.518219 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.520 TIME= 15:55:38
Element 2928 has an angle between adjacent edges of 30.464372 on face 2
which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 88.530 TIME= 15:55:38
Element 2928 has an angle between adjacent edges of 149.527065 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.530 TIME= 15:55:38
Element 2929 has an angle between adjacent edges of 30.4729354 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.530 TIME= 15:55:38
Element 2929 has an angle between adjacent edges of 149.518219 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.530 TIME= 15:55:38
Element 2930 has an angle between adjacent edges of 30.464372 on face 2
which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 88.530 TIME= 15:55:38
Element 2930 has an angle between adjacent edges of 149.527065 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.540 TIME= 15:55:38
Element 2931 has an angle between adjacent edges of 30.4729354 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.540 TIME= 15:55:38
Element 2931 has an angle between adjacent edges of 149.518219 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.540 TIME= 15:55:38
Element 2932 has an angle between adjacent edges of 30.464372 on face 2
which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 88.540 TIME= 15:55:38
Element 2932 has an angle between adjacent edges of 149.527065 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.540 TIME= 15:55:38
Element 2933 has an angle between adjacent edges of 30.4729354 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.540 TIME= 15:55:38
Element 2933 has an angle between adjacent edges of 149.518219 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.550 TIME= 15:55:38
Element 2934 has an angle between adjacent edges of 30.464372 on face 2
which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 88.550 TIME= 15:55:38
Element 2934 has an angle between adjacent edges of 149.527065 on face

4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 88.550 TIME= 15:55:38
Element 2935 has an angle between adjacent edges of 30.4729354 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 88.550 TIME= 15:55:38
Element 2935 has an angle between adjacent edges of 149.518219 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 88.550 TIME= 15:55:38
Element 2936 has an angle between adjacent edges of 30.464372 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 88.550 TIME= 15:55:38
Element 2936 has an angle between adjacent edges of 149.527065 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 88.560 TIME= 15:55:38
Element 2937 has an angle between adjacent edges of 30.4729354 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 88.560 TIME= 15:55:38
Element 2937 has an angle between adjacent edges of 149.518219 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 88.570 TIME= 15:55:38
Element 2938 has an angle between adjacent edges of 30.464372 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 88.570 TIME= 15:55:38
Element 2938 has an angle between adjacent edges of 149.527065 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 88.570 TIME= 15:55:38
Element 2939 has an angle between adjacent edges of 30.4729354 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 88.570 TIME= 15:55:38
Element 2939 has an angle between adjacent edges of 149.518219 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 88.570 TIME= 15:55:38
Element 2940 has an angle between adjacent edges of 30.464372 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 88.570 TIME= 15:55:38
Element 2940 has an angle between adjacent edges of 149.527065 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 88.580 TIME= 15:55:38
Element 2941 has an angle between adjacent edges of 36.9687852 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 88.580 TIME= 15:55:38
Element 2941 has an angle between adjacent edges of 149.527065 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 88.580 TIME= 15:55:38
Element 2942 has an angle between adjacent edges of 143.031215 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.580 TIME= 15:55:38
Element 2942 has an angle between adjacent edges of 143.031215 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.590 TIME= 15:55:38
Element 2945 has an angle between adjacent edges of 36.9687852 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.590 TIME= 15:55:38
Element 2945 has an angle between adjacent edges of 149.527065 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.590 TIME= 15:55:38
Element 2946 has an angle between adjacent edges of 143.031215 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.590 TIME= 15:55:38
Element 2946 has an angle between adjacent edges of 143.031215 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.590 TIME= 15:55:38
Element 2949 has an angle between adjacent edges of 36.9687852 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.600 TIME= 15:55:38
Element 2949 has an angle between adjacent edges of 149.527065 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.600 TIME= 15:55:38
Element 2950 has an angle between adjacent edges of 143.031215 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.600 TIME= 15:55:38
Element 2950 has an angle between adjacent edges of 143.031215 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.600 TIME= 15:55:38
Element 2953 has an angle between adjacent edges of 36.9687852 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.600 TIME= 15:55:38
Element 2953 has an angle between adjacent edges of 149.527065 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.610 TIME= 15:55:38
Element 2954 has an angle between adjacent edges of 143.031215 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.610 TIME= 15:55:38
Element 2954 has an angle between adjacent edges of 143.031215 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.610 TIME= 15:55:38
Element 2957 has an angle between adjacent edges of 36.9687852 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.610 TIME= 15:55:38
Element 2957 has an angle between adjacent edges of 149.527065 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.610 TIME= 15:55:38
Element 2958 has an angle between adjacent edges of 143.031215 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.610 TIME= 15:55:38
Element 2958 has an angle between adjacent edges of 143.031215 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.610 TIME= 15:55:38
Element 2961 has an angle between adjacent edges of 36.9687852 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.620 TIME= 15:55:38
Element 2961 has an angle between adjacent edges of 149.527065 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.620 TIME= 15:55:38
Element 2962 has an angle between adjacent edges of 143.031215 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.620 TIME= 15:55:38
Element 2962 has an angle between adjacent edges of 143.031215 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.620 TIME= 15:55:38
Element 2965 has an angle between adjacent edges of 36.9687852 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.620 TIME= 15:55:38
Element 2965 has an angle between adjacent edges of 149.527065 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.630 TIME= 15:55:38
Element 2966 has an angle between adjacent edges of 143.031215 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.630 TIME= 15:55:38
Element 2966 has an angle between adjacent edges of 143.031215 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.630 TIME= 15:55:38
Element 2969 has an angle between adjacent edges of 36.9687852 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.630 TIME= 15:55:38
Element 2969 has an angle between adjacent edges of 149.527065 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.640 TIME= 15:55:38
Element 2970 has an angle between adjacent edges of 143.031215 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.640 TIME= 15:55:38
Element 2970 has an angle between adjacent edges of 143.031215 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.640 TIME= 15:55:38
Element 2973 has an angle between adjacent edges of 36.9687852 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.640 TIME= 15:55:38
Element 2973 has an angle between adjacent edges of 149.527065 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.640 TIME= 15:55:38
Element 2974 has an angle between adjacent edges of 143.031215 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.650 TIME= 15:55:38
Element 2974 has an angle between adjacent edges of 143.031215 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.650 TIME= 15:55:38
Element 2977 has an angle between adjacent edges of 36.9687852 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.650 TIME= 15:55:38
Element 2977 has an angle between adjacent edges of 149.527065 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.650 TIME= 15:55:38
Element 2978 has an angle between adjacent edges of 143.031215 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.650 TIME= 15:55:38
Element 2978 has an angle between adjacent edges of 143.031215 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.660 TIME= 15:55:38
Element 2981 has an angle between adjacent edges of 36.9687852 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.660 TIME= 15:55:38
Element 2981 has an angle between adjacent edges of 149.527065 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.660 TIME= 15:55:38
Element 2982 has an angle between adjacent edges of 143.031215 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.660 TIME= 15:55:38
Element 2982 has an angle between adjacent edges of 143.031215 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.670 TIME= 15:55:38
Element 2985 has an angle between adjacent edges of 36.9687852 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.670 TIME= 15:55:38
Element 2985 has an angle between adjacent edges of 149.527065 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.670 TIME= 15:55:38
Element 2986 has an angle between adjacent edges of 143.031215 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.670 TIME= 15:55:38
Element 2986 has an angle between adjacent edges of 143.031215 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.680 TIME= 15:55:38
Element 2989 has an angle between adjacent edges of 36.9687852 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.680 TIME= 15:55:38
Element 2989 has an angle between adjacent edges of 149.527065 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.680 TIME= 15:55:38
Element 2990 has an angle between adjacent edges of 143.031215 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.680 TIME= 15:55:38
Element 2990 has an angle between adjacent edges of 143.031215 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.690 TIME= 15:55:38
Element 2993 has an angle between adjacent edges of 36.9687852 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.690 TIME= 15:55:38
Element 2993 has an angle between adjacent edges of 149.527065 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.690 TIME= 15:55:38
Element 2994 has an angle between adjacent edges of 143.031215 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.690 TIME= 15:55:38
Element 2994 has an angle between adjacent edges of 143.031215 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.690 TIME= 15:55:38
Element 2997 has an angle between adjacent edges of 36.9687852 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.700 TIME= 15:55:38
Element 2997 has an angle between adjacent edges of 149.527065 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.700 TIME= 15:55:38
Element 2998 has an angle between adjacent edges of 143.031215 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.700 TIME= 15:55:38
Element 2998 has an angle between adjacent edges of 143.031215 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.700 TIME= 15:55:38
Element 3001 has an angle between adjacent edges of 36.9776312 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.700 TIME= 15:55:38
Element 3001 has an angle between adjacent edges of 149.518219 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.700 TIME= 15:55:38
Element 3002 has an angle between adjacent edges of 143.022369 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.710 TIME= 15:55:38
Element 3002 has an angle between adjacent edges of 143.022369 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.710 TIME= 15:55:38
Element 3005 has an angle between adjacent edges of 36.9776312 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.710 TIME= 15:55:38
Element 3005 has an angle between adjacent edges of 149.518219 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.710 TIME= 15:55:38
Element 3006 has an angle between adjacent edges of 143.022369 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.710 TIME= 15:55:38
Element 3006 has an angle between adjacent edges of 143.022369 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.720 TIME= 15:55:38
Element 3009 has an angle between adjacent edges of 36.9776312 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.720 TIME= 15:55:38
Element 3009 has an angle between adjacent edges of 149.518219 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.720 TIME= 15:55:38
Element 3010 has an angle between adjacent edges of 143.022369 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.720 TIME= 15:55:38
Element 3010 has an angle between adjacent edges of 143.022369 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.720 TIME= 15:55:38
Element 3013 has an angle between adjacent edges of 36.9776312 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.730 TIME= 15:55:38
Element 3013 has an angle between adjacent edges of 149.518219 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.730 TIME= 15:55:38
Element 3014 has an angle between adjacent edges of 143.022369 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.730 TIME= 15:55:38
Element 3014 has an angle between adjacent edges of 143.022369 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.730 TIME= 15:55:38
Element 3017 has an angle between adjacent edges of 36.9776312 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.730 TIME= 15:55:38
Element 3017 has an angle between adjacent edges of 149.518219 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.730 TIME= 15:55:38
Element 3018 has an angle between adjacent edges of 143.022369 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 88.730 TIME= 15:55:38
Element 3018 has an angle between adjacent edges of 143.022369 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

Error messages discontinued after 200 messages were displayed.
More may exist. See (seism3.err) for suppressed messages.

*** NOTE *** CP= 93.050 TIME= 15:55:48
The model data was checked and warning messages were found.
Please review output or errors file (seism3.err) for these warning
messages.

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***** ANSYS - ENGINEERING ANALYSIS SYSTEM REVISION 5.1 24 *****
38303 VERSION=HP 9000/7XX 15:55:48 APR 09, 1996 CP= 93.050
FOR SUPPORT CALL ROBERT BAHNEY PHONE (702) 794-5337 FAX (702) 794-1844

21 PWR Tube Seismic Analysis With Backfill

SOLUTION OPTIONS

PROBLEM DIMENSIONALITY.3-D
DEGREES OF FREEDOM. UX UY UZ
ANALYSIS TYPEMODAL
EXTRACTION METHOD.SUBSPACE
NUMBER OF MODES TO EXTRACT. 8

LOAD STEP OPTIONS

LOAD STEP NUMBER. 1

***** CENTROID, MASS, AND MASS MOMENTS OF INERTIA *****

CALCULATIONS ASSUME ELEMENT MASS AT ELEMENT CENTROID

TOTAL MASS = 11276.

CENTROID	MOM. OF INERTIA ABOUT ORIGIN	MOM. OF INERTIA ABOUT CENTROID
XC = 0.33144	IXX = 0.2204E+05	IXX = 6434.
YC = 0.22149	IYY = 0.2173E+05	IYY = 5447.
ZC = 1.1552	IZZ = 3716.	IZZ = 1924.
	IXY = -877.7	IXY = -49.96
	IYZ = -2882.	IYZ = 3.712
	IZX = -4320.	IZX = -2.487

*** MASS SUMMARY BY ELEMENT TYPE ***

TYPE	MASS
2	5499.34
3	332.670
4	180.515
5	187.722
6	5076.10

Range of element maximum matrix coefficients in global coordinates
Maximum= 2.223392131E+11 at element 5101.
Minimum= 193590088 at element 6382.

*** ELEMENT MATRIX FORMULATION TIMES

TYPE	NUMBER	ENAME	TOTAL CP	AVE CP
2	2520	SOLID45	15.670	0.006
3	1560	SOLID45	9.840	0.006
4	600	SOLID45	3.810	0.006
5	2872	SOLID45	17.600	0.006
6	1064	SOLID45	6.370	0.006

Time at end of element matrix formulation CP= 156.68.

Estimated number of active DOF= 37506.
Maximum wavefront= 1397.

Time at end of matrix triangularization CP= 248.36.

SUBSPACE SIZE OF 12 VECTORS USED FOR CALCULATION OF FIRST 8 EIGENVECTORS.
MAXIMUM ITERATIONS = 100
NUMBER OF EQUATIONS = 37506
MAXIMUM WAVEFRONT = 1397
ITERATIONS PER SHIFT = 5
MAXIMUM MODES STORED = 12
MAXIMUM EIGENVALUE = 0.10000E+07
WORK SPACE (MBYTE) = 8.0875

Equation solver maximum pivot= 6.080812157E+11 at node 5223 UX.

Equation solver minimum pivot= 3456988.12 at node 4222 UY.

***** ITERATION 1 COMPLETE ***** CP= 3082.170 WALL= 17.4825

***** CURRENT EIGENVALUE CALCULATIONS *****

MODE	CURRENT VALUE	PREVIOUS VALUE	CONVERGENCE RATIO
1	53.345771	0.00000000E+00	0.10000E+01
2	62.344026	0.00000000E+00	0.10000E+01
3	73.616248	0.00000000E+00	0.10000E+01

4	79.667707	0.00000000E+00	0.10000E+01
5	85.814437	0.00000000E+00	0.10000E+01
6	90.660704	0.00000000E+00	0.10000E+01
7	103.54002	0.00000000E+00	0.10000E+01
8	117.48446	0.00000000E+00	0.10000E+01
9	121.03647	0.00000000E+00	0.10000E+01
10	129.52718	0.00000000E+00	0.10000E+01
11	143.57647	0.00000000E+00	0.10000E+01
12	164.59681	0.00000000E+00	0.10000E+01

ITERATIONS SINCE LAST SHIFT= 1
 TOTAL NUMBER OF ITERATIONS= 1
 NUMBER OF MODES CONVERGED= 0
 NUMBER OF WORKING VECTORS= 12
 CURRENT SHIFT POINT= -1.0000
 CP TIME FOR TRIANGULARIZATION= 2647.810
 CP TIME SINCE LAST SHIFT= 181.410

***** ITERATION 2 COMPLETE ***** CP= 3257.840 WALL= 17.6108

***** CURRENT EIGENVALUE CALCULATIONS *****

MODE	CURRENT VALUE	PREVIOUS VALUE	CONVERGENCE RATIO
1	44.003270	53.345771	0.46970E+00
2	44.223786	62.344026	0.98737E+00
3	52.812972	73.616248	0.94297E+00
4	53.242224	79.667707	0.12390E+01
5	58.705054	85.814437	0.11368E+01
6	70.532590	90.660704	0.65218E+00
7	73.378538	103.54002	0.99103E+00
8	74.140474	117.48446	0.15110E+01
9	76.978442	121.03647	0.14723E+01
10	89.640803	129.52718	0.10879E+01
11	96.089629	143.57647	0.12326E+01
12	102.10483	164.59681	0.15987E+01

ITERATIONS SINCE LAST SHIFT= 2
 TOTAL NUMBER OF ITERATIONS= 2
 NUMBER OF MODES CONVERGED= 0
 NUMBER OF WORKING VECTORS= 12
 CURRENT SHIFT POINT= -1.0000
 CP TIME FOR TRIANGULARIZATION= 2647.810
 CP TIME SINCE LAST SHIFT= 357.070

***** ITERATION 3 COMPLETE ***** CP= 3429.810 WALL= 17.7456

***** CURRENT EIGENVALUE CALCULATIONS *****

MODE	CURRENT VALUE	PREVIOUS VALUE	CONVERGENCE RATIO
1	39.988050	44.003270	0.21090E+00
2	43.704886	44.223786	0.23887E-01
3	52.293465	52.812972	0.19968E-01
4	52.614799	53.242224	0.23992E-01
5	57.589679	58.705054	0.39110E-01
6	68.896234	70.532590	0.48066E-01
7	69.729849	73.378538	0.10739E+00
8	72.475762	74.140474	0.46466E-01
9	73.420455	76.978442	0.99269E-01
10	84.911236	89.640803	0.11450E+00
11	91.097643	96.089629	0.11260E+00
12	94.477554	102.10483	0.16798E+00

ITERATIONS SINCE LAST SHIFT= 3
 TOTAL NUMBER OF ITERATIONS= 3
 NUMBER OF MODES CONVERGED= 0
 NUMBER OF WORKING VECTORS= 12
 CURRENT SHIFT POINT= -1.0000
 CP TIME FOR TRIANGULARIZATION= 2647.810

CP TIME SINCE LAST SHIFT= 529.040

***** ITERATION 4 COMPLETE ***** CP= 3602.300 WALL= 17.8794

***** CURRENT EIGENVALUE CALCULATIONS *****

MODE	CURRENT VALUE	PREVIOUS VALUE	CONVERGENCE RATIO
1	39.849856	39.988050	0.69477E-02
2	43.688840	43.704886	0.73471E-03
3	52.240361	52.293465	0.20341E-02
4	52.592267	52.614799	0.85705E-03
5	57.512834	57.589679	0.26741E-02
6	68.615908	68.896234	0.81875E-02
7	69.177229	69.729849	0.16041E-01
8	71.550044	72.475762	0.26043E-01
9	73.288091	73.420455	0.36154E-02
10	84.022436	84.911236	0.21268E-01
11	89.679658	91.097643	0.31873E-01
12	91.456013	94.477554	0.67168E-01

ITERATIONS SINCE LAST SHIFT= 4
 TOTAL NUMBER OF ITERATIONS= 4
 NUMBER OF MODES CONVERGED= 0
 NUMBER OF WORKING VECTORS= 12
 CURRENT SHIFT POINT= -1.0000
 CP TIME FOR TRIANGULARIZATION= 2647.810
 CP TIME SINCE LAST SHIFT= 701.530

***** ITERATION 5 COMPLETE ***** CP= 3773.710 WALL= 18.0128

***** CURRENT EIGENVALUE CALCULATIONS *****

MODE	CURRENT VALUE	PREVIOUS VALUE	CONVERGENCE RATIO
1	39.844939	39.849856	0.24686E-03
2	43.688028	43.688840	0.37181E-04
3	52.233985	52.240361	0.24413E-03
4	52.591237	52.592267	0.39189E-04
5	57.505977	57.512834	0.23847E-03
6	68.504780	68.615908	0.32470E-02
7	69.058854	69.177229	0.34312E-02
8	71.276549	71.550044	0.76889E-02
9	73.255113	73.288091	0.90057E-03
10	83.754724	84.022436	0.64030E-02
11	88.856115	89.679658	0.18622E-01
12	89.999030	91.456013	0.32640E-01

ITERATIONS SINCE LAST SHIFT= 5
 TOTAL NUMBER OF ITERATIONS= 5
 NUMBER OF MODES CONVERGED= 0
 NUMBER OF WORKING VECTORS= 12
 CURRENT SHIFT POINT= -1.0000
 CP TIME FOR TRIANGULARIZATION= 2647.810
 CP TIME SINCE LAST SHIFT= 872.950

*** NOTE *** CP= 3773.720 TIME= 18:00:46
 NEW SHIFT= 37.800228.

***** ITERATION 6 COMPLETE ***** CP= 6528.930 WALL= 19.3708

***** CURRENT EIGENVALUE CALCULATIONS *****

MODE	CURRENT VALUE	PREVIOUS VALUE	CONVERGENCE RATIO
1	39.844753	39.844939	0.93388E-05
2	43.687981	43.688028	0.21586E-05
3	52.233177	52.233985	0.30929E-04
4	52.591174	52.591237	0.23894E-05
5	57.505136	57.505977	0.29268E-04

6	68.450441	68.504780	0.15883E-02
7	69.022920	69.058854	0.10415E-02
8	71.172282	71.276549	0.29321E-02
9	73.241359	73.255113	0.37562E-03
10	83.626376	83.754724	0.30719E-02
11	87.778308	88.856115	0.24708E-01
12	89.397805	89.999030	0.13496E-01

ITERATIONS SINCE LAST SHIFT= 1
 TOTAL NUMBER OF ITERATIONS= 6
 NUMBER OF MODES CONVERGED= 2
 NUMBER OF WORKING VECTORS= 12
 CURRENT SHIFT POINT= 37.800
 CP TIME FOR TRIANGULARIZATION= 2579.580
 CP TIME SINCE LAST SHIFT= 175.630

***** ITERATION 7 COMPLETE ***** CP= 6680.380 WALL= 19.4931

***** PREVIOUS CONVERGED EIGENVALUES *****
 1 39.8447528 2 43.6379808

***** CURRENT EIGENVALUE CALCULATIONS *****

MODE	CURRENT VALUE	PREVIOUS VALUE	CONVERGENCE RATIO
3	52.233147	52.233177	0.11624E-05
4	52.591172	52.591174	0.53692E-07
5	57.505084	57.505136	0.17882E-05
6	68.435788	68.450441	0.42827E-03
7	69.014857	69.022920	0.23367E-03
8	71.144132	71.172282	0.79151E-03
9	73.236444	73.241359	0.13421E-03
10	83.564161	83.626376	0.14896E-02
11	86.844169	87.778308	0.21629E-01
12	89.185475	89.397805	0.47672E-02

ITERATIONS SINCE LAST SHIFT= 2
 TOTAL NUMBER OF ITERATIONS= 7
 NUMBER OF MODES CONVERGED= 5
 NUMBER OF WORKING VECTORS= 12
 CURRENT SHIFT POINT= 37.800
 CP TIME FOR TRIANGULARIZATION= 2579.580
 CP TIME SINCE LAST SHIFT= 327.080

***** ITERATION 8 COMPLETE ***** CP= 6812.440 WALL= 19.6039

***** PREVIOUS CONVERGED EIGENVALUES *****
 1 39.8447528 2 43.6879808 3 52.2331471
 4 52.5911724 5 57.5050844

***** CURRENT EIGENVALUE CALCULATIONS *****

MODE	CURRENT VALUE	PREVIOUS VALUE	CONVERGENCE RATIO
6	68.432226	68.435788	0.10411E-03
7	69.012906	69.014857	0.56539E-04
8	71.136261	71.144132	0.22129E-03
9	73.234469	73.236444	0.53959E-04
10	83.528073	83.564161	0.86427E-03
11	86.124704	86.844169	0.16777E-01
12	89.070261	89.185475	0.25887E-02

ITERATIONS SINCE LAST SHIFT= 3
 TOTAL NUMBER OF ITERATIONS= 8
 NUMBER OF MODES CONVERGED= 5
 NUMBER OF WORKING VECTORS= 12
 CURRENT SHIFT POINT= 37.800
 CP TIME FOR TRIANGULARIZATION= 2579.580
 CP TIME SINCE LAST SHIFT= 459.140

***** ITERATION 9 COMPLETE ***** CP= 6942.030 WALL= 19.7103

***** PREVIOUS CONVERGED EIGENVALUES *****

1	39.8447528	2	43.6879808	3	52.2331471
4	52.5911724	5	57.5050844		

***** CURRENT EIGENVALUE CALCULATIONS *****

MODE	CURRENT VALUE	PREVIOUS VALUE	CONVERGENCE RATIO
6	68.431408	68.432226	0.23914E-04
7	69.012423	69.012906	0.14002E-04
8	71.134038	71.136261	0.62523E-04
9	73.233635	73.234469	0.22771E-04
10	83.505178	83.528073	0.54844E-03
11	85.586995	86.124704	0.12605E-01
12	88.985099	89.070261	0.19150E-02

ITERATIONS SINCE LAST SHIFT= 4
TOTAL NUMBER OF ITERATIONS= 9
NUMBER OF MODES CONVERGED= 5
NUMBER OF WORKING VECTORS= 12
CURRENT SHIFT POINT= 37.800
CP TIME FOR TRIANGULARIZATION= 2579.580
CP TIME SINCE LAST SHIFT= 588.730

***** ITERATION 10 COMPLETE ***** CP= 7072.850 WALL= 19.8150

***** PREVIOUS CONVERGED EIGENVALUES *****

1	39.8447528	2	43.6879808	3	52.2331471
4	52.5911724	5	57.5050844		

***** CURRENT EIGENVALUE CALCULATIONS *****

MODE	CURRENT VALUE	PREVIOUS VALUE	CONVERGENCE RATIO
6	68.431226	68.431408	0.53128E-05
7	69.012301	69.012423	0.35347E-05
8	71.133403	71.134038	0.17832E-04
9	73.233277	73.233635	0.97754E-05
10	83.490085	83.505178	0.36157E-03
11	85.190966	85.586995	0.93190E-02
12	88.907801	88.985099	0.17396E-02

ITERATIONS SINCE LAST SHIFT= 5
TOTAL NUMBER OF ITERATIONS= 10
NUMBER OF MODES CONVERGED= 7
NUMBER OF WORKING VECTORS= 12
CURRENT SHIFT POINT= 37.800
CP TIME FOR TRIANGULARIZATION= 2579.580
CP TIME SINCE LAST SHIFT= 719.550

*** NOTE *** CP= 7072.850 TIME= 19:48:54
NEW SHIFT= 71.0288527.

*** NOTE *** CP= 9650.010 TIME= 21:02:37
STURM number= 7 should be 7.

***** ITERATION 11 COMPLETE ***** CP= 9769.900 WALL= 21.1494

***** PREVIOUS CONVERGED EIGENVALUES *****

1	39.8447528	2	43.6879808	3	52.2331471
4	52.5911724	5	57.5050844	6	68.4312258
7	69.0123013				

***** CURRENT EIGENVALUE CALCULATIONS *****

MODE	CURRENT VALUE	PREVIOUS VALUE	CONVERGENCE RATIO
8	71.133139	71.133403	0.74431E-05

*** NOTE ***
NEW SHIFT= 71.3459071.

CP= 9769.900 TIME= 21:08:58

*** NOTE ***
STURM number= 8 should be 8.

CP= 12323.700 TIME= 23:04:00

1
***** ANSYS - ENGINEERING ANALYSIS SYSTEM REVISION 5.1 24 *****
38303 VERSION=HP 9000/7XX 23:04:03 APR 09, 1996 CP= 12324.110
FOR SUPPORT CALL ROBERT BAHNEY PHONE (702) 794-5337 FAX (702) 794-1844

21 PWR Tube Seismic Analysis With Backfill

***** FREQUENCIES FROM SUBSPACE ITERATION *****

MODE FREQUENCY (HERTZ)

1	39.844753
2	43.687981
3	52.233147
4	52.591172
5	57.505084
6	68.431226
7	69.012301
8	71.133139

*** PROBLEM STATISTICS
ACTUAL NO. OF ACTIVE DEGREES OF FREEDOM = 37506
R.M.S. WAVEFRONT SIZE = 903.5

*** ANSYS BINARY FILE STATISTICS
BUFFER SIZE USED= 4096
44.625 MB WRITTEN ON ELEMENT MATRIX FILE: seism3.emat
29.703 MB WRITTEN ON ELEMENT SAVED DATA FILE: seism3.esav
21.094 MB WRITTEN ON ASSEMBLED MATRIX FILE: seism3.full
2.719 MB WRITTEN ON MODAL MATRIX FILE: seism3.mode

FINISH SOLUTION PROCESSING

***** ROUTINE COMPLETED ***** CP = 12331.270

***** ANSYS SOLUTION ROUTINE *****

PERFORM AN EXPANSION PASS

NUMBER OF MODES TO EXPAND= 8
CALCULATE ELEMENT RESULTS AND NODAL DOF SOLUTION

***** ANSYS SOLVE COMMAND *****

1
***** ANSYS - ENGINEERING ANALYSIS SYSTEM REVISION 5.1 24 *****
38303 VERSION=HP 9000/7XX 23:04:28 APR 09, 1996 CP= 12331.280
FOR SUPPORT CALL ROBERT BAHNEY PHONE (702) 794-5337 FAX (702) 794-1844

21 PWR Tube Seismic Analysis With Backfill

SOLUTION OPTIONS

PROBLEM DIMENSIONALITY3-D
 DEGREES OF FREEDOM UX UY UZ
 ANALYSIS TYPEMODAL
 EXTRACTION METHODSUBSPACE
 EXPANSION PASSON
 NUMBER OF MODES TO EXPAND 8
 ELEMENT RESULTS CALCULATIONON

L O A D S T E P O P T I O N S

LOAD STEP NUMBER 1
 PRINT OUTPUT CONTROLSNO PRINTOUT
 DATABASE OUTPUT CONTROLS
 ITEM FREQUENCY COMPONENT
 ALL ALL

*** NOTE *** CP= 12360.460 TIME= 23:06:24
 Page file used.

*** ELEMENT RESULT CALCULATION TIMES

TYPE	NUMBER	ENAME	TOTAL CP	AVE CP
2	2520	SOLID45	9.500	0.004
3	1560	SOLID45	6.180	0.004
4	600	SOLID45	2.170	0.004
5	2872	SOLID45	10.970	0.004
6	1064	SOLID45	4.010	0.004

*** NODAL LOAD CALCULATION TIMES

TYPE	NUMBER	ENAME	TOTAL CP	AVE CP
2	2520	SOLID45	0.990	0.000
3	1560	SOLID45	0.430	0.000
4	600	SOLID45	0.300	0.001
5	2872	SOLID45	1.080	0.000
6	1064	SOLID45	0.390	0.000

*** ANSYS BINARY FILE STATISTICS
 BUFFER SIZE USED= 4096
 106.094 MB WRITTEN ON RESULTS FILE: seism3.rst

FINISH SOLUTION PROCESSING

***** ROUTINE COMPLETED ***** CP = 12632.980

***** ANSYS SOLUTION ROUTINE *****

PERFORM A SPECTRUM ANALYSIS
 THIS WILL BE A NEW ANALYSIS

*** NOTE *** CP= 12632.980 TIME= 23:25:02
 Some analysis options have been reset to their defaults. Please verify
 current settings or respecify as required.

USE SINGLE POINT EXCITATION RESPONSE SPECTRUM
 USE ALL MODES FROM THE MODAL ANALYSIS
 INCLUDE STRESS RESPONSES IN THE CALCULATIONS

SEISMIC EXCITATION DIRECTION = 0.00000E+00 1.0000 0.00000E+00

SPECTRUM TYPE KEY= 2 FACTOR= 1.00000

FREQ= 0.100 100. 0.000E+00 0.000E+00 0.000E+00 0.000E+00 0.000E+00 0.000E+00 0.000E+00

NUMBER OF FREQUENCIES IN TABLE = 2

DAMPING= 0.00000E+00 SV= 16.285 16.285 0.00000E+00
 0.00000E+00 0.00000E+00 0.00000E+00
 0.00000E+00 0.00000E+00 0.00000E+00

COMBINE MODES USING THE SRSS METHOD
 WHOSE SIGNIFICANCE LEVEL EXCEEDS THE THRESHOLD OF 0.10000E-07

WRITE ALL ITEMS TO THE DATABASE WITH A FREQUENCY OF 1
 FOR ALL APPLICABLE ENTITIES

ALL CURRENT ANSYS DATA WRITTEN TO FILE NAME= seism3.db
 FOR POSSIBLE RESUME FROM THIS POINT

***** ANSYS SOLVE COMMAND *****

1

***** ANSYS - ENGINEERING ANALYSIS SYSTEM REVISION 5.1 24 *****
 38303 VERSION=HP 9000/7XX 23:25:51 APR 09, 1996 CP= 12646.730
 FOR SUPPORT CALL ROBERT BAHNEY PHONE (702) 794-5337 FAX (702) 794-1844

21 PWR Tube Seismic Analysis With Backfill

SOLUTION OPTIONS

PROBLEM DIMENSIONALITY. 3-D
 DEGREES OF FREEDOM. UX UY UZ
 ANALYSIS TYPE. SPECTRUM
 SPECTRUM TYPE. SINGLE POINT
 NUMBER OF MODES TO BE USED. 8
 ELEMENT RESULTS CALCULATION. ON

LOAD STEP OPTIONS

LOAD STEP NUMBER. 1
 SPECTRUM LOADING TYPE. ACCELERATION
 EXCITATION DIRECTION. 0.00000E+00 1.0000 0.00000E+00
 MODE COMBINATION TYPE. SRSS
 SIGNIFICANCE LEVEL FOR COMBINATIONS. 0.10000E-07
 PRINT OUTPUT CONTROLS. NO PRINTOUT
 DATABASE OUTPUT CONTROLS
 ITEM FREQUENCY COMPONENT
 ALL ALL

1

***** ANSYS - ENGINEERING ANALYSIS SYSTEM REVISION 5.1 24 *****
 38303 VERSION=HP 9000/7XX 23:26:16 APR 09, 1996 CP= 12651.110
 FOR SUPPORT CALL ROBERT BAHNEY PHONE (702) 794-5337 FAX (702) 794-1844

21 PWR Tube Seismic Analysis With Backfill

SIGNIFICANCE FACTOR FOR COMBINING MODES = 0.10000E-07

SIGNIFICANT MODE COEFFICIENTS (INCLUDING DAMPING)

MODE	FREQUENCY	DAMPING	SV	MODE COEF.
1	39.84	0.0000	16.285	-0.4040E-03
2	43.69	0.0000	16.285	0.1889E-01
3	52.23	0.0000	16.285	-0.6588E-02
4	52.59	0.0000	16.285	-0.1051E-02
5	57.51	0.0000	16.285	-0.8130E-03
6	68.43	0.0000	16.285	-0.1081E-03
7	69.01	0.0000	16.285	0.2726E-03

8 71.13 0.0000 16.285 0.5794E-03

MODAL COMBINATION COEFFICIENTS

MODE=	1	FREQUENCY=	39.845	COUPLING COEF.=	1.000
MODE=	2	FREQUENCY=	43.688	COUPLING COEF.=	1.000
MODE=	3	FREQUENCY=	52.233	COUPLING COEF.=	1.000
MODE=	4	FREQUENCY=	52.591	COUPLING COEF.=	1.000
MODE=	5	FREQUENCY=	57.505	COUPLING COEF.=	1.000
MODE=	6	FREQUENCY=	68.431	COUPLING COEF.=	1.000
MODE=	7	FREQUENCY=	69.012	COUPLING COEF.=	1.000
MODE=	8	FREQUENCY=	71.133	COUPLING COEF.=	1.000

SRSS COMBINATION INSTRUCTIONS WRITTEN ON FILE seism3.mcom

*** PROBLEM STATISTICS
ACTUAL NO. OF ACTIVE DEGREES OF FREEDOM = 37506
R.M.S. WAVEFRONT SIZE = 903.5

*** ANSYS BINARY FILE STATISTICS
BUFFER SIZE USED= 4096

FINISH SOLUTION PROCESSING

***** ROUTINE COMPLETED ***** CP = 12651.110

PURGE ALL SOLUTION AND POST DATA
SAVE ALL MODEL DATA

ALL CURRENT ANSYS DATA WRITTEN TO FILE NAME= seism3.db
FOR POSSIBLE RESUME FROM THIS POINT

NUMBER OF WARNING MESSAGES ENCOUNTERED= 999
NUMBER OF ERROR MESSAGES ENCOUNTERED= 0

*** PAGE FILE USED ***
NUMBER OF R/W OPERATIONS= 788
MAXIMUM RECORD NUMBER = 599
RECORD SIZE (1*4 WORDS) = 16384
PAGE FILE SIZE (MB) = 37.438

ANSYS RUN COMPLETED

REV. 5.1 24

HP 9000/7XX

CP TIME (sec) = 12660.550
ELAPSED TIME (sec) = 27242.000

TIME = 23:26:46
DATE = 04/09/96

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W E L C O M E T O T H E A N S Y S P R O G R A M

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PRESS <CR> OR <ENTER> TO CONTINUE

***** ANSYS COMMAND LINE ARGUMENTS *****

INITIAL JOBNAME = postf3
MEMORY REQUESTED (MB) = 64.0
BATCH MODE REQUESTED = LIST
START-UP FILE MODE = READ

*** NOTE *** CP= 0.150 TIME= 08:51:47
There are no parameters and no abbreviations defined.

38303 VERSION=HP 9000/7XX REVISION= 5.1 24
FOR SUPPORT CALL ROBERT BAHNEY PHONE (702) 794-5337 FAX (702) 794-1844
CURRENT JOBNAME=postf3 08:51:48 APR 10, 1996 CP= 0.160

```
1 resume,seism3,db
2 /filnam,seism3
3 /post1
4 set,1,5
5 /input,,mcom
6 /out,seism3,res
7 /com, 100% Degradation of Outer Barrier, Backfill Present, Supports in From Ends
8 /com, 75% Degradation of Inner Barrier
9 /com,
10 /com,
11 /com, MAXIMUM STRESS INTENSITY IN THE OUTER BARRIER
12 /com,
13 /com, No Outer Barrier
14 !esel,s,type,,6,7
15 !nsle
16 !esln
17 !set,1,5
18 !nsort,s,int,0,0,1
19 !prns,s,prin
20
21 /com,
22 /com,
23 /com, MAXIMUM STRESS INTENSITY IN THE INNER BARRIER
24 /com,
25 /com,
26 esel,s,type,,5,6
27 nsle
28 esln
29 nsort,s,int,0,0,1
30 prns,s,prin
31
32 /com,
33 /com,
34 /com, MAXIMUM STRESS INTENSITY IN BASKET TUBES, CORNER GUIDES, AND END GUIDES
35 /com,
36 /com,
37 esel,s,type,,1
38 esel,a,type,,3,4
39 nsle
40 esln
41 nsort,s,int,0,0,1
42 prns,s,prin
43
44 /com,
45 /com,
46 /com, MAXIMUM STRESS INTENSITY IN CRITICALITY CONTROL PLATES
47 /com,
48 /com,
49 esel,s,type,,2
50 nsle
```

```

51 esln
52 nsort,s,int,0,0,1
53 prns,s,prin
54
55 /out
56 fini
57 /exit,nosave
58 /eof

```

RUN SETUP PROCEDURE FROM FILE= /ansys51/clocu/start.ans

/INPUT FILE= /ansys51/docu/start.ans LINE= 0

ABBREVIATION= REPLOT /REPLOT

PARAMETER PI = 3.141593

 ANSYS STARTUP FILE start.ans

```

ABBREVIATION= VEC      /show,,1,
ABBREVIATION= RAS      /show,,0,
ABBREVIATION= INP      /input,,inp,
ABBREVIATION= ESC      /exit,nosav,
ABBREVIATION= K1       /pnum,kp ,1,
ABBREVIATION= K0       /pnum,kp ,0,
ABBREVIATION= L1       /pnum,line,1,
ABBREVIATION= L0       /pnum,line,0,
ABBREVIATION= A1       /pnum,area,1,
ABBREVIATION= A0       /pnum,area,0,
ABBREVIATION= V1       /pnum,volu,1,
ABBREVIATION= V0       /pnum,volu,0,
ABBREVIATION= N1       /pnum,node,1,
ABBREVIATION= N0       /pnum,node,0,
ABBREVIATION= E1       /pnum,elem,1,
ABBREVIATION= E0       /pnum,elem,0,
ABBREVIATION= M1       /pnum,mat ,1,
ABBREVIATION= M0       /pnum,mat ,0,
ABBREVIATION= R1       /pnum,real,1,
ABBREVIATION= R0       /pnum,real,0,
ABBREVIATION= T1       /pnum,type,1,
ABBREVIATION= T0       /pnum,type,0,
ABBREVIATION= C1       /number,1,
ABBREVIATION= C0       /number,0,
ABBREVIATION= X3D      /show,3d,

```

ABBREVIATION= X11. /show,x11,
ABBREVIATION= X11C /show,x11c,
ABBREVIATION= ON /menu,on,
XYZ TRIAD DISPLAY SET TO OFF

VIEW CONE ANGLE FOR WINDOW 1 25.00

END start.ans

To start ANSYS menu:

type: x3d for console
x11 for X-term color
x11c for X-term color contour

type: on

RESUME ANSYS DATA FROM FILE NAME=seism3.db

*** ANSYS GLOBAL STATUS ***

TITLE = 21 PWR Tube Seismic Analysis With Backfill
ANALYSIS TYPE = SPECTRUM
NUMBER OF ELEMENT TYPES = 6
8616 ELEMENTS CURRENTLY SELECTED. MAX ELEMENT NUMBER = 8616
12897 NODES CURRENTLY SELECTED. MAX NODE NUMBER = 12897
690 KEYPOINTS CURRENTLY SELECTED. MAX KEYPOINT NUMBER = 9001
1604 LINES CURRENTLY SELECTED. MAX LINE NUMBER = 1604
1133 AREAS CURRENTLY SELECTED. MAX AREA NUMBER = 1133
269 VOLUMES CURRENTLY SELECTED. MAX VOL. NUMBER = 269
MAXIMUM LINEAR PROPERTY NUMBER = 6
ACTIVE COORDINATE SYSTEM = 0 (CARTESIAN)
NUMBER OF SPECIFIED CONSTRAINTS = 1185

INITIAL JOBNAME = postf3
CURRENT JOBNAME = postf3

CURRENT JOBNAME REDEFINED AS seism3

1

***** ANSYS - ENGINEERING ANALYSIS SYSTEM REVISION 5.1 24 *****
38303 VERSION=HP 9000/7XX 08:51:58 APR 10, 1996 CP= 5.530
FOR SUPPORT CALL ROBERT BAHNEY PHONE (702) 794-5337 FAX (702) 794-1844

21 PWR Tube Seismic Analysis With Backfill

***** ANSYS RESULTS INTERPRETATION (POST1) *****

USE LOAD STEP 1 SUBSTEP 5 FOR LOAD CASE 0

*** NOTE *** CP= 7.120 TIME= 08:52:00
Page file used.

SET COMMAND GOT LOAD STEP= 1 SUBSTEP= 5 CUMULATIVE ITERATION= 5
TIME/FREQUENCY= 57.505
TITLE= 21 PWR Tube Seismic Analysis With Backfill

/INPUT FILE= seism3.mcom LINE= 0
ANSYS REVISION 5.1 24 23:26:16 04/09/1996
seism3.mcom

CURRENT LOAD SET IN DATABASE IS ERASED

LOAD CASE 1 IS LOAD STEP 1 SUBSTEP 1 COMPLEX= 0
FILE= seism3.rst
21 PWR Tube Seismic Analysis With Backfill

LOAD CASE 1 FACTOR SET TO-0.40396E-03

COPY LOAD CASE 1 FROM FILE TO DATABASE

SQUARE THE CURRENT LOAD SET IN DATABASE

*** NOTE *** CP= 30.880 TIME= 08:53:05
Load case combination data may not be correct unless viewed in the
solution phase coordinate system (RSYS=\$OLU).

LOAD CASE 1 IS LOAD STEP 1 SUBSTEP 2 COMPLEX= 0
FILE= seism3.rst
21 PWR Tube Seismic Analysis With Backfill

LOAD CASE 1 FACTOR SET TO 0.18891E-01

LCOPER OPERATION ADD USING LOAD CASE= 1 FACTOR= 0.18891E-01 ABS= 0
MULTIPLIED BY LOAD CASE= 1 FACTOR= 0.18891E-01 ABS= 0

LOAD CASE 1 IS LOAD STEP 1 SUBSTEP 3 COMPLEX= 0
FILE= seism3.rst
21 PWR Tube Seismic Analysis With Backfill

LOAD CASE 1 FACTOR SET TO-0.65883E-02

LCOPER OPERATION ADD USING LOAD CASE= 1 FACTOR=-0.65883E-02 ABS= 0
MULTIPLIED BY LOAD CASE= 1 FACTOR=-0.65883E-02 ABS= 0

LOAD CASE 1 IS LOAD STEP 1 SUBSTEP 4 COMPLEX= 0
FILE= seism3.rst
21 PWR Tube Seismic Analysis With Backfill

LOAD CASE 1 FACTOR SET TO-0.10506E-02

LCOPER OPERATION ADD USING LOAD CASE= 1 FACTOR=-0.10506E-02 ABS= 0
MULTIPLIED BY LOAD CASE= 1 FACTOR=-0.10506E-02 ABS= 0

LOAD CASE 1 IS LOAD STEP 1 SUBSTEP 5 COMPLEX= 0
FILE= seism3.rst
21 PWR Tube Seismic Analysis With Backfill

LOAD CASE 1 FACTOR SET TO-0.81302E-03

LCOPER OPERATION ADD USING LOAD CASE= 1 FACTOR=-0.81302E-03 ABS= 0
MULTIPLIED BY LOAD CASE= 1 FACTOR=-0.81302E-03 ABS= 0

LOAD CASE 1 IS LOAD STEP 1 SUBSTEP 6 COMPLEX= 0
FILE= seism3.rst
21 PWR Tube Seismic Analysis With Backfill

LOAD CASE 1 FACTOR SET TO-0.10809E-03

LCOPER OPERATION ADD USING LOAD CASE= 1 FACTOR=-0.10809E-03 ABS= 0
MULTIPLIED BY LOAD CASE= 1 FACTOR=-0.10809E-03 ABS= 0

LOAD CASE 1 IS LOAD STEP 1 SUBSTEP 7 COMPLEX= 0
FILE= seism3.rst
21 PWR Tube Seismic Analysis With Backfill

LOAD CASE 1 FACTOR SET TO 0.27262E+03

LCOPER OPERATION ADD USING LOAD CASE= 1 FACTOR= 0.27262E-03 ABS= 0
MULTIPLIED BY LOAD CASE= 1 FACTOR= 0.27262E-03 ABS= 0

```
LOAD CASE 1 IS LOAD STEP 1 SUBSTEP 8 COMPLEX= 0
FILE= seism3.rst
```

21 PWR Tube Seismic Analysis With Backfill

LOAD CASE 1 FACTOR SET TO 0.57938E-03

LCOPER OPERATION ADD USING LOAD CASE= 1 FACTOR= 0.57938E-03 ABS= 0
MULTIPLIED BY LOAD CASE= 1 FACTOR= 0.57938E-03 ABS= 0

TAKE SQRT OF CURRENT LOAD SET IN DATABASE:

```
/OUTPUT FILE= seism3.res
```

EXIT THE ANSYS POST1 DATABASE PROCESSOR

***** ROUTINE COMPLETED ***** CP = 110.270

EXIT ANSYS WITHOUT SAVING DATABASE

NUMBER OF WARNING MESSAGES ENCOUNTERED= 0
NUMBER OF ERROR MESSAGES ENCOUNTERED= 0

```

***. PAGE FILE USED ***
NUMBER OF R/W OPERATIONS=      15583
MAXIMUM RECORD NUMBER   =        554
RECORD SIZE (I*4 WORDS) =     16384
PAGE FILE SIZE (MB)     =     34.625

```

```

-----
                        ANSYS RUN COMPLETED
-----
REV. 5.1   24                                HP 9000/7XX
CP TIME      (sec) =      110.280          TIME = 08:56:26
ELAPSED TIME (sec) =      280.000          DATE  = 04/10/96
-----

```

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***** ANSYS COMMAND LINE ARGUMENTS *****

INITIAL JOBNAME = postlin3
MEMORY REQUESTED (MB) = 64.0
BATCH MODE REQUESTED = LIST
START-UP FILE MODE = READ

*** NOTE *** CP= 0.200 TIME= 09:32:22
There are no parameters and no abbreviations defined.

38303 VERSION=HP 9000/7XX REVISION= 5.1 24
FOR SUPPORT CALL ROBERT BAHNEY PHONE (702) 794-5337 FAX (702) 794-1844
CURRENT JOBNAME=postlin3 09:32:22 APR 10, 1996 CP= 0.210

```
1 resume,seism3,db
2 /filnam,seism3
3 /post1
4 set,1,5
5 /input,,mcom
6 /com, Outer Barrier Stress Distribution
7 !nsel,s,node,,13294
8 !nsel,a,node,,13367
9 !nsel,a,node,,12430
10 !nsel,a,node,,12503
11 !nsel,a,node,,7840
12 !esln
13 !lpath,7840,13294
14 !/out,obstress
15 /com, Outer Barrier Linearized Stresses at Location of Peak Stress
16 !prsect
17 !/out
18 !/show,obdist,grph
19 !plsect,s,int
20 !/show,term
21 /com, Inner Barrier Stress Distribution
22 nsel,s,node,,12757
23 nsel,a,node,,12765
24 nsel,a,node,,12761
25 esln
26 lpath,12757,12761
27 /out,ibstress
28 /com, Inner Barrier Linearized Stresses at Location of Peak Stress
29 prsect
30 /out
31 /show,ibdist,grph
32 plsect,s,int
33 /show,term
34 /com, Basket Stress Distribution
35 nsel,s,node,,4388
36 nsel,a,node,,4438
37 nsel,a,node,,4310
38 esln
39 lpath,4388,4310
40 /out,bktstress
41 /com, Basket Tubes and Guides Linearized Stresses at Location of Peak Stress
42 prsect
43 /out
44 /show,bktdist,grph
45 plsect,s,int
46 /show,term
47 /com, Criticality Control Plate Stress Distribution
48 nsel,s,node,,940
49 nsel,a,node,,1100
50 nsel,a,node,,1064
```

```

51 esln
52 lpath,940,1064
53 /out,pltstress
54 /com, Criticality Control Plates Linearized Stresses at Location of Peak Stress
55 prsect
56 /out
57 /show,pltdist,grph
58 plsect,s,int
59 /show,term
60 fini
61 /exit,nosave

```

RUN SETUP PROCEDURE FROM FILE= /ansys51/docu/start.ans

/INPUT FILE= /ansys51/docu/start.ans LINE= 0

ABBREVIATION= REplot /REplot

PARAMETER PI = 3.141593

```

*****
ANSYS STARTUP FILE start.ans
*****

```

```

ABBREVIATION= VEC      /show,,,1,
ABBREVIATION= RAS      /show,,,0,
ABBREVIATION= INP      /input,,,inp,
ABBREVIATION= ESC      /exit,nosav,
ABBREVIATION= K1       /pnum,kp ,1,
ABBREVIATION= K0       /pnum,kp ,0,
ABBREVIATION= L1       /pnum,line,1,
ABBREVIATION= L0       /pnum,line,0,
ABBREVIATION= A1       /pnum,area,1,
ABBREVIATION= A0       /pnum,area,0,
ABBREVIATION= V1       /pnum,volu,1,
ABBREVIATION= V0       /pnum,volu,0,
ABBREVIATION= N1       /pnum,node,1,
ABBREVIATION= N0       /pnum,node,0,
ABBREVIATION= E1       /pnum,elem,1,
ABBREVIATION= E0       /pnum,elem,0,
ABBREVIATION= M1       /pnum,mat ,1,
ABBREVIATION= M0       /pnum,mat ,0,
ABBREVIATION= R1       /pnum,real,1,
ABBREVIATION= R0       /pnum,real,0,
ABBREVIATION= T1       /pnum,type,1,
ABBREVIATION= T0       /pnum,type,0,
ABBREVIATION= C1       /number,1,
ABBREVIATION= C0       /number,0,

```

ABBREVIATION= X3D /show,3d,
ABBREVIATION= X11 /show,x11,
ABBREVIATION= X11C /show,x11c,
ABBREVIATION= ON /menu,on,
XYZ TRIAD DISPLAY SET TO OFF

VIEW CONE ANGLE FOR WINDOW 1 25.00

END start.ans

To start ANSYS menu:

type: x3d for console
x11 for X-term color
x11c for X-term color contour

type: on

RESUME ANSYS DATA FROM FILE NAME=seism3.clb

*** ANSYS GLOBAL STATUS ***

TITLE = 21 PWR Tube Seismic Analysis With Backfill

ANALYSIS TYPE = SPECTRUM

NUMBER OF ELEMENT TYPES = 6

8616 ELEMENTS CURRENTLY SELECTED. MAX ELEMENT NUMBER = 8616
12897 NODES CURRENTLY SELECTED. MAX NODE NUMBER = 12897
690 KEYPOINTS CURRENTLY SELECTED. MAX KEYPOINT NUMBER = 9001
1604 LINES CURRENTLY SELECTED. MAX LINE NUMBER = 1604
1133 AREAS CURRENTLY SELECTED. MAX AREA NUMBER = 1133
269 VOLUMES CURRENTLY SELECTED. MAX VOL. NUMBER = 269

MAXIMUM LINEAR PROPERTY NUMBER = 6
ACTIVE COORDINATE SYSTEM = 0 (CARTESIAN)
NUMBER OF SPECIFIED CONSTRAINTS = 1185

INITIAL JOBNAME = postlin3

CURRENT JOBNAME = postlin3

CURRENT JOBNAME REDEFINED AS seism3

1

***** ANSYS - ENGINEERING ANALYSIS SYSTEM REVISION 5.1 24 *****
38303 VERSION=HP 9000/7XX 09:32:28 APR 10, 1996 CP= 5.550
FOR SUPPORT CALL ROBERT BAHNEY PHONE (702) 794-5337 FAX (702) 794-1844

21 PWR Tube Seismic Analysis With Backfill

***** ANSYS RESULTS INTERPRETATION (POST1) *****

USE LOAD STEP 1 SUBSTEP 5 FOR LOAD CASE 0

*** NOTE *** CP= 7.130 TIME= 09:32:31
Page file used.

SET COMMAND GOT LOAD STEP= 1 SUBSTEP= 5 CUMULATIVE ITERATION= 5
TIME/FREQUENCY= 57.505
TITLE= 21 PWR Tube Seismic Analysis With Backfill

/INPUT FILE= seism3.mcom LINE= 0
ANSYS REVISION 5.1 24 23:26:16 04/09/1996
seism3.mcom

CURRENT LOAD SET IN DATABASE IS ERASED

LOAD CASE 1 IS LOAD STEP 1 SUBSTEP 1 COMPLEX= 0
FILE= seism3.rst
21 PWR Tube Seismic Analysis With Backfill

LOAD CASE 1 FACTOR SET TO-0.40396E-03

COPY LOAD CASE 1 FROM FILE TO DATABASE

SQUARE THE CURRENT LOAD SET IN DATABASE

*** NOTE *** CP= 30.960 TIME= 09:33:35
Load case combination data may not be correct unless viewed in the
solution phase coordinate system (RSYS= SOLU).

LOAD CASE 1 IS LOAD STEP 1 SUBSTEP 2 COMPLEX= 0
FILE= seism3.rst
21 PWR Tube Seismic Analysis With Backfill

LOAD CASE 1 FACTOR SET TO 0.18891E-01

LCOPER OPERATION ADD USING LOAD CASE= 1 FACTOR= 0.18891E-01 ABS= 0
MULTIPLIED BY LOAD CASE= 1 FACTOR= 0.18891E-01 ABS= 0

LOAD CASE 1 IS LOAD STEP 1 SUBSTEP 3 COMPLEX= 0
FILE= seism3.rst
21 PWR Tube Seismic Analysis With Backfill

LOAD CASE 1 FACTOR SET TO-0.65883E-02

LCOPER OPERATION ADD USING LOAD CASE= 1 FACTOR=-0.65883E-02 ABS= 0
MULTIPLIED BY LOAD CASE= 1 FACTOR=-0.65883E-02 ABS= 0

LOAD CASE 1 IS LOAD STEP 1 SUBSTEP 4 COMPLEX= 0
FILE= seism3.rst
21 PWR Tube Seismic Analysis With Backfill

LOAD CASE 1 FACTOR SET TO-0.10506E-02

LCOPER OPERATION ADD USING LOAD CASE= 1 FACTOR=-0.10506E-02 ABS= 0
MULTIPLIED BY LOAD CASE= 1 FACTOR=-0.10506E-02 ABS= 0

LOAD CASE 1 IS LOAD STEP 1 SUBSTEP 5 COMPLEX= 0
FILE= seism3.rst
21 PWR Tube Seismic Analysis With Backfill

LOAD CASE 1 FACTOR SET TO-0.81302E-03

LCOPER OPERATION ADD USING LOAD CASE= 1 FACTOR=-0.81302E-03 ABS= 0
MULTIPLIED BY LOAD CASE= 1 FACTOR=-0.81302E-03 ABS= 0

LOAD CASE 1 IS LOAD STEP 1 SUBSTEP 6 COMPLEX= 0
FILE= seism3.rst
21 PWR Tube Seismic Analysis With Backfill

LOAD CASE 1 FACTOR SET TO-0.10809E-03

LCOPER OPERATION ADD USING LOAD CASE= 1 FACTOR=-0.10809E-03 ABS= 0
MULTIPLIED BY LOAD CASE= 1 FACTOR=-0.10809E-03 ABS= 0

LOAD CASE 1 IS LOAD STEP 1 SUBSTEP 7 COMPLEX= 0
FILE= seism3.rst

21 PWR Tube Seismic Analysis With Backfill

LOAD CASE 1 FACTOR SET TO 0.27262E-03

LCOPER OPERATION ADD USING LOAD CASE= 1 FACTOR= 0.27262E-03 ABS= 0
MULTIPLIED BY LOAD CASE= 1 FACTOR= 0.27262E-03 ABS= 0

LOAD CASE 1 IS LOAD STEP 1 SUBSTEP 8 COMPLEX= 0
FILE= seism3.rst
21 PWR Tube Seismic Analysis With Backfill

LOAD CASE 1 FACTOR SET TO 0.57938E-03

LCOPER OPERATION ADD USING LOAD CASE= 1 FACTOR= 0.57938E-03 ABS= 0
MULTIPLIED BY LOAD CASE= 1 FACTOR= 0.57938E-03 ABS= 0

TAKE SQRT OF CURRENT LOAD SET IN DATABASE
Outer Barrier Stress Distribution
Outer Barrier Linearized Stresses at Location of Peak Stress
Inner Barrier Stress Distribution

SELECT FOR ITEM=NODE COMPONENT=
IN RANGE 12757 TO 12757 STEP 1
1 NODES (OF 12897 DEFINED) SELECTED BY NSEL COMMAND.

ALSO SELECT FOR ITEM=NODE COMPONENT=
IN RANGE 12765 TO 12765 STEP 1
2 NODES (OF 12897 DEFINED) SELECTED BY NSEL COMMAND.

ALSO SELECT FOR ITEM=NODE COMPONENT=
IN RANGE 12761 TO 12761 STEP 1
3 NODES (OF 12897 DEFINED) SELECTED BY NSEL COMMAND.

SELECT ALL ELEMENTS HAVING ANY NODE IN NODAL SET.
8 ELEMENTS (OF 8616 DEFINED) SELECTED FROM
3 SELECTED NODES BY ESLN COMMAND.

DEFINE A PATH FOR SUBSEQUENT CALCULATIONS THROUGH NODES:
12757 12761

/OUTPUT FILE= ibstress

/SHOW SWITCH PLOTS TO FILE ibdist.grph - RASTER MODE.

DISPLAY LINEARIZED STRESS USING NODES DEFINED BY LPATH COMMAND.
ITEM=S COMP=INT RHO= 0.00000E+00

CUMULATIVE DISPLAY NUMBER 1 WRITTEN TO FILE ibdist.grph - RASTER MODE.
DISPLAY TITLE=
21 PWR Tube Seismic Analysis With Backfill
Basket Stress Distribution

SELECT FOR ITEM=NODE COMPONENT=
IN RANGE 4388 TO 4388 STEP 1
1 NODES (OF 12897 DEFINED) SELECTED BY NSEL COMMAND.

ALSO SELECT FOR ITEM=NODE COMPONENT=
IN RANGE 4438 TO 4438 STEP 1
2 NODES (OF 12897 DEFINED) SELECTED BY NSEL COMMAND.

ALSO SELECT FOR ITEM=NODE COMPONENT=
IN RANGE 4310 TO 4310 STEP 1


```
3 NODES (OF 12897 DEFINED) SELECTED BY NSEL COMMAND.

SELECT      ALL ELEMENTS HAVING ANY NODE IN NODAL SET.

4 ELEMENTS (OF 8616 DEFINED) SELECTED FROM
3 SELECTED NODES BY ESLN COMMAND.

DEFINE A PATH FOR SUBSEQUENT CALCULATIONS THROUGH NODES:
4388 4310

/OUTPUT FILE= bktstres

/SHOW SWITCH PLOTS TO FILE bktdist.grph      - RASTER MODE.

DISPLAY LINEARIZED STRESS USING NODES DEFINED BY LPATH COMMAND.
ITEM=S      COMP=INT RHO= 0.00000E+00

CUMULATIVE DISPLAY NUMBER 1 WRITTEN TO FILE bktdist.grph      - RASTER MODE.
DISPLAY TITLE=
21 PWR Tube Seismic Analysis With Backfill
Criticality Control Plate Stress Distribution

SELECT      FOR ITEM=NODE COMPONENT=
IN RANGE    940 TO      940 STEP      1

1 NODES (OF 12897 DEFINED) SELECTED BY NSEL COMMAND.

ALSO SELECT FOR ITEM=NODE COMPONENT=
IN RANGE    1100 TO     1100 STEP      1

2 NODES (OF 12897 DEFINED) SELECTED BY NSEL COMMAND.

ALSO SELECT FOR ITEM=NODE COMPONENT=
IN RANGE    1064 TO     1064 STEP      1

3 NODES (OF 12897 DEFINED) SELECTED BY NSEL COMMAND.

SELECT      ALL ELEMENTS HAVING ANY NODE IN NODAL SET.

8 ELEMENTS (OF 8616 DEFINED) SELECTED FROM
3 SELECTED NODES BY ESLN COMMAND.

DEFINE A PATH FOR SUBSEQUENT CALCULATIONS THROUGH NODES:
940 1064

/OUTPUT FILE= pltstres

/SHOW SWITCH PLOTS TO FILE pltdist.grph      - RASTER MODE.

DISPLAY LINEARIZED STRESS USING NODES DEFINED BY LPATH COMMAND.
ITEM=S      COMP=INT RHO= 0.00000E+00

CUMULATIVE DISPLAY NUMBER 1 WRITTEN TO FILE pltdist.grph      - RASTER MODE.
DISPLAY TITLE=
21 PWR Tube Seismic Analysis With Backfill

EXIT THE ANSYS POST1 DATABASE PROCESSOR

***** ROUTINE COMPLETED ***** CP =      103.170

EXIT ANSYS WITHOUT SAVING DATABASE

NUMBER OF WARNING MESSAGES ENCOUNTERED=      0
NUMBER OF ERROR MESSAGES ENCOUNTERED=      0
```

*** PAGE FILE USED ***
NUMBER OF R/W OPERATIONS= 14517
MAXIMUM RECORD NUMBER = 529
RECORD SIZE (I*4 WORDS) = 16384
PAGE FILE SIZE (MB) = 33.063

```
*-----*
|
|               ANSYS RUN COMPLETED
|
|-----|
|
|      REV. 5.1  24                      HP 9000/7XX
|
| CP TIME      (sec) =      103.190      TIME = 09:36:49
| ELAPSED TIME (sec) =      268.000      DATE  = 04/10/96
|
|-----|
|
|-----*
```

```
24 23:26:16 04/09/1996
/COM,ANSYS REVISION 5.1
/COM, seism3.mcom
LCOPER,ZERO
LCDEFI,1, 1, 1
LCFACT,1, -0.403962E-03
LCASE,1
LCOPER,SQUARE
LCDEFI,1, 1, 2
LCFACT,1, 0.188907E-01
LCOPER,ADD,1,MULT,1
LCDEFI,1, 1, 3
LCFACT,1, -0.658825E-02
LCOPER,ADD,1,MULT,1
LCDEFI,1, 1, 4
LCFACT,1, -0.105063E-02
LCOPER,ADD,1,MULT,1
LCDEFI,1, 1, 5
LCFACT,1, -0.813019E-03
LCOPER,ADD,1,MULT,1
LCDEFI,1, 1, 6
LCFACT,1, -0.108087E-03
LCOPER,ADD,1,MULT,1
LCDEFI,1, 1, 7
LCFACT,1, 0.272623E-03
LCOPER,ADD,1,MULT,1
LCDEFI,1, 1, 8
LCFACT,1, 0.579377E-03
LCOPER,ADD,1,MULT,1
LCOPER,SQRT
```

-----*

W E L C O M E T O T H E A N S Y S P R O G R A M

-----*

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PRESS <CR> OR <ENTER> TO CONTINUE

***** ANSYS COMMAND LINE ARGUMENTS *****

INITIAL JOBNAME = seism2
MEMORY REQUESTED (MB) = 64.0
BATCH MODE REQUESTED = LIST
START-UP FILE MODE = READ

*** NOTE *** CP= 0.200 TIME= 20:36:05
There are no parameters and no abbreviations defined.

38303 VERSION=HP 9000/7XX REVISION= 5.1 24
FOR SUPPORT CALL ROBERT BAHNEY PHONE: (702) 794-5337 FAX (702) 794-1844
CURRENT JOBNAME=seism2 20:36:05 APR 10, 1996 CP= 0.210

```

1 /com,*****
2 /com,*****
3 /com,***** Seismic Analysis of 21 PWR Waste Package Under Degradation *****
4 /com,***** Degree of Degradation in Outer Barrier: 100% *****
5 /com,***** Degree of Degradation in Inner Barrier: 90% *****
6 /com,***** Degree of Degradation in Basket Assembly: Tubes 100% *****
7 /com,***** Guides 50% *****
8 /com,***** SS-B Plates 0% *****
9 /com,***** Backfill Present, Backfill Porosity: 25%, Rock Porosity: 10% *****
10 /com,***** Quarter Symmetry Model *****
11 /com,*****
12 /com,*****
13 /com,*****
14 /config,nvpag,512
15 /units,si
16 /prep7
17 /title, 21 PWR Tube Seismic Analysis With Backfill
18 /vcon,,0
19 /com, Define Parameters
20 ibir=0.71095 ! Inner Barrier Inner Radius (DIA = 1.4219 m)
21 obir=0.71295 ! Outer Barrier Inner Radius (DIA = 1.4619 m)
22 obsr=0.77095 ! Outer Barrier Skirt Radius (DIA = 1.5419 m)
23 obor=0.78095 ! Outer Barrier Outer Radius (DIA = 1.6619 m)
24 ts1=.007 ! SS-B Plate Thickness
25 ts2=.005 ! CS Tube Thickness
26 ts3=.005 ! Corner Guide Thickness
27 ts4=.005 ! End Guide Thickness
28 egih=.0855 ! End Guide Fin Inner Height(0.0809+0.005-2.5*tan10)
29 pie=3.1415926 ! Pi
30 ang1=30*pie/180 ! Angle on end of end guide
31 ang2=80*pie/180 ! Angle on end of end guide fin
32 ang3=58*pie/180 ! Angle on end of corner guide
33 tw=0.2285 ! Tube Inner Side Width
34 pos1=tw/2 ! Dimension to Keypoint Position 1
35 pos2=pos1+ts2 ! Dimension to Keypoint Position 2
36 pos3=pos2+ts1 ! Dimension to Keypoint Position 3
37 pos4=pos3+ts2 ! Dimension to Keypoint Position 4
38 pos5=pos4+tw ! Dimension to Keypoint Position 5
39 pos6=pos5+ts2 ! Dimension to Keypoint Position 6
40 pos7=pos6+ts1 ! Dimension to Keypoint Position 7
41 pos8=pos7+ts2 ! Dimension to Keypoint Position 8
42 pos9=pos8+tw ! Dimension to Keypoint Position 9
43 pos10=pos9+ts2 ! Dimension to Keypoint Position 10
44 pos11=pos10+ts4 ! Dimension to Keypoint Position 11
45 posg=pos6+ts3 ! Dimension to Keypoint on Corner Guide
46 posei=pos11+egih ! Dimension to Keypoint on End Guide Fin Inner
47 poseo=posei-(ts4/tan(ang2)) ! Dimension to Keypoint on End Guide Fin Outer
48 posen=pos2+ts1/2-ts4/2 ! Dimension to Keypoint on End Guide Near Side
49 posef=pos2+ts1/2+ts4/2 ! Dimension to Keypoint on End Guide Far Side
50 poseg=pos6-(ts4/tan(ang1)) ! Dimension to Keypoint on End Guide Side

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51 poscg=pos10-(ts3/tan(ang3)) ! Dimension to Keypoint on Corner Guide Side
52 bkht=4.575/2 ! Basket Height (Half Height)
53 ibht=bkht+0.01 ! Inner Barrier cavity height
54 lbgh=ibht-bkht ! Basket Gap Height
55 iblt=0.007 ! inner lid height
56 elev1=ibht+iblt ! Elevation of Top of Inner Barrier
57 ltlgh=0.030 ! Lid to Lid Gap Height
58 elev2=elev1+ltlgh ! Elevation of Bottom of Upper Outer Barrier Lid
59 oblht=0.06 ! outer lid height
60 elev3=elev2+oblht ! Elevation of Top of Upper Outer Barrier Lid
61 stht=0.225 ! skirt height
62 elev4=elev3+stht ! Elevation of Top of Waste Package
63 elev5=-(iblt+oblht) ! Elevation of Bottom of Lower Outer Barrier Lid
64 elev6=elev5-stht ! Elevation of Bottom of Waste Package
65 /com, Line Divisions
66 shd=1 ! Skirt Height Divisions
67 oblht=1 ! Outer Barrier Lid Divisions
68 gd=2 ! Gap Divisions
69 ibld=2 ! Inner Barrier Lid Divisions
70 bd=15 ! Basket Divisions
71 htwd=4 ! Half Tube Width Divisions
72 twd=4 ! Tube Width Divisions
73 thd=4 ! Tube Height Divisions
74 egfd=4 ! End Guide Fin Divisions
75 ptd=2 ! Plate Thickness Divisions
76 ttd=1 ! Tube Thickness Divisions
77 a1d=4 ! Arc 1 Divisions
78 a2d=4 ! Arc 2 Divisions
79 a3d=4 ! Arc 3 Divisions
80 a4d=4 ! Arc 4 Divisions
81 a5d=4 ! Arc 5 Divisions
82 a6d=4 ! Arc 6 Divisions
83 a7d=4 ! Arc 7 Divisions
84 a8d=4 ! Arc 8 Divisions
85 a9d=4 ! Arc 9 Divisions
86 ibtd=2 ! Inner Barrier Thickness Divisions
87 obtd=2 ! Outer Barrier Inner Thickness Divisions
88 std=2 ! Skirt Thickness Divisions
89 /com, Define Element Properties
90 et,1,solid45 ! Carbon Steel Tube
91 et,2,solid45 ! Stainless Steel - Boron Plate
92 et,3,solid45 ! Carbon Steel End Guide
93 et,4,solid45 ! Carbon Steel Corner Guide
94 et,5,solid45 ! Alloy 625 Inner Barrier
95 et,6,solid45 ! Alloy 625 Inner Barrier (Upper w/Backfill Weight)
96 !et,6,solid45 ! A 516 Carbon Steel Outer Barrier
97 !et,7,solid45 ! A 516 Carbon Steel Outer Barrier w/Backfill Weight
98 /com, ratio of static to dynamic coeff. of friction fact=1.298, Area Tol.=15%
99 /com, Room Temperature Properties of Materials
100 mp,ex,1,206e9 ! A516 Carbon Steel Tube
101 mp,ex,2,195e9 ! 316B6A Stainless Steel - Boron Plate (316L Properties)
102 mp,ex,3,206e9 ! A516 Carbon Steel End Guide
103 mp,ex,4,206e9 ! A516 Carbon Steel Corner Guide
104 mp,ex,5,208e9 ! Alloy 625 Inner Barrier
105 mp,ex,6,208e9 ! Alloy 625 Inner Barrier (Upper w/Backfill Weight)
106 !mp,ex,6,206e9 ! A516 Carbon Steel Outer Barrier
107 !mp,ex,7,206e9 ! A516 Carbon Steel Outer Barrier w/Backfill Weight
108 mp,nuxy,1,0.3 ! A516 Carbon Steel Tube
109 mp,nuxy,2,0.298 ! 316B6A Stainless Steel - Boron Plate (316 Properties)
110 mp,nuxy,3,0.3 ! A516 Carbon Steel End Guide
111 mp,nuxy,4,0.3 ! A516 Carbon Steel Corner Guide
112 mp,nuxy,5,0.278 ! Alloy 625 Inner Barrier
113 mp,nuxy,6,0.278 ! Alloy 625 Inner Barrier (Upper w/Backfill Weight)
114 !mp,nuxy,6,0.3 ! A516 Carbon Steel Outer Barrier
115 !mp,nuxy,7,0.3 ! A516 Carbon Steel Outer Barrier w/Backfill Weight
116 mp,dens,1,8131 ! A516 Carbon Steel Tube
117 mp,dens,2,89020.33 ! 316B6A Stainless Steel - Boron Plate (Adjusted to include tube and SNF masses)
118 mp,dens,3,16262 ! A516 Carbon Steel End Guide (Doubled for Corrosion Prod.)
119 mp,dens,4,16262 ! A516 Carbon Steel Corner Guide (Doubled for Corrosion)
120 mp,dens,5,8442 ! Alloy 625 Inner Barrier

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121 mp,dens,6,1101960 ! Alloy 625 Inner Barrier (Upper w/Backfill Weight)
122 !mp,dens,6,8131 ! A516 Carbon Steel Outer Barrier
123 !mp,mu,7,0.57 ! Coefficient of Friction (Steel on Steel Assumed)
124 !tb,biso,1
125 !tbdata,,260e6,1.078e9 ! A 516 Carbon Steel Tubes
126 !tb,biso,2
127 !tbdata,,172e6,0.7767e9 ! 316L Stainless Steel
128 !tb,biso,3
129 !tbdata,,260e6,1.078e9 ! A 516 Carbon Steel End Guide
130 !tb,biso,4
131 !tbdata,,260e6,1.078e9 ! A 516 Carbon Steel Corner Guide
132 !tb,biso,5
133 !tbdata,,379e6,1.271e9 ! Alloy 625
134 !tb,biso,6
135 !tbdata,,260e6,1.078e9 ! A 516 Carbon Steel Outer Barrier
136 !tb,biso,7
137 !tbdata,,260e6,1.078e9 ! A 516 Carbon Steel Outer Barrier w/Backfill Weight
138 /com
139 /com, Define keypoints in the basket assembly
140 csys,0
141 k,1,0,0
142 k,2,pos1,0
143 k,3,pos2,0
144 k,4,pos3,0
145 k,5,pos4,0
146 k,6,pos5,0
147 k,7,pos6,0
148 k,8,pos7,0
149 k,9,pos8,0
150 k,10,pos9,0
151 k,11,pos10,0
152 k,12,pos11,0
153 k,13,pos1,pos1
154 k,14,pos4,pos1
155 k,15,pos5,pos1
156 k,16,pos8,pos1
157 k,17,pos9,pos1
158 k,18,pos2,pos2
159 k,19,pos3,pos2
160 k,20,pos6,pos2
161 k,21,pos7,pos2
162 k,22,pos10,pos2
163 k,23,pos11,posei
164 !k,24,posei,posei
165 csys,1
166 k,24,ibir,(180/pie)*atan(posei/posei)
167 csys,0
168 k,25,pos3,pos3
169 k,26,pos6,pos3
170 k,27,pos7,pos3
171 k,28,pos10,pos3
172 k,29,pos11,posef
173 !k,30,posef,posef
174 csys,1
175 k,30,ibir,(180/pie)*atan(posef/posef)
176 csys,0
177 k,31,pos4,pos4
178 k,32,pos5,pos4
179 k,33,pos8,pos4
180 k,34,pos9,pos4
181 k,35,pos5,pos5
182 k,36,pos8,pos5
183 k,37,pos9,pos5
184 !k,38,pos11,poseg
185 csys,1
186 k,38,ibir,(180/pie)*atan(poseg/poseg)
187 csys,0
188 k,39,pos6,pos6
189 k,40,pos7,pos6
190 !k,41,pos10,pos6

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191 csys,1
192 k,41,ibir,(180/pie)*atan(pos6/pos10)
193 csys,0
194 k,42,posg,posg
195 !k,43,poscg,posg
196 csys,1
197 k,43,ibir,(180/pie)*atan(posg/poscg)
198 k,44,ibir,0
199 k,45,ibir,45
200 k,46,obir,0
201 k,47,obir,(180/pie)*atan(posef/posei)
202 k,48,obir,(180/pie)*atan(posef/poseo)
203 k,49,obir,(180/pie)*atan(poseg/pos11)
204 k,50,obir,(180/pie)*atan(pos6/pos10)
205 k,51,obir,(180/pie)*atan(posg/poscg)
206 k,52,obir,45
207 k,53,obsr,0
208 k,54,obsr,(180/pie)*atan(posef/posei)
209 k,55,obsr,(180/pie)*atan(posef/poseo)
210 k,56,obsr,(180/pie)*atan(poseg/pos11)
211 k,57,obsr,(180/pie)*atan(pos6/pos10)
212 k,58,obsr,(180/pie)*atan(posg/poscg)
213 k,59,obsr,45
214 k,60,obor,0
215 k,61,obor,(180/pie)*atan(posef/posei)
216 k,62,obor,(180/pie)*atan(posef/poseo)
217 k,63,obor,(180/pie)*atan(poseg/pos11)
218 k,64,obor,(180/pie)*atan(pos6/pos10)
219 k,65,obor,(180/pie)*atan(posg/poscg)
220 k,66,obor,45
221 local,11,0,0,0,0,45,0,0,
222 ksymm,y,all,,,0,0,0
223 nummrg,kp
224 csys,0
225 ksymm,y,all,,,0,0,0
226 nummrg,kp
227 kdel,2,12,1
228 k,1001,0,0,bkht
229 l,1,1001 ! Line 1 for VDRAG of Basket
230 lesize,all,,,bd,.2,0
231 k,2001,0,0,ibht
232 l,1001,2001 ! Line 2 for VDRAG of Basket to Inner Barrier Lid Gap
233 lesize,all,,,gd,1,0
234 k,3001,0,0,elev1
235 l,2001,3001 ! Line 3 for VDRAG of Inner Barrier Upper Lid
236 lesize,all,,,ibld,1,0
237 k,4001,0,0,elev2
238 l,3001,4001 ! Line 4 for VDRAG of Lid to Lid Gap
239 lesize,all,,,gd,1,0
240 k,5001,0,0,elev3
241 l,4001,5001 ! Line 5 for VDRAG of Outer Barrier Upper Lid
242 lesize,all,,,obld,1,0
243 k,6001,0,0,elev4
244 l,5001,6001 ! Line 6 for VDRAG of Upper Skirt
245 lesize,all,,,shd,1,0
246 k,7001,0,0,-iblt
247 l,1,7001 ! Line 7 for VDRAG of IB Lower Lid
248 lesize,all,,,ibld,1,0
249 k,8001,0,0,elev5
250 l,7001,8001 ! Line 8 for VDRAG of OB Lower Lid
251 lesize,all,,,obld,1,0
252 k,9001,0,0,elev6
253 l,8001,9001 ! Line 9 for VDRAG of Lower Skirt
254 lesize,all,,,shd,1,0
255 /com, line set 1 Tube Width for Half Tubes on Symmetry Plane
256 L, 197, 206 ! Line 10
257 L, 196, 205
258 L, 195, 201
259 L, 194, 200
260 L, 193, 204

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261 L, 192, 203
262 L, 191, 199
263 L, 190, 198
264 L, 189, 202
265 L, 188, 138
266 L, 187, 133 ! 20
267 L, 68, 13
268 L, 69, 18
269 L, 70, 85
270 L, 71, 80
271 L, 72, 81
272 L, 73, 86
273 L, 74, 87
274 L, 75, 82
275 L, 76, 83
276 L, 77, 88 ! 30
277 L, 78, 89
278 lesize,all,,,htwd,1,0
279 /com, line set 2 Tube Widths
280 L, 211, 218
281 L, 210, 220
282 L, 215, 217
283 L, 214, 216
284 L, 209, 219
285 L, 208, 159
286 L, 213, 155
287 L, 151, 152
288 L, 145, 146 ! 40
289 L, 139, 140
290 L, 134, 135
291 L, 14, 15
292 L, 19, 20
293 L, 25, 26
294 L, 31, 32
295 L, 98, 35
296 L, 92, 39
297 L, 93, 106
298 L, 99, 102 ! 50
299 L, 100, 103
300 L, 94, 107
301 L, 95, 104
302 lesize,all,,,twd,1,0
303 /com, line set 3 Tube Widths on End Column
304 L, 162, 163
305 L, 160, 161
306 L, 156, 157
307 L, 153, 154
308 L, 147, 148
309 L, 141, 142
310 L, 136, 137 ! 60
311 L, 16, 17
312 L, 21, 22
313 L, 27, 28
314 L, 33, 34
315 L, 36, 37
316 L, 40, 41
317 L, 42, 43
318 lesize,all,,,twd,1,0
319 /com, line set 4 Tube Heights
320 L, 201, 200
321 L, 205, 204
322 L, 210, 209 ! 70
323 L, 215, 214
324 L, 217, 216
325 L, 220, 219
326 L, 221, 162
327 L, 199, 198
328 L, 203, 202
329 L, 208, 145
330 L, 213, 151

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331	L,	155,	152	
332	L,	159,	146	! 80
333	L,	160,	147	
334	L,	156,	153	
335	L,	157,	154	
336	L,	161,	148	
337	L,	133,	13	
338	L,	138,	18	
339	L,	139,	19	
340	L,	134,	14	
341	L,	135,	15	
342	L,	140,	20	! 90
343	L,	141,	21	
344	L,	136,	16	
345	L,	137,	17	
346	L,	142,	22	
347	L,	143,	23	
348	L,	80,	81	
349	L,	85,	86	
350	L,	25,	92	
351	L,	31,	98	
352	L,	32,	35	! 100
353	L,	26,	39	
354	L,	27,	40	
355	L,	33,	36	
356	L,	34,	37	
357	L,	28,	41	
358	L,	29,	38	
359	L,	82,	83	
360	L,	87,	88	
361	L,	93,	94	
362	L,	99,	100	! 110
363	L,	102,	103	
364	L,	106,	107	
365	L,	42,	109	
366	L,	158,	149	
367	lesize,all,,,thd,1,0			
368	/com, line set 5 End Guide Fins			
369	L,	207,	206	
370	L,	212,	211	
371	L,	150,	149	
372	L,	144,	143	
373	L,	24,	23	
374	L,	30,	29	! 120
375	L,	96,	95	
376	L,	90,	89	
377	lesize,all,,,egfd,1,0			
378	/com, line set 6 SS-B Plate Thickness			
379	L,	197,	196	
380	L,	206,	205	
381	L,	211,	210	
382	L,	207,	212	
383	L,	206,	211	
384	L,	205,	210	
385	L,	218,	220	
386	L,	220,	221	! 130
387	L,	193,	192	
388	L,	204,	203	
389	L,	209,	208	
390	L,	204,	209	
391	L,	203,	208	
392	L,	219,	159	
393	L,	162,	160	
394	L,	163,	161	
395	L,	161,	158	
396	L,	219,	162	! 140
397	L,	159,	160	
398	L,	189,	188	
399	L,	202,	138	
400	L,	145,	139	

401	L,	202,	145
402	L,	138,	139
403	L,	146,	140
404	L,	147,	141
405	L,	146,	147
406	L,	140,	141 ! 150
407	L,	148,	142
408	L,	149,	143
409	L,	148,	149
410	L,	142,	143
411	L,	150,	144
412	L,	69,	70
413	L,	18,	85
414	L,	19,	25
415	L,	18,	19
416	L,	85,	25 ! 160
417	L,	20,	26
418	L,	21,	27
419	L,	20,	21
420	L,	26,	27
421	L,	22,	28
422	L,	22,	23
423	L,	28,	29
424	L,	23,	29
425	L,	24,	30
426	L,	73,	74 ! 170
427	L,	86,	87
428	L,	92,	93
429	L,	86,	92
430	L,	87,	93
431	L,	39,	106
432	L,	40,	42
433	L,	39,	40
434	L,	106,	42
435	L,	38,	41
436	L,	41,	43 ! 180
437	L,	77,	78
438	L,	88,	89
439	L,	94,	95
440	L,	88,	94
441	L,	89,	95
442	L,	90,	96
443	L,	109,	107
444	L,	107,	104
445	L,	224,	225
446	L,	230,	231 ! 190
447	L,	236,	237
448	L,	226,	227
449	L,	227,	228
450	L,	232,	233
451	L,	233,	234
452	L,	238,	239
453	L,	239,	240
454	L,	171,	170
455	L,	170,	169
456	L,	178,	177 ! 200
457	L,	177,	176
458	L,	185,	184
459	L,	184,	183
460	L,	168,	167
461	L,	175,	174
462	L,	182,	181
463	L,	47,	48
464	L,	54,	55
465	L,	61,	62
466	L,	49,	50 ! 210
467	L,	50,	51
468	L,	56,	57
469	L,	57,	58
470	L,	63,	64

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471 L,      64,      65
472 L,      117,     116
473 L,      116,     115
474 L,      124,     123
475 L,      123,     122
476 L,      131,     130 ! 220
477 L,      130,     129
478 L,      114,     113
479 L,      121,     120
480 L,      128,     127
481 lesize,all,,,ptd,1,0
482 /com, line set 7 tube thickness
483 L,      196,     195
484 L,      205,     201
485 L,      204,     200
486 L,      193,     194
487 L,      210,     215
488 L,      220,     217 ! 230
489 L,      219,     216
490 L,      209,     214
491 L,      192,     191
492 L,      203,     199
493 L,      202,     198
494 L,      189,     190
495 L,      208,     213
496 L,      159,     155
497 L,      146,     152
498 L,      145,     151 ! 240
499 L,      160,     156
500 L,      161,     157
501 L,      148,     154
502 L,      147,     153
503 L,      188,     187
504 L,      138,     133
505 L,      18,      13
506 L,      69,      68
507 L,      139,     134
508 L,      140,     135 ! 250
509 L,      20,      15
510 L,      19,      14
511 L,      141,     136
512 L,      142,     137
513 L,      22,      17
514 L,      21,      16
515 L,      70,      71
516 L,      85,      80
517 L,      86,      81
518 L,      73,      72 ! 260
519 L,      25,      31
520 L,      26,      32
521 L,      39,      35
522 L,      92,      98
523 L,      27,      33
524 L,      28,      34
525 L,      41,      37
526 L,      40,      36
527 L,      74,      75
528 L,      87,      82 ! 270
529 L,      88,      83
530 L,      77,      76
531 L,      93,      99
532 L,      106,     102
533 L,      107,     103
534 L,      94,      100
535 lesize,all,,,tttd,1,0
536 csys,1
537 /com, line set 8, arc 1 bottom
538 L,      222,     207
539 L,      223,     224
540 L,      229,     230

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541 L,      235,      236 ! 280
542 lesize,all,,,a1d,1,0
543 /com, line set 9, arc 2 side arcs
544 L,      212,      218
545 L,      225,      226
546 L,      231,      232
547 L,      237,      238
548 lesize,all,,,a2d,1,0
549 /com, line set 10, arc 3 side arcs
550 L,      221,      163
551 L,      228,      171
552 L,      234,      178
553 L,      240,      185
554 lesize,all,,,a3d,1,0
555 /com, line set 11, arc 4 side arcs
556 L,      158,      150
557 L,      169,      168 ! 290
558 L,      176,      175
559 L,      183,      182
560 lesize,all,,,a4d,1,0
561 /com, line set 12, arc 5 side arcs
562 L,      144,      24
563 L,      167,      47
564 L,      174,      54
565 L,      181,      61
566 lesize,all,,,a5d,1,0
567 /com, line set 13, arc 6 side arcs
568 L,      30,      38
569 L,      48,      49
570 L,      55,      56
571 L,      62,      63 ! 300
572 lesize,all,,,a6d,1,0
573 /com, line set 14, arc 7 side arcs
574 L,      43,      109
575 L,      51,      117
576 L,      58,      124
577 L,      65,      131
578 lesize,all,,,a7d,1,0
579 /com, line set 15, arc 8 side arcs
580 L,      104,      96
581 L,      115,      114
582 L,      122,      121
583 L,      129,      128
584 lesize,all,,,a8d,1,0
585 /com, line set 16, arc 9 top arcs
586 L,      90,      110
587 L,      113,      112 ! 310
588 L,      120,      119
589 L,      127,      126
590 lesize,all,,,a9d,1,0
591 csys,0
592 /com, line set 17 IB thickness
593 L,      222,      223
594 L,      207,      224
595 L,      212,      225
596 L,      218,      226
597 L,      220,      227
598 L,      221,      228
599 L,      163,      171
600 L,      161,      170 ! 320
601 L,      158,      169
602 L,      150,      168
603 L,      144,      167
604 L,      24,      47
605 L,      30,      48
606 L,      38,      49
607 L,      41,      50
608 L,      43,      51
609 L,      109,      117
610 L,      107,      116 ! 330

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611 L, 104, 115
612 L, 96, 114
613 L, 90, 113
614 L, 110, 112
615 lesize,all,,,ibtd,1,0
616 /com, line set 18 OB inner thickness
617 L, 223, 229
618 L, 224, 230
619 L, 225, 231
620 L, 226, 232
621 L, 227, 233
622 L, 228, 234 ! 340
623 L, 171, 178
624 L, 170, 177
625 L, 169, 176
626 L, 168, 175
627 L, 167, 174
628 L, 47, 54
629 L, 48, 55
630 L, 49, 56
631 L, 50, 57
632 L, 51, 58 ! 350
633 L, 117, 124
634 L, 116, 123
635 L, 115, 122
636 L, 114, 121
637 L, 113, 120
638 L, 112, 119
639 lesize,all,,,obitd,1,0
640 /com, line set 19 skirt thickness
641 L, 229, 235
642 L, 230, 236
643 L, 231, 237
644 L, 232, 238 ! 360
645 L, 233, 239
646 L, 234, 240
647 L, 178, 185
648 L, 177, 184
649 L, 176, 183
650 L, 175, 182
651 L, 174, 181
652 L, 54, 61
653 L, 55, 62
654 L, 56, 63 ! 370
655 L, 57, 64
656 L, 58, 65
657 L, 124, 131
658 L, 123, 130
659 L, 122, 129
660 L, 121, 128
661 L, 120, 127
662 L, 119, 126
663 lesize,all,,,std,1,0
664 /com, lines to fill in lids
665 /com, lines tube height
666 L,195,194 ! 379
667 L,191,190 ! 380
668 L,187,68 ! 381
669 L,71,72 ! 382
670 L,75,76 ! 383
671 lesize,all,,,thd,1,0
672 /com, end lines
673 L,222,197 ! 384
674 L,78,110 ! 385
675 lesize,all,,,egfd,1,0
676 /com, area set 1, tubes
677 a,195,196,205,201
678 a,200,201,205,204
679 a,193,194,200,204
680 a,191,192,203,199

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681 a,198,199,203,202
682 a,189,190,198,202
683 a,187,188,138,133
684 a,133,138,18,13
685 a,69,68,13,18
686 a,71,70,85,80
687 a,80,85,86,81
688 a,73,72,81,86
689 a,75,74,87,82
690 a,82,87,88,83
691 a,77,76,83,88
692 a,209,210,215,214
693 a,215,210,220,217
694 a,216,217,220,219
695 a,209,214,216,219
696 a,145,208,213,151
697 a,213,208,159,155
698 a,152,155,159,146
699 a,145,151,152,146
700 a,134,139,140,135
701 a,135,140,20,15
702 a,19,14,15,20
703 a,19,139,134,14
704 a,92,25,31,98
705 a,31,25,26,32
706 a,32,26,39,35
707 a,92,98,35,39
708 a,94,93,99,100
709 a,99,93,106,102
710 a,102,106,107,103
711 a,94,100,103,107
712 a,156,160,161,157
713 a,157,161,148,154
714 a,147,153,154,148
715 a,147,160,156,153
716 a,136,141,142,137
717 a,137,142,22,17
718 a,21,16,17,22
719 a,21,141,136,16
720 a,33,27,28,34
721 a,34,28,41,37
722 a,40,36,37,41
723 a,40,27,33,36
724 /com, area set 2, plates
725 a,204,205,210,209
726 a,192,193,204,203
727 a,203,204,209,208
728 a,208,209,219,159
729 a,202,203,208,145
730 a,146,159,160,147
731 a,188,189,202,138
732 a,138,202,145,139
733 a,139,145,146,140
734 a,140,146,147,141
735 a,141,147,148,142
736 a,18,138,139,19
737 a,20,140,141,21
738 a,70,69,18,85
739 a,85,18,19,25
740 a,25,19,20,26
741 a,26,20,21,27
742 a,27,21,22,28
743 a,86,85,25,92
744 a,39,26,27,40
745 a,74,73,86,87
746 a,87,86,92,93
747 a,93,92,39,106
748 a,88,87,93,94
749 /com, area set 3, end guides
750 a,196,197,206,205

751 a,205,206,211,210
752 a,206,207,212,211
753 a,210,211,218,220
754 a,148,161,158,149
755 a,142,148,149,143
756 a,143,149,150,144
757 a,22,142,143,23
758 a,28,22,23,29
759 a,29,23,24,30
760 a,41,28,29,38
761 a,95,94,107,104
762 a,89,88,94,95
763 a,90,89,95,96
764 a,78,77,88,89
765 /com, area set 4, corner guides
766 a,219,220,221,162
767 a,159,219,162,160
768 a,160,162,163,161
769 a,107,106,42,109
770 a,106,39,40,42
771 a,42,40,41,43
772 csys,1
773 /com, area set 5, inner barrier
774 a,222,223,224,207
775 a,207,224,225,212
776 a,212,225,226,218
777 a,218,226,227,220
778 a,220,227,228,221
779 a,221,228,171,163
780 a,163,171,170,161
781 a,161,170,169,158
782 a,158,169,168,150
783 a,150,168,167,144
784 a,144,167,47,24
785 a,24,47,48,30
786 a,30,48,49,38
787 a,38,49,50,41
788 a,41,50,51,43
789 a,43,51,117,109
790 a,109,117,116,107
791 a,107,116,115,104
792 a,104,115,114,96
793 a,90,96,114,113
794 a,90,113,112,110
795 /com, area set 6, outer barrier
796 !a,223,229,230,224
797 !a,224,230,231,225
798 !a,225,231,232,226
799 !a,226,232,233,227
800 !a,227,233,234,228
801 !a,228,234,178,171
802 !a,171,178,177,170
803 !a,170,177,176,169
804 !a,169,176,175,168
805 !a,168,175,174,167
806 !a,167,174,54,47
807 !a,47,54,55,48
808 !a,48,55,56,49
809 !a,49,56,57,50
810 !a,50,57,58,51
811 !a,51,58,124,117
812 !a,117,124,123,116
813 !a,116,123,122,115
814 !a,115,122,121,114
815 !a,114,121,120,113
816 !a,113,120,119,112
817 !a,229,235,236,230
818 !a,236,237,231,230
819 !a,231,237,238,232
820 !a,238,239,233,232


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821 !a,239,240,234,233
822 !a,240,185,178,234
823 !a,185,184,177,178
824 !a,184,183,176,177
825 !a,176,183,182,175
826 !a,175,182,181,174
827 !a,174,181,61,54
828 !a,54,61,62,55
829 !a,55,62,63,56
830 !a,56,63,64,57
831 !a,57,64,65,58
832 !a,58,65,131,124
833 !a,124,131,130,123
834 !a,123,130,129,122
835 !a,122,129,128,121
836 !a,121,128,127,120
837 !a,120,127,126,119
838 csys,0
839 vdrag,all,,,,,1 ! Drag Basket
840 asel,s,loc,z,bkht
841 csys,1
842 asel,u,loc,x,0,ibir-0.03
843 csys,0
844 vdrag,all,,,,,2 ! Drag Basket to Lid Gap
845 /com, copy areas from top of basket to bottom of lid
846 asel,s,loc,z,bkht-0.01
847 csys,1
848 asel,r,loc,x,0,ibir-0.03
849 csys,0
850 agen,2,all,,,,,0.01
851 nummrg,kp
852 /com, generate lines to fill in lid at top of WP
853 /com, lines tube height
854 L,414,421 ! 1121
855 L,422,429 ! 1124
856 L,430,437 ! 1125
857 L,438,445 ! 1131
858 L,446,453 ! 1138
859 lesize,all,,,thd,1,0
860 /com, end lines
861 L,370,518 ! 1141
862 L,539,413 ! 1151
863 lesize,all,,,egfd,1,0
864 al,832,1116,1120,1141
865 al,936,937,941,1121
866 al,946,947,951,1124
867 al,956,959,961,1125
868 al,966,969,971,1131
869 al,976,979,981,1138
870 al,932,1143,1147,1151
871 al,842,1122,1123
872 al,985,989,990,993
873 al,997,1001,1002,1005
874 al,1010,1013,1015,1018
875 al,1021,1025,1028,1029
876 al,1033,1037,1040,1041
877 al,922,1144,1148
878 al,857,1153,1156
879 al,1046,1049,1051,1054
880 al,1058,1061,1063,1066
881 al,1070,1073,1075,1078
882 al,907,1159,1163
883 al,872,1126,1130
884 al,882,1132,1133,1137
885 al,892,1139,1140
886 asel,s,loc,z,ibht+0.01
887 vdrag,all,,,,,3 ! Drag Inner Barrier Upper Lid
888 !asel,s,loc,z,elev1+0.015
889 !csys,1
890 !asel,r,loc,x,obir,obor

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891 !csys,0
892 !vdrag,all,,,,,4      ! Drag Lid to Lid Gap
893 !asel,s,loc,z,elev1+0.015
894 !asel,r,loc,z,elev1-0.015
895 !csys,1
896 !asel,r,loc,x,0,obir
897 !csys,0
898 !agen,2,all,,,,,ltlgh
899 !numrg,kp
900 !asel,s,loc,z,elev2+0.015
901 !vdrag,all,,,,,5      ! Drag Outer Barrier Upper Lid
902 !asel,s,loc,z,elev3
903 !csys,1
904 !asel,r,loc,x,obsr,obor
905 !csys,0
906 !vdrag,all,,,,,6      ! Drag Upper Skirt
907 /com, lines at bottom lid used to be here
908 !al,10,115,277,384
909 !al,12,13,68,379
910 !al,16,17,75,380
911 !al,20,21,85,381
912 !al,24,25,96,382
913 !al,28,29,107,383
914 !al,31,122,309,385
915 !al,32,116,281
916 !al,34,35,71,72
917 !al,38,39,78,79
918 !al,42,43,88,89
919 !al,46,47,99,100
920 !al,50,51,110,111
921 !al,53,121,305
922 !al,54,74,285
923 !al,56,57,82,83
924 !al,60,61,92,93
925 !al,64,65,103,104
926 !al,67,113,301
927 !al,114,117,289
928 !al,95,118,119,293
929 !al,106,120,297
930 !asel,s,loc,z,0
931 !vdrag,all,,,,,7      ! Drag Inner Barrier Lower Lid
932 !csys,0
933 !asel,s,loc,z,-iblt
934 !vdrag,all,,,,,8      ! Drag Outer Barrier Lower Lid
935 !asel,s,loc,z,elev5
936 !csys,1
937 !asel,r,loc,x,obsr,obor
938 !csys,0
939 !vdrag,all,,,,,9      ! Drag Lower Skirt
940 /com
941 /com, Mesh Volumes
942 /com
943 /com, Mesh the CS Tubes
944 /com
945 !vsel,s,volu,,1,47
946 !type,1
947 !mat,1
948 !vmesh,all
949 /com, Mesh SS-B Plates
950 vsel,s,volu,,48,71
951 type,2
952 mat,2
953 vmesh,all
954 /com, Mesh End Guides
955 vsel,s,volu,,72,86
956 type,3
957 mat,3
958 vmesh,all
959 /com, Mesh Corner Guides
960 vsel,s,volu,,87,92

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961 type,4
962 mat,4
963 vmesh,all
964 /com, Mesh Inner Barrier
965 vsel,s,loc,z,0,elev1
966 csys,1
967 vsel,r,loc,x,0,obir
968 vsel,u,volu,,1,92
969 vsel,u,loc,x,obir-0.02,obir
970 vsel,a,loc,y,-90,5
971 vsel,u,volu,,1,92
972 vsel,u,loc,x,obir,obor
973 vsel,r,loc,z,-iblt,elev1
974 csys,0
975 type,5
976 mat,5
977 vmesh,all
978 /com, Mesh Upper Inner Barrier Adding Backfill Mass
979 vsel,inve
980 csys,1
981 vsel,u,loc,x,obir,obor
982 vsel,r,loc,z,0,elev1
983 vsel,u,volu,,1,92
984 csys,0
985 type,6
986 mat,6
987 vmesh,all
988 /com, Mesh Lower Outer Barrier and Lids
989 !vsel,inve
990 !vsel,u,volu,,1,92
991 !csys,1
992 !vsel,u,loc,x,obir,obor
993 !vsel,a,loc,y,-90,5
994 !vsel,u,volu,,1,92
995 !vsel,u,type,,5
996 !type,6
997 !mat,6
998 !vmesh,all
999 /com, mesh upper outer barrier adding backfill mass
1000 !vsel,inve
1001 !vsel,u,type,,1,5
1002 !type,7
1003 !mat,7
1004 !vmesh,all
1005 /com
1006 /com, Apply Symmetry Constraints
1007 csys,0
1008 nsel,s,loc,x,0
1009 dsym,symm,x,0
1010 nsel,s,loc,z,0
1011 dsym,symm,z,0
1012 /com, Apply Constraints at Support Locations
1013 /com, Span approximately half of basket height, width = 0.305 m
1014 csys,1
1015 nsel,s,loc,z,(7*bkht/bd),(10*bkht/bd)+0.02
1016 nsel,r,loc,x,obir-0.001,obir+0.001
1017 nsel,r,loc,y,-70,-50
1018 csys,0
1019 d,all,uy,0
1020 allsel
1021 save
1022 fini
1023
1024 /sol
1025 antype,modal
1026 modopt,subsp,8
1027 outres,all,1
1028 save
1029 solve
1030 fini

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1031
1032 /sol
1033 expass,on
1034 mxpand,8,,,yes
1035 solve
1036 fini
1037
1038 /sol
1039 antype,spectr
1040 spopt,sprs,,on
1041 sed,,1
1042 svtyp,2
1043 freq,0.1,100
1044 sv,,16.285,16.285
1045 mcomb,srss,1e-8
1046 outres,all,1
1047 save
1048 solve
1049 fini
1050 /exit
1051 /eof

```

RUN SETUP PROCEDURE FROM FILE= /ansys51/cocu/start.ans

/INPUT FILE= /ansys51/docu/start.ans LINE= 0

ABBREVIATION= REplot /REplot

PARAMETER PI = 3.141593

```

*****
ANSYS STARTUP FILE start.ans
*****

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ABBREVIATION= VEC      /show,,1,
ABBREVIATION= RAS      /show,,0,
ABBREVIATION= INP      /input,,inp,
ABBREVIATION= ESC      /exit,nosav,
ABBREVIATION= K1       /pnum,kp ,1,
ABBREVIATION= K0       /pnum,kp ,0,
ABBREVIATION= L1       /pnum,line,1,
ABBREVIATION= L0       /pnum,line,0,
ABBREVIATION= A1       /pnum,area,1,
ABBREVIATION= A0       /pnum,area,0,
ABBREVIATION= V1       /pnum,volu,1,
ABBREVIATION= V0       /pnum,volu,0,
ABBREVIATION= N1       /pnum,node,1,
ABBREVIATION= N0       /pnum,node,0,
ABBREVIATION= E1       /pnum,elem,1,
ABBREVIATION= E0       /pnum,elem,0,
ABBREVIATION= M1       /pnum,mat ,1,
ABBREVIATION= M0       /pnum,mat ,0,
ABBREVIATION= R1       /pnum,real,1,

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ABBREVIATION= R0 /pnum,real,0,
 ABBREVIATION= T1 /pnum,type,1,
 ABBREVIATION= T0 /pnum,type,0,
 ABBREVIATION= C1 /number,1,
 ABBREVIATION= C0 /number,0,
 ABBREVIATION= PR1 /psf,pres,norm,1,
 ABBREVIATION= PRO /psf,pres,norm,0,
 ABBREVIATION= U1 /pbc,u,1,
 ABBREVIATION= U0 /pbc,u,0,
 ABBREVIATION= X3D /show,3d,
 ABBREVIATION= X11 /show,x11,
 ABBREVIATION= X11C /show,x11c,
 ABBREVIATION= ON /menu,on,
 XYZ TRIAD DISPLAY SET TO OFF

VIEW CONE ANGLE FOR WINDOW 1 25.00

 END start.ans

To start ANSYS menu:

type: x3d for console
 x11 for X-term color
 x11c for X-term color contour

type: on

 ***** Seismic Analysis of 21 PWR Waste Package Under Degradation *****
 ***** Degree of Degradation in Outer Barrier: 100% *****
 ***** Degree of Degradation in Inner Barrier: 90% *****
 ***** Degree of Degradation in Basket Assembly: Tubes 100% *****
 ***** Guides 50% *****
 ***** SS-B Plates 0% *****
 ***** Backfill Present, Backfill Porosity: 25%, Rock Porosity: 10% *****
 ***** Quarter Symmetry Model *****

NUMBER OF DATA BASE PAGES IN MEMORY (NVPAGE)= 512

SI UNITS SPECIFIED FOR INTERNAL

LENGTH (L) = METER(M)
 MASS (M) = KILOGRAM(KG)
 TIME (t) = SECOND(SEC)
 TEMPERATURE (T) = KELVIN(K)
 TOFFSET = 0.0 KELVIN
 CHARGE (Q) = COULOMB
 CURRENT (i) = AMPERE (COULOMBS/SEC)
 FORCE (f) = NEWTON(N) (KG-M/SEC2)
 PRESSURE = PASCAL (NEWTON/M**2)
 ENERGY (W) = JOULE (N-M)

POWER (P) = WATT (N-M/SEC)
CAPACITANCE (C) = FARAD
INDUCTANCE (L) = HENRY
MAGNETIC FLUX = WEBER
RESISTANCE (R) = OHM
ELECTRIC POTENTIAL = VOLT

INPUT UNITS ARE ALSO SET TO SI

1

***** ANSYS - ENGINEERING ANALYSIS SYSTEM REVISION 5.1 24 *****
38303 VERSION=HP 9000/7XX 20:36:05 APR 10, 1996 CP= 0.440
FOR SUPPORT CALL ROBERT BAHNEY PHONE (702) 794-5337 FAX (702) 794-1844

***** ANSYS ANALYSIS DEFINITION (PREP7) *****

TITLE=
21 PWR Tube Seismic Analysis With Backfill

VIEW CONE ANGLE FOR WINDOW 1 0.00
Define Parameters

PARAMETER IBIR = 0.7109500
PARAMETER OBIR = 0.7129500
PARAMETER OBSR = 0.7709500
PARAMETER OBOR = 0.7809500
PARAMETER TS1 = 0.7000000E-02
PARAMETER TS2 = 0.5000000E-02
PARAMETER TS3 = 0.5000000E-02
PARAMETER TS4 = 0.5000000E-02
PARAMETER EGIH = 0.8550000E-01
PARAMETER PIE = 3.141593
PARAMETER ANG1 = 0.5235988
PARAMETER ANG2 = 1.396263
PARAMETER ANG3 = 1.012291
PARAMETER TW = 0.2285000
PARAMETER POS1 = 0.1142500
PARAMETER POS2 = 0.1192500
PARAMETER POS3 = 0.1262500
PARAMETER POS4 = 0.1312500
PARAMETER POS5 = 0.3597500
PARAMETER POS6 = 0.3647500
PARAMETER POS7 = 0.3717500
PARAMETER POS8 = 0.3767500

PARAMETER POS9	=	0.6052500
PARAMETER POS10	=	0.6102500
PARAMETER POS11	=	0.6152500
PARAMETER POSG	=	0.3697500
PARAMETER POSEI	=	0.7007500
PARAMETER POSEO	=	0.6998684
PARAMETER POSEN	=	0.1202500
PARAMETER POSEF	=	0.1252500
PARAMETER POSEG	=	0.3560897
PARAMETER POSCG	=	0.6071257
PARAMETER BKHT	=	2.287500
PARAMETER IBHT	=	2.297500
PARAMETER IBLT	=	0.7000000E-02
PARAMETER ELEV1	=	2.304500
PARAMETER LTLGH	=	0.3000000E-01
PARAMETER ELEV2	=	2.334500
PARAMETER OBLT	=	0.6000000E-01
PARAMETER ELEV3	=	2.394500
PARAMETER SHTT	=	0.2250000
PARAMETER ELEV4	=	2.619500
PARAMETER ELEV5	=	-0.6700000E-01
PARAMETER ELEV6	=	-0.2920000
Line Divisions		
PARAMETER SHD	=	1.000000
PARAMETER OBLD	=	1.000000
PARAMETER GD	=	2.000000
PARAMETER IBLD	=	2.000000
PARAMETER BD	=	15.00000
PARAMETER HTWD	=	4.000000
PARAMETER TWD	=	4.000000
PARAMETER THD	=	4.000000
PARAMETER EGFD	=	4.000000
PARAMETER PTD	=	2.000000
PARAMETER TTD	=	1.000000
PARAMETER A1D	=	4.000000
PARAMETER A2D	=	4.000000

PARAMETER A3D = 4.000000
 PARAMETER A4D = 4.000000
 PARAMETER A5D = 4.000000
 PARAMETER A6D = 4.000000
 PARAMETER A7D = 4.000000
 PARAMETER A8D = 4.000000
 PARAMETER A9D = 4.000000
 PARAMETER IBTD = 2.000000
 PARAMETER OBITD = 2.000000
 PARAMETER STD = 2.000000
 Define Element Properties

ELEMENT TYPE 1 IS SOLID45 3-D STRUCTURAL SOLID
 KEYOPT(1-12)= 0 0 0 0 0 0 0 0 0 0 0 0

CURRENT NODAL DOF SET IS UX UY UZ
 THREE-DIMENSIONAL MODEL

ELEMENT TYPE 2 IS SOLID45 3-D STRUCTURAL SOLID
 KEYOPT(1-12)= 0 0 0 0 0 0 0 0 0 0 0 0

CURRENT NODAL DOF SET IS UX UY UZ
 THREE-DIMENSIONAL MODEL

ELEMENT TYPE 3 IS SOLID45 3-D STRUCTURAL SOLID
 KEYOPT(1-12)= 0 0 0 0 0 0 0 0 0 0 0 0

CURRENT NODAL DOF SET IS UX UY UZ
 THREE-DIMENSIONAL MODEL

ELEMENT TYPE 4 IS SOLID45 3-D STRUCTURAL SOLID
 KEYOPT(1-12)= 0 0 0 0 0 0 0 0 0 0 0 0

CURRENT NODAL DOF SET IS UX UY UZ
 THREE-DIMENSIONAL MODEL

ELEMENT TYPE 5 IS SOLID45 3-D STRUCTURAL SOLID
 KEYOPT(1-12)= 0 0 0 0 0 0 0 0 0 0 0 0

CURRENT NODAL DOF SET IS UX UY UZ
 THREE-DIMENSIONAL MODEL

ELEMENT TYPE 6 IS SOLID45 3-D STRUCTURAL SOLID
 KEYOPT(1-12)= 0 0 0 0 0 0 0 0 0 0 0 0

CURRENT NODAL DOF SET IS UX UY UZ
 THREE-DIMENSIONAL MODEL

ratio of static to dynamic coeff. of friction fact=1.298, Area Tol.=15%
 Room Temperature Properties of Materials

MATERIAL 1 EX = 0.2060000E+12
 MATERIAL 2 EX = 0.1950000E+12
 MATERIAL 3 EX = 0.2060000E+12
 MATERIAL 4 EX = 0.2060000E+12
 MATERIAL 5 EX = 0.2080000E+12

MATERIAL	6	EX =	0.2080000E+12
MATERIAL	1	NUXY =	0.3000000
MATERIAL	2	NUXY =	0.2980000
MATERIAL	3	NUXY =	0.3000000
MATERIAL	4	NUXY =	0.3000000
MATERIAL	5	NUXY =	0.2780000
MATERIAL	6	NUXY =	0.2780000
MATERIAL	1	DENS =	8131.000
MATERIAL	2	DENS =	89020.33
MATERIAL	3	DENS =	16262.00
MATERIAL	4	DENS =	16262.00
MATERIAL	5	DENS =	8442.000
MATERIAL	6	DENS =	1101960.

Define keypoints in the basket assembly

ACTIVE COORDINATE SYSTEM SET TO 0 (CARTESIAN)

KEYPOINT	1	X,Y,Z=	0.000000E+00	0.000000E+00	0.000000E+00	IN CSYS=	0
KEYPOINT	2	X,Y,Z=	0.114250	0.000000E+00	0.000000E+00	IN CSYS=	0
KEYPOINT	3	X,Y,Z=	0.119250	0.000000E+00	0.000000E+00	IN CSYS=	0
KEYPOINT	4	X,Y,Z=	0.126250	0.000000E+00	0.000000E+00	IN CSYS=	0
KEYPOINT	5	X,Y,Z=	0.131250	0.000000E+00	0.000000E+00	IN CSYS=	0
KEYPOINT	6	X,Y,Z=	0.359750	0.000000E+00	0.000000E+00	IN CSYS=	0
KEYPOINT	7	X,Y,Z=	0.364750	0.000000E+00	0.000000E+00	IN CSYS=	0
KEYPOINT	8	X,Y,Z=	0.371750	0.000000E+00	0.000000E+00	IN CSYS=	0
KEYPOINT	9	X,Y,Z=	0.376750	0.000000E+00	0.000000E+00	IN CSYS=	0
KEYPOINT	10	X,Y,Z=	0.605250	0.000000E+00	0.000000E+00	IN CSYS=	0
KEYPOINT	11	X,Y,Z=	0.610250	0.000000E+00	0.000000E+00	IN CSYS=	0
KEYPOINT	12	X,Y,Z=	0.615250	0.000000E+00	0.000000E+00	IN CSYS=	0
KEYPOINT	13	X,Y,Z=	0.114250	0.114250	0.000000E+00	IN CSYS=	0
KEYPOINT	14	X,Y,Z=	0.131250	0.114250	0.000000E+00	IN CSYS=	0
KEYPOINT	15	X,Y,Z=	0.359750	0.114250	0.000000E+00	IN CSYS=	0
KEYPOINT	16	X,Y,Z=	0.376750	0.114250	0.000000E+00	IN CSYS=	0
KEYPOINT	17	X,Y,Z=	0.605250	0.114250	0.000000E+00	IN CSYS=	0
KEYPOINT	18	X,Y,Z=	0.119250	0.119250	0.000000E+00	IN CSYS=	0
KEYPOINT	19	X,Y,Z=	0.126250	0.119250	0.000000E+00	IN CSYS=	0
KEYPOINT	20	X,Y,Z=	0.364750	0.119250	0.000000E+00	IN CSYS=	0

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KEYPOINT    21  X,Y,Z=  0.371750    0.119250    0.000000E+00  IN CSYS=  0
KEYPOINT    22  X,Y,Z=  0.610250    0.119250    0.000000E+00  IN CSYS=  0
KEYPOINT    23  X,Y,Z=  0.615250    0.120250    0.000000E+00  IN CSYS=  0
ACTIVE COORDINATE SYSTEM SET TO      1  (CYLINDRICAL)
KEYPOINT    24  X,Y,Z=  0.710950     9.73722    0.000000E+00  IN CSYS=  1
                   0.700708    0.120243    0.000000E+00  IN CSYS=  0
ACTIVE COORDINATE SYSTEM SET TO      0  (CARTESIAN)
KEYPOINT    25  X,Y,Z=  0.126250    0.126250    0.000000E+00  IN CSYS=  0
KEYPOINT    26  X,Y,Z=  0.364750    0.126250    0.000000E+00  IN CSYS=  0
KEYPOINT    27  X,Y,Z=  0.371750    0.126250    0.000000E+00  IN CSYS=  0
KEYPOINT    28  X,Y,Z=  0.610250    0.126250    0.000000E+00  IN CSYS=  0
KEYPOINT    29  X,Y,Z=  0.615250    0.125250    0.000000E+00  IN CSYS=  0
ACTIVE COORDINATE SYSTEM SET TO      1  (CYLINDRICAL)
KEYPOINT    30  X,Y,Z=  0.710950    10.1464    0.000000E+00  IN CSYS=  1
                   0.699831    0.125243    0.000000E+00  IN CSYS=  0
ACTIVE COORDINATE SYSTEM SET TO      0  (CARTESIAN)
KEYPOINT    31  X,Y,Z=  0.131250    0.131250    0.000000E+00  IN CSYS=  0
KEYPOINT    32  X,Y,Z=  0.359750    0.131250    0.000000E+00  IN CSYS=  0
KEYPOINT    33  X,Y,Z=  0.376750    0.131250    0.000000E+00  IN CSYS=  0
KEYPOINT    34  X,Y,Z=  0.605250    0.131250    0.000000E+00  IN CSYS=  0
KEYPOINT    35  X,Y,Z=  0.359750    0.359750    0.000000E+00  IN CSYS=  0
KEYPOINT    36  X,Y,Z=  0.376750    0.359750    0.000000E+00  IN CSYS=  0
KEYPOINT    37  X,Y,Z=  0.605250    0.359750    0.000000E+00  IN CSYS=  0
ACTIVE COORDINATE SYSTEM SET TO      1  (CYLINDRICAL)
KEYPOINT    38  X,Y,Z=  0.710950    30.0611    0.000000E+00  IN CSYS=  1
                   0.615321    0.356131    0.000000E+00  IN CSYS=  0
ACTIVE COORDINATE SYSTEM SET TO      0  (CARTESIAN)
KEYPOINT    39  X,Y,Z=  0.364750    0.364750    0.000000E+00  IN CSYS=  0
KEYPOINT    40  X,Y,Z=  0.371750    0.364750    0.000000E+00  IN CSYS=  0
ACTIVE COORDINATE SYSTEM SET TO      1  (CYLINDRICAL)
KEYPOINT    41  X,Y,Z=  0.710950    30.8670    0.000000E+00  IN CSYS=  1
                   0.610251    0.364751    0.000000E+00  IN CSYS=  0
ACTIVE COORDINATE SYSTEM SET TO      0  (CARTESIAN)
KEYPOINT    42  X,Y,Z=  0.369750    0.369750    0.000000E+00  IN CSYS=  0
ACTIVE COORDINATE SYSTEM SET TO      1  (CYLINDRICAL)

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KEYPOINT	43	X,Y,Z=	0.710950	31.3421	0.000000E+00	IN CSYS= 1
			0.607206	0.369799	0.000000E+00	IN CSYS= 0
KEYPOINT	44	X,Y,Z=	0.710950	0.000000E+00	0.000000E+00	IN CSYS= 1
			0.710950	0.000000E+00	0.000000E+00	IN CSYS= 0
KEYPOINT	45	X,Y,Z=	0.710950	45.0000	0.000000E+00	IN CSYS= 1
			0.502718	0.502718	0.000000E+00	IN CSYS= 0
KEYPOINT	46	X,Y,Z=	0.712950	0.000000E+00	0.000000E+00	IN CSYS= 1
			0.712950	0.000000E+00	0.000000E+00	IN CSYS= 0
KEYPOINT	47	X,Y,Z=	0.712950	9.73722	0.000000E+00	IN CSYS= 1
			0.702679	0.120581	0.000000E+00	IN CSYS= 0
KEYPOINT	48	X,Y,Z=	0.712950	10.1464	0.000000E+00	IN CSYS= 1
			0.701800	0.125596	0.000000E+00	IN CSYS= 0
KEYPOINT	49	X,Y,Z=	0.712950	30.0611	0.000000E+00	IN CSYS= 1
			0.617052	0.357133	0.000000E+00	IN CSYS= 0
KEYPOINT	50	X,Y,Z=	0.712950	30.8670	0.000000E+00	IN CSYS= 1
			0.611968	0.365777	0.000000E+00	IN CSYS= 0
KEYPOINT	51	X,Y,Z=	0.712950	31.3421	0.000000E+00	IN CSYS= 1
			0.608914	0.370839	0.000000E+00	IN CSYS= 0
KEYPOINT	52	X,Y,Z=	0.712950	45.0000	0.000000E+00	IN CSYS= 1
			0.504132	0.504132	0.000000E+00	IN CSYS= 0
KEYPOINT	53	X,Y,Z=	0.770950	0.000000E+00	0.000000E+00	IN CSYS= 1
			0.770950	0.000000E+00	0.000000E+00	IN CSYS= 0
KEYPOINT	54	X,Y,Z=	0.770950	9.73722	0.000000E+00	IN CSYS= 1
			0.759844	0.130391	0.000000E+00	IN CSYS= 0
KEYPOINT	55	X,Y,Z=	0.770950	10.1464	0.000000E+00	IN CSYS= 1
			0.758893	0.135813	0.000000E+00	IN CSYS= 0
KEYPOINT	56	X,Y,Z=	0.770950	30.0611	0.000000E+00	IN CSYS= 1
			0.667251	0.386186	0.000000E+00	IN CSYS= 0
KEYPOINT	57	X,Y,Z=	0.770950	30.8670	0.000000E+00	IN CSYS= 1
			0.661753	0.395534	0.000000E+00	IN CSYS= 0
KEYPOINT	58	X,Y,Z=	0.770950	31.3421	0.000000E+00	IN CSYS= 1
			0.658450	0.401008	0.000000E+00	IN CSYS= 0
KEYPOINT	59	X,Y,Z=	0.770950	45.0000	0.000000E+00	IN CSYS= 1
			0.545144	0.545144	0.000000E+00	IN CSYS= 0
KEYPOINT	60	X,Y,Z=	0.780950	0.000000E+00	0.000000E+00	IN CSYS= 1

		0.780950	0.000000E+00	0.000000E+00	IN CSYS= 0
KEYPOINT	61	X,Y,Z= 0.780950	9.73722	0.000000E+00	IN CSYS= 1
		0.769699	0.132082	0.000000E+00	IN CSYS= 0
KEYPOINT	62	X,Y,Z= 0.780950	10.1464	0.000000E+00	IN CSYS= 1
		0.768737	0.137575	0.000000E+00	IN CSYS= 0
KEYPOINT	63	X,Y,Z= 0.780950	30.0611	0.000000E+00	IN CSYS= 1
		0.675906	0.391196	0.000000E+00	IN CSYS= 0
KEYPOINT	64	X,Y,Z= 0.780950	30.8670	0.000000E+00	IN CSYS= 1
		0.670337	0.400664	0.000000E+00	IN CSYS= 0
KEYPOINT	65	X,Y,Z= 0.780950	31.3421	0.000000E+00	IN CSYS= 1
		0.666991	0.406209	0.000000E+00	IN CSYS= 0
KEYPOINT	66	X,Y,Z= 0.780950	45.0000	0.000000E+00	IN CSYS= 1
		0.552215	0.552215	0.000000E+00	IN CSYS= 0

COORDINATE SYSTEM 11 DEFINITION. TYPE= 0 (CARTESIAN)
 XC,YC,ZC= 0.000000E+00 0.000000E+00 0.000000E+00
 ANGLES= 45.00 0.00 0.00 PARAMETERS= 1.000 1.000
 ORIENTATION= 0.71 0.71 0.00 -0.71 0.71 0.00 0.00 0.00 1.00

ACTIVE COORDINATE SYSTEM SET TO 11 (CARTESIAN)

SYMMETRY TRANSFORMATION OF KEYPOINTS USING COMPONENT Y
 SET IS ALL SELECTED KEYPOINTS

MERGE COINCIDENT KEYPOINTS WITHIN TOLERANCE OF 0.10000E-03

KEYPOINT	1 USED FOR KEYPOINT(S)	67
KEYPOINT	13 USED FOR KEYPOINT(S)	79
KEYPOINT	18 USED FOR KEYPOINT(S)	84
KEYPOINT	25 USED FOR KEYPOINT(S)	91
KEYPOINT	31 USED FOR KEYPOINT(S)	97
KEYPOINT	35 USED FOR KEYPOINT(S)	101
KEYPOINT	39 USED FOR KEYPOINT(S)	105
KEYPOINT	42 USED FOR KEYPOINT(S)	108
KEYPOINT	45 USED FOR KEYPOINT(S)	111
KEYPOINT	52 USED FOR KEYPOINT(S)	118
KEYPOINT	59 USED FOR KEYPOINT(S)	125
KEYPOINT	66 USED FOR KEYPOINT(S)	132

ACTIVE COORDINATE SYSTEM SET TO 0 (CARTESIAN)

SYMMETRY TRANSFORMATION OF KEYPOINTS USING COMPONENT Y
 SET IS ALL SELECTED KEYPOINTS

MERGE COINCIDENT KEYPOINTS WITHIN TOLERANCE OF 0.10000E-03

KEYPOINT	1 USED FOR KEYPOINT(S)	67
KEYPOINT	2 USED FOR KEYPOINT(S)	79
KEYPOINT	3 USED FOR KEYPOINT(S)	84
KEYPOINT	4 USED FOR KEYPOINT(S)	91
KEYPOINT	5 USED FOR KEYPOINT(S)	97
KEYPOINT	6 USED FOR KEYPOINT(S)	101
KEYPOINT	7 USED FOR KEYPOINT(S)	105
KEYPOINT	8 USED FOR KEYPOINT(S)	108
KEYPOINT	9 USED FOR KEYPOINT(S)	111
KEYPOINT	10 USED FOR KEYPOINT(S)	118
KEYPOINT	11 USED FOR KEYPOINT(S)	125
KEYPOINT	12 USED FOR KEYPOINT(S)	132
KEYPOINT	44 USED FOR KEYPOINT(S)	164
KEYPOINT	46 USED FOR KEYPOINT(S)	166

KEYPOINT 53 USED FOR KEYPOINT(S) 173
KEYPOINT 60 USED FOR KEYPOINT(S) 180

DELETE SELECTED KEYPOINTS FROM 2 TO 12 BY 1

KEYPOINT 1001 X,Y,Z= 0.000000E+00 0.000000E+00 2.28750 IN CSYS= 0

LINE CONNECTS KEYPOINTS 1 1001
LINE NO.= 1 KP1= 1 TAN1= 0.0000 0.0000 -1.0000
KP2= 1001 TAN2= 0.0000 0.0000 1.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
TO NDIV = 15, SPACING RATIO = 0.200

KEYPOINT 2001 X,Y,Z= 0.000000E+00 0.000000E+00 2.29750 IN CSYS= 0

LINE CONNECTS KEYPOINTS 1001 2001
LINE NO.= 2 KP1= 1001 TAN1= 0.0000 0.0000 -1.0000
KP2= 2001 TAN2= 0.0000 0.0000 1.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
TO NDIV = 2, SPACING RATIO = 1.000

KEYPOINT 3001 X,Y,Z= 0.000000E+00 0.000000E+00 2.30450 IN CSYS= 0

LINE CONNECTS KEYPOINTS 2001 3001
LINE NO.= 3 KP1= 2001 TAN1= 0.0000 0.0000 -1.0000
KP2= 3001 TAN2= 0.0000 0.0000 1.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
TO NDIV = 2, SPACING RATIO = 1.000

KEYPOINT 4001 X,Y,Z= 0.000000E+00 0.000000E+00 2.33450 IN CSYS= 0

LINE CONNECTS KEYPOINTS 3001 4001
LINE NO.= 4 KP1= 3001 TAN1= 0.0000 0.0000 -1.0000
KP2= 4001 TAN2= 0.0000 0.0000 1.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
TO NDIV = 2, SPACING RATIO = 1.000

KEYPOINT 5001 X,Y,Z= 0.000000E+00 0.000000E+00 2.39450 IN CSYS= 0

LINE CONNECTS KEYPOINTS 4001 5001
LINE NO.= 5 KP1= 4001 TAN1= 0.0000 0.0000 -1.0000
KP2= 5001 TAN2= 0.0000 0.0000 1.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
TO NDIV = 1, SPACING RATIO = 1.000

KEYPOINT 6001 X,Y,Z= 0.000000E+00 0.000000E+00 2.61950 IN CSYS= 0

LINE CONNECTS KEYPOINTS 5001 6001
LINE NO.= 6 KP1= 5001 TAN1= 0.0000 0.0000 -1.0000
KP2= 6001 TAN2= 0.0000 0.0000 1.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
TO NDIV = 1, SPACING RATIO = 1.000

KEYPOINT 7001 X,Y,Z= 0.000000E+00 0.000000E+00 -0.700000E-02 IN CSYS= 0

LINE CONNECTS KEYPOINTS 1 7001
LINE NO.= 7 KP1= 1 TAN1= 0.0000 0.0000 1.0000
KP2= 7001 TAN2= 0.0000 0.0000 -1.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
TO NDIV = 2, SPACING RATIO = 1.000

KEYPOINT 8001 X,Y,Z= 0.000000E+00 0.000000E+00 -0.670000E-01 IN CSYS= 0

LINE CONNECTS KEYPOINTS 7001 8001
 LINE NO.= 8 KP1= 7001 TAN1= 0.0000 0.0000 1.0000
 KP2= 8001 TAN2= 0.0000 0.0000 -1.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
 TO NDIV = 1, SPACING RATIO = 1.000

KEYPOINT 9001 X,Y,Z= 0.000000E+00 0.000000E+00 -0.292000 IN CSYS= 0

LINE CONNECTS KEYPOINTS 8001 9001
 LINE NO.= 9 KP1= 8001 TAN1= 0.0000 0.0000 1.0000
 KP2= 9001 TAN2= 0.0000 0.0000 -1.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
 TO NDIV = 1, SPACING RATIO = 1.000
 Line set 1 Tube Width for Half Tubes on Symmetry Plane

LINE CONNECTS KEYPOINTS 197 206
 LINE NO.= 10 KP1= 197 TAN1= -1.0000 0.0000 0.0000
 KP2= 206 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 196 205
 LINE NO.= 11 KP1= 196 TAN1= -1.0000 0.0000 0.0000
 KP2= 205 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 195 201
 LINE NO.= 12 KP1= 195 TAN1= -1.0000 0.0000 0.0000
 KP2= 201 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 194 200
 LINE NO.= 13 KP1= 194 TAN1= -1.0000 0.0000 0.0000
 KP2= 200 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 193 204
 LINE NO.= 14 KP1= 193 TAN1= -1.0000 0.0000 0.0000
 KP2= 204 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 192 203
 LINE NO.= 15 KP1= 192 TAN1= -1.0000 0.0000 0.0000
 KP2= 203 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 191 199
 LINE NO.= 16 KP1= 191 TAN1= -1.0000 0.0000 0.0000
 KP2= 199 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 190 198
 LINE NO.= 17 KP1= 190 TAN1= -1.0000 0.0000 0.0000
 KP2= 198 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 189 202
 LINE NO.= 18 KP1= 189 TAN1= -1.0000 0.0000 0.0000
 KP2= 202 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 188 138
 LINE NO.= 19 KP1= 188 TAN1= -1.0000 0.0000 0.0000
 KP2= 138 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 187 133
 LINE NO.= 20 KP1= 187 TAN1= -1.0000 0.0000 0.0000
 KP2= 133 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 68 13
 LINE NO.= 21 KP1= 68 TAN1= -1.0000 0.0000 0.0000
 KP2= 13 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 69 18
 LINE NO.= 22 KP1= 69 TAN1= -1.0000 0.0000 0.0000
 KP2= 18 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 70 85

LINE NO.=	23	KP1=	70	TAN1=	-1.0000	0.0000	0.0000
		KP2=	85	TAN2=	1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 71 80							
LINE NO.=	24	KP1=	71	TAN1=	-1.0000	0.0000	0.0000
		KP2=	80	TAN2=	1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 72 81							
LINE NO.=	25	KP1=	72	TAN1=	-1.0000	0.0000	0.0000
		KP2=	81	TAN2=	1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 73 86							
LINE NO.=	26	KP1=	73	TAN1=	-1.0000	0.0000	0.0000
		KP2=	86	TAN2=	1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 74 87							
LINE NO.=	27	KP1=	74	TAN1=	-1.0000	0.0000	0.0000
		KP2=	87	TAN2=	1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 75 82							
LINE NO.=	28	KP1=	75	TAN1=	-1.0000	0.0000	0.0000
		KP2=	82	TAN2=	1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 76 83							
LINE NO.=	29	KP1=	76	TAN1=	-1.0000	0.0000	0.0000
		KP2=	83	TAN2=	1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 77 88							
LINE NO.=	30	KP1=	77	TAN1=	-1.0000	0.0000	0.0000
		KP2=	88	TAN2=	1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 78 89							
LINE NO.=	31	KP1=	78	TAN1=	-1.0000	0.0000	0.0000
		KP2=	89	TAN2=	1.0000	0.0000	0.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
 TO NDIV = 4, SPACING RATIO = 1.000
 line set 2 Tube Widths

LINE CONNECTS KEYPOINTS 211 218							
LINE NO.=	32	KP1=	211	TAN1=	-1.0000	0.0003	0.0000
		KP2=	218	TAN2=	1.0000	-0.0003	0.0000
LINE CONNECTS KEYPOINTS 210 220							
LINE NO.=	33	KP1=	210	TAN1=	-1.0000	0.0000	0.0000
		KP2=	220	TAN2=	1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 215 217							
LINE NO.=	34	KP1=	215	TAN1=	-1.0000	0.0000	0.0000
		KP2=	217	TAN2=	1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 214 216							
LINE NO.=	35	KP1=	214	TAN1=	-1.0000	0.0000	0.0000
		KP2=	216	TAN2=	1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 209 219							
LINE NO.=	36	KP1=	209	TAN1=	-1.0000	0.0000	0.0000
		KP2=	219	TAN2=	1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 208 159							
LINE NO.=	37	KP1=	208	TAN1=	-1.0000	0.0000	0.0000
		KP2=	159	TAN2=	1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 213 155							
LINE NO.=	38	KP1=	213	TAN1=	-1.0000	0.0000	0.0000
		KP2=	155	TAN2=	1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 151 152							
LINE NO.=	39	KP1=	151	TAN1=	-1.0000	0.0000	0.0000
		KP2=	152	TAN2=	1.0000	0.0000	0.0000

LINE CONNECTS KEYPOINTS		145	146			
LINE NO.=	40	KP1=	145	TAN1=	-1.0000	0.0000 0.0000
		KP2=	146	TAN2=	1.0000	0.0000 0.0000
LINE CONNECTS KEYPOINTS		139	140			
LINE NO.=	41	KP1=	139	TAN1=	-1.0000	0.0000 0.0000
		KP2=	140	TAN2=	1.0000	0.0000 0.0000
LINE CONNECTS KEYPOINTS		134	135			
LINE NO.=	42	KP1=	134	TAN1=	-1.0000	0.0000 0.0000
		KP2=	135	TAN2=	1.0000	0.0000 0.0000
LINE CONNECTS KEYPOINTS		14	15			
LINE NO.=	43	KP1=	14	TAN1=	-1.0000	0.0000 0.0000
		KP2=	15	TAN2=	1.0000	0.0000 0.0000
LINE CONNECTS KEYPOINTS		19	20			
LINE NO.=	44	KP1=	19	TAN1=	-1.0000	0.0000 0.0000
		KP2=	20	TAN2=	1.0000	0.0000 0.0000
LINE CONNECTS KEYPOINTS		25	26			
LINE NO.=	45	KP1=	25	TAN1=	-1.0000	0.0000 0.0000
		KP2=	26	TAN2=	1.0000	0.0000 0.0000
LINE CONNECTS KEYPOINTS		31	32			
LINE NO.=	46	KP1=	31	TAN1=	-1.0000	0.0000 0.0000
		KP2=	32	TAN2=	1.0000	0.0000 0.0000
LINE CONNECTS KEYPOINTS		98	35			
LINE NO.=	47	KP1=	98	TAN1=	-1.0000	0.0000 0.0000
		KP2=	35	TAN2=	1.0000	0.0000 0.0000
LINE CONNECTS KEYPOINTS		92	39			
LINE NO.=	48	KP1=	92	TAN1=	-1.0000	0.0000 0.0000
		KP2=	39	TAN2=	1.0000	0.0000 0.0000
LINE CONNECTS KEYPOINTS		93	106			
LINE NO.=	49	KP1=	93	TAN1=	-1.0000	0.0000 0.0000
		KP2=	106	TAN2=	1.0000	0.0000 0.0000
LINE CONNECTS KEYPOINTS		99	102			
LINE NO.=	50	KP1=	99	TAN1=	-1.0000	0.0000 0.0000
		KP2=	102	TAN2=	1.0000	0.0000 0.0000
LINE CONNECTS KEYPOINTS		100	103			
LINE NO.=	51	KP1=	100	TAN1=	-1.0000	0.0000 0.0000
		KP2=	103	TAN2=	1.0000	0.0000 0.0000
LINE CONNECTS KEYPOINTS		94	107			
LINE NO.=	52	KP1=	94	TAN1=	-1.0000	0.0000 0.0000
		KP2=	107	TAN2=	1.0000	0.0000 0.0000
LINE CONNECTS KEYPOINTS		95	104			
LINE NO.=	53	KP1=	95	TAN1=	-1.0000	-0.0003 0.0000
		KP2=	104	TAN2=	1.0000	0.0003 0.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
 TO NDIV = 4, SPACING RATIO = 1.000
 Line set 3 Tube Widths on End Column

LINE CONNECTS KEYPOINTS		162	163			
LINE NO.=	54	KP1=	162	TAN1=	-1.0000	0.0002 0.0000
		KP2=	163	TAN2=	1.0000	-0.0002 0.0000
LINE CONNECTS KEYPOINTS		160	161			
LINE NO.=	55	KP1=	160	TAN1=	-1.0000	0.0000 0.0000
		KP2=	161	TAN2=	1.0000	0.0000 0.0000
LINE CONNECTS KEYPOINTS		156	157			

LINE NO.=	56	KP1=	156	TAN1=	-1.0000	0.0000	0.0000
		KP2=	157	TAN2=	1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 153 154							
LINE NO.=	57	KP1=	153	TAN1=	-1.0000	0.0000	0.0000
		KP2=	154	TAN2=	1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 147 148							
LINE NO.=	58	KP1=	147	TAN1=	-1.0000	0.0000	0.0000
		KP2=	148	TAN2=	1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 141 142							
LINE NO.=	59	KP1=	141	TAN1=	-1.0000	0.0000	0.0000
		KP2=	142	TAN2=	1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 136 137							
LINE NO.=	60	KP1=	136	TAN1=	-1.0000	0.0000	0.0000
		KP2=	137	TAN2=	1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 16 17							
LINE NO.=	61	KP1=	16	TAN1=	-1.0000	0.0000	0.0000
		KP2=	17	TAN2=	1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 21 22							
LINE NO.=	62	KP1=	21	TAN1=	-1.0000	0.0000	0.0000
		KP2=	22	TAN2=	1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 27 28							
LINE NO.=	63	KP1=	27	TAN1=	-1.0000	0.0000	0.0000
		KP2=	28	TAN2=	1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 33 34							
LINE NO.=	64	KP1=	33	TAN1=	-1.0000	0.0000	0.0000
		KP2=	34	TAN2=	1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 36 37							
LINE NO.=	65	KP1=	36	TAN1=	-1.0000	0.0000	0.0000
		KP2=	37	TAN2=	1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 40 41							
LINE NO.=	66	KP1=	40	TAN1=	-1.0000	0.0000	0.0000
		KP2=	41	TAN2=	1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 42 43							
LINE NO.=	67	KP1=	42	TAN1=	-1.0000	-0.0002	0.0000
		KP2=	43	TAN2=	1.0000	0.0002	0.0000
SET DIVISIONS ON ALL SELECTED UNMESHED LINES							
TO NDIV = 4, SPACING RATIO = 1.000							
Line set 4 Tube Heights							
LINE CONNECTS KEYPOINTS 201 200							
LINE NO.=	68	KP1=	201	TAN1=	0.0000	-1.0000	0.0000
		KP2=	200	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 205 204							
LINE NO.=	69	KP1=	205	TAN1=	0.0000	-1.0000	0.0000
		KP2=	204	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 210 209							
LINE NO.=	70	KP1=	210	TAN1=	0.0000	-1.0000	0.0000
		KP2=	209	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 215 214							
LINE NO.=	71	KP1=	215	TAN1=	0.0000	-1.0000	0.0000
		KP2=	214	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 217 216							
LINE NO.=	72	KP1=	217	TAN1=	0.0000	-1.0000	0.0000
		KP2=	216	TAN2=	0.0000	1.0000	0.0000

LINE CONNECTS	KEYPOINTS	220	219			
LINE NO.=	73	KP1=	220	TAN1=	0.0000	-1.0000 0.0000
		KP2=	219	TAN2=	0.0000	1.0000 0.0000
LINE CONNECTS	KEYPOINTS	221	162			
LINE NO.=	74	KP1=	221	TAN1=	0.0002	-1.0000 0.0000
		KP2=	162	TAN2=	-0.0002	1.0000 0.0000
LINE CONNECTS	KEYPOINTS	199	198			
LINE NO.=	75	KP1=	199	TAN1=	0.0000	-1.0000 0.0000
		KP2=	198	TAN2=	0.0000	1.0000 0.0000
LINE CONNECTS	KEYPOINTS	203	202			
LINE NO.=	76	KP1=	203	TAN1=	0.0000	-1.0000 0.0000
		KP2=	202	TAN2=	0.0000	1.0000 0.0000
LINE CONNECTS	KEYPOINTS	208	145			
LINE NO.=	77	KP1=	208	TAN1=	0.0000	-1.0000 0.0000
		KP2=	145	TAN2=	0.0000	1.0000 0.0000
LINE CONNECTS	KEYPOINTS	213	151			
LINE NO.=	78	KP1=	213	TAN1=	0.0000	-1.0000 0.0000
		KP2=	151	TAN2=	0.0000	1.0000 0.0000
LINE CONNECTS	KEYPOINTS	155	152			
LINE NO.=	79	KP1=	155	TAN1=	0.0000	-1.0000 0.0000
		KP2=	152	TAN2=	0.0000	1.0000 0.0000
LINE CONNECTS	KEYPOINTS	159	146			
LINE NO.=	80	KP1=	159	TAN1=	0.0000	-1.0000 0.0000
		KP2=	146	TAN2=	0.0000	1.0000 0.0000
LINE CONNECTS	KEYPOINTS	160	147			
LINE NO.=	81	KP1=	160	TAN1=	0.0000	-1.0000 0.0000
		KP2=	147	TAN2=	0.0000	1.0000 0.0000
LINE CONNECTS	KEYPOINTS	156	153			
LINE NO.=	82	KP1=	156	TAN1=	0.0000	-1.0000 0.0000
		KP2=	153	TAN2=	0.0000	1.0000 0.0000
LINE CONNECTS	KEYPOINTS	157	154			
LINE NO.=	83	KP1=	157	TAN1=	0.0000	-1.0000 0.0000
		KP2=	154	TAN2=	0.0000	1.0000 0.0000
LINE CONNECTS	KEYPOINTS	161	148			
LINE NO.=	84	KP1=	161	TAN1=	0.0000	-1.0000 0.0000
		KP2=	148	TAN2=	0.0000	1.0000 0.0000
LINE CONNECTS	KEYPOINTS	133	13			
LINE NO.=	85	KP1=	133	TAN1=	0.0000	-1.0000 0.0000
		KP2=	13	TAN2=	0.0000	1.0000 0.0000
LINE CONNECTS	KEYPOINTS	138	18			
LINE NO.=	86	KP1=	138	TAN1=	0.0000	-1.0000 0.0000
		KP2=	18	TAN2=	0.0000	1.0000 0.0000
LINE CONNECTS	KEYPOINTS	139	19			
LINE NO.=	87	KP1=	139	TAN1=	0.0000	-1.0000 0.0000
		KP2=	19	TAN2=	0.0000	1.0000 0.0000
LINE CONNECTS	KEYPOINTS	134	14			
LINE NO.=	88	KP1=	134	TAN1=	0.0000	-1.0000 0.0000
		KP2=	14	TAN2=	0.0000	1.0000 0.0000
LINE CONNECTS	KEYPOINTS	135	15			
LINE NO.=	89	KP1=	135	TAN1=	0.0000	-1.0000 0.0000
		KP2=	15	TAN2=	0.0000	1.0000 0.0000
LINE CONNECTS	KEYPOINTS	140	20			

LINE NO.=	90	KP1=	140	TAN1=	0.0000	-1.0000	0.0000
		KP2=	20	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 141 21							
LINE NO.=	91	KP1=	141	TAN1=	0.0000	-1.0000	0.0000
		KP2=	21	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 136 16							
LINE NO.=	92	KP1=	136	TAN1=	0.0000	-1.0000	0.0000
		KP2=	16	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 137 17							
LINE NO.=	93	KP1=	137	TAN1=	0.0000	-1.0000	0.0000
		KP2=	17	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 142 22							
LINE NO.=	94	KP1=	142	TAN1=	0.0000	-1.0000	0.0000
		KP2=	22	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 143 23							
LINE NO.=	95	KP1=	143	TAN1=	0.0000	-1.0000	0.0000
		KP2=	23	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 80 81							
LINE NO.=	96	KP1=	80	TAN1=	0.0000	-1.0000	0.0000
		KP2=	81	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 85 86							
LINE NO.=	97	KP1=	85	TAN1=	0.0000	-1.0000	0.0000
		KP2=	86	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 25 92							
LINE NO.=	98	KP1=	25	TAN1=	0.0000	-1.0000	0.0000
		KP2=	92	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 31 98							
LINE NO.=	99	KP1=	31	TAN1=	0.0000	-1.0000	0.0000
		KP2=	98	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 32 35							
LINE NO.=	100	KP1=	32	TAN1=	0.0000	-1.0000	0.0000
		KP2=	35	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 26 39							
LINE NO.=	101	KP1=	26	TAN1=	0.0000	-1.0000	0.0000
		KP2=	39	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 27 40							
LINE NO.=	102	KP1=	27	TAN1=	0.0000	-1.0000	0.0000
		KP2=	40	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 33 36							
LINE NO.=	103	KP1=	33	TAN1=	0.0000	-1.0000	0.0000
		KP2=	36	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 34 37							
LINE NO.=	104	KP1=	34	TAN1=	0.0000	-1.0000	0.0000
		KP2=	37	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 28 41							
LINE NO.=	105	KP1=	28	TAN1=	0.0000	-1.0000	0.0000
		KP2=	41	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 29 38							
LINE NO.=	106	KP1=	29	TAN1=	-0.0003	-1.0000	0.0000
		KP2=	38	TAN2=	0.0003	1.0000	0.0000
LINE CONNECTS KEYPOINTS 82 83							
LINE NO.=	107	KP1=	82	TAN1=	0.0000	-1.0000	0.0000
		KP2=	83	TAN2=	0.0000	1.0000	0.0000

LINE CONNECTS KEYPOINTS 87 88
 LINE NO.= 108 KP1= 87 TAN1= 0.0000 -1.0000 0.0000
 KP2= 88 TAN2= 0.0000 1.0000 0.0000

LINE CONNECTS KEYPOINTS 93 94
 LINE NO.= 109 KP1= 93 TAN1= 0.0000 -1.0000 0.0000
 KP2= 94 TAN2= 0.0000 1.0000 0.0000

LINE CONNECTS KEYPOINTS 99 100
 LINE NO.= 110 KP1= 99 TAN1= 0.0000 -1.0000 0.0000
 KP2= 100 TAN2= 0.0000 1.0000 0.0000

LINE CONNECTS KEYPOINTS 102 103
 LINE NO.= 111 KP1= 102 TAN1= 0.0000 -1.0000 0.0000
 KP2= 103 TAN2= 0.0000 1.0000 0.0000

LINE CONNECTS KEYPOINTS 106 107
 LINE NO.= 112 KP1= 106 TAN1= 0.0000 -1.0000 0.0000
 KP2= 107 TAN2= 0.0000 1.0000 0.0000

LINE CONNECTS KEYPOINTS 42 109
 LINE NO.= 113 KP1= 42 TAN1= -0.0002 -1.0000 0.0000
 KP2= 109 TAN2= 0.0002 1.0000 0.0000

LINE CONNECTS KEYPOINTS 158 149
 LINE NO.= 114 KP1= 158 TAN1= 0.0003 -1.0000 0.0000
 KP2= 149 TAN2= -0.0003 1.0000 0.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
 TO NDIV = 4, SPACING RATIO = 1.000
 Line set 5 End Guide Fins

LINE CONNECTS KEYPOINTS 207 206
 LINE NO.= 115 KP1= 207 TAN1= -0.0001 -1.0000 0.0000
 KP2= 206 TAN2= 0.0001 1.0000 0.0000

LINE CONNECTS KEYPOINTS 212 211
 LINE NO.= 116 KP1= 212 TAN1= -0.0001 -1.0000 0.0000
 KP2= 211 TAN2= 0.0001 1.0000 0.0000

LINE CONNECTS KEYPOINTS 150 149
 LINE NO.= 117 KP1= 150 TAN1= 1.0000 0.0001 0.0000
 KP2= 149 TAN2= -1.0000 -0.0001 0.0000

LINE CONNECTS KEYPOINTS 144 143
 LINE NO.= 118 KP1= 144 TAN1= 1.0000 0.0001 0.0000
 KP2= 143 TAN2= -1.0000 -0.0001 0.0000

LINE CONNECTS KEYPOINTS 24 23
 LINE NO.= 119 KP1= 24 TAN1= 1.0000 -0.0001 0.0000
 KP2= 23 TAN2= -1.0000 0.0001 0.0000

LINE CONNECTS KEYPOINTS 30 29
 LINE NO.= 120 KP1= 30 TAN1= 1.0000 -0.0001 0.0000
 KP2= 29 TAN2= -1.0000 0.0001 0.0000

LINE CONNECTS KEYPOINTS 96 95
 LINE NO.= 121 KP1= 96 TAN1= -0.0001 1.0000 0.0000
 KP2= 95 TAN2= 0.0001 -1.0000 0.0000

LINE CONNECTS KEYPOINTS 90 89
 LINE NO.= 122 KP1= 90 TAN1= -0.0001 1.0000 0.0000
 KP2= 89 TAN2= 0.0001 -1.0000 0.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
 TO NDIV = 4, SPACING RATIO = 1.000
 Line set 6 SS-B Plate Thickness

LINE CONNECTS KEYPOINTS 197 196

LINE NO.=	123	KP1=	197	TAN1=	0.0000	-1.0000	0.0000
		KP2=	196	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 206 205							
LINE NO.=	124	KP1=	206	TAN1=	0.1961	-0.9806	0.0000
		KP2=	205	TAN2=	-0.1961	0.9806	0.0000
LINE CONNECTS KEYPOINTS 211 210							
LINE NO.=	125	KP1=	211	TAN1=	-0.1961	-0.9806	0.0000
		KP2=	210	TAN2=	0.1961	0.9806	0.0000
LINE CONNECTS KEYPOINTS 207 212							
LINE NO.=	126	KP1=	207	TAN1=	-0.9850	-0.1726	0.0000
		KP2=	212	TAN2=	0.9850	0.1726	0.0000
LINE CONNECTS KEYPOINTS 206 211							
LINE NO.=	127	KP1=	206	TAN1=	-1.0000	0.0000	0.0000
		KP2=	211	TAN2=	1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 205 210							
LINE NO.=	128	KP1=	205	TAN1=	-1.0000	0.0000	0.0000
		KP2=	210	TAN2=	1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 218 220							
LINE NO.=	129	KP1=	218	TAN1=	-0.8619	-0.5070	0.0000
		KP2=	220	TAN2=	0.8619	0.5070	0.0000
LINE CONNECTS KEYPOINTS 220 221							
LINE NO.=	130	KP1=	220	TAN1=	-0.8562	-0.5166	0.0000
		KP2=	221	TAN2=	0.8562	0.5166	0.0000
LINE CONNECTS KEYPOINTS 193 192							
LINE NO.=	131	KP1=	193	TAN1=	0.0000	-1.0000	0.0000
		KP2=	192	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 204 203							
LINE NO.=	132	KP1=	204	TAN1=	0.0000	-1.0000	0.0000
		KP2=	203	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 209 208							
LINE NO.=	133	KP1=	209	TAN1=	0.0000	-1.0000	0.0000
		KP2=	208	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 204 209							
LINE NO.=	134	KP1=	204	TAN1=	-1.0000	0.0000	0.0000
		KP2=	209	TAN2=	1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 203 208							
LINE NO.=	135	KP1=	203	TAN1=	-1.0000	0.0000	0.0000
		KP2=	208	TAN2=	1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 219 159							
LINE NO.=	136	KP1=	219	TAN1=	0.0000	-1.0000	0.0000
		KP2=	159	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 162 160							
LINE NO.=	137	KP1=	162	TAN1=	-0.3714	-0.9285	0.0000
		KP2=	160	TAN2=	0.3714	0.9285	0.0000
LINE CONNECTS KEYPOINTS 163 161							
LINE NO.=	138	KP1=	163	TAN1=	-0.5166	-0.8562	0.0000
		KP2=	161	TAN2=	0.5166	0.8562	0.0000
LINE CONNECTS KEYPOINTS 161 158							
LINE NO.=	139	KP1=	161	TAN1=	-0.5070	-0.8619	0.0000
		KP2=	158	TAN2=	0.5070	0.8619	0.0000
LINE CONNECTS KEYPOINTS 219 162							
LINE NO.=	140	KP1=	219	TAN1=	-0.9285	-0.3714	0.0000
		KP2=	162	TAN2=	0.9285	0.3714	0.0000

LINE CONNECTS KEYPOINTS		159	160			
LINE NO.=	141	KP1=	159	TAN1=	-1.0000	0.0000 0.0000
		KP2=	160	TAN2=	1.0000	0.0000 0.0000
LINE CONNECTS KEYPOINTS		189	188			
LINE NO.=	142	KP1=	189	TAN1=	0.0000	-1.0000 0.0000
		KP2=	188	TAN2=	0.0000	1.0000 0.0000
LINE CONNECTS KEYPOINTS		202	138			
LINE NO.=	143	KP1=	202	TAN1=	0.0000	-1.0000 0.0000
		KP2=	138	TAN2=	0.0000	1.0000 0.0000
LINE CONNECTS KEYPOINTS		145	139			
LINE NO.=	144	KP1=	145	TAN1=	0.0000	-1.0000 0.0000
		KP2=	139	TAN2=	0.0000	1.0000 0.0000
LINE CONNECTS KEYPOINTS		202	145			
LINE NO.=	145	KP1=	202	TAN1=	-1.0000	0.0000 0.0000
		KP2=	145	TAN2=	1.0000	0.0000 0.0000
LINE CONNECTS KEYPOINTS		138	139			
LINE NO.=	146	KP1=	138	TAN1=	-1.0000	0.0000 0.0000
		KP2=	139	TAN2=	1.0000	0.0000 0.0000
LINE CONNECTS KEYPOINTS		146	140			
LINE NO.=	147	KP1=	146	TAN1=	0.0000	-1.0000 0.0000
		KP2=	140	TAN2=	0.0000	1.0000 0.0000
LINE CONNECTS KEYPOINTS		147	141			
LINE NO.=	148	KP1=	147	TAN1=	0.0000	-1.0000 0.0000
		KP2=	141	TAN2=	0.0000	1.0000 0.0000
LINE CONNECTS KEYPOINTS		146	147			
LINE NO.=	149	KP1=	146	TAN1=	-1.0000	0.0000 0.0000
		KP2=	147	TAN2=	1.0000	0.0000 0.0000
LINE CONNECTS KEYPOINTS		140	141			
LINE NO.=	150	KP1=	140	TAN1=	-1.0000	0.0000 0.0000
		KP2=	141	TAN2=	1.0000	0.0000 0.0000
LINE CONNECTS KEYPOINTS		148	142			
LINE NO.=	151	KP1=	148	TAN1=	0.0000	-1.0000 0.0000
		KP2=	142	TAN2=	0.0000	1.0000 0.0000
LINE CONNECTS KEYPOINTS		149	143			
LINE NO.=	152	KP1=	149	TAN1=	0.0000	-1.0000 0.0000
		KP2=	143	TAN2=	0.0000	1.0000 0.0000
LINE CONNECTS KEYPOINTS		148	149			
LINE NO.=	153	KP1=	148	TAN1=	-0.9806	-0.1961 0.0000
		KP2=	149	TAN2=	0.9806	0.1961 0.0000
LINE CONNECTS KEYPOINTS		142	143			
LINE NO.=	154	KP1=	142	TAN1=	-0.9806	0.1961 0.0000
		KP2=	143	TAN2=	0.9806	-0.1961 0.0000
LINE CONNECTS KEYPOINTS		150	144			
LINE NO.=	155	KP1=	150	TAN1=	-0.1726	-0.9850 0.0000
		KP2=	144	TAN2=	0.1726	0.9850 0.0000
LINE CONNECTS KEYPOINTS		69	70			
LINE NO.=	156	KP1=	69	TAN1=	0.0000	-1.0000 0.0000
		KP2=	70	TAN2=	0.0000	1.0000 0.0000
LINE CONNECTS KEYPOINTS		18	85			
LINE NO.=	157	KP1=	18	TAN1=	0.0000	-1.0000 0.0000
		KP2=	85	TAN2=	0.0000	1.0000 0.0000
LINE CONNECTS KEYPOINTS		19	25			

LINE NO.= 158	KP1= 19	TAN1= 0.0000	-1.0000	0.0000
	KP2= 25	TAN2= 0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 18 19				
LINE NO.= 159	KP1= 18	TAN1= -1.0000	0.0000	0.0000
	KP2= 19	TAN2= 1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 85 25				
LINE NO.= 160	KP1= 85	TAN1= -1.0000	0.0000	0.0000
	KP2= 25	TAN2= 1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 20 26				
LINE NO.= 161	KP1= 20	TAN1= 0.0000	-1.0000	0.0000
	KP2= 26	TAN2= 0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 21 27				
LINE NO.= 162	KP1= 21	TAN1= 0.0000	-1.0000	0.0000
	KP2= 27	TAN2= 0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 20 21				
LINE NO.= 163	KP1= 20	TAN1= -1.0000	0.0000	0.0000
	KP2= 21	TAN2= 1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 26 27				
LINE NO.= 164	KP1= 26	TAN1= -1.0000	0.0000	0.0000
	KP2= 27	TAN2= 1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 22 28				
LINE NO.= 165	KP1= 22	TAN1= 0.0000	-1.0000	0.0000
	KP2= 28	TAN2= 0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 22 23				
LINE NO.= 166	KP1= 22	TAN1= -0.9806	-0.1961	0.0000
	KP2= 23	TAN2= 0.9806	0.1961	0.0000
LINE CONNECTS KEYPOINTS 28 29				
LINE NO.= 167	KP1= 28	TAN1= -0.9806	0.1961	0.0000
	KP2= 29	TAN2= 0.9806	-0.1961	0.0000
LINE CONNECTS KEYPOINTS 23 29				
LINE NO.= 168	KP1= 23	TAN1= 0.0000	-1.0000	0.0000
	KP2= 29	TAN2= 0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 24 30				
LINE NO.= 169	KP1= 24	TAN1= 0.1726	-0.9850	0.0000
	KP2= 30	TAN2= -0.1726	0.9850	0.0000
LINE CONNECTS KEYPOINTS 73 74				
LINE NO.= 170	KP1= 73	TAN1= 0.0000	-1.0000	0.0000
	KP2= 74	TAN2= 0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 86 87				
LINE NO.= 171	KP1= 86	TAN1= 0.0000	-1.0000	0.0000
	KP2= 87	TAN2= 0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 92 93				
LINE NO.= 172	KP1= 92	TAN1= 0.0000	-1.0000	0.0000
	KP2= 93	TAN2= 0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 86 92				
LINE NO.= 173	KP1= 86	TAN1= -1.0000	0.0000	0.0000
	KP2= 92	TAN2= 1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 87 93				
LINE NO.= 174	KP1= 87	TAN1= -1.0000	0.0000	0.0000
	KP2= 93	TAN2= 1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 39 106				
LINE NO.= 175	KP1= 39	TAN1= 0.0000	-1.0000	0.0000
	KP2= 106	TAN2= 0.0000	1.0000	0.0000

LINE CONNECTS KEYPOINTS	40	42			
LINE NO.= 176 KP1=	40	TAN1=	0.3714	-0.9285	0.0000
KP2=	42	TAN2=	-0.3714	0.9285	0.0000
LINE CONNECTS KEYPOINTS	39	40			
LINE NO.= 177 KP1=	39	TAN1=	-1.0000	0.0000	0.0000
KP2=	40	TAN2=	1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS	106	42			
LINE NO.= 178 KP1=	106	TAN1=	-0.9285	0.3714	0.0000
KP2=	42	TAN2=	0.9285	-0.3714	0.0000
LINE CONNECTS KEYPOINTS	38	41			
LINE NO.= 179 KP1=	38	TAN1=	0.5070	-0.8619	0.0000
KP2=	41	TAN2=	-0.5070	0.8619	0.0000
LINE CONNECTS KEYPOINTS	41	43			
LINE NO.= 180 KP1=	41	TAN1=	0.5166	-0.8562	0.0000
KP2=	43	TAN2=	-0.5166	0.8562	0.0000
LINE CONNECTS KEYPOINTS	77	78			
LINE NO.= 181 KP1=	77	TAN1=	0.0000	-1.0000	0.0000
KP2=	78	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS	88	89			
LINE NO.= 182 KP1=	88	TAN1=	-0.1961	-0.9806	0.0000
KP2=	89	TAN2=	0.1961	0.9806	0.0000
LINE CONNECTS KEYPOINTS	94	95			
LINE NO.= 183 KP1=	94	TAN1=	0.1961	-0.9806	0.0000
KP2=	95	TAN2=	-0.1961	0.9806	0.0000
LINE CONNECTS KEYPOINTS	88	94			
LINE NO.= 184 KP1=	88	TAN1=	-1.0000	0.0000	0.0000
KP2=	94	TAN2=	1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS	89	95			
LINE NO.= 185 KP1=	89	TAN1=	-1.0000	0.0000	0.0000
KP2=	95	TAN2=	1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS	90	96			
LINE NO.= 186 KP1=	90	TAN1=	-0.9850	0.1726	0.0000
KP2=	96	TAN2=	0.9850	-0.1726	0.0000
LINE CONNECTS KEYPOINTS	109	107			
LINE NO.= 187 KP1=	109	TAN1=	0.8562	-0.5166	0.0000
KP2=	107	TAN2=	-0.8562	0.5166	0.0000
LINE CONNECTS KEYPOINTS	107	104			
LINE NO.= 188 KP1=	107	TAN1=	0.8619	-0.5070	0.0000
KP2=	104	TAN2=	-0.8619	0.5070	0.0000
LINE CONNECTS KEYPOINTS	224	225			
LINE NO.= 189 KP1=	224	TAN1=	-0.9850	-0.1726	0.0000
KP2=	225	TAN2=	0.9850	0.1726	0.0000
LINE CONNECTS KEYPOINTS	230	231			
LINE NO.= 190 KP1=	230	TAN1=	-0.9850	-0.1726	0.0000
KP2=	231	TAN2=	0.9850	0.1726	0.0000
LINE CONNECTS KEYPOINTS	236	237			
LINE NO.= 191 KP1=	236	TAN1=	-0.9850	-0.1726	0.0000
KP2=	237	TAN2=	0.9850	0.1726	0.0000
LINE CONNECTS KEYPOINTS	226	227			
LINE NO.= 192 KP1=	226	TAN1=	-0.8619	-0.5070	0.0000
KP2=	227	TAN2=	0.8619	0.5070	0.0000
LINE CONNECTS KEYPOINTS	227	228			

LINE NO.=	193	KP1=	227	TAN1=	-0.8562	-0.5166	0.0000
		KP2=	228	TAN2=	0.8562	0.5166	0.0000
LINE CONNECTS KEYPOINTS 232 233							
LINE NO.=	194	KP1=	232	TAN1=	-0.8619	-0.5070	0.0000
		KP2=	233	TAN2=	0.8619	0.5070	0.0000
LINE CONNECTS KEYPOINTS 233 234							
LINE NO.=	195	KP1=	233	TAN1=	-0.8562	-0.5166	0.0000
		KP2=	234	TAN2=	0.8562	0.5166	0.0000
LINE CONNECTS KEYPOINTS 238 239							
LINE NO.=	196	KP1=	238	TAN1=	-0.8619	-0.5070	0.0000
		KP2=	239	TAN2=	0.8619	0.5070	0.0000
LINE CONNECTS KEYPOINTS 239 240							
LINE NO.=	197	KP1=	239	TAN1=	-0.8562	-0.5166	0.0000
		KP2=	240	TAN2=	0.8562	0.5166	0.0000
LINE CONNECTS KEYPOINTS 171 170							
LINE NO.=	198	KP1=	171	TAN1=	-0.5166	-0.8562	0.0000
		KP2=	170	TAN2=	0.5166	0.8562	0.0000
LINE CONNECTS KEYPOINTS 170 169							
LINE NO.=	199	KP1=	170	TAN1=	-0.5070	-0.8619	0.0000
		KP2=	169	TAN2=	0.5070	0.8619	0.0000
LINE CONNECTS KEYPOINTS 178 177							
LINE NO.=	200	KP1=	178	TAN1=	-0.5166	-0.8562	0.0000
		KP2=	177	TAN2=	0.5166	0.8562	0.0000
LINE CONNECTS KEYPOINTS 177 176							
LINE NO.=	201	KP1=	177	TAN1=	-0.5070	-0.8619	0.0000
		KP2=	176	TAN2=	0.5070	0.8619	0.0000
LINE CONNECTS KEYPOINTS 185 184							
LINE NO.=	202	KP1=	185	TAN1=	-0.5166	-0.8562	0.0000
		KP2=	184	TAN2=	0.5166	0.8562	0.0000
LINE CONNECTS KEYPOINTS 184 183							
LINE NO.=	203	KP1=	184	TAN1=	-0.5070	-0.8619	0.0000
		KP2=	183	TAN2=	0.5070	0.8619	0.0000
LINE CONNECTS KEYPOINTS 168 167							
LINE NO.=	204	KP1=	168	TAN1=	-0.1726	-0.9850	0.0000
		KP2=	167	TAN2=	0.1726	0.9850	0.0000
LINE CONNECTS KEYPOINTS 175 174							
LINE NO.=	205	KP1=	175	TAN1=	-0.1726	-0.9850	0.0000
		KP2=	174	TAN2=	0.1726	0.9850	0.0000
LINE CONNECTS KEYPOINTS 182 181							
LINE NO.=	206	KP1=	182	TAN1=	-0.1726	-0.9850	0.0000
		KP2=	181	TAN2=	0.1726	0.9850	0.0000
LINE CONNECTS KEYPOINTS 47 48							
LINE NO.=	207	KP1=	47	TAN1=	0.1726	-0.9850	0.0000
		KP2=	48	TAN2=	-0.1726	0.9850	0.0000
LINE CONNECTS KEYPOINTS 54 55							
LINE NO.=	208	KP1=	54	TAN1=	0.1726	-0.9850	0.0000
		KP2=	55	TAN2=	-0.1726	0.9850	0.0000
LINE CONNECTS KEYPOINTS 61 62							
LINE NO.=	209	KP1=	61	TAN1=	0.1726	-0.9850	0.0000
		KP2=	62	TAN2=	-0.1726	0.9850	0.0000
LINE CONNECTS KEYPOINTS 49 50							
LINE NO.=	210	KP1=	49	TAN1=	0.5070	-0.8619	0.0000
		KP2=	50	TAN2=	-0.5070	0.8619	0.0000

LINE CONNECTS KEYPOINTS	50	51			
LINE NO.= 211 KP1=	50	TAN1=	0.5166	-0.8562	0.0000
KP2=	51	TAN2=	-0.5166	0.8562	0.0000
LINE CONNECTS KEYPOINTS	56	57			
LINE NO.= 212 KP1=	56	TAN1=	0.5070	-0.8619	0.0000
KP2=	57	TAN2=	-0.5070	0.8619	0.0000
LINE CONNECTS KEYPOINTS	57	58			
LINE NO.= 213 KP1=	57	TAN1=	0.5166	-0.8562	0.0000
KP2=	58	TAN2=	-0.5166	0.8562	0.0000
LINE CONNECTS KEYPOINTS	63	64			
LINE NO.= 214 KP1=	63	TAN1=	0.5070	-0.8619	0.0000
KP2=	64	TAN2=	-0.5070	0.8619	0.0000
LINE CONNECTS KEYPOINTS	64	65			
LINE NO.= 215 KP1=	64	TAN1=	0.5166	-0.8562	0.0000
KP2=	65	TAN2=	-0.5166	0.8562	0.0000
LINE CONNECTS KEYPOINTS	117	116			
LINE NO.= 216 KP1=	117	TAN1=	0.8562	-0.5166	0.0000
KP2=	116	TAN2=	-0.8562	0.5166	0.0000
LINE CONNECTS KEYPOINTS	116	115			
LINE NO.= 217 KP1=	116	TAN1=	0.8619	-0.5070	0.0000
KP2=	115	TAN2=	-0.8619	0.5070	0.0000
LINE CONNECTS KEYPOINTS	124	123			
LINE NO.= 218 KP1=	124	TAN1=	0.8562	-0.5166	0.0000
KP2=	123	TAN2=	-0.8562	0.5166	0.0000
LINE CONNECTS KEYPOINTS	123	122			
LINE NO.= 219 KP1=	123	TAN1=	0.8619	-0.5070	0.0000
KP2=	122	TAN2=	-0.8619	0.5070	0.0000
LINE CONNECTS KEYPOINTS	131	130			
LINE NO.= 220 KP1=	131	TAN1=	0.8562	-0.5166	0.0000
KP2=	130	TAN2=	-0.8562	0.5166	0.0000
LINE CONNECTS KEYPOINTS	130	129			
LINE NO.= 221 KP1=	130	TAN1=	0.8619	-0.5070	0.0000
KP2=	129	TAN2=	-0.8619	0.5070	0.0000
LINE CONNECTS KEYPOINTS	114	113			
LINE NO.= 222 KP1=	114	TAN1=	0.9850	-0.1726	0.0000
KP2=	113	TAN2=	-0.9850	0.1726	0.0000
LINE CONNECTS KEYPOINTS	121	120			
LINE NO.= 223 KP1=	121	TAN1=	0.9850	-0.1726	0.0000
KP2=	120	TAN2=	-0.9850	0.1726	0.0000
LINE CONNECTS KEYPOINTS	128	127			
LINE NO.= 224 KP1=	128	TAN1=	0.9850	-0.1726	0.0000
KP2=	127	TAN2=	-0.9850	0.1726	0.0000
SET DIVISIONS ON ALL SELECTED UNMESHED LINES					
TO NDIV = 2, SPACING RATIO = 1.000					
line set 7 tube thickness					
LINE CONNECTS KEYPOINTS	196	195			
LINE NO.= 225 KP1=	196	TAN1=	0.0000	-1.0000	0.0000
KP2=	195	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS	205	201			
LINE NO.= 226 KP1=	205	TAN1=	0.7071	-0.7071	0.0000
KP2=	201	TAN2=	-0.7071	0.7071	0.0000
LINE CONNECTS KEYPOINTS	204	200			

LINE NO.=	227	KP1=	204	TAN1=	0.7071	0.7071	0.0000
		KP2=	200	TAN2=	-0.7071	-0.7071	0.0000
LINE CONNECTS KEYPOINTS 193 194							
LINE NO.=	228	KP1=	193	TAN1=	0.0000	1.0000	0.0000
		KP2=	194	TAN2=	0.0000	-1.0000	0.0000
LINE CONNECTS KEYPOINTS 210 215							
LINE NO.=	229	KP1=	210	TAN1=	-0.7071	-0.7071	0.0000
		KP2=	215	TAN2=	0.7071	0.7071	0.0000
LINE CONNECTS KEYPOINTS 220 217							
LINE NO.=	230	KP1=	220	TAN1=	0.7071	-0.7071	0.0000
		KP2=	217	TAN2=	-0.7071	0.7071	0.0000
LINE CONNECTS KEYPOINTS 219 216							
LINE NO.=	231	KP1=	219	TAN1=	0.7071	0.7071	0.0000
		KP2=	216	TAN2=	-0.7071	-0.7071	0.0000
LINE CONNECTS KEYPOINTS 209 214							
LINE NO.=	232	KP1=	209	TAN1=	-0.7071	0.7071	0.0000
		KP2=	214	TAN2=	0.7071	-0.7071	0.0000
LINE CONNECTS KEYPOINTS 192 191							
LINE NO.=	233	KP1=	192	TAN1=	0.0000	-1.0000	0.0000
		KP2=	191	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 203 199							
LINE NO.=	234	KP1=	203	TAN1=	0.7071	-0.7071	0.0000
		KP2=	199	TAN2=	-0.7071	0.7071	0.0000
LINE CONNECTS KEYPOINTS 202 198							
LINE NO.=	235	KP1=	202	TAN1=	0.7071	0.7071	0.0000
		KP2=	198	TAN2=	-0.7071	-0.7071	0.0000
LINE CONNECTS KEYPOINTS 189 190							
LINE NO.=	236	KP1=	189	TAN1=	0.0000	1.0000	0.0000
		KP2=	190	TAN2=	0.0000	-1.0000	0.0000
LINE CONNECTS KEYPOINTS 208 213							
LINE NO.=	237	KP1=	208	TAN1=	-0.7071	-0.7071	0.0000
		KP2=	213	TAN2=	0.7071	0.7071	0.0000
LINE CONNECTS KEYPOINTS 159 155							
LINE NO.=	238	KP1=	159	TAN1=	0.7071	-0.7071	0.0000
		KP2=	155	TAN2=	-0.7071	0.7071	0.0000
LINE CONNECTS KEYPOINTS 146 152							
LINE NO.=	239	KP1=	146	TAN1=	0.7071	0.7071	0.0000
		KP2=	152	TAN2=	-0.7071	-0.7071	0.0000
LINE CONNECTS KEYPOINTS 145 151							
LINE NO.=	240	KP1=	145	TAN1=	-0.7071	0.7071	0.0000
		KP2=	151	TAN2=	0.7071	-0.7071	0.0000
LINE CONNECTS KEYPOINTS 160 156							
LINE NO.=	241	KP1=	160	TAN1=	-0.7071	-0.7071	0.0000
		KP2=	156	TAN2=	0.7071	0.7071	0.0000
LINE CONNECTS KEYPOINTS 161 157							
LINE NO.=	242	KP1=	161	TAN1=	0.7071	-0.7071	0.0000
		KP2=	157	TAN2=	-0.7071	0.7071	0.0000
LINE CONNECTS KEYPOINTS 148 154							
LINE NO.=	243	KP1=	148	TAN1=	0.7071	0.7071	0.0000
		KP2=	154	TAN2=	-0.7071	-0.7071	0.0000
LINE CONNECTS KEYPOINTS 147 153							
LINE NO.=	244	KP1=	147	TAN1=	-0.7071	0.7071	0.0000
		KP2=	153	TAN2=	0.7071	-0.7071	0.0000

LINE CONNECTS KEYPOINTS	188	187			
LINE NO.= 245 KP1=	188	TAN1=	0.0000	-1.0000	0.0000
KP2=	187	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS	138	133			
LINE NO.= 246 KP1=	138	TAN1=	0.7071	-0.7071	0.0000
KP2=	133	TAN2=	-0.7071	0.7071	0.0000
LINE CONNECTS KEYPOINTS	18	13			
LINE NO.= 247 KP1=	18	TAN1=	0.7071	0.7071	0.0000
KP2=	13	TAN2=	-0.7071	-0.7071	0.0000
LINE CONNECTS KEYPOINTS	69	68			
LINE NO.= 248 KP1=	69	TAN1=	0.0000	1.0000	0.0000
KP2=	68	TAN2=	0.0000	-1.0000	0.0000
LINE CONNECTS KEYPOINTS	139	134			
LINE NO.= 249 KP1=	139	TAN1=	-0.7071	-0.7071	0.0000
KP2=	134	TAN2=	0.7071	0.7071	0.0000
LINE CONNECTS KEYPOINTS	140	135			
LINE NO.= 250 KP1=	140	TAN1=	0.7071	-0.7071	0.0000
KP2=	135	TAN2=	-0.7071	0.7071	0.0000
LINE CONNECTS KEYPOINTS	20	15			
LINE NO.= 251 KP1=	20	TAN1=	0.7071	0.7071	0.0000
KP2=	15	TAN2=	-0.7071	-0.7071	0.0000
LINE CONNECTS KEYPOINTS	19	14			
LINE NO.= 252 KP1=	19	TAN1=	-0.7071	0.7071	0.0000
KP2=	14	TAN2=	0.7071	-0.7071	0.0000
LINE CONNECTS KEYPOINTS	141	136			
LINE NO.= 253 KP1=	141	TAN1=	-0.7071	-0.7071	0.0000
KP2=	136	TAN2=	0.7071	0.7071	0.0000
LINE CONNECTS KEYPOINTS	142	137			
LINE NO.= 254 KP1=	142	TAN1=	0.7071	-0.7071	0.0000
KP2=	137	TAN2=	-0.7071	0.7071	0.0000
LINE CONNECTS KEYPOINTS	22	17			
LINE NO.= 255 KP1=	22	TAN1=	0.7071	0.7071	0.0000
KP2=	17	TAN2=	-0.7071	-0.7071	0.0000
LINE CONNECTS KEYPOINTS	21	16			
LINE NO.= 256 KP1=	21	TAN1=	-0.7071	0.7071	0.0000
KP2=	16	TAN2=	0.7071	-0.7071	0.0000
LINE CONNECTS KEYPOINTS	70	71			
LINE NO.= 257 KP1=	70	TAN1=	0.0000	-1.0000	0.0000
KP2=	71	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS	85	80			
LINE NO.= 258 KP1=	85	TAN1=	0.7071	-0.7071	0.0000
KP2=	80	TAN2=	-0.7071	0.7071	0.0000
LINE CONNECTS KEYPOINTS	86	81			
LINE NO.= 259 KP1=	86	TAN1=	0.7071	0.7071	0.0000
KP2=	81	TAN2=	-0.7071	-0.7071	0.0000
LINE CONNECTS KEYPOINTS	73	72			
LINE NO.= 260 KP1=	73	TAN1=	0.0000	1.0000	0.0000
KP2=	72	TAN2=	0.0000	-1.0000	0.0000
LINE CONNECTS KEYPOINTS	25	31			
LINE NO.= 261 KP1=	25	TAN1=	-0.7071	-0.7071	0.0000
KP2=	31	TAN2=	0.7071	0.7071	0.0000
LINE CONNECTS KEYPOINTS	26	32			

LINE NO.= 262 KP1= 26 TAN1= 0.7071 -0.7071 0.0000
 KP2= 32 TAN2= -0.7071 0.7071 0.0000

LINE CONNECTS KEYPOINTS 39 35
 LINE NO.= 263 KP1= 39 TAN1= 0.7071 0.7071 0.0000
 KP2= 35 TAN2= -0.7071 -0.7071 0.0000

LINE CONNECTS KEYPOINTS 92 98
 LINE NO.= 264 KP1= 92 TAN1= -0.7071 0.7071 0.0000
 KP2= 98 TAN2= 0.7071 -0.7071 0.0000

LINE CONNECTS KEYPOINTS 27 33
 LINE NO.= 265 KP1= 27 TAN1= -0.7071 -0.7071 0.0000
 KP2= 33 TAN2= 0.7071 0.7071 0.0000

LINE CONNECTS KEYPOINTS 28 34
 LINE NO.= 266 KP1= 28 TAN1= 0.7071 -0.7071 0.0000
 KP2= 34 TAN2= -0.7071 0.7071 0.0000

LINE CONNECTS KEYPOINTS 41 37
 LINE NO.= 267 KP1= 41 TAN1= 0.7071 0.7071 0.0000
 KP2= 37 TAN2= -0.7071 -0.7071 0.0000

LINE CONNECTS KEYPOINTS 40 36
 LINE NO.= 268 KP1= 40 TAN1= -0.7071 0.7071 0.0000
 KP2= 36 TAN2= 0.7071 -0.7071 0.0000

LINE CONNECTS KEYPOINTS 74 75
 LINE NO.= 269 KP1= 74 TAN1= 0.0000 -1.0000 0.0000
 KP2= 75 TAN2= 0.0000 1.0000 0.0000

LINE CONNECTS KEYPOINTS 87 82
 LINE NO.= 270 KP1= 87 TAN1= 0.7071 -0.7071 0.0000
 KP2= 82 TAN2= -0.7071 0.7071 0.0000

LINE CONNECTS KEYPOINTS 88 83
 LINE NO.= 271 KP1= 88 TAN1= 0.7071 0.7071 0.0000
 KP2= 83 TAN2= -0.7071 -0.7071 0.0000

LINE CONNECTS KEYPOINTS 77 76
 LINE NO.= 272 KP1= 77 TAN1= 0.0000 1.0000 0.0000
 KP2= 76 TAN2= 0.0000 -1.0000 0.0000

LINE CONNECTS KEYPOINTS 93 99
 LINE NO.= 273 KP1= 93 TAN1= -0.7071 -0.7071 0.0000
 KP2= 99 TAN2= 0.7071 0.7071 0.0000

LINE CONNECTS KEYPOINTS 106 102
 LINE NO.= 274 KP1= 106 TAN1= 0.7071 -0.7071 0.0000
 KP2= 102 TAN2= -0.7071 0.7071 0.0000

LINE CONNECTS KEYPOINTS 107 103
 LINE NO.= 275 KP1= 107 TAN1= 0.7071 0.7071 0.0000
 KP2= 103 TAN2= -0.7071 -0.7071 0.0000

LINE CONNECTS KEYPOINTS 94 100
 LINE NO.= 276 KP1= 94 TAN1= -0.7071 0.7071 0.0000
 KP2= 100 TAN2= 0.7071 -0.7071 0.0000

SET DIVISIONS ON ALL SELECTED UNMESHD LINES
 TO NDIV = 1, SPACING RATIO = 1.000

ACTIVE COORDINATE SYSTEM SET TO 1 (CYLINDRICAL)
 line set 8, arc 1 bottom

LINE CONNECTS KEYPOINTS 222 207
 LINE NO.= 277 KP1= 222 TAN1= -1.0000 0.0000 0.0000
 KP2= 207 TAN2= 0.9856 0.1691 0.0000

LINE CONNECTS KEYPOINTS 223 224

LINE NO.= 278 KP1= 223 TAN1= -1.0000 0.0000 0.0000
 KP2= 224 TAN2= 0.9856 0.1691 0.0000

LINE CONNECTS KEYPOINTS 229 230
 LINE NO.= 279 KP1= 229 TAN1= -1.0000 0.0000 0.0000
 KP2= 230 TAN2= 0.9856 0.1691 0.0000

LINE CONNECTS KEYPOINTS 235 236
 LINE NO.= 280 KP1= 235 TAN1= -1.0000 0.0000 0.0000
 KP2= 236 TAN2= 0.9856 0.1691 0.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
 TO NDIV = 4, SPACING RATIO = 1.000
 line set 9, arc 2 side arcs

LINE CONNECTS KEYPOINTS 212 218
 LINE NO.= 281 KP1= 212 TAN1= -0.9844 -0.1762 0.0000
 KP2= 218 TAN2= 0.8655 0.5009 0.0000

LINE CONNECTS KEYPOINTS 225 226
 LINE NO.= 282 KP1= 225 TAN1= -0.9844 -0.1762 0.0000
 KP2= 226 TAN2= 0.8655 0.5009 0.0000

LINE CONNECTS KEYPOINTS 231 232
 LINE NO.= 283 KP1= 231 TAN1= -0.9844 -0.1762 0.0000
 KP2= 232 TAN2= 0.8655 0.5009 0.0000

LINE CONNECTS KEYPOINTS 237 238
 LINE NO.= 284 KP1= 237 TAN1= -0.9844 -0.1762 0.0000
 KP2= 238 TAN2= 0.8655 0.5009 0.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
 TO NDIV = 4, SPACING RATIO = 1.000
 line set 10, arc 3 side arcs

LINE CONNECTS KEYPOINTS 221 163
 LINE NO.= 285 KP1= 221 TAN1= -0.8541 -0.5201 0.0000
 KP2= 163 TAN2= 0.5201 0.8541 0.0000

LINE CONNECTS KEYPOINTS 228 171
 LINE NO.= 286 KP1= 228 TAN1= -0.8541 -0.5201 0.0000
 KP2= 171 TAN2= 0.5201 0.8541 0.0000

LINE CONNECTS KEYPOINTS 234 178
 LINE NO.= 287 KP1= 234 TAN1= -0.8541 -0.5201 0.0000
 KP2= 178 TAN2= 0.5201 0.8541 0.0000

LINE CONNECTS KEYPOINTS 240 185
 LINE NO.= 288 KP1= 240 TAN1= -0.8541 -0.5201 0.0000
 KP2= 185 TAN2= 0.5201 0.8541 0.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
 TO NDIV = 4, SPACING RATIO = 1.000
 line set 11, arc 4 side arcs

LINE CONNECTS KEYPOINTS 158 150
 LINE NO.= 289 KP1= 158 TAN1= -0.5009 -0.8655 0.0000
 KP2= 150 TAN2= 0.1762 0.9844 0.0000

LINE CONNECTS KEYPOINTS 169 168
 LINE NO.= 290 KP1= 169 TAN1= -0.5009 -0.8655 0.0000
 KP2= 168 TAN2= 0.1762 0.9844 0.0000

LINE CONNECTS KEYPOINTS 176 175
 LINE NO.= 291 KP1= 176 TAN1= -0.5009 -0.8655 0.0000
 KP2= 175 TAN2= 0.1762 0.9844 0.0000

LINE CONNECTS KEYPOINTS 183 182
 LINE NO.= 292 KP1= 183 TAN1= -0.5009 -0.8655 0.0000
 KP2= 182 TAN2= 0.1762 0.9844 0.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
 TO NDIV = 4, SPACING RATIO = 1.000
 line set 12, arc 5 side arcs

LINE CONNECTS KEYPOINTS	144	24			
LINE NO.= 293	KP1= 144	TAN1=	-0.1691	-0.9856	0.0000
	KP2= 24	TAN2=	-0.1691	0.9856	0.0000

LINE CONNECTS KEYPOINTS	167	47			
LINE NO.= 294	KP1= 167	TAN1=	-0.1691	-0.9856	0.0000
	KP2= 47	TAN2=	-0.1691	0.9856	0.0000

LINE CONNECTS KEYPOINTS	174	54			
LINE NO.= 295	KP1= 174	TAN1=	-0.1691	-0.9856	0.0000
	KP2= 54	TAN2=	-0.1691	0.9856	0.0000

LINE CONNECTS KEYPOINTS	181	61			
LINE NO.= 296	KP1= 181	TAN1=	-0.1691	-0.9856	0.0000
	KP2= 61	TAN2=	-0.1691	0.9856	0.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
 TO NDIV = 4, SPACING RATIO = 1.000
 line set 13, arc 6 side arcs

LINE CONNECTS KEYPOINTS	30	38			
LINE NO.= 297	KP1= 30	TAN1=	0.1762	-0.9844	0.0000
	KP2= 38	TAN2=	-0.5009	0.8655	0.0000

LINE CONNECTS KEYPOINTS	48	49			
LINE NO.= 298	KP1= 48	TAN1=	0.1762	-0.9844	0.0000
	KP2= 49	TAN2=	-0.5009	0.8655	0.0000

LINE CONNECTS KEYPOINTS	55	56			
LINE NO.= 299	KP1= 55	TAN1=	0.1762	-0.9844	0.0000
	KP2= 56	TAN2=	-0.5009	0.8655	0.0000

LINE CONNECTS KEYPOINTS	62	63			
LINE NO.= 300	KP1= 62	TAN1=	0.1762	-0.9844	0.0000
	KP2= 63	TAN2=	-0.5009	0.8655	0.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
 TO NDIV = 4, SPACING RATIO = 1.000
 line set 14, arc 7 side arcs

LINE CONNECTS KEYPOINTS	43	109			
LINE NO.= 301	KP1= 43	TAN1=	0.5201	-0.8541	0.0000
	KP2= 109	TAN2=	-0.8541	0.5201	0.0000

LINE CONNECTS KEYPOINTS	51	117			
LINE NO.= 302	KP1= 51	TAN1=	0.5201	-0.8541	0.0000
	KP2= 117	TAN2=	-0.8541	0.5201	0.0000

LINE CONNECTS KEYPOINTS	58	124			
LINE NO.= 303	KP1= 58	TAN1=	0.5201	-0.8541	0.0000
	KP2= 124	TAN2=	-0.8541	0.5201	0.0000

LINE CONNECTS KEYPOINTS	65	131			
LINE NO.= 304	KP1= 65	TAN1=	0.5201	-0.8541	0.0000
	KP2= 131	TAN2=	-0.8541	0.5201	0.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
 TO NDIV = 4, SPACING RATIO = 1.000
 line set 15, arc 8 side arcs

LINE CONNECTS KEYPOINTS	104	96			
LINE NO.= 305	KP1= 104	TAN1=	0.8655	-0.5009	0.0000
	KP2= 96	TAN2=	-0.9844	0.1762	0.0000

LINE CONNECTS KEYPOINTS	115	114			
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LINE NO.= 306 KP1= 115 TAN1= 0.8655 -0.5009 0.0000
 KP2= 114 TAN2= -0.9844 0.1762 0.0000

LINE CONNECTS KEYPOINTS 122 121
 LINE NO.= 307 KP1= 122 TAN1= 0.8655 -0.5009 0.0000
 KP2= 121 TAN2= -0.9844 0.1762 0.0000

LINE CONNECTS KEYPOINTS 129 128
 LINE NO.= 308 KP1= 129 TAN1= 0.8655 -0.5009 0.0000
 KP2= 128 TAN2= -0.9844 0.1762 0.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
 TO NDIV = 4, SPACING RATIO = 1.000
 line set 16, arc 9 top arcs

LINE CONNECTS KEYPOINTS 90 110
 LINE NO.= 309 KP1= 90 TAN1= 0.9856 -0.1691 0.0000
 KP2= 110 TAN2= -1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 113 112
 LINE NO.= 310 KP1= 113 TAN1= 0.9856 -0.1691 0.0000
 KP2= 112 TAN2= -1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 120 119
 LINE NO.= 311 KP1= 120 TAN1= 0.9856 -0.1691 0.0000
 KP2= 119 TAN2= -1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 127 126
 LINE NO.= 312 KP1= 127 TAN1= 0.9856 -0.1691 0.0000
 KP2= 126 TAN2= -1.0000 0.0000 0.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
 TO NDIV = 4, SPACING RATIO = 1.000

ACTIVE COORDINATE SYSTEM SET TO 0 (CARTESIAN)
 line set 17 IB thickness

LINE CONNECTS KEYPOINTS 222 223
 LINE NO.= 313 KP1= 222 TAN1= 0.0000 1.0000 0.0000
 KP2= 223 TAN2= 0.0000 -1.0000 0.0000

LINE CONNECTS KEYPOINTS 207 224
 LINE NO.= 314 KP1= 207 TAN1= -0.1691 0.9856 0.0000
 KP2= 224 TAN2= 0.1691 -0.9856 0.0000

LINE CONNECTS KEYPOINTS 212 225
 LINE NO.= 315 KP1= 212 TAN1= -0.1762 0.9844 0.0000
 KP2= 225 TAN2= 0.1762 -0.9844 0.0000

LINE CONNECTS KEYPOINTS 218 226
 LINE NO.= 316 KP1= 218 TAN1= -0.5009 0.8655 0.0000
 KP2= 226 TAN2= 0.5009 -0.8655 0.0000

LINE CONNECTS KEYPOINTS 220 227
 LINE NO.= 317 KP1= 220 TAN1= -0.5130 0.8584 0.0000
 KP2= 227 TAN2= 0.5130 -0.8584 0.0000

LINE CONNECTS KEYPOINTS 221 228
 LINE NO.= 318 KP1= 221 TAN1= -0.5201 0.8541 0.0000
 KP2= 228 TAN2= 0.5201 -0.8541 0.0000

LINE CONNECTS KEYPOINTS 163 171
 LINE NO.= 319 KP1= 163 TAN1= -0.8541 0.5201 0.0000
 KP2= 171 TAN2= 0.8541 -0.5201 0.0000

LINE CONNECTS KEYPOINTS 161 170
 LINE NO.= 320 KP1= 161 TAN1= -0.8584 0.5130 0.0000
 KP2= 170 TAN2= 0.8584 -0.5130 0.0000

LINE CONNECTS KEYPOINTS 158 169

LINE NO.=	321	KP1=	158	TAN1=	-0.8655	0.5009	0.0000
		KP2=	169	TAN2=	0.8655	-0.5009	0.0000
LINE CONNECTS KEYPOINTS 150 168							
LINE NO.=	322	KP1=	150	TAN1=	-0.9844	0.1762	0.0000
		KP2=	168	TAN2=	0.9844	-0.1762	0.0000
LINE CONNECTS KEYPOINTS 144 167							
LINE NO.=	323	KP1=	144	TAN1=	-0.9856	0.1691	0.0000
		KP2=	167	TAN2=	0.9856	-0.1691	0.0000
LINE CONNECTS KEYPOINTS 24 47							
LINE NO.=	324	KP1=	24	TAN1=	-0.9856	-0.1691	0.0000
		KP2=	47	TAN2=	0.9856	0.1691	0.0000
LINE CONNECTS KEYPOINTS 30 48							
LINE NO.=	325	KP1=	30	TAN1=	-0.9844	-0.1762	0.0000
		KP2=	48	TAN2=	0.9844	0.1762	0.0000
LINE CONNECTS KEYPOINTS 38 49							
LINE NO.=	326	KP1=	38	TAN1=	-0.8655	-0.5009	0.0000
		KP2=	49	TAN2=	0.8655	0.5009	0.0000
LINE CONNECTS KEYPOINTS 41 50							
LINE NO.=	327	KP1=	41	TAN1=	-0.8584	-0.5130	0.0000
		KP2=	50	TAN2=	0.8584	0.5130	0.0000
LINE CONNECTS KEYPOINTS 43 51							
LINE NO.=	328	KP1=	43	TAN1=	-0.8541	-0.5201	0.0000
		KP2=	51	TAN2=	0.8541	0.5201	0.0000
LINE CONNECTS KEYPOINTS 109 117							
LINE NO.=	329	KP1=	109	TAN1=	-0.5201	-0.8541	0.0000
		KP2=	117	TAN2=	0.5201	0.8541	0.0000
LINE CONNECTS KEYPOINTS 107 116							
LINE NO.=	330	KP1=	107	TAN1=	-0.5130	-0.8584	0.0000
		KP2=	116	TAN2=	0.5130	0.8584	0.0000
LINE CONNECTS KEYPOINTS 104 115							
LINE NO.=	331	KP1=	104	TAN1=	-0.5009	-0.8655	0.0000
		KP2=	115	TAN2=	0.5009	0.8655	0.0000
LINE CONNECTS KEYPOINTS 96 114							
LINE NO.=	332	KP1=	96	TAN1=	-0.1762	-0.9844	0.0000
		KP2=	114	TAN2=	0.1762	0.9844	0.0000
LINE CONNECTS KEYPOINTS 90 113							
LINE NO.=	333	KP1=	90	TAN1=	-0.1691	-0.9856	0.0000
		KP2=	113	TAN2=	0.1691	0.9856	0.0000
LINE CONNECTS KEYPOINTS 110 112							
LINE NO.=	334	KP1=	110	TAN1=	0.0000	-1.0000	0.0000
		KP2=	112	TAN2=	0.0000	1.0000	0.0000
SET DIVISIONS ON ALL SELECTED UNMESHED LINES							
TO NDIV = 2, SPACING RATIO = 1.000							
Line set 18 OB inner thickness							
LINE CONNECTS KEYPOINTS 223 229							
LINE NO.=	335	KP1=	223	TAN1=	0.0000	1.0000	0.0000
		KP2=	229	TAN2=	0.0000	-1.0000	0.0000
LINE CONNECTS KEYPOINTS 224 230							
LINE NO.=	336	KP1=	224	TAN1=	-0.1691	0.9856	0.0000
		KP2=	230	TAN2=	0.1691	-0.9856	0.0000
LINE CONNECTS KEYPOINTS 225 231							
LINE NO.=	337	KP1=	225	TAN1=	-0.1762	0.9844	0.0000
		KP2=	231	TAN2=	0.1762	-0.9844	0.0000

LINE CONNECTS KEYPOINTS		226	232			
LINE NO.=	338	KP1=	226	TAN1=	-0.5009	0.8655
		KP2=	232	TAN2=	0.5009	-0.8655
					0.0000	0.0000
LINE CONNECTS KEYPOINTS		227	233			
LINE NO.=	339	KP1=	227	TAN1=	-0.5130	0.8584
		KP2=	233	TAN2=	0.5130	-0.8584
					0.0000	0.0000
LINE CONNECTS KEYPOINTS		228	234			
LINE NO.=	340	KP1=	228	TAN1=	-0.5201	0.8541
		KP2=	234	TAN2=	0.5201	-0.8541
					0.0000	0.0000
LINE CONNECTS KEYPOINTS		171	178			
LINE NO.=	341	KP1=	171	TAN1=	-0.8541	0.5201
		KP2=	178	TAN2=	0.8541	-0.5201
					0.0000	0.0000
LINE CONNECTS KEYPOINTS		170	177			
LINE NO.=	342	KP1=	170	TAN1=	-0.8584	0.5130
		KP2=	177	TAN2=	0.8584	-0.5130
					0.0000	0.0000
LINE CONNECTS KEYPOINTS		169	176			
LINE NO.=	343	KP1=	169	TAN1=	-0.8655	0.5009
		KP2=	176	TAN2=	0.8655	-0.5009
					0.0000	0.0000
LINE CONNECTS KEYPOINTS		168	175			
LINE NO.=	344	KP1=	168	TAN1=	-0.9844	0.1762
		KP2=	175	TAN2=	0.9844	-0.1762
					0.0000	0.0000
LINE CONNECTS KEYPOINTS		167	174			
LINE NO.=	345	KP1=	167	TAN1=	-0.9856	0.1691
		KP2=	174	TAN2=	0.9856	-0.1691
					0.0000	0.0000
LINE CONNECTS KEYPOINTS		47	54			
LINE NO.=	346	KP1=	47	TAN1=	-0.9856	-0.1691
		KP2=	54	TAN2=	0.9856	0.1691
					0.0000	0.0000
LINE CONNECTS KEYPOINTS		48	55			
LINE NO.=	347	KP1=	48	TAN1=	-0.9844	-0.1762
		KP2=	55	TAN2=	0.9844	0.1762
					0.0000	0.0000
LINE CONNECTS KEYPOINTS		49	56			
LINE NO.=	348	KP1=	49	TAN1=	-0.8655	-0.5009
		KP2=	56	TAN2=	0.8655	0.5009
					0.0000	0.0000
LINE CONNECTS KEYPOINTS		50	57			
LINE NO.=	349	KP1=	50	TAN1=	-0.8584	-0.5130
		KP2=	57	TAN2=	0.8584	0.5130
					0.0000	0.0000
LINE CONNECTS KEYPOINTS		51	58			
LINE NO.=	350	KP1=	51	TAN1=	-0.8541	-0.5201
		KP2=	58	TAN2=	0.8541	0.5201
					0.0000	0.0000
LINE CONNECTS KEYPOINTS		117	124			
LINE NO.=	351	KP1=	117	TAN1=	-0.5201	-0.8541
		KP2=	124	TAN2=	0.5201	0.8541
					0.0000	0.0000
LINE CONNECTS KEYPOINTS		116	123			
LINE NO.=	352	KP1=	116	TAN1=	-0.5130	-0.8584
		KP2=	123	TAN2=	0.5130	0.8584
					0.0000	0.0000
LINE CONNECTS KEYPOINTS		115	122			
LINE NO.=	353	KP1=	115	TAN1=	-0.5009	-0.8655
		KP2=	122	TAN2=	0.5009	0.8655
					0.0000	0.0000
LINE CONNECTS KEYPOINTS		114	121			
LINE NO.=	354	KP1=	114	TAN1=	-0.1762	-0.9844
		KP2=	121	TAN2=	0.1762	0.9844
					0.0000	0.0000
LINE CONNECTS KEYPOINTS		113	120			

LINE NO.=	355	KP1=	113	TAN1=	-0.1691	-0.9856	0.0000
		KP2=	120	TAN2=	0.1691	0.9856	0.0000
LINE CONNECTS KEYPOINTS 112 119							
LINE NO.=	356	KP1=	112	TAN1=	0.0000	-1.0000	0.0000
		KP2=	119	TAN2=	0.0000	1.0000	0.0000
SET DIVISIONS ON ALL SELECTED UNMESHED LINES							
TO NDIV = 2, SPACING RATIO = 1.000							
Line set 19 skirt thickness							
LINE CONNECTS KEYPOINTS 229 235							
LINE NO.=	357	KP1=	229	TAN1=	0.0000	1.0000	0.0000
		KP2=	235	TAN2=	0.0000	-1.0000	0.0000
LINE CONNECTS KEYPOINTS 230 236							
LINE NO.=	358	KP1=	230	TAN1=	-0.1691	0.9856	0.0000
		KP2=	236	TAN2=	0.1691	-0.9856	0.0000
LINE CONNECTS KEYPOINTS 231 237							
LINE NO.=	359	KP1=	231	TAN1=	-0.1762	0.9844	0.0000
		KP2=	237	TAN2=	0.1762	-0.9844	0.0000
LINE CONNECTS KEYPOINTS 232 238							
LINE NO.=	360	KP1=	232	TAN1=	-0.5009	0.8655	0.0000
		KP2=	238	TAN2=	0.5009	-0.8655	0.0000
LINE CONNECTS KEYPOINTS 233 239							
LINE NO.=	361	KP1=	233	TAN1=	-0.5130	0.8584	0.0000
		KP2=	239	TAN2=	0.5130	-0.8584	0.0000
LINE CONNECTS KEYPOINTS 234 240							
LINE NO.=	362	KP1=	234	TAN1=	-0.5201	0.8541	0.0000
		KP2=	240	TAN2=	0.5201	-0.8541	0.0000
LINE CONNECTS KEYPOINTS 178 185							
LINE NO.=	363	KP1=	178	TAN1=	-0.8541	0.5201	0.0000
		KP2=	185	TAN2=	0.8541	-0.5201	0.0000
LINE CONNECTS KEYPOINTS 177 184							
LINE NO.=	364	KP1=	177	TAN1=	-0.8584	0.5130	0.0000
		KP2=	184	TAN2=	0.8584	-0.5130	0.0000
LINE CONNECTS KEYPOINTS 176 183							
LINE NO.=	365	KP1=	176	TAN1=	-0.8655	0.5009	0.0000
		KP2=	183	TAN2=	0.8655	-0.5009	0.0000
LINE CONNECTS KEYPOINTS 175 182							
LINE NO.=	366	KP1=	175	TAN1=	-0.9844	0.1762	0.0000
		KP2=	182	TAN2=	0.9844	-0.1762	0.0000
LINE CONNECTS KEYPOINTS 174 181							
LINE NO.=	367	KP1=	174	TAN1=	-0.9856	0.1691	0.0000
		KP2=	181	TAN2=	0.9856	-0.1691	0.0000
LINE CONNECTS KEYPOINTS 54 61							
LINE NO.=	368	KP1=	54	TAN1=	-0.9856	-0.1691	0.0000
		KP2=	61	TAN2=	0.9856	0.1691	0.0000
LINE CONNECTS KEYPOINTS 55 62							
LINE NO.=	369	KP1=	55	TAN1=	-0.9844	-0.1762	0.0000
		KP2=	62	TAN2=	0.9844	0.1762	0.0000
LINE CONNECTS KEYPOINTS 56 63							
LINE NO.=	370	KP1=	56	TAN1=	-0.8655	-0.5009	0.0000
		KP2=	63	TAN2=	0.8655	0.5009	0.0000
LINE CONNECTS KEYPOINTS 57 64							
LINE NO.=	371	KP1=	57	TAN1=	-0.8584	-0.5130	0.0000
		KP2=	64	TAN2=	0.8584	0.5130	0.0000

LINE CONNECTS KEYPOINTS 58 65
 LINE NO.= 372 KP1= 58 TAN1= -0.8541 -0.5201 0.0000
 KP2= 65 TAN2= 0.8541 0.5201 0.0000

LINE CONNECTS KEYPOINTS 124 131
 LINE NO.= 373 KP1= 124 TAN1= -0.5201 -0.8541 0.0000
 KP2= 131 TAN2= 0.5201 0.8541 0.0000

LINE CONNECTS KEYPOINTS 123 130
 LINE NO.= 374 KP1= 123 TAN1= -0.5130 -0.8584 0.0000
 KP2= 130 TAN2= 0.5130 0.8584 0.0000

LINE CONNECTS KEYPOINTS 122 129
 LINE NO.= 375 KP1= 122 TAN1= -0.5009 -0.8655 0.0000
 KP2= 129 TAN2= 0.5009 0.8655 0.0000

LINE CONNECTS KEYPOINTS 121 128
 LINE NO.= 376 KP1= 121 TAN1= -0.1762 -0.9844 0.0000
 KP2= 128 TAN2= 0.1762 0.9844 0.0000

LINE CONNECTS KEYPOINTS 120 127
 LINE NO.= 377 KP1= 120 TAN1= -0.1691 -0.9856 0.0000
 KP2= 127 TAN2= 0.1691 0.9856 0.0000

LINE CONNECTS KEYPOINTS 119 126
 LINE NO.= 378 KP1= 119 TAN1= 0.0000 -1.0000 0.0000
 KP2= 126 TAN2= 0.0000 1.0000 0.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
 TO NDIV = 2, SPACING RATIO = 1.000
 lines to fill in lids
 lines tube height

LINE CONNECTS KEYPOINTS 195 194
 LINE NO.= 379 KP1= 195 TAN1= 0.0000 -1.0000 0.0000
 KP2= 194 TAN2= 0.0000 1.0000 0.0000

LINE CONNECTS KEYPOINTS 191 190
 LINE NO.= 380 KP1= 191 TAN1= 0.0000 -1.0000 0.0000
 KP2= 190 TAN2= 0.0000 1.0000 0.0000

LINE CONNECTS KEYPOINTS 187 68
 LINE NO.= 381 KP1= 187 TAN1= 0.0000 -1.0000 0.0000
 KP2= 68 TAN2= 0.0000 1.0000 0.0000

LINE CONNECTS KEYPOINTS 71 72
 LINE NO.= 382 KP1= 71 TAN1= 0.0000 -1.0000 0.0000
 KP2= 72 TAN2= 0.0000 1.0000 0.0000

LINE CONNECTS KEYPOINTS 75 76
 LINE NO.= 383 KP1= 75 TAN1= 0.0000 -1.0000 0.0000
 KP2= 76 TAN2= 0.0000 1.0000 0.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
 TO NDIV = 4, SPACING RATIO = 1.000
 end lines

LINE CONNECTS KEYPOINTS 222 197
 LINE NO.= 384 KP1= 222 TAN1= 0.0000 -1.0000 0.0000
 KP2= 197 TAN2= 0.0000 1.0000 0.0000

LINE CONNECTS KEYPOINTS 78 110
 LINE NO.= 385 KP1= 78 TAN1= 0.0000 -1.0000 0.0000
 KP2= 110 TAN2= 0.0000 1.0000 0.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
 TO NDIV = 4, SPACING RATIO = 1.000
 area set 1, tubes

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 195 196 205 201

AREA NUMBER = 1

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 200 201 205 204

AREA NUMBER = 2

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 193 194 200 204

AREA NUMBER = 3

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 191 192 203 199

AREA NUMBER = 4

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 198 199 203 202

AREA NUMBER = 5

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 189 190 198 202

AREA NUMBER = 6

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 187 188 138 133

AREA NUMBER = 7

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 133 138 18 13

AREA NUMBER = 8

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 69 68 13 18

AREA NUMBER = 9

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 71 70 85 80

AREA NUMBER = 10

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 80 85 86 81

AREA NUMBER = 11

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 73 72 81 86

AREA NUMBER = 12

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 75 74 87 82

AREA NUMBER = 13

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 82 87 88 83

AREA NUMBER = 14

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 77 76 83 88

AREA NUMBER = 15

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 209 210 215 214

AREA NUMBER = 16

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 215 210 220 217

AREA NUMBER = 17

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 216 217 220 219

AREA NUMBER = 18

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 209 214 216 219

AREA NUMBER = 19

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 145 208 213 151

AREA NUMBER = 20

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 213 208 159 155

AREA NUMBER = 21

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 152 155 159 146

AREA NUMBER = 22

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 145 151 152 146

AREA NUMBER = 23

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 134 139 140 135

AREA NUMBER = 24

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 135 140 20 15

AREA NUMBER = 25

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 19 14 15 20

AREA NUMBER = 26

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 19 139 134 14

AREA NUMBER = 27

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 92 25 31 98

AREA NUMBER = 28

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 31 25 26 32

AREA NUMBER = 29

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 32 26 39 35

AREA NUMBER = 30

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 92 98 35 39

AREA NUMBER = 31

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 94 93 99 100

AREA NUMBER = 32

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 99 93 106 102

AREA NUMBER = 33

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 102 106 107 103

AREA NUMBER = 34

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 94 100 103 107

AREA NUMBER = 35

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 156 160 161 157

AREA NUMBER = 36

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 157 161 148 154

AREA NUMBER = 37

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 147 153 154 148

AREA NUMBER = 38

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 147 160 156 153

AREA NUMBER = 39

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 136 141 142 137

AREA NUMBER = 40

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 137 142 22 17

AREA NUMBER = 41

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 21 16 17 22

AREA NUMBER = 42

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 21 141 136 16

AREA NUMBER = 43

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 33 27 28 34

AREA NUMBER = 44

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 34 28 41 37

AREA NUMBER = 45

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 40 36 37 41

AREA NUMBER = 46

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 40 27 33 36

AREA NUMBER = 47

area set 2, plates

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 204 205 210 209

AREA NUMBER = 48

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 192 193 204 203

AREA NUMBER = 49

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 203 204 209 208

AREA NUMBER = 50

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 208 209 219 159

AREA NUMBER = 51

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 202 203 208 145

AREA NUMBER = 52

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 146 159 160 147

AREA NUMBER = 53

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 188 189 202 138

AREA NUMBER = 54

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 138 202 145 139

AREA NUMBER = 55

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 139 145 146 140

AREA NUMBER = 56

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 140 146 147 141

AREA NUMBER = 57

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 141 147 148 142

AREA NUMBER = 58

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 18 138 139 19

AREA NUMBER = 59

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 20 140 141 21

AREA NUMBER = 60

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 70 69 18 35

AREA NUMBER = 61

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 85 18 19 25

AREA NUMBER = 62

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 25 19 20 26

AREA NUMBER = 63

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 26 20 21 27

AREA NUMBER = 64

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 27 21 22 28

AREA NUMBER = 65

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 86 85 25 92

AREA NUMBER = 66

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 39 26 27 40

AREA NUMBER = 67

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 74 73 86 87

AREA NUMBER = 68

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 87 86 92 93

AREA NUMBER = 69

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 93 92 39 106

AREA NUMBER = 70

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 88 87 93 94

AREA NUMBER = 71
area set 3, end guides

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 196 197 206 205

AREA NUMBER = 72

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 205 206 211 210

AREA NUMBER = 73

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 206 207 212 211

AREA NUMBER = 74

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 210 211 218 220

AREA NUMBER = 75

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 148 161 158 149

AREA NUMBER = 76

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 142 148 149 143

AREA NUMBER = 77

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 143 149 150 144

AREA NUMBER = 78

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 22 142 143 23

AREA NUMBER = 79

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 28 22 23 29

AREA NUMBER = 80

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 29 23 24 30

AREA NUMBER = 81

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 41 28 29 38

AREA NUMBER = 82

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 95 94 107 104

AREA NUMBER = 83

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 89 88 94 95

AREA NUMBER = 84

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 90 89 95 96

AREA NUMBER = 85

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 78 77 88 89

AREA NUMBER = 86

area set 4, corner guides

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 219 220 221 162

AREA NUMBER = 87

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 159 219 162 160

AREA NUMBER = 88

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 160 162 163 161

AREA NUMBER = 89

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 107 106 42 109

AREA NUMBER = 90

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 106 39 40 42

AREA NUMBER = 91

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 42 40 41 43

AREA NUMBER = 92

ACTIVE COORDINATE SYSTEM SET TO 1 (CYLINDRICAL)

area set 5, inner barrier

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 222 223 224 207

AREA NUMBER = 93

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 207 224 225 212

AREA NUMBER = 94

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 212 225 226 213

AREA NUMBER = 95

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 218 226 227 220

AREA NUMBER = 96

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 220 227 228 221

AREA NUMBER = 97

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 221 228 171 163

AREA NUMBER = 98

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 163 171 170 161

AREA NUMBER = 99

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 161 170 169 158

AREA NUMBER = 100

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 158 169 168 150

AREA NUMBER = 101

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 150 168 167 144

AREA NUMBER = 102

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 144 167 47 24

AREA NUMBER = 103

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 24 47 48 30

AREA NUMBER = 104

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 30 48 49 38

AREA NUMBER = 105

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 38 49 50 41

AREA NUMBER = 106

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 41 50 51 43

AREA NUMBER = 107

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 43 51 117 109

AREA NUMBER = 108

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 109 117 116 107

AREA NUMBER = 109

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 107 116 115 104

AREA NUMBER = 110

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 104 115 114 96

AREA NUMBER = 111

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 90 96 114 113

AREA NUMBER = 112

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 90 113 112 110

AREA NUMBER = 113

area set 6, outer barrier

ACTIVE COORDINATE SYSTEM SET TO 0 (CARTESIAN)

DRAG ALL SELECTED AREAS

ALONG LINES

1,

*** WARNING *** CP= 5.250 TIME= 20:36:14
Area 1 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.250 TIME= 20:36:14
Area 2 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.250 TIME= 20:36:14
Area 3 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.250 TIME= 20:36:14
Area 4 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.250 TIME= 20:36:14
Area 5 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.250 TIME= 20:36:14
Area 6 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.260 TIME= 20:36:14
Area 7 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.260 TIME= 20:36:14
Area 8 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.260 TIME= 20:36:14
Area 9 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.260 TIME= 20:36:14
Area 10 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.260 TIME= 20:36:14
Area 11 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.260 TIME= 20:36:14
Area 12 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.260 TIME= 20:36:14
Area 13 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.270 TIME= 20:36:14
Area 14 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.270 TIME= 20:36:14
Area 15 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.270 TIME= 20:36:14
Area 16 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.270 TIME= 20:36:14
Area 17 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.270 TIME= 20:36:14

Area 18 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.270 TIME= 20:36:14
Area 19 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.270 TIME= 20:36:14
Area 20 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.270 TIME= 20:36:14
Area 21 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.270 TIME= 20:36:14
Area 22 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.270 TIME= 20:36:14
Area 23 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.270 TIME= 20:36:14
Area 24 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.270 TIME= 20:36:14
Area 25 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.280 TIME= 20:36:14
Area 26 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.280 TIME= 20:36:14
Area 27 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.280 TIME= 20:36:14
Area 28 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.280 TIME= 20:36:14
Area 29 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.280 TIME= 20:36:14
Area 30 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.280 TIME= 20:36:14
Area 31 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.280 TIME= 20:36:14
Area 32 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.280 TIME= 20:36:14
Area 33 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.280 TIME= 20:36:14
Area 34 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.280 TIME= 20:36:14
Area 35 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.280 TIME= 20:36:14
Area 36 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.290 TIME= 20:36:14
Area 37 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.290 TIME= 20:36:14
Area 38 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.290 TIME= 20:36:14
Area 39 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.290 TIME= 20:36:14
Area 40 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.290 TIME= 20:36:14
Area 41 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.290 TIME= 20:36:14
Area 42 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.290 TIME= 20:36:14
Area 43 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.290 TIME= 20:36:14
Area 44 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.290 TIME= 20:36:14
Area 45 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.290 TIME= 20:36:14
Area 46 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.300 TIME= 20:36:14
Area 47 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.300 TIME= 20:36:14
Area 48 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.300 TIME= 20:36:14
Area 49 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.300 TIME= 20:36:14
Area 50 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.300 TIME= 20:36:14
Area 51 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.300 TIME= 20:36:14
Area 52 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.310 TIME= 20:36:14
Area 53 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.310 TIME= 20:36:14
Area 54 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.310 TIME= 20:36:14
Area 55 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.310 TIME= 20:36:14
Area 56 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.310 TIME= 20:36:14
Area 57 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.310 TIME= 20:36:14
Area 58 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.310 TIME= 20:36:14
Area 59 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.310 TIME= 20:36:14
Area 60 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.320 TIME= 20:36:14
Area 61 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.320 TIME= 20:36:14
Area 62 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.320 TIME= 20:36:14
Area 63 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.320 TIME= 20:36:14
Area 64 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.320 TIME= 20:36:14
Area 65 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.320 TIME= 20:36:14
Area 66 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.320 TIME= 20:36:14
Area 67 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.320 TIME= 20:36:14
Area 68 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.320 TIME= 20:36:14
Area 69 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.320 TIME= 20:36:14
Area 70 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.320 TIME= 20:36:14
Area 71 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.330 TIME= 20:36:14
Area 72 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.330 TIME= 20:36:14
Area 73 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.330 TIME= 20:36:14
Area 74 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.330 TIME= 20:36:14
Area 75 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.330 TIME= 20:36:14
Area 76 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.330 TIME= 20:36:14
Area 77 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.330 TIME= 20:36:14
Area 78 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.330 TIME= 20:36:14
Area 79 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.330 TIME= 20:36:14
Area 80 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.330 TIME= 20:36:14
Area 81 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.340 TIME= 20:36:14
Area 82 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.340 TIME= 20:36:14
Area 83 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.340 TIME= 20:36:14
Area 84 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.340 TIME= 20:36:14
Area 85 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.340 TIME= 20:36:14
Area 86 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.340 TIME= 20:36:14
Area 87 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.340 TIME= 20:36:14

Area 88 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.340 TIME= 20:36:14
Area 89 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.340 TIME= 20:36:14
Area 90 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.340 TIME= 20:36:14
Area 91 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.350 TIME= 20:36:14
Area 92 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.350 TIME= 20:36:14
Area 93 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.350 TIME= 20:36:14
Area 94 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.350 TIME= 20:36:14
Area 95 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.350 TIME= 20:36:15
Area 96 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.350 TIME= 20:36:15
Area 97 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.350 TIME= 20:36:15
Area 98 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.350 TIME= 20:36:15
Area 99 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.350 TIME= 20:36:15
Area 100 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.350 TIME= 20:36:15
Area 101 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.360 TIME= 20:36:15
Area 102 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.360 TIME= 20:36:15
Area 103 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.360 TIME= 20:36:15
Area 104 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.360 TIME= 20:36:15
Area 105 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.360 TIME= 20:36:15
Area 106 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.360 TIME= 20:36:15
Area 107 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.360 TIME= 20:36:15
Area 108 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.360 TIME= 20:36:15
Area 109 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.360 TIME= 20:36:15
Area 110 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.360 TIME= 20:36:15
Area 111 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.370 TIME= 20:36:15
Area 112 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.370 TIME= 20:36:15
Area 113 is not meshed. Volume will be generated without elements.

SELECT FOR ITEM=LOC COMPONENT=Z BETWEEN 2.2875 AND 2.2875
KABS= 0. TOLERANCE= 0.114375E-01

113 AREAS (OF 509 DEFINED) SELECTED BY ASEL COMMAND.

ACTIVE COORDINATE SYSTEM SET TO 1 (CYLINDRICAL)

UNSELECT FOR ITEM=LOC COMPONENT=X BETWEEN 0.00000E+00 AND 0.68095
KABS= 0. TOLERANCE= 0.000000E+00

21 AREAS (OF 509 DEFINED) SELECTED BY ASEL COMMAND.

ACTIVE COORDINATE SYSTEM SET TO 0 (CARTESIAN)

DRAG ALL SELECTED AREAS
ALONG LINES
2,

*** WARNING *** CP= 12.560 TIME= 20:36:29
Area 441 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 12.560 TIME= 20:36:29
Area 444 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 12.560 TIME= 20:36:29
Area 448 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 12.560 TIME= 20:36:29
Area 451 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 12.570 TIME= 20:36:29
Area 454 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 12.570 TIME= 20:36:29
Area 458 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 12.570 TIME= 20:36:29
Area 461 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 12.570 TIME= 20:36:29
Area 464 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 12.570 TIME= 20:36:29
Area 468 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 12.570 TIME= 20:36:29
Area 471 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 12.570 TIME= 20:36:29
Area 475 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 12.570 TIME= 20:36:29
Area 478 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 12.570 TIME= 20:36:29
Area 482 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 12.570 TIME= 20:36:29
Area 485 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 12.570 TIME= 20:36:29
Area 488 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 12.580 TIME= 20:36:29
Area 492 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 12.580 TIME= 20:36:29
Area 495 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 12.580 TIME= 20:36:29
Area 498 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 12.580 TIME= 20:36:29
Area 502 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 12.580 TIME= 20:36:29
Area 505 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 12.580 TIME= 20:36:29
Area 509 is not meshed. Volume will be generated without elements.
copy areas from top of basket to bottom of lid

SELECT FOR ITEM=LOC COMPONENT=Z BETWEEN 2.2775 AND 2.2775
KABS= 0. TOLERANCE= 0.113875E-01

113 AREAS (OF 594 DEFINED) SELECTED BY ASEL COMMAND.

ACTIVE COORDINATE SYSTEM SET TO 1 (CYLINDRICAL)

RESELECT FOR ITEM=LOC COMPONENT=X BETWEEN 0.00000E+00 AND 0.68095
KABS= 0. TOLERANCE= 0.000000E+00

92 AREAS (OF 594 DEFINED) SELECTED BY ASEL COMMAND.

ACTIVE COORDINATE SYSTEM SET TO 0 (CARTESIAN)

GENERATE 2 TOTAL SETS OF AREAS
SET IS ALL SELECTED AREAS
DX,DY,DZ= 0.000E+00 0.000E+00 0.100E-01 CSYS= 0

MERGE COINCIDENT KEYPOINTS WITHIN TOLERANCE OF 0.10000E-03

KEYPOINT	373 USED FOR KEYPOINT(S)	521
KEYPOINT	375 USED FOR KEYPOINT(S)	522
KEYPOINT	377 USED FOR KEYPOINT(S)	523
KEYPOINT	379 USED FOR KEYPOINT(S)	458
KEYPOINT	381 USED FOR KEYPOINT(S)	540
KEYPOINT	383 USED FOR KEYPOINT(S)	542
KEYPOINT	385 USED FOR KEYPOINT(S)	496
KEYPOINT	387 USED FOR KEYPOINT(S)	524
KEYPOINT	389 USED FOR KEYPOINT(S)	527
KEYPOINT	391 USED FOR KEYPOINT(S)	528
KEYPOINT	393 USED FOR KEYPOINT(S)	531
KEYPOINT	395 USED FOR KEYPOINT(S)	532
KEYPOINT	397 USED FOR KEYPOINT(S)	533
KEYPOINT	399 USED FOR KEYPOINT(S)	514
KEYPOINT	401 USED FOR KEYPOINT(S)	545
KEYPOINT	403 USED FOR KEYPOINT(S)	544
KEYPOINT	405 USED FOR KEYPOINT(S)	492
KEYPOINT	407 USED FOR KEYPOINT(S)	535
KEYPOINT	409 USED FOR KEYPOINT(S)	538
KEYPOINT	410 USED FOR KEYPOINT(S)	537

LINE	837 USED FOR LINE(S)	1121
LINE	847 USED FOR LINE(S)	1124
LINE	852 USED FOR LINE(S)	1152
LINE	862 USED FOR LINE(S)	1157
LINE	867 USED FOR LINE(S)	1125
LINE	877 USED FOR LINE(S)	1131
LINE	887 USED FOR LINE(S)	1138
LINE	897 USED FOR LINE(S)	1141
LINE	902 USED FOR LINE(S)	1162
LINE	912 USED FOR LINE(S)	1160
LINE	917 USED FOR LINE(S)	1143
LINE	923 USED FOR LINE(S)	1149

generate lines to fill in lid at top of WP
lines tube height

LINE CONNECTS KEYPOINTS 414 421
LINE NO.= 1121 KP1= 414 TAN1= 0.0000 -1.0000 0.0000
KP2= 421 TAN2= 0.0000 1.0000 0.0000

LINE CONNECTS KEYPOINTS 422 429
LINE NO.= 1124 KP1= 422 TAN1= 0.0000 -1.0000 0.0000
KP2= 429 TAN2= 0.0000 1.0000 0.0000

LINE CONNECTS KEYPOINTS 430 437
LINE NO.= 1125 KP1= 430 TAN1= 0.0000 -1.0000 0.0000
KP2= 437 TAN2= 0.0000 1.0000 0.0000

LINE CONNECTS KEYPOINTS 438 445
LINE NO.= 1131 KP1= 438 TAN1= 0.0000 -1.0000 0.0000
KP2= 445 TAN2= 0.0000 1.0000 0.0000

LINE CONNECTS KEYPOINTS 446 453
LINE NO.= 1138 KP1= 446 TAN1= 0.0000 -1.0000 0.0000
KP2= 453 TAN2= 0.0000 1.0000 0.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
TO NDIV = 4, SPACING RATIO = 1.000
end lines

LINE CONNECTS KEYPOINTS 370 518
LINE NO.= 1141 KP1= 370 TAN1= 0.0000 -1.0000 0.0000
KP2= 518 TAN2= 0.0000 1.0000 0.0000

LINE CONNECTS KEYPOINTS 539 413
LINE NO.= 1143 KP1= 539 TAN1= 0.0000 -1.0000 0.0000
KP2= 413 TAN2= 0.0000 1.0000 0.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
TO NDIV = 4, SPACING RATIO = 1.000

DEFINE AREA BY LIST OF LINES
LINE LIST = 832 1116 1120 1141
(TRAVERSED IN SAME DIRECTION AS LINE 832)

AREA NUMBER = 687

DEFINE AREA BY LIST OF LINES
LINE LIST = 936 937 941 1121
(TRAVERSED IN SAME DIRECTION AS LINE 936)

AREA NUMBER = 688

DEFINE AREA BY LIST OF LINES
LINE LIST = 946 947 951 1124
(TRAVERSED IN SAME DIRECTION AS LINE 946)

AREA NUMBER = 689

DEFINE AREA BY LIST OF LINES
LINE LIST = 956 959 961 1125
(TRAVERSED IN SAME DIRECTION AS LINE 956)

AREA NUMBER = 690

DEFINE AREA BY LIST OF LINES
LINE LIST = 966 969 971 1131
(TRAVERSED IN SAME DIRECTION AS LINE 966)

AREA NUMBER = 691

DEFINE AREA BY LIST OF LINES
LINE LIST = 976 979 981 1138

```
(TRAVERSED IN SAME DIRECTION AS LINE 976)
AREA NUMBER = 692
DEFINE AREA BY LIST OF LINES
LINE LIST = 932 1143 1147 1151
(TRAVERSED IN SAME DIRECTION AS LINE 932)
AREA NUMBER = 693
DEFINE AREA BY LIST OF LINES
LINE LIST = 842 1122 1123
(TRAVERSED IN SAME DIRECTION AS LINE 842)
AREA NUMBER = 694
DEFINE AREA BY LIST OF LINES
LINE LIST = 985 989 990 993
(TRAVERSED IN SAME DIRECTION AS LINE 985)
AREA NUMBER = 695
DEFINE AREA BY LIST OF LINES
LINE LIST = 997 1001 1002 1005
(TRAVERSED IN SAME DIRECTION AS LINE 997)
AREA NUMBER = 696
DEFINE AREA BY LIST OF LINES
LINE LIST = 1010 1013 1015 1018
(TRAVERSED IN SAME DIRECTION AS LINE 1010)
AREA NUMBER = 697
DEFINE AREA BY LIST OF LINES
LINE LIST = 1021 1025 1028 1029
(TRAVERSED IN SAME DIRECTION AS LINE 1021)
AREA NUMBER = 698
DEFINE AREA BY LIST OF LINES
LINE LIST = 1033 1037 1040 1041
(TRAVERSED IN SAME DIRECTION AS LINE 1033)
AREA NUMBER = 699
DEFINE AREA BY LIST OF LINES
LINE LIST = 922 1144 1148
(TRAVERSED IN SAME DIRECTION AS LINE 922)
AREA NUMBER = 700
DEFINE AREA BY LIST OF LINES
LINE LIST = 857 1153 1156
(TRAVERSED IN SAME DIRECTION AS LINE 857)
AREA NUMBER = 701
DEFINE AREA BY LIST OF LINES
LINE LIST = 1046 1049 1051 1054
(TRAVERSED IN SAME DIRECTION AS LINE 1046)
AREA NUMBER = 702
DEFINE AREA BY LIST OF LINES
LINE LIST = 1058 1061 1063 1066
(TRAVERSED IN SAME DIRECTION AS LINE 1058)
AREA NUMBER = 703
```

DEFINE AREA BY LIST OF LINES

LINE LIST = 1070 1073 1075 1078
(TRAVERSED IN SAME DIRECTION AS LINE 1070)

AREA NUMBER = 704

DEFINE AREA BY LIST OF LINES

LINE LIST = 907 1159 1163
(TRAVERSED IN SAME DIRECTION AS LINE 907)

AREA NUMBER = 705

DEFINE AREA BY LIST OF LINES

LINE LIST = 872 1126 1130
(TRAVERSED IN SAME DIRECTION AS LINE 872)

AREA NUMBER = 706

DEFINE AREA BY LIST OF LINES

LINE LIST = 882 1132 1133 1137
(TRAVERSED IN SAME DIRECTION AS LINE 882)

AREA NUMBER = 707

DEFINE AREA BY LIST OF LINES

LINE LIST = 892 1139 1140
(TRAVERSED IN SAME DIRECTION AS LINE 892)

AREA NUMBER = 708

SELECT FOR ITEM=LOC COMPONENT=Z BETWEEN 2.3075 AND 2.3075
KABS= 0. TOLERANCE= 0.115375E-01

135 AREAS (OF 708 DEFINED) SELECTED BY ASEL COMMAND.

DRAG ALL SELECTED AREAS

ALONG LINES

3,

*** WARNING *** CP= 16.240 TIME= 20:36:38
Area 514 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.240 TIME= 20:36:38
Area 518 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.240 TIME= 20:36:38
Area 522 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.240 TIME= 20:36:38
Area 526 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.240 TIME= 20:36:38
Area 530 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.240 TIME= 20:36:38
Area 534 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.240 TIME= 20:36:38
Area 538 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.240 TIME= 20:36:38
Area 542 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.240 TIME= 20:36:38
Area 546 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.240 TIME= 20:36:38
Area 550 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.240 TIME= 20:36:38

Area 554 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.240 TIME= 20:36:38
Area 558 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.240 TIME= 20:36:38
Area 562 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.240 TIME= 20:36:38
Area 566 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.240 TIME= 20:36:38
Area 570 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.240 TIME= 20:36:38
Area 574 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.250 TIME= 20:36:38
Area 578 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.250 TIME= 20:36:38
Area 582 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.250 TIME= 20:36:38
Area 586 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.250 TIME= 20:36:38
Area 590 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.250 TIME= 20:36:38
Area 594 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.250 TIME= 20:36:38
Area 595 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.250 TIME= 20:36:38
Area 596 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.250 TIME= 20:36:38
Area 597 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.250 TIME= 20:36:38
Area 598 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.250 TIME= 20:36:38
Area 599 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.250 TIME= 20:36:38
Area 600 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.250 TIME= 20:36:38
Area 601 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.250 TIME= 20:36:38
Area 602 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.250 TIME= 20:36:38
Area 603 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.250 TIME= 20:36:38
Area 604 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.250 TIME= 20:36:38
Area 605 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.250 TIME= 20:36:38
Area 606 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.250 TIME= 20:36:38
Area 607 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.250 TIME= 20:36:38
Area 608 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.250 TIME= 20:36:38
Area 609 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.260 TIME= 20:36:38
Area 610 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.260 TIME= 20:36:38
Area 611 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.260 TIME= 20:36:38
Area 612 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.260 TIME= 20:36:38
Area 613 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.260 TIME= 20:36:38
Area 614 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.260 TIME= 20:36:38
Area 615 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.260 TIME= 20:36:38
Area 616 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.260 TIME= 20:36:38
Area 617 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.260 TIME= 20:36:38
Area 618 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.260 TIME= 20:36:38
Area 619 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.260 TIME= 20:36:38
Area 620 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.260 TIME= 20:36:38
Area 621 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.260 TIME= 20:36:38
Area 622 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.260 TIME= 20:36:38
Area 623 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.260 TIME= 20:36:38
Area 624 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.260 TIME= 20:36:38
Area 625 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.270 TIME= 20:36:38
Area 626 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.270 TIME= 20:36:38
Area 627 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.270 TIME= 20:36:38
Area 628 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.270 TIME= 20:36:38
Area 629 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.270 TIME= 20:36:38
Area 630 is not meshed. Volume will be generated without elements.


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*** WARNING ***           CP= 16.270 TIME= 20:36:38
Area 631 is not meshed. Volume will be generated without elements.

*** WARNING ***           CP= 16.270 TIME= 20:36:38
Area 632 is not meshed. Volume will be generated without elements.

*** WARNING ***           CP= 16.270 TIME= 20:36:38
Area 633 is not meshed. Volume will be generated without elements.

*** WARNING ***           CP= 16.270 TIME= 20:36:38
Area 634 is not meshed. Volume will be generated without elements.

*** WARNING ***           CP= 16.270 TIME= 20:36:38
Area 635 is not meshed. Volume will be generated without elements.

*** WARNING ***           CP= 16.270 TIME= 20:36:38
Area 636 is not meshed. Volume will be generated without elements.

*** WARNING ***           CP= 16.270 TIME= 20:36:38
Area 637 is not meshed. Volume will be generated without elements.

*** WARNING ***           CP= 16.270 TIME= 20:36:38
Area 638 is not meshed. Volume will be generated without elements.

*** WARNING ***           CP= 16.270 TIME= 20:36:38
Area 639 is not meshed. Volume will be generated without elements.

*** WARNING ***           CP= 16.270 TIME= 20:36:38
Area 640 is not meshed. Volume will be generated without elements.

*** WARNING ***           CP= 16.270 TIME= 20:36:38
Area 641 is not meshed. Volume will be generated without elements.

*** WARNING ***           CP= 16.270 TIME= 20:36:38
Area 642 is not meshed. Volume will be generated without elements.

*** WARNING ***           CP= 16.270 TIME= 20:36:38
Area 643 is not meshed. Volume will be generated without elements.

*** WARNING ***           CP= 16.270 TIME= 20:36:38
Area 644 is not meshed. Volume will be generated without elements.

*** WARNING ***           CP= 16.270 TIME= 20:36:38
Area 645 is not meshed. Volume will be generated without elements.

*** WARNING ***           CP= 16.270 TIME= 20:36:38
Area 646 is not meshed. Volume will be generated without elements.

*** WARNING ***           CP= 16.280 TIME= 20:36:38
Area 647 is not meshed. Volume will be generated without elements.

*** WARNING ***           CP= 16.280 TIME= 20:36:38
Area 648 is not meshed. Volume will be generated without elements.

*** WARNING ***           CP= 16.280 TIME= 20:36:38
Area 649 is not meshed. Volume will be generated without elements.

*** WARNING ***           CP= 16.280 TIME= 20:36:38
Area 650 is not meshed. Volume will be generated without elements.

*** WARNING ***           CP= 16.280 TIME= 20:36:38
Area 651 is not meshed. Volume will be generated without elements.

*** WARNING ***           CP= 16.280 TIME= 20:36:38
Area 652 is not meshed. Volume will be generated without elements.

*** WARNING ***           CP= 16.280 TIME= 20:36:38
Area 653 is not meshed. Volume will be generated without elements.

*** WARNING ***           CP= 16.280 TIME= 20:36:38
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Area 654 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.280 TIME= 20:36:38
Area 655 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.280 TIME= 20:36:38
Area 656 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.290 TIME= 20:36:38
Area 657 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.290 TIME= 20:36:38
Area 658 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.290 TIME= 20:36:38
Area 659 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.290 TIME= 20:36:38
Area 660 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.290 TIME= 20:36:38
Area 661 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.290 TIME= 20:36:38
Area 662 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.290 TIME= 20:36:38
Area 663 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.290 TIME= 20:36:38
Area 664 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.290 TIME= 20:36:38
Area 665 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.300 TIME= 20:36:38
Area 666 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.300 TIME= 20:36:38
Area 667 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.300 TIME= 20:36:38
Area 668 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.300 TIME= 20:36:38
Area 669 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.300 TIME= 20:36:38
Area 670 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.300 TIME= 20:36:38
Area 671 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.300 TIME= 20:36:38
Area 672 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.300 TIME= 20:36:38
Area 673 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.300 TIME= 20:36:38
Area 674 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.300 TIME= 20:36:38
Area 675 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.300 TIME= 20:36:38
Area 676 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.300 TIME= 20:36:38
Area 677 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.300 TIME= 20:36:38
Area 678 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.300 TIME= 20:36:38
Area 679 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.300 TIME= 20:36:38
Area 680 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.310 TIME= 20:36:38
Area 681 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.310 TIME= 20:36:38
Area 682 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.310 TIME= 20:36:38
Area 683 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.310 TIME= 20:36:38
Area 684 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.310 TIME= 20:36:38
Area 685 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.310 TIME= 20:36:38
Area 686 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.310 TIME= 20:36:38
Area 687 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.310 TIME= 20:36:38
Area 688 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.310 TIME= 20:36:38
Area 689 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.310 TIME= 20:36:38
Area 690 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.320 TIME= 20:36:38
Area 691 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.320 TIME= 20:36:38
Area 692 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.320 TIME= 20:36:38
Area 693 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.320 TIME= 20:36:38
Area 694 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.320 TIME= 20:36:38
Area 695 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.320 TIME= 20:36:38
Area 696 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.320 TIME= 20:36:38
Area 697 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.320 TIME= 20:36:38
Area 698 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.320 TIME= 20:36:38
Area 699 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.320 TIME= 20:36:38
Area 700 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.330 TIME= 20:36:38
Area 701 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.330 TIME= 20:36:38
Area 702 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.330 TIME= 20:36:38
Area 703 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.330 TIME= 20:36:38
Area 704 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.330 TIME= 20:36:38
Area 705 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.330 TIME= 20:36:38
Area 706 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.330 TIME= 20:36:38
Area 707 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 16.330 TIME= 20:36:38
Area 708 is not meshed. Volume will be generated without elements.
lines at bottom lid used to be here

Mesh Volumes

Mesh the CS Tubes

Mesh SS-B Plates

SELECT FOR ITEM=VOLUME COMPONENT=
IN RANGE 48 TO 71 STEP 1

24 VOLUMES (OF 269 DEFINED) SELECTED BY VSEL COMMAND.

ELEMENT TYPE SET TO 2

MATERIAL NUMBER SET TO 2

GENERATE NODES AND ELEMENTS IN ALL SELECTED VOLUMES

*** WARNING *** CP= 25.350 TIME= 20:36:57
Meshing of volume 50 produced 36 elements with excessive aspect ratio.
Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 50 WITH EXCESSIVE ASPECT RATIO ***

241	242	243	244	245	246	247	248
249	250	251	252	253	254	255	256
257	258	271	272	273	274	275	276
277	278	279	280	281	282	283	284
285	286	287	288				

*** WARNING *** CP= 26.970 TIME= 20:37:00
Meshing of volume 55 produced 36 elements with excessive aspect ratio.
Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 55 WITH EXCESSIVE ASPECT RATIO ***

781	782	783	784	785	786	787	788
789	790	791	792	793	794	795	796
797	798	811	812	813	814	815	816
817	818	819	820	821	822	823	824
825	826	827	828				

*** WARNING *** CP= 27.530 TIME= 20:37:01
Meshing of volume 57 produced 36 elements with excessive aspect ratio.
Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 57 WITH EXCESSIVE ASPECT RATIO ***

961	962	963	964	965	966	967	968
969	970	971	972	973	974	975	976
977	978	991	992	993	994	995	996
997	998	999	1000	1001	1002	1003	1004
1005	1006	1007	1008				

*** WARNING *** CP= 29.100 TIME= 20:37:04
 Meshing of volume 62 produced 36 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 62 WITH EXCESSIVE ASPECT RATIO ***

1501	1502	1503	1504	1505	1506	1507	1508
1509	1510	1511	1512	1513	1514	1515	1516
1517	1518	1531	1532	1533	1534	1535	1536
1537	1538	1539	1540	1541	1542	1543	1544
1545	1546	1547	1548				

*** WARNING *** CP= 29.650 TIME= 20:37:05
 Meshing of volume 64 produced 36 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 64 WITH EXCESSIVE ASPECT RATIO ***

1681	1682	1683	1684	1685	1686	1687	1688
1689	1690	1691	1692	1693	1694	1695	1696
1697	1698	1711	1712	1713	1714	1715	1716
1717	1718	1719	1720	1721	1722	1723	1724
1725	1726	1727	1728				

*** WARNING *** CP= 31.220 TIME= 20:37:08
 Meshing of volume 69 produced 36 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 69 WITH EXCESSIVE ASPECT RATIO ***

2221	2222	2223	2224	2225	2226	2227	2228
2229	2230	2231	2232	2233	2234	2235	2236
2237	2238	2251	2252	2253	2254	2255	2256
2257	2258	2259	2260	2261	2262	2263	2264
2265	2266	2267	2268				

NUMBER OF VOLUMES MESHED = 24
 MAXIMUM NODE NUMBER = 4000
 MAXIMUM ELEMENT NUMBER = 2520
 Mesh End Guides

SELECT FOR ITEM=VOLU COMPONENT=
 IN RANGE 72 TO 86 STEP 1

15 VOLUMES (OF 269 DEFINED) SELECTED BY VSEL COMMAND.

ELEMENT TYPE SET TO 3

MATERIAL NUMBER SET TO 3

GENERATE NODES AND ELEMENTS IN ALL SELECTED VOLUMES

*** WARNING *** CP= 32.650 TIME= 20:37:10
 Meshing of volume 72 produced 8 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 72 WITH EXCESSIVE ASPECT RATIO ***

2521	2536	2551	2566	2581	2596	2611	2626
------	------	------	------	------	------	------	------

*** WARNING *** CP= 32.890 TIME= 20:37:11
 Meshing of volume 73 produced 46 elements with excessive aspect ratio.

Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 73 WITH EXCESSIVE ASPECT RATIO ***

2641	2642	2643	2644	2645	2646	2647	2648
2649	2650	2651	2652	2653	2654	2655	2656
2657	2658	2659	2660	2661	2662	2663	2671
2672	2673	2674	2675	2676	2677	2678	2679
2680	2681	2682	2683	2684	2685	2686	2687
2688	2689	2690	2691	2692	2693		

*** WARNING *** CP= 33.230 TIME= 20:37:12
 Meshing of volume 74 produced 24 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 74 WITH EXCESSIVE ASPECT RATIO ***

2701	2702	2703	2716	2717	2718	2731	2732
2733	2746	2747	2748	2761	2762	2763	2776
2777	2778	2791	2792	2793	2806	2807	2808

*** WARNING *** CP= 33.360 TIME= 20:37:12
 Volume 75 area 75 has a corner angle of 150 degrees. This is not recommended for hexahedral elements.

*** WARNING *** CP= 33.380 TIME= 20:37:12
 Volume 75 area 380 has a corner angle of 150 degrees. This is not recommended for hexahedral elements.

*** WARNING *** CP= 33.610 TIME= 20:37:12
 Meshing of volume 75 produced 60 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 75 WITH EXCESSIVE DISTORTION ***

2881	2882	2883	2884	2885	2886	2887	2888
2889	2890	2891	2892	2893	2894	2895	2896
2897	2898	2899	2900	2901	2902	2903	2904
2905	2906	2907	2908	2909	2910	2911	2912
2913	2914	2915	2916	2917	2918	2919	2920
2921	2922	2923	2924	2925	2926	2927	2928
2929	2930	2931	2932	2933	2934	2935	2936
2937	2938	2939	2940				

*** WARNING *** CP= 33.730 TIME= 20:37:13
 Volume 76 area 76 has a corner angle of 30 degrees. This is not recommended for hexahedral elements.

*** WARNING *** CP= 33.740 TIME= 20:37:13
 Volume 76 area 384 has a corner angle of 30 degrees. This is not recommended for hexahedral elements.

*** WARNING *** CP= 33.970 TIME= 20:37:13
 Meshing of volume 76 produced 60 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 76 WITH EXCESSIVE DISTORTION ***

2941	2942	2945	2946	2949	2950	2953	2954
2957	2958	2961	2962	2965	2966	2969	2970
2973	2974	2977	2978	2981	2982	2985	2986
2989	2990	2993	2994	2997	2998	3001	3002
3005	3006	3009	3010	3013	3014	3017	3018
3021	3022	3025	3026	3029	3030	3033	3034
3037	3038	3041	3042	3045	3046	3049	3050
3053	3054	3057	3058				

*** WARNING *** CP= 34.210 TIME= 20:37:13
 Meshing of volume 77 produced 46 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 77 WITH EXCESSIVE ASPECT RATIO ***

3061	3062	3063	3064	3065	3066	3067	3068
3069	3070	3071	3072	3073	3074	3075	3076
3077	3078	3079	3080	3081	3082	3091	3092
3093	3094	3095	3096	3097	3098	3099	3100
3101	3102	3103	3104	3105	3106	3107	3108
3109	3110	3111	3112	3113	3114		

*** WARNING *** CP= 34.580 TIME= 20:37:14
 Meshing of volume 78 produced 24 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 78 WITH EXCESSIVE ASPECT RATIO ***

3121	3122	3123	3124	3125	3126	3151	3152
3153	3154	3155	3156	3181	3182	3183	3184
3185	3186	3211	3212	3213	3214	3215	3216

*** WARNING *** CP= 35.180 TIME= 20:37:15
 Meshing of volume 80 produced 46 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 80 WITH EXCESSIVE ASPECT RATIO ***

3361	3362	3363	3364	3365	3366	3367	3368
3369	3370	3371	3372	3373	3374	3375	3376
3377	3378	3379	3380	3381	3382	3391	3392
3393	3394	3395	3396	3397	3398	3399	3400
3401	3402	3403	3404	3405	3406	3407	3408
3409	3410	3411	3412	3413	3414		

*** WARNING *** CP= 35.540 TIME= 20:37:16
 Meshing of volume 81 produced 24 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 81 WITH EXCESSIVE ASPECT RATIO ***

3421	3422	3423	3424	3425	3426	3451	3452
3453	3454	3455	3456	3481	3482	3483	3484
3485	3486	3511	3512	3513	3514	3515	3516

*** WARNING *** CP= 35.670 TIME= 20:37:16
 Volume 82 area 82 has a corner angle of 150 degrees. This is not recommended for hexahedral elements.

*** WARNING *** CP= 35.690 TIME= 20:37:16
 Volume 82 area 404 has a corner angle of 150 degrees. This is not recommended for hexahedral elements.

*** WARNING *** CP= 35.940 TIME= 20:37:17
 Meshing of volume 82 produced 60 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 82 WITH EXCESSIVE DISTORTION ***

3543	3544	3547	3548	3551	3552	3555	3556
3559	3560	3563	3564	3567	3568	3571	3572
3575	3576	3579	3580	3583	3584	3587	3588
3591	3592	3595	3596	3599	3600	3603	3604
3607	3608	3611	3612	3615	3616	3619	3620
3623	3624	3627	3628	3631	3632	3635	3636
3639	3640	3643	3644	3647	3648	3651	3652
3655	3656	3659	3660				

*** WARNING *** CP= 36.070 TIME= 20:37:17
 Volume 83 area 83 has a corner angle of 30 degrees. This is not recommended for hexahedral elements.

*** WARNING *** CP= 36.090 TIME= 20:37:17
 Volume 83 area 408 has a corner angle of 30 degrees. This is not recommended for hexahedral elements.

*** WARNING *** CP= 36.310 TIME= 20:37:18
Meshing of volume 83 produced 60 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 83 WITH EXCESSIVE DISTORTION ***

3721	3722	3723	3724	3725	3726	3727	3728
3729	3730	3731	3732	3733	3734	3735	3736
3737	3738	3739	3740	3741	3742	3743	3744
3745	3746	3747	3748	3749	3750	3751	3752
3753	3754	3755	3756	3757	3758	3759	3760
3761	3762	3763	3764	3765	3766	3767	3768
3769	3770	3771	3772	3773	3774	3775	3776
3777	3778	3779	3780				

*** WARNING *** CP= 36.580 TIME= 20:37:18
Meshing of volume 84 produced 46 elements with excessive aspect ratio.
Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 84 WITH EXCESSIVE ASPECT RATIO ***

3781	3782	3783	3784	3785	3786	3787	3788
3789	3790	3791	3792	3796	3797	3798	3799
3800	3801	3802	3803	3804	3805	3806	3811
3812	3813	3814	3815	3816	3817	3818	3819
3820	3821	3822	3826	3827	3828	3829	3830
3831	3832	3833	3834	3835	3836		

*** WARNING *** CP= 36.920 TIME= 20:37:19
Meshing of volume 85 produced 24 elements with excessive aspect ratio.
Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 85 WITH EXCESSIVE ASPECT RATIO ***

3841	3842	3843	3856	3857	3858	3871	3872
3873	3886	3887	3888	3901	3902	3903	3916
3917	3918	3931	3932	3933	3946	3947	3948

*** WARNING *** CP= 37.280 TIME= 20:37:20
Meshing of volume 86 produced 8 elements with excessive aspect ratio.
Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 86 WITH EXCESSIVE ASPECT RATIO ***

3961	3976	3991	4006	4021	4036	4051	4066
------	------	------	------	------	------	------	------

NUMBER OF VOLUMES MESHED = 15
MAXIMUM NODE NUMBER = 6448
MAXIMUM ELEMENT NUMBER = 4080
Mesh Corner Guides

SELECT FOR ITEM=VOLU COMPONENT=
IN RANGE 87 TO 92 STEP 1

6 VOLUMES (OF 269 DEFINED) SELECTED BY VSEL COMMAND.

ELEMENT TYPE SET TO 4

MATERIAL NUMBER SET TO 4

GENERATE NODES AND ELEMENTS IN ALL SELECTED VOLUMES

*** WARNING *** CP= 38.010 TIME= 20:37:21
Meshing of volume 88 produced 44 elements with excessive aspect ratio.
Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 88 WITH EXCESSIVE ASPECT RATIO ***

4201	4202	4203	4204	4205	4206	4207	4208
4209	4210	4211	4212	4213	4214	4215	4216
4217	4218	4219	4220	4221	4231	4232	4233

4234	4235	4236	4237	4238	4239	4240	4241
4242	4243	4244	4245	4246	4247	4248	4249
4250	4251	4252	4253				

*** WARNING *** CP= 38.910 TIME= 20:37:22
 Meshing of volume 91 produced 44 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 91 WITH EXCESSIVE ASPECT RATIO ***

4501	4502	4503	4504	4505	4506	4507	4508
4509	4510	4511	4512	4513	4514	4515	4516
4517	4518	4519	4520	4522	4531	4532	4533
4534	4535	4536	4537	4538	4539	4540	4541
4542	4543	4544	4545	4546	4547	4548	4549
4550	4551	4552	4554				

NUMBER OF VOLUMES MESHED = 6
 MAXIMUM NODE NUMBER = 7280
 MAXIMUM ELEMENT NUMBER = 4680
 Mesh Inner Barrier

SELECT FOR ITEM=LOC COMPONENT=Z BETWEEN 0.00000E+00 AND 2.3045
 KABS= 0. TOLERANCE= 0.000000E+00

269 VOLUMES (OF 269 DEFINED) SELECTED BY VSEL COMMAND.

ACTIVE COORDINATE SYSTEM SET TO 1 (CYLINDRICAL)

RESELECT FOR ITEM=LOC COMPONENT=X BETWEEN 0.00000E+00 AND 0.71295
 KABS= 0. TOLERANCE= 0.000000E+00

269 VOLUMES (OF 269 DEFINED) SELECTED BY VSEL COMMAND.

UNSELECT FOR ITEM=VOLU COMPONENT=
 IN RANGE 1 TO 92 STEP 1

177 VOLUMES (OF 269 DEFINED) SELECTED BY VSEL COMMAND.

UNSELECT FOR ITEM=LOC COMPONENT=X BETWEEN 0.69095 AND 0.71295
 KABS= 0. TOLERANCE= 0.000000E+00

114 VOLUMES (OF 269 DEFINED) SELECTED BY VSEL COMMAND.

ALSO SELECT FOR ITEM=LOC COMPONENT=Y BETWEEN -90.000 AND 5.0000
 KABS= 0. TOLERANCE= 0.000000E+00

197 VOLUMES (OF 269 DEFINED) SELECTED BY VSEL COMMAND.

UNSELECT FOR ITEM=VOLU COMPONENT=
 IN RANGE 1 TO 92 STEP 1

147 VOLUMES (OF 269 DEFINED) SELECTED BY VSEL COMMAND.

UNSELECT FOR ITEM=LOC COMPONENT=X BETWEEN 0.71295 AND 0.78095
 KABS= 0. TOLERANCE= 0.000000E+00

147 VOLUMES (OF 269 DEFINED) SELECTED BY VSEL COMMAND.

RESELECT FOR ITEM=LOC COMPONENT=Z BETWEEN -0.70000E-02 AND 2.3045
 KABS= 0. TOLERANCE= 0.000000E+00

147 VOLUMES (OF 269 DEFINED) SELECTED BY VSEL COMMAND.

ACTIVE COORDINATE SYSTEM SET TO 0 (CARTESIAN)

ELEMENT TYPE SET TO 5

MATERIAL NUMBER SET TO 5

GENERATE NODES AND ELEMENTS IN ALL SELECTED VOLUMES

*** WARNING *** CP= 43.020 TIME= 20:37:30
 Meshing of volume 93 produced 48 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 93 WITH EXCESSIVE ASPECT RATIO ***

4681	4682	4683	4684	4685	4686	4696	4697
4698	4699	4700	4701	4711	4712	4713	4714
4715	4716	4726	4727	4728	4729	4730	4731
4741	4742	4743	4744	4745	4746	4756	4757
4758	4759	4760	4761	4771	4772	4773	4774
4775	4776	4786	4787	4788	4789	4790	4791

*** WARNING *** CP= 43.240 TIME= 20:37:30
 Meshing of volume 94 produced 60 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 94 WITH EXCESSIVE ASPECT RATIO ***

4801	4802	4803	4804	4805	4806	4807	4808
4809	4810	4811	4812	4813	4814	4815	4816
4817	4818	4819	4820	4821	4822	4823	4824
4825	4826	4827	4828	4829	4830	4831	4832
4833	4834	4835	4836	4837	4838	4839	4840
4841	4842	4843	4844	4845	4846	4847	4848
4849	4850	4851	4852	4853	4854	4855	4856
4857	4858	4859	4860				

*** WARNING *** CP= 43.690 TIME= 20:37:31
 Meshing of volume 95 produced 24 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 95 WITH EXCESSIVE ASPECT RATIO ***

4861	4862	4863	4864	4865	4866	4891	4892
4893	4894	4895	4896	4921	4922	4923	4924
4925	4926	4951	4952	4953	4954	4955	4956

*** WARNING *** CP= 43.900 TIME= 20:37:31
 Meshing of volume 96 produced 52 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 96 WITH EXCESSIVE ASPECT RATIO ***

4981	4982	4983	4984	4985	4986	4987	4988
4989	4990	4991	4992	4993	4994	4995	4996
4997	4998	4999	5000	5001	5002	5003	5004
5005	5006	5011	5012	5013	5014	5015	5016
5017	5018	5019	5020	5021	5022	5023	5024
5025	5026	5027	5028	5029	5030	5031	5032
5033	5034	5035	5036				

*** WARNING *** CP= 44.120 TIME= 20:37:32
 Meshing of volume 97 produced 60 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 97 WITH EXCESSIVE ASPECT RATIO ***

5041	5042	5043	5044	5045	5046	5047	5048
5049	5050	5051	5052	5053	5054	5055	5056
5057	5058	5059	5060	5061	5062	5063	5064
5065	5066	5067	5068	5069	5070	5071	5072
5073	5074	5075	5076	5077	5078	5079	5080
5081	5082	5083	5084	5085	5086	5087	5088
5089	5090	5091	5092	5093	5094	5095	5096
5097	5098	5099	5100				

*** WARNING *** CP= 44.570 TIME= 20:37:32
 Meshing of volume 98 produced 8 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 98 WITH EXCESSIVE ASPECT RATIO ***
 5101 5102 5131 5132 5161 5162 5191 5192

*** WARNING *** CP= 44.800 TIME= 20:37:33
 Meshing of volume 99 produced 60 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 99 WITH EXCESSIVE ASPECT RATIO ***
 5221 5222 5223 5224 5225 5226 5227 5228
 5229 5230 5231 5232 5233 5234 5235 5236
 5237 5238 5239 5240 5241 5242 5243 5244
 5245 5246 5247 5248 5249 5250 5251 5252
 5253 5254 5255 5256 5257 5258 5259 5260
 5261 5262 5263 5264 5265 5266 5267 5268
 5269 5270 5271 5272 5273 5274 5275 5276
 5277 5278 5279 5280

*** WARNING *** CP= 45.030 TIME= 20:37:33
 Meshing of volume 100 produced 52 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 100 WITH EXCESSIVE ASPECT RATIO ***
 5281 5282 5283 5284 5285 5286 5287 5288
 5289 5290 5291 5292 5293 5294 5295 5296
 5297 5298 5299 5300 5301 5302 5303 5304
 5305 5306 5311 5312 5313 5314 5315 5316
 5317 5318 5319 5320 5321 5322 5323 5324
 5325 5326 5327 5328 5329 5330 5331 5332
 5333 5334 5335 5336

*** WARNING *** CP= 45.480 TIME= 20:37:34
 Meshing of volume 101 produced 24 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 101 WITH EXCESSIVE ASPECT RATIO ***
 5341 5342 5343 5344 5345 5346 5371 5372
 5373 5374 5375 5376 5401 5402 5403 5404
 5405 5406 5431 5432 5433 5434 5435 5436

*** WARNING *** CP= 45.700 TIME= 20:37:35
 Meshing of volume 102 produced 60 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 102 WITH EXCESSIVE ASPECT RATIO ***
 5461 5462 5463 5464 5465 5466 5467 5468
 5469 5470 5471 5472 5473 5474 5475 5476
 5477 5478 5479 5480 5481 5482 5483 5484
 5485 5486 5487 5488 5489 5490 5491 5492
 5493 5494 5495 5496 5497 5498 5499 5500
 5501 5502 5503 5504 5505 5506 5507 5508
 5509 5510 5511 5512 5513 5514 5515 5516
 5517 5518 5519 5520

*** WARNING *** CP= 46.140 TIME= 20:37:35
 Meshing of volume 103 produced 24 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 103 WITH EXCESSIVE ASPECT RATIO ***
 5521 5522 5523 5524 5525 5526 5551 5552
 5553 5554 5555 5556 5581 5582 5583 5584
 5585 5586 5611 5612 5613 5614 5615 5616

*** WARNING *** CP= 46.840 TIME= 20:37:37
 Meshing of volume 119 produced 16 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 119 WITH EXCESSIVE ASPECT RATIO ***

5697	5698	5699	5700	5701	5702	5703	5704
5705	5706	5707	5708	5709	5710	5711	5712

*** WARNING *** CP= 47.730 TIME= 20:37:38
 Meshing of volume 137 produced 16 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 137 WITH EXCESSIVE ASPECT RATIO ***

5793	5794	5795	5796	5797	5798	5799	5800
5801	5802	5803	5804	5805	5806	5807	5808

*** WARNING *** CP= 48.030 TIME= 20:37:39
 Meshing of volume 140 produced 16 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 140 WITH EXCESSIVE ASPECT RATIO ***

5825	5826	5827	5828	5829	5830	5831	5832
5833	5834	5835	5836	5837	5838	5839	5840

*** WARNING *** CP= 48.320 TIME= 20:37:39
 Meshing of volume 143 produced 16 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 143 WITH EXCESSIVE ASPECT RATIO ***

5857	5858	5859	5860	5861	5862	5863	5864
5865	5866	5867	5868	5869	5870	5871	5872

*** WARNING *** CP= 48.560 TIME= 20:37:40
 Meshing of volume 145 produced 16 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 145 WITH EXCESSIVE ASPECT RATIO ***

5881	5882	5883	5884	5885	5886	5887	5888
5889	5890	5891	5892	5893	5894	5895	5896

*** WARNING *** CP= 54.880 TIME= 20:37:50
 Volume 230 area 669 has a corner angle of 150 degrees. This is not recommended for hexahedral elements.

*** WARNING *** CP= 54.890 TIME= 20:37:51
 Volume 230 area 1058 has a corner angle of 150 degrees. This is not recommended for hexahedral elements.

*** WARNING *** CP= 54.930 TIME= 20:37:51
 Meshing of volume 230 produced 8 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 230 WITH EXCESSIVE DISTORTION ***

6657	6658	6659	6660	6661	6662	6663	6664
------	------	------	------	------	------	------	------

*** WARNING *** CP= 54.980 TIME= 20:37:51
 Volume 231 area 670 has a corner angle of 30 degrees. This is not recommended for hexahedral elements.

*** WARNING *** CP= 54.990 TIME= 20:37:51
 Volume 231 area 1061 has a corner angle of 30 degrees. This is not recommended for hexahedral elements.

*** WARNING *** CP= 55.040 TIME= 20:37:51
Meshing of volume 231 produced 8 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 231 WITH EXCESSIVE DISTORTION ***
6665 6666 6669 6670 6673 6674 6677 6678

*** WARNING *** CP= 55.560 TIME= 20:37:52
Volume 237 area 676 has a corner angle of 150 degrees. This is not recommended for hexahedral elements.

*** WARNING *** CP= 55.570 TIME= 20:37:52
Volume 237 area 1078 has a corner angle of 150 degrees. This is not recommended for hexahedral elements.

*** WARNING *** CP= 55.610 TIME= 20:37:52
Meshing of volume 237 produced 8 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 237 WITH EXCESSIVE DISTORTION ***
6747 6748 6751 6752 6755 6756 6759 6760

*** WARNING *** CP= 55.680 TIME= 20:37:52
Volume 238 area 677 has a corner angle of 30 degrees. This is not recommended for hexahedral elements.

*** WARNING *** CP= 55.690 TIME= 20:37:52
Volume 238 area 1081 has a corner angle of 30 degrees. This is not recommended for hexahedral elements.

*** WARNING *** CP= 55.730 TIME= 20:37:52
Meshing of volume 238 produced 8 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 238 WITH EXCESSIVE DISTORTION ***
6769 6770 6771 6772 6773 6774 6775 6776

*** WARNING *** CP= 57.490 TIME= 20:37:55
Volume 255 area 694 has a corner angle of 30 degrees. This is not recommended for hexahedral elements.

*** WARNING *** CP= 57.510 TIME= 20:37:55
Volume 255 area 1119 has a corner angle of 30 degrees. This is not recommended for hexahedral elements.

*** WARNING *** CP= 57.580 TIME= 20:37:55
Meshing of volume 255 produced 14 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 255 WITH EXCESSIVE DISTORTION ***
7121 7122 7123 7124 7125 7126 7127 7128
7130 7132 7134 7136 7138 7142

*** WARNING *** CP= 58.250 TIME= 20:37:57
Volume 261 area 700 has a corner angle of 30 degrees. This is not recommended for hexahedral elements.

*** WARNING *** CP= 58.260 TIME= 20:37:57
Volume 261 area 1125 has a corner angle of 30 degrees. This is not recommended for hexahedral elements.

*** WARNING *** CP= 58.330 TIME= 20:37:57
Meshing of volume 261 produced 14 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 261 WITH EXCESSIVE DISTORTION ***
7306 7310 7313 7314 7317 7318 7321 7322
7323 7324 7325 7326 7327 7328

*** WARNING *** CP= 58.440 TIME= 20:37:57

Meshing of volume 262 produced 2 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 262 WITH EXCESSIVE DISTORTION ***
7338 7342

*** WARNING *** CP= 58.950 TIME= 20:37:58
Meshing of volume 266 produced 2 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 266 WITH EXCESSIVE DISTORTION ***
7458 7462

*** WARNING *** CP= 58.980 TIME= 20:37:58
Volume 267 area 706 has a corner angle of 30 degrees. This is not recommended for hexahedral elements.

*** WARNING *** CP= 58.990 TIME= 20:37:58
Volume 267 area 1131 has a corner angle of 30 degrees. This is not recommended for hexahedral elements.

*** WARNING *** CP= 59.050 TIME= 20:37:58
Meshing of volume 267 produced 14 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 267 WITH EXCESSIVE DISTORTION ***
7474 7478 7481 7482 7485 7486 7489 7490
7491 7492 7493 7494 7495 7496

*** WARNING *** CP= 59.250 TIME= 20:37:58
Volume 269 area 708 has a corner angle of 30 degrees. This is not recommended for hexahedral elements.

*** WARNING *** CP= 59.270 TIME= 20:37:58
Volume 269 area 1133 has a corner angle of 30 degrees. This is not recommended for hexahedral elements.

*** WARNING *** CP= 59.330 TIME= 20:37:58
Meshing of volume 269 produced 14 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 269 WITH EXCESSIVE DISTORTION ***
7529 7530 7531 7532 7533 7534 7535 7536
7538 7540 7542 7544 7546 7550

NUMBER OF VOLUMES MESHED = 147
MAXIMUM NODE NUMBER = 11541
MAXIMUM ELEMENT NUMBER = 7552
Mesh Upper Inner Barrier Adding Backfill Mass

INVERT FOR ITEM=VOLU COMPONENT=
IN RANGE 1 TO 269 STEP 1

122 VOLUMES (OF 269 DEFINED) SELECTED BY VSEL COMMAND.

ACTIVE COORDINATE SYSTEM SET TO 1 (CYLINDRICAL)

UNSELECT FOR ITEM=LOC COMPONENT=X BETWEEN 0.71295 AND 0.78095
KABS= 0. TOLERANCE= 0.000000E+00

122 VOLUMES (OF 269 DEFINED) SELECTED BY VSEL COMMAND.

RESELECT FOR ITEM=LOC COMPONENT=Z BETWEEN 0.000000E+00 AND 2.3045
KABS= 0. TOLERANCE= 0.000000E+00

122 VOLUMES (OF 269 DEFINED) SELECTED BY VSEL COMMAND.

UNSELECT FOR ITEM=VOLU COMPONENT=
IN RANGE 1 TO 92 STEP 1

30 VOLUMES (OF 269 DEFINED) SELECTED BY VSEL COMMAND.

ACTIVE COORDINATE SYSTEM SET TO 0 (CARTESIAN)

ELEMENT TYPE SET TO 6

MATERIAL NUMBER SET TO 6

GENERATE NODES AND ELEMENTS IN ALL SELECTED VOLUMES

*** WARNING *** CP= 60.180 TIME= 20:38:00
 Meshing of volume 104 produced 60 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 104 WITH EXCESSIVE ASPECT RATIO ***

7553	7554	7555	7556	7557	7558	7559	7560
7561	7562	7563	7564	7565	7566	7567	7568
7569	7570	7571	7572	7573	7574	7575	7576
7577	7578	7579	7580	7581	7582	7583	7584
7585	7586	7587	7588	7589	7590	7591	7592
7593	7594	7595	7596	7597	7598	7599	7600
7601	7602	7603	7604	7605	7606	7607	7608
7609	7610	7611	7612				

*** WARNING *** CP= 60.650 TIME= 20:38:01
 Meshing of volume 105 produced 24 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 105 WITH EXCESSIVE ASPECT RATIO ***

7613	7614	7615	7616	7617	7618	7643	7644
7645	7646	7647	7648	7673	7674	7675	7676
7677	7678	7703	7704	7705	7706	7707	7708

*** WARNING *** CP= 60.870 TIME= 20:38:01
 Meshing of volume 106 produced 52 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 106 WITH EXCESSIVE ASPECT RATIO ***

7733	7734	7735	7736	7737	7738	7739	7740
7741	7742	7743	7744	7745	7746	7747	7748
7749	7750	7751	7752	7753	7754	7755	7756
7757	7758	7763	7764	7765	7766	7767	7768
7769	7770	7771	7772	7773	7774	7775	7776
7777	7778	7779	7780	7781	7782	7783	7784
7785	7786	7787	7788				

*** WARNING *** CP= 61.100 TIME= 20:38:02
 Meshing of volume 107 produced 60 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 107 WITH EXCESSIVE ASPECT RATIO ***

7793	7794	7795	7796	7797	7798	7799	7800
7801	7802	7803	7804	7805	7806	7807	7808
7809	7810	7811	7812	7813	7814	7815	7816
7817	7818	7819	7820	7821	7822	7823	7824
7825	7826	7827	7828	7829	7830	7831	7832
7833	7834	7835	7836	7837	7838	7839	7840
7841	7842	7843	7844	7845	7846	7847	7848
7849	7850	7851	7852				

*** WARNING *** CP= 61.540 TIME= 20:38:02
 Meshing of volume 108 produced 8 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 108 WITH EXCESSIVE ASPECT RATIO ***

7853	7854	7883	7884	7913	7914	7943	7944
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*** WARNING *** CP= 61.780 TIME= 20:38:03
 Meshing of volume 109 produced 60 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 109 WITH EXCESSIVE ASPECT RATIO ***

7973	7974	7975	7976	7977	7978	7979	7980
7981	7982	7983	7984	7985	7986	7987	7988
7989	7990	7991	7992	7993	7994	7995	7996
7997	7998	7999	8000	8001	8002	8003	8004
8005	8006	8007	8008	8009	8010	8011	8012
8013	8014	8015	8016	8017	8018	8019	8020
8021	8022	8023	8024	8025	8026	8027	8028
8029	8030	8031	8032				

*** WARNING *** CP= 62.000 TIME= 20:38:03
 Meshing of volume 110 produced 52 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 110 WITH EXCESSIVE ASPECT RATIO ***

8033	8034	8035	8036	8037	8038	8039	8040
8041	8042	8043	8044	8045	8046	8047	8048
8049	8050	8051	8052	8053	8054	8055	8056
8057	8058	8063	8064	8065	8066	8067	8068
8069	8070	8071	8072	8073	8074	8075	8076
8077	8078	8079	8080	8081	8082	8083	8084
8085	8086	8087	8088				

*** WARNING *** CP= 62.450 TIME= 20:38:04
 Meshing of volume 111 produced 24 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 111 WITH EXCESSIVE ASPECT RATIO ***

8093	8094	8095	8096	8097	8098	8123	8124
8125	8126	8127	8128	8153	8154	8155	8156
8157	8158	8183	8184	8185	8186	8187	8188

*** WARNING *** CP= 62.680 TIME= 20:38:04
 Meshing of volume 112 produced 60 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 112 WITH EXCESSIVE ASPECT RATIO ***

8213	8214	8215	8216	8217	8218	8219	8220
8221	8222	8223	8224	8225	8226	8227	8228
8229	8230	8231	8232	8233	8234	8235	8236
8237	8238	8239	8240	8241	8242	8243	8244
8245	8246	8247	8248	8249	8250	8251	8252
8253	8254	8255	8256	8257	8258	8259	8260
8261	8262	8263	8264	8265	8266	8267	8268
8269	8270	8271	8272				

*** WARNING *** CP= 63.070 TIME= 20:38:05
 Meshing of volume 113 produced 48 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 113 WITH EXCESSIVE ASPECT RATIO ***

8273	8274	8275	8276	8277	8278	8279	8280
8281	8282	8283	8284	8303	8304	8305	8306
8307	8308	8309	8310	8311	8312	8313	8314
8333	8334	8335	8336	8337	8338	8339	8340
8341	8342	8343	8344	8363	8364	8365	8366
8367	8368	8369	8370	8371	8372	8373	8374

*** WARNING *** CP= 63.590 TIME= 20:38:06

Meshing of volume 129 produced 16 elements with excessive aspect ratio.
Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 129 WITH EXCESSIVE ASPECT RATIO ***

8433	8434	8435	8436	8437	8438	8439	8440
8441	8442	8443	8444	8445	8446	8447	8448

*** WARNING *** CP= 64.270 TIME= 20:38:07
Meshing of volume 147 produced 16 elements with excessive aspect ratio.
Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 147 WITH EXCESSIVE ASPECT RATIO ***

8513	8514	8515	8516	8517	8518	8519	8520
8521	8522	8523	8524	8525	8526	8527	8528

*** WARNING *** CP= 64.530 TIME= 20:38:07
Meshing of volume 150 produced 16 elements with excessive aspect ratio.
Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 150 WITH EXCESSIVE ASPECT RATIO ***

8545	8546	8547	8548	8549	8550	8551	8552
8553	8554	8555	8556	8557	8558	8559	8560

*** WARNING *** CP= 64.780 TIME= 20:38:08
Meshing of volume 153 produced 16 elements with excessive aspect ratio.
Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 153 WITH EXCESSIVE ASPECT RATIO ***

8577	8578	8579	8580	8581	8582	8583	8584
8585	8586	8587	8588	8589	8590	8591	8592

NUMBER OF VOLUMES MESHED = 30
 MAXIMUM NODE NUMBER = 12897
 MAXIMUM ELEMENT NUMBER = 8616
 Mesh Lower Outer Barrier and Lids
 mesh upper outer barrier adding backfill mass

Apply Symmetry Constraints

ACTIVE COORDINATE SYSTEM SET TO 0 (CARTESIAN)

SELECT FOR ITEM=LOC COMPONENT=X BETWEEN 0.00000E+00 AND 0.00000E+00
 KABS= 0. TOLERANCE= 0.100000E-05

555 NODES (OF 12897 DEFINED) SELECTED BY NSEL COMMAND.

SYMMETRY CONSTRAINTS FOR COORDINATE SYSTEM 0 IN DIRECTION X
 ON SURFACE DEFINED BY ALL SELECTED NODES

*** NOTE *** CP= 65.350 TIME= 20:38:09
 Nodes on symmetry surfaces are rotated into coordinate system 0.

TOTAL SPECIFIED CONSTRAINTS= 555

SELECT FOR ITEM=LOC COMPONENT=Z BETWEEN 0.00000E+00 AND 0.00000E+00
 KABS= 0. TOLERANCE= 0.100000E-05

606 NODES (OF 12897 DEFINED) SELECTED BY NSEL COMMAND.

SYMMETRY CONSTRAINTS FOR COORDINATE SYSTEM 0 IN DIRECTION Z
 ON SURFACE DEFINED BY ALL SELECTED NODES

*** NOTE *** CP= 65.770 TIME= 20:38:10
 Nodes on symmetry surfaces are rotated into coordinate system 0.

TOTAL SPECIFIED CONSTRAINTS= 1161

Apply Constraints at Support Locations
Span approximately half of basket height, width = 0.305 m

ACTIVE COORDINATE SYSTEM SET TO 1 (CYLINDRICAL)

SELECT FOR ITEM=LOC COMPONENT=Z BETWEEN 1.0675 AND 1.5450
KABS= 0. TOLERANCE= 0.000000E+00

1818 NODES (OF 12897 DEFINED) SELECTED BY NSEL COMMAND.

RESELECT FOR ITEM=LOC COMPONENT=X BETWEEN 0.71195 AND 0.71395
KABS= 0. TOLERANCE= 0.000000E+00

262 NODES (OF 12897 DEFINED) SELECTED BY NSEL COMMAND.

RESELECT FOR ITEM=LOC COMPONENT=Y BETWEEN -70.000 AND -50.000
KABS= 0. TOLERANCE= 0.000000E+00

35 NODES (OF 12897 DEFINED) SELECTED BY NSEL COMMAND.

ACTIVE COORDINATE SYSTEM SET TO 0 (CARTESIAN)

SPECIFIED CONSTRAINT UY FOR SELECTED NODES 1 TO 12897 BY 1
REAL= 0.000000000E+00 IMAG= 0.00000000E+00

SELECT ALL ENTITIES OF TYPE= ALL AND BELOW

ALL SELECT FOR ITEM=VOLU COMPONENT=
IN RANGE 1 TO 269 STEP 1

269 VOLUMES (OF 269 DEFINED) SELECTED BY VSEL COMMAND.

ALL SELECT FOR ITEM=AREA COMPONENT=
IN RANGE 1 TO 1133 STEP 1

1133 AREAS (OF 1133 DEFINED) SELECTED BY ASEL COMMAND.

ALL SELECT FOR ITEM=LINE COMPONENT=
IN RANGE 1 TO 1604 STEP 1

1604 LINES (OF 1604 DEFINED) SELECTED BY LSEL COMMAND.

ALL SELECT FOR ITEM=KP COMPONENT=
IN RANGE 1 TO 9001 STEP 1

690 KEYPOINTS (OF 690 DEFINED) SELECTED BY KSEL COMMAND.

ALL SELECT FOR ITEM=ELEM COMPONENT=
IN RANGE 1 TO 8616 STEP 1

8616 ELEMENTS (OF 8616 DEFINED) SELECTED BY ESEL COMMAND.

ALL SELECT FOR ITEM=NODE COMPONENT=
IN RANGE 1 TO 12897 STEP 1

12897 NODES (OF 12897 DEFINED) SELECTED BY NSEL COMMAND.

ALL CURRENT ANSYS DATA WRITTEN TO FILE NAME= seism2.db
FOR POSSIBLE RESUME FROM THIS POINT

***** ROUTINE COMPLETED ***** CP = 74.660

***** ANSYS SOLUTION ROUTINE *****

PERFORM A MODAL ANALYSIS
THIS WILL BE A NEW ANALYSIS

USE SUBSPACE ITERATION METHOD
EXTRACT 8 MODES
NORMALIZE THE MODE SHAPES TO THE MASS MATRIX

WRITE ALL ITEMS TO THE DATABASE WITH A FREQUENCY OF 1
FOR ALL APPLICABLE ENTITIES

ALL CURRENT ANSYS DATA WRITTEN TO FILE NAME= seism2.db
FOR POSSIBLE RESUME FROM THIS POINT

***** ANSYS SOLVE COMMAND *****

*** WARNING *** CP= 85.930 TIME= 20:38:45
Element 2881 has an angle between adjacent edges of 36.9687852 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 85.930 TIME= 20:38:45
Element 2881 has an angle between adjacent edges of 143.022369 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 85.930 TIME= 20:38:45
Element 2882 has an angle between adjacent edges of 36.9602219 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 85.930 TIME= 20:38:45
Element 2882 has an angle between adjacent edges of 143.031215 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 85.940 TIME= 20:38:45
Element 2883 has an angle between adjacent edges of 36.9687852 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 85.940 TIME= 20:38:45
Element 2883 has an angle between adjacent edges of 143.022369 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 85.940 TIME= 20:38:45
Element 2884 has an angle between adjacent edges of 36.9602219 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 85.940 TIME= 20:38:45
Element 2884 has an angle between adjacent edges of 143.031215 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 85.940 TIME= 20:38:45
Element 2885 has an angle between adjacent edges of 36.9687852 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 85.950 TIME= 20:38:46
Element 2885 has an angle between adjacent edges of 143.022369 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 85.950 TIME= 20:38:46
Element 2886 has an angle between adjacent edges of 36.9602219 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 85.950 TIME= 20:38:46

Element 2886 has an angle between adjacent edges of 143.031215 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 85.950 TIME= 20:38:46
Element 2887 has an angle between adjacent edges of 36.9687852 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 85.950 TIME= 20:38:46
Element 2887 has an angle between adjacent edges of 143.022369 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 85.950 TIME= 20:38:46
Element 2888 has an angle between adjacent edges of 36.9602219 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 85.960 TIME= 20:38:46
Element 2888 has an angle between adjacent edges of 143.031215 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 85.960 TIME= 20:38:46
Element 2889 has an angle between adjacent edges of 36.9687852 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 85.960 TIME= 20:38:46
Element 2889 has an angle between adjacent edges of 143.022369 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 85.960 TIME= 20:38:46
Element 2890 has an angle between adjacent edges of 36.9602219 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 85.960 TIME= 20:38:46
Element 2890 has an angle between adjacent edges of 143.031215 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 85.960 TIME= 20:38:46
Element 2891 has an angle between adjacent edges of 36.9687852 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 85.970 TIME= 20:38:46
Element 2891 has an angle between adjacent edges of 143.022369 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 85.970 TIME= 20:38:46
Element 2892 has an angle between adjacent edges of 36.9602219 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 85.970 TIME= 20:38:46
Element 2892 has an angle between adjacent edges of 143.031215 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 85.970 TIME= 20:38:46
Element 2893 has an angle between adjacent edges of 36.9687852 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 85.970 TIME= 20:38:46

Element 2893 has an angle between adjacent edges of 143.022369 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 85.980 TIME= 20:38:46
Element 2894 has an angle between adjacent edges of 36.9602219 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 85.980 TIME= 20:38:46
Element 2894 has an angle between adjacent edges of 143.031215 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 85.980 TIME= 20:38:46
Element 2895 has an angle between adjacent edges of 36.9687852 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 85.980 TIME= 20:38:46
Element 2895 has an angle between adjacent edges of 143.022369 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 85.980 TIME= 20:38:46
Element 2896 has an angle between adjacent edges of 36.9602219 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 85.990 TIME= 20:38:46
Element 2896 has an angle between adjacent edges of 143.031215 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 85.990 TIME= 20:38:46
Element 2897 has an angle between adjacent edges of 36.9687852 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 85.990 TIME= 20:38:46
Element 2897 has an angle between adjacent edges of 143.022369 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 85.990 TIME= 20:38:46
Element 2898 has an angle between adjacent edges of 36.9602219 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 85.990 TIME= 20:38:46
Element 2898 has an angle between adjacent edges of 143.031215 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.000 TIME= 20:38:46
Element 2899 has an angle between adjacent edges of 36.9687852 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.000 TIME= 20:38:46
Element 2899 has an angle between adjacent edges of 143.022369 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.000 TIME= 20:38:46
Element 2900 has an angle between adjacent edges of 36.9602219 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.000 TIME= 20:38:46

Element 2900 has an angle between adjacent edges of 143.031215 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.000 TIME= 20:38:46
Element 2901 has an angle between adjacent edges of 36.9687852 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.000 TIME= 20:38:46
Element 2901 has an angle between adjacent edges of 143.022369 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.010 TIME= 20:38:46
Element 2902 has an angle between adjacent edges of 36.9602219 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.010 TIME= 20:38:46
Element 2902 has an angle between adjacent edges of 143.031215 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.010 TIME= 20:38:46
Element 2903 has an angle between adjacent edges of 36.9687852 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.010 TIME= 20:38:46
Element 2903 has an angle between adjacent edges of 143.022369 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.010 TIME= 20:38:46
Element 2904 has an angle between adjacent edges of 36.9602219 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.010 TIME= 20:38:46
Element 2904 has an angle between adjacent edges of 143.031215 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.020 TIME= 20:38:46
Element 2905 has an angle between adjacent edges of 36.9687852 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.020 TIME= 20:38:46
Element 2905 has an angle between adjacent edges of 143.022369 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.020 TIME= 20:38:46
Element 2906 has an angle between adjacent edges of 36.9602219 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.020 TIME= 20:38:46
Element 2906 has an angle between adjacent edges of 143.031215 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.020 TIME= 20:38:46
Element 2907 has an angle between adjacent edges of 36.9687852 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.020 TIME= 20:38:46

Element 2907 has an angle between adjacent edges of 143.022369 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.030 TIME= 20:38:46
Element 2908 has an angle between adjacent edges of 36.9602219 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.030 TIME= 20:38:46
Element 2908 has an angle between adjacent edges of 143.031215 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.030 TIME= 20:38:46
Element 2909 has an angle between adjacent edges of 36.9687852 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.030 TIME= 20:38:46
Element 2909 has an angle between adjacent edges of 143.022369 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.030 TIME= 20:38:46
Element 2910 has an angle between adjacent edges of 36.9602219 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.030 TIME= 20:38:46
Element 2910 has an angle between adjacent edges of 143.031215 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.040 TIME= 20:38:46
Element 2911 has an angle between adjacent edges of 30.4729354 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.040 TIME= 20:38:46
Element 2911 has an angle between adjacent edges of 149.518219 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.040 TIME= 20:38:46
Element 2912 has an angle between adjacent edges of 30.464372 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.040 TIME= 20:38:46
Element 2912 has an angle between adjacent edges of 149.527065 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.040 TIME= 20:38:46
Element 2913 has an angle between adjacent edges of 30.4729354 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.040 TIME= 20:38:46
Element 2913 has an angle between adjacent edges of 149.518219 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.050 TIME= 20:38:46
Element 2914 has an angle between adjacent edges of 30.464372 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.050 TIME= 20:38:46
Element 2914 has an angle between adjacent edges of 149.527065 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

degrees.

*** WARNING *** CP= 86.050 TIME= 20:38:46
Element 2915 has an angle between adjacent edges of 30.4729354 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.050 TIME= 20:38:46
Element 2915 has an angle between adjacent edges of 149.518219 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.050 TIME= 20:38:46
Element 2916 has an angle between adjacent edges of 30.464372 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.060 TIME= 20:38:46
Element 2916 has an angle between adjacent edges of 149.527065 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.060 TIME= 20:38:46
Element 2917 has an angle between adjacent edges of 30.4729354 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.060 TIME= 20:38:46
Element 2917 has an angle between adjacent edges of 149.518219 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.060 TIME= 20:38:46
Element 2918 has an angle between adjacent edges of 30.464372 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.060 TIME= 20:38:46
Element 2918 has an angle between adjacent edges of 149.527065 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.060 TIME= 20:38:46
Element 2919 has an angle between adjacent edges of 30.4729354 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.070 TIME= 20:38:46
Element 2919 has an angle between adjacent edges of 149.518219 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.070 TIME= 20:38:46
Element 2920 has an angle between adjacent edges of 30.464372 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.070 TIME= 20:38:46
Element 2920 has an angle between adjacent edges of 149.527065 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.070 TIME= 20:38:46
Element 2921 has an angle between adjacent edges of 30.4729354 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.070 TIME= 20:38:46
Element 2921 has an angle between adjacent edges of 149.518219 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.080 TIME= 20:38:46

Element 2922 has an angle between adjacent edges of 30.464372 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.080 TIME= 20:38:46
Element 2922 has an angle between adjacent edges of 149.527065 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.080 TIME= 20:38:46
Element 2923 has an angle between adjacent edges of 30.4729354 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.080 TIME= 20:38:46
Element 2923 has an angle between adjacent edges of 149.518219 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.080 TIME= 20:38:46
Element 2924 has an angle between adjacent edges of 30.464372 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.090 TIME= 20:38:46
Element 2924 has an angle between adjacent edges of 149.527065 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.090 TIME= 20:38:46
Element 2925 has an angle between adjacent edges of 30.4729354 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.090 TIME= 20:38:46
Element 2925 has an angle between adjacent edges of 149.518219 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.090 TIME= 20:38:46
Element 2926 has an angle between adjacent edges of 30.464372 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.090 TIME= 20:38:46
Element 2926 has an angle between adjacent edges of 149.527065 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.100 TIME= 20:38:46
Element 2927 has an angle between adjacent edges of 30.4729354 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.100 TIME= 20:38:46
Element 2927 has an angle between adjacent edges of 149.518219 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.100 TIME= 20:38:46
Element 2928 has an angle between adjacent edges of 30.464372 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.100 TIME= 20:38:46
Element 2928 has an angle between adjacent edges of 149.527065 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.100 TIME= 20:38:46
Element 2929 has an angle between adjacent edges of 30.4729354 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.100 TIME= 20:38:46
Element 2929 has an angle between adjacent edges of 149.518219 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 86.110 TIME= 20:38:46
Element 2930 has an angle between adjacent edges of 30.464372 on face 2
which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.110 TIME= 20:38:46
Element 2930 has an angle between adjacent edges of 149.527065 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 86.110 TIME= 20:38:46
Element 2931 has an angle between adjacent edges of 30.4729354 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 86.110 TIME= 20:38:46
Element 2931 has an angle between adjacent edges of 149.518219 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 86.120 TIME= 20:38:46
Element 2932 has an angle between adjacent edges of 30.464372 on face 2
which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.120 TIME= 20:38:46
Element 2932 has an angle between adjacent edges of 149.527065 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 86.120 TIME= 20:38:46
Element 2933 has an angle between adjacent edges of 30.4729354 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 86.120 TIME= 20:38:46
Element 2933 has an angle between adjacent edges of 149.518219 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 86.120 TIME= 20:38:46
Element 2934 has an angle between adjacent edges of 30.464372 on face 2
which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.130 TIME= 20:38:46
Element 2934 has an angle between adjacent edges of 149.527065 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 86.130 TIME= 20:38:46
Element 2935 has an angle between adjacent edges of 30.4729354 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 86.130 TIME= 20:38:46
Element 2935 has an angle between adjacent edges of 149.518219 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 86.130 TIME= 20:38:46
Element 2936 has an angle between adjacent edges of 30.464372 on face 2
which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.130 TIME= 20:38:46
Element 2936 has an angle between adjacent edges of 149.527065 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 86.130 TIME= 20:38:46
Element 2937 has an angle between adjacent edges of 30.4729354 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 86.140 TIME= 20:38:46
Element 2937 has an angle between adjacent edges of 149.518219 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 86.140 TIME= 20:38:46
Element 2938 has an angle between adjacent edges of 30.464372 on face 2
which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.140 TIME= 20:38:46
Element 2938 has an angle between adjacent edges of 149.527065 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 86.140 TIME= 20:38:46
Element 2939 has an angle between adjacent edges of 30.4729354 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 86.140 TIME= 20:38:46
Element 2939 has an angle between adjacent edges of 149.518219 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 86.150 TIME= 20:38:46
Element 2940 has an angle between adjacent edges of 30.464372 on face 2
which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.150 TIME= 20:38:46
Element 2940 has an angle between adjacent edges of 149.527065 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 86.150 TIME= 20:38:46
Element 2941 has an angle between adjacent edges of 36.9687852 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 86.150 TIME= 20:38:46
Element 2941 has an angle between adjacent edges of 149.527065 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 86.150 TIME= 20:38:46
Element 2942 has an angle between adjacent edges of 143.031215 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 86.150 TIME= 20:38:46
Element 2942 has an angle between adjacent edges of 143.031215 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 86.160 TIME= 20:38:46
Element 2945 has an angle between adjacent edges of 36.9687852 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 86.160 TIME= 20:38:46
Element 2945 has an angle between adjacent edges of 149.527065 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 86.160 TIME= 20:38:46

Element 2946 has an angle between adjacent edges of 143.031215 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.160 TIME= 20:38:46
Element 2946 has an angle between adjacent edges of 143.031215 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.160 TIME= 20:38:46
Element 2949 has an angle between adjacent edges of 36.9687852 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.160 TIME= 20:38:46
Element 2949 has an angle between adjacent edges of 149.527065 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.160 TIME= 20:38:46
Element 2950 has an angle between adjacent edges of 143.031215 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.160 TIME= 20:38:46
Element 2950 has an angle between adjacent edges of 143.031215 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.170 TIME= 20:38:46
Element 2953 has an angle between adjacent edges of 36.9687852 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.170 TIME= 20:38:46
Element 2953 has an angle between adjacent edges of 149.527065 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.170 TIME= 20:38:46
Element 2954 has an angle between adjacent edges of 143.031215 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.170 TIME= 20:38:46
Element 2954 has an angle between adjacent edges of 143.031215 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.180 TIME= 20:38:46
Element 2957 has an angle between adjacent edges of 36.9687852 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.180 TIME= 20:38:46
Element 2957 has an angle between adjacent edges of 149.527065 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.180 TIME= 20:38:46
Element 2958 has an angle between adjacent edges of 143.031215 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.180 TIME= 20:38:46
Element 2958 has an angle between adjacent edges of 143.031215 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.180 TIME= 20:38:46

Element 2961 has an angle between adjacent edges of 36.9687852 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.190 TIME= 20:38:46
Element 2961 has an angle between adjacent edges of 149.527065 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.190 TIME= 20:38:46
Element 2962 has an angle between adjacent edges of 143.031215 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.190 TIME= 20:38:46
Element 2962 has an angle between adjacent edges of 143.031215 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.190 TIME= 20:38:46
Element 2965 has an angle between adjacent edges of 36.9687852 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.190 TIME= 20:38:46
Element 2965 has an angle between adjacent edges of 149.527065 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.200 TIME= 20:38:46
Element 2966 has an angle between adjacent edges of 143.031215 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.200 TIME= 20:38:46
Element 2966 has an angle between adjacent edges of 143.031215 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.200 TIME= 20:38:46
Element 2969 has an angle between adjacent edges of 36.9687852 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.200 TIME= 20:38:46
Element 2969 has an angle between adjacent edges of 149.527065 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.200 TIME= 20:38:46
Element 2970 has an angle between adjacent edges of 143.031215 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.210 TIME= 20:38:46
Element 2970 has an angle between adjacent edges of 143.031215 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.210 TIME= 20:38:46
Element 2973 has an angle between adjacent edges of 36.9687852 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.210 TIME= 20:38:46
Element 2973 has an angle between adjacent edges of 149.527065 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.210 TIME= 20:38:46

Element 2974 has an angle between adjacent edges of 143.031215 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.210 TIME= 20:38:46
Element 2974 has an angle between adjacent edges of 143.031215 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.220 TIME= 20:38:46
Element 2977 has an angle between adjacent edges of 36.9687852 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.220 TIME= 20:38:46
Element 2977 has an angle between adjacent edges of 149.527065 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.220 TIME= 20:38:46
Element 2978 has an angle between adjacent edges of 143.031215 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.220 TIME= 20:38:46
Element 2978 has an angle between adjacent edges of 143.031215 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.220 TIME= 20:38:46
Element 2981 has an angle between adjacent edges of 36.9687852 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.230 TIME= 20:38:46
Element 2981 has an angle between adjacent edges of 149.527065 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.230 TIME= 20:38:46
Element 2982 has an angle between adjacent edges of 143.031215 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.230 TIME= 20:38:46
Element 2982 has an angle between adjacent edges of 143.031215 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.230 TIME= 20:38:46
Element 2985 has an angle between adjacent edges of 36.9687852 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.230 TIME= 20:38:46
Element 2985 has an angle between adjacent edges of 149.527065 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.240 TIME= 20:38:46
Element 2986 has an angle between adjacent edges of 143.031215 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.240 TIME= 20:38:46
Element 2986 has an angle between adjacent edges of 143.031215 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.240 TIME= 20:38:46

Element 2989 has an angle between adjacent edges of 36.9687852 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.240 TIME= 20:38:46
Element 2989 has an angle between adjacent edges of 149.527065 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.250 TIME= 20:38:46
Element 2990 has an angle between adjacent edges of 143.031215 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.250 TIME= 20:38:46
Element 2990 has an angle between adjacent edges of 143.031215 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.250 TIME= 20:38:46
Element 2993 has an angle between adjacent edges of 36.9687852 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.250 TIME= 20:38:46
Element 2993 has an angle between adjacent edges of 149.527065 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.250 TIME= 20:38:46
Element 2994 has an angle between adjacent edges of 143.031215 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.250 TIME= 20:38:46
Element 2994 has an angle between adjacent edges of 143.031215 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.260 TIME= 20:38:46
Element 2997 has an angle between adjacent edges of 36.9687852 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.260 TIME= 20:38:46
Element 2997 has an angle between adjacent edges of 149.527065 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.260 TIME= 20:38:46
Element 2998 has an angle between adjacent edges of 143.031215 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.260 TIME= 20:38:46
Element 2998 has an angle between adjacent edges of 143.031215 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.270 TIME= 20:38:46
Element 3001 has an angle between adjacent edges of 36.9776312 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.270 TIME= 20:38:46
Element 3001 has an angle between adjacent edges of 149.518219 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.270 TIME= 20:38:46

Element 3002 has an angle between adjacent edges of 143.022369 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.270 TIME= 20:38:46
Element 3002 has an angle between adjacent edges of 143.022369 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.270 TIME= 20:38:46
Element 3005 has an angle between adjacent edges of 36.9776312 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.280 TIME= 20:38:46
Element 3005 has an angle between adjacent edges of 149.518219 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.280 TIME= 20:38:46
Element 3006 has an angle between adjacent edges of 143.022369 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.280 TIME= 20:38:46
Element 3006 has an angle between adjacent edges of 143.022369 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.280 TIME= 20:38:46
Element 3009 has an angle between adjacent edges of 36.9776312 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.280 TIME= 20:38:46
Element 3009 has an angle between adjacent edges of 149.518219 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.290 TIME= 20:38:46
Element 3010 has an angle between adjacent edges of 143.022369 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.290 TIME= 20:38:46
Element 3010 has an angle between adjacent edges of 143.022369 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.290 TIME= 20:38:46
Element 3013 has an angle between adjacent edges of 36.9776312 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.290 TIME= 20:38:46
Element 3013 has an angle between adjacent edges of 149.518219 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.290 TIME= 20:38:46
Element 3014 has an angle between adjacent edges of 143.022369 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.300 TIME= 20:38:46
Element 3014 has an angle between adjacent edges of 143.022369 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.300 TIME= 20:38:46

Element 3017 has an angle between adjacent edges of 36.9776312 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.300 TIME= 20:38:46
Element 3017 has an angle between adjacent edges of 149.518219 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.300 TIME= 20:38:46
Element 3018 has an angle between adjacent edges of 143.022369 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 86.300 TIME= 20:38:46
Element 3018 has an angle between adjacent edges of 143.022369 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

Error messages discontinued after 200 messages were displayed.
More may exist. See (seism2.err) for suppressed messages.

*** NOTE *** CP= 90.380 TIME= 20:38:53
The model data was checked and warning messages were found.
Please review output or errors file (seism2.err) for these warning messages.

1

***** ANSYS - ENGINEERING ANALYSIS SYSTEM REVISION 5.1 24 *****
38303 VERSION=HP 9000/7XX 20:38:53 APR 10, 1996 CP= 90.380
FOR SUPPORT CALL ROBERT BAHNEY PHONE (702) 794-5337 FAX (702) 794-1844

21 PWR Tube Seismic Analysis With Backfill

SOLUTION OPTIONS

PROBLEM DIMENSIONALITY.3-D
DEGREES OF FREEDOM. UX UY UZ
ANALYSIS TYPEMODAL
EXTRACTION METHOD.SUBSPACE
NUMBER OF MODES TO EXTRACT. 8

LOAD STEP OPTIONS

LOAD STEP NUMBER. 1

***** CENTROID, MASS, AND MASS MOMENTS OF INERTIA *****

CALCULATIONS ASSUME ELEMENT MASS AT ELEMENT CENTROID

TOTAL MASS = 11165.

CENTROID	MOM. OF INERTIA ABOUT ORIGIN	MOM. OF INERTIA ABOUT CENTROID
XC = 0.32998	IXX = 0.2171E+05	IXX = 6319.
YC = 0.22502	IYY = 0.2141E+05	IYY = 5366.
ZC = 1.1525	IZZ = 3654.	IZZ = 1873.
	IXY = -881.1	IXY = -52.07
	IYZ = -2895.	IYZ = 0.6106
	IZX = -4249.	IZX = -2.464

*** MASS SUMMARY BY ELEMENT TYPE ***

TYPE	MASS
2	5499.34
3	332.670
4	180.515
5	95.0035
6	5057.97

Range of element maximum matrix coefficients in global coordinates
 Maximum= 5.474720139E+11 at element 5101.
 Minimum= 148626650 at element 6476.

*** ELEMENT MATRIX FORMULATION TIMES

TYPE	NUMBER	ENAME	TOTAL CP	AVE CP
2	2520	SOLID45	15.060	0.006
3	1560	SOLID45	9.210	0.006
4	600	SOLID45	3.600	0.006
5	2872	SOLID45	17.010	0.006
6	1064	SOLID45	6.520	0.006

Time at end of element matrix formulation CP= 151.53.

Estimated number of active DOF= 37495.
 Maximum wavefront= 1397.

Time at end of matrix triangularization CP= 235.09.

SUBSPACE SIZE OF 12 VECTORS USED FOR CALCULATION OF FIRST 8 EIGENVECTORS.

MAXIMUM ITERATIONS	=	100
NUMBER OF EQUATIONS	=	37495
MAXIMUM WAVEFRONT	=	1397
ITERATIONS PER SHIFT	=	5
MAXIMUM MODES STORED	=	12
MAXIMUM EIGENVALUE	=	0.10000E+07
WORK SPACE (MBYTE)	=	8.0875

Equation solver maximum pivot= 1.435813451E+12 at node 8454 UX.

Equation solver minimum pivot= 1939687.75 at node 7457 UY.

***** ITERATION 1 COMPLETE ***** CP= 3007.720 WALL= 22.0344

***** CURRENT EIGENVALUE CALCULATIONS *****

MODE	CURRENT VALUE	PREVIOUS VALUE	CONVERGENCE RATIO
1	28.500850	0.00000000E+00	0.10000E+01
2	35.435089	0.00000000E+00	0.10000E+01
3	37.065221	0.00000000E+00	0.10000E+01
4	43.506112	0.00000000E+00	0.10000E+01
5	53.155403	0.00000000E+00	0.10000E+01
6	57.478751	0.00000000E+00	0.10000E+01
7	63.198089	0.00000000E+00	0.10000E+01
8	75.979652	0.00000000E+00	0.10000E+01
9	82.052553	0.00000000E+00	0.10000E+01
10	85.061637	0.00000000E+00	0.10000E+01
11	93.044340	0.00000000E+00	0.10000E+01
12	101.60571	0.00000000E+00	0.10000E+01

ITERATIONS SINCE LAST SHIFT= 1
 TOTAL NUMBER OF ITERATIONS= 1
 NUMBER OF MODES CONVERGED= 0
 NUMBER OF WORKING VECTORS= 12
 CURRENT SHIFT POINT= -1.0000
 CP TIME FOR TRIANGULARIZATION= 2597.650
 CP TIME SINCE LAST SHIFT= 170.880

***** ITERATION 2 COMPLETE ***** CP= 3178.290 WALL= 22.1661

```

***** CURRENT EIGENVALUE CALCULATIONS *****
MODE  CURRENT VALUE  PREVIOUS VALUE  CONVERGENCE RATIO
1      21.941691      28.500850      0.68723E+00
2      26.028957      35.435089      0.85333E+00
3      29.309110      37.065221      0.59929E+00
4      30.979887      43.506112      0.97215E+00
5      34.839971      53.155403      0.13278E+01
6      36.297893      57.478751      0.15076E+01
7      41.446687      63.198089      0.13250E+01
8      50.157048      75.979652      0.12947E+01
9      51.306181      82.052553      0.15577E+01
10     58.065537      85.061637      0.11460E+01
11     60.608634      93.044340      0.13567E+01
12     70.969451      101.60571      0.10497E+01

```

```

ITERATIONS SINCE LAST SHIFT= 2
TOTAL NUMBER OF ITERATIONS= 2
NUMBER OF MODES CONVERGED= 0
NUMBER OF WORKING VECTORS= 12
CURRENT SHIFT POINT= -1.0000
CP TIME FOR TRIANGULARIZATION= 2597.650
CP TIME SINCE LAST SHIFT= 341.450

```

***** ITERATION 3 COMPLETE ***** CP= 3348.260 WALL= 22.2967

```

***** CURRENT EIGENVALUE CALCULATIONS *****
MODE  CURRENT VALUE  PREVIOUS VALUE  CONVERGENCE RATIO
1      21.913403      21.941691      0.25834E-02
2      24.659111      26.028957      0.11419E+00
3      29.009763      29.309110      0.20744E-01
4      30.754720      30.979887      0.14696E-01
5      34.396433      34.839971      0.25956E-01
6      35.931035      36.297893      0.20524E-01
7      39.114522      41.446687      0.12280E+00
8      49.159351      50.157048      0.41002E-01
9      49.776636      51.306181      0.62401E-01
10     56.371883      58.065537      0.60991E-01
11     57.893687      60.608634      0.95990E-01
12     66.927901      70.969451      0.12442E+00

```

```

ITERATIONS SINCE LAST SHIFT= 3
TOTAL NUMBER OF ITERATIONS= 3
NUMBER OF MODES CONVERGED= 0
NUMBER OF WORKING VECTORS= 12
CURRENT SHIFT POINT= -1.0000
CP TIME FOR TRIANGULARIZATION= 2597.650
CP TIME SINCE LAST SHIFT= 511.420

```

***** ITERATION 4 COMPLETE ***** CP= 3519.170 WALL= 22.4278

```

***** CURRENT EIGENVALUE CALCULATIONS *****
MODE  CURRENT VALUE  PREVIOUS VALUE  CONVERGENCE RATIO
1      21.913260      21.913403      0.13074E-04
2      24.639311      24.659111      0.16078E-02
3      29.000459      29.009763      0.64170E-03
4      30.743154      30.754720      0.75260E-03
5      34.377880      34.396433      0.10797E-02
6      35.913686      35.931035      0.96639E-03
7      38.831700      39.114522      0.14620E-01
8      48.944075      49.159351      0.88162E-02
9      49.630606      49.776636      0.58933E-02
10     55.754432      56.371883      0.22272E-01
11     57.304604      57.893687      0.20665E-01
12     65.618464      66.927901      0.40309E-01

```

ITERATIONS SINCE LAST SHIFT= 4
 TOTAL NUMBER OF ITERATIONS= 4
 NUMBER OF MODES CONVERGED= 0
 NUMBER OF WORKING VECTORS= 12
 CURRENT SHIFT POINT= -1.0000
 CP TIME FOR TRIANGULARIZATION= 2597.650
 CP TIME SINCE LAST SHIFT= 682.330

***** ITERATION 5 COMPLETE ***** CP= 3689.510 WALL= 22.5578

***** CURRENT EIGENVALUE CALCULATIONS *****

MODE	CURRENT VALUE	PREVIOUS VALUE	CONVERGENCE RATIO
1	21.913258	21.913260	0.11790E-06
2	24.638910	24.639311	0.32539E-04
3	29.000091	29.000459	0.25403E-04
4	30.742570	30.743154	0.38014E-04
5	34.376474	34.377880	0.81783E-04
6	35.912436	35.913686	0.69564E-04
7	38.795985	38.831700	0.18420E-02
8	48.877275	48.944075	0.27352E-02
9	49.604301	49.630606	0.10609E-02
10	55.412831	55.754432	0.12367E-01
11	57.076372	57.304604	0.80134E-02
12	65.043655	65.618464	0.17753E-01

ITERATIONS SINCE LAST SHIFT= 5
 TOTAL NUMBER OF ITERATIONS= 5
 NUMBER OF MODES CONVERGED= 1
 NUMBER OF WORKING VECTORS= 12
 CURRENT SHIFT POINT= -1.0000
 CP TIME FOR TRIANGULARIZATION= 2597.650
 CP TIME SINCE LAST SHIFT= 852.670

*** NOTE *** CP= 3689.510 TIME= 22:33:28
 NEW SHIFT= 24.5098271.

*** NOTE *** CP= 6285.350 TIME= 23:42:32
 STURM number= 1 should be 1.

***** ITERATION 6 COMPLETE ***** CP= 6424.750 WALL= 23.8058

***** PREVIOUS CONVERGED EIGENVALUES *****
 1 21.9132584

***** CURRENT EIGENVALUE CALCULATIONS *****

MODE	CURRENT VALUE	PREVIOUS VALUE	CONVERGENCE RATIO
2	24.638900	24.638910	0.78284E-06
3	29.000073	29.000091	0.12229E-05
4	30.742539	30.742570	0.20122E-05
5	34.376311	34.376474	0.94940E-05
6	35.912321	35.912436	0.64103E-05
7	38.790801	38.795985	0.26732E-03
8	48.852023	48.877275	0.10341E-02
9	49.595708	49.604301	0.34654E-03
10	55.132484	55.412831	0.10196E-01
11	56.913636	57.076372	0.57269E-02
12	64.646623	65.043655	0.12321E-01

ITERATIONS SINCE LAST SHIFT= 1
 TOTAL NUMBER OF ITERATIONS= 6
 NUMBER OF MODES CONVERGED= 6
 NUMBER OF WORKING VECTORS= 12
 CURRENT SHIFT POINT= 24.510
 CP TIME FOR TRIANGULARIZATION= 2596.130
 CP TIME SINCE LAST SHIFT= 139.110

***** ITERATION 7 COMPLETE ***** CP= 6535.250 WALL= 23.8925

***** PREVIOUS CONVERGED EIGENVALUES *****

1	21.9132584	2	24.6389001	3	29.0000733
4	30.7425386	5	34.3763108	6	35.9123214

***** CURRENT EIGENVALUE CALCULATIONS *****

MODE	CURRENT VALUE	PREVIOUS VALUE	CONVERGENCE RATIO
7	38.790427	38.790801	0.19247E-04
8	48.845287	48.852023	0.27585E-03
9	49.593278	49.595708	0.98011E-04
10	54.909075	55.132484	0.81539E-02
11	56.797634	56.913636	0.40889E-02
12	64.284973	64.646623	0.11283E-01

ITERATIONS SINCE LAST SHIFT= 2
TOTAL NUMBER OF ITERATIONS= 7
NUMBER OF MODES CONVERGED= 6
NUMBER OF WORKING VECTORS= 12
CURRENT SHIFT POINT= 24.510
CP TIME FOR TRIANGULARIZATION= 2596.130
CP TIME SINCE LAST SHIFT= 249.620

***** ITERATION 8 COMPLETE ***** CP= 6645.890 WALL= 23.9792

***** PREVIOUS CONVERGED EIGENVALUES *****

1	21.9132584	2	24.6389001	3	29.0000733
4	30.7425386	5	34.3763108	6	35.9123214

***** CURRENT EIGENVALUE CALCULATIONS *****

MODE	CURRENT VALUE	PREVIOUS VALUE	CONVERGENCE RATIO
7	38.790398	38.790427	0.15080E-05
8	48.843455	48.845287	0.75017E-04
9	49.592534	49.593278	0.30000E-04
10	54.711766	54.909075	0.72257E-02
11	56.707302	56.797634	0.31885E-02
12	63.821860	64.284973	0.14565E-01

ITERATIONS SINCE LAST SHIFT= 3
TOTAL NUMBER OF ITERATIONS= 8
NUMBER OF MODES CONVERGED= 7
NUMBER OF WORKING VECTORS= 12
CURRENT SHIFT POINT= 24.510
CP TIME FOR TRIANGULARIZATION= 2596.130
CP TIME SINCE LAST SHIFT= 360.250

***** ITERATION 9 COMPLETE ***** CP= 6752.830 WALL= 24.0642

***** PREVIOUS CONVERGED EIGENVALUES *****

1	21.9132584	2	24.6389001	3	29.0000733
4	30.7425386	5	34.3763108	6	35.9123214
7	38.7903982				

***** CURRENT EIGENVALUE CALCULATIONS *****

MODE	CURRENT VALUE	PREVIOUS VALUE	CONVERGENCE RATIO
8	48.842938	48.843455	0.21164E-04
9	49.592298	49.592534	0.95254E-05
10	54.530936	54.711766	0.66432E-02
11	56.633083	56.707302	0.26227E-02
12	63.156437	63.821860	0.21183E-01

ITERATIONS SINCE LAST SHIFT= 4
TOTAL NUMBER OF ITERATIONS= 9
NUMBER OF MODES CONVERGED= 7

NUMBER OF WORKING VECTORS= 12
CURRENT SHIFT POINT= 24.510
CP TIME FOR TRIANGULARIZATION= 2596.130
CP TIME SINCE LAST SHIFT= 467.190

***** ITERATION 10 COMPLETE ***** CP= 6859.230 WALL= 24.1494

***** PREVIOUS CONVERGED EIGENVALUES *****

1	21.9132584	2	24.6389001	3	29.0000733
4	30.7425386	5	34.3763108	6	35.9123214
7	38.7903982				

***** CURRENT EIGENVALUE CALCULATIONS *****

MODE	CURRENT VALUE	PREVIOUS VALUE	CONVERGENCE RATIO
8	48.842783	48.842938	0.63519E-05

*** NOTE *** CP= 6859.240 TIME= 00:08:58
NEW SHIFT= 48.9182431.

*** NOTE *** CP= 9242.920 TIME= 00:51:13
STURM number= 8 should be 8.

1

***** ANSYS - ENGINEERING ANALYSIS SYSTEM REVISION 5.1 24 *****
38303 VERSION=HP 9000/7XX 00:51:16 APR 11, 1996 CP= 9243.260
FOR SUPPORT CALL ROBERT BAHNEY PHONE (702) 794-5337 FAX (702) 794-1844

21 PWR Tube Seismic Analysis With Backfill

***** FREQUENCIES FROM SUBSPACE ITERATION *****

MODE FREQUENCY (HERTZ)

1	21.913258
2	24.638900
3	29.000073
4	30.742539
5	34.376311
6	35.912321
7	38.790398
8	48.842783

*** PROBLEM STATISTICS

ACTUAL NO. OF ACTIVE DEGREES OF FREEDOM = 37495
R.M.S. WAVEFRONT SIZE = 902.2

*** ANSYS BINARY FILE STATISTICS

BUFFER SIZE USED= 4096
44.625 MB WRITTEN ON ELEMENT MATRIX FILE: seism2.emat
29.703 MB WRITTEN ON ELEMENT SAVED DATA FILE: seism2.esav
21.094 MB WRITTEN ON ASSEMBLED MATRIX FILE: seism2.full
2.719 MB WRITTEN ON MODAL MATRIX FILE: seism2.mode

FINISH SOLUTION PROCESSING

***** ROUTINE COMPLETED ***** CP = 9249.930

***** ANSYS SOLUTION ROUTINE *****

PERFORM AN EXPANSION PASS

NUMBER OF MODES TO EXPAND= 8
CALCULATE ELEMENT RESULTS AND NODAL DOF SOLUTION

***** ANSYS SOLVE COMMAND *****

1

***** ANSYS - ENGINEERING ANALYSIS SYSTEM REVISION 5.1 24 *****
38303 VERSION=HP 9000/7XX 00:51:30 APR 11, 1996 CP= 9249.930
FOR SUPPORT CALL ROBERT BAHNEY PHONE (702) 794-5337 FAX (702) 794-1844

21 PWR Tube Seismic Analysis With Backfill

SOLUTION OPTIONS

PROBLEM DIMENSIONALITY.3-D
DEGREES OF FREEDOM. UX UY UZ
ANALYSIS TYPEMODAL
EXTRACTION METHOD.SUBSPACE
EXPANSION PASSON
NUMBER OF MODES TO EXPAND 8
ELEMENT RESULTS CALCULATIONON

LOAD STEP OPTIONS

LOAD STEP NUMBER. 1
PRINT OUTPUT CONTROLSNO PRINTOUT
DATABASE OUTPUT CONTROLS
ITEM FREQUENCY COMPONENT
ALL ALL

*** NOTE *** CP= 9276.940 TIME= 00:52:31
Page file used.

*** ELEMENT RESULT CALCULATION TIMES

TYPE	NUMBER	ENAME	TOTAL CP	AVE CP
2	2520	SOLID45	9.130	0.004
3	1560	SOLID45	5.560	0.004
4	600	SOLID45	2.180	0.004
5	2872	SOLID45	10.220	0.004
6	1064	SOLID45	3.660	0.003

*** NODAL LOAD CALCULATION TIMES

TYPE	NUMBER	ENAME	TOTAL CP	AVE CP
2	2520	SOLID45	0.710	0.000
3	1560	SOLID45	0.560	0.000
4	600	SOLID45	0.170	0.000
5	2872	SOLID45	0.820	0.000
6	1064	SOLID45	0.330	0.000

*** ANSYS BINARY FILE STATISTICS

BUFFER SIZE USED= 4096
106.109 MB WRITTEN ON RESULTS FILE: seism2.rst

FINISH SOLUTION PROCESSING

***** ROUTINE COMPLETED ***** CP = 9329.890

***** ANSYS SOLUTION ROUTINE *****

PERFORM A SPECTRUM ANALYSIS
THIS WILL BE A NEW ANALYSIS

*** NOTE *** CP= 9529.890 TIME= 01:02:49
Some analysis options have been reset to their defaults. Please verify
current settings or respecify as required.

USE SINGLE POINT EXCITATION RESPONSE SPECTRUM
USE ALL MODES FROM THE MODAL ANALYSIS
INCLUDE STRESS RESPONSES IN THE CALCULATIONS

SEISMIC EXCITATION DIRECTION = 0.00000E+00 1.0000 0.00000E+00

SPECTRUM TYPE KEY= 2 FACTOR= 1.00000

FREQ= 0.100 100. 0.000E+00 0.000E+00 0.000E+00 0.000E+00 0.000E+00 0.000E+00 0.000E+00
NUMBER OF FREQUENCIES IN TABLE = 2

DAMPING= 0.00000E+00 SV= 16.285 16.285 0.00000E+00
0.00000E+00 0.00000E+00 0.00000E+00
0.00000E+00 0.00000E+00 0.00000E+00

COMBINE MODES USING THE SRSS METHOD
WHOSE SIGNIFICANCE LEVEL EXCEEDS THE THRESHOLD OF 0.10000E-07

WRITE ALL ITEMS TO THE DATABASE WITH A FREQUENCY OF 1
FOR ALL APPLICABLE ENTITIES

ALL CURRENT ANSYS DATA WRITTEN TO FILE NAME= seism2.db
FOR POSSIBLE RESUME FROM THIS POINT

***** ANSYS SOLVE COMMAND *****

1

***** ANSYS - ENGINEERING ANALYSIS SYSTEM REVISION 5.1 24 *****
38303 VERSION=HP 9000/7XX 01:03:17 APR 11, 1996 CP= 9543.100
FOR SUPPORT CALL ROBERT BAHNEY PHONE (702) 794-5337 FAX (702) 794-1844

21 PWR Tube Seismic Analysis With Backfill

SOLUTION OPTIONS

PROBLEM DIMENSIONALITY.3-D
DEGREES OF FREEDOM.UX UY UZ
ANALYSIS TYPE.SPECTRUM
SPECTRUM TYPE.SINGLE POINT
NUMBER OF MODES TO BE USED.8
ELEMENT RESULTS CALCULATION.ON

LOAD STEP OPTIONS

LOAD STEP NUMBER.1
SPECTRUM LOADING TYPE.ACCELERATION
EXCITATION DIRECTION.0.00000E+00 1.0000 0.00000E+00
MODE COMBINATION TYPE.SRSS
SIGNIFICANCE LEVEL FOR COMBINATIONS.0.10000E-07
PRINT OUTPUT CONTROLS.NO PRINTOUT
DATABASE OUTPUT CONTROLS
ITEM FREQUENCY COMPONENT
ALL ALL

1

***** ANSYS - ENGINEERING ANALYSIS SYSTEM REVISION 5.1 24 *****
38303 VERSION=HP 9000/7XX 01:03:29 APR 11, 1996 CP= 9546.950
FOR SUPPORT CALL ROBERT BAHNEY PHONE (702) 794-5337 FAX (702) 794-1844

21 PWR Tube Seismic Analysis With Backfill

SIGNIFICANCE FACTOR FOR COMBINING MODES = 0.10000E-07

SIGNIFICANT MODE COEFFICIENTS (INCLUDING DAMPING)

MODE	FREQUENCY	DAMPING	SV	MODE COEF.
1	21.91	0.0000	16.285	-0.3980E-03
2	24.64	0.0000	16.285	-0.3840E-03
3	29.00	0.0000	16.285	0.9750E-03
4	30.74	0.0000	16.285	0.3615E-01
5	34.38	0.0000	16.285	-0.6770E-03
6	35.91	0.0000	16.285	-0.7013E-03
7	38.79	0.0000	16.285	0.2195E-03
8	48.84	0.0000	16.285	-0.4132E-04

MODAL COMBINATION COEFFICIENTS

MODE=	1	FREQUENCY=	21.913	COUPLING COEF.=	1.000
MODE=	2	FREQUENCY=	24.639	COUPLING COEF.=	1.000
MODE=	3	FREQUENCY=	29.000	COUPLING COEF.=	1.000
MODE=	4	FREQUENCY=	30.743	COUPLING COEF.=	1.000
MODE=	5	FREQUENCY=	34.376	COUPLING COEF.=	1.000
MODE=	6	FREQUENCY=	35.912	COUPLING COEF.=	1.000
MODE=	7	FREQUENCY=	38.790	COUPLING COEF.=	1.000
MODE=	8	FREQUENCY=	48.843	COUPLING COEF.=	1.000

SRSS COMBINATION INSTRUCTIONS WRITTEN ON FILE seism2.mcom

*** PROBLEM STATISTICS

ACTUAL NO. OF ACTIVE DEGREES OF FREEDOM = 37495
R.M.S. WAVEFRONT SIZE = 902.2

*** ANSYS BINARY FILE STATISTICS

BUFFER SIZE USED= 4096

FINISH SOLUTION PROCESSING

***** ROUTINE COMPLETED ***** CP = 9546.950

PURGE ALL SOLUTION AND POST DATA
SAVE ALL MODEL DATA

ALL CURRENT ANSYS DATA WRITTEN TO FILE NAME= seism2.db
FOR POSSIBLE RESUME FROM THIS POINT

NUMBER OF WARNING MESSAGES ENCOUNTERED= 1015
NUMBER OF ERROR MESSAGES ENCOUNTERED= 0

*** PAGE FILE USED ***

NUMBER OF R/W OPERATIONS= 788
MAXIMUM RECORD NUMBER = 599
RECORD SIZE (1*4 WORDS) = 16384
PAGE FILE SIZE (MB) = 37.438

ANSYS RUN COMPLETED

REV. 5.1	24	HP 9000/7XX
CP TIME (sec) =	9555.840	TIME = 01:03:45
ELAPSED TIME (sec) =	16061.000	DATE = 04/11/96

-----*
W E L C O M E T O T H E A N S Y S P R O G R A M
-----*

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PRESS <CR> OR <ENTER> TO CONTINUE

***** ANSYS COMMAND LINE ARGUMENTS *****

INITIAL JOBNAME = postf2
MEMORY REQUESTED (MB) = 64.0
BATCH MODE REQUESTED = LIST
START-UP FILE MODE = READ

*** NOTE *** CP= 0.170 TIME= 07:52:08
There are no parameters and no abbreviations defined.

38303 VERSION=HP 9000/7XX REVISION= 5.1 24
FOR SUPPORT CALL ROBERT BAHNEY PHONE (702) 794-5337 FAX (702) 794-1844
CURRENT JOBNAME=postf2 07:52:08 APR 11, 1996 CP= 0.170

```
1 resume,seism2,db
2 /filnam,seism2
3 /post1
4 set,1,5
5 /input,,mcom
6 /out,seism2,res
7 /com, 100% Degradation of Outer Barrier, Backfill Present, Supports in From Ends
8 /com, 90% Degradation of Inner Barrier
9 /com,
10 /com,
11 /com, MAXIMUM STRESS INTENSITY IN THE OUTER BARRIER
12 /com,
13 /com, No Outer Barrier
14 /esel,s,type,,6,7
15 /nsle
16 /esln
17 /!set,1,5
18 /!nsort,s,int,0,0,1
19 /!prns,s,prin
20
21 /com,
22 /com,
23 /com, MAXIMUM STRESS INTENSITY IN THE INNER BARRIER
24 /com,
25 /com,
26 /esel,s,type,,5,6
27 /nsle
28 /esln
29 /nsort,s,int,0,0,1
30 /prns,s,prin
31
32 /com,
33 /com,
34 /com, MAXIMUM STRESS INTENSITY IN BASKET TUBES, CORNER GUIDES, AND END GUIDES
35 /com,
36 /com,
37 /esel,s,type,,1
38 /esel,a,type,,3,4
39 /nsle
40 /esln
41 /nsort,s,int,0,0,1
42 /prns,s,prin
43
44 /com,
45 /com,
46 /com, MAXIMUM STRESS INTENSITY IN CRITICALITY CONTROL PLATES
47 /com,
48 /com,
49 /esel,s,type,,2
50 /nsle
```

```
51 esln
52 nsort,s,int,0,0,1
53 prns,s,prin
54
55 /out
56 fini
57 /exit,nosave
58 /eof
```

RUN SETUP PROCEDURE FROM FILE= /ansys51/clocu/start.ans

/INPUT FILE= /ansys51/docu/start.ans LINE= 0

ABBREVIATION= REPLOTT /REPLOTT

PARAMETER PI = 3.141593

ANSYS STARTUP FILE start.ans

```
ABBREVIATION= VEC      /show,,1,
ABBREVIATION= RAS      /show,,0,
ABBREVIATION= INP      /input,,inp,
ABBREVIATION= ESC      /exit,nosav,
ABBREVIATION= K1       /pnum,kp ,1,
ABBREVIATION= K0       /pnum,kp ,0,
ABBREVIATION= L1       /pnum,line,1,
ABBREVIATION= L0       /pnum,line,0,
ABBREVIATION= A1       /pnum,area,1,
ABBREVIATION= A0       /pnum,area,0,
ABBREVIATION= V1       /pnum,volu,1,
ABBREVIATION= V0       /pnum,volu,0,
ABBREVIATION= N1       /pnum,node,1,
ABBREVIATION= N0       /pnum,node,0,
ABBREVIATION= E1       /pnum,elem,1,
ABBREVIATION= E0       /pnum,elem,0,
ABBREVIATION= M1       /pnum,mat ,1,
ABBREVIATION= M0       /pnum,mat ,0,
ABBREVIATION= R1       /pnum,real,1,
ABBREVIATION= R0       /pnum,real,0,
ABBREVIATION= T1       /pnum,type,1,
ABBREVIATION= T0       /pnum,type,0,
ABBREVIATION= C1       /number,1,
ABBREVIATION= C0       /number,0,
ABBREVIATION= PR1      /psf,pres,norm,1,
```

ABBREVIATION= PRO- /psf,pres,norm,0,
ABBREVIATION= U1 /pbc,u,1,
ABBREVIATION= U0 /pbc,u,0,
ABBREVIATION= X3D /show,3d,
ABBREVIATION= X11 /show,x11,
ABBREVIATION= X11C /show,x11c,
ABBREVIATION= ON /menu,on,
XYZ TRIAD DISPLAY SET TO OFF

VIEW CONE ANGLE FOR WINDOW 1 25.00

END start.ans

To start ANSYS menu:

type: x3d for console
x11 for X-term color
x11c for X-term color contour

type: on

RESUME ANSYS DATA FROM FILE NAME=seism2.cb

*** ANSYS GLOBAL STATUS ***

TITLE = 21 PWR Tube Seismic Analysis With Backfill

ANALYSIS TYPE = SPECTRUM

NUMBER OF ELEMENT TYPES = 6

8616 ELEMENTS CURRENTLY SELECTED. MAX ELEMENT NUMBER = 8616

12897 NODES CURRENTLY SELECTED. MAX NODE NUMBER = 12897

690 KEYPOINTS CURRENTLY SELECTED. MAX KEYPOINT NUMBER = 9001

1604 LINES CURRENTLY SELECTED. MAX LINE NUMBER = 1604

1133 AREAS CURRENTLY SELECTED. MAX AREA NUMBER = 1133

269 VOLUMES CURRENTLY SELECTED. MAX VOL. NUMBER = 269

MAXIMUM LINEAR PROPERTY NUMBER = 6

ACTIVE COORDINATE SYSTEM = 0 (CARTESIAN)

NUMBER OF SPECIFIED CONSTRAINTS = 1196

INITIAL JOBNAME = postf2

CURRENT JOBNAME = postf2

CURRENT JOBNAME REDEFINED AS seism2

1

***** ANSYS - ENGINEERING ANALYSIS SYSTEM REVISION 5.1 24 *****

38303 VERSION=HP 9000/7XX 07:52:14 APR 11, 1996 CP= 5.520

FOR SUPPORT CALL ROBERT BAHNEY PHONE (702) 794-5337 FAX (702) 794-1844

21 PWR Tube Seismic Analysis With Backfill

***** ANSYS RESULTS INTERPRETATION (POST1) *****

USE LOAD STEP 1 SUBSTEP 5 FOR LOAD CASE 0

*** NOTE *** CP= 7.150 TIME= 07:52:16

Page file used.

SET COMMAND GOT LOAD STEP= 1 SUBSTEP= 5 CUMULATIVE ITERATION= 5
TIME/FREQUENCY= 34.376

TITLE= 21 PWR Tube Seismic Analysis With Backfill

/INPUT FILE= seism2.mcom LINE= 0
ANSYS REVISION 5.1 24 01:03:29 04/11/1996
seism2.mcom

CURRENT LOAD SET IN DATABASE IS ERASED

LOAD CASE 1 IS LOAD STEP 1 SUBSTEP 1 COMPLEX= 0
FILE= seism2.rst
21 PWR Tube Seismic Analysis With Backfill

LOAD CASE 1 FACTOR SET TO-0.39797E-03

COPY LOAD CASE 1 FROM FILE TO DATABASE

SQUARE THE CURRENT LOAD SET IN DATABASE

*** NOTE *** CP= 31.260 TIME= 07:53:20
Load case combination data may not be correct unless viewed in the
solution phase coordinate system (RSYS= SOLU).

LOAD CASE 1 IS LOAD STEP 1 SUBSTEP 2 COMPLEX= 0
FILE= seism2.rst
21 PWR Tube Seismic Analysis With Backfill

LOAD CASE 1 FACTOR SET TO-0.38398E-03

LCOPER OPERATION ADD USING LOAD CASE= 1 FACTOR=-0.38398E-03 ABS= 0
MULTIPLIED BY LOAD CASE= 1 FACTOR=-0.38398E-03 ABS= 0

LOAD CASE 1 IS LOAD STEP 1 SUBSTEP 3 COMPLEX= 0
FILE= seism2.rst
21 PWR Tube Seismic Analysis With Backfill

LOAD CASE 1 FACTOR SET TO 0.97501E-03

LCOPER OPERATION ADD USING LOAD CASE= 1 FACTOR= 0.97501E-03 ABS= 0
MULTIPLIED BY LOAD CASE= 1 FACTOR= 0.97501E-03 ABS= 0

LOAD CASE 1 IS LOAD STEP 1 SUBSTEP 4 COMPLEX= 0
FILE= seism2.rst
21 PWR Tube Seismic Analysis With Backfill

LOAD CASE 1 FACTOR SET TO 0.36155E-01

LCOPER OPERATION ADD USING LOAD CASE= 1 FACTOR= 0.36155E-01 ABS= 0
MULTIPLIED BY LOAD CASE= 1 FACTOR= 0.36155E-01 ABS= 0

LOAD CASE 1 IS LOAD STEP 1 SUBSTEP 5 COMPLEX= 0
FILE= seism2.rst
21 PWR Tube Seismic Analysis With Backfill

LOAD CASE 1 FACTOR SET TO-0.67697E-03

LCOPER OPERATION ADD USING LOAD CASE= 1 FACTOR=-0.67697E-03 ABS= 0
MULTIPLIED BY LOAD CASE= 1 FACTOR=-0.67697E-03 ABS= 0

LOAD CASE 1 IS LOAD STEP 1 SUBSTEP 6 COMPLEX= 0
FILE= seism2.rst
21 PWR Tube Seismic Analysis With Backfill

LOAD CASE 1 FACTOR SET TO-0.70127E-03

LCOPER OPERATION ADD USING LOAD CASE= 1 FACTOR=-0.70127E-03 ABS= 0
MULTIPLIED BY LOAD CASE= 1 FACTOR=-0.70127E-03 ABS= 0

```
LOAD CASE 1 IS LOAD STEP 1 SUBSTEP 7 COMPLEX= 0
FILE= seism2.rst
21 PWR Tube Seismic Analysis With Backfill
```

LOAD CASE 1 FACTOR SET TO 0.21951E-03

LCOPER OPERATION ADD USING LOAD CASE= 1 FACTOR= 0.21951E-03 ABS= 0
MULTIPLIED BY LOAD CASE= 1 FACTOR= 0.21951E-03 ABS= 0

```
LOAD CASE 1 IS LOAD STEP 1 SUBSTEP 8 COMPLEX= 0
FILE= seism2.rst
21 PWR Tube Seismic Analysis With Backfill
```

LOAD CASE 1 FACTOR SET TO-0.41315E-04

LCOPER OPERATION ADD USING LOAD CASE= 1 FACTOR=-0.41315E-04 ABS= 0
MULTIPLIED BY LOAD CASE= 1 FACTOR=-0.41315E-04 ABS= 0

TAKE SQRT OF CURRENT LOAD SET IN DATABASE

```
/OUTPUT FILE= seism2.res
```

EXIT THE ANSYS POST1 DATABASE PROCESSOR

***** ROUTINE COMPLETED ***** CP = 109.870

EXIT ANSYS WITHOUT SAVING DATABASE

```
NUMBER OF WARNING MESSAGES ENCOUNTERED=      0
NUMBER OF ERROR MESSAGES ENCOUNTERED=      0
```

```

*** PAGE FILE USED ***
NUMBER OF R/W OPERATIONS=      15592
MAXIMUM RECORD NUMBER      =       554
RECORD SIZE (1*4 WORDS)   =     16384
PAGE FILE SIZE (MB)       =     34.625

```

```

*-----*
                ANSYS RUN COMPLETED
*-----*

                REV. 5.1   24                                HP 9000/7XX

CP TIME      (sec) =                109.880                TIME = 07:56:38
ELAPSED TIME (sec) =                271.000                DATE  = 04/11/96

```


-----*

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PRESS <CR> OR <ENTER> TO CONTINUE

***** ANSYS COMMAND LINE ARGUMENTS *****

INITIAL JOBNAME = postlin2
MEMORY REQUESTED (MB) = 64.0
BATCH MODE REQUESTED = LIST
START-UP FILE MODE = READ

*** NOTE *** CP= 0.160 TIME= 08:23:36
There are no parameters and no abbreviations defined.

38303 VERSION=HP 9000/7XX REVISION= 5.1 24
FOR SUPPORT CALL ROBERT BAHNEY PHONE (702) 794-5337 FAX (702) 794-1844
CURRENT JOBNAME=postlin2 08:23:36 APR 11, 1996 CP= 0.160

```
1 resume,seism2,db
2 /filnam,seism2
3 /post1
4 set,1,5
5 /input,,mcom
6 /com, Outer Barrier Stress Distribution
7 !nsel,s,node,,13294
8 !nsel,a,node,,13367
9 !nsel,a,node,,12430
10 !nsel,a,node,,12503
11 !nsel,a,node,,7840
12 !esln
13 !lpath,7840,13294
14 !/out,obstress
15 /com, Outer Barrier Linearized Stresses at Location of Peak Stress
16 !prsect
17 !/out
18 !/show,obdist,grph
19 !plsect,s,int
20 !/show,term
21 /com, Inner Barrier Stress Distribution
22 nsel,s,node,,12757
23 nsel,a,node,,12765
24 nsel,a,node,,12761
25 esln
26 lpath,12757,12761
27 /out,ibstress
28 /com, Inner Barrier Linearized Stresses at Location of Peak Stress
29 prsect
30 /out
31 /show,ibdist,grph
32 plsect,s,int
33 /show,term
34 /com, Basket Stress Distribution
35 nsel,s,node,,6133
36 nsel,a,node,,6194
37 nsel,a,node,,6069
38 esln
39 lpath,6133,6069
40 /out,bktstress
41 /com, Basket Tubes and Guides Linearized Stresses at Location of Peak Stress
42 prsect
43 /out
44 /show,bktdist,grph
45 plsect,s,int
46 /show,term
47 /com, Criticality Control Plate Stress Distribution
48 nsel,s,node,,3813
49 nsel,a,node,,3938
50 nsel,a,node,,3877
```

```

51 esln
52 lpath,3813,3877
53 /out,pltstress
54 /com, Criticality Control Plates Linearized Stresses at Location of Peak Stress
55 prsect
56 /out
57 /show,pltdist,grph
58 plsect,s,int
59 /show,term
60 fini
61 /exit,nosave

```

RUN SETUP PROCEDURE FROM FILE= /ansys51/docu/start.ans

/INPUT FILE= /ansys51/docu/start.ans LINE= 0

ABBREVIATION= REPLOT /REPLOT

PARAMETER PI = 3.141593

ANSYS STARTUP FILE start.ans

```

ABBREVIATION= VEC      /show,,1,
ABBREVIATION= RAS      /show,,0,
ABBREVIATION= INP      /input,,inp,
ABBREVIATION= ESC      /exit,nosav,
ABBREVIATION= K1       /pnum,kp ,1,
ABBREVIATION= K0       /pnum,kp ,0,
ABBREVIATION= L1       /pnum,line,1,
ABBREVIATION= L0       /pnum,line,0,
ABBREVIATION= A1       /pnum,area,1,
ABBREVIATION= A0       /pnum,area,0,
ABBREVIATION= V1       /pnum,volu,1,
ABBREVIATION= V0       /pnum,volu,0,
ABBREVIATION= N1       /pnum,node,1,
ABBREVIATION= N0       /pnum,node,0,
ABBREVIATION= E1       /pnum,elem,1,
ABBREVIATION= E0       /pnum,elem,0,
ABBREVIATION= M1       /pnum,mat ,1,
ABBREVIATION= M0       /pnum,mat ,0,
ABBREVIATION= R1       /pnum,real,1,
ABBREVIATION= R0       /pnum,real,0,
ABBREVIATION= T1       /pnum,type,1,
ABBREVIATION= T0       /pnum,type,0,
ABBREVIATION= C1       /number,1,
ABBREVIATION= C0       /number,0,

```

ABBREVIATION= PR1 /psf,pres,norm,l,
ABBREVIATION= PR0 /psf,pres,norm,l),
ABBREVIATION= U1 /pbc,u,1,
ABBREVIATION= U0 /pbc,u,0,
ABBREVIATION= X3D /show,3d,
ABBREVIATION= X11 /show,x11,
ABBREVIATION= X11C /show,x11c,
ABBREVIATION= ON /menu,on,
XYZ TRIAD DISPLAY SET TO OFF

VIEW CONE ANGLE FOR WINDOW 1 25.00

END start.ans

To start ANSYS menu:

type: x3d for console
x11 for X-term color
x11c for X-term color contour

type: on

RESUME ANSYS DATA FROM FILE NAME=seism2.db

*** ANSYS GLOBAL STATUS ***

TITLE = 21 PWR Tube Seismic Analysis With Backfill
ANALYSIS TYPE = SPECTRUM
NUMBER OF ELEMENT TYPES = 6
8616 ELEMENTS CURRENTLY SELECTED. MAX ELEMENT NUMBER = 8616
12897 NODES CURRENTLY SELECTED. MAX NODE NUMBER = 12897
690 KEYPOINTS CURRENTLY SELECTED. MAX KEYPOINT NUMBER = 9001
1604 LINES CURRENTLY SELECTED. MAX LINE NUMBER = 1604
1133 AREAS CURRENTLY SELECTED. MAX AREA NUMBER = 1133
269 VOLUMES CURRENTLY SELECTED. MAX VOL. NUMBER = 269
MAXIMUM LINEAR PROPERTY NUMBER = 6
ACTIVE COORDINATE SYSTEM = 0 (CARTESIAN)
NUMBER OF SPECIFIED CONSTRAINTS = 1196

INITIAL JOBNAME = postlin2

CURRENT JOBNAME = postlin2

CURRENT JOBNAME REDEFINED AS seism2

1

***** ANSYS - ENGINEERING ANALYSIS SYSTEM REVISION 5.1 24 *****
38303 VERSION=HP 9000/7XX 08:23:47 APR 11, 1996 CP= 5.680
FOR SUPPORT CALL ROBERT BAHNEY PHONE (702) 794-5337 FAX (702) 794-1844

21 PWR Tube Seismic Analysis With Backfill

***** ANSYS RESULTS INTERPRETATION (POST1) *****

USE LOAD STEP 1 SUBSTEP 5 FOR LOAD CASE 0

*** NOTE ***

CP= 7.260 TIME= 08:23:49

Page file used.

SET COMMAND GOT LOAD STEP= 1 SUBSTEP= 5 CUMULATIVE ITERATION= 5
TIME/FREQUENCY= 34.376
TITLE= 21 PWR Tube Seismic Analysis With Backfill

/INPUT FILE= seism2.mcom LINE= 0
ANSYS REVISION 5.1 24 01:03:29 04/11/1996
seism2.mcom

CURRENT LOAD SET IN DATABASE IS ERASED

LOAD CASE 1 IS LOAD STEP 1 SUBSTEP 1 COMPLEX= 0
FILE= seism2.rst
21 PWR Tube Seismic Analysis With Backfill

LOAD CASE 1 FACTOR SET TO-0.39797E-03

COPY LOAD CASE 1 FROM FILE TO DATABASE

SQUARE THE CURRENT LOAD SET IN DATABASE

*** NOTE *** CP= 32.680 TIME= 08:24:54
Load case combination data may not be correct unless viewed in the
solution phase coordinate system (RSYS=SOLU).

LOAD CASE 1 IS LOAD STEP 1 SUBSTEP 2 COMPLEX= 0
FILE= seism2.rst
21 PWR Tube Seismic Analysis With Backfill

LOAD CASE 1 FACTOR SET TO-0.38398E-03

LCOPER OPERATION ADD USING LOAD CASE= 1 FACTOR=-0.38398E-03 ABS= 0
MULTIPLIED BY LOAD CASE= 1 FACTOR=-0.38398E-03 ABS= 0

LOAD CASE 1 IS LOAD STEP 1 SUBSTEP 3 COMPLEX= 0
FILE= seism2.rst
21 PWR Tube Seismic Analysis With Backfill

LOAD CASE 1 FACTOR SET TO 0.97501E-03

LCOPER OPERATION ADD USING LOAD CASE= 1 FACTOR= 0.97501E-03 ABS= 0
MULTIPLIED BY LOAD CASE= 1 FACTOR= 0.97501E-03 ABS= 0

LOAD CASE 1 IS LOAD STEP 1 SUBSTEP 4 COMPLEX= 0
FILE= seism2.rst
21 PWR Tube Seismic Analysis With Backfill

LOAD CASE 1 FACTOR SET TO 0.36155E-01

LCOPER OPERATION ADD USING LOAD CASE= 1 FACTOR= 0.36155E-01 ABS= 0
MULTIPLIED BY LOAD CASE= 1 FACTOR= 0.36155E-01 ABS= 0

LOAD CASE 1 IS LOAD STEP 1 SUBSTEP 5 COMPLEX= 0
FILE= seism2.rst
21 PWR Tube Seismic Analysis With Backfill

LOAD CASE 1 FACTOR SET TO-0.67697E-03

LCOPER OPERATION ADD USING LOAD CASE= 1 FACTOR=-0.67697E-03 ABS= 0
MULTIPLIED BY LOAD CASE= 1 FACTOR=-0.67697E-03 ABS= 0

LOAD CASE 1 IS LOAD STEP 1 SUBSTEP 6 COMPLEX= 0
FILE= seism2.rst
21 PWR Tube Seismic Analysis With Backfill

LOAD CASE 1 FACTOR SET TO-0.70127E-03

LCOPER OPERATION ADD USING LOAD CASE= 1 FACTOR=-0.70127E-03 ABS= 0
MULTIPLIED BY LOAD CASE= 1 FACTOR=-0.70127E-03 ABS= 0

LOAD CASE 1 IS LOAD STEP 1 SUBSTEP 7 COMPLEX= 0
FILE= seism2.rst
21 PWR Tube Seismic Analysis With Backfill

LOAD CASE 1 FACTOR SET TO 0.21951E-03

LCOPER OPERATION ADD USING LOAD CASE= 1 FACTOR= 0.21951E-03 ABS= 0
MULTIPLIED BY LOAD CASE= 1 FACTOR= 0.21951E-03 ABS= 0

LOAD CASE 1 IS LOAD STEP 1 SUBSTEP 8 COMPLEX= 0
FILE= seism2.rst
21 PWR Tube Seismic Analysis With Backfill

LOAD CASE 1 FACTOR SET TO-0.41315E-04

LCOPER OPERATION ADD USING LOAD CASE= 1 FACTOR=-0.41315E-04 ABS= 0
MULTIPLIED BY LOAD CASE= 1 FACTOR=-0.41315E-04 ABS= 0

TAKE SQRT OF CURRENT LOAD SET IN DATABASE:
Outer Barrier Stress Distribution
Outer Barrier Linearized Stresses at Location of Peak Stress
Inner Barrier Stress Distribution

SELECT FOR ITEM=NODE COMPONENT=
IN RANGE 12757 TO 12757 STEP 1

1 NODES (OF 12897 DEFINED) SELECTED BY NSEL COMMAND.

ALSO SELECT FOR ITEM=NODE COMPONENT=
IN RANGE 12765 TO 12765 STEP 1

2 NODES (OF 12897 DEFINED) SELECTED BY NSEL COMMAND.

ALSO SELECT FOR ITEM=NODE COMPONENT=
IN RANGE 12761 TO 12761 STEP 1

3 NODES (OF 12897 DEFINED) SELECTED BY NSEL COMMAND.

SELECT ALL ELEMENTS HAVING ANY NODE IN NODAL SET.

8 ELEMENTS (OF 8616 DEFINED) SELECTED FROM
3 SELECTED NODES BY ESLN COMMAND.

DEFINE A PATH FOR SUBSEQUENT CALCULATIONS THROUGH NODES:
12757 12761

/OUTPUT FILE= ibstress

/SHOW SWITCH PLOTS TO FILE ibdist.grph - RASTER MODE.

DISPLAY LINEARIZED STRESS USING NODES DEFINED BY LPATH COMMAND.
ITEM=S COMP=INT RHO= 0.00000E+00

CUMULATIVE DISPLAY NUMBER 1 WRITTEN TO FILE ibdist.grph - RASTER MODE.
DISPLAY TITLE=
21 PWR Tube Seismic Analysis With Backfill
Basket Stress Distribution

SELECT FOR ITEM=NODE COMPONENT=
IN RANGE 6133 TO 6133 STEP 1

1 NODES (OF 12897 DEFINED) SELECTED BY NSEL COMMAND.

```
ALSO SELECT FOR ITEM=NODE COMPONENT=
IN RANGE 6194 TO 6194 STEP 1

2 NODES (OF 12897 DEFINED) SELECTED BY NSEL COMMAND.

ALSO SELECT FOR ITEM=NODE COMPONENT=
IN RANGE 6069 TO 6069 STEP 1

3 NODES (OF 12897 DEFINED) SELECTED BY NSEL COMMAND.

SELECT ALL ELEMENTS HAVING ANY NODE IN NODAL SET.

10 ELEMENTS (OF 8616 DEFINED) SELECTED FROM
3 SELECTED NODES BY ESLN COMMAND.

DEFINE A PATH FOR SUBSEQUENT CALCULATIONS THROUGH NODES:
6133 6069

/OUTPUT FILE= bktstres

/SHOW SWITCH PLOTS TO FILE bktdist.grph - RASTER MODE.

DISPLAY LINEARIZED STRESS USING NODES DEFINED BY LPATH COMMAND.
ITEM=S COMP=INT RHO= 0.00000E+00

CUMULATIVE DISPLAY NUMBER 1 WRITTEN TO FILE bktdist.grph - RASTER MODE.
DISPLAY TITLE=
21 PWR Tube Seismic Analysis With Backfill
Criticality Control Plate Stress Distribution

SELECT FOR ITEM=NODE COMPONENT=
IN RANGE 3813 TO 3813 STEP 1

1 NODES (OF 12897 DEFINED) SELECTED BY NSEL COMMAND.

ALSO SELECT FOR ITEM=NODE COMPONENT=
IN RANGE 3938 TO 3938 STEP 1

2 NODES (OF 12897 DEFINED) SELECTED BY NSEL COMMAND.

ALSO SELECT FOR ITEM=NODE COMPONENT=
IN RANGE 3877 TO 3877 STEP 1

3 NODES (OF 12897 DEFINED) SELECTED BY NSEL COMMAND.

SELECT ALL ELEMENTS HAVING ANY NODE IN NODAL SET.

6 ELEMENTS (OF 8616 DEFINED) SELECTED FROM
3 SELECTED NODES BY ESLN COMMAND.

DEFINE A PATH FOR SUBSEQUENT CALCULATIONS THROUGH NODES:
3813 3877

/OUTPUT FILE= pltstres

/SHOW SWITCH PLOTS TO FILE pltdist.grph - RASTER MODE.

DISPLAY LINEARIZED STRESS USING NODES DEFINED BY LPATH COMMAND.
ITEM=S COMP=INT RHO= 0.00000E+00

CUMULATIVE DISPLAY NUMBER 1 WRITTEN TO FILE pltdist.grph - RASTER MODE.
DISPLAY TITLE=
21 PWR Tube Seismic Analysis With Backfill

EXIT THE ANSYS POST1 DATABASE PROCESSOR

***** ROUTINE COMPLETED ***** CP = 104.790
```

EXIT ANSYS WITHOUT SAVING DATABASE

NUMBER OF WARNING MESSAGES ENCOUNTERED= 0
NUMBER OF ERROR MESSAGES ENCOUNTERED= 0

*** PAGE FILE USED ***

NUMBER OF R/W OPERATIONS= 14527
MAXIMUM RECORD NUMBER = 529
RECORD SIZE (I*4 WORDS) = 16384
PAGE FILE SIZE (MB) = 33.063

```
*-----*
|                                     |
|               ANSYS RUN COMPLETED |
|-----|
|                                     |
|      REV. 5.1  24                  | HP 9000/7XX
|                                     |
| CP TIME      (sec) =      104.790   | TIME  = 08:28:06
| ELAPSED TIME (sec) =      271.000   | DATE  = 04/11/96
|                                     |
*-----*
```



```
/COM,ANSYS REVISION 5.1      24    01:03:29    04/11/1996
/COM, seism2.mcom
LCOPER,ZERO
LCDEFI,1, 1, 1
LCFACT,1, -0.397967E-03
LCASE,1
LCOPER,SQUARE
LCDEFI,1, 1, 2
LCFACT,1, -0.383981E-03
LCOPER,ADD,1,MULT,1
LCDEFI,1, 1, 3
LCFACT,1, 0.975010E-03
LCOPER,ADD,1,MULT,1
LCDEFI,1, 1, 4
LCFACT,1, 0.361549E-01
LCOPER,ADD,1,MULT,1
LCDEFI,1, 1, 5
LCFACT,1, -0.676968E-03
LCOPER,ADD,1,MULT,1
LCDEFI,1, 1, 6
LCFACT,1, -0.701273E-03
LCOPER,ADD,1,MULT,1
LCDEFI,1, 1, 7
LCFACT,1, 0.219508E-03
LCOPER,ADD,1,MULT,1
LCDEFI,1, 1, 8
LCFACT,1, -0.413154E-04
LCOPER,ADD,1,MULT,1
LCOPER,SQRT
```

-----*

W E L C O M E T O T H E A N S Y S P R O G R A M

-----*

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PRESS <CR> OR <ENTER> TO CONTINUE

***** ANSYS COMMAND LINE ARGUMENTS *****

INITIAL JOBNAME = seism4
MEMORY REQUESTED (MB) = 64.0
BATCH MODE REQUESTED = LIST
START-UP FILE MODE = READ

*** NOTE *** CP= 0.250 TIME= 12:57:18
There are no parameters and no abbreviations defined.

38303 VERSION=HP 9000/7XX REVISION= 5.1 24
FOR SUPPORT CALL ROBERT BAHNEY PHONE (702) 794-5337 FAX (702) 794-1844
CURRENT JOBNAME=seism4 12:57:18 APR 10, 1996 CP= 0.250

```

1 /com,*****
2 /com,*****
3 /com,***** Seismic Analysis of 21 PWR Waste Package Under Degradation *****
4 /com,***** Degree of Degradation in Outer Barrier: 100% *****
5 /com,***** Degree of Degradation in Inner Barrier: 90% *****
6 /com,***** Degree of Degradation in Basket Assembly: Tubes 100% *****
7 /com,***** Guides 50% *****
8 /com,***** SS-B Plates 50% *****
9 /com,***** Backfill Present, Backfill Porosity: 25%, Rock Porosity: 10% *****
10 /com,***** Quarter Symmetry Model *****
11 /com,*****
12 /com,*****
13 /com,*****
14 /config,nvpag,512
15 /units,si
16 /prep7
17 /title, 21 PWR Tube Seismic Analysis With Backfill
18 /vcon,,0
19 /com, Define Parameters
20 ibir=0.71095 ! Inner Barrier Inner Radius (DIA = 1.4219 m)
21 obir=0.71295 ! Outer Barrier Inner Radius (DIA = 1.4619 m)
22 obsr=0.77095 ! Outer Barrier Skirt Radius (DIA = 1.5419 m)
23 obor=0.78095 ! Outer Barrier Outer Radius (DIA = 1.6619 m)
24 ts1=.0035 ! SS-B Plate Thickness
25 ts2=.005 ! CS Tube Thickness
26 ts3=.005 ! Corner Guide Thickness
27 ts4=.005 ! End Guide Thickness
28 egih=0.0855 ! End Guide Fin Inner Height(0.0809+0.005-2.5*tan10)
29 pie=3.1415926 ! Pi
30 ang1=30*pie/180 ! Angle on end of end guide
31 ang2=80*pie/180 ! Angle on end of end guide fin
32 ang3=58*pie/180 ! Angle on end of corner guide
33 tw=0.2285 ! Tube Inner Side Width
34 pos1=tw/2 ! Dimension to Keypoint Position 1
35 pos2=pos1+ts2 ! Dimension to Keypoint Position 2
36 pos3=pos2+ts1 ! Dimension to Keypoint Position 3
37 pos4=pos3+ts2 ! Dimension to Keypoint Position 4
38 pos5=pos4+tw ! Dimension to Keypoint Position 5
39 pos6=pos5+ts2 ! Dimension to Keypoint Position 6
40 pos7=pos6+ts1 ! Dimension to Keypoint Position 7
41 pos8=pos7+ts2 ! Dimension to Keypoint Position 8
42 pos9=pos8+tw ! Dimension to Keypoint Position 9
43 pos10=pos9+ts2 ! Dimension to Keypoint Position 10
44 pos11=pos10+ts4 ! Dimension to Keypoint Position 11
45 posg=pos6+ts3 ! Dimension to Keypoint on Corner Guide
46 posei=pos11+egih ! Dimension to Keypoint on End Guide Fin Inner
47 poseo=posei-(ts4/tan(ang2)) ! Dimension to Keypoint on End Guide Fin Outer
48 posen=pos2+ts1/2-ts4/2 ! Dimension to Keypoint on End Guide Near Side
49 posef=pos2+ts1/2+ts4/2 ! Dimension to Keypoint on End Guide Far Side
50 poseg=pos6-(ts4/tan(ang1)) ! Dimension to Keypoint on End Guide Side

```

```

51 poscg=pos10-(ts3/tan(ang3)) ! Dimension to Keypoint on Corner Guide Side
52 bkht=4.575/2 ! Basket Height (Half Height)
53 ibht=bkht+0.01 ! inner barrier cavity height
54 !bgh=ibht-bkht ! Basket Gap Height
55 iblt=0.01 ! inner lid height
56 elev1=ibht+iblt ! Elevation of Top of Inner Barrier
57 ltlgh=0.030 ! Lid to Lid Gap Height
58 elev2=elev1+ltlgh ! Elevation of Bottom of Upper Outer Barrier Lid
59 oblth=0.06 ! outer lid height
60 elev3=elev2+oblth ! Elevation of Top of Upper Outer Barrier Lid
61 stht=0.225 ! skirt height
62 elev4=elev3+stht ! Elevation of Top of Waste Package
63 elev5=-(iblt+oblth) ! Elevation of Bottom of Lower Outer Barrier Lid
64 elev6=elev5-stht ! Elevation of Bottom of Waste Package
65 /com, Line Divisions
66 shd=1 ! Skirt Height Divisions
67 oblth=1 ! Outer Barrier Lid Divisions
68 gd=2 ! Gap Divisions
69 ibld=2 ! Inner Barrier Lid Divisions
70 bd=15 ! Basket Divisions
71 htwd=4 ! Half Tube Width Divisions
72 twd=4 ! Tube Width Divisions
73 thd=4 ! Tube Height Divisions
74 egfd=4 ! End Guide Fin Divisions
75 ptd=2 ! Plate Thickness Divisions
76 ttd=1 ! Tube Thickness Divisions
77 a1d=4 ! Arc 1 Divisions
78 a2d=4 ! Arc 2 Divisions
79 a3d=4 ! Arc 3 Divisions
80 a4d=4 ! Arc 4 Divisions
81 a5d=4 ! Arc 5 Divisions
82 a6d=4 ! Arc 6 Divisions
83 a7d=4 ! Arc 7 Divisions
84 a8d=4 ! Arc 8 Divisions
85 a9d=4 ! Arc 9 Divisions
86 ibtd=2 ! Inner Barrier Thickness Divisions
87 obtd=2 ! Outer Barrier Inner Thickness Divisions
88 std=2 ! Skirt Thickness Divisions
89 /com, Define Element Properties
90 et,1,solid45 ! Carbon Steel Tube
91 et,2,solid45 ! Stainless Steel - Boron Plate
92 et,3,solid45 ! Carbon Steel End Guide
93 et,4,solid45 ! Carbon Steel Corner Guide
94 et,5,solid45 ! Alloy 625 Inner Barrier
95 et,6,solid45 ! Alloy 625 Inner Barrier (Upper w/Backfill Weight)
96 !et,6,solid45 ! A 516 Carbon Steel Outer Barrier
97 !et,7,solid45 ! A 516 Carbon Steel Outer Barrier w/Backfill Weight
98 /com, ratio of static to dynamic coeff. of friction fact=1.298, Area Tol.=15%
99 /com, Room Temperature Properties of Materials
100 mp,ex,1,206e9 ! A516 Carbon Steel Tube
101 mp,ex,2,195e9 ! 316B6A Stainless Steel - Boron Plate (316L Properties)
102 mp,ex,3,206e9 ! A516 Carbon Steel End Guide
103 mp,ex,4,206e9 ! A516 Carbon Steel Corner Guide
104 mp,ex,5,208e9 ! Alloy 625 Inner Barrier
105 mp,ex,6,208e9 ! Alloy 625 Inner Barrier (Upper w/Backfill Weight)
106 !mp,ex,6,206e9 ! A516 Carbon Steel Outer Barrier
107 !mp,ex,7,206e9 ! A516 Carbon Steel Outer Barrier w/Backfill Weight
108 mp,nuxy,1,0.3 ! A516 Carbon Steel Tube
109 mp,nuxy,2,0.298 ! 316B6A Stainless Steel - Boron Plate (316 Properties)
110 mp,nuxy,3,0.3 ! A516 Carbon Steel End Guide
111 mp,nuxy,4,0.3 ! A516 Carbon Steel Corner Guide
112 mp,nuxy,5,0.278 ! Alloy 625 Inner Barrier
113 mp,nuxy,6,0.278 ! Alloy 625 Inner Barrier (Upper w/Backfill Weight)
114 !mp,nuxy,6,0.3 ! A516 Carbon Steel Outer Barrier
115 !mp,nuxy,7,0.3 ! A516 Carbon Steel Outer Barrier w/Backfill Weight
116 mp,dens,1,8131 ! A516 Carbon Steel Tube
117 mp,dens,2,178040.66 ! 316B6A Stainless Steel - Boron Plate (Adjusted to include tube, degraded plate, and SNF ma
118 mp,dens,3,16262 ! A516 Carbon Steel End Guide
119 mp,dens,4,16262 ! A516 Carbon Steel Corner Guide
120 mp,dens,5,8442 ! Alloy 625 Inner Barrier

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121 mp,dens,6,1101960 ! Alloy 625 Inner Barrier (Upper w/Backfill Weight)
122 !mp,dens,6,8131 ! A516 Carbon Steel Outer Barrier
123 !mp,mu,7,0.57 ! Coefficient of Friction (Steel on Steel Assumed)
124 !tb,biso,1
125 !tbdata,,260e6,1.078e9 ! A 516 Carbon Steel Tubes
126 !tb,biso,2
127 !tbdata,,172e6,0.7767e9 ! 316L Stainless Steel
128 !tb,biso,3
129 !tbdata,,260e6,1.078e9 ! A 516 Carbon Steel End Guide
130 !tb,biso,4
131 !tbdata,,260e6,1.078e9 ! A 516 Carbon Steel Corner Guide
132 !tb,biso,5
133 !tbdata,,379e6,1.271e9 ! Alloy 625
134 !tb,biso,6
135 !tbdata,,260e6,1.078e9 ! A 516 Carbon Steel Outer Barrier
136 !tb,biso,7
137 !tbdata,,260e6,1.078e9 ! A 516 Carbon Steel Outer Barrier w/Backfill Weight
138 /com
139 /com, Define keypoints in the basket assembly
140 csys,0
141 k,1,0,0
142 k,2,pos1,0
143 k,3,pos2,0
144 k,4,pos3,0
145 k,5,pos4,0
146 k,6,pos5,0
147 k,7,pos6,0
148 k,8,pos7,0
149 k,9,pos8,0
150 k,10,pos9,0
151 k,11,pos10,0
152 k,12,pos11,0
153 k,13,pos1,pos1
154 k,14,pos4,pos1
155 k,15,pos5,pos1
156 k,16,pos8,pos1
157 k,17,pos9,pos1
158 k,18,pos2,pos2
159 k,19,pos3,pos2
160 k,20,pos6,pos2
161 k,21,pos7,pos2
162 k,22,pos10,pos2
163 k,23,pos11,posei
164 !k,24,pos8i,posei
165 csys,1
166 k,24,ibir,(180/pie)*atan(posei/posei)
167 csys,0
168 k,25,pos3,pos3
169 k,26,pos6,pos3
170 k,27,pos7,pos3
171 k,28,pos10,pos3
172 k,29,pos11,posef
173 !k,30,poseo,posef
174 csys,1
175 k,30,ibir,(180/pie)*atan(posef/poseo)
176 csys,0
177 k,31,pos4,pos4
178 k,32,pos5,pos4
179 k,33,pos8,pos4
180 k,34,pos9,pos4
181 k,35,pos5,pos5
182 k,36,pos8,pos5
183 k,37,pos9,pos5
184 !k,38,pos11,poseg
185 csys,1
186 k,38,ibir,(180/pie)*atan(poseg/pose11)
187 csys,0
188 k,39,pos6,pos6
189 k,40,pos7,pos6
190 !k,41,pos10,pos6

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191 csys,1
192 k,41,ibir,(180/pie)*atan(pos6/pos10)
193 csys,0
194 k,42,poseg,poseg
195 !k,43,posecg,poseg
196 csys,1
197 k,43,ibir,(180/pie)*atan(poseg/posecg)
198 k,44,ibir,0
199 k,45,ibir,45
200 k,46,obir,0
201 k,47,obir,(180/pie)*atan(posen/posei)
202 k,48,obir,(180/pie)*atan(posef/poseo)
203 k,49,obir,(180/pie)*atan(poseg/pos11)
204 k,50,obir,(180/pie)*atan(pos6/pos10)
205 k,51,obir,(180/pie)*atan(poseg/posecg)
206 k,52,obir,45
207 k,53,obsr,0
208 k,54,obsr,(180/pie)*atan(posen/posei)
209 k,55,obsr,(180/pie)*atan(posef/poseo)
210 k,56,obsr,(180/pie)*atan(poseg/pos11)
211 k,57,obsr,(180/pie)*atan(pos6/pos10)
212 k,58,obsr,(180/pie)*atan(poseg/posecg)
213 k,59,obsr,45
214 k,60,obor,0
215 k,61,obor,(180/pie)*atan(posen/posei)
216 k,62,obor,(180/pie)*atan(posef/poseo)
217 k,63,obor,(180/pie)*atan(poseg/pos11)
218 k,64,obor,(180/pie)*atan(pos6/pos10)
219 k,65,obor,(180/pie)*atan(poseg/posecg)
220 k,66,obor,45
221 local,11,0,0,0,0,45,0,0,
222 ksymm,y,all,,,0,0,0
223 nummrg,kp
224 csys,0
225 ksymm,y,all,,,0,0,0
226 nummrg,kp
227 kdel,2,12,1
228 k,1001,0,0,bkht
229 l,1,1001 ! Line 1 for VDRAG of Basket
230 lesize,all,,,bd,.2,0
231 k,2001,0,0,ibht
232 l,1001,2001 ! Line 2 for VDRAG of Basket to Inner Barrier Lid Gap
233 lesize,all,,,gd,1,0
234 k,3001,0,0,elev1
235 l,2001,3001 ! Line 3 for VDRAG of Inner Barrier Upper Lid
236 lesize,all,,,ibld,1,0
237 k,4001,0,0,elev2
238 l,3001,4001 ! Line 4 for VDRAG of Lid to Lid Gap
239 lesize,all,,,gd,1,0
240 k,5001,0,0,elev3
241 l,4001,5001 ! Line 5 for VDRAG of Outer Barrier Upper Lid
242 lesize,all,,,obld,1,0
243 k,6001,0,0,elev4
244 l,5001,6001 ! Line 6 for VDRAG of Upper Skirt
245 lesize,all,,,shd,1,0
246 k,7001,0,0,-iblt
247 l,1,7001 ! Line 7 for VDRAG of IB Lower Lid
248 lesize,all,,,ibld,1,0
249 k,8001,0,0,elev5
250 l,7001,8001 ! Line 8 for VDRAG of OB Lower Lid
251 lesize,all,,,obld,1,0
252 k,9001,0,0,elev6
253 l,8001,9001 ! Line 9 for VDRAG of Lower Skirt
254 lesize,all,,,shd,1,0
255 /com, line set 1 Tube Width for Half Tubes on Symmetry Plane
256 L, 197, 206 ! Line 10
257 L, 196, 205
258 L, 195, 201
259 L, 194, 200
260 L, 193, 204

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261	L,	192,	203	
262	L,	191,	199	
263	L,	190,	198	
264	L,	189,	202	
265	L,	188,	138	
266	L,	187,	133	! 20
267	L,	68,	13	
268	L,	69,	18	
269	L,	70,	85	
270	L,	71,	80	
271	L,	72,	81	
272	L,	73,	86	
273	L,	74,	87	
274	L,	75,	82	
275	L,	76,	83	
276	L,	77,	88	! 30
277	L,	78,	89	
278	lesize,all,,,htwd,1,0			
279	/com, line set 2 Tube Widths			
280	L,	211,	218	
281	L,	210,	220	
282	L,	215,	217	
283	L,	214,	216	
284	L,	209,	219	
285	L,	208,	159	
286	L,	213,	155	
287	L,	151,	152	
288	L,	145,	146	! 40
289	L,	139,	140	
290	L,	134,	135	
291	L,	14,	15	
292	L,	19,	20	
293	L,	25,	26	
294	L,	31,	32	
295	L,	98,	35	
296	L,	92,	39	
297	L,	93,	106	
298	L,	99,	102	! 50
299	L,	100,	103	
300	L,	94,	107	
301	L,	95,	104	
302	lesize,all,,,twd,1,0			
303	/com, line set 3 Tube Widths on End Column			
304	L,	162,	163	
305	L,	160,	161	
306	L,	156,	157	
307	L,	153,	154	
308	L,	147,	148	
309	L,	141,	142	
310	L,	136,	137	! 60
311	L,	16,	17	
312	L,	21,	22	
313	L,	27,	28	
314	L,	33,	34	
315	L,	36,	37	
316	L,	40,	41	
317	L,	42,	43	
318	lesize,all,,,twd,1,0			
319	/com, line set 4 Tube Heights			
320	L,	201,	200	
321	L,	205,	204	
322	L,	210,	209	! 70
323	L,	215,	214	
324	L,	217,	216	
325	L,	220,	219	
326	L,	221,	162	
327	L,	199,	198	
328	L,	203,	202	
329	L,	208,	145	
330	L,	213,	151	

331	L,	155,	152	
332	L,	159,	146	! 80
333	L,	160,	147	
334	L,	156,	153	
335	L,	157,	154	
336	L,	161,	148	
337	L,	133,	13	
338	L,	138,	18	
339	L,	139,	19	
340	L,	134,	14	
341	L,	135,	15	
342	L,	140,	20	! 90
343	L,	141,	21	
344	L,	136,	16	
345	L,	137,	17	
346	L,	142,	22	
347	L,	143,	23	
348	L,	80,	81	
349	L,	85,	86	
350	L,	25,	92	
351	L,	31,	98	
352	L,	32,	35	! 100
353	L,	26,	39	
354	L,	27,	40	
355	L,	33,	36	
356	L,	34,	37	
357	L,	28,	41	
358	L,	29,	38	
359	L,	82,	83	
360	L,	87,	88	
361	L,	93,	94	
362	L,	99,	100	! 110
363	L,	102,	103	
364	L,	106,	107	
365	L,	42,	109	
366	L,	158,	149	
367	lesize,all,,,thd,1,0			
368	/com, line set 5 End Guide Fins			
369	L,	207,	206	
370	L,	212,	211	
371	L,	150,	149	
372	L,	144,	143	
373	L,	24,	23	
374	L,	30,	29	! 120
375	L,	96,	95	
376	L,	90,	89	
377	lesize,all,,,egfd,1,0			
378	/com, line set 6 SS-B Plate Thickness			
379	L,	197,	196	
380	L,	206,	205	
381	L,	211,	210	
382	L,	207,	212	
383	L,	206,	211	
384	L,	205,	210	
385	L,	218,	220	
386	L,	220,	221	! 130
387	L,	193,	192	
388	L,	204,	203	
389	L,	209,	208	
390	L,	204,	209	
391	L,	203,	208	
392	L,	219,	159	
393	L,	162,	160	
394	L,	163,	161	
395	L,	161,	158	
396	L,	219,	162	! 140
397	L,	159,	160	
398	L,	189,	188	
399	L,	202,	138	
400	L,	145,	139	

401	L,	202,	145	
402	L,	138,	139	
403	L,	146,	140	
404	L,	147,	141	
405	L,	146,	147	
406	L,	140,	141	! 150
407	L,	148,	142	
408	L,	149,	143	
409	L,	148,	149	
410	L,	142,	143	
411	L,	150,	144	
412	L,	69,	70	
413	L,	18,	85	
414	L,	19,	25	
415	L,	18,	19	
416	L,	85,	25	! 160
417	L,	20,	26	
418	L,	21,	27	
419	L,	20,	21	
420	L,	26,	27	
421	L,	22,	28	
422	L,	22,	23	
423	L,	28,	29	
424	L,	23,	29	
425	L,	24,	30	
426	L,	73,	74	! 170
427	L,	86,	87	
428	L,	92,	93	
429	L,	86,	92	
430	L,	87,	93	
431	L,	39,	106	
432	L,	40,	42	
433	L,	39,	40	
434	L,	106,	42	
435	L,	38,	41	
436	L,	41,	43	! 180
437	L,	77,	78	
438	L,	88,	89	
439	L,	94,	95	
440	L,	88,	94	
441	L,	89,	95	
442	L,	90,	96	
443	L,	109,	107	
444	L,	107,	104	
445	L,	224,	225	
446	L,	230,	231	! 190
447	L,	236,	237	
448	L,	226,	227	
449	L,	227,	228	
450	L,	232,	233	
451	L,	233,	234	
452	L,	238,	239	
453	L,	239,	240	
454	L,	171,	170	
455	L,	170,	169	
456	L,	178,	177	! 200
457	L,	177,	176	
458	L,	185,	184	
459	L,	184,	183	
460	L,	168,	167	
461	L,	175,	174	
462	L,	182,	181	
463	L,	47,	48	
464	L,	54,	55	
465	L,	61,	62	
466	L,	49,	50	! 210
467	L,	50,	51	
468	L,	56,	57	
469	L,	57,	58	
470	L,	63,	64	

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471 L,      64,      65
472 L,     117,     116
473 L,     116,     115
474 L,     124,     123
475 L,     123,     122
476 L,     131,     130 ! 220
477 L,     130,     129
478 L,     114,     113
479 L,     121,     120
480 L,     128,     127
481 lesize,all,,,ptd,1,0
482 /com, line set 7 tube thickness
483 L,     196,     195
484 L,     205,     201
485 L,     204,     200
486 L,     193,     194
487 L,     210,     215
488 L,     220,     217 ! 230
489 L,     219,     216
490 L,     209,     214
491 L,     192,     191
492 L,     203,     199
493 L,     202,     198
494 L,     189,     190
495 L,     208,     213
496 L,     159,     155
497 L,     146,     152
498 L,     145,     151 ! 240
499 L,     160,     156
500 L,     161,     157
501 L,     148,     154
502 L,     147,     153
503 L,     188,     187
504 L,     138,     133
505 L,      18,      13
506 L,      69,      68
507 L,     139,     134
508 L,     140,     135 ! 250
509 L,      20,      15
510 L,      19,      14
511 L,     141,     136
512 L,     142,     137
513 L,      22,      17
514 L,      21,      16
515 L,      70,      71
516 L,      85,      80
517 L,      86,      81
518 L,      73,      72 ! 260
519 L,      25,      31
520 L,      26,      32
521 L,      39,      35
522 L,      92,      98
523 L,      27,      33
524 L,      28,      34
525 L,      41,      37
526 L,      40,      36
527 L,      74,      75
528 L,      87,      82 ! 270
529 L,      88,      83
530 L,      77,      76
531 L,      93,      99
532 L,     106,     102
533 L,     107,     103
534 L,      94,     100
535 lesize,all,,,ttd,1,0
536 csys,1
537 /com, line set 8, arc 1 bottom
538 L,     222,     207
539 L,     223,     224
540 L,     229,     230

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541 L,      235,      236 ! 280
542 lesize,all,,,a1d,1,0
543 /com, line set 9, arc 2 side arcs
544 L,      212,      218
545 L,      225,      226
546 L,      231,      232
547 L,      237,      238
548 lesize,all,,,a2d,1,0
549 /com, line set 10, arc 3 side arcs
550 L,      221,      163
551 L,      228,      171
552 L,      234,      178
553 L,      240,      185
554 lesize,all,,,a3d,1,0
555 /com, line set 11, arc 4 side arcs
556 L,      158,      150
557 L,      169,      168 ! 290
558 L,      176,      175
559 L,      183,      182
560 lesize,all,,,a4d,1,0
561 /com, line set 12, arc 5 side arcs
562 L,      144,      24
563 L,      167,      47
564 L,      174,      54
565 L,      181,      61
566 lesize,all,,,a5d,1,0
567 /com, line set 13, arc 6 side arcs
568 L,      30,      38
569 L,      48,      49
570 L,      55,      56
571 L,      62,      63 ! 300
572 lesize,all,,,a6d,1,0
573 /com, line set 14, arc 7 side arcs
574 L,      43,      109
575 L,      51,      117
576 L,      58,      124
577 L,      65,      131
578 lesize,all,,,a7d,1,0
579 /com, line set 15, arc 8 side arcs
580 L,      104,      96
581 L,      115,      114
582 L,      122,      121
583 L,      129,      128
584 lesize,all,,,a8d,1,0
585 /com, line set 16, arc 9 top arcs
586 L,      90,      110
587 L,      113,      112 ! 310
588 L,      120,      119
589 L,      127,      126
590 lesize,all,,,a9d,1,0
591 csys,0
592 /com, line set 17 18 thickness
593 L,      222,      223
594 L,      207,      224
595 L,      212,      225
596 L,      218,      226
597 L,      220,      227
598 L,      221,      228
599 L,      163,      171
600 L,      161,      170 ! 320
601 L,      158,      169
602 L,      150,      168
603 L,      144,      167
604 L,      24,      47
605 L,      30,      48
606 L,      38,      49
607 L,      41,      50
608 L,      43,      51
609 L,      109,      117
610 L,      107,      116 ! 330

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611 L,      104,      115
612 L,      96,       114
613 L,      90,       113
614 L,     110,       112
615 lesize,all,,,ibtd,1,0
616 /com, line set 18 OB inner thickness
617 L,     223,       229
618 L,     224,       230
619 L,     225,       231
620 L,     226,       232
621 L,     227,       233
622 L,     228,       234 ! 340
623 L,     171,       178
624 L,     170,       177
625 L,     169,       176
626 L,     168,       175
627 L,     167,       174
628 L,      47,        54
629 L,      48,        55
630 L,      49,        56
631 L,      50,        57
632 L,      51,        58 ! 350
633 L,     117,       124
634 L,     116,       123
635 L,     115,       122
636 L,     114,       121
637 L,     113,       120
638 L,     112,       119
639 lesize,all,,,obtd,1,0
640 /com, line set 19 skirt thickness
641 L,     229,       235
642 L,     230,       236
643 L,     231,       237
644 L,     232,       238 ! 360
645 L,     233,       239
646 L,     234,       240
647 L,     178,       185
648 L,     177,       184
649 L,     176,       183
650 L,     175,       182
651 L,     174,       181
652 L,      54,        61
653 L,      55,        62
654 L,      56,        63 ! 370
655 L,      57,        64
656 L,      58,        65
657 L,     124,       131
658 L,     123,       130
659 L,     122,       129
660 L,     121,       128
661 L,     120,       127
662 L,     119,       126
663 lesize,all,,,std,1,0
664 /com, lines to fill in lids
665 /com, lines tube height
666 l,195,194          ! 379
667 l,191,190          ! 380
668 l,187,68           ! 381
669 l,71,72            ! 382
670 l,75,76            ! 383
671 lesize,all,,,thd,1,0
672 /com, end lines
673 l,222,197          ! 384
674 l,78,110           ! 385
675 lesize,all,,,egfd,1,0
676 /com, area set 1, tubes
677 a,195,196,205,201
678 a,200,201,205,204
679 a,193,194,200,204
680 a,191,192,203,199

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681 a,198,199,203,202
 682 a,189,190,198,202
 683 a,187,188,138,133
 684 a,133,138,18,13
 685 a,69,68,13,18
 686 a,71,70,85,80
 687 a,80,85,86,81
 688 a,73,72,81,86
 689 a,75,74,87,82
 690 a,82,87,88,83
 691 a,77,76,83,88
 692 a,209,210,215,214
 693 a,215,210,220,217
 694 a,216,217,220,219
 695 a,209,214,216,219
 696 a,145,208,213,151
 697 a,213,208,159,155
 698 a,152,155,159,146
 699 a,145,151,152,146
 700 a,134,139,140,135
 701 a,135,140,20,15
 702 a,19,14,15,20
 703 a,19,139,134,14
 704 a,92,25,31,98
 705 a,31,25,26,32
 706 a,32,26,39,35
 707 a,92,98,35,39
 708 a,94,93,99,100
 709 a,99,93,106,102
 710 a,102,106,107,103
 711 a,94,100,103,107
 712 a,156,160,161,157
 713 a,157,161,148,154
 714 a,147,153,154,148
 715 a,147,160,156,153
 716 a,136,141,142,137
 717 a,137,142,22,17
 718 a,21,16,17,22
 719 a,21,141,136,16
 720 a,33,27,28,34
 721 a,34,28,41,37
 722 a,40,36,37,41
 723 a,40,27,33,36
 724 /com, area set 2, plates
 725 a,204,205,210,209
 726 a,192,193,204,203
 727 a,203,204,209,208
 728 a,208,209,219,159
 729 a,202,203,208,145
 730 a,146,159,160,147
 731 a,188,189,202,138
 732 a,138,202,145,139
 733 a,139,145,146,140
 734 a,140,146,147,141
 735 a,141,147,148,142
 736 a,18,138,139,19
 737 a,20,140,141,21
 738 a,70,69,18,85
 739 a,85,18,19,25
 740 a,25,19,20,26
 741 a,26,20,21,27
 742 a,27,21,22,28
 743 a,86,85,25,92
 744 a,39,26,27,40
 745 a,74,73,86,87
 746 a,87,86,92,93
 747 a,93,92,39,106
 748 a,88,87,93,94
 749 /com, area set 3, end guides
 750 a,196,197,206,205

751 a,205,206,211,210
 752 a,206,207,212,211
 753 a,210,211,218,220
 754 a,148,161,158,149
 755 a,142,148,149,143
 756 a,143,149,150,144
 757 a,22,142,143,23
 758 a,28,22,23,29
 759 a,29,23,24,30
 760 a,41,28,29,38
 761 a,95,94,107,104
 762 a,89,88,94,95
 763 a,90,89,95,96
 764 a,78,77,88,89
 765 /com, area set 4, corner guides
 766 a,219,220,221,162
 767 a,159,219,162,160
 768 a,160,162,163,161
 769 a,107,106,42,109
 770 a,106,39,40,42
 771 a,42,40,41,43
 772 csys,1
 773 /com, area set 5, inner barrier
 774 a,222,223,224,207
 775 a,207,224,225,212
 776 a,212,225,226,218
 777 a,218,226,227,220
 778 a,220,227,228,221
 779 a,221,228,171,163
 780 a,163,171,170,161
 781 a,161,170,169,158
 782 a,158,169,168,150
 783 a,150,168,167,144
 784 a,144,167,47,24
 785 a,24,47,48,30
 786 a,30,48,49,38
 787 a,38,49,50,41
 788 a,41,50,51,43
 789 a,43,51,117,109
 790 a,109,117,116,107
 791 a,107,116,115,104
 792 a,104,115,114,96
 793 a,90,96,114,113
 794 a,90,113,112,110
 795 /com, area set 6, outer barrier
 796 !a,223,229,230,224
 797 !a,224,230,231,225
 798 !a,225,231,232,226
 799 !a,226,232,233,227
 800 !a,227,233,234,228
 801 !a,228,234,178,171
 802 !a,171,178,177,170
 803 !a,170,177,176,169
 804 !a,169,176,175,168
 805 !a,168,175,174,167
 806 !a,167,174,54,47
 807 !a,47,54,55,48
 808 !a,48,55,56,49
 809 !a,49,56,57,50
 810 !a,50,57,58,51
 811 !a,51,58,124,117
 812 !a,117,124,123,116
 813 !a,116,123,122,115
 814 !a,115,122,121,114
 815 !a,114,121,120,113
 816 !a,113,120,119,112
 817 !a,229,235,236,230
 818 !a,236,237,231,230
 819 !a,231,237,238,232
 820 !a,238,239,233,232

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821 !a,239,240,234,233
822 !a,240,185,178,234
823 !a,185,184,177,178
824 !a,184,183,176,177
825 !a,176,183,182,175
826 !a,175,182,181,174
827 !a,174,181,61,54
828 !a,54,61,62,55
829 !a,55,62,63,56
830 !a,56,63,64,57
831 !a,57,64,65,58
832 !a,58,65,131,124
833 !a,124,131,130,123
834 !a,123,130,129,122
835 !a,122,129,128,121
836 !a,121,128,127,120
837 !a,120,127,126,119
838 csys,0
839 vdrag,all,,,,,1 ! Drag Basket
840 asel,s,loc,z,bkht
841 csys,1
842 asel,u,loc,x,0,ibir-0.03
843 csys,0
844 vdrag,all,,,,,2 ! Drag Basket to Lid Gap
845 /com, copy areas from top of basket to bottom of lid
846 asel,s,loc,z,bkht-0.01
847 csys,1
848 asel,r,loc,x,0,ibir-0.03
849 csys,0
850 agen,2,all,,,,,0.01
851 nummrg,kp
852 /com, generate lines to fill in lid at top of WP
853 /com, lines tube height
854 L,414,421 ! 1121
855 L,422,429 ! 1124
856 L,430,437 ! 1125
857 L,438,445 ! 1131
858 L,446,453 ! 1138
859 lesize,all,,,thd,1,0
860 /com, end lines
861 L,370,518 ! 1141
862 L,539,413 ! 1151
863 lesize,all,,,egfd,1,0
864 al,832,1116,1120,1141
865 al,936,937,941,1121
866 al,946,947,951,1124
867 al,956,959,961,1125
868 al,966,969,971,1131
869 al,976,979,981,1138
870 al,932,1143,1147,1151
871 al,842,1122,1123
872 al,985,989,990,993
873 al,997,1001,1002,1005
874 al,1010,1013,1015,1018
875 al,1021,1025,1028,1029
876 al,1033,1037,1040,1041
877 al,922,1144,1148
878 al,857,1153,1156
879 al,1046,1049,1051,1054
880 al,1058,1061,1063,1066
881 al,1070,1073,1075,1078
882 al,907,1159,1163
883 al,872,1126,1130
884 al,882,1132,1133,1137
885 al,892,1139,1140
886 asel,s,loc,z,ibht+0.01
887 vdrag,all,,,,,3 ! Drag Inner Barrier Upper Lid
888 !asel,s,loc,z,elev1+0.015
889 !csys,1
890 !asel,r,loc,x,obir,obor

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891 !csys,0
892 !vdrag,all,,,,,4      ! Drag Lid to Lid Gap
893 !asel,s,loc,z,elev1+0.015
894 !asel,r,loc,z,elev1-0.015
895 !csys,1
896 !asel,r,loc,x,0,obir
897 !csys,0
898 !agen,2,all,,,,,ltlgh
899 !nummrg,kp
900 !asel,s,loc,z,elev2+0.015
901 !vdrag,all,,,,,5      ! Drag Outer Barrier Upper Lid
902 !asel,s,loc,z,elev3
903 !csys,1
904 !asel,r,loc,x,obsr,obor
905 !csys,0
906 !vdrag,all,,,,,6      ! Drag Upper Skirt
907 /com, lines at bottom lid used to be here
908 !al,10,115,277,384
909 !al,12,13,68,379
910 !al,16,17,75,380
911 !al,20,21,85,381
912 !al,24,25,96,382
913 !al,28,29,107,383
914 !al,31,122,309,385
915 !al,32,116,281
916 !al,34,35,71,72
917 !al,38,39,78,79
918 !al,42,43,88,89
919 !al,46,47,99,100
920 !al,50,51,110,111
921 !al,53,121,305
922 !al,54,74,285
923 !al,56,57,82,83
924 !al,60,61,92,93
925 !al,64,65,103,104
926 !al,67,113,301
927 !al,114,117,289
928 !al,95,118,119,293
929 !al,106,120,297
930 !asel,s,loc,z,0
931 !vdrag,all,,,,,7      ! Drag Inner Barrier Lower Lid
932 !csys,0
933 !asel,s,loc,z,-iblt
934 !vdrag,all,,,,,8      ! Drag Outer Barrier Lower Lid
935 !asel,s,loc,z,elev5
936 !csys,1
937 !asel,r,loc,x,obsr,obor
938 !csys,0
939 !vdrag,all,,,,,9      ! Drag Lower Skirt
940 /com
941 /com, Mesh Volumes
942 /com
943 /com, Mesh the CS Tubes
944 /com
945 !vsel,s,volu,,1,47
946 !type,1
947 !mat,1
948 !vmesh,all
949 /com, Mesh SS-B Plates
950 vsel,s,volu,,48,71
951 type,2
952 mat,2
953 vmesh,all
954 /com, Mesh End Guides
955 vsel,s,volu,,72,86
956 type,3
957 mat,3
958 vmesh,all
959 /com, Mesh Corner Guides
960 vsel,s,volu,,87,92

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961 type,4
962 mat,4
963 vmesh,all
964 /com, Mesh Inner Barrier
965 vsel,s,loc,z,0,elev1
966 csys,1
967 vsel,r,loc,x,0,obir
968 vsel,u,volu,,1,92
969 vsel,u,loc,x,ibir-0.02,obir
970 vsel,a,loc,y,-90,5
971 vsel,u,volu,,1,92
972 vsel,u,loc,x,obir,obor
973 vsel,r,loc,z,-iblt,elev1
974 csys,0
975 type,5
976 mat,5
977 vmesh,all
978 /com, Mesh Upper Inner Barrier Adkling Backfill Mass
979 vsel,inve
980 csys,1
981 vsel,u,loc,x,obir,obor
982 vsel,r,loc,z,0,elev1
983 vsel,u,volu,,1,92
984 csys,0
985 type,6
986 mat,6
987 vmesh,all
988 /com, Mesh Lower Outer Barrier and Lids
989 !vsel,inve
990 !vsel,u,volu,,1,92
991 !csys,1
992 !vsel,u,loc,x,obir,obor
993 !vsel,a,loc,y,-90,5
994 !vsel,u,volu,,1,92
995 !vsel,u,type,,5
996 !type,6
997 !mat,6
998 !vmesh,all
999 /com, mesh upper outer barrier adding backfill mass
1000 !vsel,inve
1001 !vsel,u,type,,1,5
1002 !type,7
1003 !mat,7
1004 !vmesh,all
1005 /com
1006 /com, Apply Symmetry Constraints
1007 csys,0
1008 nsel,s,loc,x,0
1009 dsym,symm,x,0
1010 nsel,s,loc,z,0
1011 dsym,symm,z,0
1012 /com, Apply Constraints at Support Locations
1013 /com, Span approximately half of basket height, width = 0.305 m
1014 csys,1
1015 nsel,s,loc,z,(7*bkht/bd),(10*bkht/bd)+0.02
1016 nsel,r,loc,x,obir-0.001,obir+0.001
1017 nsel,r,loc,y,-70,-50
1018 csys,0
1019 d,all,uy,0
1020 allsel
1021 save
1022 fini
1023
1024 /sol
1025 antype,modal
1026 modopt,subsp,8
1027 outres,all,1
1028 save
1029 solve
1030 fini

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1031
1032 /sol
1033 expass,on
1034 mxpand,8,,,yes
1035 solve
1036 fini
1037
1038 /sol
1039 antype,spectr
1040 spopt,sprs,,on
1041 sed,,1
1042 svtyp,2
1043 freq,0.1,100
1044 sv,,16.285,16.285
1045 mcomb,srss,1e-8
1046 outres,all,1
1047 save
1048 solve
1049 fini
1050 /exit
1051 /eof

```

RUN SETUP PROCEDURE FROM FILE= /ansys51/docu/start.ans

/INPUT FILE= /ansys51/docu/start.ans LINE= . 0

ABBREVIATION= REPlot /REPlot

PARAMETER PI = 3.141593

 ANSYS STARTUP FILE start.ans

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ABBREVIATION= VEC      /show,,,1,
ABBREVIATION= RAS      /show,,,0,
ABBREVIATION= INP      /input,,inp,
ABBREVIATION= ESC      /exit,nosav,
ABBREVIATION= K1       /pnum,kp ,1,
ABBREVIATION= K0       /pnum,kp ,0,
ABBREVIATION= L1       /pnum,line,1,
ABBREVIATION= L0       /pnum,line,0,
ABBREVIATION= A1       /pnum,area,1,
ABBREVIATION= A0       /pnum,area,0,
ABBREVIATION= V1       /pnum,volu,1,
ABBREVIATION= V0       /pnum,volu,0,
ABBREVIATION= N1       /pnum,node,1,
ABBREVIATION= N0       /pnum,node,0,
ABBREVIATION= E1       /pnum,elem,1,
ABBREVIATION= E0       /pnum,elem,0,
ABBREVIATION= M1       /pnum,mat ,1,
ABBREVIATION= M0       /pnum,mat ,0,
ABBREVIATION= R1       /pnum,real,1,

```

ABBREVIATION= R0 /pnum,real,0,
 ABBREVIATION= T1 /pnum,type,1,
 ABBREVIATION= T0 /pnum,type,0,
 ABBREVIATION= C1 /number,1, .
 ABBREVIATION= C0 /number,0,
 ABBREVIATION= X3D /show,3d,
 ABBREVIATION= X11 /show,x11,
 ABBREVIATION= X11C /show,x11c,
 ABBREVIATION= ON /menu,on,
 XYZ TRIAD DISPLAY SET TO OFF

VIEW CONE ANGLE FOR WINDOW 1 25.00

 END start.ans

To start ANSYS menu:

type: x3d for console
 x11 for X-term color
 x11c for X-term color contour

type: on

 ***** Seismic Analysis of 21 PWR Waste Package Under Degradation *****
 ***** Degree of Degradation in Outer Barrier: 100% *****
 ***** Degree of Degradation in Inner Barrier: 90% *****
 ***** Degree of Degradation in Basket Assembly: Tubes 100% *****
 ***** Guides 50% *****
 ***** SS-B Plates 50% *****
 ***** Backfill Present, Backfill Porosity: 25%, Rock Porosity: 10% *****
 ***** Quarter Symmetry Model *****

NUMBER OF DATA BASE PAGES IN MEMORY (NVPAGE)= 512

SI UNITS SPECIFIED FOR INTERNAL

LENGTH (l) = METER(M)
 MASS (M) = KILOGRAM(KG)
 TIME (t) = SECOND(SEC)
 TEMPERATURE (T) = KELVIN(K)
 TOFFSET = 0.0 KELVIN
 CHARGE (Q) = COULOMB
 CURRENT (i) = AMPERE (COULOMBS/SEC)
 FORCE (f) = NEWTON(N) (KG-M/SEC²)
 PRESSURE = PASCAL (NEWTON/M**2)
 ENERGY (W) = JOULE (N-M)
 POWER (P) = WATT (N-M/SEC)
 CAPACITANCE (C) = FARAD
 INDUCTANCE (L) = HENRY
 MAGNETIC FLUX = WEBER
 RESISTANCE (R) = OHM
 ELECTRIC POTENTIAL = VOLT

INPUT UNITS ARE ALSO SET TO SI

1

***** ANSYS - ENGINEERING ANALYSIS SYSTEM REVISION 5.1 24 *****
38303 VERSION=HP 9000/7XX 12:57:19 APR 10, 1996 CP= 0.470
FOR SUPPORT CALL ROBERT BAHNEY PHONE (702) 794-5337 FAX (702) 794-1844

***** ANSYS ANALYSIS DEFINITION (PREP7) *****

TITLE=
21 PWR Tube Seismic Analysis With Backfill

VIEW CONE ANGLE FOR WINDOW 1 0.00
Define Parameters

PARAMETER IBIR	=	0.7109500
PARAMETER OBIR	=	0.7129500
PARAMETER OBSR	=	0.7709500
PARAMETER OBOR	=	0.7809500
PARAMETER TS1	=	0.3500000E-02
PARAMETER TS2	=	0.5000000E-02
PARAMETER TS3	=	0.5000000E-02
PARAMETER TS4	=	0.5000000E-02
PARAMETER EGIH	=	0.8550000E-01
PARAMETER PIE	=	3.141593
PARAMETER ANG1	=	0.5235988
PARAMETER ANG2	=	1.396263
PARAMETER ANG3	=	1.012291
PARAMETER TW	=	0.2285000
PARAMETER POS1	=	0.1142500
PARAMETER POS2	=	0.1192500
PARAMETER POS3	=	0.1227500
PARAMETER POS4	=	0.1277500
PARAMETER POS5	=	0.3562500
PARAMETER POS6	=	0.3612500
PARAMETER POS7	=	0.3647500
PARAMETER POS8	=	0.3697500
PARAMETER POS9	=	0.5982500
PARAMETER POS10	=	0.6032500
PARAMETER POS11	=	0.6082500
PARAMETER POSG	=	0.3662500

PARAMETER POSEI	=	0.6937500
PARAMETER POSEO	=	0.6928684
PARAMETER POSEN	=	0.1185000
PARAMETER POSEF	=	0.1235000
PARAMETER POSEG	=	0.3525897
PARAMETER POSCG	=	0.6001257
PARAMETER BKHT	=	2.287500
PARAMETER IBHT	=	2.297500
PARAMETER IBLT	=	0.1000000E-01
PARAMETER ELEV1	=	2.307500
PARAMETER LTLGH	=	0.3000000E-01
PARAMETER ELEV2	=	2.337500
PARAMETER OBLT	=	0.6000000E-01
PARAMETER ELEV3	=	2.397500
PARAMETER STHT	=	0.2250000
PARAMETER ELEV4	=	2.622500
PARAMETER ELEV5	=	-0.7000000E-01
PARAMETER ELEV6	=	-0.2950000
Line Divisions		
PARAMETER SHD	=	1.000000
PARAMETER OBLD	=	1.000000
PARAMETER GD	=	2.000000
PARAMETER IBLD	=	2.000000
PARAMETER BD	=	15.00000
PARAMETER HTWD	=	4.000000
PARAMETER TWD	=	4.000000
PARAMETER THD	=	4.000000
PARAMETER EGFD	=	4.000000
PARAMETER PTD	=	2.000000
PARAMETER TTD	=	1.000000
PARAMETER A1D	=	4.000000
PARAMETER A2D	=	4.000000
PARAMETER A3D	=	4.000000
PARAMETER A4D	=	4.000000
PARAMETER A5D	=	4.000000
PARAMETER A6D	=	4.000000

PARAMETER A7D = 4.000000

PARAMETER A8D = 4.000000

PARAMETER A9D = 4.000000

PARAMETER IBTD = 2.000000

PARAMETER OBITD = 2.000000

PARAMETER STD = 2.000000

Define Element Properties

ELEMENT TYPE 1 IS SOLID45 3-D STRUCTURAL SOLID
KEYOPT(1-12)= 0 0 0 0 0 0 0 0 0 0 0 0

CURRENT NODAL DOF SET IS UX UY UZ
THREE-DIMENSIONAL MODEL

ELEMENT TYPE 2 IS SOLID45 3-D STRUCTURAL SOLID
KEYOPT(1-12)= 0 0 0 0 0 0 0 0 0 0 0 0

CURRENT NODAL DOF SET IS UX UY UZ
THREE-DIMENSIONAL MODEL

ELEMENT TYPE 3 IS SOLID45 3-D STRUCTURAL SOLID
KEYOPT(1-12)= 0 0 0 0 0 0 0 0 0 0 0 0

CURRENT NODAL DOF SET IS UX UY UZ
THREE-DIMENSIONAL MODEL

ELEMENT TYPE 4 IS SOLID45 3-D STRUCTURAL SOLID
KEYOPT(1-12)= 0 0 0 0 0 0 0 0 0 0 0 0

CURRENT NODAL DOF SET IS UX UY UZ
THREE-DIMENSIONAL MODEL

ELEMENT TYPE 5 IS SOLID45 3-D STRUCTURAL SOLID
KEYOPT(1-12)= 0 0 0 0 0 0 0 0 0 0 0 0

CURRENT NODAL DOF SET IS UX UY UZ
THREE-DIMENSIONAL MODEL

ELEMENT TYPE 6 IS SOLID45 3-D STRUCTURAL SOLID
KEYOPT(1-12)= 0 0 0 0 0 0 0 0 0 0 0 0

CURRENT NODAL DOF SET IS UX UY UZ
THREE-DIMENSIONAL MODEL

ratio of static to dynamic coeff. of friction fact=1.298, Area Tol.=15%
Room Temperature Properties of Materials

MATERIAL 1 EX = 0.2060000E+12

MATERIAL 2 EX = 0.1950000E+12

MATERIAL 3 EX = 0.2060000E+12

MATERIAL 4 EX = 0.2060000E+12

MATERIAL 5 EX = 0.2080000E+12

MATERIAL 6 EX = 0.2080000E+12

MATERIAL 1 NUXY = 0.3000000

MATERIAL 2 NUXY = 0.2980000

MATERIAL 3 NUXY = 0.3000000

MATERIAL	4	NUXY =	0.3000000
MATERIAL	5	NUXY =	0.2780000
MATERIAL	6	NUXY =	0.2780000
MATERIAL	1	DENS =	8131.000
MATERIAL	2	DENS =	178040.7
MATERIAL	3	DENS =	16262.00
MATERIAL	4	DENS =	16262.00
MATERIAL	5	DENS =	8442.000
MATERIAL	6	DENS =	1101960.

Define keypoints in the basket assembly

ACTIVE COORDINATE SYSTEM SET TO 0 (CARTESIAN)

KEYPOINT	1	X,Y,Z=	0.000000E+00	0.000000E+00	0.000000E+00	IN CSYS=	0
KEYPOINT	2	X,Y,Z=	0.114250	0.000000E+00	0.000000E+00	IN CSYS=	0
KEYPOINT	3	X,Y,Z=	0.119250	0.000000E+00	0.000000E+00	IN CSYS=	0
KEYPOINT	4	X,Y,Z=	0.122750	0.000000E+00	0.000000E+00	IN CSYS=	0
KEYPOINT	5	X,Y,Z=	0.127750	0.000000E+00	0.000000E+00	IN CSYS=	0
KEYPOINT	6	X,Y,Z=	0.356250	0.000000E+00	0.000000E+00	IN CSYS=	0
KEYPOINT	7	X,Y,Z=	0.361250	0.000000E+00	0.000000E+00	IN CSYS=	0
KEYPOINT	8	X,Y,Z=	0.364750	0.000000E+00	0.000000E+00	IN CSYS=	0
KEYPOINT	9	X,Y,Z=	0.369750	0.000000E+00	0.000000E+00	IN CSYS=	0
KEYPOINT	10	X,Y,Z=	0.598250	0.000000E+00	0.000000E+00	IN CSYS=	0
KEYPOINT	11	X,Y,Z=	0.603250	0.000000E+00	0.000000E+00	IN CSYS=	0
KEYPOINT	12	X,Y,Z=	0.608250	0.000000E+00	0.000000E+00	IN CSYS=	0
KEYPOINT	13	X,Y,Z=	0.114250	0.114250	0.000000E+00	IN CSYS=	0
KEYPOINT	14	X,Y,Z=	0.127750	0.114250	0.000000E+00	IN CSYS=	0
KEYPOINT	15	X,Y,Z=	0.356250	0.114250	0.000000E+00	IN CSYS=	0
KEYPOINT	16	X,Y,Z=	0.369750	0.114250	0.000000E+00	IN CSYS=	0
KEYPOINT	17	X,Y,Z=	0.598250	0.114250	0.000000E+00	IN CSYS=	0
KEYPOINT	18	X,Y,Z=	0.119250	0.119250	0.000000E+00	IN CSYS=	0
KEYPOINT	19	X,Y,Z=	0.122750	0.119250	0.000000E+00	IN CSYS=	0
KEYPOINT	20	X,Y,Z=	0.361250	0.119250	0.000000E+00	IN CSYS=	0
KEYPOINT	21	X,Y,Z=	0.364750	0.119250	0.000000E+00	IN CSYS=	0
KEYPOINT	22	X,Y,Z=	0.603250	0.119250	0.000000E+00	IN CSYS=	0
KEYPOINT	23	X,Y,Z=	0.608250	0.118500	0.000000E+00	IN CSYS=	0

ACTIVE COORDINATE SYSTEM SET TO 1 (CYLINDRICAL)

```

KEYPOINT    24  X,Y,Z=  0.710950      9.69319      0.000000E+00  IN CSYS=  1
                0.700800      0.119704      0.000000E+00  IN CSYS=  0
ACTIVE COORDINATE SYSTEM SET TO      0  (CARTESIAN)
KEYPOINT    25  X,Y,Z=  0.122750      0.122750      0.000000E+00  IN CSYS=  0
KEYPOINT    26  X,Y,Z=  0.361250      0.122750      0.000000E+00  IN CSYS=  0
KEYPOINT    27  X,Y,Z=  0.364750      0.122750      0.000000E+00  IN CSYS=  0
KEYPOINT    28  X,Y,Z=  0.603250      0.122750      0.000000E+00  IN CSYS=  0
KEYPOINT    29  X,Y,Z=  0.608250      0.123500      0.000000E+00  IN CSYS=  0
ACTIVE COORDINATE SYSTEM SET TO      1  (CYLINDRICAL)
KEYPOINT    30  X,Y,Z=  0.710950      10.1065      0.000000E+00  IN CSYS=  1
                0.699918      0.124757      0.000000E+00  IN CSYS=  0
ACTIVE COORDINATE SYSTEM SET TO      0  (CARTESIAN)
KEYPOINT    31  X,Y,Z=  0.127750      0.127750      0.000000E+00  IN CSYS=  0
KEYPOINT    32  X,Y,Z=  0.356250      0.127750      0.000000E+00  IN CSYS=  0
KEYPOINT    33  X,Y,Z=  0.369750      0.127750      0.000000E+00  IN CSYS=  0
KEYPOINT    34  X,Y,Z=  0.598250      0.127750      0.000000E+00  IN CSYS=  0
KEYPOINT    35  X,Y,Z=  0.356250      0.356250      0.000000E+00  IN CSYS=  0
KEYPOINT    36  X,Y,Z=  0.369750      0.356250      0.000000E+00  IN CSYS=  0
KEYPOINT    37  X,Y,Z=  0.598250      0.356250      0.000000E+00  IN CSYS=  0
ACTIVE COORDINATE SYSTEM SET TO      1  (CYLINDRICAL)
KEYPOINT    38  X,Y,Z=  0.710950      30.1000      0.000000E+00  IN CSYS=  1
                0.615080      0.356549      0.000000E+00  IN CSYS=  0
ACTIVE COORDINATE SYSTEM SET TO      0  (CARTESIAN)
KEYPOINT    39  X,Y,Z=  0.361250      0.361250      0.000000E+00  IN CSYS=  0
KEYPOINT    40  X,Y,Z=  0.364750      0.361250      0.000000E+00  IN CSYS=  0
ACTIVE COORDINATE SYSTEM SET TO      1  (CYLINDRICAL)
KEYPOINT    41  X,Y,Z=  0.710950      30.9148      0.000000E+00  IN CSYS=  1
                0.609947      0.365260      0.000000E+00  IN CSYS=  0
ACTIVE COORDINATE SYSTEM SET TO      0  (CARTESIAN)
KEYPOINT    42  X,Y,Z=  0.366250      0.366250      0.000000E+00  IN CSYS=  0
ACTIVE COORDINATE SYSTEM SET TO      1  (CYLINDRICAL)
KEYPOINT    43  X,Y,Z=  0.710950      31.3953      0.000000E+00  IN CSYS=  1
                0.606863      0.370362      0.000000E+00  IN CSYS=  0
KEYPOINT    44  X,Y,Z=  0.710950      0.000000E+00  0.000000E+00  IN CSYS=  1
                0.710950      0.000000E+00  0.000000E+00  IN CSYS=  0

```


KEYPOINT	45	X,Y,Z=	0.710950	45.0000	0.000000E+00	IN CSYS= 1
			0.502718	0.502718	0.000000E+00	IN CSYS= 0
KEYPOINT	46	X,Y,Z=	0.712950	0.000000E+00	0.000000E+00	IN CSYS= 1
			0.712950	0.000000E+00	0.000000E+00	IN CSYS= 0
KEYPOINT	47	X,Y,Z=	0.712950	9.69319	0.000000E+00	IN CSYS= 1
			0.702772	0.120041	0.000000E+00	IN CSYS= 0
KEYPOINT	48	X,Y,Z=	0.712950	10.1065	0.000000E+00	IN CSYS= 1
			0.701887	0.125108	0.000000E+00	IN CSYS= 0
KEYPOINT	49	X,Y,Z=	0.712950	30.1000	0.000000E+00	IN CSYS= 1
			0.616810	0.357552	0.000000E+00	IN CSYS= 0
KEYPOINT	50	X,Y,Z=	0.712950	30.9148	0.000000E+00	IN CSYS= 1
			0.611662	0.366288	0.000000E+00	IN CSYS= 0
KEYPOINT	51	X,Y,Z=	0.712950	31.3953	0.000000E+00	IN CSYS= 1
			0.608570	0.371403	0.000000E+00	IN CSYS= 0
KEYPOINT	52	X,Y,Z=	0.712950	45.0000	0.000000E+00	IN CSYS= 1
			0.504132	0.504132	0.000000E+00	IN CSYS= 0
KEYPOINT	53	X,Y,Z=	0.770950	0.000000E+00	0.000000E+00	IN CSYS= 1
			0.770950	0.000000E+00	0.000000E+00	IN CSYS= 0
KEYPOINT	54	X,Y,Z=	0.770950	9.69319	0.000000E+00	IN CSYS= 1
			0.759944	0.129807	0.000000E+00	IN CSYS= 0
KEYPOINT	55	X,Y,Z=	0.770950	10.1065	0.000000E+00	IN CSYS= 1
			0.758987	0.135285	0.000000E+00	IN CSYS= 0
KEYPOINT	56	X,Y,Z=	0.770950	30.1000	0.000000E+00	IN CSYS= 1
			0.666989	0.386639	0.000000E+00	IN CSYS= 0
KEYPOINT	57	X,Y,Z=	0.770950	30.9148	0.000000E+00	IN CSYS= 1
			0.661423	0.396086	0.000000E+00	IN CSYS= 0
KEYPOINT	58	X,Y,Z=	0.770950	31.3953	0.000000E+00	IN CSYS= 1
			0.658078	0.401618	0.000000E+00	IN CSYS= 0
KEYPOINT	59	X,Y,Z=	0.770950	45.0000	0.000000E+00	IN CSYS= 1
			0.545144	0.545144	0.000000E+00	IN CSYS= 0
KEYPOINT	60	X,Y,Z=	0.780950	0.000000E+00	0.000000E+00	IN CSYS= 1
			0.780950	0.000000E+00	0.000000E+00	IN CSYS= 0
KEYPOINT	61	X,Y,Z=	0.780950	9.69319	0.000000E+00	IN CSYS= 1
			0.769801	0.131490	0.000000E+00	IN CSYS= 0
KEYPOINT	62	X,Y,Z=	0.780950	10.1065	0.000000E+00	IN CSYS= 1

```

      0.768832      0.137040      0.000000E+00 IN CSYS= 0
KEYPOINT    63  X,Y,Z= 0.780950      30.1000      0.000000E+00 IN CSYS= 1
      0.675640      0.391654      0.000000E+00 IN CSYS= 0
KEYPOINT    64  X,Y,Z= 0.780950      30.9148      0.000000E+00 IN CSYS= 1
      0.670002      0.401224      0.000000E+00 IN CSYS= 0
KEYPOINT    65  X,Y,Z= 0.780950      31.3953      0.000000E+00 IN CSYS= 1
      0.666614      0.406827      0.000000E+00 IN CSYS= 0
KEYPOINT    66  X,Y,Z= 0.780950      45.0000      0.000000E+00 IN CSYS= 1
      0.552215      0.552215      0.000000E+00 IN CSYS= 0

```

```

COORDINATE SYSTEM 11 DEFINITION. TYPE= 0 (CARTESIAN)
XC,YC,ZC= 0.00000E+00 0.00000E+00 0.00000E+00
ANGLES= 45.00 0.00 0.00 PARAMETERS= 1.000 1.000
ORIENTATION= 0.71 0.71 0.00 -0.71 0.71 0.00 0.00 0.00 1.00

```

ACTIVE COORDINATE SYSTEM SET TO 11 (CARTESIAN)

SYMMETRY TRANSFORMATION OF KEYPOINTS USING COMPONENT Y
SET IS ALL SELECTED KEYPOINTS

MERGE COINCIDENT KEYPOINTS WITHIN TOLERANCE OF 0.10000E-03

```

KEYPOINT    1 USED FOR KEYPOINT(S)    67
KEYPOINT   13 USED FOR KEYPOINT(S)    79
KEYPOINT   18 USED FOR KEYPOINT(S)    84
KEYPOINT   25 USED FOR KEYPOINT(S)    91
KEYPOINT   31 USED FOR KEYPOINT(S)    97
KEYPOINT   35 USED FOR KEYPOINT(S)   101
KEYPOINT   39 USED FOR KEYPOINT(S)   105
KEYPOINT   42 USED FOR KEYPOINT(S)   108
KEYPOINT   45 USED FOR KEYPOINT(S)   111
KEYPOINT   52 USED FOR KEYPOINT(S)   118
KEYPOINT   59 USED FOR KEYPOINT(S)   125
KEYPOINT   66 USED FOR KEYPOINT(S)   132

```

ACTIVE COORDINATE SYSTEM SET TO 0 (CARTESIAN)

SYMMETRY TRANSFORMATION OF KEYPOINTS USING COMPONENT Y
SET IS ALL SELECTED KEYPOINTS

MERGE COINCIDENT KEYPOINTS WITHIN TOLERANCE OF 0.10000E-03

```

KEYPOINT    1 USED FOR KEYPOINT(S)    67
KEYPOINT    2 USED FOR KEYPOINT(S)    79
KEYPOINT    3 USED FOR KEYPOINT(S)    84
KEYPOINT    4 USED FOR KEYPOINT(S)    91
KEYPOINT    5 USED FOR KEYPOINT(S)    97
KEYPOINT    6 USED FOR KEYPOINT(S)   101
KEYPOINT    7 USED FOR KEYPOINT(S)   105
KEYPOINT    8 USED FOR KEYPOINT(S)   108
KEYPOINT    9 USED FOR KEYPOINT(S)   111
KEYPOINT   10 USED FOR KEYPOINT(S)   118
KEYPOINT   11 USED FOR KEYPOINT(S)   125
KEYPOINT   12 USED FOR KEYPOINT(S)   132
KEYPOINT   44 USED FOR KEYPOINT(S)   164
KEYPOINT   46 USED FOR KEYPOINT(S)   166
KEYPOINT   53 USED FOR KEYPOINT(S)   173
KEYPOINT   60 USED FOR KEYPOINT(S)   180

```

DELETE SELECTED KEYPOINTS FROM 2 TO 12 BY 1

```

KEYPOINT  1001  X,Y,Z= 0.000000E+00 0.000000E+00 2.28750 IN CSYS= 0

```

LINE CONNECTS KEYPOINTS 1 1001

LINE NO.= 1 KP1= 1 TAN1= 0.0000 0.0000 -1.0000
KP2= 1001 TAN2= 0.0000 0.0000 1.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
TO NDIV = 15, SPACING RATIO = 0.200

KEYPOINT 2001 X,Y,Z= 0.000000E+00 0.000000E+00 2.29750 IN CSYS= 0

LINE CONNECTS KEYPOINTS 1001 2001
LINE NO.= 2 KP1= 1001 TAN1= 0.0000 0.0000 -1.0000
KP2= 2001 TAN2= 0.0000 0.0000 1.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
TO NDIV = 2, SPACING RATIO = 1.000

KEYPOINT 3001 X,Y,Z= 0.000000E+00 0.000000E+00 2.30750 IN CSYS= 0

LINE CONNECTS KEYPOINTS 2001 3001
LINE NO.= 3 KP1= 2001 TAN1= 0.0000 0.0000 -1.0000
KP2= 3001 TAN2= 0.0000 0.0000 1.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
TO NDIV = 2, SPACING RATIO = 1.000

KEYPOINT 4001 X,Y,Z= 0.000000E+00 0.000000E+00 2.33750 IN CSYS= 0

LINE CONNECTS KEYPOINTS 3001 4001
LINE NO.= 4 KP1= 3001 TAN1= 0.0000 0.0000 -1.0000
KP2= 4001 TAN2= 0.0000 0.0000 1.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
TO NDIV = 2, SPACING RATIO = 1.000

KEYPOINT 5001 X,Y,Z= 0.000000E+00 0.000000E+00 2.39750 IN CSYS= 0

LINE CONNECTS KEYPOINTS 4001 5001
LINE NO.= 5 KP1= 4001 TAN1= 0.0000 0.0000 -1.0000
KP2= 5001 TAN2= 0.0000 0.0000 1.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
TO NDIV = 1, SPACING RATIO = 1.000

KEYPOINT 6001 X,Y,Z= 0.000000E+00 0.000000E+00 2.62250 IN CSYS= 0

LINE CONNECTS KEYPOINTS 5001 6001
LINE NO.= 6 KP1= 5001 TAN1= 0.0000 0.0000 -1.0000
KP2= 6001 TAN2= 0.0000 0.0000 1.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
TO NDIV = 1, SPACING RATIO = 1.000

KEYPOINT 7001 X,Y,Z= 0.000000E+00 0.000000E+00 -0.100000E-01 IN CSYS= 0

LINE CONNECTS KEYPOINTS 1 7001
LINE NO.= 7 KP1= 1 TAN1= 0.0000 0.0000 1.0000
KP2= 7001 TAN2= 0.0000 0.0000 -1.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
TO NDIV = 2, SPACING RATIO = 1.000

KEYPOINT 8001 X,Y,Z= 0.000000E+00 0.000000E+00 -0.700000E-01 IN CSYS= 0

LINE CONNECTS KEYPOINTS 7001 8001
LINE NO.= 8 KP1= 7001 TAN1= 0.0000 0.0000 1.0000
KP2= 8001 TAN2= 0.0000 0.0000 -1.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
TO NDIV = 1, SPACING RATIO = 1.000

KEYPOINT 9001 X,Y,Z= 0.000000E+00 0.000000E+00 -0.295000 IN CSYS= 0

LINE CONNECTS KEYPOINTS 8001 9001
 LINE NO.= 9 KP1= 8001 TAN1= 0.0000 0.0000 1.0000
 KP2= 9001 TAN2= 0.0000 0.0000 -1.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
 TO NDIV = 1, SPACING RATIO = 1.000
 line set 1 Tube Width for Half Tubes on Symmetry Plane

LINE CONNECTS KEYPOINTS 197 206
 LINE NO.= 10 KP1= 197 TAN1= -1.0000 0.0000 0.0000
 KP2= 206 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 196 205
 LINE NO.= 11 KP1= 196 TAN1= -1.0000 0.0000 0.0000
 KP2= 205 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 195 201
 LINE NO.= 12 KP1= 195 TAN1= -1.0000 0.0000 0.0000
 KP2= 201 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 194 200
 LINE NO.= 13 KP1= 194 TAN1= -1.0000 0.0000 0.0000
 KP2= 200 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 193 204
 LINE NO.= 14 KP1= 193 TAN1= -1.0000 0.0000 0.0000
 KP2= 204 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 192 203
 LINE NO.= 15 KP1= 192 TAN1= -1.0000 0.0000 0.0000
 KP2= 203 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 191 199
 LINE NO.= 16 KP1= 191 TAN1= -1.0000 0.0000 0.0000
 KP2= 199 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 190 198
 LINE NO.= 17 KP1= 190 TAN1= -1.0000 0.0000 0.0000
 KP2= 198 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 189 202
 LINE NO.= 18 KP1= 189 TAN1= -1.0000 0.0000 0.0000
 KP2= 202 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 188 138
 LINE NO.= 19 KP1= 188 TAN1= -1.0000 0.0000 0.0000
 KP2= 138 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 187 133
 LINE NO.= 20 KP1= 187 TAN1= -1.0000 0.0000 0.0000
 KP2= 133 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 68 13
 LINE NO.= 21 KP1= 68 TAN1= -1.0000 0.0000 0.0000
 KP2= 13 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 69 18
 LINE NO.= 22 KP1= 69 TAN1= -1.0000 0.0000 0.0000
 KP2= 18 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 70 85
 LINE NO.= 23 KP1= 70 TAN1= -1.0000 0.0000 0.0000
 KP2= 85 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 71 80
 LINE NO.= 24 KP1= 71 TAN1= -1.0000 0.0000 0.0000
 KP2= 80 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 72 81

LINE NO.= 25 KP1= 72 TAN1= -1.0000 0.0000 0.0000
 KP2= 81 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 73 86
 LINE NO.= 26 KP1= 73 TAN1= -1.0000 0.0000 0.0000
 KP2= 86 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 74 87
 LINE NO.= 27 KP1= 74 TAN1= -1.0000 0.0000 0.0000
 KP2= 87 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 75 82
 LINE NO.= 28 KP1= 75 TAN1= -1.0000 0.0000 0.0000
 KP2= 82 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 76 83
 LINE NO.= 29 KP1= 76 TAN1= -1.0000 0.0000 0.0000
 KP2= 83 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 77 88
 LINE NO.= 30 KP1= 77 TAN1= -1.0000 0.0000 0.0000
 KP2= 88 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 78 89
 LINE NO.= 31 KP1= 78 TAN1= -1.0000 0.0000 0.0000
 KP2= 89 TAN2= 1.0000 0.0000 0.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
 TO NDIV = 4, SPACING RATIO = 1.000
 Line set 2 Tube Widths

LINE CONNECTS KEYPOINTS 211 218
 LINE NO.= 32 KP1= 211 TAN1= -0.9996 0.0293 0.0000
 KP2= 218 TAN2= 0.9996 -0.0293 0.0000

LINE CONNECTS KEYPOINTS 210 220
 LINE NO.= 33 KP1= 210 TAN1= -0.9996 0.0276 0.0000
 KP2= 220 TAN2= 0.9996 -0.0276 0.0000

LINE CONNECTS KEYPOINTS 215 217
 LINE NO.= 34 KP1= 215 TAN1= -1.0000 0.0000 0.0000
 KP2= 217 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 214 216
 LINE NO.= 35 KP1= 214 TAN1= -1.0000 0.0000 0.0000
 KP2= 216 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 209 219
 LINE NO.= 36 KP1= 209 TAN1= -1.0000 0.0000 0.0000
 KP2= 219 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 208 159
 LINE NO.= 37 KP1= 208 TAN1= -1.0000 0.0000 0.0000
 KP2= 159 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 213 155
 LINE NO.= 38 KP1= 213 TAN1= -1.0000 0.0000 0.0000
 KP2= 155 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 151 152
 LINE NO.= 39 KP1= 151 TAN1= -1.0000 0.0000 0.0000
 KP2= 152 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 145 146
 LINE NO.= 40 KP1= 145 TAN1= -1.0000 0.0000 0.0000
 KP2= 146 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 139 140
 LINE NO.= 41 KP1= 139 TAN1= -1.0000 0.0000 0.0000
 KP2= 140 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 134 135
 LINE NO.= 42 KP1= 134 TAN1= -1.0000 0.0000 0.0000
 KP2= 135 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 14 15
 LINE NO.= 43 KP1= 14 TAN1= -1.0000 0.0000 0.0000
 KP2= 15 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 19 20
 LINE NO.= 44 KP1= 19 TAN1= -1.0000 0.0000 0.0000
 KP2= 20 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 25 26
 LINE NO.= 45 KP1= 25 TAN1= -1.0000 0.0000 0.0000
 KP2= 26 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 31 32
 LINE NO.= 46 KP1= 31 TAN1= -1.0000 0.0000 0.0000
 KP2= 32 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 98 35
 LINE NO.= 47 KP1= 98 TAN1= -1.0000 0.0000 0.0000
 KP2= 35 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 92 39
 LINE NO.= 48 KP1= 92 TAN1= -1.0000 0.0000 0.0000
 KP2= 39 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 93 106
 LINE NO.= 49 KP1= 93 TAN1= -1.0000 0.0000 0.0000
 KP2= 106 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 99 102
 LINE NO.= 50 KP1= 99 TAN1= -1.0000 0.0000 0.0000
 KP2= 102 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 100 103
 LINE NO.= 51 KP1= 100 TAN1= -1.0000 0.0000 0.0000
 KP2= 103 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 94 107
 LINE NO.= 52 KP1= 94 TAN1= -0.9996 -0.0276 0.0000
 KP2= 107 TAN2= 0.9996 0.0276 0.0000

LINE CONNECTS KEYPOINTS 95 104
 LINE NO.= 53 KP1= 95 TAN1= -0.9996 -0.0293 0.0000
 KP2= 104 TAN2= 0.9996 0.0293 0.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
 TO NDIV = 4, SPACING RATIO = 1.000
 Line set 3 Tube Widths on End Column

LINE CONNECTS KEYPOINTS 162 163
 LINE NO.= 54 KP1= 162 TAN1= -0.9999 0.0171 0.0000
 KP2= 163 TAN2= 0.9999 -0.0171 0.0000

LINE CONNECTS KEYPOINTS 160 161
 LINE NO.= 55 KP1= 160 TAN1= -0.9999 0.0164 0.0000
 KP2= 161 TAN2= 0.9999 -0.0164 0.0000

LINE CONNECTS KEYPOINTS 156 157
 LINE NO.= 56 KP1= 156 TAN1= -1.0000 0.0000 0.0000
 KP2= 157 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 153 154
 LINE NO.= 57 KP1= 153 TAN1= -1.0000 0.0000 0.0000
 KP2= 154 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 147 148

LINE NO.=	58	KP1=	147	TAN1=	-1.0000	0.0000	0.0000
		KP2=	148	TAN2=	1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 141 142							
LINE NO.=	59	KP1=	141	TAN1=	-1.0000	0.0000	0.0000
		KP2=	142	TAN2=	1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 136 137							
LINE NO.=	60	KP1=	136	TAN1=	-1.0000	0.0000	0.0000
		KP2=	137	TAN2=	1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 16 17							
LINE NO.=	61	KP1=	16	TAN1=	-1.0000	0.0000	0.0000
		KP2=	17	TAN2=	1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 21 22							
LINE NO.=	62	KP1=	21	TAN1=	-1.0000	0.0000	0.0000
		KP2=	22	TAN2=	1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 27 28							
LINE NO.=	63	KP1=	27	TAN1=	-1.0000	0.0000	0.0000
		KP2=	28	TAN2=	1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 33 34							
LINE NO.=	64	KP1=	33	TAN1=	-1.0000	0.0000	0.0000
		KP2=	34	TAN2=	1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 36 37							
LINE NO.=	65	KP1=	36	TAN1=	-1.0000	0.0000	0.0000
		KP2=	37	TAN2=	1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 40 41							
LINE NO.=	66	KP1=	40	TAN1=	-0.9999	-0.0164	0.0000
		KP2=	41	TAN2=	0.9999	0.0164	0.0000
LINE CONNECTS KEYPOINTS 42 43							
LINE NO.=	67	KP1=	42	TAN1=	-0.9999	-0.0171	0.0000
		KP2=	43	TAN2=	0.9999	0.0171	0.0000
SET DIVISIONS ON ALL SELECTED UNMESHED LINES							
TO NDIV = 4, SPACING RATIO = 1.000							
line set 4 Tube Heights							
LINE CONNECTS KEYPOINTS 201 200							
LINE NO.=	68	KP1=	201	TAN1=	0.0000	-1.0000	0.0000
		KP2=	200	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 205 204							
LINE NO.=	69	KP1=	205	TAN1=	0.0000	-1.0000	0.0000
		KP2=	204	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 210 209							
LINE NO.=	70	KP1=	210	TAN1=	0.0000	-1.0000	0.0000
		KP2=	209	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 215 214							
LINE NO.=	71	KP1=	215	TAN1=	0.0000	-1.0000	0.0000
		KP2=	214	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 217 216							
LINE NO.=	72	KP1=	217	TAN1=	0.0000	-1.0000	0.0000
		KP2=	216	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 220 219							
LINE NO.=	73	KP1=	220	TAN1=	0.3164	-0.9999	0.0000
		KP2=	219	TAN2=	-0.3164	0.9999	0.0000
LINE CONNECTS KEYPOINTS 221 162							
LINE NO.=	74	KP1=	221	TAN1=	0.0171	-0.9999	0.0000
		KP2=	162	TAN2=	-0.0171	0.9999	0.0000

LINE CONNECTS KEYPOINTS		199	198			
LINE NO.=	75	KP1=	199	TAN1=	0.0000	-1.0000 0.0000
		KP2=	198	TAN2=	0.0000	1.0000 0.0000
LINE CONNECTS KEYPOINTS		203	202			
LINE NO.=	76	KP1=	203	TAN1=	0.0000	-1.0000 0.0000
		KP2=	202	TAN2=	0.0000	1.0000 0.0000
LINE CONNECTS KEYPOINTS		208	145			
LINE NO.=	77	KP1=	208	TAN1=	0.0000	-1.0000 0.0000
		KP2=	145	TAN2=	0.0000	1.0000 0.0000
LINE CONNECTS KEYPOINTS		213	151			
LINE NO.=	78	KP1=	213	TAN1=	0.0000	-1.0000 0.0000
		KP2=	151	TAN2=	0.0000	1.0000 0.0000
LINE CONNECTS KEYPOINTS		155	152			
LINE NO.=	79	KP1=	155	TAN1=	0.0000	-1.0000 0.0000
		KP2=	152	TAN2=	0.0000	1.0000 0.0000
LINE CONNECTS KEYPOINTS		159	146			
LINE NO.=	80	KP1=	159	TAN1=	0.0000	-1.0000 0.0000
		KP2=	146	TAN2=	0.0000	1.0000 0.0000
LINE CONNECTS KEYPOINTS		160	147			
LINE NO.=	81	KP1=	160	TAN1=	0.0000	-1.0000 0.0000
		KP2=	147	TAN2=	0.0000	1.0000 0.0000
LINE CONNECTS KEYPOINTS		156	153			
LINE NO.=	82	KP1=	156	TAN1=	0.0000	-1.0000 0.0000
		KP2=	153	TAN2=	0.0000	1.0000 0.0000
LINE CONNECTS KEYPOINTS		157	154			
LINE NO.=	83	KP1=	157	TAN1=	0.0000	-1.0000 0.0000
		KP2=	154	TAN2=	0.0000	1.0000 0.0000
LINE CONNECTS KEYPOINTS		161	148			
LINE NO.=	84	KP1=	161	TAN1=	0.0276	-0.9996 0.0000
		KP2=	148	TAN2=	-0.0276	0.9996 0.0000
LINE CONNECTS KEYPOINTS		133	13			
LINE NO.=	85	KP1=	133	TAN1=	0.0000	-1.0000 0.0000
		KP2=	13	TAN2=	0.0000	1.0000 0.0000
LINE CONNECTS KEYPOINTS		138	18			
LINE NO.=	86	KP1=	138	TAN1=	0.0000	-1.0000 0.0000
		KP2=	18	TAN2=	0.0000	1.0000 0.0000
LINE CONNECTS KEYPOINTS		139	19			
LINE NO.=	87	KP1=	139	TAN1=	0.0000	-1.0000 0.0000
		KP2=	19	TAN2=	0.0000	1.0000 0.0000
LINE CONNECTS KEYPOINTS		134	14			
LINE NO.=	88	KP1=	134	TAN1=	0.0000	-1.0000 0.0000
		KP2=	14	TAN2=	0.0000	1.0000 0.0000
LINE CONNECTS KEYPOINTS		135	15			
LINE NO.=	89	KP1=	135	TAN1=	0.0000	-1.0000 0.0000
		KP2=	15	TAN2=	0.0000	1.0000 0.0000
LINE CONNECTS KEYPOINTS		140	20			
LINE NO.=	90	KP1=	140	TAN1=	0.0000	-1.0000 0.0000
		KP2=	20	TAN2=	0.0000	1.0000 0.0000
LINE CONNECTS KEYPOINTS		141	21			
LINE NO.=	91	KP1=	141	TAN1=	0.0000	-1.0000 0.0000
		KP2=	21	TAN2=	0.0000	1.0000 0.0000
LINE CONNECTS KEYPOINTS		136	16			

LINE NO.=	92	KP1=	136	TAN1=	0.0000	-1.0000	0.0000
		KP2=	16	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 137 17							
LINE NO.=	93	KP1=	137	TAN1=	0.0000	-1.0000	0.0000
		KP2=	17	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 142 22							
LINE NO.=	94	KP1=	142	TAN1=	0.0000	-1.0000	0.0000
		KP2=	22	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 143 23							
LINE NO.=	95	KP1=	143	TAN1=	0.0000	-1.0000	0.0000
		KP2=	23	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 80 81							
LINE NO.=	96	KP1=	80	TAN1=	0.0000	-1.0000	0.0000
		KP2=	81	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 85 86							
LINE NO.=	97	KP1=	85	TAN1=	0.0000	-1.0000	0.0000
		KP2=	86	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 25 92							
LINE NO.=	98	KP1=	25	TAN1=	0.0000	-1.0000	0.0000
		KP2=	92	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 31 98							
LINE NO.=	99	KP1=	31	TAN1=	0.0000	-1.0000	0.0000
		KP2=	98	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 32 35							
LINE NO.=	100	KP1=	32	TAN1=	0.0000	-1.0000	0.0000
		KP2=	35	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 26 39							
LINE NO.=	101	KP1=	26	TAN1=	0.0000	-1.0000	0.0000
		KP2=	39	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 27 40							
LINE NO.=	102	KP1=	27	TAN1=	0.0000	-1.0000	0.0000
		KP2=	40	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 33 36							
LINE NO.=	103	KP1=	33	TAN1=	0.0000	-1.0000	0.0000
		KP2=	36	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 34 37							
LINE NO.=	104	KP1=	34	TAN1=	0.0000	-1.0000	0.0000
		KP2=	37	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 28 41							
LINE NO.=	105	KP1=	28	TAN1=	-0.0276	-0.9996	0.0000
		KP2=	41	TAN2=	0.0276	0.9996	0.0000
LINE CONNECTS KEYPOINTS 29 38							
LINE NO.=	106	KP1=	29	TAN1=	-0.0293	-0.9996	0.0000
		KP2=	38	TAN2=	0.0293	0.9996	0.0000
LINE CONNECTS KEYPOINTS 82 83							
LINE NO.=	107	KP1=	82	TAN1=	0.0000	-1.0000	0.0000
		KP2=	83	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 87 88							
LINE NO.=	108	KP1=	87	TAN1=	0.0000	-1.0000	0.0000
		KP2=	88	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 93 94							
LINE NO.=	109	KP1=	93	TAN1=	0.0000	-1.0000	0.0000
		KP2=	94	TAN2=	0.0000	1.0000	0.0000

LINE CONNECTS KEYPOINTS 99 100
 LINE NO.= 110 KP1= 99 TAN1= 0.0000 -1.0000 0.0000
 KP2= 100 TAN2= 0.0000 1.0000 0.0000

LINE CONNECTS KEYPOINTS 102 103
 LINE NO.= 111 KP1= 102 TAN1= 0.0000 -1.0000 0.0000
 KP2= 103 TAN2= 0.0000 1.0000 0.0000

LINE CONNECTS KEYPOINTS 106 107
 LINE NO.= 112 KP1= 106 TAN1= -0.0164 -0.9999 0.0000
 KP2= 107 TAN2= 0.0164 0.9999 0.0000

LINE CONNECTS KEYPOINTS 42 109
 LINE NO.= 113 KP1= 42 TAN1= -0.0171 -0.9999 0.0000
 KP2= 109 TAN2= 0.0171 0.9999 0.0000

LINE CONNECTS KEYPOINTS 158 149
 LINE NO.= 114 KP1= 158 TAN1= 0.0293 -0.9996 0.0000
 KP2= 149 TAN2= -0.0293 0.9996 0.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
 TO NDIV = 4, SPACING RATIO = 1.000
 Line set 5 End Guide Fins

LINE CONNECTS KEYPOINTS 207 206
 LINE NO.= 115 KP1= 207 TAN1= 0.0130 -0.9999 0.0000
 KP2= 206 TAN2= -0.0130 0.9999 0.0000

LINE CONNECTS KEYPOINTS 212 211
 LINE NO.= 116 KP1= 212 TAN1= 0.0137 -0.9999 0.0000
 KP2= 211 TAN2= -0.0137 0.9999 0.0000

LINE CONNECTS KEYPOINTS 150 149
 LINE NO.= 117 KP1= 150 TAN1= 0.9999 -0.0137 0.0000
 KP2= 149 TAN2= -0.9999 0.0137 0.0000

LINE CONNECTS KEYPOINTS 144 143
 LINE NO.= 118 KP1= 144 TAN1= 0.9999 -0.0130 0.0000
 KP2= 143 TAN2= -0.9999 0.0130 0.0000

LINE CONNECTS KEYPOINTS 24 23
 LINE NO.= 119 KP1= 24 TAN1= 0.9999 0.0130 0.0000
 KP2= 23 TAN2= -0.9999 -0.0130 0.0000

LINE CONNECTS KEYPOINTS 30 29
 LINE NO.= 120 KP1= 30 TAN1= 0.9999 0.0137 0.0000
 KP2= 29 TAN2= -0.9999 -0.0137 0.0000

LINE CONNECTS KEYPOINTS 96 95
 LINE NO.= 121 KP1= 96 TAN1= 0.0137 0.9999 0.0000
 KP2= 95 TAN2= -0.0137 -0.9999 0.0000

LINE CONNECTS KEYPOINTS 90 89
 LINE NO.= 122 KP1= 90 TAN1= 0.0130 0.9999 0.0000
 KP2= 89 TAN2= -0.0130 -0.9999 0.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
 TO NDIV = 4, SPACING RATIO = 1.000
 Line set 6 SS-B Plate Thickness

LINE CONNECTS KEYPOINTS 197 196
 LINE NO.= 123 KP1= 197 TAN1= 0.0000 -1.0000 0.0000
 KP2= 196 TAN2= 0.0000 1.0000 0.0000

LINE CONNECTS KEYPOINTS 206 205
 LINE NO.= 124 KP1= 206 TAN1= -0.1483 -0.9889 0.0000
 KP2= 205 TAN2= 0.1483 0.9889 0.0000

LINE CONNECTS KEYPOINTS 211 210

LINE NO.= 125	KP1= 211	TAN1= 0.1483	-0.9889	0.0000
	KP2= 210	TAN2= -0.1483	0.9889	0.0000
LINE CONNECTS KEYPOINTS 207 212				
LINE NO.= 126	KP1= 207	TAN1= -0.9851	-0.1719	0.0000
	KP2= 212	TAN2= 0.9851	0.1719	0.0000
LINE CONNECTS KEYPOINTS 206 211				
LINE NO.= 127	KP1= 206	TAN1= -1.0000	0.0000	0.0000
	KP2= 211	TAN2= 1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 205 210				
LINE NO.= 128	KP1= 205	TAN1= -1.0000	0.0000	0.0000
	KP2= 210	TAN2= 1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 218 220				
LINE NO.= 129	KP1= 218	TAN1= -0.8616	-0.5076	0.0000
	KP2= 220	TAN2= 0.8616	0.5076	0.0000
LINE CONNECTS KEYPOINTS 220 221				
LINE NO.= 130	KP1= 220	TAN1= -0.8558	-0.5174	0.0000
	KP2= 221	TAN2= 0.8558	0.5174	0.0000
LINE CONNECTS KEYPOINTS 193 192				
LINE NO.= 131	KP1= 193	TAN1= 0.0000	-1.0000	0.0000
	KP2= 192	TAN2= 0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 204 203				
LINE NO.= 132	KP1= 204	TAN1= 0.0000	-1.0000	0.0000
	KP2= 203	TAN2= 0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 209 208				
LINE NO.= 133	KP1= 209	TAN1= 0.0000	-1.0000	0.0000
	KP2= 208	TAN2= 0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 204 209				
LINE NO.= 134	KP1= 204	TAN1= -1.0000	0.0000	0.0000
	KP2= 209	TAN2= 1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 203 208				
LINE NO.= 135	KP1= 203	TAN1= -1.0000	0.0000	0.0000
	KP2= 208	TAN2= 1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 219 159				
LINE NO.= 136	KP1= 219	TAN1= 0.0000	-1.0000	0.0000
	KP2= 159	TAN2= 0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 162 160				
LINE NO.= 137	KP1= 162	TAN1= 0.2873	-0.9578	0.0000
	KP2= 160	TAN2= -0.2873	0.9578	0.0000
LINE CONNECTS KEYPOINTS 163 161				
LINE NO.= 138	KP1= 163	TAN1= -0.5174	-0.8558	0.0000
	KP2= 161	TAN2= 0.5174	0.8558	0.0000
LINE CONNECTS KEYPOINTS 161 158				
LINE NO.= 139	KP1= 161	TAN1= -0.5076	-0.8616	0.0000
	KP2= 158	TAN2= 0.5076	0.8616	0.0000
LINE CONNECTS KEYPOINTS 219 162				
LINE NO.= 140	KP1= 219	TAN1= -0.9578	0.2873	0.0000
	KP2= 162	TAN2= 0.9578	-0.2873	0.0000
LINE CONNECTS KEYPOINTS 159 160				
LINE NO.= 141	KP1= 159	TAN1= -1.0000	0.0000	0.0000
	KP2= 160	TAN2= 1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 189 188				
LINE NO.= 142	KP1= 189	TAN1= 0.0000	-1.0000	0.0000
	KP2= 188	TAN2= 0.0000	1.0000	0.0000

LINE CONNECTS KEYPOINTS		202	138			
LINE NO.=	143	KP1=	202	TAN1=	0.0000	-1.0000 0.0000
		KP2=	138	TAN2=	0.0000	1.0000 0.0000
LINE CONNECTS KEYPOINTS		145	139			
LINE NO.=	144	KP1=	145	TAN1=	0.0000	-1.0000 0.0000
		KP2=	139	TAN2=	0.0000	1.0000 0.0000
LINE CONNECTS KEYPOINTS		202	145			
LINE NO.=	145	KP1=	202	TAN1=	-1.0000	0.0000 0.0000
		KP2=	145	TAN2=	1.0000	0.0000 0.0000
LINE CONNECTS KEYPOINTS		138	139			
LINE NO.=	146	KP1=	138	TAN1=	-1.0000	0.0000 0.0000
		KP2=	139	TAN2=	1.0000	0.0000 0.0000
LINE CONNECTS KEYPOINTS		146	140			
LINE NO.=	147	KP1=	146	TAN1=	0.0000	-1.0000 0.0000
		KP2=	140	TAN2=	0.0000	1.0000 0.0000
LINE CONNECTS KEYPOINTS		147	141			
LINE NO.=	148	KP1=	147	TAN1=	0.0000	-1.0000 0.0000
		KP2=	141	TAN2=	0.0000	1.0000 0.0000
LINE CONNECTS KEYPOINTS		146	147			
LINE NO.=	149	KP1=	146	TAN1=	-1.0000	0.0000 0.0000
		KP2=	147	TAN2=	1.0000	0.0000 0.0000
LINE CONNECTS KEYPOINTS		140	141			
LINE NO.=	150	KP1=	140	TAN1=	-1.0000	0.0000 0.0000
		KP2=	141	TAN2=	1.0000	0.0000 0.0000
LINE CONNECTS KEYPOINTS		148	142			
LINE NO.=	151	KP1=	148	TAN1=	0.0000	-1.0000 0.0000
		KP2=	142	TAN2=	0.0000	1.0000 0.0000
LINE CONNECTS KEYPOINTS		149	143			
LINE NO.=	152	KP1=	149	TAN1=	0.0000	-1.0000 0.0000
		KP2=	143	TAN2=	0.0000	1.0000 0.0000
LINE CONNECTS KEYPOINTS		148	149			
LINE NO.=	153	KP1=	148	TAN1=	-0.9889	0.1483 0.0000
		KP2=	149	TAN2=	0.9889	-0.1483 0.0000
LINE CONNECTS KEYPOINTS		142	143			
LINE NO.=	154	KP1=	142	TAN1=	-0.9889	-0.1483 0.0000
		KP2=	143	TAN2=	0.9889	0.1483 0.0000
LINE CONNECTS KEYPOINTS		150	144			
LINE NO.=	155	KP1=	150	TAN1=	-0.1719	-0.9851 0.0000
		KP2=	144	TAN2=	0.1719	0.9851 0.0000
LINE CONNECTS KEYPOINTS		69	70			
LINE NO.=	156	KP1=	69	TAN1=	0.0000	-1.0000 0.0000
		KP2=	70	TAN2=	0.0000	1.0000 0.0000
LINE CONNECTS KEYPOINTS		18	85			
LINE NO.=	157	KP1=	18	TAN1=	0.0000	-1.0000 0.0000
		KP2=	85	TAN2=	0.0000	1.0000 0.0000
LINE CONNECTS KEYPOINTS		19	25			
LINE NO.=	158	KP1=	19	TAN1=	0.0000	-1.0000 0.0000
		KP2=	25	TAN2=	0.0000	1.0000 0.0000
LINE CONNECTS KEYPOINTS		18	19			
LINE NO.=	159	KP1=	18	TAN1=	-1.0000	0.0000 0.0000
		KP2=	19	TAN2=	1.0000	0.0000 0.0000
LINE CONNECTS KEYPOINTS		85	25			

LINE NO.= 160	KP1= 85	TAN1= -1.0000	0.0000	0.0000
	KP2= 25	TAN2= 1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 20 26				
LINE NO.= 161	KP1= 20	TAN1= 0.0000	-1.0000	0.0000
	KP2= 26	TAN2= 0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 21 27				
LINE NO.= 162	KP1= 21	TAN1= 0.0000	-1.0000	0.0000
	KP2= 27	TAN2= 0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 20 21				
LINE NO.= 163	KP1= 20	TAN1= -1.0000	0.0000	0.0000
	KP2= 21	TAN2= 1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 26 27				
LINE NO.= 164	KP1= 26	TAN1= -1.0000	0.0000	0.0000
	KP2= 27	TAN2= 1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 22 28				
LINE NO.= 165	KP1= 22	TAN1= 0.0000	-1.0000	0.0000
	KP2= 28	TAN2= 0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 22 23				
LINE NO.= 166	KP1= 22	TAN1= -0.9889	0.1483	0.0000
	KP2= 23	TAN2= 0.9889	-0.1483	0.0000
LINE CONNECTS KEYPOINTS 28 29				
LINE NO.= 167	KP1= 28	TAN1= -0.9889	-0.1483	0.0000
	KP2= 29	TAN2= 0.9889	0.1483	0.0000
LINE CONNECTS KEYPOINTS 23 29				
LINE NO.= 168	KP1= 23	TAN1= 0.0000	-1.0000	0.0000
	KP2= 29	TAN2= 0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 24 30				
LINE NO.= 169	KP1= 24	TAN1= 0.1719	-0.9851	0.0000
	KP2= 30	TAN2= -0.1719	0.9851	0.0000
LINE CONNECTS KEYPOINTS 73 74				
LINE NO.= 170	KP1= 73	TAN1= 0.0000	-1.0000	0.0000
	KP2= 74	TAN2= 0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 86 87				
LINE NO.= 171	KP1= 86	TAN1= 0.0000	-1.0000	0.0000
	KP2= 87	TAN2= 0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 92 93				
LINE NO.= 172	KP1= 92	TAN1= 0.0000	-1.0000	0.0000
	KP2= 93	TAN2= 0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 86 92				
LINE NO.= 173	KP1= 86	TAN1= -1.0000	0.0000	0.0000
	KP2= 92	TAN2= 1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 87 93				
LINE NO.= 174	KP1= 87	TAN1= -1.0000	0.0000	0.0000
	KP2= 93	TAN2= 1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 39 106				
LINE NO.= 175	KP1= 39	TAN1= 0.0000	-1.0000	0.0000
	KP2= 106	TAN2= 0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 40 42				
LINE NO.= 176	KP1= 40	TAN1= -0.2873	-0.9578	0.0000
	KP2= 42	TAN2= 0.2873	0.9578	0.0000
LINE CONNECTS KEYPOINTS 39 40				
LINE NO.= 177	KP1= 39	TAN1= -1.0000	0.0000	0.0000
	KP2= 40	TAN2= 1.0000	0.0000	0.0000

LINE CONNECTS KEYPOINTS	106	42			
LINE NO.= 178	KP1= 106	TAN1= -0.9578	-0.2873	0.0000	
	KP2= 42	TAN2= 0.9578	0.2873	0.0000	
LINE CONNECTS KEYPOINTS	38	41			
LINE NO.= 179	KP1= 38	TAN1= 0.5076	-0.8616	0.0000	
	KP2= 41	TAN2= -0.5076	0.8616	0.0000	
LINE CONNECTS KEYPOINTS	41	43			
LINE NO.= 180	KP1= 41	TAN1= 0.5174	-0.8558	0.0000	
	KP2= 43	TAN2= -0.5174	0.8558	0.0000	
LINE CONNECTS KEYPOINTS	77	78			
LINE NO.= 181	KP1= 77	TAN1= 0.0000	-1.0000	0.0000	
	KP2= 78	TAN2= 0.0000	1.0000	0.0000	
LINE CONNECTS KEYPOINTS	88	89			
LINE NO.= 182	KP1= 88	TAN1= 0.1483	-0.9889	0.0000	
	KP2= 89	TAN2= -0.1483	0.9889	0.0000	
LINE CONNECTS KEYPOINTS	94	95			
LINE NO.= 183	KP1= 94	TAN1= -0.1483	-0.9889	0.0000	
	KP2= 95	TAN2= 0.1483	0.9889	0.0000	
LINE CONNECTS KEYPOINTS	88	94			
LINE NO.= 184	KP1= 88	TAN1= -1.0000	0.0000	0.0000	
	KP2= 94	TAN2= 1.0000	0.0000	0.0000	
LINE CONNECTS KEYPOINTS	89	95			
LINE NO.= 185	KP1= 89	TAN1= -1.0000	0.0000	0.0000	
	KP2= 95	TAN2= 1.0000	0.0000	0.0000	
LINE CONNECTS KEYPOINTS	90	96			
LINE NO.= 186	KP1= 90	TAN1= -0.9851	0.1719	0.0000	
	KP2= 96	TAN2= 0.9851	-0.1719	0.0000	
LINE CONNECTS KEYPOINTS	109	107			
LINE NO.= 187	KP1= 109	TAN1= 0.8558	-0.5174	0.0000	
	KP2= 107	TAN2= -0.8558	0.5174	0.0000	
LINE CONNECTS KEYPOINTS	107	104			
LINE NO.= 188	KP1= 107	TAN1= 0.8616	-0.5076	0.0000	
	KP2= 104	TAN2= -0.8616	0.5076	0.0000	
LINE CONNECTS KEYPOINTS	224	225			
LINE NO.= 189	KP1= 224	TAN1= -0.9851	-0.1719	0.0000	
	KP2= 225	TAN2= 0.9851	0.1719	0.0000	
LINE CONNECTS KEYPOINTS	230	231			
LINE NO.= 190	KP1= 230	TAN1= -0.9851	-0.1719	0.0000	
	KP2= 231	TAN2= 0.9851	0.1719	0.0000	
LINE CONNECTS KEYPOINTS	236	237			
LINE NO.= 191	KP1= 236	TAN1= -0.9851	-0.1719	0.0000	
	KP2= 237	TAN2= 0.9851	0.1719	0.0000	
LINE CONNECTS KEYPOINTS	226	227			
LINE NO.= 192	KP1= 226	TAN1= -0.8616	-0.5076	0.0000	
	KP2= 227	TAN2= 0.8616	0.5076	0.0000	
LINE CONNECTS KEYPOINTS	227	228			
LINE NO.= 193	KP1= 227	TAN1= -0.8558	-0.5174	0.0000	
	KP2= 228	TAN2= 0.8558	0.5174	0.0000	
LINE CONNECTS KEYPOINTS	232	233			
LINE NO.= 194	KP1= 232	TAN1= -0.8616	-0.5076	0.0000	
	KP2= 233	TAN2= 0.8616	0.5076	0.0000	
LINE CONNECTS KEYPOINTS	233	234			

LINE NO.=	195	KP1=	233	TAN1=	-0.8558	-0.5174	0.0000
		KP2=	234	TAN2=	0.8558	0.5174	0.0000
LINE CONNECTS KEYPOINTS			238	239			
LINE NO.=	196	KP1=	238	TAN1=	-0.8616	-0.5076	0.0000
		KP2=	239	TAN2=	0.8616	0.5076	0.0000
LINE CONNECTS KEYPOINTS			239	240			
LINE NO.=	197	KP1=	239	TAN1=	-0.8558	-0.5174	0.0000
		KP2=	240	TAN2=	0.8558	0.5174	0.0000
LINE CONNECTS KEYPOINTS			171	170			
LINE NO.=	198	KP1=	171	TAN1=	-0.5174	-0.8558	0.0000
		KP2=	170	TAN2=	0.5174	0.8558	0.0000
LINE CONNECTS KEYPOINTS			170	169			
LINE NO.=	199	KP1=	170	TAN1=	-0.5076	-0.8616	0.0000
		KP2=	169	TAN2=	0.5076	0.8616	0.0000
LINE CONNECTS KEYPOINTS			178	177			
LINE NO.=	200	KP1=	178	TAN1=	-0.5174	-0.8558	0.0000
		KP2=	177	TAN2=	0.5174	0.8558	0.0000
LINE CONNECTS KEYPOINTS			177	176			
LINE NO.=	201	KP1=	177	TAN1=	-0.5076	-0.8616	0.0000
		KP2=	176	TAN2=	0.5076	0.8616	0.0000
LINE CONNECTS KEYPOINTS			185	184			
LINE NO.=	202	KP1=	185	TAN1=	-0.5174	-0.8558	0.0000
		KP2=	184	TAN2=	0.5174	0.8558	0.0000
LINE CONNECTS KEYPOINTS			184	183			
LINE NO.=	203	KP1=	184	TAN1=	-0.5076	-0.8616	0.0000
		KP2=	183	TAN2=	0.5076	0.8616	0.0000
LINE CONNECTS KEYPOINTS			168	167			
LINE NO.=	204	KP1=	168	TAN1=	-0.1719	-0.9851	0.0000
		KP2=	167	TAN2=	0.1719	0.9851	0.0000
LINE CONNECTS KEYPOINTS			175	174			
LINE NO.=	205	KP1=	175	TAN1=	-0.1719	-0.9851	0.0000
		KP2=	174	TAN2=	0.1719	0.9851	0.0000
LINE CONNECTS KEYPOINTS			182	181			
LINE NO.=	206	KP1=	182	TAN1=	-0.1719	-0.9851	0.0000
		KP2=	181	TAN2=	0.1719	0.9851	0.0000
LINE CONNECTS KEYPOINTS			47	48			
LINE NO.=	207	KP1=	47	TAN1=	0.1719	-0.9851	0.0000
		KP2=	48	TAN2=	-0.1719	0.9851	0.0000
LINE CONNECTS KEYPOINTS			54	55			
LINE NO.=	208	KP1=	54	TAN1=	0.1719	-0.9851	0.0000
		KP2=	55	TAN2=	-0.1719	0.9851	0.0000
LINE CONNECTS KEYPOINTS			61	62			
LINE NO.=	209	KP1=	61	TAN1=	0.1719	-0.9851	0.0000
		KP2=	62	TAN2=	-0.1719	0.9851	0.0000
LINE CONNECTS KEYPOINTS			49	50			
LINE NO.=	210	KP1=	49	TAN1=	0.5076	-0.8616	0.0000
		KP2=	50	TAN2=	-0.5076	0.8616	0.0000
LINE CONNECTS KEYPOINTS			50	51			
LINE NO.=	211	KP1=	50	TAN1=	0.5174	-0.8558	0.0000
		KP2=	51	TAN2=	-0.5174	0.8558	0.0000
LINE CONNECTS KEYPOINTS			56	57			
LINE NO.=	212	KP1=	56	TAN1=	0.5076	-0.8616	0.0000
		KP2=	57	TAN2=	-0.5076	0.8616	0.0000

LINE CONNECTS KEYPOINTS 57 58
 LINE NO.= 213 KP1= 57 TAN1= 0.5174 -0.8558 0.0000
 KP2= 58 TAN2= -0.5174 0.8558 0.0000

LINE CONNECTS KEYPOINTS 63 64
 LINE NO.= 214 KP1= 63 TAN1= 0.5076 -0.8616 0.0000
 KP2= 64 TAN2= -0.5076 0.8616 0.0000

LINE CONNECTS KEYPOINTS 64 65
 LINE NO.= 215 KP1= 64 TAN1= 0.5174 -0.8558 0.0000
 KP2= 65 TAN2= -0.5174 0.8558 0.0000

LINE CONNECTS KEYPOINTS 117 116
 LINE NO.= 216 KP1= 117 TAN1= 0.8558 -0.5174 0.0000
 KP2= 116 TAN2= -0.8558 0.5174 0.0000

LINE CONNECTS KEYPOINTS 116 115
 LINE NO.= 217 KP1= 116 TAN1= 0.8616 -0.5076 0.0000
 KP2= 115 TAN2= -0.8616 0.5076 0.0000

LINE CONNECTS KEYPOINTS 124 123
 LINE NO.= 218 KP1= 124 TAN1= 0.8558 -0.5174 0.0000
 KP2= 123 TAN2= -0.8558 0.5174 0.0000

LINE CONNECTS KEYPOINTS 123 122
 LINE NO.= 219 KP1= 123 TAN1= 0.8616 -0.5076 0.0000
 KP2= 122 TAN2= -0.8616 0.5076 0.0000

LINE CONNECTS KEYPOINTS 131 130
 LINE NO.= 220 KP1= 131 TAN1= 0.8558 -0.5174 0.0000
 KP2= 130 TAN2= -0.8558 0.5174 0.0000

LINE CONNECTS KEYPOINTS 130 129
 LINE NO.= 221 KP1= 130 TAN1= 0.8616 -0.5076 0.0000
 KP2= 129 TAN2= -0.8616 0.5076 0.0000

LINE CONNECTS KEYPOINTS 114 113
 LINE NO.= 222 KP1= 114 TAN1= 0.9851 -0.1719 0.0000
 KP2= 113 TAN2= -0.9851 0.1719 0.0000

LINE CONNECTS KEYPOINTS 121 120
 LINE NO.= 223 KP1= 121 TAN1= 0.9851 -0.1719 0.0000
 KP2= 120 TAN2= -0.9851 0.1719 0.0000

LINE CONNECTS KEYPOINTS 128 127
 LINE NO.= 224 KP1= 128 TAN1= 0.9851 -0.1719 0.0000
 KP2= 127 TAN2= -0.9851 0.1719 0.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
 TO NDIV = 2, SPACING RATIO = 1.000
 line set 7 tube thickness

LINE CONNECTS KEYPOINTS 196 195
 LINE NO.= 225 KP1= 196 TAN1= 0.0000 -1.0000 0.0000
 KP2= 195 TAN2= 0.0000 1.0000 0.0000

LINE CONNECTS KEYPOINTS 205 201
 LINE NO.= 226 KP1= 205 TAN1= 0.7071 -0.7071 0.0000
 KP2= 201 TAN2= -0.7071 0.7071 0.0000

LINE CONNECTS KEYPOINTS 204 200
 LINE NO.= 227 KP1= 204 TAN1= 0.7071 0.7071 0.0000
 KP2= 200 TAN2= -0.7071 -0.7071 0.0000

LINE CONNECTS KEYPOINTS 193 194
 LINE NO.= 228 KP1= 193 TAN1= 0.0000 1.0000 0.0000
 KP2= 194 TAN2= 0.0000 -1.0000 0.0000

LINE CONNECTS KEYPOINTS 210 215

LINE NO.=	229	KP1=	210	TAN1=	-0.7071	-0.7071	0.0000
		KP2=	215	TAN2=	0.7071	0.7071	0.0000
LINE CONNECTS KEYPOINTS 220 217							
LINE NO.=	230	KP1=	220	TAN1=	0.6103	-0.7922	0.0000
		KP2=	217	TAN2=	-0.6103	0.7922	0.0000
LINE CONNECTS KEYPOINTS 219 216							
LINE NO.=	231	KP1=	219	TAN1=	0.7071	0.7071	0.0000
		KP2=	216	TAN2=	-0.7071	-0.7071	0.0000
LINE CONNECTS KEYPOINTS 209 214							
LINE NO.=	232	KP1=	209	TAN1=	-0.7071	0.7071	0.0000
		KP2=	214	TAN2=	0.7071	-0.7071	0.0000
LINE CONNECTS KEYPOINTS 192 191							
LINE NO.=	233	KP1=	192	TAN1=	0.0000	-1.0000	0.0000
		KP2=	191	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 203 199							
LINE NO.=	234	KP1=	203	TAN1=	0.7071	-0.7071	0.0000
		KP2=	199	TAN2=	-0.7071	0.7071	0.0000
LINE CONNECTS KEYPOINTS 202 198							
LINE NO.=	235	KP1=	202	TAN1=	0.7071	0.7071	0.0000
		KP2=	198	TAN2=	-0.7071	-0.7071	0.0000
LINE CONNECTS KEYPOINTS 189 190							
LINE NO.=	236	KP1=	189	TAN1=	0.0000	1.0000	0.0000
		KP2=	190	TAN2=	0.0000	-1.0000	0.0000
LINE CONNECTS KEYPOINTS 208 213							
LINE NO.=	237	KP1=	208	TAN1=	-0.7071	-0.7071	0.0000
		KP2=	213	TAN2=	0.7071	0.7071	0.0000
LINE CONNECTS KEYPOINTS 159 155							
LINE NO.=	238	KP1=	159	TAN1=	0.7071	-0.7071	0.0000
		KP2=	155	TAN2=	-0.7071	0.7071	0.0000
LINE CONNECTS KEYPOINTS 146 152							
LINE NO.=	239	KP1=	146	TAN1=	0.7071	0.7071	0.0000
		KP2=	152	TAN2=	-0.7071	-0.7071	0.0000
LINE CONNECTS KEYPOINTS 145 151							
LINE NO.=	240	KP1=	145	TAN1=	-0.7071	0.7071	0.0000
		KP2=	151	TAN2=	0.7071	-0.7071	0.0000
LINE CONNECTS KEYPOINTS 160 156							
LINE NO.=	241	KP1=	160	TAN1=	-0.7071	-0.7071	0.0000
		KP2=	156	TAN2=	0.7071	0.7071	0.0000
LINE CONNECTS KEYPOINTS 161 157							
LINE NO.=	242	KP1=	161	TAN1=	0.7922	-0.6103	0.0000
		KP2=	157	TAN2=	-0.7922	0.6103	0.0000
LINE CONNECTS KEYPOINTS 148 154							
LINE NO.=	243	KP1=	148	TAN1=	0.7071	0.7071	0.0000
		KP2=	154	TAN2=	-0.7071	-0.7071	0.0000
LINE CONNECTS KEYPOINTS 147 153							
LINE NO.=	244	KP1=	147	TAN1=	-0.7071	0.7071	0.0000
		KP2=	153	TAN2=	0.7071	-0.7071	0.0000
LINE CONNECTS KEYPOINTS 188 187							
LINE NO.=	245	KP1=	188	TAN1=	0.0000	-1.0000	0.0000
		KP2=	187	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 138 133							
LINE NO.=	246	KP1=	138	TAN1=	0.7071	-0.7071	0.0000
		KP2=	133	TAN2=	-0.7071	0.7071	0.0000

LINE CONNECTS KEYPOINTS		18	13			
LINE NO.=	247	KP1=	18	TAN1=	0.7071	0.7071 0.0000
		KP2=	13	TAN2=	-0.7071	-0.7071 0.0000
LINE CONNECTS KEYPOINTS		69	68			
LINE NO.=	248	KP1=	69	TAN1=	0.0000	1.0000 0.0000
		KP2=	68	TAN2=	0.0000	-1.0000 0.0000
LINE CONNECTS KEYPOINTS		139	134			
LINE NO.=	249	KP1=	139	TAN1=	-0.7071	-0.7071 0.0000
		KP2=	134	TAN2=	0.7071	0.7071 0.0000
LINE CONNECTS KEYPOINTS		140	135			
LINE NO.=	250	KP1=	140	TAN1=	0.7071	-0.7071 0.0000
		KP2=	135	TAN2=	-0.7071	0.7071 0.0000
LINE CONNECTS KEYPOINTS		20	15			
LINE NO.=	251	KP1=	20	TAN1=	0.7071	0.7071 0.0000
		KP2=	15	TAN2=	-0.7071	-0.7071 0.0000
LINE CONNECTS KEYPOINTS		19	14			
LINE NO.=	252	KP1=	19	TAN1=	-0.7071	0.7071 0.0000
		KP2=	14	TAN2=	0.7071	-0.7071 0.0000
LINE CONNECTS KEYPOINTS		141	136			
LINE NO.=	253	KP1=	141	TAN1=	-0.7071	-0.7071 0.0000
		KP2=	136	TAN2=	0.7071	0.7071 0.0000
LINE CONNECTS KEYPOINTS		142	137			
LINE NO.=	254	KP1=	142	TAN1=	0.7071	-0.7071 0.0000
		KP2=	137	TAN2=	-0.7071	0.7071 0.0000
LINE CONNECTS KEYPOINTS		22	17			
LINE NO.=	255	KP1=	22	TAN1=	0.7071	0.7071 0.0000
		KP2=	17	TAN2=	-0.7071	-0.7071 0.0000
LINE CONNECTS KEYPOINTS		21	16			
LINE NO.=	256	KP1=	21	TAN1=	-0.7071	0.7071 0.0000
		KP2=	16	TAN2=	0.7071	-0.7071 0.0000
LINE CONNECTS KEYPOINTS		70	71			
LINE NO.=	257	KP1=	70	TAN1=	0.0000	-1.0000 0.0000
		KP2=	71	TAN2=	0.0000	1.0000 0.0000
LINE CONNECTS KEYPOINTS		85	80			
LINE NO.=	258	KP1=	85	TAN1=	0.7071	-0.7071 0.0000
		KP2=	80	TAN2=	-0.7071	0.7071 0.0000
LINE CONNECTS KEYPOINTS		86	81			
LINE NO.=	259	KP1=	86	TAN1=	0.7071	0.7071 0.0000
		KP2=	81	TAN2=	-0.7071	-0.7071 0.0000
LINE CONNECTS KEYPOINTS		73	72			
LINE NO.=	260	KP1=	73	TAN1=	0.0000	1.0000 0.0000
		KP2=	72	TAN2=	0.0000	-1.0000 0.0000
LINE CONNECTS KEYPOINTS		25	31			
LINE NO.=	261	KP1=	25	TAN1=	-0.7071	-0.7071 0.0000
		KP2=	31	TAN2=	0.7071	0.7071 0.0000
LINE CONNECTS KEYPOINTS		26	32			
LINE NO.=	262	KP1=	26	TAN1=	0.7071	-0.7071 0.0000
		KP2=	32	TAN2=	-0.7071	0.7071 0.0000
LINE CONNECTS KEYPOINTS		39	35			
LINE NO.=	263	KP1=	39	TAN1=	0.7071	0.7071 0.0000
		KP2=	35	TAN2=	-0.7071	-0.7071 0.0000
LINE CONNECTS KEYPOINTS		92	98			

LINE NO.= 264 KP1= 92 TAN1= -0.7071 0.7071 0.0000
 KP2= 98 TAN2= 0.7071 -0.7071 0.0000

LINE CONNECTS KEYPOINTS 27 33
 LINE NO.= 265 KP1= 27 TAN1= -0.7071 -0.7071 0.0000
 KP2= 33 TAN2= 0.7071 0.7071 0.0000

LINE CONNECTS KEYPOINTS 28 34
 LINE NO.= 266 KP1= 28 TAN1= 0.7071 -0.7071 0.0000
 KP2= 34 TAN2= -0.7071 0.7071 0.0000

LINE CONNECTS KEYPOINTS 41 37
 LINE NO.= 267 KP1= 41 TAN1= 0.7922 0.6103 0.0000
 KP2= 37 TAN2= -0.7922 -0.6103 0.0000

LINE CONNECTS KEYPOINTS 40 36
 LINE NO.= 268 KP1= 40 TAN1= -0.7071 0.7071 0.0000
 KP2= 36 TAN2= 0.7071 -0.7071 0.0000

LINE CONNECTS KEYPOINTS 74 75
 LINE NO.= 269 KP1= 74 TAN1= 0.0000 -1.0000 0.0000
 KP2= 75 TAN2= 0.0000 1.0000 0.0000

LINE CONNECTS KEYPOINTS 87 82
 LINE NO.= 270 KP1= 87 TAN1= 0.7071 -0.7071 0.0000
 KP2= 82 TAN2= -0.7071 0.7071 0.0000

LINE CONNECTS KEYPOINTS 88 83
 LINE NO.= 271 KP1= 88 TAN1= 0.7071 0.7071 0.0000
 KP2= 83 TAN2= -0.7071 -0.7071 0.0000

LINE CONNECTS KEYPOINTS 77 76
 LINE NO.= 272 KP1= 77 TAN1= 0.0000 1.0000 0.0000
 KP2= 76 TAN2= 0.0000 -1.0000 0.0000

LINE CONNECTS KEYPOINTS 93 99
 LINE NO.= 273 KP1= 93 TAN1= -0.7071 -0.7071 0.0000
 KP2= 99 TAN2= 0.7071 0.7071 0.0000

LINE CONNECTS KEYPOINTS 106 102
 LINE NO.= 274 KP1= 106 TAN1= 0.7071 -0.7071 0.0000
 KP2= 102 TAN2= -0.7071 0.7071 0.0000

LINE CONNECTS KEYPOINTS 107 103
 LINE NO.= 275 KP1= 107 TAN1= 0.6103 0.7922 0.0000
 KP2= 103 TAN2= -0.6103 -0.7922 0.0000

LINE CONNECTS KEYPOINTS 94 100
 LINE NO.= 276 KP1= 94 TAN1= -0.7071 0.7071 0.0000
 KP2= 100 TAN2= 0.7071 -0.7071 0.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
 TO NDIV = 1, SPACING RATIO = 1.000

ACTIVE COORDINATE SYSTEM SET TO 1 (CYLINDRICAL)
 line set 8, arc 1 bottom

LINE CONNECTS KEYPOINTS 222 207
 LINE NO.= 277 KP1= 222 TAN1= -1.0000 0.0000 0.0000
 KP2= 207 TAN2= 0.9857 0.1684 0.0000

LINE CONNECTS KEYPOINTS 223 224
 LINE NO.= 278 KP1= 223 TAN1= -1.0000 0.0000 0.0000
 KP2= 224 TAN2= 0.9857 0.1684 0.0000

LINE CONNECTS KEYPOINTS 229 230
 LINE NO.= 279 KP1= 229 TAN1= -1.0000 0.0000 0.0000
 KP2= 230 TAN2= 0.9857 0.1684 0.0000

LINE CONNECTS KEYPOINTS 235 236

LINE NO.= 280 KP1= 235 TAN1= -1.0000 0.0000 0.0000
 KP2= 236 TAN2= 0.9857 0.1684 0.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
 TO NDIV = 4, SPACING RATIO = 1.000
 line set 9, arc 2 side arcs

LINE CONNECTS KEYPOINTS 212 218
 LINE NO.= 281 KP1= 212 TAN1= -0.9845 -0.1755 0.0000
 KP2= 218 TAN2= 0.8652 0.5015 0.0000

LINE CONNECTS KEYPOINTS 225 226
 LINE NO.= 282 KP1= 225 TAN1= -0.9845 -0.1755 0.0000
 KP2= 226 TAN2= 0.8652 0.5015 0.0000

LINE CONNECTS KEYPOINTS 231 232
 LINE NO.= 283 KP1= 231 TAN1= -0.9845 -0.1755 0.0000
 KP2= 232 TAN2= 0.8652 0.5015 0.0000

LINE CONNECTS KEYPOINTS 237 238
 LINE NO.= 284 KP1= 237 TAN1= -0.9845 -0.1755 0.0000
 KP2= 238 TAN2= 0.8652 0.5015 0.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
 TO NDIV = 4, SPACING RATIO = 1.000
 line set 10, arc 3 side arcs

LINE CONNECTS KEYPOINTS 221 163
 LINE NO.= 285 KP1= 221 TAN1= -0.8536 -0.5209 0.0000
 KP2= 163 TAN2= 0.5209 0.8536 0.0000

LINE CONNECTS KEYPOINTS 228 171
 LINE NO.= 286 KP1= 228 TAN1= -0.8536 -0.5209 0.0000
 KP2= 171 TAN2= 0.5209 0.8536 0.0000

LINE CONNECTS KEYPOINTS 234 178
 LINE NO.= 287 KP1= 234 TAN1= -0.8536 -0.5209 0.0000
 KP2= 178 TAN2= 0.5209 0.8536 0.0000

LINE CONNECTS KEYPOINTS 240 185
 LINE NO.= 288 KP1= 240 TAN1= -0.8536 -0.5209 0.0000
 KP2= 185 TAN2= 0.5209 0.8536 0.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
 TO NDIV = 4, SPACING RATIO = 1.000
 line set 11, arc 4 side arcs

LINE CONNECTS KEYPOINTS 158 150
 LINE NO.= 289 KP1= 158 TAN1= -0.5015 -0.8652 0.0000
 KP2= 150 TAN2= 0.1755 0.9845 0.0000

LINE CONNECTS KEYPOINTS 169 168
 LINE NO.= 290 KP1= 169 TAN1= -0.5015 -0.8652 0.0000
 KP2= 168 TAN2= 0.1755 0.9845 0.0000

LINE CONNECTS KEYPOINTS 176 175
 LINE NO.= 291 KP1= 176 TAN1= -0.5015 -0.8652 0.0000
 KP2= 175 TAN2= 0.1755 0.9845 0.0000

LINE CONNECTS KEYPOINTS 183 182
 LINE NO.= 292 KP1= 183 TAN1= -0.5015 -0.8652 0.0000
 KP2= 182 TAN2= 0.1755 0.9845 0.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
 TO NDIV = 4, SPACING RATIO = 1.000
 line set 12, arc 5 side arcs

LINE CONNECTS KEYPOINTS 144 24
 LINE NO.= 293 KP1= 144 TAN1= -0.1684 -0.9857 0.0000
 KP2= 24 TAN2= -0.1684 0.9857 0.0000

LINE CONNECTS KEYPOINTS 167 47
 LINE NO.= 294 KP1= 167 TAN1= -0.1684 -0.9857 0.0000
 KP2= 47 TAN2= -0.1684 0.9857 0.0000

LINE CONNECTS KEYPOINTS 174 54
 LINE NO.= 295 KP1= 174 TAN1= -0.1684 -0.9857 0.0000
 KP2= 54 TAN2= -0.1684 0.9857 0.0000

LINE CONNECTS KEYPOINTS 181 61
 LINE NO.= 296 KP1= 181 TAN1= -0.1684 -0.9857 0.0000
 KP2= 61 TAN2= -0.1684 0.9857 0.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
 TO NDIV = 4, SPACING RATIO = 1.000
 line set 13, arc 6 side arcs

LINE CONNECTS KEYPOINTS 30 38
 LINE NO.= 297 KP1= 30 TAN1= 0.1755 -0.9845 0.0000
 KP2= 38 TAN2= -0.5015 0.8652 0.0000

LINE CONNECTS KEYPOINTS 48 49
 LINE NO.= 298 KP1= 48 TAN1= 0.1755 -0.9845 0.0000
 KP2= 49 TAN2= -0.5015 0.8652 0.0000

LINE CONNECTS KEYPOINTS 55 56
 LINE NO.= 299 KP1= 55 TAN1= 0.1755 -0.9845 0.0000
 KP2= 56 TAN2= -0.5015 0.8652 0.0000

LINE CONNECTS KEYPOINTS 62 63
 LINE NO.= 300 KP1= 62 TAN1= 0.1755 -0.9845 0.0000
 KP2= 63 TAN2= -0.5015 0.8652 0.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
 TO NDIV = 4, SPACING RATIO = 1.000
 line set 14, arc 7 side arcs

LINE CONNECTS KEYPOINTS 43 109
 LINE NO.= 301 KP1= 43 TAN1= 0.5209 -0.8536 0.0000
 KP2= 109 TAN2= -0.8536 0.5209 0.0000

LINE CONNECTS KEYPOINTS 51 117
 LINE NO.= 302 KP1= 51 TAN1= 0.5209 -0.8536 0.0000
 KP2= 117 TAN2= -0.8536 0.5209 0.0000

LINE CONNECTS KEYPOINTS 58 124
 LINE NO.= 303 KP1= 58 TAN1= 0.5209 -0.8536 0.0000
 KP2= 124 TAN2= -0.8536 0.5209 0.0000

LINE CONNECTS KEYPOINTS 65 131
 LINE NO.= 304 KP1= 65 TAN1= 0.5209 -0.8536 0.0000
 KP2= 131 TAN2= -0.8536 0.5209 0.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
 TO NDIV = 4, SPACING RATIO = 1.000
 line set 15, arc 8 side arcs

LINE CONNECTS KEYPOINTS 104 96
 LINE NO.= 305 KP1= 104 TAN1= 0.8652 -0.5015 0.0000
 KP2= 96 TAN2= -0.9845 0.1755 0.0000

LINE CONNECTS KEYPOINTS 115 114
 LINE NO.= 306 KP1= 115 TAN1= 0.8652 -0.5015 0.0000
 KP2= 114 TAN2= -0.9845 0.1755 0.0000

LINE CONNECTS KEYPOINTS 122 121
 LINE NO.= 307 KP1= 122 TAN1= 0.8652 -0.5015 0.0000
 KP2= 121 TAN2= -0.9845 0.1755 0.0000

LINE CONNECTS KEYPOINTS 129 128

LINE NO.= 308 KP1= 129 TAN1= 0.8652 -0.5015 0.0000
 KP2= 128 TAN2= -0.9845 0.1755 0.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
 TO NDIV = 4, SPACING RATIO = 1.000
 line set 16, arc 9 top arcs

LINE CONNECTS KEYPOINTS 90 110
 LINE NO.= 309 KP1= 90 TAN1= 0.9857 -0.1684 0.0000
 KP2= 110 TAN2= -1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 113 112
 LINE NO.= 310 KP1= 113 TAN1= 0.9857 -0.1684 0.0000
 KP2= 112 TAN2= -1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 120 119
 LINE NO.= 311 KP1= 120 TAN1= 0.9857 -0.1684 0.0000
 KP2= 119 TAN2= -1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 127 126
 LINE NO.= 312 KP1= 127 TAN1= 0.9857 -0.1684 0.0000
 KP2= 126 TAN2= -1.0000 0.0000 0.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
 TO NDIV = 4, SPACING RATIO = 1.000

ACTIVE COORDINATE SYSTEM SET TO 0 (CARTESIAN)
 line set 17 IB thickness

LINE CONNECTS KEYPOINTS 222 223
 LINE NO.= 313 KP1= 222 TAN1= 0.0000 1.0000 0.0000
 KP2= 223 TAN2= 0.0000 -1.0000 0.0000

LINE CONNECTS KEYPOINTS 207 224
 LINE NO.= 314 KP1= 207 TAN1= -0.1684 0.9857 0.0000
 KP2= 224 TAN2= 0.1684 -0.9857 0.0000

LINE CONNECTS KEYPOINTS 212 225
 LINE NO.= 315 KP1= 212 TAN1= -0.1755 0.9845 0.0000
 KP2= 225 TAN2= 0.1755 -0.9845 0.0000

LINE CONNECTS KEYPOINTS 218 226
 LINE NO.= 316 KP1= 218 TAN1= -0.5015 0.8652 0.0000
 KP2= 226 TAN2= 0.5015 -0.8652 0.0000

LINE CONNECTS KEYPOINTS 220 227
 LINE NO.= 317 KP1= 220 TAN1= -0.5138 0.8579 0.0000
 KP2= 227 TAN2= 0.5138 -0.8579 0.0000

LINE CONNECTS KEYPOINTS 221 228
 LINE NO.= 318 KP1= 221 TAN1= -0.5209 0.8536 0.0000
 KP2= 228 TAN2= 0.5209 -0.8536 0.0000

LINE CONNECTS KEYPOINTS 163 171
 LINE NO.= 319 KP1= 163 TAN1= -0.8536 0.5209 0.0000
 KP2= 171 TAN2= 0.8536 -0.5209 0.0000

LINE CONNECTS KEYPOINTS 161 170
 LINE NO.= 320 KP1= 161 TAN1= -0.8579 0.5138 0.0000
 KP2= 170 TAN2= 0.8579 -0.5138 0.0000

LINE CONNECTS KEYPOINTS 158 169
 LINE NO.= 321 KP1= 158 TAN1= -0.8652 0.5015 0.0000
 KP2= 169 TAN2= 0.8652 -0.5015 0.0000

LINE CONNECTS KEYPOINTS 150 168
 LINE NO.= 322 KP1= 150 TAN1= -0.9845 0.1755 0.0000
 KP2= 168 TAN2= 0.9845 -0.1755 0.0000

LINE CONNECTS KEYPOINTS 144 167

LINE NO. =	323	KP1=	144	TAN1=	-0.9857	0.1684	0.0000
		KP2=	167	TAN2=	0.9857	-0.1684	0.0000
LINE CONNECTS KEYPOINTS 24 47							
LINE NO. =	324	KP1=	24	TAN1=	-0.9857	-0.1684	0.0000
		KP2=	47	TAN2=	0.9857	0.1684	0.0000
LINE CONNECTS KEYPOINTS 30 48							
LINE NO. =	325	KP1=	30	TAN1=	-0.9845	-0.1755	0.0000
		KP2=	48	TAN2=	0.9845	0.1755	0.0000
LINE CONNECTS KEYPOINTS 38 49							
LINE NO. =	326	KP1=	38	TAN1=	-0.8652	-0.5015	0.0000
		KP2=	49	TAN2=	0.8652	0.5015	0.0000
LINE CONNECTS KEYPOINTS 41 50							
LINE NO. =	327	KP1=	41	TAN1=	-0.8579	-0.5138	0.0000
		KP2=	50	TAN2=	0.8579	0.5138	0.0000
LINE CONNECTS KEYPOINTS 43 51							
LINE NO. =	328	KP1=	43	TAN1=	-0.8536	-0.5209	0.0000
		KP2=	51	TAN2=	0.8536	0.5209	0.0000
LINE CONNECTS KEYPOINTS 109 117							
LINE NO. =	329	KP1=	109	TAN1=	-0.5209	-0.8536	0.0000
		KP2=	117	TAN2=	0.5209	0.8536	0.0000
LINE CONNECTS KEYPOINTS 107 116							
LINE NO. =	330	KP1=	107	TAN1=	-0.5138	-0.8579	0.0000
		KP2=	116	TAN2=	0.5138	0.8579	0.0000
LINE CONNECTS KEYPOINTS 104 115							
LINE NO. =	331	KP1=	104	TAN1=	-0.5015	-0.8652	0.0000
		KP2=	115	TAN2=	0.5015	0.8652	0.0000
LINE CONNECTS KEYPOINTS 96 114							
LINE NO. =	332	KP1=	96	TAN1=	-0.1755	-0.9845	0.0000
		KP2=	114	TAN2=	0.1755	0.9845	0.0000
LINE CONNECTS KEYPOINTS 90 113							
LINE NO. =	333	KP1=	90	TAN1=	-0.1684	-0.9857	0.0000
		KP2=	113	TAN2=	0.1684	0.9857	0.0000
LINE CONNECTS KEYPOINTS 110 112							
LINE NO. =	334	KP1=	110	TAN1=	0.0000	-1.0000	0.0000
		KP2=	112	TAN2=	0.0000	1.0000	0.0000
SET DIVISIONS ON ALL SELECTED UNMESHED LINES							
TO NDIV = 2, SPACING RATIO = 1.000							
Line set 18 OB inner thickness							
LINE CONNECTS KEYPOINTS 223 229							
LINE NO. =	335	KP1=	223	TAN1=	0.0000	1.0000	0.0000
		KP2=	229	TAN2=	0.0000	-1.0000	0.0000
LINE CONNECTS KEYPOINTS 224 230							
LINE NO. =	336	KP1=	224	TAN1=	-0.1684	0.9857	0.0000
		KP2=	230	TAN2=	0.1684	-0.9857	0.0000
LINE CONNECTS KEYPOINTS 225 231							
LINE NO. =	337	KP1=	225	TAN1=	-0.1755	0.9845	0.0000
		KP2=	231	TAN2=	0.1755	-0.9845	0.0000
LINE CONNECTS KEYPOINTS 226 232							
LINE NO. =	338	KP1=	226	TAN1=	-0.5015	0.8652	0.0000
		KP2=	232	TAN2=	0.5015	-0.8652	0.0000
LINE CONNECTS KEYPOINTS 227 233							
LINE NO. =	339	KP1=	227	TAN1=	-0.5138	0.8579	0.0000
		KP2=	233	TAN2=	0.5138	-0.8579	0.0000

LINE CONNECTS KEYPOINTS	228	234			
LINE NO.= 340 KP1=	228	TAN1=	-0.5209	0.8536	0.0000
KP2=	234	TAN2=	0.5209	-0.8536	0.0000
LINE CONNECTS KEYPOINTS	171	178			
LINE NO.= 341 KP1=	171	TAN1=	-0.8536	0.5209	0.0000
KP2=	178	TAN2=	0.8536	-0.5209	0.0000
LINE CONNECTS KEYPOINTS	170	177			
LINE NO.= 342 KP1=	170	TAN1=	-0.8579	0.5138	0.0000
KP2=	177	TAN2=	0.8579	-0.5138	0.0000
LINE CONNECTS KEYPOINTS	169	176			
LINE NO.= 343 KP1=	169	TAN1=	-0.8652	0.5015	0.0000
KP2=	176	TAN2=	0.8652	-0.5015	0.0000
LINE CONNECTS KEYPOINTS	168	175			
LINE NO.= 344 KP1=	168	TAN1=	-0.9845	0.1755	0.0000
KP2=	175	TAN2=	0.9845	-0.1755	0.0000
LINE CONNECTS KEYPOINTS	167	174			
LINE NO.= 345 KP1=	167	TAN1=	-0.9857	0.1684	0.0000
KP2=	174	TAN2=	0.9857	-0.1684	0.0000
LINE CONNECTS KEYPOINTS	47	54			
LINE NO.= 346 KP1=	47	TAN1=	-0.9857	-0.1684	0.0000
KP2=	54	TAN2=	0.9857	0.1684	0.0000
LINE CONNECTS KEYPOINTS	48	55			
LINE NO.= 347 KP1=	48	TAN1=	-0.9845	-0.1755	0.0000
KP2=	55	TAN2=	0.9845	0.1755	0.0000
LINE CONNECTS KEYPOINTS	49	56			
LINE NO.= 348 KP1=	49	TAN1=	-0.8652	-0.5015	0.0000
KP2=	56	TAN2=	0.8652	0.5015	0.0000
LINE CONNECTS KEYPOINTS	50	57			
LINE NO.= 349 KP1=	50	TAN1=	-0.8579	-0.5138	0.0000
KP2=	57	TAN2=	0.8579	0.5138	0.0000
LINE CONNECTS KEYPOINTS	51	58			
LINE NO.= 350 KP1=	51	TAN1=	-0.8536	-0.5209	0.0000
KP2=	58	TAN2=	0.8536	0.5209	0.0000
LINE CONNECTS KEYPOINTS	117	124			
LINE NO.= 351 KP1=	117	TAN1=	-0.5209	-0.8536	0.0000
KP2=	124	TAN2=	0.5209	0.8536	0.0000
LINE CONNECTS KEYPOINTS	116	123			
LINE NO.= 352 KP1=	116	TAN1=	-0.5138	-0.8579	0.0000
KP2=	123	TAN2=	0.5138	0.8579	0.0000
LINE CONNECTS KEYPOINTS	115	122			
LINE NO.= 353 KP1=	115	TAN1=	-0.5015	-0.8652	0.0000
KP2=	122	TAN2=	0.5015	0.8652	0.0000
LINE CONNECTS KEYPOINTS	114	121			
LINE NO.= 354 KP1=	114	TAN1=	-0.1755	-0.9845	0.0000
KP2=	121	TAN2=	0.1755	0.9845	0.0000
LINE CONNECTS KEYPOINTS	113	120			
LINE NO.= 355 KP1=	113	TAN1=	-0.1684	-0.9857	0.0000
KP2=	120	TAN2=	0.1684	0.9857	0.0000
LINE CONNECTS KEYPOINTS	112	119			
LINE NO.= 356 KP1=	112	TAN1=	0.0000	-1.0000	0.0000
KP2=	119	TAN2=	0.0000	1.0000	0.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES

TO NDIV = 2, SPACING RATIO = 1.000
line set 19 skirt thickness

LINE CONNECTS KEYPOINTS		229	235			
LINE NO.=	357	KP1=	229	TAN1=	0.0000	1.0000
		KP2=	235	TAN2=	0.0000	-1.0000
LINE CONNECTS KEYPOINTS		230	236			
LINE NO.=	358	KP1=	230	TAN1=	-0.1684	0.9857
		KP2=	236	TAN2=	0.1684	-0.9857
LINE CONNECTS KEYPOINTS		231	237			
LINE NO.=	359	KP1=	231	TAN1=	-0.1755	0.9845
		KP2=	237	TAN2=	0.1755	-0.9845
LINE CONNECTS KEYPOINTS		232	238			
LINE NO.=	360	KP1=	232	TAN1=	-0.5015	0.8652
		KP2=	238	TAN2=	0.5015	-0.8652
LINE CONNECTS KEYPOINTS		233	239			
LINE NO.=	361	KP1=	233	TAN1=	-0.5138	0.8579
		KP2=	239	TAN2=	0.5138	-0.8579
LINE CONNECTS KEYPOINTS		234	240			
LINE NO.=	362	KP1=	234	TAN1=	-0.5209	0.8536
		KP2=	240	TAN2=	0.5209	-0.8536
LINE CONNECTS KEYPOINTS		178	185			
LINE NO.=	363	KP1=	178	TAN1=	-0.8536	0.5209
		KP2=	185	TAN2=	0.8536	-0.5209
LINE CONNECTS KEYPOINTS		177	184			
LINE NO.=	364	KP1=	177	TAN1=	-0.8579	0.5138
		KP2=	184	TAN2=	0.8579	-0.5138
LINE CONNECTS KEYPOINTS		176	183			
LINE NO.=	365	KP1=	176	TAN1=	-0.8652	0.5015
		KP2=	183	TAN2=	0.8652	-0.5015
LINE CONNECTS KEYPOINTS		175	182			
LINE NO.=	366	KP1=	175	TAN1=	-0.9845	0.1755
		KP2=	182	TAN2=	0.9845	-0.1755
LINE CONNECTS KEYPOINTS		174	181			
LINE NO.=	367	KP1=	174	TAN1=	-0.9857	0.1684
		KP2=	181	TAN2=	0.9857	-0.1684
LINE CONNECTS KEYPOINTS		54	61			
LINE NO.=	368	KP1=	54	TAN1=	-0.9857	-0.1684
		KP2=	61	TAN2=	0.9857	0.1684
LINE CONNECTS KEYPOINTS		55	62			
LINE NO.=	369	KP1=	55	TAN1=	-0.9845	-0.1755
		KP2=	62	TAN2=	0.9845	0.1755
LINE CONNECTS KEYPOINTS		56	63			
LINE NO.=	370	KP1=	56	TAN1=	-0.8652	-0.5015
		KP2=	63	TAN2=	0.8652	0.5015
LINE CONNECTS KEYPOINTS		57	64			
LINE NO.=	371	KP1=	57	TAN1=	-0.8579	-0.5138
		KP2=	64	TAN2=	0.8579	0.5138
LINE CONNECTS KEYPOINTS		58	65			
LINE NO.=	372	KP1=	58	TAN1=	-0.8536	-0.5209
		KP2=	65	TAN2=	0.8536	0.5209
LINE CONNECTS KEYPOINTS		124	131			
LINE NO.=	373	KP1=	124	TAN1=	-0.5209	-0.8536
		KP2=	131	TAN2=	0.5209	0.8536

LINE CONNECTS KEYPOINTS 123 130
 LINE NO.= 374 KP1= 123 TAN1= -0.5138 -0.8579 0.0000
 KP2= 130 TAN2= 0.5138 0.8579 0.0000

LINE CONNECTS KEYPOINTS 122 129
 LINE NO.= 375 KP1= 122 TAN1= -0.5015 -0.8652 0.0000
 KP2= 129 TAN2= 0.5015 0.8652 0.0000

LINE CONNECTS KEYPOINTS 121 128
 LINE NO.= 376 KP1= 121 TAN1= -0.1755 -0.9845 0.0000
 KP2= 128 TAN2= 0.1755 0.9845 0.0000

LINE CONNECTS KEYPOINTS 120 127
 LINE NO.= 377 KP1= 120 TAN1= -0.1684 -0.9857 0.0000
 KP2= 127 TAN2= 0.1684 0.9857 0.0000

LINE CONNECTS KEYPOINTS 119 126
 LINE NO.= 378 KP1= 119 TAN1= 0.0000 -1.0000 0.0000
 KP2= 126 TAN2= 0.0000 1.0000 0.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
 TO NDIV = 2, SPACING RATIO = 1.000
 lines to fill in lids
 lines tube height

LINE CONNECTS KEYPOINTS 195 194
 LINE NO.= 379 KP1= 195 TAN1= 0.0000 -1.0000 0.0000
 KP2= 194 TAN2= 0.0000 1.0000 0.0000

LINE CONNECTS KEYPOINTS 191 190
 LINE NO.= 380 KP1= 191 TAN1= 0.0000 -1.0000 0.0000
 KP2= 190 TAN2= 0.0000 1.0000 0.0000

LINE CONNECTS KEYPOINTS 187 68
 LINE NO.= 381 KP1= 187 TAN1= 0.0000 -1.0000 0.0000
 KP2= 68 TAN2= 0.0000 1.0000 0.0000

LINE CONNECTS KEYPOINTS 71 72
 LINE NO.= 382 KP1= 71 TAN1= 0.0000 -1.0000 0.0000
 KP2= 72 TAN2= 0.0000 1.0000 0.0000

LINE CONNECTS KEYPOINTS 75 76
 LINE NO.= 383 KP1= 75 TAN1= 0.0000 -1.0000 0.0000
 KP2= 76 TAN2= 0.0000 1.0000 0.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
 TO NDIV = 4, SPACING RATIO = 1.000
 end lines

LINE CONNECTS KEYPOINTS 222 197
 LINE NO.= 384 KP1= 222 TAN1= 0.0000 -1.0000 0.0000
 KP2= 197 TAN2= 0.0000 1.0000 0.0000

LINE CONNECTS KEYPOINTS 78 110
 LINE NO.= 385 KP1= 78 TAN1= 0.0000 -1.0000 0.0000
 KP2= 110 TAN2= 0.0000 1.0000 0.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
 TO NDIV = 4, SPACING RATIO = 1.000
 area set 1, tubes

DEFINE AREA BY LIST OF KEYPOINTS
 KEYPOINT LIST = 195 196 205 201

AREA NUMBER = 1

DEFINE AREA BY LIST OF KEYPOINTS
 KEYPOINT LIST = 200 201 205 204

AREA NUMBER = 2

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 193 194 200 204

AREA NUMBER = 3

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 191 192 203 199

AREA NUMBER = 4

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 198 199 203 202

AREA NUMBER = 5

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 189 190 198 202

AREA NUMBER = 6

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 187 188 138 133

AREA NUMBER = 7

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 133 138 18 13

AREA NUMBER = 8

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 69 68 13 18

AREA NUMBER = 9

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 71 70 85 80

AREA NUMBER = 10

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 80 85 86 31

AREA NUMBER = 11

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 73 72 81 86

AREA NUMBER = 12

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 75 74 87 82

AREA NUMBER = 13

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 82 87 88 83

AREA NUMBER = 14

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 77 76 83 83

AREA NUMBER = 15

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 209 210 215 214

AREA NUMBER = 16

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 215 210 220 217

AREA NUMBER = 17

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 216 217 220 219

AREA NUMBER = 18

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 209 214 216 219

AREA NUMBER = 19

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 145 208 213 151

AREA NUMBER = 20

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 213 208 159 155

AREA NUMBER = 21

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 152 155 159 146

AREA NUMBER = 22

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 145 151 152 146

AREA NUMBER = 23

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 134 139 140 135

AREA NUMBER = 24

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 135 140 20 15

AREA NUMBER = 25

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 19 14 15 20

AREA NUMBER = 26

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 19 139 134 14

AREA NUMBER = 27

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 92 25 31 98

AREA NUMBER = 28

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 31 25 26 32

AREA NUMBER = 29

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 32 26 39 35

```

AREA NUMBER = 30
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 92 98 35 39

AREA NUMBER = 31
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 94 93 99 100

AREA NUMBER = 32
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 99 93 106 102

AREA NUMBER = 33
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 102 106 107 103

AREA NUMBER = 34
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 94 100 103 107

AREA NUMBER = 35
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 156 160 161 157

AREA NUMBER = 36
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 157 161 148 154

AREA NUMBER = 37
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 147 153 154 148

AREA NUMBER = 38
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 147 160 156 153

AREA NUMBER = 39
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 136 141 142 137

AREA NUMBER = 40
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 137 142 22 17

AREA NUMBER = 41
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 21 16 17 22

AREA NUMBER = 42
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 21 141 136 16

AREA NUMBER = 43
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 33 27 28 34

```

AREA NUMBER = 44

DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 34 28 41 37

AREA NUMBER = 45

DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 40 36 37 41

AREA NUMBER = 46

DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 40 27 33 36

AREA NUMBER = 47
area set 2, plates

DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 204 205 210 209

AREA NUMBER = 48

DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 192 193 204 203

AREA NUMBER = 49

DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 203 204 209 208

AREA NUMBER = 50

DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 208 209 219 139

AREA NUMBER = 51

DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 202 203 208 145

AREA NUMBER = 52

DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 146 159 160 147

AREA NUMBER = 53

DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 188 189 202 138

AREA NUMBER = 54

DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 138 202 145 139

AREA NUMBER = 55

DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 139 145 146 140

AREA NUMBER = 56

DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 140 146 147 141

AREA NUMBER = 57

DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 141 147 148 142

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AREA NUMBER = 58
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 18 138 139 19

AREA NUMBER = 59
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 20 140 141 21

AREA NUMBER = 60
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 70 69 18 85

AREA NUMBER = 61
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 85 18 19 25

AREA NUMBER = 62
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 25 19 20 26

AREA NUMBER = 63
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 26 20 21 27

AREA NUMBER = 64
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 27 21 22 28

AREA NUMBER = 65
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 86 85 25 92

AREA NUMBER = 66
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 39 26 27 40

AREA NUMBER = 67
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 74 73 86 87

AREA NUMBER = 68
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 87 86 92 93

AREA NUMBER = 69
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 93 92 39 106

AREA NUMBER = 70
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 88 87 93 94

AREA NUMBER = 71
area set 3, end guides
DEFINE AREA BY LIST OF KEYPOINTS
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KEYPOINT LIST = 196 197 206 205
AREA NUMBER = 72
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 205 206 211 210
AREA NUMBER = 73
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 206 207 212 211
AREA NUMBER = 74
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 210 211 218 220
AREA NUMBER = 75
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 148 161 158 149
AREA NUMBER = 76
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 142 148 149 143
AREA NUMBER = 77
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 143 149 150 144
AREA NUMBER = 78
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 22 142 143 23
AREA NUMBER = 79
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 28 22 23 29
AREA NUMBER = 80
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 29 23 24 30
AREA NUMBER = 81
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 41 28 29 38
AREA NUMBER = 82
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 95 94 107 104
AREA NUMBER = 83
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 89 88 94 95
AREA NUMBER = 84
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 90 89 95 96
AREA NUMBER = 85
DEFINE AREA BY LIST OF KEYPOINTS
```


KEYPOINT LIST = 78 77 88 89

AREA NUMBER = 86
area set 4, corner guides

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 219 220 221 162

AREA NUMBER = 87

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 159 219 162 160

AREA NUMBER = 88

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 160 162 163 161

AREA NUMBER = 89

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 107 106 42 109

AREA NUMBER = 90

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 106 39 40 42

AREA NUMBER = 91

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 42 40 41 43

AREA NUMBER = 92

ACTIVE COORDINATE SYSTEM SET TO 1 (CYLINDRICAL)
area set 5, inner barrier

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 222 223 224 207

AREA NUMBER = 93

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 207 224 225 212

AREA NUMBER = 94

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 212 225 226 218

AREA NUMBER = 95

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 218 226 227 220

AREA NUMBER = 96

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 220 227 228 221

AREA NUMBER = 97

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 221 228 171 163

AREA NUMBER = 98

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 163 171 170 161

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AREA NUMBER = 99
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 161 170 169 153

AREA NUMBER = 100
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 158 169 168 150

AREA NUMBER = 101
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 150 168 167 144

AREA NUMBER = 102
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 144 167 47 24

AREA NUMBER = 103
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 24 47 48 30

AREA NUMBER = 104
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 30 48 49 38

AREA NUMBER = 105
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 38 49 50 41

AREA NUMBER = 106
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 41 50 51 43

AREA NUMBER = 107
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 43 51 117 109

AREA NUMBER = 108
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 109 117 116 107

AREA NUMBER = 109
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 107 116 115 104

AREA NUMBER = 110
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 104 115 114 96

AREA NUMBER = 111
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 90 96 114 113

AREA NUMBER = 112
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 90 113 112 110
```

AREA NUMBER = 113
area set 6, outer barrier

ACTIVE COORDINATE SYSTEM SET TO 0 (CARTESIAN)

DRAG ALL SELECTED AREAS
ALONG LINES

1,

*** WARNING *** CP= 5.000 TIME= 12:57:23
Area 1 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.000 TIME= 12:57:23
Area 2 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.000 TIME= 12:57:23
Area 3 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.000 TIME= 12:57:23
Area 4 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.010 TIME= 12:57:23
Area 5 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.010 TIME= 12:57:23
Area 6 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.010 TIME= 12:57:23
Area 7 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.010 TIME= 12:57:23
Area 8 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.010 TIME= 12:57:23
Area 9 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.010 TIME= 12:57:23
Area 10 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.010 TIME= 12:57:23
Area 11 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.010 TIME= 12:57:23
Area 12 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.010 TIME= 12:57:23
Area 13 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.010 TIME= 12:57:23
Area 14 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.010 TIME= 12:57:23
Area 15 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.020 TIME= 12:57:23
Area 16 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.020 TIME= 12:57:23
Area 17 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.020 TIME= 12:57:23
Area 18 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.020 TIME= 12:57:23
Area 19 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.020 TIME= 12:57:23
Area 20 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.020 TIME= 12:57:23
Area 21 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.020 TIME= 12:57:23
Area 22 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.020 TIME= 12:57:23
Area 23 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.020 TIME= 12:57:23
Area 24 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.020 TIME= 12:57:23
Area 25 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.020 TIME= 12:57:23
Area 26 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.030 TIME= 12:57:23
Area 27 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.030 TIME= 12:57:23
Area 28 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.030 TIME= 12:57:23
Area 29 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.030 TIME= 12:57:23
Area 30 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.030 TIME= 12:57:23
Area 31 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.030 TIME= 12:57:23
Area 32 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.030 TIME= 12:57:23
Area 33 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.030 TIME= 12:57:23
Area 34 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.030 TIME= 12:57:23
Area 35 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.030 TIME= 12:57:23
Area 36 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.030 TIME= 12:57:23
Area 37 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.040 TIME= 12:57:23
Area 38 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.040 TIME= 12:57:23
Area 39 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.040 TIME= 12:57:23
Area 40 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.040 TIME= 12:57:23
Area 41 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.040 TIME= 12:57:23
Area 42 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.040 TIME= 12:57:23
Area 43 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.040 TIME= 12:57:23

Area 44 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.040 TIME= 12:57:23
Area 45 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.040 TIME= 12:57:23
Area 46 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.040 TIME= 12:57:23
Area 47 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.040 TIME= 12:57:23
Area 48 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.050 TIME= 12:57:23
Area 49 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.050 TIME= 12:57:23
Area 50 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.050 TIME= 12:57:23
Area 51 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.050 TIME= 12:57:23
Area 52 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.050 TIME= 12:57:23
Area 53 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.050 TIME= 12:57:23
Area 54 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.050 TIME= 12:57:23
Area 55 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.050 TIME= 12:57:23
Area 56 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.050 TIME= 12:57:23
Area 57 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.050 TIME= 12:57:23
Area 58 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.050 TIME= 12:57:23
Area 59 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.060 TIME= 12:57:23
Area 60 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.060 TIME= 12:57:23
Area 61 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.060 TIME= 12:57:23
Area 62 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.060 TIME= 12:57:23
Area 63 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.060 TIME= 12:57:23
Area 64 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.060 TIME= 12:57:23
Area 65 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.060 TIME= 12:57:23
Area 66 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.060 TIME= 12:57:23
Area 67 is not meshed. Volume will be generated without elements.

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*** WARNING ***          CP=    5.060  TIME= 12:57:23
Area 68 is not meshed. Volume will be generated without elements.

*** WARNING ***          CP=    5.060  TIME= 12:57:23
Area 69 is not meshed. Volume will be generated without elements.

*** WARNING ***          CP=    5.060  TIME= 12:57:23
Area 70 is not meshed. Volume will be generated without elements.

*** WARNING ***          CP=    5.070  TIME= 12:57:23
Area 71 is not meshed. Volume will be generated without elements.

*** WARNING ***          CP=    5.070  TIME= 12:57:23
Area 72 is not meshed. Volume will be generated without elements.

*** WARNING ***          CP=    5.070  TIME= 12:57:23
Area 73 is not meshed. Volume will be generated without elements.

*** WARNING ***          CP=    5.070  TIME= 12:57:23
Area 74 is not meshed. Volume will be generated without elements.

*** WARNING ***          CP=    5.070  TIME= 12:57:23
Area 75 is not meshed. Volume will be generated without elements.

*** WARNING ***          CP=    5.070  TIME= 12:57:23
Area 76 is not meshed. Volume will be generated without elements.

*** WARNING ***          CP=    5.070  TIME= 12:57:23
Area 77 is not meshed. Volume will be generated without elements.

*** WARNING ***          CP=    5.070  TIME= 12:57:23
Area 78 is not meshed. Volume will be generated without elements.

*** WARNING ***          CP=    5.070  TIME= 12:57:23
Area 79 is not meshed. Volume will be generated without elements.

*** WARNING ***          CP=    5.070  TIME= 12:57:23
Area 80 is not meshed. Volume will be generated without elements.

*** WARNING ***          CP=    5.070  TIME= 12:57:23
Area 81 is not meshed. Volume will be generated without elements.

*** WARNING ***          CP=    5.080  TIME= 12:57:23
Area 82 is not meshed. Volume will be generated without elements.

*** WARNING ***          CP=    5.080  TIME= 12:57:23
Area 83 is not meshed. Volume will be generated without elements.

*** WARNING ***          CP=    5.080  TIME= 12:57:23
Area 84 is not meshed. Volume will be generated without elements.

*** WARNING ***          CP=    5.080  TIME= 12:57:23
Area 85 is not meshed. Volume will be generated without elements.

*** WARNING ***          CP=    5.080  TIME= 12:57:23
Area 86 is not meshed. Volume will be generated without elements.

*** WARNING ***          CP=    5.080  TIME= 12:57:23
Area 87 is not meshed. Volume will be generated without elements.

*** WARNING ***          CP=    5.080  TIME= 12:57:23
Area 88 is not meshed. Volume will be generated without elements.

*** WARNING ***          CP=    5.080  TIME= 12:57:23
Area 89 is not meshed. Volume will be generated without elements.

*** WARNING ***          CP=    5.080  TIME= 12:57:23
Area 90 is not meshed. Volume will be generated without elements.
```

*** WARNING *** CP= 5.080 TIME= 12:57:23
Area 91 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.090 TIME= 12:57:23
Area 92 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.090 TIME= 12:57:23
Area 93 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.090 TIME= 12:57:23
Area 94 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.090 TIME= 12:57:23
Area 95 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.090 TIME= 12:57:23
Area 96 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.090 TIME= 12:57:23
Area 97 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.090 TIME= 12:57:23
Area 98 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.090 TIME= 12:57:23
Area 99 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.090 TIME= 12:57:23
Area 100 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.090 TIME= 12:57:23
Area 101 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.090 TIME= 12:57:23
Area 102 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.100 TIME= 12:57:23
Area 103 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.100 TIME= 12:57:23
Area 104 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.100 TIME= 12:57:23
Area 105 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.100 TIME= 12:57:23
Area 106 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.100 TIME= 12:57:23
Area 107 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.100 TIME= 12:57:23
Area 108 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.100 TIME= 12:57:23
Area 109 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.100 TIME= 12:57:23
Area 110 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.100 TIME= 12:57:23
Area 111 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.100 TIME= 12:57:23
Area 112 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.110 TIME= 12:57:23
Area 113 is not meshed. Volume will be generated without elements.

SELECT FOR ITEM=LOC COMPONENT=Z BETWEEN 2.2875 AND 2.2875

KABS= 0. TOLERANCE= 0.114375E-01

113 AREAS (OF 509 DEFINED) SELECTED BY ASEL COMMAND.

ACTIVE COORDINATE SYSTEM SET TO 1 (CYLINDRICAL)

UNSELECT FOR ITEM=LOC COMPONENT=X BETWEEN 0.00000E+00 AND 0.68095
KABS= 0. TOLERANCE= 0.000000E+00

21 AREAS (OF 509 DEFINED) SELECTED BY ASEL COMMAND.

ACTIVE COORDINATE SYSTEM SET TO 0 (CARTESIAN)

DRAG ALL SELECTED AREAS
ALONG LINES
2,

*** WARNING *** CP= 11.500 TIME= 12:57:30
Area 441 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 11.500 TIME= 12:57:30
Area 444 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 11.500 TIME= 12:57:30
Area 448 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 11.500 TIME= 12:57:30
Area 451 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 11.500 TIME= 12:57:30
Area 454 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 11.500 TIME= 12:57:30
Area 458 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 11.510 TIME= 12:57:30
Area 461 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 11.510 TIME= 12:57:30
Area 464 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 11.510 TIME= 12:57:30
Area 468 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 11.510 TIME= 12:57:30
Area 471 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 11.510 TIME= 12:57:30
Area 475 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 11.510 TIME= 12:57:30
Area 478 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 11.510 TIME= 12:57:30
Area 482 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 11.510 TIME= 12:57:30
Area 485 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 11.510 TIME= 12:57:30
Area 488 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 11.510 TIME= 12:57:30
Area 492 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 11.510 TIME= 12:57:30
Area 495 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 11.520 TIME= 12:57:30
Area 498 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 11.520 TIME= 12:57:30
Area 502 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 11.520 TIME= 12:57:30
Area 505 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 11.520 TIME= 12:57:30
Area 509 is not meshed. Volume will be generated without elements.
copy areas from top of basket to bottom of lid

SELECT FOR ITEM=LOC COMPONENT=Z BETWEEN 2.2775 AND 2.2775
KABS= 0. TOLERANCE= 0.113875E-01

113 AREAS (OF 594 DEFINED) SELECTED BY ASEL COMMAND.

ACTIVE COORDINATE SYSTEM SET TO 1 (CYLINDRICAL)

RESELECT FOR ITEM=LOC COMPONENT=X BETWEEN 0.00000E+00 AND 0.68095
KABS= 0. TOLERANCE= 0.000000E+00

92 AREAS (OF 594 DEFINED) SELECTED BY ASEL COMMAND.

ACTIVE COORDINATE SYSTEM SET TO 0 (CARTESIAN)

GENERATE 2 TOTAL SETS OF AREAS
SET IS ALL SELECTED AREAS
DX,DY,DZ= 0.000E+00 0.000E+00 0.100E-01 CSYS= 0

MERGE COINCIDENT KEYPOINTS WITHIN TOLERANCE OF 0.10000E-03

KEYPOINT 373 USED FOR KEYPOINT(S) 521
KEYPOINT 375 USED FOR KEYPOINT(S) 522
KEYPOINT 377 USED FOR KEYPOINT(S) 523
KEYPOINT 379 USED FOR KEYPOINT(S) 458
KEYPOINT 381 USED FOR KEYPOINT(S) 540
KEYPOINT 383 USED FOR KEYPOINT(S) 542
KEYPOINT 385 USED FOR KEYPOINT(S) 496
KEYPOINT 387 USED FOR KEYPOINT(S) 524
KEYPOINT 389 USED FOR KEYPOINT(S) 527
KEYPOINT 391 USED FOR KEYPOINT(S) 528
KEYPOINT 393 USED FOR KEYPOINT(S) 531
KEYPOINT 395 USED FOR KEYPOINT(S) 532
KEYPOINT 397 USED FOR KEYPOINT(S) 533
KEYPOINT 399 USED FOR KEYPOINT(S) 514
KEYPOINT 401 USED FOR KEYPOINT(S) 545
KEYPOINT 403 USED FOR KEYPOINT(S) 544
KEYPOINT 405 USED FOR KEYPOINT(S) 492
KEYPOINT 407 USED FOR KEYPOINT(S) 535
KEYPOINT 409 USED FOR KEYPOINT(S) 538
KEYPOINT 410 USED FOR KEYPOINT(S) 537

LINE 837 USED FOR LINE(S) 1121
LINE 847 USED FOR LINE(S) 1124
LINE 852 USED FOR LINE(S) 1152
LINE 862 USED FOR LINE(S) 1157
LINE 867 USED FOR LINE(S) 1125
LINE 877 USED FOR LINE(S) 1131
LINE 887 USED FOR LINE(S) 1138
LINE 897 USED FOR LINE(S) 1141
LINE 902 USED FOR LINE(S) 1162
LINE 912 USED FOR LINE(S) 1160
LINE 917 USED FOR LINE(S) 1143
LINE 923 USED FOR LINE(S) 1149

generate lines to fill in lid at top of WP
lines tube height

LINE CONNECTS KEYPOINTS 414 421
LINE NO.= 1121 KP1= 414 TAN1= 0.0000 -1.0000 0.0000
KP2= 421 TAN2= 0.0000 1.0000 0.0000

LINE CONNECTS KEYPOINTS 422 429

LINE NO.= 1124 KP1= 422 TAN1= 0.0000 -1.0000 0.0000
 KP2= 429 TAN2= 0.0000 1.0000 0.0000

LINE CONNECTS KEYPOINTS 430 437
 LINE NO.= 1125 KP1= 430 TAN1= 0.0000 -1.0000 0.0000
 KP2= 437 TAN2= 0.0000 1.0000 0.0000

LINE CONNECTS KEYPOINTS 438 445
 LINE NO.= 1131 KP1= 438 TAN1= 0.0000 -1.0000 0.0000
 KP2= 445 TAN2= 0.0000 1.0000 0.0000

LINE CONNECTS KEYPOINTS 446 453
 LINE NO.= 1138 KP1= 446 TAN1= 0.0000 -1.0000 0.0000
 KP2= 453 TAN2= 0.0000 1.0000 0.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
 TO NDIV = 4, SPACING RATIO = 1.000
 end lines

LINE CONNECTS KEYPOINTS 370 518
 LINE NO.= 1141 KP1= 370 TAN1= 0.0000 -1.0000 0.0000
 KP2= 518 TAN2= 0.0000 1.0000 0.0000

LINE CONNECTS KEYPOINTS 539 413
 LINE NO.= 1143 KP1= 539 TAN1= 0.0000 -1.0000 0.0000
 KP2= 413 TAN2= 0.0000 1.0000 0.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
 TO NDIV = 4, SPACING RATIO = 1.000

DEFINE AREA BY LIST OF LINES
 LINE LIST = 832 1116 1120 1141
 (TRAVERSED IN SAME DIRECTION AS LINE 832)

AREA NUMBER = 687

DEFINE AREA BY LIST OF LINES
 LINE LIST = 936 937 941 1121
 (TRAVERSED IN SAME DIRECTION AS LINE 936)

AREA NUMBER = 688

DEFINE AREA BY LIST OF LINES
 LINE LIST = 946 947 951 1124
 (TRAVERSED IN SAME DIRECTION AS LINE 946)

AREA NUMBER = 689

DEFINE AREA BY LIST OF LINES
 LINE LIST = 956 959 961 1125
 (TRAVERSED IN SAME DIRECTION AS LINE 956)

AREA NUMBER = 690

DEFINE AREA BY LIST OF LINES
 LINE LIST = 966 969 971 1131
 (TRAVERSED IN SAME DIRECTION AS LINE 966)

AREA NUMBER = 691

DEFINE AREA BY LIST OF LINES
 LINE LIST = 976 979 981 1138
 (TRAVERSED IN SAME DIRECTION AS LINE 976)

AREA NUMBER = 692

DEFINE AREA BY LIST OF LINES
 LINE LIST = 932 1143 1147 1151
 (TRAVERSED IN SAME DIRECTION AS LINE 932)

AREA NUMBER = 693

DEFINE AREA BY LIST OF LINES

LINE LIST = 842 1122 1123

(TRAVERSED IN SAME DIRECTION AS LINE 842)

AREA NUMBER = 694

DEFINE AREA BY LIST OF LINES

LINE LIST = 985 989 990 993

(TRAVERSED IN SAME DIRECTION AS LINE 985)

AREA NUMBER = 695

DEFINE AREA BY LIST OF LINES

LINE LIST = 997 1001 1002 1005

(TRAVERSED IN SAME DIRECTION AS LINE 997)

AREA NUMBER = 696

DEFINE AREA BY LIST OF LINES

LINE LIST = 1010 1013 1015 1018

(TRAVERSED IN SAME DIRECTION AS LINE 1010)

AREA NUMBER = 697

DEFINE AREA BY LIST OF LINES

LINE LIST = 1021 1025 1028 1029

(TRAVERSED IN SAME DIRECTION AS LINE 1021)

AREA NUMBER = 698

DEFINE AREA BY LIST OF LINES

LINE LIST = 1033 1037 1040 1041

(TRAVERSED IN SAME DIRECTION AS LINE 1033)

AREA NUMBER = 699

DEFINE AREA BY LIST OF LINES

LINE LIST = 922 1144 1148

(TRAVERSED IN SAME DIRECTION AS LINE 922)

AREA NUMBER = 700

DEFINE AREA BY LIST OF LINES

LINE LIST = 857 1153 1156

(TRAVERSED IN SAME DIRECTION AS LINE 857)

AREA NUMBER = 701

DEFINE AREA BY LIST OF LINES

LINE LIST = 1046 1049 1051 1054

(TRAVERSED IN SAME DIRECTION AS LINE 1046)

AREA NUMBER = 702

DEFINE AREA BY LIST OF LINES

LINE LIST = 1058 1061 1063 1066

(TRAVERSED IN SAME DIRECTION AS LINE 1058)

AREA NUMBER = 703

DEFINE AREA BY LIST OF LINES

LINE LIST = 1070 1073 1075 1078

(TRAVERSED IN SAME DIRECTION AS LINE 1070)

AREA NUMBER = 704

DEFINE AREA BY LIST OF LINES

LINE LIST = 907 1159 1163

(TRAVERSED IN SAME DIRECTION AS LINE 907)

AREA NUMBER = 705

DEFINE AREA BY LIST OF LINES

LINE LIST = 872 1126 1130

(TRAVERSED IN SAME DIRECTION AS LINE 872)

AREA NUMBER = 706

DEFINE AREA BY LIST OF LINES

LINE LIST = 882 1132 1133 1137

(TRAVERSED IN SAME DIRECTION AS LINE 882)

AREA NUMBER = 707

DEFINE AREA BY LIST OF LINES

LINE LIST = 892 1139 1140

(TRAVERSED IN SAME DIRECTION AS LINE 892)

AREA NUMBER = 708

SELECT FOR ITEM=LOC COMPONENT=Z BETWEEN 2.3075 AND 2.3075
KABS= 0. TOLERANCE= 0.115375E-01

135 AREAS (OF 708 DEFINED) SELECTED BY ASEL COMMAND.

DRAG ALL SELECTED AREAS

ALONG LINES

3,

*** WARNING *** CP= 15.510 TIME= 12:57:34
Area 514 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.510 TIME= 12:57:34
Area 518 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.510 TIME= 12:57:34
Area 522 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.520 TIME= 12:57:34
Area 526 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.520 TIME= 12:57:34
Area 530 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.520 TIME= 12:57:34
Area 534 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.520 TIME= 12:57:34
Area 538 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.520 TIME= 12:57:34
Area 542 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.520 TIME= 12:57:34
Area 546 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.520 TIME= 12:57:34
Area 550 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.520 TIME= 12:57:34
Area 554 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.520 TIME= 12:57:34
Area 558 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.520 TIME= 12:57:34
Area 562 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.520 TIME= 12:57:34
Area 566 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.530 TIME= 12:57:34
Area 570 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.530 TIME= 12:57:34
Area 574 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.530 TIME= 12:57:34
Area 578 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.530 TIME= 12:57:34
Area 582 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.530 TIME= 12:57:34
Area 586 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.530 TIME= 12:57:34
Area 590 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.530 TIME= 12:57:34
Area 594 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.530 TIME= 12:57:34
Area 595 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.530 TIME= 12:57:34
Area 596 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.530 TIME= 12:57:34
Area 597 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.530 TIME= 12:57:34
Area 598 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.540 TIME= 12:57:34
Area 599 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.540 TIME= 12:57:34
Area 600 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.540 TIME= 12:57:34
Area 601 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.540 TIME= 12:57:34
Area 602 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.540 TIME= 12:57:34
Area 603 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.540 TIME= 12:57:34
Area 604 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.540 TIME= 12:57:34
Area 605 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.540 TIME= 12:57:34
Area 606 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.540 TIME= 12:57:34
Area 607 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.540 TIME= 12:57:34
Area 608 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.540 TIME= 12:57:34
Area 609 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.550 TIME= 12:57:34

Area 610 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.550 TIME= 12:57:34
Area 611 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.550 TIME= 12:57:34
Area 612 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.550 TIME= 12:57:34
Area 613 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.550 TIME= 12:57:34
Area 614 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.550 TIME= 12:57:34
Area 615 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.550 TIME= 12:57:34
Area 616 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.550 TIME= 12:57:34
Area 617 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.550 TIME= 12:57:34
Area 618 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.550 TIME= 12:57:34
Area 619 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.550 TIME= 12:57:34
Area 620 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.560 TIME= 12:57:34
Area 621 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.560 TIME= 12:57:34
Area 622 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.560 TIME= 12:57:34
Area 623 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.560 TIME= 12:57:34
Area 624 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.560 TIME= 12:57:34
Area 625 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.560 TIME= 12:57:34
Area 626 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.560 TIME= 12:57:34
Area 627 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.560 TIME= 12:57:34
Area 628 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.560 TIME= 12:57:34
Area 629 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.560 TIME= 12:57:34
Area 630 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.560 TIME= 12:57:34
Area 631 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.570 TIME= 12:57:34
Area 632 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.570 TIME= 12:57:34
Area 633 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.570 TIME= 12:57:34
Area 634 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.570 TIME= 12:57:34
Area 635 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.570 TIME= 12:57:34
Area 636 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.570 TIME= 12:57:34
Area 637 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.570 TIME= 12:57:34
Area 638 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.570 TIME= 12:57:34
Area 639 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.570 TIME= 12:57:34
Area 640 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.570 TIME= 12:57:34
Area 641 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.570 TIME= 12:57:34
Area 642 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.580 TIME= 12:57:34
Area 643 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.580 TIME= 12:57:34
Area 644 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.580 TIME= 12:57:34
Area 645 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.580 TIME= 12:57:34
Area 646 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.580 TIME= 12:57:34
Area 647 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.580 TIME= 12:57:34
Area 648 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.580 TIME= 12:57:34
Area 649 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.580 TIME= 12:57:34
Area 650 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.580 TIME= 12:57:34
Area 651 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.580 TIME= 12:57:34
Area 652 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.580 TIME= 12:57:34
Area 653 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.590 TIME= 12:57:34
Area 654 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.590 TIME= 12:57:34
Area 655 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.590 TIME= 12:57:34
Area 656 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.590 TIME= 12:57:34
Area 657 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.590 TIME= 12:57:34
Area 658 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.590 TIME= 12:57:34
Area 659 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.590 TIME= 12:57:34
Area 660 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.590 TIME= 12:57:34
Area 661 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.590 TIME= 12:57:34
Area 662 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.590 TIME= 12:57:34
Area 663 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.600 TIME= 12:57:34
Area 664 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.600 TIME= 12:57:34
Area 665 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.600 TIME= 12:57:34
Area 666 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.600 TIME= 12:57:34
Area 667 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.600 TIME= 12:57:34
Area 668 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.600 TIME= 12:57:34
Area 669 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.600 TIME= 12:57:34
Area 670 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.600 TIME= 12:57:34
Area 671 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.600 TIME= 12:57:34
Area 672 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.600 TIME= 12:57:34
Area 673 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.600 TIME= 12:57:34
Area 674 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.610 TIME= 12:57:34
Area 675 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.610 TIME= 12:57:34
Area 676 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.610 TIME= 12:57:34
Area 677 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.610 TIME= 12:57:34
Area 678 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.610 TIME= 12:57:34
Area 679 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.610 TIME= 12:57:34

Area 680 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.610 TIME= 12:57:34
Area 681 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.610 TIME= 12:57:34
Area 682 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.610 TIME= 12:57:34
Area 683 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.610 TIME= 12:57:34
Area 684 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.620 TIME= 12:57:34
Area 685 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.620 TIME= 12:57:34
Area 686 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.620 TIME= 12:57:34
Area 687 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.620 TIME= 12:57:34
Area 688 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.620 TIME= 12:57:34
Area 689 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.620 TIME= 12:57:34
Area 690 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.620 TIME= 12:57:34
Area 691 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.620 TIME= 12:57:34
Area 692 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.620 TIME= 12:57:34
Area 693 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.620 TIME= 12:57:34
Area 694 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.620 TIME= 12:57:34
Area 695 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.630 TIME= 12:57:34
Area 696 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.630 TIME= 12:57:34
Area 697 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.630 TIME= 12:57:34
Area 698 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.630 TIME= 12:57:34
Area 699 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.630 TIME= 12:57:34
Area 700 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.630 TIME= 12:57:34
Area 701 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.630 TIME= 12:57:34
Area 702 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.630 TIME= 12:57:34
Area 703 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.630 TIME= 12:57:34
Area 704 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.630 TIME= 12:57:34
Area 705 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.640 TIME= 12:57:34
Area 706 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.640 TIME= 12:57:34
Area 707 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.640 TIME= 12:57:34
Area 708 is not meshed. Volume will be generated without elements.
lines at bottom lid used to be here

Mesh Volumes

Mesh the CS Tubes

Mesh SS-B Plates

SELECT FOR ITEM=VOLUME COMPONENT=
IN RANGE 48 TO 71 STEP 1

24 VOLUMES (OF 269 DEFINED) SELECTED BY VSEL COMMAND.

ELEMENT TYPE SET TO 2

MATERIAL NUMBER SET TO 2

GENERATE NODES AND ELEMENTS IN ALL SELECTED VOLUMES

*** WARNING *** CP= 24.000 TIME= 12:57:43
Meshing of volume 49 produced 24 elements with excessive aspect ratio.
Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 49 WITH EXCESSIVE ASPECT RATIO ***

121	122	123	136	137	138	151	152
153	166	167	168	181	182	183	196
197	198	211	212	213	226	227	228

*** WARNING *** CP= 24.210 TIME= 12:57:43
Meshing of volume 50 produced 60 elements with excessive aspect ratio.
Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 50 WITH EXCESSIVE ASPECT RATIO ***

241	242	243	244	245	246	247	248
249	250	251	252	253	254	255	256
257	258	259	260	261	262	263	264
265	266	267	268	269	270	271	272
273	274	275	276	277	278	279	280
281	282	283	284	285	286	287	288
289	290	291	292	293	294	295	296
297	298	299	300				

*** WARNING *** CP= 25.530 TIME= 12:57:44
Meshing of volume 54 produced 24 elements with excessive aspect ratio.
Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 54 WITH EXCESSIVE ASPECT RATIO ***

661	662	663	676	677	678	691	692
693	706	707	708	721	722	723	736
737	738	751	752	753	766	767	768

*** WARNING *** CP= 25.740 TIME= 12:57:45

Meshing of volume 55 produced 60 elements with excessive aspect ratio.
Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 55 WITH EXCESSIVE ASPECT RATIO ***

781	782	783	784	785	786	787	788
789	790	791	792	793	794	795	796
797	798	799	800	801	802	803	804
805	806	807	808	809	810	811	812
813	814	815	816	817	818	819	820
821	822	823	824	825	826	827	828
829	830	831	832	833	834	835	836
837	838	839	840				

*** WARNING *** CP= 26.280 TIME= 12:57:45
Meshing of volume 57 produced 60 elements with excessive aspect ratio.
Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 57 WITH EXCESSIVE ASPECT RATIO ***

961	962	963	964	965	966	967	968
969	970	971	972	973	974	975	976
977	978	979	980	981	982	983	984
985	986	987	988	989	990	991	992
993	994	995	996	997	998	999	1000
1001	1002	1003	1004	1005	1006	1007	1008
1009	1010	1011	1012	1013	1014	1015	1016
1017	1018	1019	1020				

*** WARNING *** CP= 27.600 TIME= 12:57:46
Meshing of volume 61 produced 24 elements with excessive aspect ratio.
Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 61 WITH EXCESSIVE ASPECT RATIO ***

1381	1382	1383	1396	1397	1398	1411	1412
1413	1426	1427	1428	1441	1442	1443	1456
1457	1458	1471	1472	1473	1486	1487	1488

*** WARNING *** CP= 27.810 TIME= 12:57:47
Meshing of volume 62 produced 60 elements with excessive aspect ratio.
Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 62 WITH EXCESSIVE ASPECT RATIO ***

1501	1502	1503	1504	1505	1506	1507	1508
1509	1510	1511	1512	1513	1514	1515	1516
1517	1518	1519	1520	1521	1522	1523	1524
1525	1526	1527	1528	1529	1530	1531	1532
1533	1534	1535	1536	1537	1538	1539	1540
1541	1542	1543	1544	1545	1546	1547	1548
1549	1550	1551	1552	1553	1554	1555	1556
1557	1558	1559	1560				

*** WARNING *** CP= 28.350 TIME= 12:57:47
Meshing of volume 64 produced 60 elements with excessive aspect ratio.
Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 64 WITH EXCESSIVE ASPECT RATIO ***

1681	1682	1683	1684	1685	1686	1687	1688
1689	1690	1691	1692	1693	1694	1695	1696
1697	1698	1699	1700	1701	1702	1703	1704
1705	1706	1707	1708	1709	1710	1711	1712
1713	1714	1715	1716	1717	1718	1719	1720
1721	1722	1723	1724	1725	1726	1727	1728
1729	1730	1731	1732	1733	1734	1735	1736
1737	1738	1739	1740				

*** WARNING *** CP= 29.690 TIME= 12:57:48

Meshing of volume 68 produced 24 elements with excessive aspect ratio.
Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 68 WITH EXCESSIVE ASPECT RATIO ***

2101	2102	2103	2116	2117	2118	2131	2132
2133	2146	2147	2148	2161	2162	2163	2176
2177	2178	2191	2192	2193	2206	2207	2208

*** WARNING *** CP= 29.900 TIME= 12:57:49
Meshing of volume 69 produced 60 elements with excessive aspect ratio.
Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 69 WITH EXCESSIVE ASPECT RATIO ***

2221	2222	2223	2224	2225	2226	2227	2228
2229	2230	2231	2232	2233	2234	2235	2236
2237	2238	2239	2240	2241	2242	2243	2244
2245	2246	2247	2248	2249	2250	2251	2252
2253	2254	2255	2256	2257	2258	2259	2260
2261	2262	2263	2264	2265	2266	2267	2268
2269	2270	2271	2272	2273	2274	2275	2276
2277	2278	2279	2280				

NUMBER OF VOLUMES MESHED = 24
MAXIMUM NODE NUMBER = 4000
MAXIMUM ELEMENT NUMBER = 2520
Mesh End Guides

SELECT FOR ITEM=VOLUME COMPONENT=
IN RANGE 72 TO 86 STEP 1

15 VOLUMES (OF 269 DEFINED) SELECTED BY VSEL COMMAND.

ELEMENT TYPE SET TO 3

MATERIAL NUMBER SET TO 3

GENERATE NODES AND ELEMENTS IN ALL SELECTED VOLUMES

*** WARNING *** CP= 31.250 TIME= 12:57:50
Meshing of volume 72 produced 8 elements with excessive aspect ratio.
Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 72 WITH EXCESSIVE ASPECT RATIO ***

2521	2536	2551	2566	2581	2596	2611	2626
------	------	------	------	------	------	------	------

*** WARNING *** CP= 31.470 TIME= 12:57:50
Meshing of volume 73 produced 52 elements with excessive aspect ratio.
Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 73 WITH EXCESSIVE ASPECT RATIO ***

2641	2642	2643	2644	2645	2646	2647	2648
2649	2650	2651	2652	2653	2654	2655	2656
2657	2658	2659	2660	2661	2662	2663	2664
2665	2666	2671	2672	2673	2674	2675	2676
2677	2678	2679	2680	2681	2682	2683	2684
2685	2686	2687	2688	2689	2690	2691	2692
2693	2694	2695	2696				

*** WARNING *** CP= 31.810 TIME= 12:57:51
Meshing of volume 74 produced 24 elements with excessive aspect ratio.
Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 74 WITH EXCESSIVE ASPECT RATIO ***

2701	2702	2703	2716	2717	2718	2731	2732
2733	2746	2747	2748	2761	2762	2763	2776
2777	2778	2791	2792	2793	2806	2807	2808

*** WARNING *** CP= 31.910 TIME= 12:57:51
Volume 75 area 75 has a corner angle of 32 degrees. This is not recommended for hexahedral elements.

*** WARNING *** CP= 31.920 TIME= 12:57:51
Volume 75 area 380 has a corner angle of 32 degrees. This is not recommended for hexahedral elements.

*** WARNING *** CP= 32.140 TIME= 12:57:51
Meshing of volume 75 produced 60 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 75 WITH EXCESSIVE DISTORTION ***

2881	2882	2883	2884	2885	2886	2887	2888
2889	2890	2891	2892	2893	2894	2895	2896
2897	2898	2899	2900	2901	2902	2903	2904
2905	2906	2907	2908	2909	2910	2911	2912
2913	2914	2915	2916	2917	2918	2919	2920
2921	2922	2923	2924	2925	2926	2927	2928
2929	2930	2931	2932	2933	2934	2935	2936
2937	2938	2939	2940				

*** WARNING *** CP= 32.250 TIME= 12:57:51
Volume 76 area 76 has a corner angle of 32 degrees. This is not recommended for hexahedral elements.

*** WARNING *** CP= 32.260 TIME= 12:57:51
Volume 76 area 384 has a corner angle of 32 degrees. This is not recommended for hexahedral elements.

*** WARNING *** CP= 32.480 TIME= 12:57:51
Meshing of volume 76 produced 60 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 76 WITH EXCESSIVE DISTORTION ***

2941	2942	2945	2946	2949	2950	2953	2954
2957	2958	2961	2962	2965	2966	2969	2970
2973	2974	2977	2978	2981	2982	2985	2986
2989	2990	2993	2994	2997	2998	3001	3002
3005	3006	3009	3010	3013	3014	3017	3018
3021	3022	3025	3026	3029	3030	3033	3034
3037	3038	3041	3042	3045	3046	3049	3050
3053	3054	3057	3058				

*** WARNING *** CP= 32.700 TIME= 12:57:52
Meshing of volume 77 produced 52 elements with excessive aspect ratio.
Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 77 WITH EXCESSIVE ASPECT RATIO ***

3061	3062	3063	3064	3065	3066	3067	3068
3069	3070	3071	3072	3073	3074	3075	3076
3077	3078	3079	3080	3081	3082	3083	3084
3085	3086	3091	3092	3093	3094	3095	3096
3097	3098	3099	3100	3101	3102	3103	3104
3105	3106	3107	3108	3109	3110	3111	3112
3113	3114	3115	3116				

*** WARNING *** CP= 33.020 TIME= 12:57:52
Meshing of volume 78 produced 24 elements with excessive aspect ratio.
Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 78 WITH EXCESSIVE ASPECT RATIO ***

3121	3122	3123	3124	3125	3126	3151	3152
3153	3154	3155	3156	3181	3182	3183	3184
3185	3186	3211	3212	3213	3214	3215	3216

*** WARNING *** CP= 33.590 TIME= 12:57:52
 Meshing of volume 80 produced 52 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 80 WITH EXCESSIVE ASPECT RATIO ***

3361	3362	3363	3364	3365	3366	3367	3368
3369	3370	3371	3372	3373	3374	3375	3376
3377	3378	3379	3380	3381	3382	3383	3384
3385	3386	3391	3392	3393	3394	3395	3396
3397	3398	3399	3400	3401	3402	3403	3404
3405	3406	3407	3408	3409	3410	3411	3412
3413	3414	3415	3416				

*** WARNING *** CP= 33.900 TIME= 12:57:53
 Meshing of volume 81 produced 24 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 81 WITH EXCESSIVE ASPECT RATIO ***

3421	3422	3423	3424	3425	3426	3451	3452
3453	3454	3455	3456	3481	3482	3483	3484
3485	3486	3511	3512	3513	3514	3515	3516

*** WARNING *** CP= 34.010 TIME= 12:57:53
 Volume 82 area 82 has a corner angle of 32 degrees. This is not recommended for hexahedral elements.

*** WARNING *** CP= 34.020 TIME= 12:57:53
 Volume 82 area 404 has a corner angle of 32 degrees. This is not recommended for hexahedral elements.

*** WARNING *** CP= 34.250 TIME= 12:57:53
 Meshing of volume 82 produced 60 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 82 WITH EXCESSIVE DISTORTION ***

3543	3544	3547	3548	3551	3552	3555	3556
3559	3560	3563	3564	3567	3568	3571	3572
3575	3576	3579	3580	3583	3584	3587	3588
3591	3592	3595	3596	3599	3600	3603	3604
3607	3608	3611	3612	3615	3616	3619	3620
3623	3624	3627	3628	3631	3632	3635	3636
3639	3640	3643	3644	3647	3648	3651	3652
3655	3656	3659	3660				

*** WARNING *** CP= 34.360 TIME= 12:57:53
 Volume 83 area 83 has a corner angle of 32 degrees. This is not recommended for hexahedral elements.

*** WARNING *** CP= 34.370 TIME= 12:57:53
 Volume 83 area 408 has a corner angle of 32 degrees. This is not recommended for hexahedral elements.

*** WARNING *** CP= 34.590 TIME= 12:57:53
 Meshing of volume 83 produced 60 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 83 WITH EXCESSIVE DISTORTION ***

3721	3722	3723	3724	3725	3726	3727	3728
3729	3730	3731	3732	3733	3734	3735	3736
3737	3738	3739	3740	3741	3742	3743	3744
3745	3746	3747	3748	3749	3750	3751	3752
3753	3754	3755	3756	3757	3758	3759	3760
3761	3762	3763	3764	3765	3766	3767	3768
3769	3770	3771	3772	3773	3774	3775	3776
3777	3778	3779	3780				

*** WARNING *** CP= 34.810 TIME= 12:57:54
 Meshing of volume 84 produced 52 elements with excessive aspect ratio.

Changing the element divisions on this volume may help.

```
*** LIST OF ELEMENTS IN VOLUME 84 WITH EXCESSIVE ASPECT RATIO ***
3781 3782 3783 3784 3785 3786 3787 3788
3789 3790 3791 3792 3793 3796 3797 3798
3799 3800 3801 3802 3803 3804 3805 3806
3807 3808 3811 3812 3813 3814 3815 3816
3817 3818 3819 3820 3821 3822 3823 3826
3827 3828 3829 3830 3831 3832 3833 3834
3835 3836 3837 3838
```

*** WARNING *** CP= 35.150 TIME= 12:57:54
 Meshing of volume 85 produced 24 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

```
*** LIST OF ELEMENTS IN VOLUME 85 WITH EXCESSIVE ASPECT RATIO ***
3841 3842 3843 3856 3857 3858 3871 3872
3873 3886 3887 3888 3901 3902 3903 3916
3917 3918 3931 3932 3933 3946 3947 3948
```

*** WARNING *** CP= 35.490 TIME= 12:57:54
 Meshing of volume 86 produced 8 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

```
*** LIST OF ELEMENTS IN VOLUME 86 WITH EXCESSIVE ASPECT RATIO ***
3961 3976 3991 4006 4021 4036 4051 4066
```

NUMBER OF VOLUMES MESHED = 15
 MAXIMUM NODE NUMBER = 6448
 MAXIMUM ELEMENT NUMBER = 4080
 Mesh Corner Guides

SELECT FOR ITEM=VOLUME COMPONENT=
 IN RANGE 87 TO 92 STEP 1

6 VOLUMES (OF 269 DEFINED) SELECTED BY VSEL COMMAND.

ELEMENT TYPE SET TO 4

MATERIAL NUMBER SET TO 4

GENERATE NODES AND ELEMENTS IN ALL SELECTED VOLUMES

*** WARNING *** CP= 36.190 TIME= 12:57:55
 Meshing of volume 88 produced 55 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

```
*** LIST OF ELEMENTS IN VOLUME 88 WITH EXCESSIVE ASPECT RATIO ***
4201 4202 4203 4204 4205 4206 4207 4208
4209 4210 4211 4212 4213 4214 4215 4216
4217 4218 4219 4220 4221 4222 4223 4224
4225 4226 4227 4228 4231 4232 4233 4234
4235 4236 4237 4238 4239 4240 4241 4242
4243 4244 4245 4246 4247 4248 4249 4250
4251 4252 4253 4254 4255 4256 4258
```

*** WARNING *** CP= 37.070 TIME= 12:57:56
 Meshing of volume 91 produced 55 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

```
*** LIST OF ELEMENTS IN VOLUME 91 WITH EXCESSIVE ASPECT RATIO ***
4501 4502 4503 4504 4505 4506 4507 4508
4509 4510 4511 4512 4513 4514 4515 4516
4517 4518 4519 4520 4521 4522 4523 4524
4525 4526 4527 4528 4531 4532 4533 4534
4535 4536 4537 4538 4539 4540 4541 4542
```

4543	4544	4545	4546	4547	4548	4549	4550
4551	4552	4553	4554	4555	4556	4557	

NUMBER OF VOLUMES MESHED = 6
 MAXIMUM NODE NUMBER = 7280
 MAXIMUM ELEMENT NUMBER = 4680
 Mesh Inner Barrier

SELECT FOR ITEM=LOC COMPONENT=Z BETWEEN 0.00000E+00 AND 2.3075
 KABS= 0. TOLERANCE= 0.000000E+00

269 VOLUMES (OF 269 DEFINED) SELECTED BY VSEL COMMAND.

ACTIVE COORDINATE SYSTEM SET TO 1 (CYLINDRICAL)

RESELECT FOR ITEM=LOC COMPONENT=X BETWEEN 0.00000E+00 AND 0.71295
 KABS= 0. TOLERANCE= 0.000000E+00

269 VOLUMES (OF 269 DEFINED) SELECTED BY VSEL COMMAND.

UNSELECT FOR ITEM=VOLU COMPONENT=
 IN RANGE 1 TO 92 STEP 1

177 VOLUMES (OF 269 DEFINED) SELECTED BY VSEL COMMAND.

UNSELECT FOR ITEM=LOC COMPONENT=X BETWEEN 0.69095 AND 0.71295
 KABS= 0. TOLERANCE= 0.000000E+00

114 VOLUMES (OF 269 DEFINED) SELECTED BY VSEL COMMAND.

ALSO SELECT FOR ITEM=LOC COMPONENT=Y BETWEEN -90.000 AND 5.0000
 KABS= 0. TOLERANCE= 0.000000E+00

197 VOLUMES (OF 269 DEFINED) SELECTED BY VSEL COMMAND.

UNSELECT FOR ITEM=VOLU COMPONENT=
 IN RANGE 1 TO 92 STEP 1

147 VOLUMES (OF 269 DEFINED) SELECTED BY VSEL COMMAND.

UNSELECT FOR ITEM=LOC COMPONENT=X BETWEEN 0.71295 AND 0.78095
 KABS= 0. TOLERANCE= 0.000000E+00

147 VOLUMES (OF 269 DEFINED) SELECTED BY VSEL COMMAND.

RESELECT FOR ITEM=LOC COMPONENT=Z BETWEEN -0.10000E-01 AND 2.3075
 KABS= 0. TOLERANCE= 0.000000E+00

147 VOLUMES (OF 269 DEFINED) SELECTED BY VSEL COMMAND.

ACTIVE COORDINATE SYSTEM SET TO 0 (CARTESIAN)

ELEMENT TYPE SET TO 5

MATERIAL NUMBER SET TO 5

GENERATE NODES AND ELEMENTS IN ALL SELECTED VOLUMES

*** WARNING *** CP= 41.100 TIME= 12:58:00
 Meshing of volume 93 produced 48 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 93 WITH EXCESSIVE ASPECT RATIO ***

4681	4682	4683	4684	4685	4686	4696	4697
4698	4699	4700	4701	4711	4712	4713	4714
4715	4716	4726	4727	4728	4729	4730	4731
4741	4742	4743	4744	4745	4746	4756	4757
4758	4759	4760	4761	4771	4772	4773	4774
4775	4776	4786	4787	4788	4789	4790	4791

*** WARNING *** CP= 41.320 TIME= 12:58:00
 Meshing of volume 94 produced 60 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 94 WITH EXCESSIVE ASPECT RATIO ***

4801	4802	4803	4804	4805	4806	4807	4808
4809	4810	4811	4812	4813	4814	4815	4816
4817	4818	4819	4820	4821	4822	4823	4824
4825	4826	4827	4828	4829	4830	4831	4832
4833	4834	4835	4836	4837	4838	4839	4840
4841	4842	4843	4844	4845	4846	4847	4848
4849	4850	4851	4852	4853	4854	4855	4856
4857	4858	4859	4860				

*** WARNING *** CP= 41.750 TIME= 12:58:01
 Meshing of volume 95 produced 24 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 95 WITH EXCESSIVE ASPECT RATIO ***

4861	4862	4863	4864	4865	4866	4891	4892
4893	4894	4895	4896	4921	4922	4923	4924
4925	4926	4951	4952	4953	4954	4955	4956

*** WARNING *** CP= 41.960 TIME= 12:58:01
 Meshing of volume 96 produced 52 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 96 WITH EXCESSIVE ASPECT RATIO ***

4981	4982	4983	4984	4985	4986	4987	4988
4989	4990	4991	4992	4993	4994	4995	4996
4997	4998	4999	5000	5001	5002	5003	5004
5005	5006	5011	5012	5013	5014	5015	5016
5017	5018	5019	5020	5021	5022	5023	5024
5025	5026	5027	5028	5029	5030	5031	5032
5033	5034	5035	5036				

*** WARNING *** CP= 42.170 TIME= 12:58:01
 Meshing of volume 97 produced 60 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 97 WITH EXCESSIVE ASPECT RATIO ***

5041	5042	5043	5044	5045	5046	5047	5048
5049	5050	5051	5052	5053	5054	5055	5056
5057	5058	5059	5060	5061	5062	5063	5064
5065	5066	5067	5068	5069	5070	5071	5072
5073	5074	5075	5076	5077	5078	5079	5080
5081	5082	5083	5084	5085	5086	5087	5088
5089	5090	5091	5092	5093	5094	5095	5096
5097	5098	5099	5100				

*** WARNING *** CP= 42.610 TIME= 12:58:01
 Meshing of volume 98 produced 8 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 98 WITH EXCESSIVE ASPECT RATIO ***

5101	5102	5131	5132	5161	5162	5191	5192
------	------	------	------	------	------	------	------

*** WARNING *** CP= 42.820 TIME= 12:58:02
 Meshing of volume 99 produced 60 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 99 WITH EXCESSIVE ASPECT RATIO ***

5221	5222	5223	5224	5225	5226	5227	5228
------	------	------	------	------	------	------	------

5229	5230	5231	5232	5233	5234	5235	5236
5237	5238	5239	5240	5241	5242	5243	5244
5245	5246	5247	5248	5249	5250	5251	5252
5253	5254	5255	5256	5257	5258	5259	5260
5261	5262	5263	5264	5265	5266	5267	5268
5269	5270	5271	5272	5273	5274	5275	5276
5277	5278	5279	5280				

*** WARNING *** CP= 43.030 TIME= 12:58:02
 Meshing of volume 100 produced 52 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 100 WITH EXCESSIVE ASPECT RATIO ***

5281	5282	5283	5284	5285	5286	5287	5288
5289	5290	5291	5292	5293	5294	5295	5296
5297	5298	5299	5300	5301	5302	5303	5304
5305	5306	5311	5312	5313	5314	5315	5316
5317	5318	5319	5320	5321	5322	5323	5324
5325	5326	5327	5328	5329	5330	5331	5332
5333	5334	5335	5336				

*** WARNING *** CP= 43.460 TIME= 12:58:02
 Meshing of volume 101 produced 24 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 101 WITH EXCESSIVE ASPECT RATIO ***

5341	5342	5343	5344	5345	5346	5371	5372
5373	5374	5375	5376	5401	5402	5403	5404
5405	5406	5431	5432	5433	5434	5435	5436

*** WARNING *** CP= 43.680 TIME= 12:58:03
 Meshing of volume 102 produced 60 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 102 WITH EXCESSIVE ASPECT RATIO ***

5461	5462	5463	5464	5465	5466	5467	5468
5469	5470	5471	5472	5473	5474	5475	5476
5477	5478	5479	5480	5481	5482	5483	5484
5485	5486	5487	5488	5489	5490	5491	5492
5493	5494	5495	5496	5497	5498	5499	5500
5501	5502	5503	5504	5505	5506	5507	5508
5509	5510	5511	5512	5513	5514	5515	5516
5517	5518	5519	5520				

*** WARNING *** CP= 44.110 TIME= 12:58:03
 Meshing of volume 103 produced 24 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 103 WITH EXCESSIVE ASPECT RATIO ***

5521	5522	5523	5524	5525	5526	5551	5552
5553	5554	5555	5556	5581	5582	5583	5584
5585	5586	5611	5612	5613	5614	5615	5616

*** WARNING *** CP= 44.740 TIME= 12:58:04
 Meshing of volume 119 produced 16 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 119 WITH EXCESSIVE ASPECT RATIO ***

5697	5698	5699	5700	5701	5702	5703	5704
5705	5706	5707	5708	5709	5710	5711	5712

*** WARNING *** CP= 45.860 TIME= 12:58:05
 Meshing of volume 140 produced 16 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 140 WITH EXCESSIVE ASPECT RATIO ***
5825 5826 5827 5828 5829 5830 5831 5832
5833 5834 5835 5836 5837 5838 5839 5840

*** WARNING *** CP= 47.730 TIME= 12:58:07
Volume 173 area 612 has a corner angle of 37 degrees. This is not
recommended for hexahedral elements.

*** WARNING *** CP= 47.740 TIME= 12:58:07
Volume 173 area 871 has a corner angle of 37 degrees. This is not
recommended for hexahedral elements.

*** WARNING *** CP= 47.770 TIME= 12:58:07
Meshing of volume 173 produced 2 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 173 WITH EXCESSIVE DISTORTION ***
6039 6040

*** WARNING *** CP= 48.980 TIME= 12:58:08
Volume 189 area 628 has a corner angle of 37 degrees. This is not
recommended for hexahedral elements.

*** WARNING *** CP= 48.980 TIME= 12:58:08
Volume 189 area 935 has a corner angle of 37 degrees. This is not
recommended for hexahedral elements.

*** WARNING *** CP= 49.010 TIME= 12:58:08
Meshing of volume 189 produced 2 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 189 WITH EXCESSIVE DISTORTION ***
6167 6168

*** WARNING *** CP= 49.140 TIME= 12:58:08
Volume 191 area 630 has a corner angle of 37 degrees. This is not
recommended for hexahedral elements.

*** WARNING *** CP= 49.150 TIME= 12:58:08
Volume 191 area 943 has a corner angle of 37 degrees. This is not
recommended for hexahedral elements.

*** WARNING *** CP= 49.170 TIME= 12:58:08
Meshing of volume 191 produced 2 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 191 WITH EXCESSIVE DISTORTION ***
6183 6184

*** WARNING *** CP= 49.910 TIME= 12:58:09
Volume 201 area 640 has a corner angle of 37 degrees. This is not
recommended for hexahedral elements.

*** WARNING *** CP= 49.920 TIME= 12:58:09
Volume 201 area 983 has a corner angle of 37 degrees. This is not
recommended for hexahedral elements.

*** WARNING *** CP= 49.940 TIME= 12:58:09
Meshing of volume 201 produced 2 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 201 WITH EXCESSIVE DISTORTION ***
6263 6264

*** WARNING *** CP= 52.260 TIME= 12:58:11
Volume 230 area 669 has a corner angle of 32 degrees. This is not
recommended for hexahedral elements.

*** WARNING *** CP= 52.270 TIME= 12:58:11
Volume 230 area 1058 has a corner angle of 32 degrees. This is not recommended for hexahedral elements.

*** WARNING *** CP= 52.310 TIME= 12:58:11
Meshing of volume 230 produced 8 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 230 WITH EXCESSIVE DISTORTION ***
6657 6658 6659 6660 6661 6662 6663 6664

*** WARNING *** CP= 52.350 TIME= 12:58:11
Volume 231 area 670 has a corner angle of 32 degrees. This is not recommended for hexahedral elements.

*** WARNING *** CP= 52.360 TIME= 12:58:11
Volume 231 area 1061 has a corner angle of 32 degrees. This is not recommended for hexahedral elements.

*** WARNING *** CP= 52.410 TIME= 12:58:11
Meshing of volume 231 produced 8 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 231 WITH EXCESSIVE DISTORTION ***
6665 6666 6669 6670 6673 6674 6677 6678

*** WARNING *** CP= 52.900 TIME= 12:58:12
Volume 237 area 676 has a corner angle of 32 degrees. This is not recommended for hexahedral elements.

*** WARNING *** CP= 52.910 TIME= 12:58:12
Volume 237 area 1078 has a corner angle of 32 degrees. This is not recommended for hexahedral elements.

*** WARNING *** CP= 52.960 TIME= 12:58:12
Meshing of volume 237 produced 8 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 237 WITH EXCESSIVE DISTORTION ***
6747 6748 6751 6752 6755 6756 6759 6760

*** WARNING *** CP= 53.020 TIME= 12:58:12
Volume 238 area 677 has a corner angle of 32 degrees. This is not recommended for hexahedral elements.

*** WARNING *** CP= 53.030 TIME= 12:58:12
Volume 238 area 1081 has a corner angle of 32 degrees. This is not recommended for hexahedral elements.

*** WARNING *** CP= 53.070 TIME= 12:58:12
Meshing of volume 238 produced 8 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 238 WITH EXCESSIVE DISTORTION ***
6769 6770 6771 6772 6773 6774 6775 6776

*** WARNING *** CP= 54.750 TIME= 12:58:14
Volume 255 area 694 has a corner angle of 32 degrees. This is not recommended for hexahedral elements.

*** WARNING *** CP= 54.760 TIME= 12:58:14
Volume 255 area 1119 has a corner angle of 32 degrees. This is not recommended for hexahedral elements.

*** WARNING *** CP= 54.820 TIME= 12:58:14
Meshing of volume 255 produced 14 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 255 WITH EXCESSIVE DISTORTION ***
7121 7122 7123 7124 7125 7126 7127 7128
7130 7132 7134 7136 7138 7142

*** WARNING *** CP= 55.470 TIME= 12:58:14
Volume 261 area 700 has a corner angle of 32 degrees. This is not
recommended for hexahedral elements.

*** WARNING *** CP= 55.480 TIME= 12:58:14
Volume 261 area 1125 has a corner angle of 32 degrees. This is not
recommended for hexahedral elements.

*** WARNING *** CP= 55.540 TIME= 12:58:14
Meshing of volume 261 produced 14 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 261 WITH EXCESSIVE DISTORTION ***
7306 7310 7313 7314 7317 7318 7321 7322
7323 7324 7325 7326 7327 7328

*** WARNING *** CP= 55.650 TIME= 12:58:15
Meshing of volume 262 produced 2 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 262 WITH EXCESSIVE DISTORTION ***
7338 7342

*** WARNING *** CP= 56.140 TIME= 12:58:15
Meshing of volume 266 produced 2 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 266 WITH EXCESSIVE DISTORTION ***
7458 7462

*** WARNING *** CP= 56.160 TIME= 12:58:15
Volume 267 area 706 has a corner angle of 32 degrees. This is not
recommended for hexahedral elements.

*** WARNING *** CP= 56.180 TIME= 12:58:15
Volume 267 area 1131 has a corner angle of 32 degrees. This is not
recommended for hexahedral elements.

*** WARNING *** CP= 56.240 TIME= 12:58:15
Meshing of volume 267 produced 14 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 267 WITH EXCESSIVE DISTORTION ***
7474 7478 7481 7482 7485 7486 7489 7490
7491 7492 7493 7494 7495 7496

*** WARNING *** CP= 56.430 TIME= 12:58:15
Volume 269 area 708 has a corner angle of 32 degrees. This is not
recommended for hexahedral elements.

*** WARNING *** CP= 56.450 TIME= 12:58:15
Volume 269 area 1133 has a corner angle of 32 degrees. This is not
recommended for hexahedral elements.

*** WARNING *** CP= 56.510 TIME= 12:58:15
Meshing of volume 269 produced 14 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 269 WITH EXCESSIVE DISTORTION ***
7529 7530 7531 7532 7533 7534 7535 7536
7538 7540 7542 7544 7546 7550

NUMBER OF VOLUMES MESHED = 147
MAXIMUM NODE NUMBER = 11541
MAXIMUM ELEMENT NUMBER = 7552
Mesh Upper Inner Barrier Adding Backfill Mass

INVERT FOR ITEM=VOLUME COMPONENT=

IN RANGE 1 TO 269 STEP 1

122 VOLUMES (OF 269 DEFINED) SELECTED BY VSEL COMMAND.

ACTIVE COORDINATE SYSTEM SET TO 1 (CYLINDRICAL)

UNSELECT FOR ITEM=LOC COMPONENT=X BETWEEN 0.71295 AND 0.78095
KABS= 0. TOLERANCE= 0.000000E+00

122 VOLUMES (OF 269 DEFINED) SELECTED BY VSEL COMMAND.

RESELECT FOR ITEM=LOC COMPONENT=Z BETWEEN 0.00000E+00 AND 2.3075
KABS= 0. TOLERANCE= 0.000000E+00

122 VOLUMES (OF 269 DEFINED) SELECTED BY VSEL COMMAND.

UNSELECT FOR ITEM=VOLU COMPONENT=
IN RANGE 1 TO 92 STEP 1

30 VOLUMES (OF 269 DEFINED) SELECTED BY VSEL COMMAND.

ACTIVE COORDINATE SYSTEM SET TO 0 (CARTESIAN)

ELEMENT TYPE SET TO 6

MATERIAL NUMBER SET TO 6

GENERATE NODES AND ELEMENTS IN ALL SELECTED VOLUMES

*** WARNING *** CP= 57.350 TIME= 12:58:16
Meshing of volume 104 produced 60 elements with excessive aspect ratio.
Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 104 WITH EXCESSIVE ASPECT RATIO ***

7553	7554	7555	7556	7557	7558	7559	7560
7561	7562	7563	7564	7565	7566	7567	7568
7569	7570	7571	7572	7573	7574	7575	7576
7577	7578	7579	7580	7581	7582	7583	7584
7585	7586	7587	7588	7589	7590	7591	7592
7593	7594	7595	7596	7597	7598	7599	7600
7601	7602	7603	7604	7605	7606	7607	7608
7609	7610	7611	7612				

*** WARNING *** CP= 57.790 TIME= 12:58:17
Meshing of volume 105 produced 24 elements with excessive aspect ratio.
Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 105 WITH EXCESSIVE ASPECT RATIO ***

7613	7614	7615	7616	7617	7618	7643	7644
7645	7646	7647	7648	7673	7674	7675	7676
7677	7678	7703	7704	7705	7706	7707	7708

*** WARNING *** CP= 58.010 TIME= 12:58:17
Meshing of volume 106 produced 52 elements with excessive aspect ratio.
Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 106 WITH EXCESSIVE ASPECT RATIO ***

7733	7734	7735	7736	7737	7738	7739	7740
7741	7742	7743	7744	7745	7746	7747	7748
7749	7750	7751	7752	7753	7754	7755	7756
7757	7758	7763	7764	7765	7766	7767	7768
7769	7770	7771	7772	7773	7774	7775	7776
7777	7778	7779	7780	7781	7782	7783	7784
7785	7786	7787	7788				

*** WARNING *** CP= 58.230 TIME= 12:58:17
Meshing of volume 107 produced 60 elements with excessive aspect ratio.

Changing the element divisions on this volume may help.

```
*** LIST OF ELEMENTS IN VOLUME 107 WITH EXCESSIVE ASPECT RATIO ***
7793 7794 7795 7796 7797 7798 7799 7800
7801 7802 7803 7804 7805 7806 7807 7808
7809 7810 7811 7812 7813 7814 7815 7816
7817 7818 7819 7820 7821 7822 7823 7824
7825 7826 7827 7828 7829 7830 7831 7832
7833 7834 7835 7836 7837 7838 7839 7840
7841 7842 7843 7844 7845 7846 7847 7848
7849 7850 7851 7852
```

*** WARNING *** CP= 58.670 TIME= 12:58:18
 Meshing of volume 108 produced 8 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

```
*** LIST OF ELEMENTS IN VOLUME 108 WITH EXCESSIVE ASPECT RATIO ***
7853 7854 7883 7884 7913 7914 7943 7944
```

*** WARNING *** CP= 58.890 TIME= 12:58:18
 Meshing of volume 109 produced 60 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

```
*** LIST OF ELEMENTS IN VOLUME 109 WITH EXCESSIVE ASPECT RATIO ***
7973 7974 7975 7976 7977 7978 7979 7980
7981 7982 7983 7984 7985 7986 7987 7988
7989 7990 7991 7992 7993 7994 7995 7996
7997 7998 7999 8000 8001 8002 8003 8004
8005 8006 8007 8008 8009 8010 8011 8012
8013 8014 8015 8016 8017 8018 8019 8020
8021 8022 8023 8024 8025 8026 8027 8028
8029 8030 8031 8032
```

*** WARNING *** CP= 59.110 TIME= 12:58:18
 Meshing of volume 110 produced 52 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

```
*** LIST OF ELEMENTS IN VOLUME 110 WITH EXCESSIVE ASPECT RATIO ***
8033 8034 8035 8036 8037 8038 8039 8040
8041 8042 8043 8044 8045 8046 8047 8048
8049 8050 8051 8052 8053 8054 8055 8056
8057 8058 8063 8064 8065 8066 8067 8068
8069 8070 8071 8072 8073 8074 8075 8076
8077 8078 8079 8080 8081 8082 8083 8084
8085 8086 8087 8088
```

*** WARNING *** CP= 59.540 TIME= 12:58:18
 Meshing of volume 111 produced 24 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

```
*** LIST OF ELEMENTS IN VOLUME 111 WITH EXCESSIVE ASPECT RATIO ***
8093 8094 8095 8096 8097 8098 8123 8124
8125 8126 8127 8128 8153 8154 8155 8156
8157 8158 8183 8184 8185 8186 8187 8188
```

*** WARNING *** CP= 59.750 TIME= 12:58:19
 Meshing of volume 112 produced 60 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

```
*** LIST OF ELEMENTS IN VOLUME 112 WITH EXCESSIVE ASPECT RATIO ***
8213 8214 8215 8216 8217 8218 8219 8220
8221 8222 8223 8224 8225 8226 8227 8228
8229 8230 8231 8232 8233 8234 8235 8236
8237 8238 8239 8240 8241 8242 8243 8244
8245 8246 8247 8248 8249 8250 8251 8252
```

8253	8254	8255	8256	8257	8258	8259	8260
8261	8262	8263	8264	8265	8266	8267	8268
8269	8270	8271	8272				

*** WARNING *** CP= 60.130 TIME= 12:58:19
 Meshing of volume 113 produced 48 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 113 WITH EXCESSIVE ASPECT RATIO ***

8273	8274	8275	8276	8277	8278	8279	8280
8281	8282	8283	8284	8303	8304	8305	8306
8307	8308	8309	8310	8311	8312	8313	8314
8333	8334	8335	8336	8337	8338	8339	8340
8341	8342	8343	8344	8363	8364	8365	8366
8367	8368	8369	8370	8371	8372	8373	8374

*** WARNING *** CP= 60.630 TIME= 12:58:20
 Meshing of volume 129 produced 16 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 129 WITH EXCESSIVE ASPECT RATIO ***

8433	8434	8435	8436	8437	8438	8439	8440
8441	8442	8443	8444	8445	8446	8447	8448

*** WARNING *** CP= 61.520 TIME= 12:58:20
 Meshing of volume 150 produced 16 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 150 WITH EXCESSIVE ASPECT RATIO ***

8545	8546	8547	8548	8549	8550	8551	8552
8553	8554	8555	8556	8557	8558	8559	8560

NUMBER OF VOLUMES MESHED = 30
 MAXIMUM NODE NUMBER = 12897
 MAXIMUM ELEMENT NUMBER = 8616
 Mesh Lower Outer Barrier and Lids
 mesh upper outer barrier adding backfill mass

Apply Symmetry Constraints

ACTIVE COORDINATE SYSTEM SET TO 0 (CARTESIAN)

SELECT FOR ITEM=LOC COMPONENT=X BETWEEN 0.00000E+00 AND 0.00000E+00
 KABS= 0. TOLERANCE= 0.100000E-05

555 NODES (OF 12897 DEFINED) SELECTED BY NSEL COMMAND.

SYMMETRY CONSTRAINTS FOR COORDINATE SYSTEM 0 IN DIRECTION X
 ON SURFACE DEFINED BY ALL SELECTED NODES

*** NOTE *** CP= 62.300 TIME= 12:58:21
 Nodes on symmetry surfaces are rotated into coordinate system 0.

TOTAL SPECIFIED CONSTRAINTS= 555

SELECT FOR ITEM=LOC COMPONENT=Z BETWEEN 0.00000E+00 AND 0.00000E+00
 KABS= 0. TOLERANCE= 0.100000E-05

606 NODES (OF 12897 DEFINED) SELECTED BY NSEL COMMAND.

SYMMETRY CONSTRAINTS FOR COORDINATE SYSTEM 0 IN DIRECTION Z
 ON SURFACE DEFINED BY ALL SELECTED NODES

*** NOTE *** CP= 62.710 TIME= 12:58:22
 Nodes on symmetry surfaces are rotated into coordinate system 0.

TOTAL SPECIFIED CONSTRAINTS= 1161

Apply Constraints at Support Locations

Span approximately half of basket height, width = 0.305 m

ACTIVE COORDINATE SYSTEM SET TO 1 (CYLINDRICAL)

SELECT FOR ITEM=LOC COMPONENT=Z BETWEEN 1.0675 AND 1.5450
KABS= 0. TOLERANCE= 0.000000E+00

1818 NODES (OF 12897 DEFINED) SELECTED BY NSEL COMMAND.

RESELECT FOR ITEM=LOC COMPONENT=X BETWEEN 0.71195 AND 0.71395
KABS= 0. TOLERANCE= 0.000000E+00

246 NODES (OF 12897 DEFINED) SELECTED BY NSEL COMMAND.

RESELECT FOR ITEM=LOC COMPONENT=Y BETWEEN -70.000 AND -50.000
KABS= 0. TOLERANCE= 0.000000E+00

30 NODES (OF 12897 DEFINED) SELECTED BY NSEL COMMAND.

ACTIVE COORDINATE SYSTEM SET TO 0 (CARTESIAN)

SPECIFIED CONSTRAINT UY FOR SELECTED NODES 1 TO 12897 BY 1
REAL= 0.000000000E+00 IMAG= 0.000000000E+00

SELECT ALL ENTITIES OF TYPE= ALL AND BELOW

ALL SELECT FOR ITEM=VOLU COMPONENT=
IN RANGE 1 TO 269 STEP 1

269 VOLUMES (OF 269 DEFINED) SELECTED BY VSEL COMMAND.

ALL SELECT FOR ITEM=AREA COMPONENT=
IN RANGE 1 TO 1133 STEP 1

1133 AREAS (OF 1133 DEFINED) SELECTED BY ASEL COMMAND.

ALL SELECT FOR ITEM=LINE COMPONENT=
IN RANGE 1 TO 1604 STEP 1

1604 LINES (OF 1604 DEFINED) SELECTED BY LSEL COMMAND.

ALL SELECT FOR ITEM=KP COMPONENT=
IN RANGE 1 TO 9001 STEP 1

690 KEYPOINTS (OF 690 DEFINED) SELECTED BY KSEL COMMAND.

ALL SELECT FOR ITEM=ELEM COMPONENT=
IN RANGE 1 TO 8616 STEP 1

8616 ELEMENTS (OF 8616 DEFINED) SELECTED BY ESEL COMMAND.

ALL SELECT FOR ITEM=NODE COMPONENT=
IN RANGE 1 TO 12897 STEP 1

12897 NODES (OF 12897 DEFINED) SELECTED BY NSEL COMMAND.

ALL CURRENT ANSYS DATA WRITTEN TO FILE NAME= seism4.db
FOR POSSIBLE RESUME FROM THIS POINT

***** ROUTINE COMPLETED ***** CP = 71.380

***** ANSYS SOLUTION ROUTINE *****

PERFORM A MODAL ANALYSIS

THIS WILL BE A NEW ANALYSIS

USE SUBSPACE ITERATION METHOD

EXTRACT 8 MODES

NORMALIZE THE MODE SHAPES TO THE MASS MATRIX

WRITE ALL ITEMS TO THE DATABASE WITH A FREQUENCY OF 1
FOR ALL APPLICABLE ENTITIES

ALL CURRENT ANSYS DATA WRITTEN TO FILE NAME= seism4.db
FOR POSSIBLE RESUME FROM THIS POINT

***** ANSYS SOLVE COMMAND *****

*** WARNING *** CP= 80.830 TIME= 12:58:43
Element 2881 has an angle between adjacent edges of 40.4145358 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 80.830 TIME= 12:58:43
Element 2881 has an angle between adjacent edges of 139.536079 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 80.840 TIME= 12:58:43
Element 2882 has an angle between adjacent edges of 40.3670746 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 80.840 TIME= 12:58:43
Element 2882 has an angle between adjacent edges of 139.585464 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 80.840 TIME= 12:58:43
Element 2883 has an angle between adjacent edges of 40.4145358 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 80.840 TIME= 12:58:43
Element 2883 has an angle between adjacent edges of 139.536079 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 80.840 TIME= 12:58:43
Element 2884 has an angle between adjacent edges of 40.3670746 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 80.840 TIME= 12:58:43
Element 2884 has an angle between adjacent edges of 139.585464 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 80.850 TIME= 12:58:43
Element 2885 has an angle between adjacent edges of 40.4145358 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 80.850 TIME= 12:58:43
Element 2885 has an angle between adjacent edges of 139.536079 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 80.850 TIME= 12:58:43
Element 2886 has an angle between adjacent edges of 40.3670746 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 80.850 TIME= 12:58:43
Element 2886 has an angle between adjacent edges of 139.585464 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 80.850 TIME= 12:58:43
Element 2887 has an angle between adjacent edges of 40.4145358 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 80.850 TIME= 12:58:43
Element 2887 has an angle between adjacent edges of 139.536079 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 80.860 TIME= 12:58:43
Element 2888 has an angle between adjacent edges of 40.3670746 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 80.860 TIME= 12:58:43
Element 2888 has an angle between adjacent edges of 139.585464 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 80.860 TIME= 12:58:43
Element 2889 has an angle between adjacent edges of 40.4145358 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 80.860 TIME= 12:58:43
Element 2889 has an angle between adjacent edges of 139.536079 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 80.860 TIME= 12:58:43
Element 2890 has an angle between adjacent edges of 40.3670746 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 80.870 TIME= 12:58:43
Element 2890 has an angle between adjacent edges of 139.585464 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 80.870 TIME= 12:58:43
Element 2891 has an angle between adjacent edges of 40.4145358 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 80.870 TIME= 12:58:43
Element 2891 has an angle between adjacent edges of 139.536079 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 80.870 TIME= 12:58:43
Element 2892 has an angle between adjacent edges of 40.3670746 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 80.870 TIME= 12:58:43
Element 2892 has an angle between adjacent edges of 139.585464 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 80.880 TIME= 12:58:43
Element 2893 has an angle between adjacent edges of 40.4145358 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 80.880 TIME= 12:58:43
Element 2893 has an angle between adjacent edges of 139.536079 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 80.880 TIME= 12:58:43
Element 2894 has an angle between adjacent edges of 40.3670746 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 80.880 TIME= 12:58:43
Element 2894 has an angle between adjacent edges of 139.585464 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 80.880 TIME= 12:58:43
Element 2895 has an angle between adjacent edges of 40.4145358 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 80.880 TIME= 12:58:43
Element 2895 has an angle between adjacent edges of 139.536079 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 80.890 TIME= 12:58:43
Element 2896 has an angle between adjacent edges of 40.3670746 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 80.890 TIME= 12:58:43
Element 2896 has an angle between adjacent edges of 139.585464 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 80.890 TIME= 12:58:43
Element 2897 has an angle between adjacent edges of 40.4145358 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 80.890 TIME= 12:58:43
Element 2897 has an angle between adjacent edges of 139.536079 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 80.890 TIME= 12:58:43
Element 2898 has an angle between adjacent edges of 40.3670746 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 80.890 TIME= 12:58:43
Element 2898 has an angle between adjacent edges of 139.585464 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 80.900 TIME= 12:58:43
Element 2899 has an angle between adjacent edges of 40.4145358 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 80.900 TIME= 12:58:43
Element 2899 has an angle between adjacent edges of 139.536079 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 80.900 TIME= 12:58:43
Element 2900 has an angle between adjacent edges of 40.3670746 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 80.900 TIME= 12:58:43
Element 2900 has an angle between adjacent edges of 139.585464 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 80.900 TIME= 12:58:43
Element 2901 has an angle between adjacent edges of 40.4145358 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 80.900 TIME= 12:58:43
Element 2901 has an angle between adjacent edges of 139.536079 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 80.910 TIME= 12:58:43
Element 2902 has an angle between adjacent edges of 40.3670746 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 80.910 TIME= 12:58:43
Element 2902 has an angle between adjacent edges of 139.585464 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 80.910 TIME= 12:58:43
Element 2903 has an angle between adjacent edges of 40.4145358 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 80.910 TIME= 12:58:43
Element 2903 has an angle between adjacent edges of 139.536079 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 80.910 TIME= 12:58:43
Element 2904 has an angle between adjacent edges of 40.3670746 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 80.910 TIME= 12:58:43
Element 2904 has an angle between adjacent edges of 139.585464 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 80.920 TIME= 12:58:43
Element 2905 has an angle between adjacent edges of 40.4145358 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 80.920 TIME= 12:58:43
Element 2905 has an angle between adjacent edges of 139.536079 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 80.920 TIME= 12:58:43
Element 2906 has an angle between adjacent edges of 40.3670746 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 80.920 TIME= 12:58:43
Element 2906 has an angle between adjacent edges of 139.585464 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 80.920 TIME= 12:58:43
Element 2907 has an angle between adjacent edges of 40.4145358 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 80.920 TIME= 12:58:43
Element 2907 has an angle between adjacent edges of 139.536079 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 80.930 TIME= 12:58:43
Element 2908 has an angle between adjacent edges of 40.3670746 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 80.930 TIME= 12:58:43
Element 2908 has an angle between adjacent edges of 139.585464 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 80.930 TIME= 12:58:43
Element 2909 has an angle between adjacent edges of 40.4145358 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 80.930 TIME= 12:58:43
Element 2909 has an angle between adjacent edges of 139.536079 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 80.930 TIME= 12:58:43
Element 2910 has an angle between adjacent edges of 40.3670746 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 80.930 TIME= 12:58:43
Element 2910 has an angle between adjacent edges of 139.585464 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 80.940 TIME= 12:58:43
Element 2911 has an angle between adjacent edges of 32.1366194 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 80.940 TIME= 12:58:43
Element 2911 has an angle between adjacent edges of 147.813995 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 80.940 TIME= 12:58:43
Element 2912 has an angle between adjacent edges of 32.0891582 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 80.940 TIME= 12:58:43
Element 2912 has an angle between adjacent edges of 147.863381 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 80.940 TIME= 12:58:43
Element 2913 has an angle between adjacent edges of 32.1366194 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 80.940 TIME= 12:58:43
Element 2913 has an angle between adjacent edges of 147.813995 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 80.950 TIME= 12:58:43
Element 2914 has an angle between adjacent edges of 32.0891582 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 80.950 TIME= 12:58:43
Element 2914 has an angle between adjacent edges of 147.863381 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 80.950 TIME= 12:58:43
Element 2915 has an angle between adjacent edges of 32.1366194 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 80.950 TIME= 12:58:43
Element 2915 has an angle between adjacent edges of 147.813995 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 80.950 TIME= 12:58:43
Element 2916 has an angle between adjacent edges of 32.0891582 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 80.960 TIME= 12:58:43
Element 2916 has an angle between adjacent edges of 147.863381 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 80.960 TIME= 12:58:43
Element 2917 has an angle between adjacent edges of 32.1366194 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 80.960 TIME= 12:58:43
Element 2917 has an angle between adjacent edges of 147.813995 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 80.960 TIME= 12:58:43
Element 2918 has an angle between adjacent edges of 32.0891582 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 80.960 TIME= 12:58:43
Element 2918 has an angle between adjacent edges of 147.863381 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 80.970 TIME= 12:58:43
Element 2919 has an angle between adjacent edges of 32.1366194 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 80.970 TIME= 12:58:43
Element 2919 has an angle between adjacent edges of 147.813995 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 80.970 TIME= 12:58:43
Element 2920 has an angle between adjacent edges of 32.0891582 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 80.970 TIME= 12:58:43
Element 2920 has an angle between adjacent edges of 147.863381 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 80.970 TIME= 12:58:43
Element 2921 has an angle between adjacent edges of 32.1366194 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 80.970 TIME= 12:58:43
Element 2921 has an angle between adjacent edges of 147.813995 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 80.970 TIME= 12:58:43
Element 2922 has an angle between adjacent edges of 32.0891582 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 80.970 TIME= 12:58:43
Element 2922 has an angle between adjacent edges of 147.863381 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 80.980 TIME= 12:58:43
Element 2923 has an angle between adjacent edges of 32.1366194 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 80.980 TIME= 12:58:43
Element 2923 has an angle between adjacent edges of 147.813995 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 80.980 TIME= 12:58:43
Element 2924 has an angle between adjacent edges of 32.0891582 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 80.980 TIME= 12:58:43
Element 2924 has an angle between adjacent edges of 147.863381 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 80.980 TIME= 12:58:43
Element 2925 has an angle between adjacent edges of 32.1366194 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 80.990 TIME= 12:58:43
Element 2925 has an angle between adjacent edges of 147.813995 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 80.990 TIME= 12:58:43
Element 2926 has an angle between adjacent edges of 32.0891582 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 80.990 TIME= 12:58:43
Element 2926 has an angle between adjacent edges of 147.863381 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 80.990 TIME= 12:58:43
Element 2927 has an angle between adjacent edges of 32.1366194 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 80.990 TIME= 12:58:43
Element 2927 has an angle between adjacent edges of 147.813995 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 80.990 TIME= 12:58:43
Element 2928 has an angle between adjacent edges of 32.0891582 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 81.000 TIME= 12:58:43
Element 2928 has an angle between adjacent edges of 147.863381 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 81.000 TIME= 12:58:43
Element 2929 has an angle between adjacent edges of 32.1366194 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 81.000 TIME= 12:58:43
Element 2929 has an angle between adjacent edges of 147.813995 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 81.000 TIME= 12:58:43
Element 2930 has an angle between adjacent edges of 32.0891582 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 81.000 TIME= 12:58:43
Element 2930 has an angle between adjacent edges of 147.863381 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 81.000 TIME= 12:58:43
Element 2931 has an angle between adjacent edges of 32.1366194 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 81.010 TIME= 12:58:43
Element 2931 has an angle between adjacent edges of 147.813995 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 81.010 TIME= 12:58:43
Element 2932 has an angle between adjacent edges of 32.0891582 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 81.010 TIME= 12:58:43
Element 2932 has an angle between adjacent edges of 147.863381 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 81.010 TIME= 12:58:43
Element 2933 has an angle between adjacent edges of 32.1366194 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 81.010 TIME= 12:58:43
Element 2933 has an angle between adjacent edges of 147.813995 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 81.020 TIME= 12:58:43
Element 2934 has an angle between adjacent edges of 32.0891582 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 81.020 TIME= 12:58:43
Element 2934 has an angle between adjacent edges of 147.863381 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 81.020 TIME= 12:58:43
Element 2935 has an angle between adjacent edges of 32.1366194 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 81.020 TIME= 12:58:43
Element 2935 has an angle between adjacent edges of 147.813995 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 81.020 TIME= 12:58:43
Element 2936 has an angle between adjacent edges of 32.0891582 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 81.020 TIME= 12:58:43
Element 2936 has an angle between adjacent edges of 147.863381 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 81.030 TIME= 12:58:43
Element 2937 has an angle between adjacent edges of 32.1366194 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 81.030 TIME= 12:58:43
Element 2937 has an angle between adjacent edges of 147.813995 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 81.030 TIME= 12:58:43
Element 2938 has an angle between adjacent edges of 32.0891582 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 81.030 TIME= 12:58:43
Element 2938 has an angle between adjacent edges of 147.863381 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 81.030 TIME= 12:58:43
Element 2939 has an angle between adjacent edges of 32.1366194 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 81.030 TIME= 12:58:43
Element 2939 has an angle between adjacent edges of 147.813995 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 81.040 TIME= 12:58:43
Element 2940 has an angle between adjacent edges of 32.0891582 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 81.040 TIME= 12:58:43
Element 2940 has an angle between adjacent edges of 147.863381 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 81.040 TIME= 12:58:43
Element 2941 has an angle between adjacent edges of 40.4145358 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 81.040 TIME= 12:58:43
Element 2941 has an angle between adjacent edges of 147.863381 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 81.040 TIME= 12:58:43
Element 2942 has an angle between adjacent edges of 139.585464 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 81.040 TIME= 12:58:43
Element 2942 has an angle between adjacent edges of 139.585464 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 81.050 TIME= 12:58:43
Element 2945 has an angle between adjacent edges of 40.4145358 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 81.050 TIME= 12:58:43
Element 2945 has an angle between adjacent edges of 147.863381 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 81.050 TIME= 12:58:43
Element 2946 has an angle between adjacent edges of 139.585464 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 81.050 TIME= 12:58:43
Element 2946 has an angle between adjacent edges of 139.585464 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 81.050 TIME= 12:58:43
Element 2949 has an angle between adjacent edges of 40.4145358 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 81.060 TIME= 12:58:43
Element 2949 has an angle between adjacent edges of 147.863381 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 81.060 TIME= 12:58:43
Element 2950 has an angle between adjacent edges of 139.585464 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 81.060 TIME= 12:58:43
Element 2950 has an angle between adjacent edges of 139.585464 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 81.060 TIME= 12:58:43
Element 2953 has an angle between adjacent edges of 40.4145358 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 81.060 TIME= 12:58:43
Element 2953 has an angle between adjacent edges of 147.863381 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 81.070 TIME= 12:58:43
Element 2954 has an angle between adjacent edges of 139.585464 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 81.070 TIME= 12:58:43
Element 2954 has an angle between adjacent edges of 139.585464 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 81.070 TIME= 12:58:43
Element 2957 has an angle between adjacent edges of 40.4145358 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 81.070 TIME= 12:58:43
Element 2957 has an angle between adjacent edges of 147.863381 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 81.070 TIME= 12:58:43
Element 2958 has an angle between adjacent edges of 139.585464 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 81.080 TIME= 12:58:43
Element 2958 has an angle between adjacent edges of 139.585464 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 81.080 TIME= 12:58:43
Element 2961 has an angle between adjacent edges of 40.4145358 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 81.080 TIME= 12:58:43
Element 2961 has an angle between adjacent edges of 147.863381 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 81.080 TIME= 12:58:43
Element 2962 has an angle between adjacent edges of 139.585464 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 81.080 TIME= 12:58:43
Element 2962 has an angle between adjacent edges of 139.585464 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 81.090 TIME= 12:58:43
Element 2965 has an angle between adjacent edges of 40.4145358 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 81.090 TIME= 12:58:43
Element 2965 has an angle between adjacent edges of 147.863381 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 81.090 TIME= 12:58:43
Element 2966 has an angle between adjacent edges of 139.585464 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 81.090 TIME= 12:58:43
Element 2966 has an angle between adjacent edges of 139.585464 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 81.090 TIME= 12:58:43
Element 2969 has an angle between adjacent edges of 40.4145358 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 81.100 TIME= 12:58:43
Element 2969 has an angle between adjacent edges of 147.863381 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 81.100 TIME= 12:58:43
Element 2970 has an angle between adjacent edges of 139.585464 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 81.100 TIME= 12:58:43
Element 2970 has an angle between adjacent edges of 139.585464 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 81.100 TIME= 12:58:43
Element 2973 has an angle between adjacent edges of 40.4145358 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 81.100 TIME= 12:58:43
Element 2973 has an angle between adjacent edges of 147.863381 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 81.110 TIME= 12:58:43
Element 2974 has an angle between adjacent edges of 139.585464 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 81.110 TIME= 12:58:43
Element 2974 has an angle between adjacent edges of 139.585464 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 81.110 TIME= 12:58:43
Element 2977 has an angle between adjacent edges of 40.4145358 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 81.110 TIME= 12:58:43
Element 2977 has an angle between adjacent edges of 147.863381 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 81.110 TIME= 12:58:43
Element 2978 has an angle between adjacent edges of 139.585464 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 81.110 TIME= 12:58:43
Element 2978 has an angle between adjacent edges of 139.585464 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 81.110 TIME= 12:58:43
Element 2981 has an angle between adjacent edges of 40.4145358 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 81.120 TIME= 12:58:43
Element 2981 has an angle between adjacent edges of 147.863381 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 81.120 TIME= 12:58:43
Element 2982 has an angle between adjacent edges of 139.585464 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 81.120 TIME= 12:58:43
Element 2982 has an angle between adjacent edges of 139.585464 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 81.120 TIME= 12:58:43
Element 2985 has an angle between adjacent edges of 40.4145358 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 81.120 TIME= 12:58:43
Element 2985 has an angle between adjacent edges of 147.863381 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 81.130 TIME= 12:58:43
Element 2986 has an angle between adjacent edges of 139.585464 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 81.130 TIME= 12:58:43
Element 2986 has an angle between adjacent edges of 139.585464 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 81.130 TIME= 12:58:43
Element 2989 has an angle between adjacent edges of 40.4145358 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 81.130 TIME= 12:58:43
Element 2989 has an angle between adjacent edges of 147.863381 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 81.130 TIME= 12:58:43
Element 2990 has an angle between adjacent edges of 139.585464 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 81.140 TIME= 12:58:43
Element 2990 has an angle between adjacent edges of 139.585464 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 81.140 TIME= 12:58:43
Element 2993 has an angle between adjacent edges of 40.4145358 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 81.140 TIME= 12:58:43
Element 2993 has an angle between adjacent edges of 147.863381 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 81.140 TIME= 12:58:43
Element 2994 has an angle between adjacent edges of 139.585464 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 81.140 TIME= 12:58:43
Element 2994 has an angle between adjacent edges of 139.585464 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 81.150 TIME= 12:58:43
Element 2997 has an angle between adjacent edges of 40.4145358 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 81.150 TIME= 12:58:43
Element 2997 has an angle between adjacent edges of 147.863381 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 81.150 TIME= 12:58:43
Element 2998 has an angle between adjacent edges of 139.585464 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 81.150 TIME= 12:58:43
Element 2998 has an angle between adjacent edges of 139.585464 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 81.150 TIME= 12:58:43
Element 3001 has an angle between adjacent edges of 40.4639215 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 81.160 TIME= 12:58:43
Element 3001 has an angle between adjacent edges of 147.813995 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 81.160 TIME= 12:58:43
Element 3002 has an angle between adjacent edges of 139.536079 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 81.160 TIME= 12:58:43
Element 3002 has an angle between adjacent edges of 139.536079 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 81.160 TIME= 12:58:43
Element 3005 has an angle between adjacent edges of 40.4639215 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 81.160 TIME= 12:58:43
Element 3005 has an angle between adjacent edges of 147.813995 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 81.170 TIME= 12:58:43
Element 3006 has an angle between adjacent edges of 139.536079 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 81.170 TIME= 12:58:43
Element 3006 has an angle between adjacent edges of 139.536079 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 81.170 TIME= 12:58:43
Element 3009 has an angle between adjacent edges of 40.4639215 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 81.170 TIME= 12:58:43
Element 3009 has an angle between adjacent edges of 147.813995 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 81.170 TIME= 12:58:43
Element 3010 has an angle between adjacent edges of 139.536079 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 81.180 TIME= 12:58:43
Element 3010 has an angle between adjacent edges of 139.536079 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 81.180 TIME= 12:58:43
Element 3013 has an angle between adjacent edges of 40.4639215 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 81.180 TIME= 12:58:43
Element 3013 has an angle between adjacent edges of 147.813995 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 81.180 TIME= 12:58:43
Element 3014 has an angle between adjacent edges of 139.536079 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 81.180 TIME= 12:58:43
Element 3014 has an angle between adjacent edges of 139.536079 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 81.190 TIME= 12:58:43
Element 3017 has an angle between adjacent edges of 40.4639215 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 81.190 TIME= 12:58:43
Element 3017 has an angle between adjacent edges of 147.813995 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 81.190 TIME= 12:58:43
Element 3018 has an angle between adjacent edges of 139.536079 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 81.190 TIME= 12:58:43
Element 3018 has an angle between adjacent edges of 139.536079 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

Error messages discontinued after 200 messages were displayed.
More may exist. See (seism4.err) for suppressed messages.

*** NOTE *** CP= 85.080 TIME= 12:58:47
The model data was checked and warning messages were found.
Please review output or errors file (seism4.err) for these warning
messages.

1

***** ANSYS - ENGINEERING ANALYSIS SYSTEM REVISION 5.1 24 *****
38303 VERSION=HP 9000/7XX 12:58:47 APR 10, 1996 CP= 85.080
FOR SUPPORT CALL ROBERT BAHNEY PHONE (702) 794-5337 FAX (702) 794-1844

21 PWR Tube Seismic Analysis With Backfill

SOLUTION OPTIONS

PROBLEM DIMENSIONALITY. 3-D
DEGREES OF FREEDOM. UX UY UZ
ANALYSIS TYPE MODAL
EXTRACTION METHOD. SUBSPACE
NUMBER OF MODES TO EXTRACT. 8

LOAD STEP OPTIONS

LOAD STEP NUMBER. 1

***** CENTROID, MASS, AND MASS MOMENTS OF INERTIA *****

CALCULATIONS ASSUME ELEMENT MASS AT ELEMENT CENTROID

TOTAL MASS = 11180.

CENTROID	MOM. OF INERTIA ABOUT ORIGIN	MOM. OF INERTIA ABOUT CENTROID
XC = 0.32883	IXX = 0.2183E+05	IXX = 6342.
YC = 0.22505	IYY = 0.2153E+05	IYY = 5397.
ZC = 1.1553	IZZ = 3642.	IZZ = 1866.
	IXY = -882.5	IXY = -55.14
	IYZ = -2903.	IYZ = 3.806
	IZX = -4250.	IZX = -2.669

*** MASS SUMMARY BY ELEMENT TYPE ***

TYPE	MASS
2	5469.41
3	343.834
4	184.329
5	115.124
6	5067.35

Range of element maximum matrix coefficients in global coordinates
 Maximum= 5.450155848E+11 at element 5101.
 Minimum= 180090805 at element 6499.

*** ELEMENT MATRIX FORMULATION TIMES

TYPE	NUMBER	ENAME	TOTAL CP	AVE CP
2	2520	SOLID45	14.440	0.006
3	1560	SOLID45	8.950	0.006
4	600	SOLID45	3.410	0.006
5	2872	SOLID45	16.460	0.006
6	1064	SOLID45	6.140	0.006

Time at end of element matrix formulation CP= 143.89.

Estimated number of active DOF= 37500.
 Maximum wavefront= 1397.

Time at end of matrix triangularization CP= 223.89.

SUBSPACE SIZE OF 12 VECTORS USED FOR CALCULATION OF FIRST 8 EIGENVECTORS.

MAXIMUM ITERATIONS	= 100
NUMBER OF EQUATIONS	= 37500
MAXIMUM WAVEFRONT	= 1397
ITERATIONS PER SHIFT	= 5
MAXIMUM MODES STORED	= 12
MAXIMUM EIGENVALUE	= 0.10000E+07
WORK SPACE (MBYTE)	= 8.0875

Equation solver maximum pivot= 1.42925125E+12 at node 8454 UX.

Equation solver minimum pivot= 1534691.43 at node 462 UY.

***** ITERATION 1 COMPLETE ***** CP= 2828.190 WALL= 14.0261

MODE	CURRENT VALUE	PREVIOUS VALUE	CONVERGENCE RATIO
1	29.225644	0.0000000E+00	0.10000E+01
2	36.158733	0.0000000E+00	0.10000E+01
3	36.697562	0.0000000E+00	0.10000E+01
4	44.411658	0.0000000E+00	0.10000E+01
5	51.589724	0.0000000E+00	0.10000E+01
6	54.879415	0.0000000E+00	0.10000E+01
7	58.488854	0.0000000E+00	0.10000E+01
8	63.235331	0.0000000E+00	0.10000E+01

9	71.737678	0.00000000E+00	0.10000E+01
10	72.851765	0.00000000E+00	0.10000E+01
11	76.885706	0.00000000E+00	0.10000E+01
12	84.023723	0.00000000E+00	0.10000E+01

ITERATIONS SINCE LAST SHIFT= 1
 TOTAL NUMBER OF ITERATIONS= 1
 NUMBER OF MODES CONVERGED= 0
 NUMBER OF WORKING VECTORS= 12
 CURRENT SHIFT POINT= -1.0000
 CP TIME FOR TRIANGULARIZATION= 2429.270
 CP TIME SINCE LAST SHIFT= 171.100

***** ITERATION 2 COMPLETE ***** CP= 3000.620 WALL= 14.1572

***** CURRENT EIGENVALUE CALCULATIONS *****

MODE	CURRENT VALUE	PREVIOUS VALUE	CONVERGENCE RATIO
1	21.627792	29.225644	0.82601E+00
2	28.810143	36.158733	0.57520E+00
3	29.667772	36.697562	0.53005E+00
4	34.152366	44.411658	0.69103E+00
5	35.951837	51.589724	0.10591E+01
6	38.114521	54.879415	0.10732E+01
7	41.469631	58.488854	0.98923E+00
8	45.094896	63.235331	0.96637E+00
9	49.657400	71.737678	0.10870E+01
10	53.274522	72.851765	0.87000E+00
11	55.086147	76.885706	0.94808E+00
12	56.590370	84.023723	0.12045E+01

ITERATIONS SINCE LAST SHIFT= 2
 TOTAL NUMBER OF ITERATIONS= 2
 NUMBER OF MODES CONVERGED= 0
 NUMBER OF WORKING VECTORS= 12
 CURRENT SHIFT POINT= -1.0000
 CP TIME FOR TRIANGULARIZATION= 2429.270
 CP TIME SINCE LAST SHIFT= 343.530

***** ITERATION 3 COMPLETE ***** CP= 3172.000 WALL= 14.2875

***** CURRENT EIGENVALUE CALCULATIONS *****

MODE	CURRENT VALUE	PREVIOUS VALUE	CONVERGENCE RATIO
1	21.525997	21.627792	0.94802E-02
2	28.427651	28.810143	0.27091E-01
3	28.826165	29.667772	0.59244E-01
4	32.120792	34.152366	0.13050E+00
5	33.693934	35.951837	0.13851E+00
6	35.663076	38.114521	0.14220E+00
7	37.957871	41.469631	0.19359E+00
8	42.795276	45.094896	0.11036E+00
9	46.355949	49.657400	0.14751E+00
10	49.612548	53.274522	0.15307E+00
11	50.340188	55.086147	0.19744E+00
12	52.086998	56.590370	0.18039E+00

ITERATIONS SINCE LAST SHIFT= 3
 TOTAL NUMBER OF ITERATIONS= 3
 NUMBER OF MODES CONVERGED= 0
 NUMBER OF WORKING VECTORS= 12
 CURRENT SHIFT POINT= -1.0000
 CP TIME FOR TRIANGULARIZATION= 2429.270
 CP TIME SINCE LAST SHIFT= 514.920

***** ITERATION 4 COMPLETE ***** CP= 3344.280 WALL= 14.4228

```

***** CURRENT EIGENVALUE CALCULATIONS *****
MODE  CURRENT VALUE  PREVIOUS VALUE  CONVERGENCE RATIO
1      21.523438      21.525997      0.23783E-03
2      28.400760      28.427651      0.18946E-02
3      28.684128      28.826165      0.99281E-02
4      30.507540      32.120792      0.10856E+00
5      33.621896      33.693934      0.42897E-02
6      35.479242      35.663076      0.10390E-01
7      37.287892      37.957871      0.36258E-01
8      40.982746      42.795276      0.90409E-01
9      43.732626      46.355949      0.12357E+00
10     47.061992      49.612548      0.11133E+00
11     48.594890      50.340188      0.73120E-01
12     51.458515      52.086998      0.24576E-01

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```

ITERATIONS SINCE LAST SHIFT= 4
TOTAL NUMBER OF ITERATIONS= 4
NUMBER OF MODES CONVERGED= 0
NUMBER OF WORKING VECTORS= 12
CURRENT SHIFT POINT= -1.0000
CP TIME FOR TRIANGULARIZATION= 2429.270
CP TIME SINCE LAST SHIFT= 687.190

```

***** ITERATION 5 COMPLETE ***** CP= 3516.510 WALL= 14.5567

```

***** CURRENT EIGENVALUE CALCULATIONS *****
MODE  CURRENT VALUE  PREVIOUS VALUE  CONVERGENCE RATIO
1      21.523367      21.523438      0.66305E-05
2      28.398119      28.400760      0.18600E-03
3      28.658769      28.684128      0.17705E-02
4      30.085551      30.507540      0.28249E-01
5      33.608241      33.621896      0.81280E-03
6      35.424289      35.479242      0.31050E-02
7      36.837192      37.287892      0.24620E-01
8      39.415112      40.982746      0.81127E-01
9      42.816958      43.732626      0.43229E-01
10     44.865624      47.061992      0.10031E+00
11     48.230860      48.594890      0.15152E-01
12     51.111705      51.458515      0.13617E-01

```

```

ITERATIONS SINCE LAST SHIFT= 5
TOTAL NUMBER OF ITERATIONS= 5
NUMBER OF MODES CONVERGED= 1
NUMBER OF WORKING VECTORS= 12
CURRENT SHIFT POINT= -1.0000
CP TIME FOR TRIANGULARIZATION= 2429.270
CP TIME SINCE LAST SHIFT= 859.420

```

*** NOTE *** CP= 3516.520 TIME= 14:33:24
NEW SHIFT= 28.0943635.

*** NOTE *** CP= 6005.910 TIME= 15:33:13
STURM number= 1 should be 1.

***** ITERATION 6 COMPLETE ***** CP= 6147.980 WALL= 15.6611

***** PREVIOUS CONVERGED EIGENVALUES *****
1 21.5233666

```

***** CURRENT EIGENVALUE CALCULATIONS *****
MODE  CURRENT VALUE  PREVIOUS VALUE  CONVERGENCE RATIO
2      28.397737      28.398119      0.26862E-04
3      28.654161      28.658769      0.32167E-03
4      29.972235      30.085551      0.75757E-02
5      33.604964      33.608241      0.19505E-03

```

6	35.379536	35.424289	0.25315E-02
7	36.394935	36.837192	0.24451E-01
8	38.581253	39.415112	0.43693E-01
9	42.331602	42.816958	0.23063E-01
10	43.145654	44.865624	0.81318E-01
11	48.029034	48.230860	0.84220E-02
12	50.753920	51.111705	0.14149E-01

ITERATIONS SINCE LAST SHIFT= 1
 TOTAL NUMBER OF ITERATIONS= 6
 NUMBER OF MODES CONVERGED= 1
 NUMBER OF WORKING VECTORS= 12
 CURRENT SHIFT POINT= 28.094
 CP TIME FOR TRIANGULARIZATION= 2489.660
 CP TIME SINCE LAST SHIFT= 141.800

***** ITERATION 7 COMPLETE ***** CP= 6292.840 WALL= 15.7658

***** PREVIOUS CONVERGED EIGENVALUES *****
 1 21.5233666

***** CURRENT EIGENVALUE CALCULATIONS *****

MODE	CURRENT VALUE	PREVIOUS VALUE	CONVERGENCE RATIO
2	28.397737	28.397737	0.39508E-08
3	28.654159	28.654161	0.13833E-06
4	29.971520	29.972235	0.47694E-04
5	33.604829	33.604964	0.80203E-05
6	35.371872	35.379536	0.43337E-03
7	36.322644	36.394935	0.39845E-02
8	38.451295	38.581253	0.67710E-02
9	42.160094	42.331602	0.81526E-02
10	42.570925	43.145654	0.27183E-01
11	47.942638	48.029034	0.36074E-02
12	50.449028	50.753920	0.12124E-01

ITERATIONS SINCE LAST SHIFT= 2
 TOTAL NUMBER OF ITERATIONS= 7
 NUMBER OF MODES CONVERGED= 3
 NUMBER OF WORKING VECTORS= 12
 CURRENT SHIFT POINT= 28.094
 CP TIME FOR TRIANGULARIZATION= 2489.660
 CP TIME SINCE LAST SHIFT= 286.670

***** ITERATION 8 COMPLETE ***** CP= 6427.870 WALL= 15.8703

***** PREVIOUS CONVERGED EIGENVALUES *****
 1 21.5233666 2 28.3977373 3 28.6541590

***** CURRENT EIGENVALUE CALCULATIONS *****

MODE	CURRENT VALUE	PREVIOUS VALUE	CONVERGENCE RATIO
4	29.971517	29.971520	0.24119E-06
5	33.604823	33.604829	0.35971E-06
6	35.371108	35.371872	0.43225E-04
7	36.314455	36.322644	0.45104E-03
8	38.429671	38.451295	0.11257E-02
9	42.093428	42.160094	0.31701E-02
10	42.392804	42.570925	0.84211E-02
11	47.897545	47.942638	0.18838E-02
12	50.155094	50.449028	0.11755E-01

ITERATIONS SINCE LAST SHIFT= 3
 TOTAL NUMBER OF ITERATIONS= 8
 NUMBER OF MODES CONVERGED= 5
 NUMBER OF WORKING VECTORS= 12
 CURRENT SHIFT POINT= 28.094
 CP TIME FOR TRIANGULARIZATION= 2489.660

CP TIME SINCE LAST SHIFT= 421.690

***** ITERATION 9 COMPLETE ***** CP= 6557.360 WALL= 15.9783

***** PREVIOUS CONVERGED EIGENVALUES *****

1	21.5233666	2	28.3977373	3	28.6541590
4	29.9715167	5	33.6048227		

***** CURRENT EIGENVALUE CALCULATIONS *****

MODE	CURRENT VALUE	PREVIOUS VALUE	CONVERGENCE RATIO
6	35.371040	35.371108	0.38307E-05
7	36.313584	36.314455	0.47955E-04
8	38.426055	38.429671	0.18823E-03
9	42.069743	42.093428	0.11263E-02
10	42.332423	42.392804	0.28547E-02
11	47.870620	47.897545	0.11252E-02
12	49.854811	50.155094	0.12083E-01

ITERATIONS SINCE LAST SHIFT= 4
 TOTAL NUMBER OF ITERATIONS= 9
 NUMBER OF MODES CONVERGED= 6
 NUMBER OF WORKING VECTORS= 12
 CURRENT SHIFT POINT= 28.094
 CP TIME FOR TRIANGULARIZATION= 2489.660
 CP TIME SINCE LAST SHIFT= 551.180

***** ITERATION 10 COMPLETE ***** CP= 6679.680 WALL= 16.0814

***** PREVIOUS CONVERGED EIGENVALUES *****

1	21.5233666	2	28.3977373	3	28.6541590
4	29.9715167	5	33.6048227	6	35.3710398

***** CURRENT EIGENVALUE CALCULATIONS *****

MODE	CURRENT VALUE	PREVIOUS VALUE	CONVERGENCE RATIO
7	36.313492	36.313584	0.50648E-05
8	38.425453	38.426055	0.31338E-04
9	42.061798	42.069743	0.37780E-03
10	42.309411	42.332423	0.10881E-02
11	47.853010	47.870620	0.73613E-03
12	49.540579	49.854811	0.12726E-01

ITERATIONS SINCE LAST SHIFT= 5
 TOTAL NUMBER OF ITERATIONS= 10
 NUMBER OF MODES CONVERGED= 7
 NUMBER OF WORKING VECTORS= 12
 CURRENT SHIFT POINT= 28.094
 CP TIME FOR TRIANGULARIZATION= 2489.660
 CP TIME SINCE LAST SHIFT= 673.500

*** NOTE *** CP= 6679.680 TIME= 16:04:53
 NEW SHIFT= 38.3226191.

*** NOTE *** CP= 9257.360 TIME= 17:18:11
 STURM number= 7 should be 7.

***** ITERATION 11 COMPLETE ***** CP= 9375.160 WALL= 17.4075

***** PREVIOUS CONVERGED EIGENVALUES *****

1	21.5233666	2	28.3977373	3	28.6541590
4	29.9715167	5	33.6048227	6	35.3710398
7	36.3134924				

***** CURRENT EIGENVALUE CALCULATIONS *****

MODE	CURRENT VALUE	PREVIOUS VALUE	CONVERGENCE RATIO
------	---------------	----------------	-------------------

8 38.425333 38.425453 0.62227E-05

*** NOTE *** CP= 9375.160 TIME= 17:24:27
NEW SHIFT= 38.8039263.

*** NOTE *** CP= 11963.510 TIME= 18:36:46
STURM number= 8 should be 8.

1

***** ANSYS - ENGINEERING ANALYSIS SYSTEM REVISION 5.1 24 *****
38303 VERSION=HP 9000/7XX 18:36:49 APR 10, 1996 CP= 11963.950
FOR SUPPORT CALL ROBERT BAHNEY PHONE (702) 794-5337 FAX (702) 794-1844

21 PWR Tube Seismic Analysis With Backfill

***** FREQUENCIES FROM SUBSPACE ITERATION *****

MODE FREQUENCY (HERTZ)

1	21.523367
2	28.397737
3	28.654159
4	29.971517
5	33.604823
6	35.371040
7	36.313492
8	38.425333

*** PROBLEM STATISTICS

ACTUAL NO. OF ACTIVE DEGREES OF FREEDOM = 37500
R.M.S. WAVEFRONT SIZE = 902.2

*** ANSYS BINARY FILE STATISTICS

BUFFER SIZE USED= 4096
44.625 MB WRITTEN ON ELEMENT MATRIX FILE: seism4.emat
29.703 MB WRITTEN ON ELEMENT SAVED DATA FILE: seism4.esav
21.094 MB WRITTEN ON ASSEMBLED MATRIX FILE: seism4.full
2.719 MB WRITTEN ON MODAL MATRIX FILE: seism4.mode

FINISH SOLUTION PROCESSING

***** ROUTINE COMPLETED ***** CP = 11971.010

***** ANSYS SOLUTION ROUTINE *****

PERFORM AN EXPANSION PASS

NUMBER OF MODES TO EXPAND= 8
CALCULATE ELEMENT RESULTS AND NODAL DOF SOLUTION

***** ANSYS SOLVE COMMAND *****

1

***** ANSYS - ENGINEERING ANALYSIS SYSTEM REVISION 5.1 24 *****
38303 VERSION=HP 9000/7XX 18:37:10 APR 10, 1996 CP= 11971.010
FOR SUPPORT CALL ROBERT BAHNEY PHONE (702) 794-5337 FAX (702) 794-1844

21 PWR Tube Seismic Analysis With Backfill

SOLUTION OPTIONS

PROBLEM DIMENSIONALITY 3-D
 DEGREES OF FREEDOM UX UY UZ
 ANALYSIS TYPE MODAL
 EXTRACTION METHOD SUBSPACE
 EXPANSION PASS ON
 NUMBER OF MODES TO EXPAND 8
 ELEMENT RESULTS CALCULATION ON

LOAD STEP OPTIONS

LOAD STEP NUMBER 1
 PRINT OUTPUT CONTROLS NO PRINTOUT
 DATABASE OUTPUT CONTROLS
 ITEM FREQUENCY COMPONENT
 ALL ALL

*** NOTE *** CP= 12000.130 TIME= 18:38:28
 Page file used.

*** ELEMENT RESULT CALCULATION TIMES

TYPE	NUMBER	ENAME	TOTAL CP	AVE CP
2	2520	SOLID45	9.450	0.004
3	1560	SOLID45	5.890	0.004
4	600	SOLID45	2.340	0.004
5	2872	SOLID45	11.110	0.004
6	1064	SOLID45	4.020	0.004

*** NODAL LOAD CALCULATION TIMES

TYPE	NUMBER	ENAME	TOTAL CP	AVE CP
2	2520	SOLID45	0.980	0.000
3	1560	SOLID45	0.590	0.000
4	600	SOLID45	0.100	0.000
5	2872	SOLID45	0.990	0.000
6	1064	SOLID45	0.310	0.000

*** ANSYS BINARY FILE STATISTICS

BUFFER SIZE USED= 4096
 106.109 MB WRITTEN ON RESULTS FILE: seism4.rst

FINISH SOLUTION PROCESSING

***** ROUTINE COMPLETED ***** CP = 12270.770

***** ANSYS SOLUTION ROUTINE *****

PERFORM A SPECTRUM ANALYSIS
 THIS WILL BE A NEW ANALYSIS

*** NOTE *** CP= 12270.770 TIME= 18:50:46
 Some analysis options have been reset to their defaults. Please verify
 current settings or respecify as required.

USE SINGLE POINT EXCITATION RESPONSE SPECTRUM
 USE ALL MODES FROM THE MODAL ANALYSIS
 INCLUDE STRESS RESPONSES IN THE CALCULATIONS

SEISMIC EXCITATION DIRECTION = 0.00000E+00 1.0000 0.00000E+00

SPECTRUM TYPE KEY= 2 FACTOR= 1.00000

FREQ= 0.100 100. 0.000E+00 0.000E+00 0.000E+00 0.000E+00 0.000E+00 0.000E+00 0.000E+00
NUMBER OF FREQUENCIES IN TABLE = 2

DAMPING= 0.00000E+00 SV= 16.285 16.285 0.00000E+00
0.00000E+00 0.00000E+00 0.00000E+00
0.00000E+00 0.00000E+00 0.00000E+00

COMBINE MODES USING THE SRSS METHOD
WHOSE SIGNIFICANCE LEVEL EXCEEDS THE THRESHOLD OF 0.10000E-07

WRITE ALL ITEMS TO THE DATABASE WITH A FREQUENCY OF 1
FOR ALL APPLICABLE ENTITIES

ALL CURRENT ANSYS DATA WRITTEN TO FILE NAME= seism4.db
FOR POSSIBLE RESUME FROM THIS POINT

***** ANSYS SOLVE COMMAND *****

1

***** ANSYS - ENGINEERING ANALYSIS SYSTEM REVISION 5.1 24 *****
38303 VERSION=HP 9000/7XX 18:51:24 APR 10, 1996 CP= 12284.310
FOR SUPPORT CALL ROBERT BAHNEY PHONE (702) 794-5337 FAX (702) 794-1844

21 PWR Tube Seismic Analysis With Backfill

SOLUTION OPTIONS

PROBLEM DIMENSIONALITY. 3-D
DEGREES OF FREEDOM. UX UY UZ
ANALYSIS TYPE. SPECTRUM
SPECTRUM TYPE. SINGLE POINT
NUMBER OF MODES TO BE USED. 8
ELEMENT RESULTS CALCULATION. ON

LOAD STEP OPTIONS

LOAD STEP NUMBER. 1
SPECTRUM LOADING TYPE. ACCELERATION
EXCITATION DIRECTION. 0.00000E+00 1.0000 0.00000E+00
MODE COMBINATION TYPE. SRSS
SIGNIFICANCE LEVEL FOR COMBINATIONS. 0.10000E-07
PRINT OUTPUT CONTROLS. NO PRINTOUT
DATABASE OUTPUT CONTROLS
ITEM FREQUENCY COMPONENT
ALL ALL

1

***** ANSYS - ENGINEERING ANALYSIS SYSTEM REVISION 5.1 24 *****
38303 VERSION=HP 9000/7XX 18:51:38 APR 10, 1996 CP= 12288.500
FOR SUPPORT CALL ROBERT BAHNEY PHONE (702) 794-5337 FAX (702) 794-1844

21 PWR Tube Seismic Analysis With Backfill

SIGNIFICANCE FACTOR FOR COMBINING MODES = 0.10000E-07

SIGNIFICANT MODE COEFFICIENTS (INCLUDING DAMPING)

MODE	FREQUENCY	DAMPING	SV	MODE COEF.
1	21.52	0.0000	16.285	-0.4898E-02
2	28.40	0.0000	16.285	0.4076E-01
3	28.65	0.0000	16.285	0.2971E-02
4	29.97	0.0000	16.285	0.2051E-03
5	33.60	0.0000	16.285	0.5948E-02
6	35.37	0.0000	16.285	0.1042E-02

7	36.31	0.0000	16.285	-0.1785E-03
8	38.43	0.0000	16.285	0.1629E-03

MODAL COMBINATION COEFFICIENTS

MODE=	1	FREQUENCY=	21.523	COUPLING COEF.=	1.000
MODE=	2	FREQUENCY=	28.398	COUPLING COEF.=	1.000
MODE=	3	FREQUENCY=	28.654	COUPLING COEF.=	1.000
MODE=	4	FREQUENCY=	29.972	COUPLING COEF.=	1.000
MODE=	5	FREQUENCY=	33.605	COUPLING COEF.=	1.000
MODE=	6	FREQUENCY=	35.371	COUPLING COEF.=	1.000
MODE=	7	FREQUENCY=	36.313	COUPLING COEF.=	1.000
MODE=	8	FREQUENCY=	38.425	COUPLING COEF.=	1.000

SRSS COMBINATION INSTRUCTIONS WRITTEN ON FILE seism4.mcom

*** PROBLEM STATISTICS

ACTUAL NO. OF ACTIVE DEGREES OF FREEDOM = 37500
R.M.S. WAVEFRONT SIZE = 902.2

*** ANSYS BINARY FILE STATISTICS

BUFFER SIZE USED= 4096

FINISH SOLUTION PROCESSING

***** ROUTINE COMPLETED ***** CP = 12288.520

PURGE ALL SOLUTION AND POST DATA
SAVE ALL MODEL DATA

ALL CURRENT ANSYS DATA WRITTEN TO FILE NAME= seism4.db
FOR POSSIBLE RESUME FROM THIS POINT

```
NUMBER OF WARNING MESSAGES ENCOUNTERED= 1042
NUMBER OF ERROR MESSAGES ENCOUNTERED= 0
```

*** PAGE FILE USED ***

```

NUMBER OF R/W OPERATIONS=          790
MAXIMUM RECORD NUMBER   =          599
RECORD SIZE (1*4 WORDS) =        16384
PAGE FILE SIZE (MB)     =        37.438

```

ANSYS RUN COMPLETED

REV. 5.1 24

HP 9000/7XX

```
CP TIME      (sec) =      12297.830
ELAPSED TIME (sec) =      21281.000
```

TIME = 18:51:58
DATE = 04/10/96

-----*
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-----*

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***** ANSYS COMMAND LINE ARGUMENTS *****

INITIAL JOBNAME = postf4
MEMORY REQUESTED (MB) = 64.0
BATCH MODE REQUESTED = LIST
START-UP FILE MODE = READ

*** NOTE *** CP= 0.180 TIME= 19:24:00
There are no parameters and no abbreviations defined.

38303 VERSION=HP 9000/7XX REVISION= 5.1 24
FOR SUPPORT CALL ROBERT BAHNEY PHONE: (702) 794-5337 FAX (702) 794-1844
CURRENT JOBNAME=postf4 19:24:00 APR 10, 1996 CP= 0.190

```
1 resume,seism4,db
2 /filnam,seism4
3 /post1
4 set,1,5
5 /input,,mcom
6 /out,seism4,res
7 /com, 100% Degradation of Outer Barrier, Backfill Present, Supports in From Ends
8 /com, 90% Degradation of Inner Barrier
9 /com,
10 /com,
11 /com, MAXIMUM STRESS INTENSITY IN THE OUTER BARRIER
12 /com,
13 /com, No Outer Barrier
14 /esel,s,type,,6,7
15 /nsle
16 /esln
17 /!set,1,5
18 /!nsort,s,int,0,0,1
19 /!prns,s,prin
20
21 /com,
22 /com,
23 /com, MAXIMUM STRESS INTENSITY IN THE INNER BARRIER
24 /com,
25 /com,
26 /esel,s,type,,5,6
27 /nsle
28 /esln
29 /nsort,s,int,0,0,1
30 /prns,s,prin
31
32 /com,
33 /com,
34 /com, MAXIMUM STRESS INTENSITY IN BASKET TUBES, CORNER GUIDES, AND END GUIDES
35 /com,
36 /com,
37 /esel,s,type,,1
38 /esel,a,type,,3,4
39 /nsle
40 /esln
41 /nsort,s,int,0,0,1
42 /prns,s,prin
43
44 /com,
45 /com,
46 /com, MAXIMUM STRESS INTENSITY IN CRITICALITY CONTROL PLATES
47 /com,
48 /com,
49 /esel,s,type,,2
50 /nsle
```

```

51 esln
52 nsort,s,int,0,0,1
53 prns,s,prin
54
55 /out
56 fini
57 /exit,nosave
58 /eof

```

RUN SETUP PROCEDURE FROM FILE= /ansys51/docu/start.ans

/INPUT FILE= /ansys51/docu/start.ans LINE= 0

ABBREVIATION= REPLOT /REPLOT

PARAMETER PI = 3.141593

```

*****
ANSYS STARTUP FILE start.ans
*****

```

```

ABBREVIATION= VEC      /show,,1,
ABBREVIATION= RAS      /show,,0,
ABBREVIATION= INP      /input,,inp,
ABBREVIATION= ESC      /exit,nosav,
ABBREVIATION= K1       /pnum,kp ,1,
ABBREVIATION= K0       /pnum,kp ,0,
ABBREVIATION= L1       /pnum,line,1,
ABBREVIATION= L0       /pnum,line,0,
ABBREVIATION= A1       /pnum,area,1,
ABBREVIATION= A0       /pnum,area,0,
ABBREVIATION= V1       /pnum,volu,1,
ABBREVIATION= V0       /pnum,volu,0,
ABBREVIATION= N1       /pnum,node,1,
ABBREVIATION= N0       /pnum,node,0,
ABBREVIATION= E1       /pnum,elem,1,
ABBREVIATION= E0       /pnum,elem,0,
ABBREVIATION= M1       /pnum,mat ,1,
ABBREVIATION= M0       /pnum,mat ,0,
ABBREVIATION= R1       /pnum,real,1,
ABBREVIATION= R0       /pnum,real,0,
ABBREVIATION= T1       /pnum,type,1,
ABBREVIATION= T0       /pnum,type,0,
ABBREVIATION= C1       /number,1,
ABBREVIATION= C0       /number,0,
ABBREVIATION= PR1      /psf,pres,norm,1,

```

ABBREVIATION= PRO /psf,pres,norm,0,
ABBREVIATION= U1 /pbc,u,1,
ABBREVIATION= U0 /pbc,u,0,
ABBREVIATION= X3D /show,3d,
ABBREVIATION= X11 /show,x11,
ABBREVIATION= X11C /show,x11c,
ABBREVIATION= ON /menu,on,
XYZ TRIAD DISPLAY SET TO OFF

VIEW CONE ANGLE FOR WINDOW 1 25.00

END start.ans

To start ANSYS menu:

type: x3d for console
x11 for X-term color
x11c for X-term color contour

type: on

RESUME ANSYS DATA FROM FILE NAME=seism4.db

*** ANSYS GLOBAL STATUS ***

TITLE = 21 PWR Tube Seismic Analysis With Backfill

ANALYSIS TYPE = SPECTRUM

NUMBER OF ELEMENT TYPES = 6

8616 ELEMENTS CURRENTLY SELECTED.	MAX ELEMENT NUMBER	=	8616
12897 NODES CURRENTLY SELECTED.	MAX NODE NUMBER	=	12897
690 KEYPOINTS CURRENTLY SELECTED.	MAX KEYPOINT NUMBER	=	9001
1604 LINES CURRENTLY SELECTED.	MAX LINE NUMBER	=	1604
1133 AREAS CURRENTLY SELECTED.	MAX AREA NUMBER	=	1133
269 VOLUMES CURRENTLY SELECTED.	MAX VOL. NUMBER	=	269

MAXIMUM LINEAR PROPERTY NUMBER	=	6
ACTIVE COORDINATE SYSTEM	=	0 (CARTESIAN)
NUMBER OF SPECIFIED CONSTRAINTS	=	1191

INITIAL JOBNAME = postf4

CURRENT JOBNAME = postf4

CURRENT JOBNAME REDEFINED AS seism4

1

***** ANSYS - ENGINEERING ANALYSIS SYSTEM REVISION 5.1 24 *****
38303 VERSION=HP 9000/7XX 19:24:12 APR 10, 1996 CP= 5.860
FOR SUPPORT CALL ROBERT BAHNEY PHONE (702) 794-5337 FAX (702) 794-1844

21 PWR Tube Seismic Analysis With Backfill

***** ANSYS RESULTS INTERPRETATION (POST1) *****

USE LOAD STEP 1 SUBSTEP 5 FOR LOAD CASE 0

*** NOTE *** CP= 7.550 TIME= 19:24:16
Page file used.

SET COMMAND GOT LOAD STEP= 1 SUBSTEP= 5 CUMULATIVE ITERATION= 5
TIME/FREQUENCY= 33.605

TITLE= 21 PWR Tube Seismic Analysis With Backfill

/INPUT FILE= seism4.mcom LINE= 0
ANSYS REVISION 5.1 24 18:51:38 04/10/1996
seism4.mcom

CURRENT LOAD SET IN DATABASE IS ERASED

LOAD CASE 1 IS LOAD STEP 1 SUBSTEP 1 COMPLEX= 0
FILE= seism4.rst
21 PWR Tube Seismic Analysis With Backfill

LOAD CASE 1 FACTOR SET TO-0.48984E-02

COPY LOAD CASE 1 FROM FILE TO DATABASE

SQUARE THE CURRENT LOAD SET IN DATABASE

*** NOTE *** CP= 32.870 TIME= 19:25:29
Load case combination data may not be correct unless viewed in the
solution phase coordinate system (RSYS= SOLU).

LOAD CASE 1 IS LOAD STEP 1 SUBSTEP 2 COMPLEX= 0
FILE= seism4.rst
21 PWR Tube Seismic Analysis With Backfill

LOAD CASE 1 FACTOR SET TO 0.40757E-01

LCOPER OPERATION ADD USING LOAD CASE= 1 FACTOR= 0.40757E-01 ABS= 0
MULTIPLIED BY LOAD CASE= 1 FACTOR= 0.40757E-01 ABS= 0

LOAD CASE 1 IS LOAD STEP 1 SUBSTEP 3 COMPLEX= 0
FILE= seism4.rst
21 PWR Tube Seismic Analysis With Backfill

LOAD CASE 1 FACTOR SET TO 0.29710E-02

LCOPER OPERATION ADD USING LOAD CASE= 1 FACTOR= 0.29710E-02 ABS= 0
MULTIPLIED BY LOAD CASE= 1 FACTOR= 0.29710E-02 ABS= 0

LOAD CASE 1 IS LOAD STEP 1 SUBSTEP 4 COMPLEX= 0
FILE= seism4.rst
21 PWR Tube Seismic Analysis With Backfill

LOAD CASE 1 FACTOR SET TO 0.20511E-03

LCOPER OPERATION ADD USING LOAD CASE= 1 FACTOR= 0.20511E-03 ABS= 0
MULTIPLIED BY LOAD CASE= 1 FACTOR= 0.20511E-03 ABS= 0

LOAD CASE 1 IS LOAD STEP 1 SUBSTEP 5 COMPLEX= 0
FILE= seism4.rst
21 PWR Tube Seismic Analysis With Backfill

LOAD CASE 1 FACTOR SET TO 0.59476E-02

LCOPER OPERATION ADD USING LOAD CASE= 1 FACTOR= 0.59476E-02 ABS= 0
MULTIPLIED BY LOAD CASE= 1 FACTOR= 0.59476E-02 ABS= 0

LOAD CASE 1 IS LOAD STEP 1 SUBSTEP 6 COMPLEX= 0
FILE= seism4.rst
21 PWR Tube Seismic Analysis With Backfill

LOAD CASE 1 FACTOR SET TO 0.10421E-02

LCOPER OPERATION ADD USING LOAD CASE= 1 FACTOR= 0.10421E-02 ABS= 0
MULTIPLIED BY LOAD CASE= 1 FACTOR= 0.10421E-02 ABS= 0

LOAD CASE 1 IS LOAD STEP 1 SUBSTEP 7 COMPLEX= 0
FILE= seism4.rst
21 PWR Tube Seismic Analysis With Backfill

LOAD CASE 1 FACTOR SET TO-0.17849E-03

LCOPER OPERATION ADD USING LOAD CASE= 1 FACTOR=-0.17849E-03 ABS= 0
MULTIPLIED BY LOAD CASE= 1 FACTOR=-0.17849E-03 ABS= 0

LOAD CASE 1 IS LOAD STEP 1 SUBSTEP 8 COMPLEX= 0
FILE= seism4.rst
21 PWR Tube Seismic Analysis With Backfill

LOAD CASE 1 FACTOR SET TO 0.16293E-03

LCOPER OPERATION ADD USING LOAD CASE= 1 FACTOR= 0.16293E-03 ABS= 0
MULTIPLIED BY LOAD CASE= 1 FACTOR= 0.16293E-03 ABS= 0

TAKE SQRT OF CURRENT LOAD SET IN DATABASE

/OUTPUT FILE= seism4.res

EXIT THE ANSYS POST1 DATABASE PROCESSOR

***** ROUTINE COMPLETED ***** CP = 118.860

EXIT ANSYS WITHOUT SAVING DATABASE

NUMBER OF WARNING MESSAGES ENCOUNTERED= 0
NUMBER OF ERROR MESSAGES ENCOUNTERED= 0

*** PAGE FILE USED ***
NUMBER OF R/W OPERATIONS= 15583
MAXIMUM RECORD NUMBER = 554
RECORD SIZE (I*4 WORDS) = 16384
PAGE FILE SIZE (MB) = 34.625

```
*-----*
|                                     |
|               ANSYS RUN COMPLETED               |
|-----|
|               REV. 5.1  24               HP 9000/7XX               |
|               CP TIME      (sec) =      118.910      TIME = 19:30:25      |
|               ELAPSED TIME (sec) =      387.000      DATE  = 04/10/96      |
|               |                                     |
|-----|
*-----*
```

-----*

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***** ANSYS COMMAND LINE ARGUMENTS *****

INITIAL JOBNAME = postlin4
MEMORY REQUESTED (MB) = 64.0
BATCH MODE REQUESTED = LIST
START-UP FILE MODE = READ

*** NOTE *** CP= 0.170 TIME= 19:32:04
There are no parameters and no abbreviations defined.

38303 VERSION=HP 9000/7XX REVISION= 5.1 24
FOR SUPPORT CALL ROBERT BAHNEY PHONE (702) 794-5337 FAX (702) 794-1844
CURRENT JOBNAME=postlin4 19:32:04 APR 10, 1996 CP= 0.170

```
1 resume,seism4,db
2 /filnam,seism4
3 /post1
4 set,1,5
5 /input,,mcom
6 /com, Outer Barrier Stress Distribution
7 !nsel,s,node,,13294
8 !nsel,a,node,,13367
9 !nsel,a,node,,12430
10 !nsel,a,node,,12503
11 !nsel,a,node,,7840
12 !esln
13 !lpath,7840,13294
14 !/out,obstress
15 /com, Outer Barrier Linearized Stresses at Location of Peak Stress
16 !prsect
17 !/out
18 !/show,obdist,grph
19 !plsect,s,int
20 !/show,term
21 /com, Inner Barrier Stress Distribution
22 nsel,s,node,,8632
23 nsel,a,node,,8634
24 nsel,a,node,,8626
25 esln
26 lpath,8632,8626
27 /out,ibstress
28 /com, Inner Barrier Linearized Stresses at Location of Peak Stress
29 prsect
30 /out
31 /show,ibdist,grph
32 plsect,s,int
33 /show,term
34 /com, Basket Stress Distribution
35 nsel,s,node,,4355
36 nsel,a,node,,4370
37 nsel,a,node,,4293
38 esln
39 lpath,4355,4293
40 /out,bktstress
41 /com, Basket Tubes and Guides Linearized Stresses at Location of Peak Stress
42 prsect
43 /out
44 /show,bktdist,grph
45 plsect,s,int
46 /show,term
47 /com, Criticality Control Plate Stress Distribution
48 nsel,s,node,,3878
49 nsel,a,node,,3956
50 nsel,a,node,,3830
```

```

51 esln
52 lpath,3878,3830
53 /out,pltstress
54 /com, Criticality Control Plates Linearized Stresses at Location of Peak Stress
55 prsect
56 /out
57 /show,pltdist,grph
58 plsect,s,int
59 /show,term
60 fini
61 /exit,nosave

```

RUN SETUP PROCEDURE FROM FILE= /ansys51/docu/start.ans

/INPUT FILE= /ansys51/docu/start.ans LINE= 0

ABBREVIATION= REplot /REplot

PARAMETER PI = 3.141593

```

*****
ANSYS STARTUP FILE start.ans
*****

```

```

ABBREVIATION= VEC      /show,,,1,
ABBREVIATION= RAS      /show,,,0,
ABBREVIATION= INP      /input,,inp,
ABBREVIATION= ESC      /exit,nosav,
ABBREVIATION= K1       /pnum,kp ,1,
ABBREVIATION= K0       /pnum,kp ,0,
ABBREVIATION= L1       /pnum,line,1,
ABBREVIATION= L0       /pnum,line,0,
ABBREVIATION= A1       /pnum,area,1,
ABBREVIATION= A0       /pnum,area,0,
ABBREVIATION= V1       /pnum,volu,1,
ABBREVIATION= V0       /pnum,volu,0,
ABBREVIATION= N1       /pnum,node,1,
ABBREVIATION= N0       /pnum,node,0,
ABBREVIATION= E1       /pnum,elem,1,
ABBREVIATION= E0       /pnum,elem,0,
ABBREVIATION= M1       /pnum,mat ,1,
ABBREVIATION= M0       /pnum,mat ,0,
ABBREVIATION= R1       /pnum,real,1,
ABBREVIATION= R0       /pnum,real,0,
ABBREVIATION= T1       /pnum,type,1,
ABBREVIATION= T0       /pnum,type,0,
ABBREVIATION= C1       /number,1,
ABBREVIATION= C0       /number,0,

```

ABBREVIATION= PR1 /psf,pres,norm,1,
ABBREVIATION= PRO /psf,pres,norm,0,
ABBREVIATION= U1 /pbc,u,1,
ABBREVIATION= U0 /pbc,u,0,
ABBREVIATION= X3D /show,3d,
ABBREVIATION= X11 /show,x11,
ABBREVIATION= X11C /show,x11c,
ABBREVIATION= ON /menu,on,
XYZ TRIAD DISPLAY SET TO OFF

VIEW CONE ANGLE FOR WINDOW 1 25.00

END start.ans

To start ANSYS menu:

type: x3d for console
x11 for X-term color
x11c for X-term color contour

type: on

RESUME ANSYS DATA FROM FILE NAME=seism4.db

*** ANSYS GLOBAL STATUS ***

TITLE = 21 PWR Tube Seismic Analysis With Backfill

ANALYSIS TYPE = SPECTRUM

NUMBER OF ELEMENT TYPES = 6

8616 ELEMENTS CURRENTLY SELECTED.	MAX ELEMENT NUMBER =	8616
12897 NODES CURRENTLY SELECTED.	MAX NODE NUMBER =	12897
690 KEYPOINTS CURRENTLY SELECTED.	MAX KEYPOINT NUMBER =	9001
1604 LINES CURRENTLY SELECTED.	MAX LINE NUMBER =	1604
1133 AREAS CURRENTLY SELECTED.	MAX AREA NUMBER =	1133
269 VOLUMES CURRENTLY SELECTED.	MAX VOL. NUMBER =	269
MAXIMUM LINEAR PROPERTY NUMBER	=	6
ACTIVE COORDINATE SYSTEM	=	0 (CARTESIAN)
NUMBER OF SPECIFIED CONSTRAINTS	=	1191

INITIAL JOBNAME = postlin4

CURRENT JOBNAME = postlin4

CURRENT JOBNAME REDEFINED AS seism4

1

***** ANSYS - ENGINEERING ANALYSIS SYSTEM REVISION 5.1 24 *****
38303 VERSION=HP 9000/7XX 19:32:17 APR 10, 1996 CP= 5.900
FOR SUPPORT CALL ROBERT BAHNEY PHONE (702) 794-5337 FAX (702) 794-1844

21 PWR Tube Seismic Analysis With Backfill

***** ANSYS RESULTS INTERPRETATION (POST1) *****

USE LOAD STEP 1 SUBSTEP 5 FOR LOAD CASE 0

*** NOTE ***

Page file used.

CP= 7.550 TIME= 19:32:20

SET COMMAND GOT LOAD STEP= 1 SUBSTEP= 5 CUMULATIVE ITERATION= 5
TIME/FREQUENCY= 33.605
TITLE= 21 PWR Tube Seismic Analysis With Backfill

/INPUT FILE= seism4.mcom LINE= 0
ANSYS REVISION 5.1 24 18:51:38 04/10/1996
seism4.mcom

CURRENT LOAD SET IN DATABASE IS ERASED

LOAD CASE 1 IS LOAD STEP 1 SUBSTEP 1 COMPLEX= 0
FILE= seism4.rst
21 PWR Tube Seismic Analysis With Backfill

LOAD CASE 1 FACTOR SET TO-0.48984E-02

COPY LOAD CASE 1 FROM FILE TO DATABASE

SQUARE THE CURRENT LOAD SET IN DATABASE

*** NOTE *** CP= 32.810 TIME= 19:33:30
Load case combination data may not be correct unless viewed in the
solution phase coordinate system (RSYS=SOLU).

LOAD CASE 1 IS LOAD STEP 1 SUBSTEP 2 COMPLEX= 0
FILE= seism4.rst
21 PWR Tube Seismic Analysis With Backfill

LOAD CASE 1 FACTOR SET TO 0.40757E-01

LCOPER OPERATION ADD USING LOAD CASE= 1 FACTOR= 0.40757E-01 ABS= 0
MULTIPLIED BY LOAD CASE= 1 FACTOR= 0.40757E-01 ABS= 0

LOAD CASE 1 IS LOAD STEP 1 SUBSTEP 3 COMPLEX= 0
FILE= seism4.rst
21 PWR Tube Seismic Analysis With Backfill

LOAD CASE 1 FACTOR SET TO 0.29710E-02

LCOPER OPERATION ADD USING LOAD CASE= 1 FACTOR= 0.29710E-02 ABS= 0
MULTIPLIED BY LOAD CASE= 1 FACTOR= 0.29710E-02 ABS= 0

LOAD CASE 1 IS LOAD STEP 1 SUBSTEP 4 COMPLEX= 0
FILE= seism4.rst
21 PWR Tube Seismic Analysis With Backfill

LOAD CASE 1 FACTOR SET TO 0.20511E-03

LCOPER OPERATION ADD USING LOAD CASE= 1 FACTOR= 0.20511E-03 ABS= 0
MULTIPLIED BY LOAD CASE= 1 FACTOR= 0.20511E-03 ABS= 0

LOAD CASE 1 IS LOAD STEP 1 SUBSTEP 5 COMPLEX= 0
FILE= seism4.rst
21 PWR Tube Seismic Analysis With Backfill

LOAD CASE 1 FACTOR SET TO 0.59476E-02

LCOPER OPERATION ADD USING LOAD CASE= 1 FACTOR= 0.59476E-02 ABS= 0
MULTIPLIED BY LOAD CASE= 1 FACTOR= 0.59476E-02 ABS= 0

LOAD CASE 1 IS LOAD STEP 1 SUBSTEP 6 COMPLEX= 0
FILE= seism4.rst
21 PWR Tube Seismic Analysis With Backfill

LOAD CASE 1 FACTOR SET TO 0.10421E-02

LCOPER OPERATION ADD USING LOAD CASE= 1 FACTOR= 0.10421E-02 ABS= 0
MULTIPLIED BY LOAD CASE= 1 FACTOR= 0.10421E-02 ABS= 0

LOAD CASE 1 IS LOAD STEP 1 SUBSTEP 7 COMPLEX= 0

FILE= seism4.rst

21 PWR Tube Seismic Analysis With Backfill

LOAD CASE 1 FACTOR SET TO -0.17849E-03

LCOPER OPERATION ADD USING LOAD CASE= 1 FACTOR= -0.17849E-03 ABS= 0
MULTIPLIED BY LOAD CASE= 1 FACTOR= -0.17849E-03 ABS= 0

LOAD CASE 1 IS LOAD STEP 1 SUBSTEP 8 COMPLEX= 0

FILE= seism4.rst

21 PWR Tube Seismic Analysis With Backfill

LOAD CASE 1 FACTOR SET TO 0.16293E-03

LCOPER OPERATION ADD USING LOAD CASE= 1 FACTOR= 0.16293E-03 ABS= 0
MULTIPLIED BY LOAD CASE= 1 FACTOR= 0.16293E-03 ABS= 0

TAKE SQRT OF CURRENT LOAD SET IN DATABASE

Outer Barrier Stress Distribution

Outer Barrier Linearized Stresses at Location of Peak Stress

Inner Barrier Stress Distribution

SELECT FOR ITEM=NODE COMPONENT=
IN RANGE 8632 TO 8632 STEP 1

1 NODES (OF 12897 DEFINED) SELECTED BY NSEL COMMAND.

ALSO SELECT FOR ITEM=NODE COMPONENT=
IN RANGE 8634 TO 8634 STEP 1

2 NODES (OF 12897 DEFINED) SELECTED BY NSEL COMMAND.

ALSO SELECT FOR ITEM=NODE COMPONENT=
IN RANGE 8626 TO 8626 STEP 1

3 NODES (OF 12897 DEFINED) SELECTED BY NSEL COMMAND.

SELECT ALL ELEMENTS HAVING ANY NODE IN NODAL SET.

8 ELEMENTS (OF 8616 DEFINED) SELECTED FROM
3 SELECTED NODES BY ESLN COMMAND.

DEFINE A PATH FOR SUBSEQUENT CALCULATIONS THROUGH NODES:
8632 8626

/OUTPUT FILE= ibstress

/SHOW SWITCH PLOTS TO FILE ibdist.grph - RASTER MODE.

DISPLAY LINEARIZED STRESS USING NODES DEFINED BY LPATH COMMAND.
ITEM=S COMP=INT RHO= 0.00000E+00

CUMULATIVE DISPLAY NUMBER 1 WRITTEN TO FILE ibdist.grph - RASTER MODE.

DISPLAY TITLE=

21 PWR Tube Seismic Analysis With Backfill

Basket Stress Distribution

SELECT FOR ITEM=NODE COMPONENT=
IN RANGE 4355 TO 4355 STEP 1

1 NODES (OF 12897 DEFINED) SELECTED BY NSEL COMMAND.

```
ALSO SELECT FOR ITEM=NODE COMPONENT=
IN RANGE 4370 TO 4370 STEP 1

2 NODES (OF 12897 DEFINED) SELECTED BY NSEL COMMAND.

ALSO SELECT FOR ITEM=NODE COMPONENT=
IN RANGE 4293 TO 4293 STEP 1

3 NODES (OF 12897 DEFINED) SELECTED BY NSEL COMMAND.

SELECT ALL ELEMENTS HAVING ANY NODE IN NODAL SET.

10 ELEMENTS (OF 8616 DEFINED) SELECTED FROM
3 SELECTED NODES BY ESLN COMMAND.

DEFINE A PATH FOR SUBSEQUENT CALCULATIONS THROUGH NODES:
4355 4293

/OUTPUT FILE= bktstres

/SHOW SWITCH PLOTS TO FILE bktdist.grph - RASTER MODE.

DISPLAY LINEARIZED STRESS USING NODES DEFINED BY LPATH COMMAND.
ITEM=S COMP=INT RHO= 0.00000E+00

CUMULATIVE DISPLAY NUMBER 1 WRITTEN TO FILE bktdist.grph - RASTER MODE.
DISPLAY TITLE=
21 PWR Tube Seismic Analysis With Backfill
Criticality Control Plate Stress Distribution

SELECT FOR ITEM=NODE COMPONENT=
IN RANGE 3878 TO 3878 STEP 1

1 NODES (OF 12897 DEFINED) SELECTED BY NSEL COMMAND.

ALSO SELECT FOR ITEM=NODE COMPONENT=
IN RANGE 3956 TO 3956 STEP 1

2 NODES (OF 12897 DEFINED) SELECTED BY NSEL COMMAND.

ALSO SELECT FOR ITEM=NODE COMPONENT=
IN RANGE 3830 TO 3830 STEP 1

3 NODES (OF 12897 DEFINED) SELECTED BY NSEL COMMAND.

SELECT ALL ELEMENTS HAVING ANY NODE IN NODAL SET.

4 ELEMENTS (OF 8616 DEFINED) SELECTED FROM
3 SELECTED NODES BY ESLN COMMAND.

DEFINE A PATH FOR SUBSEQUENT CALCULATIONS THROUGH NODES:
3878 3830

/OUTPUT FILE= pltstres

/SHOW SWITCH PLOTS TO FILE pltdist.grph - RASTER MODE.

DISPLAY LINEARIZED STRESS USING NODES DEFINED BY LPATH COMMAND.
ITEM=S COMP=INT RHO= 0.00000E+00

CUMULATIVE DISPLAY NUMBER 1 WRITTEN TO FILE pltdist.grph - RASTER MODE.
DISPLAY TITLE=
21 PWR Tube Seismic Analysis With Backfill

EXIT THE ANSYS POST1 DATABASE PROCESSOR

***** ROUTINE COMPLETED ***** CP = 112.800
```

EXIT ANSYS WITHOUT SAVING DATABASE

NUMBER OF WARNING MESSAGES ENCOUNTERED= 0
NUMBER OF ERROR MESSAGES ENCOUNTERED= 0

*** PAGE FILE USED ***
NUMBER OF R/W OPERATIONS= 14517
MAXIMUM RECORD NUMBER = 529
RECORD SIZE (1*4 WORDS) = 16384
PAGE FILE SIZE (MB) = 33.063

```
*-----*
|                                     |
|               ANSYS RUN COMPLETED               |
|-----|
|               REV. 5.1  24               HP 9000/7XX               |
|               CP TIME    (sec) =    112.810    TIME = 19:39:22    |
|               ELAPSED TIME (sec) =    439.000    DATE  = 04/10/96    |
|-----|
*-----*
```

```
24 18:51:38 04/10/1996
/COM,ANSYS REVISION 5.1
/COM, seism4.mcom
LCOPER,ZERO
LCDEFI,1, 1, 1
LCFACT,1, -0.489840E-02
LCASE,1
LCOPER,SQUARE
LCDEFI,1, 1, 2
LCFACT,1, 0.407565E-01
LCOPER,ADD,1,MULT,1
LCDEFI,1, 1, 3
LCFACT,1, 0.297098E-02
LCOPER,ADD,1,MULT,1
LCDEFI,1, 1, 4
LCFACT,1, 0.205114E-03
LCOPER,ADD,1,MULT,1
LCDEFI,1, 1, 5
LCFACT,1, 0.594764E-02
LCOPER,ADD,1,MULT,1
LCDEFI,1, 1, 6
LCFACT,1, 0.104206E-02
LCOPER,ADD,1,MULT,1
LCDEFI,1, 1, 7
LCFACT,1, -0.178489E-03
LCOPER,ADD,1,MULT,1
LCDEFI,1, 1, 8
LCFACT,1, 0.162933E-03
LCOPER,ADD,1,MULT,1
LCOPER,SQRT
```


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PRESS <CR> OR <ENTER> TO CONTINUE

***** ANSYS COMMAND LINE ARGUMENTS *****
INITIAL JOBNAME = adjust
MEMORY REQUESTED (MB) = 64.0
BATCH MODE REQUESTED = LIST
START-UP FILE MODE = READ

*** NOTE *** CP= 0.130 TIME= 08:41:31
There are no parameters and no abbreviations defined.

38303 VERSION=HP 9000/7XX REVISION= 5.1 24
FOR SUPPORT CALL ROBERT BAHNEY PHONE (702) 794-5337 FAX (702) 794-1844
CURRENT JOBNAME=adjust 08:41:31 APR 11, 1996 CP= 0.140

```

1 /com,*****
2 /com,*****
3 /com,***** Seismic Analysis of 21 PWR Waste Package Under Degradation *****
4 /com,***** Degree of Degradation in Outer Barrier: 100% *****
5 /com,***** Degree of Degradation in Inner Barrier: 90% *****
6 /com,***** Degree of Degradation in Basket Assembly: Tubes 100% *****
7 /com,***** Guides 50% *****
8 /com,***** SS-8 Plates 0% *****
9 /com,***** Backfill Present, Backfill Porosity: 25%, Rock Porosity: 10% *****
10 /com,***** Quarter Symmetry Model *****
11 /com,*****
12 /com,*****
13 /com,*****
14 /config,nvpag,512
15 /units,si
16 /prep7
17 /title, 21 PWR Tube Seismic Analysis With Backfill
18 /vcon,,0
19 /com, Define Parameters
20 ibir=0.71095 ! Inner Barrier Inner Radius (DIA = 1.4219 m)
21 obir=0.71295 ! Outer Barrier Inner Radius (DIA = 1.4619 m)
22 obsr=0.77095 ! Outer Barrier Skirt Radius (DIA = 1.5419 m)
23 obor=0.78095 ! Outer Barrier Outer Radius (DIA = 1.6619 m)
24 ts1=.007 ! SS-B Plate Thickness
25 ts2=.005 ! CS Tube Thickness
26 ts3=.005 ! Corner Guide Thickness
27 ts4=.005 ! End Guide Thickness
28 egih=0.0855 ! End Guide Fin Inner Height(0.0809+0.005-2.5*tan10)
29 pie=3.1415926 ! Pi
30 ang1=30*pie/180 ! Angle on end of end guide
31 ang2=80*pie/180 ! Angle on end of end guide fin
32 ang3=58*pie/180 ! Angle on end of corner guide
33 tw=0.2285 ! Tube Inner Side Width
34 pos1=tw/2 ! Dimension to Keypoint Position 1
35 pos2=pos1+ts2 ! Dimension to Keypoint Position 2
36 pos3=pos2+ts1 ! Dimension to Keypoint Position 3
37 pos4=pos3+ts2 ! Dimension to Keypoint Position 4
38 pos5=pos4+tw ! Dimension to Keypoint Position 5
39 pos6=pos5+ts2 ! Dimension to Keypoint Position 6
40 pos7=pos6+ts1 ! Dimension to Keypoint Position 7
41 pos8=pos7+ts2 ! Dimension to Keypoint Position 8
42 pos9=pos8+tw ! Dimension to Keypoint Position 9
43 pos10=pos9+ts2 ! Dimension to Keypoint Position 10
44 pos11=pos10+ts4 ! Dimension to Keypoint Position 11
45 posg=pos6+ts3 ! Dimension to Keypoint on Corner Guide
46 posei=pos11+egih ! Dimension to Keypoint on End Guide Fin Inner
47 poseo=posei-(ts4/tan(ang2)) ! Dimension to Keypoint on End Guide Fin Outer
48 posen=pos2+ts1/2-ts4/2 ! Dimension to Keypoint on End Guide Near Side
49 posef=pos2+ts1/2+ts4/2 ! Dimension to Keypoint on End Guide Far Side
50 poseg=pos6-(ts4/tan(ang1)) ! Dimension to Keypoint on End Guide Side

```

```

51 poscg=pos10-(ts3/tan(ang3)) ! Dimension to Keypoint on Corner Guide Side
52 bkht=4.575/2 ! Basket Height (Half Height)
53 ibht=bkht+0.01 ! inner barrier cavity height
54 lbgh=ibht-bkht ! Basket Gap Height
55 iblt=0.007 ! inner lid height
56 elev1=ibht+iblt ! Elevation of Top of Inner Barrier
57 ltigh=0.030 ! Lid to Lid Gap Height
58 elev2=elev1+ltigh ! Elevation of Bottom of Upper Outer Barrier Lid
59 oblht=0.06 ! outer lid height
60 elev3=elev2+oblht ! Elevation of Top of Upper Outer Barrier Lid
61 stht=0.225 ! skirt height
62 elev4=elev3+stht ! Elevation of Top of Waste Package
63 elev5=-(iblt+oblht) ! Elevation of Bottom of Lower Outer Barrier Lid
64 elev6=elev5-stht ! Elevation of Bottom of Waste Package
65 /com, Line Divisions
66 shd=1 ! Skirt Height Divisions
67 oblht=1 ! Outer Barrier Lid Divisions
68 gd=2 ! Gap Divisions
69 ibld=2 ! Inner Barrier Lid Divisions
70 bd=15 ! Basket Divisions
71 htwd=4 ! Half Tube Width Divisions
72 twd=4 ! Tube Width Divisions
73 thd=4 ! Tube Height Divisions
74 egfd=4 ! End Guide Fin Divisions
75 ptd=2 ! Plate Thickness Divisions
76 ttd=1 ! Tube Thickness Divisions
77 a1d=4 ! Arc 1 Divisions
78 a2d=4 ! Arc 2 Divisions
79 a3d=4 ! Arc 3 Divisions
80 a4d=4 ! Arc 4 Divisions
81 a5d=4 ! Arc 5 Divisions
82 a6d=4 ! Arc 6 Divisions
83 a7d=4 ! Arc 7 Divisions
84 a8d=4 ! Arc 8 Divisions
85 a9d=4 ! Arc 9 Divisions
86 ibtd=2 ! Inner Barrier Thickness Divisions
87 obitd=2 ! Outer Barrier Inner Thickness Divisions
88 std=2 ! Skirt Thickness Divisions
89 /com, Define Element Properties
90 et,1,solid45 ! Carbon Steel Tube
91 et,2,solid45 ! Stainless Steel - Boron Plate
92 et,3,solid45 ! Carbon Steel End Guide
93 et,4,solid45 ! Carbon Steel Corner Guide
94 et,5,solid45 ! Alloy 625 Inner Barrier
95 et,6,solid45 ! Alloy 625 Inner Barrier (Upper w/Backfill Weight)
96 !et,6,solid45 ! A 516 Carbon Steel Outer Barrier
97 !et,7,solid45 ! A 516 Carbon Steel Outer Barrier w/Backfill Weight
98 /com, ratio of static to dynamic coeff. of friction fact=1.298, Area Tol.=15%
99 /com, Room Temperature Properties of Materials
100 mp,ex,1,206e9 ! A516 Carbon Steel Tube
101 mp,ex,2,195e9 ! 316B6A Stainless Steel - Boron Plate (316L Properties)
102 mp,ex,3,206e9 ! A516 Carbon Steel End Guide
103 mp,ex,4,206e9 ! A516 Carbon Steel Corner Guide
104 mp,ex,5,208e9 ! Alloy 625 Inner Barrier
105 mp,ex,6,208e9 ! Alloy 625 Inner Barrier (Upper w/Backfill Weight)
106 !mp,ex,6,206e9 ! A516 Carbon Steel Outer Barrier
107 !mp,ex,7,206e9 ! A516 Carbon Steel Outer Barrier w/Backfill Weight
108 mp,nuxy,1,0.3 ! A516 Carbon Steel Tube
109 mp,nuxy,2,0.298 ! 316B6A Stainless Steel - Boron Plate (316 Properties)
110 mp,nuxy,3,0.3 ! A516 Carbon Steel End Guide
111 mp,nuxy,4,0.3 ! A516 Carbon Steel Corner Guide
112 mp,nuxy,5,0.278 ! Alloy 625 Inner Barrier
113 mp,nuxy,6,0.278 ! Alloy 625 Inner Barrier (Upper w/Backfill Weight)
114 !mp,nuxy,6,0.3 ! A516 Carbon Steel Outer Barrier
115 !mp,nuxy,7,0.3 ! A516 Carbon Steel Outer Barrier w/Backfill Weight
116 mp,dens,1,8131 ! A516 Carbon Steel Tube
117 mp,dens,2,7953 ! 316B6A Stainless Steel - Boron Plate (Adjusted to include tube and SNF masses)
118 mp,dens,3,16262 ! A516 Carbon Steel End Guide (Doubled for Corrosion Prod.)
119 mp,dens,4,16262 ! A516 Carbon Steel Corner Guide (Doubled for Corrosion)
120 mp,dens,5,8442 ! Alloy 625 Inner Barrier

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121 mp,dens,6,1101960 ! Alloy 625 Inner Barrier (Upper w/Backfill Weight)
122 !mp,dens,6,8131 ! A516 Carbon Steel Outer Barrier
123 !mp,mu,7,0.57 ! Coefficient of Friction (Steel on Steel Assumed)
124 !tb,biso,1
125 !tbdata,,260e6,1.078e9 ! A 516 Carbon Steel Tubes
126 !tb,biso,2
127 !tbdata,,172e6,0.7767e9 ! 316L Stainless Steel
128 !tb,biso,3
129 !tbdata,,260e6,1.078e9 ! A 516 Carbon Steel End Guide
130 !tb,biso,4
131 !tbdata,,260e6,1.078e9 ! A 516 Carbon Steel Corner Guide
132 !tb,biso,5
133 !tbdata,,379e6,1.271e9 ! Alloy 625
134 !tb,biso,6
135 !tbdata,,260e6,1.078e9 ! A 516 Carbon Steel Outer Barrier
136 !tb,biso,7
137 !tbdata,,260e6,1.078e9 ! A 516 Carbon Steel Outer Barrier w/Backfill Weight
138 /com
139 /com, Define keypoints in the basket assembly
140 csys,0
141 k,1,0,0
142 k,2,pos1,0
143 k,3,pos2,0
144 k,4,pos3,0
145 k,5,pos4,0
146 k,6,pos5,0
147 k,7,pos6,0
148 k,8,pos7,0
149 k,9,pos8,0
150 k,10,pos9,0
151 k,11,pos10,0
152 k,12,pos11,0
153 k,13,pos1,pos1
154 k,14,pos4,pos1
155 k,15,pos5,pos1
156 k,16,pos8,pos1
157 k,17,pos9,pos1
158 k,18,pos2,pos2
159 k,19,pos3,pos2
160 k,20,pos6,pos2
161 k,21,pos7,pos2
162 k,22,pos10,pos2
163 k,23,pos11,posei
164 !k,24,posei,posei
165 csys,1
166 k,24,ibir,(180/pie)*atan(posei/posei)
167 csys,0
168 k,25,pos3,pos3
169 k,26,pos6,pos3
170 k,27,pos7,pos3
171 k,28,pos10,pos3
172 k,29,pos11,posef
173 !k,30,poseo,posef
174 csys,1
175 k,30,ibir,(180/pie)*atan(posef/poseo)
176 csys,0
177 k,31,pos4,pos4
178 k,32,pos5,pos4
179 k,33,pos8,pos4
180 k,34,pos9,pos4
181 k,35,pos5,pos5
182 k,36,pos8,pos5
183 k,37,pos9,pos5
184 !k,38,pos11,poseg
185 csys,1
186 k,38,ibir,(180/pie)*atan(poseg/poseg)
187 csys,0
188 k,39,pos6,pos6
189 k,40,pos7,pos6
190 !k,41,pos10,pos6

```

```

191 csys,1
192 k,41,ibir,(180/pie)*atan(pos6/pos10)
193 csys,0
194 k,42,posg,posg
195 lk,43,poscg,posg
196 csys,1
197 k,43,ibir,(180/pie)*atan(posg/poscg)
198 k,44,ibir,0
199 k,45,ibir,45
200 k,46,obir,0
201 k,47,obir,(180/pie)*atan(poses/posei)
202 k,48,obir,(180/pie)*atan(posef/poseo)
203 k,49,obir,(180/pie)*atan(poseg/pos11)
204 k,50,obir,(180/pie)*atan(pos6/pos10)
205 k,51,obir,(180/pie)*atan(posg/poscg)
206 k,52,obir,45
207 k,53,obsr,0
208 k,54,obsr,(180/pie)*atan(poses/posei)
209 k,55,obsr,(180/pie)*atan(posef/poseo)
210 k,56,obsr,(180/pie)*atan(poseg/pos11)
211 k,57,obsr,(180/pie)*atan(pos6/pos'0)
212 k,58,obsr,(180/pie)*atan(posg/poscg)
213 k,59,obsr,45
214 k,60,obor,0
215 k,61,obor,(180/pie)*atan(poses/posei)
216 k,62,obor,(180/pie)*atan(posef/poseo)
217 k,63,obor,(180/pie)*atan(poseg/pos11)
218 k,64,obor,(180/pie)*atan(pos6/pos'0)
219 k,65,obor,(180/pie)*atan(posg/poscg)
220 k,66,obor,45
221 local,11,0,0,0,0,45,0,0,
222 ksymm,y,all,,,0,0,0
223 nummrg,kp
224 csys,0
225 ksymm,y,all,,,0,0,0
226 nummrg,kp
227 kdel,2,12,1
228 k,1001,0,0,bkht
229 l,1,1001 ! Line 1 for VDRAG of Basket
230 lesize,all,,,bd,.2,0
231 k,2001,0,0,ibht
232 l,1001,2001 ! Line 2 for VDRAG of Basket to Inner Barrier Lid Gap
233 lesize,all,,,gd,1,0
234 k,3001,0,0,elev1
235 l,2001,3001 ! Line 3 for VDRAG of Inner Barrier Upper Lid
236 lesize,all,,,ibld,1,0
237 k,4001,0,0,elev2
238 l,3001,4001 ! Line 4 for VDRAG of Lid to Lid Gap
239 lesize,all,,,gd,1,0
240 k,5001,0,0,elev3
241 l,4001,5001 ! Line 5 for VDRAG of Outer Barrier Upper Lid
242 lesize,all,,,obld,1,0
243 k,6001,0,0,elev4
244 l,5001,6001 ! Line 6 for VDRAG of Upper Skirt
245 lesize,all,,,shd,1,0
246 k,7001,0,0,-iblt
247 l,1,7001 ! Line 7 for VDRAG of IB Lower Lid
248 lesize,all,,,ibld,1,0
249 k,8001,0,0,elev5
250 l,7001,8001 ! Line 8 for VDRAG of OB Lower Lid
251 lesize,all,,,obld,1,0
252 k,9001,0,0,elev6
253 l,8001,9001 ! Line 9 for VDRAG of Lower Skirt
254 lesize,all,,,shd,1,0
255 /com, line set 1 Tube Width for Half Tubes on Symmetry Plane
256 L, 197, 206 ! Line 10
257 L, 196, 205
258 L, 195, 201
259 L, 194, 200
260 L, 193, 204

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261 L, 192, 203
262 L, 191, 199
263 L, 190, 198
264 L, 189, 202
265 L, 188, 138
266 L, 187, 133 ! 20
267 L, 68, 13
268 L, 69, 18
269 L, 70, 85
270 L, 71, 80
271 L, 72, 81
272 L, 73, 86
273 L, 74, 87
274 L, 75, 82
275 L, 76, 83
276 L, 77, 88 ! 30
277 L, 78, 89
278 lesize,all,,,htwd,1,0
279 /com, line set 2 Tube Widths
280 L, 211, 218
281 L, 210, 220
282 L, 215, 217
283 L, 214, 216
284 L, 209, 219
285 L, 208, 159
286 L, 213, 155
287 L, 151, 152
288 L, 145, 146 ! 40
289 L, 139, 140
290 L, 134, 135
291 L, 14, 15
292 L, 19, 20
293 L, 25, 26
294 L, 31, 32
295 L, 98, 35
296 L, 92, 39
297 L, 93, 106
298 L, 99, 102 ! 50
299 L, 100, 103
300 L, 94, 107
301 L, 95, 104
302 lesize,all,,,twd,1,0
303 /com, line set 3 Tube Widths on End Column
304 L, 162, 163
305 L, 160, 161
306 L, 156, 157
307 L, 153, 154
308 L, 147, 148
309 L, 141, 142
310 L, 136, 137 ! 60
311 L, 16, 17
312 L, 21, 22
313 L, 27, 28
314 L, 33, 34
315 L, 36, 37
316 L, 40, 41
317 L, 42, 43
318 lesize,all,,,twd,1,0
319 /com, line set 4 Tube Heights
320 L, 201, 200
321 L, 205, 204
322 L, 210, 209 ! 70
323 L, 215, 214
324 L, 217, 216
325 L, 220, 219
326 L, 221, 162
327 L, 199, 198
328 L, 203, 202
329 L, 208, 145
330 L, 213, 151

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331	L,	155,	152	
332	L,	159,	146	! 80
333	L,	160,	147	
334	L,	156,	153	
335	L,	157,	154	
336	L,	161,	148	
337	L,	133,	13	
338	L,	138,	18	
339	L,	139,	19	
340	L,	134,	14	
341	L,	135,	15	
342	L,	140,	20	! 90
343	L,	141,	21	
344	L,	136,	16	
345	L,	137,	17	
346	L,	142,	22	
347	L,	143,	23	
348	L,	80,	81	
349	L,	85,	86	
350	L,	25,	92	
351	L,	31,	98	
352	L,	32,	35	! 100
353	L,	26,	39	
354	L,	27,	40	
355	L,	33,	36	
356	L,	34,	37	
357	L,	28,	41	
358	L,	29,	38	
359	L,	82,	83	
360	L,	87,	88	
361	L,	93,	94	
362	L,	99,	100	! 110
363	L,	102,	103	
364	L,	106,	107	
365	L,	42,	109	
366	L,	158,	149	
367	lesize,all,,,thd,1,0			
368	/com, line set 5 End Guide Fins			
369	L,	207,	206	
370	L,	212,	211	
371	L,	150,	149	
372	L,	144,	143	
373	L,	24,	23	
374	L,	30,	29	! 120
375	L,	96,	95	
376	L,	90,	89	
377	lesize,all,,,egfd,1,0			
378	/com, line set 6 SS-B Plate Thickness			
379	L,	197,	196	
380	L,	206,	205	
381	L,	211,	210	
382	L,	207,	212	
383	L,	206,	211	
384	L,	205,	210	
385	L,	218,	220	
386	L,	220,	221	! 130
387	L,	193,	192	
388	L,	204,	203	
389	L,	209,	208	
390	L,	204,	209	
391	L,	203,	208	
392	L,	219,	159	
393	L,	162,	160	
394	L,	163,	161	
395	L,	161,	158	
396	L,	219,	162	! 140
397	L,	159,	160	
398	L,	189,	188	
399	L,	202,	138	
400	L,	145,	139	

401	L,	202,	145	
402	L,	138,	139	
403	L,	146,	140	
404	L,	147,	141	
405	L,	146,	147	
406	L,	140,	141	! 150
407	L,	148,	142	
408	L,	149,	143	
409	L,	148,	149	
410	L,	142,	143	
411	L,	150,	144	
412	L,	69,	70	
413	L,	18,	85	
414	L,	19,	25	
415	L,	18,	19	
416	L,	85,	25	! 160
417	L,	20,	26	
418	L,	21,	27	
419	L,	20,	21	
420	L,	26,	27	
421	L,	22,	28	
422	L,	22,	23	
423	L,	28,	29	
424	L,	23,	29	
425	L,	24,	30	
426	L,	73,	74	! 170
427	L,	86,	87	
428	L,	92,	93	
429	L,	86,	92	
430	L,	87,	93	
431	L,	39,	106	
432	L,	40,	42	
433	L,	39,	40	
434	L,	106,	42	
435	L,	38,	41	
436	L,	41,	43	! 180
437	L,	77,	78	
438	L,	88,	89	
439	L,	94,	95	
440	L,	88,	94	
441	L,	89,	95	
442	L,	90,	96	
443	L,	109,	107	
444	L,	107,	104	
445	L,	224,	225	
446	L,	230,	231	! 190
447	L,	236,	237	
448	L,	226,	227	
449	L,	227,	228	
450	L,	232,	233	
451	L,	233,	234	
452	L,	238,	239	
453	L,	239,	240	
454	L,	171,	170	
455	L,	170,	169	
456	L,	178,	177	! 200
457	L,	177,	176	
458	L,	185,	184	
459	L,	184,	183	
460	L,	168,	167	
461	L,	175,	174	
462	L,	182,	181	
463	L,	47,	48	
464	L,	54,	55	
465	L,	61,	62	
466	L,	49,	50	! 210
467	L,	50,	51	
468	L,	56,	57	
469	L,	57,	58	
470	L,	63,	64	


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471 L,      64,      65
472 L,     117,     116
473 L,     116,     115
474 L,     124,     123
475 L,     123,     122
476 L,     131,     130 ! 220
477 L,     130,     129
478 L,     114,     113
479 L,     121,     120
480 L,     128,     127
481 lesize,all,,,ptd,1,0
482 /com, line set 7 tube thickness
483 L,      196,     195
484 L,      205,     201
485 L,      204,     200
486 L,      193,     194
487 L,      210,     215
488 L,      220,     217 ! 230
489 L,      219,     216
490 L,      209,     214
491 L,      192,     191
492 L,      203,     199
493 L,      202,     198
494 L,      189,     190
495 L,      208,     213
496 L,      159,     155
497 L,      146,     152
498 L,      145,     151 ! 240
499 L,      160,     156
500 L,      161,     157
501 L,      148,     154
502 L,      147,     153
503 L,      188,     187
504 L,      138,     133
505 L,       18,      13
506 L,       69,      68
507 L,      139,     134
508 L,      140,     135 ! 250
509 L,       20,      15
510 L,       19,      14
511 L,      141,     136
512 L,      142,     137
513 L,       22,      17
514 L,       21,      16
515 L,       70,      71
516 L,       85,      80
517 L,       86,      81
518 L,       73,      72 ! 260
519 L,       25,      31
520 L,       26,      32
521 L,       39,      35
522 L,       92,      98
523 L,       27,      33
524 L,       28,      34
525 L,       41,      37
526 L,       40,      36
527 L,       74,      75
528 L,       87,      82 ! 270
529 L,       88,      83
530 L,       77,      76
531 L,       93,      99
532 L,      106,     102
533 L,      107,     103
534 L,       94,     100
535 lesize,all,,,ttd,1,0
536 csys,1
537 /com, line set 8, arc 1 bottom
538 L,      222,     207
539 L,      223,     224
540 L,      229,     230

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541 L,      235,      236 ! 280
542 lesize,all,,,a1d,1,0
543 /com, line set 9, arc 2 side arcs
544 L,      212,      218
545 L,      225,      226
546 L,      231,      232
547 L,      237,      238
548 lesize,all,,,a2d,1,0
549 /com, line set 10, arc 3 side arcs
550 L,      221,      163
551 L,      228,      171
552 L,      234,      178
553 L,      240,      185
554 lesize,all,,,a3d,1,0
555 /com, line set 11, arc 4 side arcs
556 L,      158,      150
557 L,      169,      168 ! 290
558 L,      176,      175
559 L,      183,      182
560 lesize,all,,,a4d,1,0
561 /com, line set 12, arc 5 side arcs
562 L,      144,      24
563 L,      167,      47
564 L,      174,      54
565 L,      181,      61
566 lesize,all,,,a5d,1,0
567 /com, line set 13, arc 6 side arcs
568 L,      30,      38
569 L,      48,      49
570 L,      55,      56
571 L,      62,      63 ! 300
572 lesize,all,,,a6d,1,0
573 /com, line set 14, arc 7 side arcs
574 L,      43,      109
575 L,      51,      117
576 L,      58,      124
577 L,      65,      131
578 lesize,all,,,a7d,1,0
579 /com, line set 15, arc 8 side arcs
580 L,      104,      96
581 L,      115,      114
582 L,      122,      121
583 L,      129,      128
584 lesize,all,,,a8d,1,0
585 /com, line set 16, arc 9 top arcs
586 L,      90,      110
587 L,      113,      112 ! 310
588 L,      120,      119
589 L,      127,      126
590 lesize,all,,,a9d,1,0
591 csys,0
592 /com, line set 17 IB thickness
593 L,      222,      223
594 L,      207,      224
595 L,      212,      225
596 L,      218,      226
597 L,      220,      227
598 L,      221,      228
599 L,      163,      171
600 L,      161,      170 ! 320
601 L,      158,      169
602 L,      150,      168
603 L,      144,      167
604 L,      24,      47
605 L,      30,      48
606 L,      38,      49
607 L,      41,      50
608 L,      43,      51
609 L,      109,      117
610 L,      107,      116 ! 330

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611 L,      104,      115
612 L,      96,       114
613 L,      90,       113
614 L,     110,       112
615 lesize,all,,,ibtd,1,0
616 /com, line set 18 OB inner thickness
617 L,     223,       229
618 L,     224,       230
619 L,     225,       231
620 L,     226,       232
621 L,     227,       233
622 L,     228,       234 ! 340
623 L,     171,       178
624 L,     170,       177
625 L,     169,       176
626 L,     168,       175
627 L,     167,       174
628 L,      47,        54
629 L,      48,        55
630 L,      49,        56
631 L,      50,        57
632 L,      51,        58 ! 350
633 L,     117,       124
634 L,     116,       123
635 L,     115,       122
636 L,     114,       121
637 L,     113,       120
638 L,     112,       119
639 lesize,all,,,obitd,1,0
640 /com, line set 19 skirt thickness
641 L,     229,       235
642 L,     230,       236
643 L,     231,       237
644 L,     232,       238 ! 360
645 L,     233,       239
646 L,     234,       240
647 L,     178,       185
648 L,     177,       184
649 L,     176,       183
650 L,     175,       182
651 L,     174,       181
652 L,      54,        61
653 L,      55,        62
654 L,      56,        63 ! 370
655 L,      57,        64
656 L,      58,        65
657 L,     124,       131
658 L,     123,       130
659 L,     122,       129
660 L,     121,       128
661 L,     120,       127
662 L,     119,       126
663 lesize,all,,,std,1,0
664 /com, lines to fill in lids
665 /com, lines tube height
666 l,195,194          ! 379
667 l,191,190          ! 380
668 l,187,68           ! 381
669 l,71,72            ! 382
670 l,75,76            ! 383
671 lesize,all,,,thd,1,0
672 /com, end lines
673 l,222,197          ! 384
674 l,78,110           ! 385
675 lesize,all,,,egfd,1,0
676 /com, area set 1, tubes
677 a,195,196,205,201
678 a,200,201,205,204
679 a,193,194,200,204
680 a,191,192,203,199

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681 a,198,199,203,202
682 a,189,190,198,202
683 a,187,188,138,133
684 a,133,138,18,13
685 a,69,68,13,18
686 a,71,70,85,80
687 a,80,85,86,81
688 a,73,72,81,86
689 a,75,74,87,82
690 a,82,87,88,83
691 a,77,76,83,88
692 a,209,210,215,214
693 a,215,210,220,217
694 a,216,217,220,219
695 a,209,214,216,219
696 a,145,208,213,151
697 a,213,208,159,155
698 a,152,155,159,146
699 a,145,151,152,146
700 a,134,139,140,135
701 a,135,140,20,15
702 a,19,14,15,20
703 a,19,139,134,14
704 a,92,25,31,98
705 a,31,25,26,32
706 a,32,26,39,35
707 a,92,98,35,39
708 a,94,93,99,100
709 a,99,93,106,102
710 a,102,106,107,103
711 a,94,100,103,107
712 a,156,160,161,157
713 a,157,161,148,154
714 a,147,153,154,148
715 a,147,160,156,153
716 a,136,141,142,137
717 a,137,142,22,17
718 a,21,16,17,22
719 a,21,141,136,16
720 a,33,27,28,34
721 a,34,28,41,37
722 a,40,36,37,41
723 a,40,27,33,36
724 /com, area set 2, plates
725 a,204,205,210,209
726 a,192,193,204,203
727 a,203,204,209,208
728 a,208,209,219,159
729 a,202,203,208,145
730 a,146,159,160,147
731 a,188,189,202,138
732 a,138,202,145,139
733 a,139,145,146,140
734 a,140,146,147,141
735 a,141,147,148,142
736 a,18,138,139,19
737 a,20,140,141,21
738 a,70,69,18,85
739 a,85,18,19,25
740 a,25,19,20,26
741 a,26,20,21,27
742 a,27,21,22,28
743 a,86,85,25,92
744 a,39,26,27,40
745 a,74,73,86,87
746 a,87,86,92,93
747 a,93,92,39,106
748 a,88,87,93,94
749 /com, area set 3, end guides
750 a,196,197,206,205

751 a,205,206,211,210
 752 a,206,207,212,211
 753 a,210,211,218,220
 754 a,148,161,158,149
 755 a,142,148,149,143
 756 a,143,149,150,144
 757 a,22,142,143,23
 758 a,28,22,23,29
 759 a,29,23,24,30
 760 a,41,28,29,38
 761 a,95,94,107,104
 762 a,89,88,94,95
 763 a,90,89,95,96
 764 a,78,77,88,89
 765 /com, area set 4, corner guides
 766 a,219,220,221,162
 767 a,159,219,162,160
 768 a,160,162,163,161
 769 a,107,106,42,109
 770 a,106,39,40,42
 771 a,42,40,41,43
 772 csys,1
 773 /com, area set 5, inner barrier
 774 a,222,223,224,207
 775 a,207,224,225,212
 776 a,212,225,226,218
 777 a,218,226,227,220
 778 a,220,227,228,221
 779 a,221,228,171,163
 780 a,163,171,170,161
 781 a,161,170,169,158
 782 a,158,169,168,150
 783 a,150,168,167,144
 784 a,144,167,47,24
 785 a,24,47,48,30
 786 a,30,48,49,38
 787 a,38,49,50,41
 788 a,41,50,51,43
 789 a,43,51,117,109
 790 a,109,117,116,107
 791 a,107,116,115,104
 792 a,104,115,114,96
 793 a,90,96,114,113
 794 a,90,113,112,110
 795 /com, area set 6, outer barrier
 796 !a,223,229,230,224
 797 !a,224,230,231,225
 798 !a,225,231,232,226
 799 !a,226,232,233,227
 800 !a,227,233,234,228
 801 !a,228,234,178,171
 802 !a,171,178,177,170
 803 !a,170,177,176,169
 804 !a,169,176,175,168
 805 !a,168,175,174,167
 806 !a,167,174,54,47
 807 !a,47,54,55,48
 808 !a,48,55,56,49
 809 !a,49,56,57,50
 810 !a,50,57,58,51
 811 !a,51,58,124,117
 812 !a,117,124,123,116
 813 !a,116,123,122,115
 814 !a,115,122,121,114
 815 !a,114,121,120,113
 816 !a,113,120,119,112
 817 !a,229,235,236,230
 818 !a,236,237,231,230
 819 !a,231,237,238,232
 820 !a,238,239,233,232

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821 !a,239,240,234,233
822 !a,240,185,178,234
823 !a,185,184,177,178
824 !a,184,183,176,177
825 !a,176,183,182,175
826 !a,175,182,181,174
827 !a,174,181,61,54
828 !a,54,61,62,55
829 !a,55,62,63,56
830 !a,56,63,64,57
831 !a,57,64,65,58
832 !a,58,65,131,124
833 !a,124,131,130,123
834 !a,123,130,129,122
835 !a,122,129,128,121
836 !a,121,128,127,120
837 !a,120,127,126,119
838 csys,0
839 vdrag,all,,,,,1 ! Drag Basket
840 asel,s,loc,z,bkht
841 csys,1
842 asel,u,loc,x,0,ibir-0.03
843 csys,0
844 vdrag,all,,,,,2 ! Drag Basket to Lid Gap
845 /com, copy areas from top of basket to bottom of lid
846 asel,s,loc,z,bkht-0.01
847 csys,1
848 asel,r,loc,x,0,ibir-0.03
849 csys,0
850 agen,2,all,,,,,0.01
851 nummrg,kp
852 /com, generate lines to fill in lid at top of WP
853 /com, lines tube height
854 L,414,421 ! 1121
855 L,422,429 ! 1124
856 L,430,437 ! 1125
857 L,438,445 ! 1131
858 L,446,453 ! 1138
859 lesize,all,,,thd,1,0
860 /com, end lines
861 L,370,518 ! 1141
862 L,539,413 ! 1151
863 lesize,all,,,egfd,1,0
864 al,832,1116,1120,1141
865 al,936,937,941,1121
866 al,946,947,951,1124
867 al,956,959,961,1125
868 al,966,969,971,1131
869 al,976,979,981,1138
870 al,932,1143,1147,1151
871 al,842,1122,1123
872 al,985,989,990,993
873 al,997,1001,1002,1005
874 al,1010,1013,1015,1018
875 al,1021,1025,1028,1029
876 al,1033,1037,1040,1041
877 al,922,1144,1148
878 al,857,1153,1156
879 al,1046,1049,1051,1054
880 al,1058,1061,1063,1066
881 al,1070,1073,1075,1078
882 al,907,1159,1163
883 al,872,1126,1130
884 al,882,1132,1133,1137
885 al,892,1139,1140
886 asel,s,loc,z,ibht+0.01
887 vdrag,all,,,,,3 ! Drag Inner Barrier Upper Lid
888 !asel,s,loc,z,elev1+0.015
889 lcsys,1
890 !asel,r,loc,x,obir,obor

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891 !csys,0
892 !vdrag,all,,,,,4      ! Drag Lid to Lid Gap
893 !asel,s,loc,z,elev1+0.015
894 !asel,r,loc,z,elev1-0.015
895 !csys,1
896 !asel,r,loc,x,0,obir
897 !csys,0
898 !agen,2,all,,,,,ltlgh
899 !nummrg,kp
900 !asel,s,loc,z,elev2+0.015
901 !vdrag,all,,,,,5      ! Drag Outer Barrier Upper Lid
902 !asel,s,loc,z,elev3
903 !csys,1
904 !asel,r,loc,x,obsr,obor
905 !csys,0
906 !vdrag,all,,,,,6      ! Drag Upper Skirt
907 /com, lines at bottom lid used to be here
908 !al,10,115,277,384
909 !al,12,13,68,379
910 !al,16,17,75,380
911 !al,20,21,85,381
912 !al,24,25,96,382
913 !al,28,29,107,383
914 !al,31,122,309,385
915 !al,32,116,281
916 !al,34,35,71,72
917 !al,38,39,78,79
918 !al,42,43,88,89
919 !al,46,47,99,100
920 !al,50,51,110,111
921 !al,53,121,305
922 !al,54,74,285
923 !al,56,57,82,83
924 !al,60,61,92,93
925 !al,64,65,103,104
926 !al,67,113,301
927 !al,114,117,289
928 !al,95,118,119,293
929 !al,106,120,297
930 !asel,s,loc,z,0
931 !vdrag,all,,,,,7      ! Drag Inner Barrier Lower Lid
932 !csys,0
933 !asel,s,loc,z,-iblt
934 !vdrag,all,,,,,8      ! Drag Outer Barrier Lower Lid
935 !asel,s,loc,z,elev5
936 !csys,1
937 !asel,r,loc,x,obsr,obor
938 !csys,0
939 !vdrag,all,,,,,9      ! Drag Lower Skirt
940 /com
941 /com, Mesh Volumes
942 /com
943 /com, Mesh the CS Tubes
944 /com
945 !vsel,s,volu,,1,47
946 !type,1
947 !mat,1
948 !vmesh,all
949 /com, Mesh SS-B Plates
950 vsel,s,volu,,48,71
951 type,2
952 mat,2
953 vmesh,all
954 /com, Mesh End Guides
955 vsel,s,volu,,72,86
956 type,3
957 mat,3
958 vmesh,all
959 /com, Mesh Corner Guides
960 vsel,s,volu,,87,92

```

```

961 type,4
962 mat,4
963 vmesh,all
964 /com, Mesh Inner Barrier
965 vset,s,loc,z,0,elev1
966 csys,1
967 vset,r,loc,x,0,obir
968 vset,u,volu,,1,92
969 vset,u,loc,x,ibir-0.02,obir
970 vset,a,loc,y,-90,5
971 vset,u,volu,,1,92
972 vset,u,loc,x,obir,obor
973 vset,r,loc,z,-iblt,elev1
974 csys,0
975 type,5
976 mat,5
977 vmesh,all
978 /com, Mesh Upper Inner Barrier Adding Backfill Mass
979 vset,inve
980 csys,1
981 vset,u,loc,x,obir,obor
982 vset,r,loc,z,0,elev1
983 vset,u,volu,,1,92
984 csys,0
985 type,6
986 mat,6
987 vmesh,all
988 /com, Mesh Lower Outer Barrier and Lids
989 !vset,inve
990 !vset,u,volu,,1,92
991 !csys,1
992 !vset,u,loc,x,obir,obor
993 !vset,a,loc,y,-90,5
994 !vset,u,volu,,1,92
995 !vset,u,type,,5
996 !type,6
997 !mat,6
998 !vmesh,all
999 /com, mesh upper outer barrier adding backfill mass
1000 !vset,inve
1001 !vset,u,type,,1,5
1002 !type,7
1003 !mat,7
1004 !vmesh,all
1005 /com
1006 /com, Apply Symmetry Constraints
1007 csys,0
1008 nsel,s,loc,x,0
1009 dsym,symm,x,0
1010 nsel,s,loc,z,0
1011 dsym,symm,z,0
1012 /com, Apply Constraints at Support Locations
1013 /com, Span approximately half of basket height, width = 0.305 m
1014 csys,1
1015 nsel,s,loc,z,(7*bkht/bd),(10*bkht/bd)+0.02
1016 nsel,r,loc,x,obir-0.001,obir+0.001
1017 nsel,r,loc,y,-70,-50
1018 csys,0
1019 d,all,uy,0
1020 allsel
1021 save
1022 fini
1023
1024 /sol
1025 antype,modal
1026 modopt,subsp,8
1027 outres,all,1
1028 save
1029 solve
1030 fini

```



```

1031
1032 /sol
1033 expass,on
1034 mxpand,8,,,yes
1035 solve
1036 fini
1037
1038 /sol
1039 antype,spectr
1040 spopt,sprs,,on
1041 sed,,1
1042 svtyp,2
1043 freq,0.1,100
1044 sv,,16.285,16.285
1045 mcomb,srss,1e-8
1046 outres,all,1
1047 save
1048 solve
1049 fini
1050 /exit
1051 /eof

```

RUN SETUP PROCEDURE FROM FILE= /ansys51/docu/start.ans

/INPUT FILE= /ansys51/docu/start.ans LINE= 0

ABBREVIATION= REplot /REplot

PARAMETER PI = 3.141593

ANSYS STARTUP FILE start.ans

```

ABBREVIATION= VEC      /show,,,1,
ABBREVIATION= RAS      /show,,,0,
ABBREVIATION= INP      /input,,inp,
ABBREVIATION= ESC      /exit,nosav,
ABBREVIATION= K1       /pnum,kp ,1,
ABBREVIATION= K0       /pnum,kp ,0,
ABBREVIATION= L1       /pnum,line,1,
ABBREVIATION= L0       /pnum,line,0,
ABBREVIATION= A1       /pnum,area,1,
ABBREVIATION= A0       /pnum,area,0,
ABBREVIATION= V1       /pnum,volu,1,
ABBREVIATION= V0       /pnum,volu,0,
ABBREVIATION= N1       /pnum,node,1,
ABBREVIATION= N0       /pnum,node,0,
ABBREVIATION= E1       /pnum,elem,1,
ABBREVIATION= E0       /pnum,elem,0,
ABBREVIATION= M1       /pnum,mat ,1,
ABBREVIATION= M0       /pnum,mat ,0,
ABBREVIATION= R1       /pnum,real,1,

```

ABBREVIATION= R0 /pnum,real,0,
 ABBREVIATION= T1 /pnum,type,1,
 ABBREVIATION= T0 /pnum,type,0,
 ABBREVIATION= C1 /number,1,
 ABBREVIATION= C0 /number,0,
 ABBREVIATION= PR1 /psf,pres,norm,1,
 ABBREVIATION= PRO /psf,pres,norm,0,
 ABBREVIATION= U1 /pbc,u,1,
 ABBREVIATION= U0 /pbc,u,0,
 ABBREVIATION= X3D /show,3d,
 ABBREVIATION= X11 /show,x11,
 ABBREVIATION= X11C /show,x11c,
 ABBREVIATION= ON /menu,on,
 XYZ TRIAD DISPLAY SET TO OFF

VIEW CONE ANGLE FOR WINDOW 1 25.00

 END start.ans

To start ANSYS menu:

type: x3d for console
 x11 for X-term color
 x11c for X-term color contour

type: on

 ***** Seismic Analysis of 21 PWR Waste Package Under Degradation *****
 ***** Degree of Degradation in Outer Barrier: 100% *****
 ***** Degree of Degradation in Inner Barrier: 90% *****
 ***** Degree of Degradation in Basket Assembly: Tubes 100% *****
 ***** Guides 50% *****
 ***** SS-B Plates 0% *****
 ***** Backfill Present, Backfill Porosity: 25%, Rock Porosity: 10% *****
 ***** Quarter Symmetry Model *****

NUMBER OF DATA BASE PAGES IN MEMORY (NVPAGE)= 512

SI UNITS SPECIFIED FOR INTERNAL

LENGTH (L) = METER(M)
 MASS (M) = KILOGRAM(KG)
 TIME (t) = SECOND(SEC)
 TEMPERATURE (T) = KELVIN(K)
 TOFFSET = 0.0 KELVIN
 CHARGE (Q) = COULOMB
 CURRENT (i) = AMPERE (COULOMBS/SEC)
 FORCE (f) = NEWTON(N) (KG-M/SEC²)
 PRESSURE = PASCAL (NEWTON/M**2)
 ENERGY (W) = JOULE (N-M)

POWER (P) = WATT (N-M/SEC)
CAPACITANCE (C) = FARAD
INDUCTANCE (L) = HENRY
MAGNETIC FLUX = WEBER
RESISTANCE (R) = OHM
ELECTRIC POTENTIAL = VOLT

INPUT UNITS ARE ALSO SET TO SI

1

***** ANSYS - ENGINEERING ANALYSIS SYSTEM REVISION 5.1 24 *****
38303 VERSION=HP 9000/7XX 08:41:32 APR 11, 1996 CP= 0.360
FOR SUPPORT CALL ROBERT BAHNEY PHONE (702) 794-5337 FAX (702) 794-1844

***** ANSYS ANALYSIS DEFINITION (PREP7) *****

TITLE=

21 PWR Tube Seismic Analysis With Backfill

VIEW CONE ANGLE FOR WINDOW 1 0.00
Define Parameters

PARAMETER IBIR = 0.7109500
PARAMETER OBIR = 0.7129500
PARAMETER OBSR = 0.7709500
PARAMETER OBOR = 0.7809500
PARAMETER TS1 = 0.7000000E-02
PARAMETER TS2 = 0.5000000E-02
PARAMETER TS3 = 0.5000000E-02
PARAMETER TS4 = 0.5000000E-02
PARAMETER EGIH = 0.8550000E-01
PARAMETER PIE = 3.141593
PARAMETER ANG1 = 0.5235988
PARAMETER ANG2 = 1.396263
PARAMETER ANG3 = 1.012291
PARAMETER TW = 0.2285000
PARAMETER POS1 = 0.1142500
PARAMETER POS2 = 0.1192500
PARAMETER POS3 = 0.1262500
PARAMETER POS4 = 0.1312500
PARAMETER POS5 = 0.3597500
PARAMETER POS6 = 0.3647500
PARAMETER POS7 = 0.3717500
PARAMETER POS8 = 0.3767500

PARAMETER POS9	=	0.6052500
PARAMETER POS10	=	0.6102500
PARAMETER POS11	=	0.6152500
PARAMETER POSG	=	0.3697500
PARAMETER POSE1	=	0.7007500
PARAMETER POSE0	=	0.6998684
PARAMETER POSEN	=	0.1202500
PARAMETER POSEF	=	0.1252500
PARAMETER POSEG	=	0.3560897
PARAMETER POSCG	=	0.6071257
PARAMETER BKHT	=	2.287500
PARAMETER IBHT	=	2.297500
PARAMETER IBLT	=	0.7000000E-02
PARAMETER ELEV1	=	2.304500
PARAMETER LTLGH	=	0.3000000E-01
PARAMETER ELEV2	=	2.334500
PARAMETER OBLT	=	0.6000000E-01
PARAMETER ELEV3	=	2.394500
PARAMETER STHT	=	0.2250000
PARAMETER ELEV4	=	2.619500
PARAMETER ELEV5	=	-0.6700000E-01
PARAMETER ELEV6	=	-0.2920000
Line Divisions		
PARAMETER SHD	=	1.000000
PARAMETER OBLD	=	1.000000
PARAMETER GD	=	2.000000
PARAMETER IBLD	=	2.000000
PARAMETER BD	=	15.00000
PARAMETER HTWD	=	4.000000
PARAMETER TWD	=	4.000000
PARAMETER THD	=	4.000000
PARAMETER EGFD	=	4.000000
PARAMETER PTD	=	2.000000
PARAMETER TTD	=	1.000000
PARAMETER A1D	=	4.000000
PARAMETER A2D	=	4.000000

PARAMETER A3D = 4.000000
 PARAMETER A4D = 4.000000
 PARAMETER A5D = 4.000000
 PARAMETER A6D = 4.000000
 PARAMETER A7D = 4.000000
 PARAMETER A8D = 4.000000
 PARAMETER A9D = 4.000000
 PARAMETER IBTD = 2.000000
 PARAMETER OBITD = 2.000000
 PARAMETER STD = 2.000000
 Define Element Properties

ELEMENT TYPE 1 IS SOLID45 3-D STRUCTURAL SOLID
 KEYOPT(1-12)= 0 0 0 0 0 0 0 0 0 0 0 0

CURRENT NODAL DOF SET IS UX UY UZ
 THREE-DIMENSIONAL MODEL

ELEMENT TYPE 2 IS SOLID45 3-D STRUCTURAL SOLID
 KEYOPT(1-12)= 0 0 0 0 0 0 0 0 0 0 0 0

CURRENT NODAL DOF SET IS UX UY UZ
 THREE-DIMENSIONAL MODEL

ELEMENT TYPE 3 IS SOLID45 3-D STRUCTURAL SOLID
 KEYOPT(1-12)= 0 0 0 0 0 0 0 0 0 0 0 0

CURRENT NODAL DOF SET IS UX UY UZ
 THREE-DIMENSIONAL MODEL

ELEMENT TYPE 4 IS SOLID45 3-D STRUCTURAL SOLID
 KEYOPT(1-12)= 0 0 0 0 0 0 0 0 0 0 0 0

CURRENT NODAL DOF SET IS UX UY UZ
 THREE-DIMENSIONAL MODEL

ELEMENT TYPE 5 IS SOLID45 3-D STRUCTURAL SOLID
 KEYOPT(1-12)= 0 0 0 0 0 0 0 0 0 0 0 0

CURRENT NODAL DOF SET IS UX UY UZ
 THREE-DIMENSIONAL MODEL

ELEMENT TYPE 6 IS SOLID45 3-D STRUCTURAL SOLID
 KEYOPT(1-12)= 0 0 0 0 0 0 0 0 0 0 0 0

CURRENT NODAL DOF SET IS UX UY UZ
 THREE-DIMENSIONAL MODEL
 ratio of static to dynamic coeff. of friction fact=1.298, Area Tol.=15%
 Room Temperature Properties of Materials

MATERIAL 1 EX = 0.2060000E+12
 MATERIAL 2 EX = 0.1950000E+12
 MATERIAL 3 EX = 0.2060000E+12
 MATERIAL 4 EX = 0.2060000E+12
 MATERIAL 5 EX = 0.2080000E+12

MATERIAL	6	EX	=	0.208000E+12
MATERIAL	1	NUXY	=	0.3000000
MATERIAL	2	NUXY	=	0.2980000
MATERIAL	3	NUXY	=	0.3000000
MATERIAL	4	NUXY	=	0.3000000
MATERIAL	5	NUXY	=	0.2780000
MATERIAL	6	NUXY	=	0.2780000
MATERIAL	1	DENS	=	8131.000
MATERIAL	2	DENS	=	7953.000
MATERIAL	3	DENS	=	16262.00
MATERIAL	4	DENS	=	16262.00
MATERIAL	5	DENS	=	8442.000
MATERIAL	6	DENS	=	1101960.

Define keypoints in the basket assembly

ACTIVE COORDINATE SYSTEM SET TO 0 (CARTESIAN)

KEYPOINT	1	X,Y,Z=	0.000000E+00	0.000000E+00	0.000000E+00	IN CSYS=	0
KEYPOINT	2	X,Y,Z=	0.114250	0.000000E+00	0.000000E+00	IN CSYS=	0
KEYPOINT	3	X,Y,Z=	0.119250	0.000000E+00	0.000000E+00	IN CSYS=	0
KEYPOINT	4	X,Y,Z=	0.126250	0.000000E+00	0.000000E+00	IN CSYS=	0
KEYPOINT	5	X,Y,Z=	0.131250	0.000000E+00	0.000000E+00	IN CSYS=	0
KEYPOINT	6	X,Y,Z=	0.359750	0.000000E+00	0.000000E+00	IN CSYS=	0
KEYPOINT	7	X,Y,Z=	0.364750	0.000000E+00	0.000000E+00	IN CSYS=	0
KEYPOINT	8	X,Y,Z=	0.371750	0.000000E+00	0.000000E+00	IN CSYS=	0
KEYPOINT	9	X,Y,Z=	0.376750	0.000000E+00	0.000000E+00	IN CSYS=	0
KEYPOINT	10	X,Y,Z=	0.605250	0.000000E+00	0.000000E+00	IN CSYS=	0
KEYPOINT	11	X,Y,Z=	0.610250	0.000000E+00	0.000000E+00	IN CSYS=	0
KEYPOINT	12	X,Y,Z=	0.615250	0.000000E+00	0.000000E+00	IN CSYS=	0
KEYPOINT	13	X,Y,Z=	0.114250	0.114250	0.000000E+00	IN CSYS=	0
KEYPOINT	14	X,Y,Z=	0.131250	0.114250	0.000000E+00	IN CSYS=	0
KEYPOINT	15	X,Y,Z=	0.359750	0.114250	0.000000E+00	IN CSYS=	0
KEYPOINT	16	X,Y,Z=	0.376750	0.114250	0.000000E+00	IN CSYS=	0
KEYPOINT	17	X,Y,Z=	0.605250	0.114250	0.000000E+00	IN CSYS=	0
KEYPOINT	18	X,Y,Z=	0.119250	0.119250	0.000000E+00	IN CSYS=	0
KEYPOINT	19	X,Y,Z=	0.126250	0.119250	0.000000E+00	IN CSYS=	0
KEYPOINT	20	X,Y,Z=	0.364750	0.119250	0.000000E+00	IN CSYS=	0

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KEYPOINT    21  X,Y,Z=  0.371750    0.119250    0.000000E+00  IN CSYS=  0
KEYPOINT    22  X,Y,Z=  0.610250    0.119250    0.000000E+00  IN CSYS=  0
KEYPOINT    23  X,Y,Z=  0.615250    0.120250    0.000000E+00  IN CSYS=  0
ACTIVE COORDINATE SYSTEM SET TO    1  (CYLINDRICAL)
KEYPOINT    24  X,Y,Z=  0.710950    9.73722    0.000000E+00  IN CSYS=  1
                0.700708    0.120243    0.000000E+00  IN CSYS=  0
ACTIVE COORDINATE SYSTEM SET TO    0  (CARTESIAN)
KEYPOINT    25  X,Y,Z=  0.126250    0.126250    0.000000E+00  IN CSYS=  0
KEYPOINT    26  X,Y,Z=  0.364750    0.126250    0.000000E+00  IN CSYS=  0
KEYPOINT    27  X,Y,Z=  0.371750    0.126250    0.000000E+00  IN CSYS=  0
KEYPOINT    28  X,Y,Z=  0.610250    0.126250    0.000000E+00  IN CSYS=  0
KEYPOINT    29  X,Y,Z=  0.615250    0.125250    0.000000E+00  IN CSYS=  0
ACTIVE COORDINATE SYSTEM SET TO    1  (CYLINDRICAL)
KEYPOINT    30  X,Y,Z=  0.710950    10.1464    0.000000E+00  IN CSYS=  1
                0.699831    0.125243    0.000000E+00  IN CSYS=  0
ACTIVE COORDINATE SYSTEM SET TO    0  (CARTESIAN)
KEYPOINT    31  X,Y,Z=  0.131250    0.131250    0.000000E+00  IN CSYS=  0
KEYPOINT    32  X,Y,Z=  0.359750    0.131250    0.000000E+00  IN CSYS=  0
KEYPOINT    33  X,Y,Z=  0.376750    0.131250    0.000000E+00  IN CSYS=  0
KEYPOINT    34  X,Y,Z=  0.605250    0.131250    0.000000E+00  IN CSYS=  0
KEYPOINT    35  X,Y,Z=  0.359750    0.359750    0.000000E+00  IN CSYS=  0
KEYPOINT    36  X,Y,Z=  0.376750    0.359750    0.000000E+00  IN CSYS=  0
KEYPOINT    37  X,Y,Z=  0.605250    0.359750    0.000000E+00  IN CSYS=  0
ACTIVE COORDINATE SYSTEM SET TO    1  (CYLINDRICAL)
KEYPOINT    38  X,Y,Z=  0.710950    30.0611    0.000000E+00  IN CSYS=  1
                0.615321    0.356131    0.000000E+00  IN CSYS=  0
ACTIVE COORDINATE SYSTEM SET TO    0  (CARTESIAN)
KEYPOINT    39  X,Y,Z=  0.364750    0.364750    0.000000E+00  IN CSYS=  0
KEYPOINT    40  X,Y,Z=  0.371750    0.364750    0.000000E+00  IN CSYS=  0
ACTIVE COORDINATE SYSTEM SET TO    1  (CYLINDRICAL)
KEYPOINT    41  X,Y,Z=  0.710950    30.8670    0.000000E+00  IN CSYS=  1
                0.610251    0.364751    0.000000E+00  IN CSYS=  0
ACTIVE COORDINATE SYSTEM SET TO    0  (CARTESIAN)
KEYPOINT    42  X,Y,Z=  0.369750    0.369750    0.000000E+00  IN CSYS=  0
ACTIVE COORDINATE SYSTEM SET TO    1  (CYLINDRICAL)

```

KEYPOINT	43	X,Y,Z=	0.710950	31.3421	0.000000E+00	IN CSYS= 1
			0.607206	0.369799	0.000000E+00	IN CSYS= 0
KEYPOINT	44	X,Y,Z=	0.710950	0.000000E+00	0.000000E+00	IN CSYS= 1
			0.710950	0.000000E+00	0.000000E+00	IN CSYS= 0
KEYPOINT	45	X,Y,Z=	0.710950	45.0000	0.000000E+00	IN CSYS= 1
			0.502718	0.502718	0.000000E+00	IN CSYS= 0
KEYPOINT	46	X,Y,Z=	0.712950	0.000000E+00	0.000000E+00	IN CSYS= 1
			0.712950	0.000000E+00	0.000000E+00	IN CSYS= 0
KEYPOINT	47	X,Y,Z=	0.712950	9.73722	0.000000E+00	IN CSYS= 1
			0.702679	0.120581	0.000000E+00	IN CSYS= 0
KEYPOINT	48	X,Y,Z=	0.712950	10.1464	0.000000E+00	IN CSYS= 1
			0.701800	0.125596	0.000000E+00	IN CSYS= 0
KEYPOINT	49	X,Y,Z=	0.712950	30.0611	0.000000E+00	IN CSYS= 1
			0.617052	0.357133	0.000000E+00	IN CSYS= 0
KEYPOINT	50	X,Y,Z=	0.712950	30.8670	0.000000E+00	IN CSYS= 1
			0.611968	0.365777	0.000000E+00	IN CSYS= 0
KEYPOINT	51	X,Y,Z=	0.712950	31.3421	0.000000E+00	IN CSYS= 1
			0.608914	0.370839	0.000000E+00	IN CSYS= 0
KEYPOINT	52	X,Y,Z=	0.712950	45.0000	0.000000E+00	IN CSYS= 1
			0.504132	0.504132	0.000000E+00	IN CSYS= 0
KEYPOINT	53	X,Y,Z=	0.770950	0.000000E+00	0.000000E+00	IN CSYS= 1
			0.770950	0.000000E+00	0.000000E+00	IN CSYS= 0
KEYPOINT	54	X,Y,Z=	0.770950	9.73722	0.000000E+00	IN CSYS= 1
			0.759844	0.130391	0.000000E+00	IN CSYS= 0
KEYPOINT	55	X,Y,Z=	0.770950	10.1464	0.000000E+00	IN CSYS= 1
			0.758893	0.135813	0.000000E+00	IN CSYS= 0
KEYPOINT	56	X,Y,Z=	0.770950	30.0611	0.000000E+00	IN CSYS= 1
			0.667251	0.386186	0.000000E+00	IN CSYS= 0
KEYPOINT	57	X,Y,Z=	0.770950	30.8670	0.000000E+00	IN CSYS= 1
			0.661753	0.395534	0.000000E+00	IN CSYS= 0
KEYPOINT	58	X,Y,Z=	0.770950	31.3421	0.000000E+00	IN CSYS= 1
			0.658450	0.401008	0.000000E+00	IN CSYS= 0
KEYPOINT	59	X,Y,Z=	0.770950	45.0000	0.000000E+00	IN CSYS= 1
			0.545144	0.545144	0.000000E+00	IN CSYS= 0
KEYPOINT	60	X,Y,Z=	0.780950	0.000000E+00	0.000000E+00	IN CSYS= 1


```

0.780950 0.000000E+00 0.000000E+00 IN CSYS= 0
KEYPOINT 61 X,Y,Z= 0.780950 9.73722 0.000000E+00 IN CSYS= 1
0.769699 0.32082 0.000000E+00 IN CSYS= 0
KEYPOINT 62 X,Y,Z= 0.780950 10.1464 0.000000E+00 IN CSYS= 1
0.768737 0.37575 0.000000E+00 IN CSYS= 0
KEYPOINT 63 X,Y,Z= 0.780950 30.0611 0.000000E+00 IN CSYS= 1
0.675906 0.391196 0.000000E+00 IN CSYS= 0
KEYPOINT 64 X,Y,Z= 0.780950 30.8670 0.000000E+00 IN CSYS= 1
0.670337 0.400664 0.000000E+00 IN CSYS= 0
KEYPOINT 65 X,Y,Z= 0.780950 31.3421 0.000000E+00 IN CSYS= 1
0.666991 0.406209 0.000000E+00 IN CSYS= 0
KEYPOINT 66 X,Y,Z= 0.780950 45.0000 0.000000E+00 IN CSYS= 1
0.552215 0.552215 0.000000E+00 IN CSYS= 0

```

COORDINATE SYSTEM 11 DEFINITION. TYPE= 0 (CARTESIAN)
 XC,YC,ZC= 0.00000E+00 0.00000E+00 0.00000E+00
 ANGLES= 45.00 0.00 0.00 PARAMETERS= 1.000 1.000
 ORIENTATION= 0.71 0.71 0.00 -0.71 0.71 0.00 0.00 0.00 1.00

ACTIVE COORDINATE SYSTEM SET TO 11 (CARTESIAN)

SYMMETRY TRANSFORMATION OF KEYPOINTS USING COMPONENT Y
 SET IS ALL SELECTED KEYPOINTS

MERGE COINCIDENT KEYPOINTS WITHIN TOLERANCE OF 0.10000E-03

```

KEYPOINT 1 USED FOR KEYPOINT(S) 67
KEYPOINT 13 USED FOR KEYPOINT(S) 79
KEYPOINT 18 USED FOR KEYPOINT(S) 84
KEYPOINT 25 USED FOR KEYPOINT(S) 91
KEYPOINT 31 USED FOR KEYPOINT(S) 97
KEYPOINT 35 USED FOR KEYPOINT(S) 101
KEYPOINT 39 USED FOR KEYPOINT(S) 105
KEYPOINT 42 USED FOR KEYPOINT(S) 108
KEYPOINT 45 USED FOR KEYPOINT(S) 111
KEYPOINT 52 USED FOR KEYPOINT(S) 118
KEYPOINT 59 USED FOR KEYPOINT(S) 125
KEYPOINT 66 USED FOR KEYPOINT(S) 132

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ACTIVE COORDINATE SYSTEM SET TO 0 (CARTESIAN)

SYMMETRY TRANSFORMATION OF KEYPOINTS USING COMPONENT Y
 SET IS ALL SELECTED KEYPOINTS

MERGE COINCIDENT KEYPOINTS WITHIN TOLERANCE OF 0.10000E-03

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KEYPOINT 1 USED FOR KEYPOINT(S) 67
KEYPOINT 2 USED FOR KEYPOINT(S) 79
KEYPOINT 3 USED FOR KEYPOINT(S) 84
KEYPOINT 4 USED FOR KEYPOINT(S) 91
KEYPOINT 5 USED FOR KEYPOINT(S) 97
KEYPOINT 6 USED FOR KEYPOINT(S) 101
KEYPOINT 7 USED FOR KEYPOINT(S) 105
KEYPOINT 8 USED FOR KEYPOINT(S) 108
KEYPOINT 9 USED FOR KEYPOINT(S) 111
KEYPOINT 10 USED FOR KEYPOINT(S) 118
KEYPOINT 11 USED FOR KEYPOINT(S) 125
KEYPOINT 12 USED FOR KEYPOINT(S) 132
KEYPOINT 44 USED FOR KEYPOINT(S) 164
KEYPOINT 46 USED FOR KEYPOINT(S) 166

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KEYPOINT 53 USED FOR KEYPOINT(S) 173
KEYPOINT 60 USED FOR KEYPOINT(S) 180

DELETE SELECTED KEYPOINTS FROM 2 TO 12 BY 1

KEYPOINT 1001 X,Y,Z= 0.000000E+00 0.000000E+00 2.28750 IN CSYS= 0

LINE CONNECTS KEYPOINTS 1 1001
LINE NO.= 1 KP1= 1 TAN1= 0.0000 0.0000 -1.0000
KP2= 1001 TAN2= 0.0000 0.0000 1.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
TO NDIV = 15, SPACING RATIO = 0.200

KEYPOINT 2001 X,Y,Z= 0.000000E+00 0.000000E+00 2.29750 IN CSYS= 0

LINE CONNECTS KEYPOINTS 1001 2001
LINE NO.= 2 KP1= 1001 TAN1= 0.0000 0.0000 -1.0000
KP2= 2001 TAN2= 0.0000 0.0000 1.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
TO NDIV = 2, SPACING RATIO = 1.000

KEYPOINT 3001 X,Y,Z= 0.000000E+00 0.000000E+00 2.30450 IN CSYS= 0

LINE CONNECTS KEYPOINTS 2001 3001
LINE NO.= 3 KP1= 2001 TAN1= 0.0000 0.0000 -1.0000
KP2= 3001 TAN2= 0.0000 0.0000 1.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
TO NDIV = 2, SPACING RATIO = 1.000

KEYPOINT 4001 X,Y,Z= 0.000000E+00 0.000000E+00 2.33450 IN CSYS= 0

LINE CONNECTS KEYPOINTS 3001 4001
LINE NO.= 4 KP1= 3001 TAN1= 0.0000 0.0000 -1.0000
KP2= 4001 TAN2= 0.0000 0.0000 1.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
TO NDIV = 2, SPACING RATIO = 1.000

KEYPOINT 5001 X,Y,Z= 0.000000E+00 0.000000E+00 2.39450 IN CSYS= 0

LINE CONNECTS KEYPOINTS 4001 5001
LINE NO.= 5 KP1= 4001 TAN1= 0.0000 0.0000 -1.0000
KP2= 5001 TAN2= 0.0000 0.0000 1.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
TO NDIV = 1, SPACING RATIO = 1.000

KEYPOINT 6001 X,Y,Z= 0.000000E+00 0.000000E+00 2.61950 IN CSYS= 0

LINE CONNECTS KEYPOINTS 5001 6001
LINE NO.= 6 KP1= 5001 TAN1= 0.0000 0.0000 -1.0000
KP2= 6001 TAN2= 0.0000 0.0000 1.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
TO NDIV = 1, SPACING RATIO = 1.000

KEYPOINT 7001 X,Y,Z= 0.000000E+00 0.000000E+00 -0.700000E-02 IN CSYS= 0

LINE CONNECTS KEYPOINTS 1 7001
LINE NO.= 7 KP1= 1 TAN1= 0.0000 0.0000 1.0000
KP2= 7001 TAN2= 0.0000 0.0000 -1.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
TO NDIV = 2, SPACING RATIO = 1.000

KEYPOINT 8001 X,Y,Z= 0.000000E+00 0.000000E+00 -0.670000E-01 IN CSYS= 0

LINE CONNECTS KEYPOINTS 7001 8001
 LINE NO.= 8 KP1= 7001 TAN1= 0.0000 0.0000 1.0000
 KP2= 8001 TAN2= 0.0000 0.0000 -1.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
 TO NDIV = 1, SPACING RATIO = 1.000

KEYPOINT 9001 X,Y,Z= 0.000000E+00 0.000000E+00 -0.292000 IN CSYS= 0

LINE CONNECTS KEYPOINTS 8001 9001
 LINE NO.= 9 KP1= 8001 TAN1= 0.0000 0.0000 1.0000
 KP2= 9001 TAN2= 0.0000 0.0000 -1.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
 TO NDIV = 1, SPACING RATIO = 1.000
 Line set 1 Tube Width for Half Tubes on Symmetry Plane

LINE CONNECTS KEYPOINTS 197 206
 LINE NO.= 10 KP1= 197 TAN1= -1.0000 0.0000 0.0000
 KP2= 206 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 196 205
 LINE NO.= 11 KP1= 196 TAN1= -1.0000 0.0000 0.0000
 KP2= 205 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 195 201
 LINE NO.= 12 KP1= 195 TAN1= -1.0000 0.0000 0.0000
 KP2= 201 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 194 200
 LINE NO.= 13 KP1= 194 TAN1= -1.0000 0.0000 0.0000
 KP2= 200 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 193 204
 LINE NO.= 14 KP1= 193 TAN1= -1.0000 0.0000 0.0000
 KP2= 204 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 192 203
 LINE NO.= 15 KP1= 192 TAN1= -1.0000 0.0000 0.0000
 KP2= 203 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 191 199
 LINE NO.= 16 KP1= 191 TAN1= -1.0000 0.0000 0.0000
 KP2= 199 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 190 198
 LINE NO.= 17 KP1= 190 TAN1= -1.0000 0.0000 0.0000
 KP2= 198 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 189 202
 LINE NO.= 18 KP1= 189 TAN1= -1.0000 0.0000 0.0000
 KP2= 202 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 188 138
 LINE NO.= 19 KP1= 188 TAN1= -1.0000 0.0000 0.0000
 KP2= 138 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 187 133
 LINE NO.= 20 KP1= 187 TAN1= -1.0000 0.0000 0.0000
 KP2= 133 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 68 13
 LINE NO.= 21 KP1= 68 TAN1= -1.0000 0.0000 0.0000
 KP2= 13 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 69 18
 LINE NO.= 22 KP1= 69 TAN1= -1.0000 0.0000 0.0000
 KP2= 18 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 70 85

LINE NO.=	23	KP1=	70	TAN1=	-1.0000	0.0000	0.0000
		KP2=	85	TAN2=	1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 71 80							
LINE NO.=	24	KP1=	71	TAN1=	-1.0000	0.0000	0.0000
		KP2=	80	TAN2=	1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 72 81							
LINE NO.=	25	KP1=	72	TAN1=	-1.0000	0.0000	0.0000
		KP2=	81	TAN2=	1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 73 86							
LINE NO.=	26	KP1=	73	TAN1=	-1.0000	0.0000	0.0000
		KP2=	86	TAN2=	1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 74 87							
LINE NO.=	27	KP1=	74	TAN1=	-1.0000	0.0000	0.0000
		KP2=	87	TAN2=	1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 75 82							
LINE NO.=	28	KP1=	75	TAN1=	-1.0000	0.0000	0.0000
		KP2=	82	TAN2=	1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 76 83							
LINE NO.=	29	KP1=	76	TAN1=	-1.0000	0.0000	0.0000
		KP2=	83	TAN2=	1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 77 88							
LINE NO.=	30	KP1=	77	TAN1=	-1.0000	0.0000	0.0000
		KP2=	88	TAN2=	1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 78 89							
LINE NO.=	31	KP1=	78	TAN1=	-1.0000	0.0000	0.0000
		KP2=	89	TAN2=	1.0000	0.0000	0.0000
SET DIVISIONS ON ALL SELECTED UNMESHED LINES							
TO NDIV = 4, SPACING RATIO = 1.000							
Line set 2 Tube Widths							
LINE CONNECTS KEYPOINTS 211 218							
LINE NO.=	32	KP1=	211	TAN1=	-1.0000	0.0003	0.0000
		KP2=	218	TAN2=	1.0000	-0.0003	0.0000
LINE CONNECTS KEYPOINTS 210 220							
LINE NO.=	33	KP1=	210	TAN1=	-1.0000	0.0000	0.0000
		KP2=	220	TAN2=	1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 215 217							
LINE NO.=	34	KP1=	215	TAN1=	-1.0000	0.0000	0.0000
		KP2=	217	TAN2=	1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 214 216							
LINE NO.=	35	KP1=	214	TAN1=	-1.0000	0.0000	0.0000
		KP2=	216	TAN2=	1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 209 219							
LINE NO.=	36	KP1=	209	TAN1=	-1.0000	0.0000	0.0000
		KP2=	219	TAN2=	1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 208 159							
LINE NO.=	37	KP1=	208	TAN1=	-1.0000	0.0000	0.0000
		KP2=	159	TAN2=	1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 213 155							
LINE NO.=	38	KP1=	213	TAN1=	-1.0000	0.0000	0.0000
		KP2=	155	TAN2=	1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 151 152							
LINE NO.=	39	KP1=	151	TAN1=	-1.0000	0.0000	0.0000
		KP2=	152	TAN2=	1.0000	0.0000	0.0000

LINE CONNECTS KEYPOINTS 145 146
 LINE NO.= 40 KP1= 145 TAN1= -1.0000 0.0000 0.0000
 KP2= 146 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 139 140
 LINE NO.= 41 KP1= 139 TAN1= -1.0000 0.0000 0.0000
 KP2= 140 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 134 135
 LINE NO.= 42 KP1= 134 TAN1= -1.0000 0.0000 0.0000
 KP2= 135 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 14 15
 LINE NO.= 43 KP1= 14 TAN1= -1.0000 0.0000 0.0000
 KP2= 15 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 19 20
 LINE NO.= 44 KP1= 19 TAN1= -1.0000 0.0000 0.0000
 KP2= 20 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 25 26
 LINE NO.= 45 KP1= 25 TAN1= -1.0000 0.0000 0.0000
 KP2= 26 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 31 32
 LINE NO.= 46 KP1= 31 TAN1= -1.0000 0.0000 0.0000
 KP2= 32 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 98 35
 LINE NO.= 47 KP1= 98 TAN1= -1.0000 0.0000 0.0000
 KP2= 35 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 92 39
 LINE NO.= 48 KP1= 92 TAN1= -1.0000 0.0000 0.0000
 KP2= 39 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 93 106
 LINE NO.= 49 KP1= 93 TAN1= -1.0000 0.0000 0.0000
 KP2= 106 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 99 102
 LINE NO.= 50 KP1= 99 TAN1= -1.0000 0.0000 0.0000
 KP2= 102 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 100 103
 LINE NO.= 51 KP1= 100 TAN1= -1.0000 0.0000 0.0000
 KP2= 103 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 94 107
 LINE NO.= 52 KP1= 94 TAN1= -1.0000 0.0000 0.0000
 KP2= 107 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 95 104
 LINE NO.= 53 KP1= 95 TAN1= -1.0000 -0.0003 0.0000
 KP2= 104 TAN2= 1.0000 0.0003 0.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
 TO NDIV = 4, SPACING RATIO = 1.000
 Line set 3 Tube Widths on End Column

LINE CONNECTS KEYPOINTS 162 163
 LINE NO.= 54 KP1= 162 TAN1= -1.0000 0.0002 0.0000
 KP2= 163 TAN2= 1.0000 -0.0002 0.0000

LINE CONNECTS KEYPOINTS 160 161
 LINE NO.= 55 KP1= 160 TAN1= -1.0000 0.0000 0.0000
 KP2= 161 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 156 157

LINE NO.=	56	KP1=	156	TAN1=	-1.0000	0.0000	0.0000
		KP2=	157	TAN2=	1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 153 154							
LINE NO.=	57	KP1=	153	TAN1=	-1.0000	0.0000	0.0000
		KP2=	154	TAN2=	1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 147 148							
LINE NO.=	58	KP1=	147	TAN1=	-1.0000	0.0000	0.0000
		KP2=	148	TAN2=	1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 141 142							
LINE NO.=	59	KP1=	141	TAN1=	-1.0000	0.0000	0.0000
		KP2=	142	TAN2=	1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 136 137							
LINE NO.=	60	KP1=	136	TAN1=	-1.0000	0.0000	0.0000
		KP2=	137	TAN2=	1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 16 17							
LINE NO.=	61	KP1=	16	TAN1=	-1.0000	0.0000	0.0000
		KP2=	17	TAN2=	1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 21 22							
LINE NO.=	62	KP1=	21	TAN1=	-1.0000	0.0000	0.0000
		KP2=	22	TAN2=	1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 27 28							
LINE NO.=	63	KP1=	27	TAN1=	-1.0000	0.0000	0.0000
		KP2=	28	TAN2=	1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 33 34							
LINE NO.=	64	KP1=	33	TAN1=	-1.0000	0.0000	0.0000
		KP2=	34	TAN2=	1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 36 37							
LINE NO.=	65	KP1=	36	TAN1=	-1.0000	0.0000	0.0000
		KP2=	37	TAN2=	1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 40 41							
LINE NO.=	66	KP1=	40	TAN1=	-1.0000	0.0000	0.0000
		KP2=	41	TAN2=	1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 42 43							
LINE NO.=	67	KP1=	42	TAN1=	-1.0000	-0.0002	0.0000
		KP2=	43	TAN2=	1.0000	0.0002	0.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
 TO NDIV = 4, SPACING RATIO = 1.000
 line set 4 Tube Heights

LINE CONNECTS KEYPOINTS 201 200							
LINE NO.=	68	KP1=	201	TAN1=	0.0000	-1.0000	0.0000
		KP2=	200	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 205 204							
LINE NO.=	69	KP1=	205	TAN1=	0.0000	-1.0000	0.0000
		KP2=	204	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 210 209							
LINE NO.=	70	KP1=	210	TAN1=	0.0000	-1.0000	0.0000
		KP2=	209	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 215 214							
LINE NO.=	71	KP1=	215	TAN1=	0.0000	-1.0000	0.0000
		KP2=	214	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 217 216							
LINE NO.=	72	KP1=	217	TAN1=	0.0000	-1.0000	0.0000
		KP2=	216	TAN2=	0.0000	1.0000	0.0000

LINE CONNECTS KEYPOINTS	220	219			
LINE NO.= 73 KP1=	220	TAN1=	0.0000	-1.0000	0.0000
KP2=	219	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS	221	162			
LINE NO.= 74 KP1=	221	TAN1=	0.0002	-1.0000	0.0000
KP2=	162	TAN2=	-0.0002	1.0000	0.0000
LINE CONNECTS KEYPOINTS	199	198			
LINE NO.= 75 KP1=	199	TAN1=	0.0000	-1.0000	0.0000
KP2=	198	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS	203	202			
LINE NO.= 76 KP1=	203	TAN1=	0.0000	-1.0000	0.0000
KP2=	202	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS	208	145			
LINE NO.= 77 KP1=	208	TAN1=	0.0000	-1.0000	0.0000
KP2=	145	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS	213	151			
LINE NO.= 78 KP1=	213	TAN1=	0.0000	-1.0000	0.0000
KP2=	151	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS	155	152			
LINE NO.= 79 KP1=	155	TAN1=	0.0000	-1.0000	0.0000
KP2=	152	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS	159	146			
LINE NO.= 80 KP1=	159	TAN1=	0.0000	-1.0000	0.0000
KP2=	146	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS	160	147			
LINE NO.= 81 KP1=	160	TAN1=	0.0000	-1.0000	0.0000
KP2=	147	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS	156	153			
LINE NO.= 82 KP1=	156	TAN1=	0.0000	-1.0000	0.0000
KP2=	153	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS	157	154			
LINE NO.= 83 KP1=	157	TAN1=	0.0000	-1.0000	0.0000
KP2=	154	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS	161	148			
LINE NO.= 84 KP1=	161	TAN1=	0.0000	-1.0000	0.0000
KP2=	148	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS	133	13			
LINE NO.= 85 KP1=	133	TAN1=	0.0000	-1.0000	0.0000
KP2=	13	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS	138	18			
LINE NO.= 86 KP1=	138	TAN1=	0.0000	-1.0000	0.0000
KP2=	18	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS	139	19			
LINE NO.= 87 KP1=	139	TAN1=	0.0000	-1.0000	0.0000
KP2=	19	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS	134	14			
LINE NO.= 88 KP1=	134	TAN1=	0.0000	-1.0000	0.0000
KP2=	14	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS	135	15			
LINE NO.= 89 KP1=	135	TAN1=	0.0000	-1.0000	0.0000
KP2=	15	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS	140	20			

LINE NO.=	90	KP1=	140	TAN1=	0.0000	-1.0000	0.0000
		KP2=	20	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 141 21							
LINE NO.=	91	KP1=	141	TAN1=	0.0000	-1.0000	0.0000
		KP2=	21	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 136 16							
LINE NO.=	92	KP1=	136	TAN1=	0.0000	-1.0000	0.0000
		KP2=	16	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 137 17							
LINE NO.=	93	KP1=	137	TAN1=	0.0000	-1.0000	0.0000
		KP2=	17	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 142 22							
LINE NO.=	94	KP1=	142	TAN1=	0.0000	-1.0000	0.0000
		KP2=	22	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 143 23							
LINE NO.=	95	KP1=	143	TAN1=	0.0000	-1.0000	0.0000
		KP2=	23	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 80 81							
LINE NO.=	96	KP1=	80	TAN1=	0.0000	-1.0000	0.0000
		KP2=	81	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 85 86							
LINE NO.=	97	KP1=	85	TAN1=	0.0000	-1.0000	0.0000
		KP2=	86	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 25 92							
LINE NO.=	98	KP1=	25	TAN1=	0.0000	-1.0000	0.0000
		KP2=	92	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 31 98							
LINE NO.=	99	KP1=	31	TAN1=	0.0000	-1.0000	0.0000
		KP2=	98	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 32 35							
LINE NO.=	100	KP1=	32	TAN1=	0.0000	-1.0000	0.0000
		KP2=	35	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 26 39							
LINE NO.=	101	KP1=	26	TAN1=	0.0000	-1.0000	0.0000
		KP2=	39	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 27 40							
LINE NO.=	102	KP1=	27	TAN1=	0.0000	-1.0000	0.0000
		KP2=	40	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 33 36							
LINE NO.=	103	KP1=	33	TAN1=	0.0000	-1.0000	0.0000
		KP2=	36	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 34 37							
LINE NO.=	104	KP1=	34	TAN1=	0.0000	-1.0000	0.0000
		KP2=	37	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 28 41							
LINE NO.=	105	KP1=	28	TAN1=	0.0000	-1.0000	0.0000
		KP2=	41	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 29 38							
LINE NO.=	106	KP1=	29	TAN1=	-0.0003	-1.0000	0.0000
		KP2=	38	TAN2=	0.0003	1.0000	0.0000
LINE CONNECTS KEYPOINTS 82 83							
LINE NO.=	107	KP1=	82	TAN1=	0.0000	-1.0000	0.0000
		KP2=	83	TAN2=	0.0000	1.0000	0.0000

LINE CONNECTS KEYPOINTS 87 88
 LINE NO.= 108 KP1= 87 TAN1= 0.0000 -1.0000 0.0000
 KP2= 88 TAN2= 0.0000 1.0000 0.0000

LINE CONNECTS KEYPOINTS 93 94
 LINE NO.= 109 KP1= 93 TAN1= 0.0000 -1.0000 0.0000
 KP2= 94 TAN2= 0.0000 1.0000 0.0000

LINE CONNECTS KEYPOINTS 99 100
 LINE NO.= 110 KP1= 99 TAN1= 0.0000 -1.0000 0.0000
 KP2= 100 TAN2= 0.0000 1.0000 0.0000

LINE CONNECTS KEYPOINTS 102 103
 LINE NO.= 111 KP1= 102 TAN1= 0.0000 -1.0000 0.0000
 KP2= 103 TAN2= 0.0000 1.0000 0.0000

LINE CONNECTS KEYPOINTS 106 107
 LINE NO.= 112 KP1= 106 TAN1= 0.0000 -1.0000 0.0000
 KP2= 107 TAN2= 0.0000 1.0000 0.0000

LINE CONNECTS KEYPOINTS 42 109
 LINE NO.= 113 KP1= 42 TAN1= -0.0002 -1.0000 0.0000
 KP2= 109 TAN2= 0.0002 1.0000 0.0000

LINE CONNECTS KEYPOINTS 158 149
 LINE NO.= 114 KP1= 158 TAN1= 0.0003 -1.0000 0.0000
 KP2= 149 TAN2= -0.0003 1.0000 0.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
 TO NDIV = 4, SPACING RATIO = 1.000
 Line set 5 End Guide Fins

LINE CONNECTS KEYPOINTS 207 206
 LINE NO.= 115 KP1= 207 TAN1= -0.0001 -1.0000 0.0000
 KP2= 206 TAN2= 0.0001 1.0000 0.0000

LINE CONNECTS KEYPOINTS 212 211
 LINE NO.= 116 KP1= 212 TAN1= -0.0001 -1.0000 0.0000
 KP2= 211 TAN2= 0.0001 1.0000 0.0000

LINE CONNECTS KEYPOINTS 150 149
 LINE NO.= 117 KP1= 150 TAN1= 1.0000 0.0001 0.0000
 KP2= 149 TAN2= -1.0000 -0.0001 0.0000

LINE CONNECTS KEYPOINTS 144 143
 LINE NO.= 118 KP1= 144 TAN1= 1.0000 0.0001 0.0000
 KP2= 143 TAN2= -1.0000 -0.0001 0.0000

LINE CONNECTS KEYPOINTS 24 23
 LINE NO.= 119 KP1= 24 TAN1= 1.0000 -0.0001 0.0000
 KP2= 23 TAN2= -1.0000 0.0001 0.0000

LINE CONNECTS KEYPOINTS 30 29
 LINE NO.= 120 KP1= 30 TAN1= 1.0000 -0.0001 0.0000
 KP2= 29 TAN2= -1.0000 0.0001 0.0000

LINE CONNECTS KEYPOINTS 96 95
 LINE NO.= 121 KP1= 96 TAN1= -0.0001 1.0000 0.0000
 KP2= 95 TAN2= 0.0001 -1.0000 0.0000

LINE CONNECTS KEYPOINTS 90 89
 LINE NO.= 122 KP1= 90 TAN1= -0.0001 1.0000 0.0000
 KP2= 89 TAN2= 0.0001 -1.0000 0.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
 TO NDIV = 4, SPACING RATIO = 1.000
 Line set 6 SS-B Plate Thickness

LINE CONNECTS KEYPOINTS 197 196

LINE NO.= 123	KP1= 197	TAN1= 0.0000	-1.0000	0.0000
	KP2= 196	TAN2= 0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 206 205				
LINE NO.= 124	KP1= 206	TAN1= 0.1961	-0.9806	0.0000
	KP2= 205	TAN2= -0.1961	0.9806	0.0000
LINE CONNECTS KEYPOINTS 211 210				
LINE NO.= 125	KP1= 211	TAN1= -0.1961	-0.9806	0.0000
	KP2= 210	TAN2= 0.1961	0.9806	0.0000
LINE CONNECTS KEYPOINTS 207 212				
LINE NO.= 126	KP1= 207	TAN1= -0.9850	-0.1726	0.0000
	KP2= 212	TAN2= 0.9850	0.1726	0.0000
LINE CONNECTS KEYPOINTS 206 211				
LINE NO.= 127	KP1= 206	TAN1= -1.0000	0.0000	0.0000
	KP2= 211	TAN2= 1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 205 210				
LINE NO.= 128	KP1= 205	TAN1= -1.0000	0.0000	0.0000
	KP2= 210	TAN2= 1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 218 220				
LINE NO.= 129	KP1= 218	TAN1= -0.8619	-0.5070	0.0000
	KP2= 220	TAN2= 0.8619	0.5070	0.0000
LINE CONNECTS KEYPOINTS 220 221				
LINE NO.= 130	KP1= 220	TAN1= -0.8562	-0.5166	0.0000
	KP2= 221	TAN2= 0.8562	0.5166	0.0000
LINE CONNECTS KEYPOINTS 193 192				
LINE NO.= 131	KP1= 193	TAN1= 0.0000	-1.0000	0.0000
	KP2= 192	TAN2= 0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 204 203				
LINE NO.= 132	KP1= 204	TAN1= 0.0000	-1.0000	0.0000
	KP2= 203	TAN2= 0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 209 208				
LINE NO.= 133	KP1= 209	TAN1= 0.0000	-1.0000	0.0000
	KP2= 208	TAN2= 0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 204 209				
LINE NO.= 134	KP1= 204	TAN1= -1.0000	0.0000	0.0000
	KP2= 209	TAN2= 1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 203 208				
LINE NO.= 135	KP1= 203	TAN1= -1.0000	0.0000	0.0000
	KP2= 208	TAN2= 1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 219 159				
LINE NO.= 136	KP1= 219	TAN1= 0.0000	-1.0000	0.0000
	KP2= 159	TAN2= 0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 162 160				
LINE NO.= 137	KP1= 162	TAN1= -0.3714	-0.9285	0.0000
	KP2= 160	TAN2= 0.3714	0.9285	0.0000
LINE CONNECTS KEYPOINTS 163 161				
LINE NO.= 138	KP1= 163	TAN1= -0.5166	-0.8562	0.0000
	KP2= 161	TAN2= 0.5166	0.8562	0.0000
LINE CONNECTS KEYPOINTS 161 158				
LINE NO.= 139	KP1= 161	TAN1= -0.5070	-0.8619	0.0000
	KP2= 158	TAN2= 0.5070	0.8619	0.0000
LINE CONNECTS KEYPOINTS 219 162				
LINE NO.= 140	KP1= 219	TAN1= -0.9285	-0.3714	0.0000
	KP2= 162	TAN2= 0.9285	0.3714	0.0000

LINE CONNECTS KEYPOINTS	159	160			
LINE NO.= 141 KP1=	159	TAN1=	-1.0000	0.0000	0.0000
KP2=	160	TAN2=	1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS	189	188			
LINE NO.= 142 KP1=	189	TAN1=	0.0000	-1.0000	0.0000
KP2=	188	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS	202	138			
LINE NO.= 143 KP1=	202	TAN1=	0.0000	-1.0000	0.0000
KP2=	138	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS	145	139			
LINE NO.= 144 KP1=	145	TAN1=	0.0000	-1.0000	0.0000
KP2=	139	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS	202	145			
LINE NO.= 145 KP1=	202	TAN1=	-1.0000	0.0000	0.0000
KP2=	145	TAN2=	1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS	138	139			
LINE NO.= 146 KP1=	138	TAN1=	-1.0000	0.0000	0.0000
KP2=	139	TAN2=	1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS	146	140			
LINE NO.= 147 KP1=	146	TAN1=	0.0000	-1.0000	0.0000
KP2=	140	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS	147	141			
LINE NO.= 148 KP1=	147	TAN1=	0.0000	-1.0000	0.0000
KP2=	141	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS	146	147			
LINE NO.= 149 KP1=	146	TAN1=	-1.0000	0.0000	0.0000
KP2=	147	TAN2=	1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS	140	141			
LINE NO.= 150 KP1=	140	TAN1=	-1.0000	0.0000	0.0000
KP2=	141	TAN2=	1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS	148	142			
LINE NO.= 151 KP1=	148	TAN1=	0.0000	-1.0000	0.0000
KP2=	142	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS	149	143			
LINE NO.= 152 KP1=	149	TAN1=	0.0000	-1.0000	0.0000
KP2=	143	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS	148	149			
LINE NO.= 153 KP1=	148	TAN1=	-0.9806	-0.1961	0.0000
KP2=	149	TAN2=	0.9806	0.1961	0.0000
LINE CONNECTS KEYPOINTS	142	143			
LINE NO.= 154 KP1=	142	TAN1=	-0.9806	0.1961	0.0000
KP2=	143	TAN2=	0.9806	-0.1961	0.0000
LINE CONNECTS KEYPOINTS	150	144			
LINE NO.= 155 KP1=	150	TAN1=	-0.1726	-0.9850	0.0000
KP2=	144	TAN2=	0.1726	0.9850	0.0000
LINE CONNECTS KEYPOINTS	69	70			
LINE NO.= 156 KP1=	69	TAN1=	0.0000	-1.0000	0.0000
KP2=	70	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS	18	85			
LINE NO.= 157 KP1=	18	TAN1=	0.0000	-1.0000	0.0000
KP2=	85	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS	19	25			

LINE NO.= 158	KP1= 19	TAN1= 0.0000	-1.0000	0.0000
	KP2= 25	TAN2= 0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 18 19				
LINE NO.= 159	KP1= 18	TAN1= -1.0000	0.0000	0.0000
	KP2= 19	TAN2= 1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 85 25				
LINE NO.= 160	KP1= 85	TAN1= -1.0000	0.0000	0.0000
	KP2= 25	TAN2= 1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 20 26				
LINE NO.= 161	KP1= 20	TAN1= 0.0000	-1.0000	0.0000
	KP2= 26	TAN2= 0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 21 27				
LINE NO.= 162	KP1= 21	TAN1= 0.0000	-1.0000	0.0000
	KP2= 27	TAN2= 0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 20 21				
LINE NO.= 163	KP1= 20	TAN1= -1.0000	0.0000	0.0000
	KP2= 21	TAN2= 1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 26 27				
LINE NO.= 164	KP1= 26	TAN1= -1.0000	0.0000	0.0000
	KP2= 27	TAN2= 1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 22 28				
LINE NO.= 165	KP1= 22	TAN1= 0.0000	-1.0000	0.0000
	KP2= 28	TAN2= 0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 22 23				
LINE NO.= 166	KP1= 22	TAN1= -0.9806	-0.1961	0.0000
	KP2= 23	TAN2= 0.9806	0.1961	0.0000
LINE CONNECTS KEYPOINTS 28 29				
LINE NO.= 167	KP1= 28	TAN1= -0.9806	0.1961	0.0000
	KP2= 29	TAN2= 0.9806	-0.1961	0.0000
LINE CONNECTS KEYPOINTS 23 29				
LINE NO.= 168	KP1= 23	TAN1= 0.0000	-1.0000	0.0000
	KP2= 29	TAN2= 0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 24 30				
LINE NO.= 169	KP1= 24	TAN1= 0.1726	-0.9850	0.0000
	KP2= 30	TAN2= -0.1726	0.9850	0.0000
LINE CONNECTS KEYPOINTS 73 74				
LINE NO.= 170	KP1= 73	TAN1= 0.0000	-1.0000	0.0000
	KP2= 74	TAN2= 0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 86 87				
LINE NO.= 171	KP1= 86	TAN1= 0.0000	-1.0000	0.0000
	KP2= 87	TAN2= 0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 92 93				
LINE NO.= 172	KP1= 92	TAN1= 0.0000	-1.0000	0.0000
	KP2= 93	TAN2= 0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 86 92				
LINE NO.= 173	KP1= 86	TAN1= -1.0000	0.0000	0.0000
	KP2= 92	TAN2= 1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 87 93				
LINE NO.= 174	KP1= 87	TAN1= -1.0000	0.0000	0.0000
	KP2= 93	TAN2= 1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 39 106				
LINE NO.= 175	KP1= 39	TAN1= 0.0000	-1.0000	0.0000
	KP2= 106	TAN2= 0.0000	1.0000	0.0000

LINE CONNECTS KEYPOINTS	40	42			
LINE NO.= 176	KP1= 40	TAN1= 0.3714	-0.9285	0.0000	
	KP2= 42	TAN2= -0.3714	0.9285	0.0000	
LINE CONNECTS KEYPOINTS	39	40			
LINE NO.= 177	KP1= 39	TAN1= -1.0000	0.0000	0.0000	
	KP2= 40	TAN2= 1.0000	0.0000	0.0000	
LINE CONNECTS KEYPOINTS	106	42			
LINE NO.= 178	KP1= 106	TAN1= -0.9285	0.3714	0.0000	
	KP2= 42	TAN2= 0.9285	-0.3714	0.0000	
LINE CONNECTS KEYPOINTS	38	41			
LINE NO.= 179	KP1= 38	TAN1= 0.5070	-0.8619	0.0000	
	KP2= 41	TAN2= -0.5070	0.8619	0.0000	
LINE CONNECTS KEYPOINTS	41	43			
LINE NO.= 180	KP1= 41	TAN1= 0.5166	-0.8562	0.0000	
	KP2= 43	TAN2= -0.5166	0.8562	0.0000	
LINE CONNECTS KEYPOINTS	77	78			
LINE NO.= 181	KP1= 77	TAN1= 0.0000	-1.0000	0.0000	
	KP2= 78	TAN2= 0.0000	1.0000	0.0000	
LINE CONNECTS KEYPOINTS	88	89			
LINE NO.= 182	KP1= 88	TAN1= -0.1961	-0.9806	0.0000	
	KP2= 89	TAN2= 0.1961	0.9806	0.0000	
LINE CONNECTS KEYPOINTS	94	95			
LINE NO.= 183	KP1= 94	TAN1= 0.1961	-0.9806	0.0000	
	KP2= 95	TAN2= -0.1961	0.9806	0.0000	
LINE CONNECTS KEYPOINTS	88	94			
LINE NO.= 184	KP1= 88	TAN1= -1.0000	0.0000	0.0000	
	KP2= 94	TAN2= 1.0000	0.0000	0.0000	
LINE CONNECTS KEYPOINTS	89	95			
LINE NO.= 185	KP1= 89	TAN1= -1.0000	0.0000	0.0000	
	KP2= 95	TAN2= 1.0000	0.0000	0.0000	
LINE CONNECTS KEYPOINTS	90	96			
LINE NO.= 186	KP1= 90	TAN1= -0.9850	0.1726	0.0000	
	KP2= 96	TAN2= 0.9850	-0.1726	0.0000	
LINE CONNECTS KEYPOINTS	109	107			
LINE NO.= 187	KP1= 109	TAN1= 0.8562	-0.5166	0.0000	
	KP2= 107	TAN2= -0.8562	0.5166	0.0000	
LINE CONNECTS KEYPOINTS	107	104			
LINE NO.= 188	KP1= 107	TAN1= 0.8619	-0.5070	0.0000	
	KP2= 104	TAN2= -0.8619	0.5070	0.0000	
LINE CONNECTS KEYPOINTS	224	225			
LINE NO.= 189	KP1= 224	TAN1= -0.9850	-0.1726	0.0000	
	KP2= 225	TAN2= 0.9850	0.1726	0.0000	
LINE CONNECTS KEYPOINTS	230	231			
LINE NO.= 190	KP1= 230	TAN1= -0.9850	-0.1726	0.0000	
	KP2= 231	TAN2= 0.9850	0.1726	0.0000	
LINE CONNECTS KEYPOINTS	236	237			
LINE NO.= 191	KP1= 236	TAN1= -0.9850	-0.1726	0.0000	
	KP2= 237	TAN2= 0.9850	0.1726	0.0000	
LINE CONNECTS KEYPOINTS	226	227			
LINE NO.= 192	KP1= 226	TAN1= -0.8619	-0.5070	0.0000	
	KP2= 227	TAN2= 0.8619	0.5070	0.0000	
LINE CONNECTS KEYPOINTS	227	228			

LINE NO.= 193	KP1= 227	TAN1= -0.8562	-0.5166	0.0000
	KP2= 228	TAN2= 0.8562	0.5166	0.0000
LINE CONNECTS KEYPOINTS 232 233				
LINE NO.= 194	KP1= 232	TAN1= -0.8619	-0.5070	0.0000
	KP2= 233	TAN2= 0.8619	0.5070	0.0000
LINE CONNECTS KEYPOINTS 233 234				
LINE NO.= 195	KP1= 233	TAN1= -0.8562	-0.5166	0.0000
	KP2= 234	TAN2= 0.8562	0.5166	0.0000
LINE CONNECTS KEYPOINTS 238 239				
LINE NO.= 196	KP1= 238	TAN1= -0.8619	-0.5070	0.0000
	KP2= 239	TAN2= 0.8619	0.5070	0.0000
LINE CONNECTS KEYPOINTS 239 240				
LINE NO.= 197	KP1= 239	TAN1= -0.8562	-0.5166	0.0000
	KP2= 240	TAN2= 0.8562	0.5166	0.0000
LINE CONNECTS KEYPOINTS 171 170				
LINE NO.= 198	KP1= 171	TAN1= -0.5166	-0.8562	0.0000
	KP2= 170	TAN2= 0.5166	0.8562	0.0000
LINE CONNECTS KEYPOINTS 170 169				
LINE NO.= 199	KP1= 170	TAN1= -0.5070	-0.8619	0.0000
	KP2= 169	TAN2= 0.5070	0.8619	0.0000
LINE CONNECTS KEYPOINTS 178 177				
LINE NO.= 200	KP1= 178	TAN1= -0.5166	-0.8562	0.0000
	KP2= 177	TAN2= 0.5166	0.8562	0.0000
LINE CONNECTS KEYPOINTS 177 176				
LINE NO.= 201	KP1= 177	TAN1= -0.5070	-0.8619	0.0000
	KP2= 176	TAN2= 0.5070	0.8619	0.0000
LINE CONNECTS KEYPOINTS 185 184				
LINE NO.= 202	KP1= 185	TAN1= -0.5166	-0.8562	0.0000
	KP2= 184	TAN2= 0.5166	0.8562	0.0000
LINE CONNECTS KEYPOINTS 184 183				
LINE NO.= 203	KP1= 184	TAN1= -0.5070	-0.8619	0.0000
	KP2= 183	TAN2= 0.5070	0.8619	0.0000
LINE CONNECTS KEYPOINTS 168 167				
LINE NO.= 204	KP1= 168	TAN1= -0.1726	-0.9850	0.0000
	KP2= 167	TAN2= 0.1726	0.9850	0.0000
LINE CONNECTS KEYPOINTS 175 174				
LINE NO.= 205	KP1= 175	TAN1= -0.1726	-0.9850	0.0000
	KP2= 174	TAN2= 0.1726	0.9850	0.0000
LINE CONNECTS KEYPOINTS 182 181				
LINE NO.= 206	KP1= 182	TAN1= -0.1726	-0.9850	0.0000
	KP2= 181	TAN2= 0.1726	0.9850	0.0000
LINE CONNECTS KEYPOINTS 47 48				
LINE NO.= 207	KP1= 47	TAN1= 0.1726	-0.9850	0.0000
	KP2= 48	TAN2= -0.1726	0.9850	0.0000
LINE CONNECTS KEYPOINTS 54 55				
LINE NO.= 208	KP1= 54	TAN1= 0.1726	-0.9850	0.0000
	KP2= 55	TAN2= -0.1726	0.9850	0.0000
LINE CONNECTS KEYPOINTS 61 62				
LINE NO.= 209	KP1= 61	TAN1= 0.1726	-0.9850	0.0000
	KP2= 62	TAN2= -0.1726	0.9850	0.0000
LINE CONNECTS KEYPOINTS 49 50				
LINE NO.= 210	KP1= 49	TAN1= 0.5070	-0.8619	0.0000
	KP2= 50	TAN2= -0.5070	0.8619	0.0000

LINE CONNECTS KEYPOINTS	50	51			
LINE NO.= 211	KP1= 50	TAN1= 0.5166	-0.8562	0.0000	
	KP2= 51	TAN2= -0.5166	0.8562	0.0000	
LINE CONNECTS KEYPOINTS	56	57			
LINE NO.= 212	KP1= 56	TAN1= 0.5070	-0.8619	0.0000	
	KP2= 57	TAN2= -0.5070	0.8619	0.0000	
LINE CONNECTS KEYPOINTS	57	58			
LINE NO.= 213	KP1= 57	TAN1= 0.5166	-0.8562	0.0000	
	KP2= 58	TAN2= -0.5166	0.8562	0.0000	
LINE CONNECTS KEYPOINTS	63	64			
LINE NO.= 214	KP1= 63	TAN1= 0.5070	-0.8619	0.0000	
	KP2= 64	TAN2= -0.5070	0.8619	0.0000	
LINE CONNECTS KEYPOINTS	64	65			
LINE NO.= 215	KP1= 64	TAN1= 0.5166	-0.8562	0.0000	
	KP2= 65	TAN2= -0.5166	0.8562	0.0000	
LINE CONNECTS KEYPOINTS	117	116			
LINE NO.= 216	KP1= 117	TAN1= 0.8562	-0.5166	0.0000	
	KP2= 116	TAN2= -0.8562	0.5166	0.0000	
LINE CONNECTS KEYPOINTS	116	115			
LINE NO.= 217	KP1= 116	TAN1= 0.8619	-0.5070	0.0000	
	KP2= 115	TAN2= -0.8619	0.5070	0.0000	
LINE CONNECTS KEYPOINTS	124	123			
LINE NO.= 218	KP1= 124	TAN1= 0.8562	-0.5166	0.0000	
	KP2= 123	TAN2= -0.8562	0.5166	0.0000	
LINE CONNECTS KEYPOINTS	123	122			
LINE NO.= 219	KP1= 123	TAN1= 0.8619	-0.5070	0.0000	
	KP2= 122	TAN2= -0.8619	0.5070	0.0000	
LINE CONNECTS KEYPOINTS	131	130			
LINE NO.= 220	KP1= 131	TAN1= 0.8562	-0.5166	0.0000	
	KP2= 130	TAN2= -0.8562	0.5166	0.0000	
LINE CONNECTS KEYPOINTS	130	129			
LINE NO.= 221	KP1= 130	TAN1= 0.8619	-0.5070	0.0000	
	KP2= 129	TAN2= -0.8619	0.5070	0.0000	
LINE CONNECTS KEYPOINTS	114	113			
LINE NO.= 222	KP1= 114	TAN1= 0.9850	-0.1726	0.0000	
	KP2= 113	TAN2= -0.9850	0.1726	0.0000	
LINE CONNECTS KEYPOINTS	121	120			
LINE NO.= 223	KP1= 121	TAN1= 0.9850	-0.1726	0.0000	
	KP2= 120	TAN2= -0.9850	0.1726	0.0000	
LINE CONNECTS KEYPOINTS	128	127			
LINE NO.= 224	KP1= 128	TAN1= 0.9850	-0.1726	0.0000	
	KP2= 127	TAN2= -0.9850	0.1726	0.0000	
SET DIVISIONS ON ALL SELECTED UNMESHED LINES					
TO NDIV = 2, SPACING RATIO = 1.000					
line set 7 tube thickness					
LINE CONNECTS KEYPOINTS	196	195			
LINE NO.= 225	KP1= 196	TAN1= 0.0000	-1.0000	0.0000	
	KP2= 195	TAN2= 0.0000	1.0000	0.0000	
LINE CONNECTS KEYPOINTS	205	201			
LINE NO.= 226	KP1= 205	TAN1= 0.7071	-0.7071	0.0000	
	KP2= 201	TAN2= -0.7071	0.7071	0.0000	
LINE CONNECTS KEYPOINTS	204	200			

LINE NO.=	227	KP1=	204	TAN1=	0.7071	0.7071	0.0000
		KP2=	200	TAN2=	-0.7071	-0.7071	0.0000
LINE CONNECTS KEYPOINTS							
LINE NO.=	228	KP1=	193	TAN1=	0.0000	1.0000	0.0000
		KP2=	194	TAN2=	0.0000	-1.0000	0.0000
LINE CONNECTS KEYPOINTS							
LINE NO.=	229	KP1=	210	TAN1=	-0.7071	-0.7071	0.0000
		KP2=	215	TAN2=	0.7071	0.7071	0.0000
LINE CONNECTS KEYPOINTS							
LINE NO.=	230	KP1=	220	TAN1=	0.7071	-0.7071	0.0000
		KP2=	217	TAN2=	-0.7071	0.7071	0.0000
LINE CONNECTS KEYPOINTS							
LINE NO.=	231	KP1=	219	TAN1=	0.7071	0.7071	0.0000
		KP2=	216	TAN2=	-0.7071	-0.7071	0.0000
LINE CONNECTS KEYPOINTS							
LINE NO.=	232	KP1=	209	TAN1=	-0.7071	0.7071	0.0000
		KP2=	214	TAN2=	0.7071	-0.7071	0.0000
LINE CONNECTS KEYPOINTS							
LINE NO.=	233	KP1=	192	TAN1=	0.0000	-1.0000	0.0000
		KP2=	191	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS							
LINE NO.=	234	KP1=	203	TAN1=	0.7071	-0.7071	0.0000
		KP2=	199	TAN2=	-0.7071	0.7071	0.0000
LINE CONNECTS KEYPOINTS							
LINE NO.=	235	KP1=	202	TAN1=	0.7071	0.7071	0.0000
		KP2=	198	TAN2=	-0.7071	-0.7071	0.0000
LINE CONNECTS KEYPOINTS							
LINE NO.=	236	KP1=	189	TAN1=	0.0000	1.0000	0.0000
		KP2=	190	TAN2=	0.0000	-1.0000	0.0000
LINE CONNECTS KEYPOINTS							
LINE NO.=	237	KP1=	208	TAN1=	-0.7071	-0.7071	0.0000
		KP2=	213	TAN2=	0.7071	0.7071	0.0000
LINE CONNECTS KEYPOINTS							
LINE NO.=	238	KP1=	159	TAN1=	0.7071	-0.7071	0.0000
		KP2=	155	TAN2=	-0.7071	0.7071	0.0000
LINE CONNECTS KEYPOINTS							
LINE NO.=	239	KP1=	146	TAN1=	0.7071	0.7071	0.0000
		KP2=	152	TAN2=	-0.7071	-0.7071	0.0000
LINE CONNECTS KEYPOINTS							
LINE NO.=	240	KP1=	145	TAN1=	-0.7071	0.7071	0.0000
		KP2=	151	TAN2=	0.7071	-0.7071	0.0000
LINE CONNECTS KEYPOINTS							
LINE NO.=	241	KP1=	160	TAN1=	-0.7071	-0.7071	0.0000
		KP2=	156	TAN2=	0.7071	0.7071	0.0000
LINE CONNECTS KEYPOINTS							
LINE NO.=	242	KP1=	161	TAN1=	0.7071	-0.7071	0.0000
		KP2=	157	TAN2=	-0.7071	0.7071	0.0000
LINE CONNECTS KEYPOINTS							
LINE NO.=	243	KP1=	148	TAN1=	0.7071	0.7071	0.0000
		KP2=	154	TAN2=	-0.7071	-0.7071	0.0000
LINE CONNECTS KEYPOINTS							
LINE NO.=	244	KP1=	147	TAN1=	-0.7071	0.7071	0.0000
		KP2=	153	TAN2=	0.7071	-0.7071	0.0000

LINE CONNECTS KEYPOINTS	188	187			
LINE NO.= 245 KP1=	188	TAN1=	0.0000	-1.0000	0.0000
KP2=	187	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS	138	133			
LINE NO.= 246 KP1=	138	TAN1=	0.7071	-0.7071	0.0000
KP2=	133	TAN2=	-0.7071	0.7071	0.0000
LINE CONNECTS KEYPOINTS	18	13			
LINE NO.= 247 KP1=	18	TAN1=	0.7071	0.7071	0.0000
KP2=	13	TAN2=	-0.7071	-0.7071	0.0000
LINE CONNECTS KEYPOINTS	69	68			
LINE NO.= 248 KP1=	69	TAN1=	0.0000	1.0000	0.0000
KP2=	68	TAN2=	0.0000	-1.0000	0.0000
LINE CONNECTS KEYPOINTS	139	134			
LINE NO.= 249 KP1=	139	TAN1=	-0.7071	-0.7071	0.0000
KP2=	134	TAN2=	0.7071	0.7071	0.0000
LINE CONNECTS KEYPOINTS	140	135			
LINE NO.= 250 KP1=	140	TAN1=	0.7071	-0.7071	0.0000
KP2=	135	TAN2=	-0.7071	0.7071	0.0000
LINE CONNECTS KEYPOINTS	20	15			
LINE NO.= 251 KP1=	20	TAN1=	0.7071	0.7071	0.0000
KP2=	15	TAN2=	-0.7071	-0.7071	0.0000
LINE CONNECTS KEYPOINTS	19	14			
LINE NO.= 252 KP1=	19	TAN1=	-0.7071	0.7071	0.0000
KP2=	14	TAN2=	0.7071	-0.7071	0.0000
LINE CONNECTS KEYPOINTS	141	136			
LINE NO.= 253 KP1=	141	TAN1=	-0.7071	-0.7071	0.0000
KP2=	136	TAN2=	0.7071	0.7071	0.0000
LINE CONNECTS KEYPOINTS	142	137			
LINE NO.= 254 KP1=	142	TAN1=	0.7071	-0.7071	0.0000
KP2=	137	TAN2=	-0.7071	0.7071	0.0000
LINE CONNECTS KEYPOINTS	22	17			
LINE NO.= 255 KP1=	22	TAN1=	0.7071	0.7071	0.0000
KP2=	17	TAN2=	-0.7071	-0.7071	0.0000
LINE CONNECTS KEYPOINTS	21	16			
LINE NO.= 256 KP1=	21	TAN1=	-0.7071	0.7071	0.0000
KP2=	16	TAN2=	0.7071	-0.7071	0.0000
LINE CONNECTS KEYPOINTS	70	71			
LINE NO.= 257 KP1=	70	TAN1=	0.0000	-1.0000	0.0000
KP2=	71	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS	85	80			
LINE NO.= 258 KP1=	85	TAN1=	0.7071	-0.7071	0.0000
KP2=	80	TAN2=	-0.7071	0.7071	0.0000
LINE CONNECTS KEYPOINTS	86	81			
LINE NO.= 259 KP1=	86	TAN1=	0.7071	0.7071	0.0000
KP2=	81	TAN2=	-0.7071	-0.7071	0.0000
LINE CONNECTS KEYPOINTS	73	72			
LINE NO.= 260 KP1=	73	TAN1=	0.0000	1.0000	0.0000
KP2=	72	TAN2=	0.0000	-1.0000	0.0000
LINE CONNECTS KEYPOINTS	25	31			
LINE NO.= 261 KP1=	25	TAN1=	-0.7071	-0.7071	0.0000
KP2=	31	TAN2=	0.7071	0.7071	0.0000
LINE CONNECTS KEYPOINTS	26	32			

LINE NO.=	262	KP1=	26	TAN1=	0.7071	-0.7071	0.0000
		KP2=	32	TAN2=	-0.7071	0.7071	0.0000
LINE CONNECTS KEYPOINTS 39 35							
LINE NO.=	263	KP1=	39	TAN1=	0.7071	0.7071	0.0000
		KP2=	35	TAN2=	-0.7071	-0.7071	0.0000
LINE CONNECTS KEYPOINTS 92 98							
LINE NO.=	264	KP1=	92	TAN1=	-0.7071	0.7071	0.0000
		KP2=	98	TAN2=	0.7071	-0.7071	0.0000
LINE CONNECTS KEYPOINTS 27 33							
LINE NO.=	265	KP1=	27	TAN1=	-0.7071	-0.7071	0.0000
		KP2=	33	TAN2=	0.7071	0.7071	0.0000
LINE CONNECTS KEYPOINTS 28 34							
LINE NO.=	266	KP1=	28	TAN1=	0.7071	-0.7071	0.0000
		KP2=	34	TAN2=	-0.7071	0.7071	0.0000
LINE CONNECTS KEYPOINTS 41 37							
LINE NO.=	267	KP1=	41	TAN1=	0.7071	0.7071	0.0000
		KP2=	37	TAN2=	-0.7071	-0.7071	0.0000
LINE CONNECTS KEYPOINTS 40 36							
LINE NO.=	268	KP1=	40	TAN1=	-0.7071	0.7071	0.0000
		KP2=	36	TAN2=	0.7071	-0.7071	0.0000
LINE CONNECTS KEYPOINTS 74 75							
LINE NO.=	269	KP1=	74	TAN1=	0.0000	-1.0000	0.0000
		KP2=	75	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 87 82							
LINE NO.=	270	KP1=	87	TAN1=	0.7071	-0.7071	0.0000
		KP2=	82	TAN2=	-0.7071	0.7071	0.0000
LINE CONNECTS KEYPOINTS 88 83							
LINE NO.=	271	KP1=	88	TAN1=	0.7071	0.7071	0.0000
		KP2=	83	TAN2=	-0.7071	-0.7071	0.0000
LINE CONNECTS KEYPOINTS 77 76							
LINE NO.=	272	KP1=	77	TAN1=	0.0000	1.0000	0.0000
		KP2=	76	TAN2=	0.0000	-1.0000	0.0000
LINE CONNECTS KEYPOINTS 93 99							
LINE NO.=	273	KP1=	93	TAN1=	-0.7071	-0.7071	0.0000
		KP2=	99	TAN2=	0.7071	0.7071	0.0000
LINE CONNECTS KEYPOINTS 106 102							
LINE NO.=	274	KP1=	106	TAN1=	0.7071	-0.7071	0.0000
		KP2=	102	TAN2=	-0.7071	0.7071	0.0000
LINE CONNECTS KEYPOINTS 107 103							
LINE NO.=	275	KP1=	107	TAN1=	0.7071	0.7071	0.0000
		KP2=	103	TAN2=	-0.7071	-0.7071	0.0000
LINE CONNECTS KEYPOINTS 94 100							
LINE NO.=	276	KP1=	94	TAN1=	-0.7071	0.7071	0.0000
		KP2=	100	TAN2=	0.7071	-0.7071	0.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
TO NDIV = 1, SPACING RATIO = 1.000

ACTIVE COORDINATE SYSTEM SET TO 1 (CYLINDRICAL)
Line set 8, arc 1 bottom

LINE CONNECTS KEYPOINTS 222 207							
LINE NO.=	277	KP1=	222	TAN1=	-1.0000	0.0000	0.0000
		KP2=	207	TAN2=	0.9856	0.1691	0.0000
LINE CONNECTS KEYPOINTS 223 224							

LINE NO.= 278 KP1= 223 TAN1= -1.0000 0.0000 0.0000
 KP2= 224 TAN2= 0.9856 0.1691 0.0000

LINE CONNECTS KEYPOINTS 229 230
 LINE NO.= 279 KP1= 229 TAN1= -1.0000 0.0000 0.0000
 KP2= 230 TAN2= 0.9856 0.1691 0.0000

LINE CONNECTS KEYPOINTS 235 236
 LINE NO.= 280 KP1= 235 TAN1= -1.0000 0.0000 0.0000
 KP2= 236 TAN2= 0.9856 0.1691 0.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
 TO NDIV = 4, SPACING RATIO = 1.000
 line set 9, arc 2 side arcs

LINE CONNECTS KEYPOINTS 212 218
 LINE NO.= 281 KP1= 212 TAN1= -0.9844 -0.1762 0.0000
 KP2= 218 TAN2= 0.8655 0.5009 0.0000

LINE CONNECTS KEYPOINTS 225 226
 LINE NO.= 282 KP1= 225 TAN1= -0.9844 -0.1762 0.0000
 KP2= 226 TAN2= 0.8655 0.5009 0.0000

LINE CONNECTS KEYPOINTS 231 232
 LINE NO.= 283 KP1= 231 TAN1= -0.9844 -0.1762 0.0000
 KP2= 232 TAN2= 0.8655 0.5009 0.0000

LINE CONNECTS KEYPOINTS 237 238
 LINE NO.= 284 KP1= 237 TAN1= -0.9844 -0.1762 0.0000
 KP2= 238 TAN2= 0.8655 0.5009 0.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
 TO NDIV = 4, SPACING RATIO = 1.000
 line set 10, arc 3 side arcs

LINE CONNECTS KEYPOINTS 221 163
 LINE NO.= 285 KP1= 221 TAN1= -0.8541 -0.5201 0.0000
 KP2= 163 TAN2= 0.5201 0.8541 0.0000

LINE CONNECTS KEYPOINTS 228 171
 LINE NO.= 286 KP1= 228 TAN1= -0.8541 -0.5201 0.0000
 KP2= 171 TAN2= 0.5201 0.8541 0.0000

LINE CONNECTS KEYPOINTS 234 178
 LINE NO.= 287 KP1= 234 TAN1= -0.8541 -0.5201 0.0000
 KP2= 178 TAN2= 0.5201 0.8541 0.0000

LINE CONNECTS KEYPOINTS 240 185
 LINE NO.= 288 KP1= 240 TAN1= -0.8541 -0.5201 0.0000
 KP2= 185 TAN2= 0.5201 0.8541 0.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
 TO NDIV = 4, SPACING RATIO = 1.000
 line set 11, arc 4 side arcs

LINE CONNECTS KEYPOINTS 158 150
 LINE NO.= 289 KP1= 158 TAN1= -0.5009 -0.8655 0.0000
 KP2= 150 TAN2= 0.1762 0.9844 0.0000

LINE CONNECTS KEYPOINTS 169 168
 LINE NO.= 290 KP1= 169 TAN1= -0.5009 -0.8655 0.0000
 KP2= 168 TAN2= 0.1762 0.9844 0.0000

LINE CONNECTS KEYPOINTS 176 175
 LINE NO.= 291 KP1= 176 TAN1= -0.5009 -0.8655 0.0000
 KP2= 175 TAN2= 0.1762 0.9844 0.0000

LINE CONNECTS KEYPOINTS 183 182
 LINE NO.= 292 KP1= 183 TAN1= -0.5009 -0.8655 0.0000
 KP2= 182 TAN2= 0.1762 0.9844 0.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
TO NDIV = 4, SPACING RATIO = 1.000
line set 12, arc 5 side arcs

LINE CONNECTS KEYPOINTS	144	24			
LINE NO.= 293	KP1= 144	TAN1= -0.1691	-0.9856	0.0000	
	KP2= 24	TAN2= -0.1691	0.9856	0.0000	

LINE CONNECTS KEYPOINTS	167	47			
LINE NO.= 294	KP1= 167	TAN1= -0.1691	-0.9856	0.0000	
	KP2= 47	TAN2= -0.1691	0.9856	0.0000	

LINE CONNECTS KEYPOINTS	174	54			
LINE NO.= 295	KP1= 174	TAN1= -0.1691	-0.9856	0.0000	
	KP2= 54	TAN2= -0.1691	0.9856	0.0000	

LINE CONNECTS KEYPOINTS	181	61			
LINE NO.= 296	KP1= 181	TAN1= -0.1691	-0.9856	0.0000	
	KP2= 61	TAN2= -0.1691	0.9856	0.0000	

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
TO NDIV = 4, SPACING RATIO = 1.000
line set 13, arc 6 side arcs

LINE CONNECTS KEYPOINTS	30	38			
LINE NO.= 297	KP1= 30	TAN1= 0.1762	-0.9844	0.0000	
	KP2= 38	TAN2= -0.5009	0.8655	0.0000	

LINE CONNECTS KEYPOINTS	48	49			
LINE NO.= 298	KP1= 48	TAN1= 0.1762	-0.9844	0.0000	
	KP2= 49	TAN2= -0.5009	0.8655	0.0000	

LINE CONNECTS KEYPOINTS	55	56			
LINE NO.= 299	KP1= 55	TAN1= 0.1762	-0.9844	0.0000	
	KP2= 56	TAN2= -0.5009	0.8655	0.0000	

LINE CONNECTS KEYPOINTS	62	63			
LINE NO.= 300	KP1= 62	TAN1= 0.1762	-0.9844	0.0000	
	KP2= 63	TAN2= -0.5009	0.8655	0.0000	

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
TO NDIV = 4, SPACING RATIO = 1.000
line set 14, arc 7 side arcs

LINE CONNECTS KEYPOINTS	43	109			
LINE NO.= 301	KP1= 43	TAN1= 0.5201	-0.8541	0.0000	
	KP2= 109	TAN2= -0.8541	0.5201	0.0000	

LINE CONNECTS KEYPOINTS	51	117			
LINE NO.= 302	KP1= 51	TAN1= 0.5201	-0.8541	0.0000	
	KP2= 117	TAN2= -0.8541	0.5201	0.0000	

LINE CONNECTS KEYPOINTS	58	124			
LINE NO.= 303	KP1= 58	TAN1= 0.5201	-0.8541	0.0000	
	KP2= 124	TAN2= -0.8541	0.5201	0.0000	

LINE CONNECTS KEYPOINTS	65	131			
LINE NO.= 304	KP1= 65	TAN1= 0.5201	-0.8541	0.0000	
	KP2= 131	TAN2= -0.8541	0.5201	0.0000	

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
TO NDIV = 4, SPACING RATIO = 1.000
line set 15, arc 8 side arcs

LINE CONNECTS KEYPOINTS	104	96			
LINE NO.= 305	KP1= 104	TAN1= 0.8655	-0.5009	0.0000	
	KP2= 96	TAN2= -0.9844	0.1762	0.0000	

LINE CONNECTS KEYPOINTS	115	114			
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LINE NO.= 306 KP1= 115 TAN1= 0.8655 -0.5009 0.0000
 KP2= 114 TAN2= -0.9844 0.1762 0.0000

LINE CONNECTS KEYPOINTS 122 121

LINE NO.= 307 KP1= 122 TAN1= 0.8655 -0.5009 0.0000
 KP2= 121 TAN2= -0.9844 0.1762 0.0000

LINE CONNECTS KEYPOINTS 129 128

LINE NO.= 308 KP1= 129 TAN1= 0.8655 -0.5009 0.0000
 KP2= 128 TAN2= -0.9844 0.1762 0.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
 TO NDIV = 4, SPACING RATIO = 1.000
 line set 16, arc 9 top arcs

LINE CONNECTS KEYPOINTS 90 110

LINE NO.= 309 KP1= 90 TAN1= 0.9856 -0.1691 0.0000
 KP2= 110 TAN2= -1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 113 112

LINE NO.= 310 KP1= 113 TAN1= 0.9856 -0.1691 0.0000
 KP2= 112 TAN2= -1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 120 119

LINE NO.= 311 KP1= 120 TAN1= 0.9856 -0.1691 0.0000
 KP2= 119 TAN2= -1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 127 126

LINE NO.= 312 KP1= 127 TAN1= 0.9856 -0.1691 0.0000
 KP2= 126 TAN2= -1.0000 0.0000 0.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
 TO NDIV = 4, SPACING RATIO = 1.000

ACTIVE COORDINATE SYSTEM SET TO 0 (CARTESIAN)
 line set 17 IB thickness

LINE CONNECTS KEYPOINTS 222 223

LINE NO.= 313 KP1= 222 TAN1= 0.0000 1.0000 0.0000
 KP2= 223 TAN2= 0.0000 -1.0000 0.0000

LINE CONNECTS KEYPOINTS 207 224

LINE NO.= 314 KP1= 207 TAN1= -0.1691 0.9856 0.0000
 KP2= 224 TAN2= 0.1691 -0.9856 0.0000

LINE CONNECTS KEYPOINTS 212 225

LINE NO.= 315 KP1= 212 TAN1= -0.1762 0.9844 0.0000
 KP2= 225 TAN2= 0.1762 -0.9844 0.0000

LINE CONNECTS KEYPOINTS 218 226

LINE NO.= 316 KP1= 218 TAN1= -0.5009 0.8655 0.0000
 KP2= 226 TAN2= 0.5009 -0.8655 0.0000

LINE CONNECTS KEYPOINTS 220 227

LINE NO.= 317 KP1= 220 TAN1= -0.5130 0.8584 0.0000
 KP2= 227 TAN2= 0.5130 -0.8584 0.0000

LINE CONNECTS KEYPOINTS 221 228

LINE NO.= 318 KP1= 221 TAN1= -0.5201 0.8541 0.0000
 KP2= 228 TAN2= 0.5201 -0.8541 0.0000

LINE CONNECTS KEYPOINTS 163 171

LINE NO.= 319 KP1= 163 TAN1= -0.8541 0.5201 0.0000
 KP2= 171 TAN2= 0.8541 -0.5201 0.0000

LINE CONNECTS KEYPOINTS 161 170

LINE NO.= 320 KP1= 161 TAN1= -0.8584 0.5130 0.0000
 KP2= 170 TAN2= 0.8584 -0.5130 0.0000

LINE CONNECTS KEYPOINTS 158 169

LINE NO.=	321	KP1=	158	TAN1=	-0.8655	0.5009	0.0000
		KP2=	169	TAN2=	0.8655	-0.5009	0.0000
LINE CONNECTS KEYPOINTS 150 168							
LINE NO.=	322	KP1=	150	TAN1=	-0.9844	0.1762	0.0000
		KP2=	168	TAN2=	0.9844	-0.1762	0.0000
LINE CONNECTS KEYPOINTS 144 167							
LINE NO.=	323	KP1=	144	TAN1=	-0.9856	0.1691	0.0000
		KP2=	167	TAN2=	0.9856	-0.1691	0.0000
LINE CONNECTS KEYPOINTS 24 47							
LINE NO.=	324	KP1=	24	TAN1=	-0.9856	-0.1691	0.0000
		KP2=	47	TAN2=	0.9856	0.1691	0.0000
LINE CONNECTS KEYPOINTS 30 48							
LINE NO.=	325	KP1=	30	TAN1=	-0.9844	-0.1762	0.0000
		KP2=	48	TAN2=	0.9844	0.1762	0.0000
LINE CONNECTS KEYPOINTS 38 49							
LINE NO.=	326	KP1=	38	TAN1=	-0.8655	-0.5009	0.0000
		KP2=	49	TAN2=	0.8655	0.5009	0.0000
LINE CONNECTS KEYPOINTS 41 50							
LINE NO.=	327	KP1=	41	TAN1=	-0.8584	-0.5130	0.0000
		KP2=	50	TAN2=	0.8584	0.5130	0.0000
LINE CONNECTS KEYPOINTS 43 51							
LINE NO.=	328	KP1=	43	TAN1=	-0.8541	-0.5201	0.0000
		KP2=	51	TAN2=	0.8541	0.5201	0.0000
LINE CONNECTS KEYPOINTS 109 117							
LINE NO.=	329	KP1=	109	TAN1=	-0.5201	-0.8541	0.0000
		KP2=	117	TAN2=	0.5201	0.8541	0.0000
LINE CONNECTS KEYPOINTS 107 116							
LINE NO.=	330	KP1=	107	TAN1=	-0.5130	-0.8584	0.0000
		KP2=	116	TAN2=	0.5130	0.8584	0.0000
LINE CONNECTS KEYPOINTS 104 115							
LINE NO.=	331	KP1=	104	TAN1=	-0.5009	-0.8655	0.0000
		KP2=	115	TAN2=	0.5009	0.8655	0.0000
LINE CONNECTS KEYPOINTS 96 114							
LINE NO.=	332	KP1=	96	TAN1=	-0.1762	-0.9844	0.0000
		KP2=	114	TAN2=	0.1762	0.9844	0.0000
LINE CONNECTS KEYPOINTS 90 113							
LINE NO.=	333	KP1=	90	TAN1=	-0.1691	-0.9856	0.0000
		KP2=	113	TAN2=	0.1691	0.9856	0.0000
LINE CONNECTS KEYPOINTS 110 112							
LINE NO.=	334	KP1=	110	TAN1=	0.0000	-1.0000	0.0000
		KP2=	112	TAN2=	0.0000	1.0000	0.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
 TO NDIV = 2, SPACING RATIO = 1.000
 line set 18 OB inner thickness

LINE CONNECTS KEYPOINTS 223 229							
LINE NO.=	335	KP1=	223	TAN1=	0.0000	1.0000	0.0000
		KP2=	229	TAN2=	0.0000	-1.0000	0.0000
LINE CONNECTS KEYPOINTS 224 230							
LINE NO.=	336	KP1=	224	TAN1=	-0.1691	0.9856	0.0000
		KP2=	230	TAN2=	0.1691	-0.9856	0.0000
LINE CONNECTS KEYPOINTS 225 231							
LINE NO.=	337	KP1=	225	TAN1=	-0.1762	0.9844	0.0000
		KP2=	231	TAN2=	0.1762	-0.9844	0.0000

LINE CONNECTS KEYPOINTS	226	232			
LINE NO.= 338	KP1= 226	TAN1=	-0.5009	0.8655	0.0000
	KP2= 232	TAN2=	0.5009	-0.8655	0.0000
LINE CONNECTS KEYPOINTS	227	233			
LINE NO.= 339	KP1= 227	TAN1=	-0.5130	0.8584	0.0000
	KP2= 233	TAN2=	0.5130	-0.8584	0.0000
LINE CONNECTS KEYPOINTS	228	234			
LINE NO.= 340	KP1= 228	TAN1=	-0.5201	0.8541	0.0000
	KP2= 234	TAN2=	0.5201	-0.8541	0.0000
LINE CONNECTS KEYPOINTS	171	178			
LINE NO.= 341	KP1= 171	TAN1=	-0.8541	0.5201	0.0000
	KP2= 178	TAN2=	0.8541	-0.5201	0.0000
LINE CONNECTS KEYPOINTS	170	177			
LINE NO.= 342	KP1= 170	TAN1=	-0.8584	0.5130	0.0000
	KP2= 177	TAN2=	0.8584	-0.5130	0.0000
LINE CONNECTS KEYPOINTS	169	176			
LINE NO.= 343	KP1= 169	TAN1=	-0.8655	0.5009	0.0000
	KP2= 176	TAN2=	0.8655	-0.5009	0.0000
LINE CONNECTS KEYPOINTS	168	175			
LINE NO.= 344	KP1= 168	TAN1=	-0.9844	0.1762	0.0000
	KP2= 175	TAN2=	0.9844	-0.1762	0.0000
LINE CONNECTS KEYPOINTS	167	174			
LINE NO.= 345	KP1= 167	TAN1=	-0.9856	0.1691	0.0000
	KP2= 174	TAN2=	0.9856	-0.1691	0.0000
LINE CONNECTS KEYPOINTS	47	54			
LINE NO.= 346	KP1= 47	TAN1=	-0.9856	-0.1691	0.0000
	KP2= 54	TAN2=	0.9856	0.1691	0.0000
LINE CONNECTS KEYPOINTS	48	55			
LINE NO.= 347	KP1= 48	TAN1=	-0.9844	-0.1762	0.0000
	KP2= 55	TAN2=	0.9844	0.1762	0.0000
LINE CONNECTS KEYPOINTS	49	56			
LINE NO.= 348	KP1= 49	TAN1=	-0.8655	-0.5009	0.0000
	KP2= 56	TAN2=	0.8655	0.5009	0.0000
LINE CONNECTS KEYPOINTS	50	57			
LINE NO.= 349	KP1= 50	TAN1=	-0.8584	-0.5130	0.0000
	KP2= 57	TAN2=	0.8584	0.5130	0.0000
LINE CONNECTS KEYPOINTS	51	58			
LINE NO.= 350	KP1= 51	TAN1=	-0.8541	-0.5201	0.0000
	KP2= 58	TAN2=	0.8541	0.5201	0.0000
LINE CONNECTS KEYPOINTS	117	124			
LINE NO.= 351	KP1= 117	TAN1=	-0.5201	-0.8541	0.0000
	KP2= 124	TAN2=	0.5201	0.8541	0.0000
LINE CONNECTS KEYPOINTS	116	123			
LINE NO.= 352	KP1= 116	TAN1=	-0.5130	-0.8584	0.0000
	KP2= 123	TAN2=	0.5130	0.8584	0.0000
LINE CONNECTS KEYPOINTS	115	122			
LINE NO.= 353	KP1= 115	TAN1=	-0.5009	-0.8655	0.0000
	KP2= 122	TAN2=	0.5009	0.8655	0.0000
LINE CONNECTS KEYPOINTS	114	121			
LINE NO.= 354	KP1= 114	TAN1=	-0.1762	-0.9844	0.0000
	KP2= 121	TAN2=	0.1762	0.9844	0.0000
LINE CONNECTS KEYPOINTS	113	120			

LINE NO.=	355	KP1=	113	TAN1=	-0.1691	-0.9856	0.0000
		KP2=	120	TAN2=	0.1691	0.9856	0.0000
LINE CONNECTS KEYPOINTS 112 119							
LINE NO.=	356	KP1=	112	TAN1=	0.0000	-1.0000	0.0000
		KP2=	119	TAN2=	0.0000	1.0000	0.0000
SET DIVISIONS ON ALL SELECTED UNMESHED LINES							
TO NDIV = 2, SPACING RATIO = 1.000							
line set 19 skirt thickness							
LINE CONNECTS KEYPOINTS 229 235							
LINE NO.=	357	KP1=	229	TAN1=	0.0000	1.0000	0.0000
		KP2=	235	TAN2=	0.0000	-1.0000	0.0000
LINE CONNECTS KEYPOINTS 230 236							
LINE NO.=	358	KP1=	230	TAN1=	-0.1691	0.9856	0.0000
		KP2=	236	TAN2=	0.1691	-0.9856	0.0000
LINE CONNECTS KEYPOINTS 231 237							
LINE NO.=	359	KP1=	231	TAN1=	-0.1762	0.9844	0.0000
		KP2=	237	TAN2=	0.1762	-0.9844	0.0000
LINE CONNECTS KEYPOINTS 232 238							
LINE NO.=	360	KP1=	232	TAN1=	-0.5009	0.8655	0.0000
		KP2=	238	TAN2=	0.5009	-0.8655	0.0000
LINE CONNECTS KEYPOINTS 233 239							
LINE NO.=	361	KP1=	233	TAN1=	-0.5130	0.8584	0.0000
		KP2=	239	TAN2=	0.5130	-0.8584	0.0000
LINE CONNECTS KEYPOINTS 234 240							
LINE NO.=	362	KP1=	234	TAN1=	-0.5201	0.8541	0.0000
		KP2=	240	TAN2=	0.5201	-0.8541	0.0000
LINE CONNECTS KEYPOINTS 178 185							
LINE NO.=	363	KP1=	178	TAN1=	-0.8541	0.5201	0.0000
		KP2=	185	TAN2=	0.8541	-0.5201	0.0000
LINE CONNECTS KEYPOINTS 177 184							
LINE NO.=	364	KP1=	177	TAN1=	-0.8584	0.5130	0.0000
		KP2=	184	TAN2=	0.8584	-0.5130	0.0000
LINE CONNECTS KEYPOINTS 176 183							
LINE NO.=	365	KP1=	176	TAN1=	-0.8655	0.5009	0.0000
		KP2=	183	TAN2=	0.8655	-0.5009	0.0000
LINE CONNECTS KEYPOINTS 175 182							
LINE NO.=	366	KP1=	175	TAN1=	-0.9844	0.1762	0.0000
		KP2=	182	TAN2=	0.9844	-0.1762	0.0000
LINE CONNECTS KEYPOINTS 174 181							
LINE NO.=	367	KP1=	174	TAN1=	-0.9856	0.1691	0.0000
		KP2=	181	TAN2=	0.9856	-0.1691	0.0000
LINE CONNECTS KEYPOINTS 54 61							
LINE NO.=	368	KP1=	54	TAN1=	-0.9856	-0.1691	0.0000
		KP2=	61	TAN2=	0.9856	0.1691	0.0000
LINE CONNECTS KEYPOINTS 55 62							
LINE NO.=	369	KP1=	55	TAN1=	-0.9844	-0.1762	0.0000
		KP2=	62	TAN2=	0.9844	0.1762	0.0000
LINE CONNECTS KEYPOINTS 56 63							
LINE NO.=	370	KP1=	56	TAN1=	-0.8655	-0.5009	0.0000
		KP2=	63	TAN2=	0.8655	0.5009	0.0000
LINE CONNECTS KEYPOINTS 57 64							
LINE NO.=	371	KP1=	57	TAN1=	-0.8584	-0.5130	0.0000
		KP2=	64	TAN2=	0.8584	0.5130	0.0000

LINE CONNECTS KEYPOINTS 58 65
 LINE NO.= 372 KP1= 58 TAN1= -0.8541 -0.5201 0.0000
 KP2= 65 TAN2= 0.8541 0.5201 0.0000

LINE CONNECTS KEYPOINTS 124 131
 LINE NO.= 373 KP1= 124 TAN1= -0.5201 -0.8541 0.0000
 KP2= 131 TAN2= 0.5201 0.8541 0.0000

LINE CONNECTS KEYPOINTS 123 130
 LINE NO.= 374 KP1= 123 TAN1= -0.5130 -0.8584 0.0000
 KP2= 130 TAN2= 0.5130 0.8584 0.0000

LINE CONNECTS KEYPOINTS 122 129
 LINE NO.= 375 KP1= 122 TAN1= -0.5009 -0.8655 0.0000
 KP2= 129 TAN2= 0.5009 0.8655 0.0000

LINE CONNECTS KEYPOINTS 121 128
 LINE NO.= 376 KP1= 121 TAN1= -0.1762 -0.9844 0.0000
 KP2= 128 TAN2= 0.1762 0.9844 0.0000

LINE CONNECTS KEYPOINTS 120 127
 LINE NO.= 377 KP1= 120 TAN1= -0.1691 -0.9856 0.0000
 KP2= 127 TAN2= 0.1691 0.9856 0.0000

LINE CONNECTS KEYPOINTS 119 126
 LINE NO.= 378 KP1= 119 TAN1= 0.0000 -1.0000 0.0000
 KP2= 126 TAN2= 0.0000 1.0000 0.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
 TO NDIV = 2, SPACING RATIO = 1.000
 lines to fill in lids
 lines tube height

LINE CONNECTS KEYPOINTS 195 194
 LINE NO.= 379 KP1= 195 TAN1= 0.0000 -1.0000 0.0000
 KP2= 194 TAN2= 0.0000 1.0000 0.0000

LINE CONNECTS KEYPOINTS 191 190
 LINE NO.= 380 KP1= 191 TAN1= 0.0000 -1.0000 0.0000
 KP2= 190 TAN2= 0.0000 1.0000 0.0000

LINE CONNECTS KEYPOINTS 187 68
 LINE NO.= 381 KP1= 187 TAN1= 0.0000 -1.0000 0.0000
 KP2= 68 TAN2= 0.0000 1.0000 0.0000

LINE CONNECTS KEYPOINTS 71 72
 LINE NO.= 382 KP1= 71 TAN1= 0.0000 -1.0000 0.0000
 KP2= 72 TAN2= 0.0000 1.0000 0.0000

LINE CONNECTS KEYPOINTS 75 76
 LINE NO.= 383 KP1= 75 TAN1= 0.0000 -1.0000 0.0000
 KP2= 76 TAN2= 0.0000 1.0000 0.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
 TO NDIV = 4, SPACING RATIO = 1.000
 end lines

LINE CONNECTS KEYPOINTS 222 197
 LINE NO.= 384 KP1= 222 TAN1= 0.0000 -1.0000 0.0000
 KP2= 197 TAN2= 0.0000 1.0000 0.0000

LINE CONNECTS KEYPOINTS 78 110
 LINE NO.= 385 KP1= 78 TAN1= 0.0000 -1.0000 0.0000
 KP2= 110 TAN2= 0.0000 1.0000 0.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
 TO NDIV = 4, SPACING RATIO = 1.000
 area set 1, tubes

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 195 196 205 201

AREA NUMBER = 1

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 200 201 205 204

AREA NUMBER = 2

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 193 194 200 204

AREA NUMBER = 3

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 191 192 203 199

AREA NUMBER = 4

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 198 199 203 202

AREA NUMBER = 5

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 189 190 198 202

AREA NUMBER = 6

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 187 188 138 133

AREA NUMBER = 7

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 133 138 18 13

AREA NUMBER = 8

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 69 68 13 18

AREA NUMBER = 9

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 71 70 85 80

AREA NUMBER = 10

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 80 85 86 81

AREA NUMBER = 11

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 73 72 81 86

AREA NUMBER = 12

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 75 74 87 82

AREA NUMBER = 13

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 82 87 88 83

AREA NUMBER = 14

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 77 76 83 88

AREA NUMBER = 15

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 209 210 215 214

AREA NUMBER = 16

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 215 210 220 217

AREA NUMBER = 17

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 216 217 220 219

AREA NUMBER = 18

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 209 214 216 219

AREA NUMBER = 19

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 145 208 213 151

AREA NUMBER = 20

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 213 208 159 155

AREA NUMBER = 21

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 152 155 159 146

AREA NUMBER = 22

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 145 151 152 146

AREA NUMBER = 23

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 134 139 140 135

AREA NUMBER = 24

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 135 140 20 15

AREA NUMBER = 25

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 19 14 15 20

AREA NUMBER = 26

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 19 139 134 14

AREA NUMBER = 27

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 92 25 31 98

AREA NUMBER = 28

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 31 25 26 32

AREA NUMBER = 29

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 32 26 39 35

AREA NUMBER = 30

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 92 98 35 39

AREA NUMBER = 31

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 94 93 99 100

AREA NUMBER = 32

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 99 93 106 102

AREA NUMBER = 33

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 102 106 107 103

AREA NUMBER = 34

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 94 100 103 107

AREA NUMBER = 35

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 156 160 161 157

AREA NUMBER = 36

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 157 161 148 154

AREA NUMBER = 37

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 147 153 154 148

AREA NUMBER = 38

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 147 160 156 153

AREA NUMBER = 39

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 136 141 142 137

AREA NUMBER = 40

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 137 142 22 17

AREA NUMBER = 41

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 21 16 17 22

AREA NUMBER = 42

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 21 141 136 16

AREA NUMBER = 43

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 33 27 28 34

AREA NUMBER = 44

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 34 28 41 37

AREA NUMBER = 45

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 40 36 37 41

AREA NUMBER = 46

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 40 27 33 36

AREA NUMBER = 47
area set 2, plates

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 204 205 210 209

AREA NUMBER = 48

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 192 193 204 203

AREA NUMBER = 49

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 203 204 209 208

AREA NUMBER = 50

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 208 209 219 159

AREA NUMBER = 51

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 202 203 208 145

AREA NUMBER = 52

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 146 159 160 147

AREA NUMBER = 53

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 188 189 202 138

AREA NUMBER = 54

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 138 202 145 139

AREA NUMBER = 55

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 139 145 146 140

AREA NUMBER = 56

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 140 146 147 141

AREA NUMBER = 57

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 141 147 148 142

AREA NUMBER = 58

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 18 138 139 19

AREA NUMBER = 59

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 20 140 141 21

AREA NUMBER = 60

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 70 69 18 85

AREA NUMBER = 61

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 85 18 19 25

AREA NUMBER = 62

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 25 19 20 26

AREA NUMBER = 63

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 26 20 21 27

AREA NUMBER = 64

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 27 21 22 28

AREA NUMBER = 65

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 86 85 25 92

AREA NUMBER = 66

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 39 26 27 40

AREA NUMBER = 67

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 74 73 86 87

AREA NUMBER = 68

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 87 86 92 93

AREA NUMBER = 69

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 93 92 39 106

AREA NUMBER = 70

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 88 87 93 94

AREA NUMBER = 71
area set 3, end guides

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 196 197 206 205

AREA NUMBER = 72

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 205 206 211 210

AREA NUMBER = 73

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 206 207 212 211

AREA NUMBER = 74

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 210 211 218 220

AREA NUMBER = 75

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 148 161 158 149

AREA NUMBER = 76

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 142 148 149 143

AREA NUMBER = 77

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 143 149 150 144

AREA NUMBER = 78

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 22 142 143 23

AREA NUMBER = 79

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 28 22 23 29

AREA NUMBER = 80

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 29 23 24 30

AREA NUMBER = 81

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 41 28 29 38

AREA NUMBER = 82

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 95 94 107 104

AREA NUMBER = 83

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 89 88 94 95

AREA NUMBER = 84
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 90 89 95 96
AREA NUMBER = 85
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 78 77 88 89
AREA NUMBER = 86
area set 4, corner guides
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 219 220 221 162
AREA NUMBER = 87
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 159 219 162 160
AREA NUMBER = 88
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 160 162 163 161
AREA NUMBER = 89
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 107 106 42 139
AREA NUMBER = 90
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 106 39 40 42
AREA NUMBER = 91
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 42 40 41 43
AREA NUMBER = 92
ACTIVE COORDINATE SYSTEM SET TO 1 (CYLINDRICAL)
area set 5, inner barrier
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 222 223 224 207
AREA NUMBER = 93
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 207 224 225 212
AREA NUMBER = 94
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 212 225 226 218
AREA NUMBER = 95
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 218 226 227 220
AREA NUMBER = 96
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 220 227 228 221
AREA NUMBER = 97

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 221 228 171 163

AREA NUMBER = 98

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 163 171 170 161

AREA NUMBER = 99

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 161 170 169 158

AREA NUMBER = 100

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 158 169 168 150

AREA NUMBER = 101

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 150 168 167 144

AREA NUMBER = 102

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 144 167 47 24

AREA NUMBER = 103

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 24 47 48 30

AREA NUMBER = 104

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 30 48 49 38

AREA NUMBER = 105

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 38 49 50 41

AREA NUMBER = 106

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 41 50 51 43

AREA NUMBER = 107

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 43 51 117 109

AREA NUMBER = 108

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 109 117 116 107

AREA NUMBER = 109

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 107 116 115 104

AREA NUMBER = 110

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 104 115 114 96

AREA NUMBER = 111

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 90 96 114 113

AREA NUMBER = 112

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 90 113 112 110

AREA NUMBER = 113

area set 6, outer barrier

ACTIVE COORDINATE SYSTEM SET TO 0 (CARTESIAN)

DRAG ALL SELECTED AREAS

ALONG LINES

1,

*** WARNING *** CP= 4.850 TIME= 08:41:36
Area 1 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 4.860 TIME= 08:41:36
Area 2 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 4.860 TIME= 08:41:36
Area 3 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 4.860 TIME= 08:41:36
Area 4 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 4.860 TIME= 08:41:36
Area 5 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 4.860 TIME= 08:41:36
Area 6 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 4.860 TIME= 08:41:36
Area 7 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 4.860 TIME= 08:41:36
Area 8 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 4.860 TIME= 08:41:36
Area 9 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 4.860 TIME= 08:41:36
Area 10 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 4.860 TIME= 08:41:36
Area 11 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 4.870 TIME= 08:41:36
Area 12 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 4.870 TIME= 08:41:36
Area 13 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 4.870 TIME= 08:41:36
Area 14 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 4.870 TIME= 08:41:36
Area 15 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 4.870 TIME= 08:41:36
Area 16 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 4.870 TIME= 08:41:36
Area 17 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 4.870 TIME= 08:41:36

Area 18 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 4.870 TIME= 08:41:36
Area 19 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 4.870 TIME= 08:41:36
Area 20 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 4.870 TIME= 08:41:36
Area 21 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 4.870 TIME= 08:41:36
Area 22 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 4.880 TIME= 08:41:36
Area 23 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 4.880 TIME= 08:41:36
Area 24 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 4.880 TIME= 08:41:36
Area 25 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 4.880 TIME= 08:41:36
Area 26 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 4.880 TIME= 08:41:36
Area 27 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 4.880 TIME= 08:41:36
Area 28 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 4.880 TIME= 08:41:36
Area 29 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 4.880 TIME= 08:41:36
Area 30 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 4.880 TIME= 08:41:36
Area 31 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 4.880 TIME= 08:41:36
Area 32 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 4.880 TIME= 08:41:36
Area 33 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 4.890 TIME= 08:41:36
Area 34 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 4.890 TIME= 08:41:36
Area 35 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 4.890 TIME= 08:41:36
Area 36 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 4.890 TIME= 08:41:36
Area 37 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 4.890 TIME= 08:41:36
Area 38 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 4.890 TIME= 08:41:36
Area 39 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 4.890 TIME= 08:41:36
Area 40 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 4.890 TIME= 08:41:36
Area 41 is not meshed. Volume will be generated without elements.

*** WARNING *** C>= 4.890 TIME= 08:41:36
Area 42 is not meshed. Volume will be generated without elements.

*** WARNING *** C>= 4.890 TIME= 08:41:36
Area 43 is not meshed. Volume will be generated without elements.

*** WARNING *** C>= 4.890 TIME= 08:41:36
Area 44 is not meshed. Volume will be generated without elements.

*** WARNING *** C>= 4.900 TIME= 08:41:36
Area 45 is not meshed. Volume will be generated without elements.

*** WARNING *** C>= 4.900 TIME= 08:41:36
Area 46 is not meshed. Volume will be generated without elements.

*** WARNING *** C>= 4.900 TIME= 08:41:36
Area 47 is not meshed. Volume will be generated without elements.

*** WARNING *** C>= 4.900 TIME= 08:41:36
Area 48 is not meshed. Volume will be generated without elements.

*** WARNING *** C>= 4.900 TIME= 08:41:36
Area 49 is not meshed. Volume will be generated without elements.

*** WARNING *** C>= 4.900 TIME= 08:41:36
Area 50 is not meshed. Volume will be generated without elements.

*** WARNING *** C>= 4.900 TIME= 08:41:36
Area 51 is not meshed. Volume will be generated without elements.

*** WARNING *** C>= 4.900 TIME= 08:41:36
Area 52 is not meshed. Volume will be generated without elements.

*** WARNING *** C>= 4.900 TIME= 08:41:36
Area 53 is not meshed. Volume will be generated without elements.

*** WARNING *** C>= 4.900 TIME= 08:41:36
Area 54 is not meshed. Volume will be generated without elements.

*** WARNING *** C>= 4.900 TIME= 08:41:36
Area 55 is not meshed. Volume will be generated without elements.

*** WARNING *** C>= 4.910 TIME= 08:41:36
Area 56 is not meshed. Volume will be generated without elements.

*** WARNING *** C>= 4.910 TIME= 08:41:36
Area 57 is not meshed. Volume will be generated without elements.

*** WARNING *** C>= 4.910 TIME= 08:41:36
Area 58 is not meshed. Volume will be generated without elements.

*** WARNING *** C>= 4.910 TIME= 08:41:36
Area 59 is not meshed. Volume will be generated without elements.

*** WARNING *** C>= 4.910 TIME= 08:41:36
Area 60 is not meshed. Volume will be generated without elements.

*** WARNING *** C>= 4.910 TIME= 08:41:36
Area 61 is not meshed. Volume will be generated without elements.

*** WARNING *** C>= 4.910 TIME= 08:41:36
Area 62 is not meshed. Volume will be generated without elements.

*** WARNING *** C>= 4.910 TIME= 08:41:36
Area 63 is not meshed. Volume will be generated without elements.

*** WARNING *** C>= 4.910 TIME= 08:41:36
Area 64 is not meshed. Volume will be generated without elements.

```

*** WARNING ***           CP=      4.910  TIME= 08:41:36
Area 65 is not meshed. Volume will be generated without elements.

*** WARNING ***           CP=      4.910  TIME= 08:41:36
Area 66 is not meshed. Volume will be generated without elements.

*** WARNING ***           CP=      4.920  TIME= 08:41:36
Area 67 is not meshed. Volume will be generated without elements.

*** WARNING ***           CP=      4.920  TIME= 08:41:36
Area 68 is not meshed. Volume will be generated without elements.

*** WARNING ***           CP=      4.920  TIME= 08:41:36
Area 69 is not meshed. Volume will be generated without elements.

*** WARNING ***           CP=      4.920  TIME= 08:41:36
Area 70 is not meshed. Volume will be generated without elements.

*** WARNING ***           CP=      4.920  TIME= 08:41:36
Area 71 is not meshed. Volume will be generated without elements.

*** WARNING ***           CP=      4.920  TIME= 08:41:36
Area 72 is not meshed. Volume will be generated without elements.

*** WARNING ***           CP=      4.920  TIME= 08:41:36
Area 73 is not meshed. Volume will be generated without elements.

*** WARNING ***           CP=      4.920  TIME= 08:41:36
Area 74 is not meshed. Volume will be generated without elements.

*** WARNING ***           CP=      4.920  TIME= 08:41:36
Area 75 is not meshed. Volume will be generated without elements.

*** WARNING ***           CP=      4.920  TIME= 08:41:36
Area 76 is not meshed. Volume will be generated without elements.

*** WARNING ***           CP=      4.920  TIME= 08:41:36
Area 77 is not meshed. Volume will be generated without elements.

*** WARNING ***           CP=      4.930  TIME= 08:41:36
Area 78 is not meshed. Volume will be generated without elements.

*** WARNING ***           CP=      4.930  TIME= 08:41:36
Area 79 is not meshed. Volume will be generated without elements.

*** WARNING ***           CP=      4.930  TIME= 08:41:36
Area 80 is not meshed. Volume will be generated without elements.

*** WARNING ***           CP=      4.930  TIME= 08:41:36
Area 81 is not meshed. Volume will be generated without elements.

*** WARNING ***           CP=      4.930  TIME= 08:41:36
Area 82 is not meshed. Volume will be generated without elements.

*** WARNING ***           CP=      4.930  TIME= 08:41:36
Area 83 is not meshed. Volume will be generated without elements.

*** WARNING ***           CP=      4.930  TIME= 08:41:36
Area 84 is not meshed. Volume will be generated without elements.

*** WARNING ***           CP=      4.930  TIME= 08:41:36
Area 85 is not meshed. Volume will be generated without elements.

*** WARNING ***           CP=      4.930  TIME= 08:41:36
Area 86 is not meshed. Volume will be generated without elements.

*** WARNING ***           CP=      4.930  TIME= 08:41:36
Area 87 is not meshed. Volume will be generated without elements.

*** WARNING ***           CP=      4.930  TIME= 08:41:36

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Area 88 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 4.940 TIME= 08:41:36
Area 89 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 4.940 TIME= 08:41:36
Area 90 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 4.940 TIME= 08:41:36
Area 91 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 4.940 TIME= 08:41:36
Area 92 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 4.940 TIME= 08:41:36
Area 93 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 4.940 TIME= 08:41:36
Area 94 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 4.940 TIME= 08:41:36
Area 95 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 4.940 TIME= 08:41:36
Area 96 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 4.940 TIME= 08:41:36
Area 97 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 4.940 TIME= 08:41:36
Area 98 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 4.940 TIME= 08:41:36
Area 99 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 4.950 TIME= 08:41:36
Area 100 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 4.950 TIME= 08:41:36
Area 101 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 4.950 TIME= 08:41:36
Area 102 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 4.950 TIME= 08:41:36
Area 103 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 4.950 TIME= 08:41:36
Area 104 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 4.950 TIME= 08:41:36
Area 105 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 4.950 TIME= 08:41:36
Area 106 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 4.950 TIME= 08:41:36
Area 107 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 4.950 TIME= 08:41:36
Area 108 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 4.950 TIME= 08:41:36
Area 109 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 4.950 TIME= 08:41:36
Area 110 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 4.960 TIME= 08:41:36
Area 111 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 4.960 TIME= 08:41:36
Area 112 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 4.960 TIME= 08:41:36
Area 113 is not meshed. Volume will be generated without elements.

SELECT FOR ITEM=LOC COMPONENT=Z BETWEEN 2.2875 AND 2.2875
KABS= 0. TOLERANCE= 0.114375E-01

113 AREAS (OF 509 DEFINED) SELECTED BY ASEL COMMAND.

ACTIVE COORDINATE SYSTEM SET TO 1 (CYLINDRICAL)

UNSELECT FOR ITEM=LOC COMPONENT=X BETWEEN 0.00000E+00 AND 0.68095
KABS= 0. TOLERANCE= 0.000000E+00

21 AREAS (OF 509 DEFINED) SELECTED BY ASEL COMMAND.

ACTIVE COORDINATE SYSTEM SET TO 0 (CARTESIAN)

DRAG ALL SELECTED AREAS
ALONG LINES
2,

*** WARNING *** CP= 11.100 TIME= 08:41:42
Area 441 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 11.100 TIME= 08:41:42
Area 444 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 11.100 TIME= 08:41:42
Area 448 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 11.100 TIME= 08:41:42
Area 451 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 11.110 TIME= 08:41:42
Area 454 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 11.110 TIME= 08:41:42
Area 458 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 11.110 TIME= 08:41:42
Area 461 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 11.110 TIME= 08:41:42
Area 464 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 11.110 TIME= 08:41:42
Area 468 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 11.110 TIME= 08:41:42
Area 471 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 11.110 TIME= 08:41:42
Area 475 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 11.110 TIME= 08:41:42
Area 478 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 11.110 TIME= 08:41:42
Area 482 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 11.110 TIME= 08:41:42
Area 485 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 11.110 TIME= 08:41:42
Area 488 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 11.120 TIME= 08:41:42
Area 492 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 11.120 TIME= 08:41:42
Area 495 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 11.120 TIME= 08:41:42
Area 498 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 11.120 TIME= 08:41:42
Area 502 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 11.120 TIME= 08:41:42
Area 505 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 11.120 TIME= 08:41:42
Area 509 is not meshed. Volume will be generated without elements.
copy areas from top of basket to bottom of lid

SELECT FOR ITEM=LOC COMPONENT=Z BETWEEN 2.2775 AND 2.2775
KABS= 0. TOLERANCE= 0.113875E-01

113 AREAS (OF 594 DEFINED) SELECTED BY ASEL COMMAND.

ACTIVE COORDINATE SYSTEM SET TO 1 (CYLINDRICAL)

RESELECT FOR ITEM=LOC COMPONENT=X BETWEEN 0.00000E+00 AND 0.68095
KABS= 0. TOLERANCE= 0.000000E+00

92 AREAS (OF 594 DEFINED) SELECTED BY ASEL COMMAND.

ACTIVE COORDINATE SYSTEM SET TO 0 (CARTESIAN)

GENERATE 2 TOTAL SETS OF AREAS
SET IS ALL SELECTED AREAS
DX,DY,DZ= 0.000E+00 0.000E+00 0.100E-01 CSYS= 0

MERGE COINCIDENT KEYPOINTS WITHIN TOLERANCE OF 0.10000E-03

KEYPOINT 373 USED FOR KEYPOINT(S) 521
KEYPOINT 375 USED FOR KEYPOINT(S) 522
KEYPOINT 377 USED FOR KEYPOINT(S) 523
KEYPOINT 379 USED FOR KEYPOINT(S) 458
KEYPOINT 381 USED FOR KEYPOINT(S) 540
KEYPOINT 383 USED FOR KEYPOINT(S) 542
KEYPOINT 385 USED FOR KEYPOINT(S) 496
KEYPOINT 387 USED FOR KEYPOINT(S) 524
KEYPOINT 389 USED FOR KEYPOINT(S) 527
KEYPOINT 391 USED FOR KEYPOINT(S) 528
KEYPOINT 393 USED FOR KEYPOINT(S) 531
KEYPOINT 395 USED FOR KEYPOINT(S) 532
KEYPOINT 397 USED FOR KEYPOINT(S) 533
KEYPOINT 399 USED FOR KEYPOINT(S) 514
KEYPOINT 401 USED FOR KEYPOINT(S) 545
KEYPOINT 403 USED FOR KEYPOINT(S) 544
KEYPOINT 405 USED FOR KEYPOINT(S) 492
KEYPOINT 407 USED FOR KEYPOINT(S) 535
KEYPOINT 409 USED FOR KEYPOINT(S) 538
KEYPOINT 410 USED FOR KEYPOINT(S) 537

LINE 837 USED FOR LINE(S) 1121
LINE 847 USED FOR LINE(S) 1124
LINE 852 USED FOR LINE(S) 1152
LINE 862 USED FOR LINE(S) 1157
LINE 867 USED FOR LINE(S) 1125
LINE 877 USED FOR LINE(S) 1131
LINE 887 USED FOR LINE(S) 1138
LINE 897 USED FOR LINE(S) 1141
LINE 902 USED FOR LINE(S) 1162
LINE 912 USED FOR LINE(S) 1160
LINE 917 USED FOR LINE(S) 1143
LINE 923 USED FOR LINE(S) 1149

generate lines to fill in lid at top of WP
lines tube height

LINE CONNECTS KEYPOINTS 414 421
LINE NO.= 1121 KP1= 414 TAN1= 0.0000 -1.0000 0.0000
KP2= 421 TAN2= 0.0000 1.0000 0.0000

LINE CONNECTS KEYPOINTS 422 429
LINE NO.= 1124 KP1= 422 TAN1= 0.0000 -1.0000 0.0000
KP2= 429 TAN2= 0.0000 1.0000 0.0000

LINE CONNECTS KEYPOINTS 430 437
LINE NO.= 1125 KP1= 430 TAN1= 0.0000 -1.0000 0.0000
KP2= 437 TAN2= 0.0000 1.0000 0.0000

LINE CONNECTS KEYPOINTS 438 445
LINE NO.= 1131 KP1= 438 TAN1= 0.0000 -1.0000 0.0000
KP2= 445 TAN2= 0.0000 1.0000 0.0000

LINE CONNECTS KEYPOINTS 446 453
LINE NO.= 1138 KP1= 446 TAN1= 0.0000 -1.0000 0.0000
KP2= 453 TAN2= 0.0000 1.0000 0.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
TO NDIV = 4, SPACING RATIO = 1.000
end lines

LINE CONNECTS KEYPOINTS 370 518
LINE NO.= 1141 KP1= 370 TAN1= 0.0000 -1.0000 0.0000
KP2= 518 TAN2= 0.0000 1.0000 0.0000

LINE CONNECTS KEYPOINTS 539 413
LINE NO.= 1143 KP1= 539 TAN1= 0.0000 -1.0000 0.0000
KP2= 413 TAN2= 0.0000 1.0000 0.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
TO NDIV = 4, SPACING RATIO = 1.000

DEFINE AREA BY LIST OF LINES
LINE LIST = 832 1116 1120 1141
(TRAVERSED IN SAME DIRECTION AS LINE 832)

AREA NUMBER = 687

DEFINE AREA BY LIST OF LINES
LINE LIST = 936 937 941 1121
(TRAVERSED IN SAME DIRECTION AS LINE 936)

AREA NUMBER = 688

DEFINE AREA BY LIST OF LINES
LINE LIST = 946 947 951 1124
(TRAVERSED IN SAME DIRECTION AS LINE 946)

AREA NUMBER = 689

DEFINE AREA BY LIST OF LINES
LINE LIST = 956 959 961 1125
(TRAVERSED IN SAME DIRECTION AS LINE 956)

AREA NUMBER = 690

DEFINE AREA BY LIST OF LINES
LINE LIST = 966 969 971 1131
(TRAVERSED IN SAME DIRECTION AS LINE 966)

AREA NUMBER = 691

DEFINE AREA BY LIST OF LINES
LINE LIST = 976 979 981 1138

```
(TRAVERSED IN SAME DIRECTION AS LINE 976)
AREA NUMBER = 692
DEFINE AREA BY LIST OF LINES
LINE LIST = 932 1143 1147 1151
(TRAVERSED IN SAME DIRECTION AS LINE 932)
AREA NUMBER = 693
DEFINE AREA BY LIST OF LINES
LINE LIST = 842 1122 1123
(TRAVERSED IN SAME DIRECTION AS LINE 842)
AREA NUMBER = 694
DEFINE AREA BY LIST OF LINES
LINE LIST = 985 989 990 993
(TRAVERSED IN SAME DIRECTION AS LINE 985)
AREA NUMBER = 695
DEFINE AREA BY LIST OF LINES
LINE LIST = 997 1001 1002 1005
(TRAVERSED IN SAME DIRECTION AS LINE 997)
AREA NUMBER = 696
DEFINE AREA BY LIST OF LINES
LINE LIST = 1010 1013 1015 1018
(TRAVERSED IN SAME DIRECTION AS LINE 1010)
AREA NUMBER = 697
DEFINE AREA BY LIST OF LINES
LINE LIST = 1021 1025 1028 1029
(TRAVERSED IN SAME DIRECTION AS LINE 1021)
AREA NUMBER = 698
DEFINE AREA BY LIST OF LINES
LINE LIST = 1033 1037 1040 1041
(TRAVERSED IN SAME DIRECTION AS LINE 1033)
AREA NUMBER = 699
DEFINE AREA BY LIST OF LINES
LINE LIST = 922 1144 1148
(TRAVERSED IN SAME DIRECTION AS LINE 922)
AREA NUMBER = 700
DEFINE AREA BY LIST OF LINES
LINE LIST = 857 1153 1156
(TRAVERSED IN SAME DIRECTION AS LINE 857)
AREA NUMBER = 701
DEFINE AREA BY LIST OF LINES
LINE LIST = 1046 1049 1051 1054
(TRAVERSED IN SAME DIRECTION AS LINE 1046)
AREA NUMBER = 702
DEFINE AREA BY LIST OF LINES
LINE LIST = 1058 1061 1063 1066
(TRAVERSED IN SAME DIRECTION AS LINE 1058)
AREA NUMBER = 703
```

DEFINE AREA BY LIST OF LINES

LINE LIST = 1070 1073 1075 1078
(TRAVERSED IN SAME DIRECTION AS LINE 1070)

AREA NUMBER = 704

DEFINE AREA BY LIST OF LINES

LINE LIST = 907 1159 1163
(TRAVERSED IN SAME DIRECTION AS LINE 907)

AREA NUMBER = 705

DEFINE AREA BY LIST OF LINES

LINE LIST = 872 1126 1130
(TRAVERSED IN SAME DIRECTION AS LINE 872)

AREA NUMBER = 706

DEFINE AREA BY LIST OF LINES

LINE LIST = 882 1132 1133 1137
(TRAVERSED IN SAME DIRECTION AS LINE 882)

AREA NUMBER = 707

DEFINE AREA BY LIST OF LINES

LINE LIST = 892 1139 1140
(TRAVERSED IN SAME DIRECTION AS LINE 892)

AREA NUMBER = 708

SELECT FOR ITEM=LOC COMPONENT=Z BETWEEN 2.3075 AND 2.3075
KABS= 0. TOLERANCE= 0.115375E-01

135 AREAS (OF 708 DEFINED) SELECTED BY ASEL COMMAND.

DRAG ALL SELECTED AREAS

ALONG LINES

3,

*** WARNING *** CP= 14.960 TIME= 08:41:46
Area 514 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 14.960 TIME= 08:41:46
Area 518 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 14.960 TIME= 08:41:46
Area 522 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 14.970 TIME= 08:41:46
Area 526 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 14.970 TIME= 08:41:46
Area 530 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 14.970 TIME= 08:41:46
Area 534 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 14.970 TIME= 08:41:46
Area 538 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 14.970 TIME= 08:41:46
Area 542 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 14.970 TIME= 08:41:46
Area 546 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 14.970 TIME= 08:41:46
Area 550 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 14.970 TIME= 08:41:46

Area 554 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 14.970 TIME= 08:41:46
Area 558 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 14.970 TIME= 08:41:46
Area 562 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 14.970 TIME= 08:41:46
Area 566 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 14.980 TIME= 08:41:46
Area 570 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 14.980 TIME= 08:41:46
Area 574 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 14.980 TIME= 08:41:46
Area 578 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 14.980 TIME= 08:41:46
Area 582 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 14.980 TIME= 08:41:46
Area 586 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 14.980 TIME= 08:41:46
Area 590 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 14.980 TIME= 08:41:46
Area 594 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 14.980 TIME= 08:41:46
Area 595 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 14.980 TIME= 08:41:46
Area 596 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 14.980 TIME= 08:41:46
Area 597 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 14.990 TIME= 08:41:46
Area 598 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 14.990 TIME= 08:41:46
Area 599 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 14.990 TIME= 08:41:46
Area 600 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 14.990 TIME= 08:41:46
Area 601 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 14.990 TIME= 08:41:46
Area 602 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 14.990 TIME= 08:41:46
Area 603 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 14.990 TIME= 08:41:46
Area 604 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 14.990 TIME= 08:41:46
Area 605 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 14.990 TIME= 08:41:46
Area 606 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 14.990 TIME= 08:41:46
Area 607 is not meshed. Volume will be generated without elements.

```
*** WARNING ***          CP=    14.990  TIME= 08:41:46
Area 608 is not meshed. Volume will be generated without elements.

*** WARNING ***          CP=    15.000  TIME= 08:41:46
Area 609 is not meshed. Volume will be generated without elements.

*** WARNING ***          CP=    15.000  TIME= 08:41:46
Area 610 is not meshed. Volume will be generated without elements.

*** WARNING ***          CP=    15.000  TIME= 08:41:46
Area 611 is not meshed. Volume will be generated without elements.

*** WARNING ***          CP=    15.000  TIME= 08:41:46
Area 612 is not meshed. Volume will be generated without elements.

*** WARNING ***          CP=    15.000  TIME= 08:41:46
Area 613 is not meshed. Volume will be generated without elements.

*** WARNING ***          CP=    15.000  TIME= 08:41:46
Area 614 is not meshed. Volume will be generated without elements.

*** WARNING ***          CP=    15.000  TIME= 08:41:46
Area 615 is not meshed. Volume will be generated without elements.

*** WARNING ***          CP=    15.000  TIME= 08:41:46
Area 616 is not meshed. Volume will be generated without elements.

*** WARNING ***          CP=    15.000  TIME= 08:41:46
Area 617 is not meshed. Volume will be generated without elements.

*** WARNING ***          CP=    15.000  TIME= 08:41:46
Area 618 is not meshed. Volume will be generated without elements.

*** WARNING ***          CP=    15.000  TIME= 08:41:46
Area 619 is not meshed. Volume will be generated without elements.

*** WARNING ***          CP=    15.010  TIME= 08:41:46
Area 620 is not meshed. Volume will be generated without elements.

*** WARNING ***          CP=    15.010  TIME= 08:41:46
Area 621 is not meshed. Volume will be generated without elements.

*** WARNING ***          CP=    15.010  TIME= 08:41:46
Area 622 is not meshed. Volume will be generated without elements.

*** WARNING ***          CP=    15.010  TIME= 08:41:46
Area 623 is not meshed. Volume will be generated without elements.

*** WARNING ***          CP=    15.010  TIME= 08:41:46
Area 624 is not meshed. Volume will be generated without elements.

*** WARNING ***          CP=    15.010  TIME= 08:41:46
Area 625 is not meshed. Volume will be generated without elements.

*** WARNING ***          CP=    15.010  TIME= 08:41:46
Area 626 is not meshed. Volume will be generated without elements.

*** WARNING ***          CP=    15.010  TIME= 08:41:46
Area 627 is not meshed. Volume will be generated without elements.

*** WARNING ***          CP=    15.010  TIME= 08:41:46
Area 628 is not meshed. Volume will be generated without elements.

*** WARNING ***          CP=    15.010  TIME= 08:41:46
Area 629 is not meshed. Volume will be generated without elements.

*** WARNING ***          CP=    15.010  TIME= 08:41:46
Area 630 is not meshed. Volume will be generated without elements.
```

```
*** WARNING ***                CP=    15.020   TIME= 08:41:46
Area 631 is not meshed. Volume will be generated without elements.

*** WARNING ***                CP=    15.020   TIME= 08:41:46
Area 632 is not meshed. Volume will be generated without elements.

*** WARNING ***                CP=    15.020   TIME= 08:41:46
Area 633 is not meshed. Volume will be generated without elements.

*** WARNING ***                CP=    15.020   TIME= 08:41:46
Area 634 is not meshed. Volume will be generated without elements.

*** WARNING ***                CP=    15.020   TIME= 08:41:46
Area 635 is not meshed. Volume will be generated without elements.

*** WARNING ***                CP=    15.020   TIME= 08:41:46
Area 636 is not meshed. Volume will be generated without elements.

*** WARNING ***                CP=    15.020   TIME= 08:41:46
Area 637 is not meshed. Volume will be generated without elements.

*** WARNING ***                CP=    15.020   TIME= 08:41:46
Area 638 is not meshed. Volume will be generated without elements.

*** WARNING ***                CP=    15.020   TIME= 08:41:46
Area 639 is not meshed. Volume will be generated without elements.

*** WARNING ***                CP=    15.020   TIME= 08:41:46
Area 640 is not meshed. Volume will be generated without elements.

*** WARNING ***                CP=    15.020   TIME= 08:41:46
Area 641 is not meshed. Volume will be generated without elements.

*** WARNING ***                CP=    15.030   TIME= 08:41:46
Area 642 is not meshed. Volume will be generated without elements.

*** WARNING ***                CP=    15.030   TIME= 08:41:46
Area 643 is not meshed. Volume will be generated without elements.

*** WARNING ***                CP=    15.030   TIME= 08:41:46
Area 644 is not meshed. Volume will be generated without elements.

*** WARNING ***                CP=    15.030   TIME= 08:41:46
Area 645 is not meshed. Volume will be generated without elements.

*** WARNING ***                CP=    15.030   TIME= 08:41:46
Area 646 is not meshed. Volume will be generated without elements.

*** WARNING ***                CP=    15.030   TIME= 08:41:46
Area 647 is not meshed. Volume will be generated without elements.

*** WARNING ***                CP=    15.030   TIME= 08:41:46
Area 648 is not meshed. Volume will be generated without elements.

*** WARNING ***                CP=    15.030   TIME= 08:41:46
Area 649 is not meshed. Volume will be generated without elements.

*** WARNING ***                CP=    15.030   TIME= 08:41:46
Area 650 is not meshed. Volume will be generated without elements.

*** WARNING ***                CP=    15.030   TIME= 08:41:46
Area 651 is not meshed. Volume will be generated without elements.

*** WARNING ***                CP=    15.030   TIME= 08:41:46
Area 652 is not meshed. Volume will be generated without elements.

*** WARNING ***                CP=    15.040   TIME= 08:41:46
Area 653 is not meshed. Volume will be generated without elements.

*** WARNING ***                CP=    15.040   TIME= 08:41:46
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Area 654 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.040 TIME= 08:41:46
Area 655 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.040 TIME= 08:41:46
Area 656 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.040 TIME= 08:41:46
Area 657 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.040 TIME= 08:41:46
Area 658 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.040 TIME= 08:41:46
Area 659 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.040 TIME= 08:41:46
Area 660 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.040 TIME= 08:41:46
Area 661 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.040 TIME= 08:41:46
Area 662 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.040 TIME= 08:41:46
Area 663 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.050 TIME= 08:41:46
Area 664 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.050 TIME= 08:41:46
Area 665 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.050 TIME= 08:41:46
Area 666 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.050 TIME= 08:41:46
Area 667 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.050 TIME= 08:41:46
Area 668 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.050 TIME= 08:41:46
Area 669 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.050 TIME= 08:41:46
Area 670 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.050 TIME= 08:41:46
Area 671 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.050 TIME= 08:41:46
Area 672 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.050 TIME= 08:41:46
Area 673 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.050 TIME= 08:41:46
Area 674 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.060 TIME= 08:41:46
Area 675 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.060 TIME= 08:41:46
Area 676 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.060 TIME= 08:41:46
Area 677 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.060 TIME= 08:41:46
Area 678 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.060 TIME= 08:41:46
Area 679 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.060 TIME= 08:41:46
Area 680 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.060 TIME= 08:41:46
Area 681 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.060 TIME= 08:41:46
Area 682 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.060 TIME= 08:41:46
Area 683 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.060 TIME= 08:41:46
Area 684 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.060 TIME= 08:41:46
Area 685 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.070 TIME= 08:41:46
Area 686 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.070 TIME= 08:41:46
Area 687 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.070 TIME= 08:41:46
Area 688 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.070 TIME= 08:41:46
Area 689 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.070 TIME= 08:41:46
Area 690 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.070 TIME= 08:41:46
Area 691 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.070 TIME= 08:41:46
Area 692 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.070 TIME= 08:41:46
Area 693 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.070 TIME= 08:41:46
Area 694 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.070 TIME= 08:41:46
Area 695 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.070 TIME= 08:41:46
Area 696 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.070 TIME= 08:41:46
Area 697 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.080 TIME= 08:41:46
Area 698 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.080 TIME= 08:41:46
Area 699 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.080 TIME= 08:41:46
Area 700 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.080 TIME= 08:41:46
 Area 701 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.080 TIME= 08:41:46
 Area 702 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.080 TIME= 08:41:46
 Area 703 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.080 TIME= 08:41:46
 Area 704 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.080 TIME= 08:41:46
 Area 705 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.080 TIME= 08:41:46
 Area 706 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.080 TIME= 08:41:46
 Area 707 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.080 TIME= 08:41:46
 Area 708 is not meshed. Volume will be generated without elements.
 Lines at bottom lid used to be here

Mesh Volumes

Mesh the CS Tubes

Mesh SS-B Plates

SELECT FOR ITEM=VOLU COMPONENT=
 IN RANGE 48 TO 71 STEP 1

24 VOLUMES (OF 269 DEFINED) SELECTED BY VSEL COMMAND.

ELEMENT TYPE SET TO 2

MATERIAL NUMBER SET TO 2

GENERATE NODES AND ELEMENTS IN ALL SELECTED VOLUMES

*** WARNING *** CP= 23.630 TIME= 08:41:55
 Meshing of volume 50 produced 36 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 50 WITH EXCESSIVE ASPECT RATIO ***

241	242	243	244	245	246	247	248
249	250	251	252	253	254	255	256
257	258	271	272	273	274	275	276
277	278	279	280	281	282	283	284
285	286	287	288				

*** WARNING *** CP= 25.250 TIME= 08:41:57
 Meshing of volume 55 produced 36 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 55 WITH EXCESSIVE ASPECT RATIO ***

781	782	783	784	785	786	787	788
789	790	791	792	793	794	795	796
797	798	811	812	813	814	815	816
817	818	819	820	821	822	823	824
825	826	827	828				

*** WARNING *** CP= 25.870 TIME= 08:41:58
 Meshing of volume 57 produced 36 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 57 WITH EXCESSIVE ASPECT RATIO ***

961	962	963	964	965	966	967	968
969	970	971	972	973	974	975	976
977	978	991	992	993	994	995	996
997	998	999	1000	1001	1002	1003	1004
1005	1006	1007	1008				

*** WARNING *** (P= 27.420 TIME= 08:41:59
 Meshing of volume 62 produced 36 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 62 WITH EXCESSIVE ASPECT RATIO ***

1501	1502	1503	1504	1505	1506	1507	1508
1509	1510	1511	1512	1513	1514	1515	1516
1517	1518	1531	1532	1533	1534	1535	1536
1537	1538	1539	1540	1541	1542	1543	1544
1545	1546	1547	1548				

*** WARNING *** (P= 27.950 TIME= 08:42:00
 Meshing of volume 64 produced 36 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 64 WITH EXCESSIVE ASPECT RATIO ***

1681	1682	1683	1684	1685	1686	1687	1688
1689	1690	1691	1692	1693	1694	1695	1696
1697	1698	1711	1712	1713	1714	1715	1716
1717	1718	1719	1720	1721	1722	1723	1724
1725	1726	1727	1728				

*** WARNING *** (P= 29.490 TIME= 08:42:01
 Meshing of volume 69 produced 36 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 69 WITH EXCESSIVE ASPECT RATIO ***

2221	2222	2223	2224	2225	2226	2227	2228
2229	2230	2231	2232	2233	2234	2235	2236
2237	2238	2251	2252	2253	2254	2255	2256
2257	2258	2259	2260	2261	2262	2263	2264
2265	2266	2267	2268				

NUMBER OF VOLUMES MESHED = 24
 MAXIMUM NODE NUMBER = 4000
 MAXIMUM ELEMENT NUMBER = 2520
 Mesh End Guides

SELECT FOR ITEM=VOLU COMPONENT=
 IN RANGE 72 TO 86 STEP 1

15 VOLUMES (OF 269 DEFINED) SELECTED BY VSEL COMMAND.

ELEMENT TYPE SET TO 3

MATERIAL NUMBER SET TO 3

GENERATE NODES AND ELEMENTS IN ALL SELECTED VOLUMES

*** WARNING *** (P= 30.850 TIME= 08:42:03
 Meshing of volume 72 produced 8 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 72 WITH EXCESSIVE ASPECT RATIO ***

2521	2536	2551	2566	2581	2596	2611	2626
------	------	------	------	------	------	------	------

*** WARNING *** (P= 31.070 TIME= 08:42:03
 Meshing of volume 73 produced 46 elements with excessive aspect ratio.

Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 73 WITH EXCESSIVE ASPECT RATIO ***

2641	2642	2643	2644	2645	2646	2647	2648
2649	2650	2651	2652	2653	2654	2655	2656
2657	2658	2659	2660	2661	2662	2663	2671
2672	2673	2674	2675	2676	2677	2678	2679
2680	2681	2682	2683	2684	2685	2686	2687
2688	2689	2690	2691	2692	2693		

*** WARNING *** CP= 31.420 TIME= 08:42:03
 Meshing of volume 74 produced 24 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 74 WITH EXCESSIVE ASPECT RATIO ***

2701	2702	2703	2716	2717	2718	2731	2732
2733	2746	2747	2748	2761	2762	2763	2776
2777	2778	2791	2792	2793	2806	2807	2808

*** WARNING *** CP= 31.520 TIME= 08:42:04
 Volume 75 area 75 has a corner angle of 150 degrees. This is not
 recommended for hexahedral elements.

*** WARNING *** CP= 31.530 TIME= 08:42:04
 Volume 75 area 380 has a corner angle of 150 degrees. This is not
 recommended for hexahedral elements.

*** WARNING *** CP= 31.750 TIME= 08:42:04
 Meshing of volume 75 produced 60 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 75 WITH EXCESSIVE DISTORTION ***

2881	2882	2883	2884	2885	2886	2887	2888
2889	2890	2891	2892	2893	2894	2895	2896
2897	2898	2899	2900	2901	2902	2903	2904
2905	2906	2907	2908	2909	2910	2911	2912
2913	2914	2915	2916	2917	2918	2919	2920
2921	2922	2923	2924	2925	2926	2927	2928
2929	2930	2931	2932	2933	2934	2935	2936
2937	2938	2939	2940				

*** WARNING *** CP= 31.870 TIME= 08:42:04
 Volume 76 area 76 has a corner angle of 30 degrees. This is not
 recommended for hexahedral elements.

*** WARNING *** CP= 31.890 TIME= 08:42:04
 Volume 76 area 384 has a corner angle of 30 degrees. This is not
 recommended for hexahedral elements.

*** WARNING *** CP= 32.110 TIME= 08:42:04
 Meshing of volume 76 produced 60 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 76 WITH EXCESSIVE DISTORTION ***

2941	2942	2945	2946	2949	2950	2953	2954
2957	2958	2961	2962	2965	2966	2969	2970
2973	2974	2977	2978	2981	2982	2985	2986
2989	2990	2993	2994	2997	2998	3001	3002
3005	3006	3009	3010	3013	3014	3017	3018
3021	3022	3025	3026	3029	3030	3033	3034
3037	3038	3041	3042	3045	3046	3049	3050
3053	3054	3057	3058				

*** WARNING *** CP= 32.340 TIME= 08:42:04
 Meshing of volume 77 produced 46 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 77 WITH EXCESSIVE ASPECT RATIO ***

3061	3062	3063	3064	3065	3066	3067	3068
3069	3070	3071	3072	3073	3074	3075	3076
3077	3078	3079	3080	3081	3082	3091	3092
3093	3094	3095	3096	3097	3098	3099	3100
3101	3102	3103	3104	3105	3106	3107	3108
3109	3110	3111	3112	3113	3114		

*** WARNING *** CP= 32.680 TIME= 08:42:05
 Meshing of volume 78 produced 24 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 78 WITH EXCESSIVE ASPECT RATIO ***

3121	3122	3123	3124	3125	3126	3151	3152
3153	3154	3155	3156	3181	3182	3183	3184
3185	3186	3211	3212	3213	3214	3215	3216

*** WARNING *** CP= 33.240 TIME= 08:42:05
 Meshing of volume 80 produced 46 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 80 WITH EXCESSIVE ASPECT RATIO ***

3361	3362	3363	3364	3365	3366	3367	3368
3369	3370	3371	3372	3373	3374	3375	3376
3377	3378	3379	3380	3381	3382	3391	3392
3393	3394	3395	3396	3397	3398	3399	3400
3401	3402	3403	3404	3405	3406	3407	3408
3409	3410	3411	3412	3413	3414		

*** WARNING *** CP= 33.560 TIME= 08:42:06
 Meshing of volume 81 produced 24 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 81 WITH EXCESSIVE ASPECT RATIO ***

3421	3422	3423	3424	3425	3426	3451	3452
3453	3454	3455	3456	3481	3482	3483	3484
3485	3486	3511	3512	3513	3514	3515	3516

*** WARNING *** CP= 33.660 TIME= 08:42:06
 Volume 82 area 82 has a corner angle of 50 degrees. This is not recommended for hexahedral elements.

*** WARNING *** CP= 33.680 TIME= 08:42:06
 Volume 82 area 404 has a corner angle of 150 degrees. This is not recommended for hexahedral elements.

*** WARNING *** CP= 33.910 TIME= 08:42:06
 Meshing of volume 82 produced 60 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 82 WITH EXCESSIVE DISTORTION ***

3543	3544	3547	3548	3551	3552	3555	3556
3559	3560	3563	3564	3567	3568	3571	3572
3575	3576	3579	3580	3583	3584	3587	3588
3591	3592	3595	3596	3599	3600	3603	3604
3607	3608	3611	3612	3615	3616	3619	3620
3623	3624	3627	3628	3631	3632	3635	3636
3639	3640	3643	3644	3647	3648	3651	3652
3655	3656	3659	3660				

*** WARNING *** CP= 34.020 TIME= 08:42:06
 Volume 83 area 83 has a corner angle of 30 degrees. This is not recommended for hexahedral elements.

*** WARNING *** CP= 34.030 TIME= 08:42:06
 Volume 83 area 408 has a corner angle of 30 degrees. This is not recommended for hexahedral elements.

*** WARNING *** CP= 34.250 TIME= 08:42:06
 Meshing of volume 83 produced 60 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 83 WITH EXCESSIVE DISTORTION ***

3721	3722	3723	3724	3725	3726	3727	3728
3729	3730	3731	3732	3733	3734	3735	3736
3737	3738	3739	3740	3741	3742	3743	3744
3745	3746	3747	3748	3749	3750	3751	3752
3753	3754	3755	3756	3757	3758	3759	3760
3761	3762	3763	3764	3765	3766	3767	3768
3769	3770	3771	3772	3773	3774	3775	3776
3777	3778	3779	3780				

*** WARNING *** CP= 34.480 TIME= 08:42:07
 Meshing of volume 84 produced 46 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 84 WITH EXCESSIVE ASPECT RATIO ***

3781	3782	3783	3784	3785	3786	3787	3788
3789	3790	3791	3792	3796	3797	3798	3799
3800	3801	3802	3803	3804	3805	3806	3811
3812	3813	3814	3815	3816	3817	3818	3819
3820	3821	3822	3826	3827	3828	3829	3830
3831	3832	3833	3834	3835	3836		

*** WARNING *** CP= 34.810 TIME= 08:42:07
 Meshing of volume 85 produced 24 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 85 WITH EXCESSIVE ASPECT RATIO ***

3841	3842	3843	3856	3857	3858	3871	3872
3873	3886	3887	3888	3901	3902	3903	3916
3917	3918	3931	3932	3933	3946	3947	3948

*** WARNING *** CP= 35.140 TIME= 08:42:07
 Meshing of volume 86 produced 8 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 86 WITH EXCESSIVE ASPECT RATIO ***

3961	3976	3991	4006	4021	4036	4051	4066
------	------	------	------	------	------	------	------

NUMBER OF VOLUMES MESHED = 15
 MAXIMUM NODE NUMBER = 6448
 MAXIMUM ELEMENT NUMBER = 4080
 Mesh Corner Guides

SELECT FOR ITEM=VOLUME COMPONENT=
 IN RANGE 87 TO 92 STEP 1

6 VOLUMES (OF 269 DEFINED) SELECTED BY VSEL COMMAND.

ELEMENT TYPE SET TO 4

MATERIAL NUMBER SET TO 4

GENERATE NODES AND ELEMENTS IN ALL SELECTED VOLUMES

*** WARNING *** CP= 35.840 TIME= 08:42:08
 Meshing of volume 88 produced 44 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 88 WITH EXCESSIVE ASPECT RATIO ***

4201	4202	4203	4204	4205	4206	4207	4208
4209	4210	4211	4212	4213	4214	4215	4216
4217	4218	4219	4220	4221	4231	4232	4233

4234	4235	4236	4237	4238	4239	4240	4241
4242	4243	4244	4245	4246	4247	4248	4249
4250	4251	4252	4253				

*** WARNING *** CP= 36.740 TIME= 08:42:09
 Meshing of volume 91 produced 44 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 91 WITH EXCESSIVE ASPECT RATIO ***

4501	4502	4503	4504	4505	4506	4507	4508
4509	4510	4511	4512	4513	4514	4515	4516
4517	4518	4519	4520	4522	4531	4532	4533
4534	4535	4536	4537	4538	4539	4540	4541
4542	4543	4544	4545	4546	4547	4548	4549
4550	4551	4552	4554				

NUMBER OF VOLUMES MESHED = 6
 MAXIMUM NODE NUMBER = 7280
 MAXIMUM ELEMENT NUMBER = 4680
 Mesh Inner Barrier

SELECT FOR ITEM=LOC COMPONENT=Z BETWEEN 0.00000E+00 AND 2.3045
 KABS= 0. TOLERANCE= 0.000000E+00

269 VOLUMES (OF 269 DEFINED) SELECTED BY VSEL COMMAND.

ACTIVE COORDINATE SYSTEM SET TO 1 (CYLINDRICAL)

RESELECT FOR ITEM=LOC COMPONENT=X BETWEEN 0.00000E+00 AND 0.71295
 KABS= 0. TOLERANCE= 0.000000E+00

269 VOLUMES (OF 269 DEFINED) SELECTED BY VSEL COMMAND.

UNSELECT FOR ITEM=VOLU COMPONENT=
 IN RANGE 1 TO 92 STEP 1

177 VOLUMES (OF 269 DEFINED) SELECTED BY VSEL COMMAND.

UNSELECT FOR ITEM=LOC COMPONENT=X BETWEEN 0.69095 AND 0.71295
 KABS= 0. TOLERANCE= 0.000000E+00

114 VOLUMES (OF 269 DEFINED) SELECTED BY VSEL COMMAND.

ALSO SELECT FOR ITEM=LOC COMPONENT=Y BETWEEN -90.000 AND 5.0000
 KABS= 0. TOLERANCE= 0.000000E+00

197 VOLUMES (OF 269 DEFINED) SELECTED BY VSEL COMMAND.

UNSELECT FOR ITEM=VOLU COMPONENT=
 IN RANGE 1 TO 92 STEP 1

147 VOLUMES (OF 269 DEFINED) SELECTED BY VSEL COMMAND.

UNSELECT FOR ITEM=LOC COMPONENT=X BETWEEN 0.71295 AND 0.78095
 KABS= 0. TOLERANCE= 0.000000E+00

147 VOLUMES (OF 269 DEFINED) SELECTED BY VSEL COMMAND.

RESELECT FOR ITEM=LOC COMPONENT=Z BETWEEN -0.70000E-02 AND 2.3045
 KABS= 0. TOLERANCE= 0.000000E+00

147 VOLUMES (OF 269 DEFINED) SELECTED BY VSEL COMMAND.

ACTIVE COORDINATE SYSTEM SET TO 0 (CARTESIAN)

ELEMENT TYPE SET TO 5

MATERIAL NUMBER SET TO 5

GENERATE NODES AND ELEMENTS IN ALL SELECTED VOLUMES

*** WARNING *** CP= 40.830 TIME= 08:42:13
 Meshing of volume 93 produced 48 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 93 WITH EXCESSIVE ASPECT RATIO ***

4681	4682	4683	4684	4685	4686	4696	4697
4698	4699	4700	4701	4711	4712	4713	4714
4715	4716	4726	4727	4728	4729	4730	4731
4741	4742	4743	4744	4745	4746	4756	4757
4758	4759	4760	4761	4771	4772	4773	4774
4775	4776	4786	4787	4788	4789	4790	4791

*** WARNING *** CP= 41.050 TIME= 08:42:13
 Meshing of volume 94 produced 60 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 94 WITH EXCESSIVE ASPECT RATIO ***

4801	4802	4803	4804	4805	4806	4807	4808
4809	4810	4811	4812	4813	4814	4815	4816
4817	4818	4819	4820	4821	4822	4823	4824
4825	4826	4827	4828	4829	4830	4831	4832
4833	4834	4835	4836	4837	4838	4839	4840
4841	4842	4843	4844	4845	4846	4847	4848
4849	4850	4851	4852	4853	4854	4855	4856
4857	4858	4859	4860				

*** WARNING *** CP= 41.480 TIME= 08:42:14
 Meshing of volume 95 produced 24 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 95 WITH EXCESSIVE ASPECT RATIO ***

4861	4862	4863	4864	4865	4866	4891	4892
4893	4894	4895	4896	4921	4922	4923	4924
4925	4926	4951	4952	4953	4954	4955	4956

*** WARNING *** CP= 41.690 TIME= 08:42:14
 Meshing of volume 96 produced 52 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 96 WITH EXCESSIVE ASPECT RATIO ***

4981	4982	4983	4984	4985	4986	4987	4988
4989	4990	4991	4992	4993	4994	4995	4996
4997	4998	4999	5000	5001	5002	5003	5004
5005	5006	5011	5012	5013	5014	5015	5016
5017	5018	5019	5020	5021	5022	5023	5024
5025	5026	5027	5028	5029	5030	5031	5032
5033	5034	5035	5036				

*** WARNING *** CP= 41.900 TIME= 08:42:14
 Meshing of volume 97 produced 60 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 97 WITH EXCESSIVE ASPECT RATIO ***

5041	5042	5043	5044	5045	5046	5047	5048
5049	5050	5051	5052	5053	5054	5055	5056
5057	5058	5059	5060	5061	5062	5063	5064
5065	5066	5067	5068	5069	5070	5071	5072
5073	5074	5075	5076	5077	5078	5079	5080
5081	5082	5083	5084	5085	5086	5087	5088
5089	5090	5091	5092	5093	5094	5095	5096
5097	5098	5099	5100				

*** WARNING *** CP= 42.340 TIME= 08:42:14
 Meshing of volume 98 produced 8 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 98 WITH EXCESSIVE ASPECT RATIO ***
 5101 5102 5131 5132 5161 5162 5191 5192

*** WARNING *** CP= 42.570 TIME= 08:42:15
 Meshing of volume 99 produced 60 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 99 WITH EXCESSIVE ASPECT RATIO ***
 5221 5222 5223 5224 5225 5226 5227 5228
 5229 5230 5231 5232 5233 5234 5235 5236
 5237 5238 5239 5240 5241 5242 5243 5244
 5245 5246 5247 5248 5249 5250 5251 5252
 5253 5254 5255 5256 5257 5258 5259 5260
 5261 5262 5263 5264 5265 5266 5267 5268
 5269 5270 5271 5272 5273 5274 5275 5276
 5277 5278 5279 5280

*** WARNING *** CP= 42.800 TIME= 08:42:15
 Meshing of volume 100 produced 52 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 100 WITH EXCESSIVE ASPECT RATIO ***
 5281 5282 5283 5284 5285 5286 5287 5288
 5289 5290 5291 5292 5293 5294 5295 5296
 5297 5298 5299 5300 5301 5302 5303 5304
 5305 5306 5311 5312 5313 5314 5315 5316
 5317 5318 5319 5320 5321 5322 5323 5324
 5325 5326 5327 5328 5329 5330 5331 5332
 5333 5334 5335 5336

*** WARNING *** CP= 43.240 TIME= 08:42:15
 Meshing of volume 101 produced 24 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 101 WITH EXCESSIVE ASPECT RATIO ***
 5341 5342 5343 5344 5345 5346 5371 5372
 5373 5374 5375 5376 5401 5402 5403 5404
 5405 5406 5431 5432 5433 5434 5435 5436

*** WARNING *** CP= 43.450 TIME= 08:42:15
 Meshing of volume 102 produced 60 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 102 WITH EXCESSIVE ASPECT RATIO ***
 5461 5462 5463 5464 5465 5466 5467 5468
 5469 5470 5471 5472 5473 5474 5475 5476
 5477 5478 5479 5480 5481 5482 5483 5484
 5485 5486 5487 5488 5489 5490 5491 5492
 5493 5494 5495 5496 5497 5498 5499 5500
 5501 5502 5503 5504 5505 5506 5507 5508
 5509 5510 5511 5512 5513 5514 5515 5516
 5517 5518 5519 5520

*** WARNING *** CP= 43.900 TIME= 08:42:16
 Meshing of volume 103 produced 24 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 103 WITH EXCESSIVE ASPECT RATIO ***
 5521 5522 5523 5524 5525 5526 5551 5552
 5553 5554 5555 5556 5581 5582 5583 5584
 5585 5586 5611 5612 5613 5614 5615 5616

*** WARNING *** CP= 44.570 TIME= 08:42:17
 Meshing of volume 119 produced 16 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 119 WITH EXCESSIVE ASPECT RATIO ***

5697	5698	5699	5700	5701	5702	5703	5704
5705	5706	5707	5708	5709	5710	5711	5712

*** WARNING *** CP= 45.450 TIME= 08:42:18
 Meshing of volume 137 produced 16 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 137 WITH EXCESSIVE ASPECT RATIO ***

5793	5794	5795	5796	5797	5798	5799	5800
5801	5802	5803	5804	5805	5806	5807	5808

*** WARNING *** CP= 45.730 TIME= 08:42:18
 Meshing of volume 140 produced 16 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 140 WITH EXCESSIVE ASPECT RATIO ***

5825	5826	5827	5828	5829	5830	5831	5832
5833	5834	5835	5836	5837	5838	5839	5840

*** WARNING *** CP= 46.010 TIME= 08:42:18
 Meshing of volume 143 produced 16 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 143 WITH EXCESSIVE ASPECT RATIO ***

5857	5858	5859	5860	5861	5862	5863	5864
5865	5866	5867	5868	5869	5870	5871	5872

*** WARNING *** CP= 46.220 TIME= 08:42:18
 Meshing of volume 145 produced 16 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 145 WITH EXCESSIVE ASPECT RATIO ***

5881	5882	5883	5884	5885	5886	5887	5888
5889	5890	5891	5892	5893	5894	5895	5896

*** WARNING *** CP= 52.410 TIME= 08:42:25
 Volume 230 area 669 has a corner angle of 150 degrees. This is not
 recommended for hexahedral elements.

*** WARNING *** CP= 52.420 TIME= 08:42:25
 Volume 230 area 1058 has a corner angle of 150 degrees. This is not
 recommended for hexahedral elements.

*** WARNING *** CP= 52.460 TIME= 08:42:25
 Meshing of volume 230 produced 8 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 230 WITH EXCESSIVE DISTORTION ***

6657	6658	6659	6660	6661	6662	6663	6664
------	------	------	------	------	------	------	------

*** WARNING *** CP= 52.520 TIME= 08:42:25
 Volume 231 area 670 has a corner angle of 30 degrees. This is not
 recommended for hexahedral elements.

*** WARNING *** CP= 52.530 TIME= 08:42:25
 Volume 231 area 1061 has a corner angle of 30 degrees. This is not
 recommended for hexahedral elements.

*** WARNING *** CP= 52.580 TIME= 08:42:25
Meshing of volume 231 produced 8 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 231 WITH EXCESSIVE DISTORTION ***
6665 6666 6669 6670 6673 6674 6677 6678

*** WARNING *** CP= 53.070 TIME= 08:42:25
Volume 237 area 676 has a corner angle of 150 degrees. This is not recommended for hexahedral elements.

*** WARNING *** CP= 53.080 TIME= 08:42:25
Volume 237 area 1078 has a corner angle of 150 degrees. This is not recommended for hexahedral elements.

*** WARNING *** CP= 53.120 TIME= 08:42:26
Meshing of volume 237 produced 8 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 237 WITH EXCESSIVE DISTORTION ***
6747 6748 6751 6752 6755 6756 6759 6760

*** WARNING *** CP= 53.180 TIME= 08:42:26
Volume 238 area 677 has a corner angle of 30 degrees. This is not recommended for hexahedral elements.

*** WARNING *** CP= 53.190 TIME= 08:42:26
Volume 238 area 1081 has a corner angle of 30 degrees. This is not recommended for hexahedral elements.

*** WARNING *** CP= 53.230 TIME= 08:42:26
Meshing of volume 238 produced 8 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 238 WITH EXCESSIVE DISTORTION ***
6769 6770 6771 6772 6773 6774 6775 6776

*** WARNING *** CP= 55.010 TIME= 08:42:28
Volume 255 area 694 has a corner angle of 30 degrees. This is not recommended for hexahedral elements.

*** WARNING *** CP= 55.030 TIME= 08:42:28
Volume 255 area 1119 has a corner angle of 30 degrees. This is not recommended for hexahedral elements.

*** WARNING *** CP= 55.100 TIME= 08:42:28
Meshing of volume 255 produced 14 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 255 WITH EXCESSIVE DISTORTION ***
7121 7122 7123 7124 7125 7126 7127 7128
7130 7132 7134 7136 7138 7142

*** WARNING *** CP= 55.770 TIME= 08:42:28
Volume 261 area 700 has a corner angle of 30 degrees. This is not recommended for hexahedral elements.

*** WARNING *** CP= 55.790 TIME= 08:42:28
Volume 261 area 1125 has a corner angle of 30 degrees. This is not recommended for hexahedral elements.

*** WARNING *** CP= 55.850 TIME= 08:42:28
Meshing of volume 261 produced 14 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 261 WITH EXCESSIVE DISTORTION ***
7306 7310 7313 7314 7317 7318 7321 7322
7323 7324 7325 7326 7327 7328

*** WARNING *** CP= 55.950 TIME= 08:42:29

Meshing of volume 262 produced 2 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 262 WITH EXCESSIVE DISTORTION ***
7338 7342

*** WARNING *** CP= 56.450 TIME= 08:42:29
Meshing of volume 266 produced 2 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 266 WITH EXCESSIVE DISTORTION ***
7458 7462

*** WARNING *** CP= 56.480 TIME= 08:42:29
Volume 267 area 706 has a corner angle of 30 degrees. This is not
recommended for hexahedral elements.

*** WARNING *** CP= 56.490 TIME= 08:42:29
Volume 267 area 1131 has a corner angle of 30 degrees. This is not
recommended for hexahedral elements.

*** WARNING *** CP= 56.550 TIME= 08:42:29
Meshing of volume 267 produced 14 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 267 WITH EXCESSIVE DISTORTION ***
7474 7478 7481 7482 7485 7486 7489 7490
7491 7492 7493 7494 7495 7496

*** WARNING *** CP= 56.730 TIME= 08:42:30
Volume 269 area 708 has a corner angle of 30 degrees. This is not
recommended for hexahedral elements.

*** WARNING *** CP= 56.750 TIME= 08:42:30
Volume 269 area 1133 has a corner angle of 30 degrees. This is not
recommended for hexahedral elements.

*** WARNING *** CP= 56.820 TIME= 08:42:30
Meshing of volume 269 produced 14 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 269 WITH EXCESSIVE DISTORTION ***
7529 7530 7531 7532 7533 7534 7535 7536
7538 7540 7542 7544 7546 7550

NUMBER OF VOLUMES MESHED = 147
MAXIMUM NODE NUMBER = 11541
MAXIMUM ELEMENT NUMBER = 7552
Mesh Upper Inner Barrier Adding Backfill Mass

INVERT FOR ITEM=VOLU COMPONENT=
IN RANGE 1 TO 269 STEP 1

122 VOLUMES (OF 269 DEFINED) SELECTED BY VSEL COMMAND.

ACTIVE COORDINATE SYSTEM SET TO 1 (CYLINDRICAL)

UNSELECT FOR ITEM=LOC COMPONENT=X BETWEEN 0.71295 AND 0.78095
KABS= 0. TOLERANCE= 0.000000E+00

122 VOLUMES (OF 269 DEFINED) SELECTED BY VSEL COMMAND.

RESELECT FOR ITEM=LOC COMPONENT=Z BETWEEN 0.000000E+00 AND 2.3045
KABS= 0. TOLERANCE= 0.000000E+00

122 VOLUMES (OF 269 DEFINED) SELECTED BY VSEL COMMAND.

UNSELECT FOR ITEM=VOLU COMPONENT=
IN RANGE 1 TO 92 STEP 1

30 VOLUMES (OF 269 DEFINED) SELECTED BY VSEL COMMAND.

ACTIVE COORDINATE SYSTEM SET TO 0 (CARTESIAN)

ELEMENT TYPE SET TO 6

MATERIAL NUMBER SET TO 6

GENERATE NODES AND ELEMENTS IN ALL SELECTED VOLUMES

*** WARNING *** CP= 57.490 TIME= 08:42:30
 Meshing of volume 104 produced 60 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 104 WITH EXCESSIVE ASPECT RATIO ***

7553	7554	7555	7556	7557	7558	7559	7560
7561	7562	7563	7564	7565	7566	7567	7568
7569	7570	7571	7572	7573	7574	7575	7576
7577	7578	7579	7580	7581	7582	7583	7584
7585	7586	7587	7588	7589	7590	7591	7592
7593	7594	7595	7596	7597	7598	7599	7600
7601	7602	7603	7604	7605	7606	7607	7608
7609	7610	7611	7612				

*** WARNING *** CP= 57.780 TIME= 08:42:31
 Meshing of volume 105 produced 24 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 105 WITH EXCESSIVE ASPECT RATIO ***

7613	7614	7615	7616	7617	7618	7643	7644
7645	7646	7647	7648	7673	7674	7675	7676
7677	7678	7703	7704	7705	7706	7707	7708

*** WARNING *** CP= 57.950 TIME= 08:42:31
 Meshing of volume 106 produced 52 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 106 WITH EXCESSIVE ASPECT RATIO ***

7733	7734	7735	7736	7737	7738	7739	7740
7741	7742	7743	7744	7745	7746	7747	7748
7749	7750	7751	7752	7753	7754	7755	7756
7757	7758	7763	7764	7765	7766	7767	7768
7769	7770	7771	7772	7773	7774	7775	7776
7777	7778	7779	7780	7781	7782	7783	7784
7785	7786	7787	7788				

*** WARNING *** CP= 58.160 TIME= 08:42:32
 Meshing of volume 107 produced 60 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 107 WITH EXCESSIVE ASPECT RATIO ***

7793	7794	7795	7796	7797	7798	7799	7800
7801	7802	7803	7804	7805	7806	7807	7808
7809	7810	7811	7812	7813	7814	7815	7816
7817	7818	7819	7820	7821	7822	7823	7824
7825	7826	7827	7828	7829	7830	7831	7832
7833	7834	7835	7836	7837	7838	7839	7840
7841	7842	7843	7844	7845	7846	7847	7848
7849	7850	7851	7852				

*** WARNING *** CP= 58.540 TIME= 08:42:32
 Meshing of volume 108 produced 8 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 108 WITH EXCESSIVE ASPECT RATIO ***

7853	7854	7883	7884	7913	7914	7943	7944
------	------	------	------	------	------	------	------

*** WARNING *** CP= 58.760 TIME= 08:42:32
 Meshing of volume 109 produced 60 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 109 WITH EXCESSIVE ASPECT RATIO ***

7973	7974	7975	7976	7977	7978	7979	7980
7981	7982	7983	7984	7985	7986	7987	7988
7989	7990	7991	7992	7993	7994	7995	7996
7997	7998	7999	8000	8001	8002	8003	8004
8005	8006	8007	8008	8009	8010	8011	8012
8013	8014	8015	8016	8017	8018	8019	8020
8021	8022	8023	8024	8025	8026	8027	8028
8029	8030	8031	8032				

*** WARNING *** CP= 58.970 TIME= 08:42:32
 Meshing of volume 110 produced 52 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 110 WITH EXCESSIVE ASPECT RATIO ***

8033	8034	8035	8036	8037	8038	8039	8040
8041	8042	8043	8044	8045	8046	8047	8048
8049	8050	8051	8052	8053	8054	8055	8056
8057	8058	8063	8064	8065	8066	8067	8068
8069	8070	8071	8072	8073	8074	8075	8076
8077	8078	8079	8080	8081	8082	8083	8084
8085	8086	8087	8088				

*** WARNING *** CP= 59.410 TIME= 08:42:33
 Meshing of volume 111 produced 24 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 111 WITH EXCESSIVE ASPECT RATIO ***

8093	8094	8095	8096	8097	8098	8123	8124
8125	8126	8127	8128	8153	8154	8155	8156
8157	8158	8183	8184	8185	8186	8187	8188

*** WARNING *** CP= 59.620 TIME= 08:42:33
 Meshing of volume 112 produced 60 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 112 WITH EXCESSIVE ASPECT RATIO ***

8213	8214	8215	8216	8217	8218	8219	8220
8221	8222	8223	8224	8225	8226	8227	8228
8229	8230	8231	8232	8233	8234	8235	8236
8237	8238	8239	8240	8241	8242	8243	8244
8245	8246	8247	8248	8249	8250	8251	8252
8253	8254	8255	8256	8257	8258	8259	8260
8261	8262	8263	8264	8265	8266	8267	8268
8269	8270	8271	8272				

*** WARNING *** CP= 59.990 TIME= 08:42:33
 Meshing of volume 113 produced 48 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 113 WITH EXCESSIVE ASPECT RATIO ***

8273	8274	8275	8276	8277	8278	8279	8280
8281	8282	8283	8284	8303	8304	8305	8306
8307	8308	8309	8310	8311	8312	8313	8314
8333	8334	8335	8336	8337	8338	8339	8340
8341	8342	8343	8344	8363	8364	8365	8366
8367	8368	8369	8370	8371	8372	8373	8374

*** WARNING *** CP= 60.490 TIME= 08:42:34

Meshing of volume 129 produced 16 elements with excessive aspect ratio.
Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 129 WITH EXCESSIVE ASPECT RATIO ***

8433	8434	8435	8436	8437	8438	8439	8440
8441	8442	8443	8444	8445	8446	8447	8448

*** WARNING *** CP= 61.130 TIME= 08:42:35
Meshing of volume 147 produced 16 elements with excessive aspect ratio.
Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 147 WITH EXCESSIVE ASPECT RATIO ***

8513	8514	8515	8516	8517	8518	8519	8520
8521	8522	8523	8524	8525	8526	8527	8528

*** WARNING *** CP= 61.380 TIME= 08:42:35
Meshing of volume 150 produced 16 elements with excessive aspect ratio.
Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 150 WITH EXCESSIVE ASPECT RATIO ***

8545	8546	8547	8548	8549	8550	8551	8552
8553	8554	8555	8556	8557	8558	8559	8560

*** WARNING *** CP= 61.630 TIME= 08:42:35
Meshing of volume 153 produced 16 elements with excessive aspect ratio.
Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 153 WITH EXCESSIVE ASPECT RATIO ***

8577	8578	8579	8580	8581	8582	8583	8584
8585	8586	8587	8588	8589	8590	8591	8592

NUMBER OF VOLUMES MESHED = 30
MAXIMUM NODE NUMBER = 12897
MAXIMUM ELEMENT NUMBER = 8616
Mesh Lower Outer Barrier and Lids
mesh upper outer barrier adding backfill mass

Apply Symmetry Constraints

ACTIVE COORDINATE SYSTEM SET TO 0 (CARTESIAN)

SELECT FOR ITEM=LOC COMPONENT=X BETWEEN 0.00000E+00 AND 0.00000E+00
KABS= 0. TOLERANCE= 0.100000E-05

555 NODES (OF 12897 DEFINED) SELECTED BY NSEL COMMAND.

SYMMETRY CONSTRAINTS FOR COORDINATE SYSTEM 0 IN DIRECTION X
ON SURFACE DEFINED BY ALL SELECTED NODES

*** NOTE *** CP= 62.160 TIME= 08:42:36
Nodes on symmetry surfaces are rotated into coordinate system 0.

TOTAL SPECIFIED CONSTRAINTS= 555

SELECT FOR ITEM=LOC COMPONENT=Z BETWEEN 0.00000E+00 AND 0.00000E+00
KABS= 0. TOLERANCE= 0.100000E-05

606 NODES (OF 12897 DEFINED) SELECTED BY NSEL COMMAND.

SYMMETRY CONSTRAINTS FOR COORDINATE SYSTEM 0 IN DIRECTION Z
ON SURFACE DEFINED BY ALL SELECTED NODES

*** NOTE *** CP= 62.570 TIME= 08:42:36
Nodes on symmetry surfaces are rotated into coordinate system 0.

TOTAL SPECIFIED CONSTRAINTS= 1161

Apply Constraints at Support Locations
Span approximately half of basket height, width = 0.305 m

ACTIVE COORDINATE SYSTEM SET TO 1 (CYLINDRICAL)

SELECT FOR ITEM=LOC COMPONENT=Z BETWEEN 1.0675 AND 1.5450
KABS= 0. TOLERANCE= 0.000000E+00

1818 NODES (OF 12897 DEFINED) SELECTED BY NSEL COMMAND.

RESELECT FOR ITEM=LOC COMPONENT=X BETWEEN 0.71195 AND 0.71395
KABS= 0. TOLERANCE= 0.000000E+00

262 NODES (OF 12897 DEFINED) SELECTED BY NSEL COMMAND.

RESELECT FOR ITEM=LOC COMPONENT=Y BETWEEN -70.000 AND -50.000
KABS= 0. TOLERANCE= 0.000000E+00

35 NODES (OF 12897 DEFINED) SELECTED BY NSEL COMMAND.

ACTIVE COORDINATE SYSTEM SET TO 0 (CARTESIAN)

SPECIFIED CONSTRAINT UY FOR SELECTED NODES 1 TO 12897 BY 1
REAL= 0.000000000E+00 IMAG= 0.000000000E+00

SELECT ALL ENTITIES OF TYPE= ALL AND BELOW

ALL SELECT FOR ITEM=VOLU COMPONENT=
IN RANGE 1 TO 269 STEP 1

269 VOLUMES (OF 269 DEFINED) SELECTED BY VSEL COMMAND.

ALL SELECT FOR ITEM=AREA COMPONENT=
IN RANGE 1 TO 1133 STEP 1

1133 AREAS (OF 1133 DEFINED) SELECTED BY ASEL COMMAND.

ALL SELECT FOR ITEM=LINE COMPONENT=
IN RANGE 1 TO 1604 STEP 1

1604 LINES (OF 1604 DEFINED) SELECTED BY LSEL COMMAND.

ALL SELECT FOR ITEM=KP COMPONENT=
IN RANGE 1 TO 9001 STEP 1

690 KEYPOINTS (OF 690 DEFINED) SELECTED BY KSEL COMMAND.

ALL SELECT FOR ITEM=ELEM COMPONENT=
IN RANGE 1 TO 8616 STEP 1

8616 ELEMENTS (OF 8616 DEFINED) SELECTED BY ESEL COMMAND.

ALL SELECT FOR ITEM=NODE COMPONENT=
IN RANGE 1 TO 12897 STEP 1

12897 NODES (OF 12897 DEFINED) SELECTED BY NSEL COMMAND.

ALL CURRENT ANSYS DATA WRITTEN TO FILE NAME= adjust.db
FOR POSSIBLE RESUME FROM THIS POINT

***** ROUTINE COMPLETED ***** CP = 71.170

***** ANSYS SOLUTION ROUTINE *****

PERFORM A MODAL ANALYSIS
THIS WILL BE A NEW ANALYSIS

USE SUBSPACE ITERATION METHOD
EXTRACT 8 MODES
NORMALIZE THE MODE SHAPES TO THE MASS MATRIX

WRITE ALL ITEMS TO THE DATABASE WITH A FREQUENCY OF 1
FOR ALL APPLICABLE ENTITIES

ALL CURRENT ANSYS DATA WRITTEN TO FILE NAME= adjust.db
FOR POSSIBLE RESUME FROM THIS POINT

***** ANSYS SOLVE COMMAND *****

*** WARNING *** CP= 82.140 TIME= 08:42:56
Element 2881 has an angle between adjacent edges of 36.9687852 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 82.140 TIME= 08:42:56
Element 2881 has an angle between adjacent edges of 143.022369 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 82.140 TIME= 08:42:56
Element 2882 has an angle between adjacent edges of 36.9602219 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 82.140 TIME= 08:42:56
Element 2882 has an angle between adjacent edges of 143.031215 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 82.140 TIME= 08:42:56
Element 2883 has an angle between adjacent edges of 36.9687852 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 82.140 TIME= 08:42:56
Element 2883 has an angle between adjacent edges of 143.022369 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 82.150 TIME= 08:42:56
Element 2884 has an angle between adjacent edges of 36.9602219 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 82.150 TIME= 08:42:56
Element 2884 has an angle between adjacent edges of 143.031215 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 82.150 TIME= 08:42:56
Element 2885 has an angle between adjacent edges of 36.9687852 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 82.150 TIME= 08:42:56
Element 2885 has an angle between adjacent edges of 143.022369 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 82.150 TIME= 08:42:56
Element 2886 has an angle between adjacent edges of 36.9602219 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 82.150 TIME= 08:42:56

Element 2886 has an angle between adjacent edges of 143.031215 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.160 TIME= 08:42:56
Element 2887 has an angle between adjacent edges of 36.9687852 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.160 TIME= 08:42:56
Element 2887 has an angle between adjacent edges of 143.022369 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.160 TIME= 08:42:56
Element 2888 has an angle between adjacent edges of 36.9602219 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.160 TIME= 08:42:56
Element 2888 has an angle between adjacent edges of 143.031215 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.160 TIME= 08:42:56
Element 2889 has an angle between adjacent edges of 36.9687852 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.160 TIME= 08:42:56
Element 2889 has an angle between adjacent edges of 143.022369 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.170 TIME= 08:42:56
Element 2890 has an angle between adjacent edges of 36.9602219 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.170 TIME= 08:42:56
Element 2890 has an angle between adjacent edges of 143.031215 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.170 TIME= 08:42:56
Element 2891 has an angle between adjacent edges of 36.9687852 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.170 TIME= 08:42:56
Element 2891 has an angle between adjacent edges of 143.022369 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.170 TIME= 08:42:56
Element 2892 has an angle between adjacent edges of 36.9602219 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.180 TIME= 08:42:56
Element 2892 has an angle between adjacent edges of 143.031215 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.180 TIME= 08:42:56
Element 2893 has an angle between adjacent edges of 36.9687852 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.180 TIME= 08:42:56

Element 2893 has an angle between adjacent edges of 143.022369 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.180 TIME= 08:42:56
Element 2894 has an angle between adjacent edges of 36.9602219 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.180 TIME= 08:42:56
Element 2894 has an angle between adjacent edges of 143.031215 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.190 TIME= 08:42:56
Element 2895 has an angle between adjacent edges of 36.9687852 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.190 TIME= 08:42:56
Element 2895 has an angle between adjacent edges of 143.022369 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.190 TIME= 08:42:56
Element 2896 has an angle between adjacent edges of 36.9602219 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.190 TIME= 08:42:56
Element 2896 has an angle between adjacent edges of 143.031215 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.200 TIME= 08:42:56
Element 2897 has an angle between adjacent edges of 36.9687852 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.200 TIME= 08:42:56
Element 2897 has an angle between adjacent edges of 143.022369 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.200 TIME= 08:42:56
Element 2898 has an angle between adjacent edges of 36.9602219 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.200 TIME= 08:42:56
Element 2898 has an angle between adjacent edges of 143.031215 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.200 TIME= 08:42:56
Element 2899 has an angle between adjacent edges of 36.9687852 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.200 TIME= 08:42:56
Element 2899 has an angle between adjacent edges of 143.022369 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.210 TIME= 08:42:56
Element 2900 has an angle between adjacent edges of 36.9602219 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.210 TIME= 08:42:56

Element 2900 has an angle between adjacent edges of 143.031215 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.210 TIME= 08:42:56
Element 2901 has an angle between adjacent edges of 36.9687852 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.210 TIME= 08:42:56
Element 2901 has an angle between adjacent edges of 143.022369 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.210 TIME= 08:42:56
Element 2902 has an angle between adjacent edges of 36.9602219 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.220 TIME= 08:42:56
Element 2902 has an angle between adjacent edges of 143.031215 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.220 TIME= 08:42:56
Element 2903 has an angle between adjacent edges of 36.9687852 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.220 TIME= 08:42:56
Element 2903 has an angle between adjacent edges of 143.022369 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.220 TIME= 08:42:56
Element 2904 has an angle between adjacent edges of 36.9602219 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.220 TIME= 08:42:56
Element 2904 has an angle between adjacent edges of 143.031215 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.220 TIME= 08:42:56
Element 2905 has an angle between adjacent edges of 36.9687852 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.230 TIME= 08:42:56
Element 2905 has an angle between adjacent edges of 143.022369 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.230 TIME= 08:42:56
Element 2906 has an angle between adjacent edges of 36.9602219 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.230 TIME= 08:42:56
Element 2906 has an angle between adjacent edges of 143.031215 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.230 TIME= 08:42:56
Element 2907 has an angle between adjacent edges of 36.9687852 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.230 TIME= 08:42:56

Element 2907 has an angle between adjacent edges of 143.022369 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.240 TIME= 08:42:56
Element 2908 has an angle between adjacent edges of 36.9602219 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.240 TIME= 08:42:56
Element 2908 has an angle between adjacent edges of 143.031215 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.240 TIME= 08:42:56
Element 2909 has an angle between adjacent edges of 36.9687852 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.240 TIME= 08:42:56
Element 2909 has an angle between adjacent edges of 143.022369 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.240 TIME= 08:42:56
Element 2910 has an angle between adjacent edges of 36.9602219 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.240 TIME= 08:42:56
Element 2910 has an angle between adjacent edges of 143.031215 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.250 TIME= 08:42:56
Element 2911 has an angle between adjacent edges of 30.4729354 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.250 TIME= 08:42:56
Element 2911 has an angle between adjacent edges of 149.518219 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.250 TIME= 08:42:56
Element 2912 has an angle between adjacent edges of 30.464372 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.250 TIME= 08:42:56
Element 2912 has an angle between adjacent edges of 149.527065 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.250 TIME= 08:42:56
Element 2913 has an angle between adjacent edges of 30.4729354 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.250 TIME= 08:42:56
Element 2913 has an angle between adjacent edges of 149.518219 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.260 TIME= 08:42:56
Element 2914 has an angle between adjacent edges of 30.464372 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.260 TIME= 08:42:56
Element 2914 has an angle between adjacent edges of 149.527065 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

degrees.

*** WARNING *** CP= 82.260 TIME= 08:42:56
Element 2915 has an angle between adjacent edges of 30.4729354 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 82.260 TIME= 08:42:56
Element 2915 has an angle between adjacent edges of 149.518219 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 82.260 TIME= 08:42:56
Element 2916 has an angle between adjacent edges of 30.464372 on face 2
which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.260 TIME= 08:42:56
Element 2916 has an angle between adjacent edges of 149.527065 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 82.270 TIME= 08:42:56
Element 2917 has an angle between adjacent edges of 30.4729354 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 82.270 TIME= 08:42:56
Element 2917 has an angle between adjacent edges of 149.518219 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 82.270 TIME= 08:42:56
Element 2918 has an angle between adjacent edges of 30.464372 on face 2
which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.270 TIME= 08:42:56
Element 2918 has an angle between adjacent edges of 149.527065 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 82.270 TIME= 08:42:56
Element 2919 has an angle between adjacent edges of 30.4729354 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 82.270 TIME= 08:42:56
Element 2919 has an angle between adjacent edges of 149.518219 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 82.270 TIME= 08:42:56
Element 2920 has an angle between adjacent edges of 30.464372 on face 2
which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.280 TIME= 08:42:56
Element 2920 has an angle between adjacent edges of 149.527065 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 82.280 TIME= 08:42:56
Element 2921 has an angle between adjacent edges of 30.4729354 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 82.280 TIME= 08:42:56
Element 2921 has an angle between adjacent edges of 149.518219 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 82.280 TIME= 08:42:56

Element 2922 has an angle between adjacent edges of 30.464372 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.280 TIME= 08:42:56
Element 2922 has an angle between adjacent edges of 149.527065 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.290 TIME= 08:42:56
Element 2923 has an angle between adjacent edges of 30.4729354 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.290 TIME= 08:42:56
Element 2923 has an angle between adjacent edges of 149.518219 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.290 TIME= 08:42:56
Element 2924 has an angle between adjacent edges of 30.464372 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.290 TIME= 08:42:56
Element 2924 has an angle between adjacent edges of 149.527065 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.290 TIME= 08:42:56
Element 2925 has an angle between adjacent edges of 30.4729354 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.300 TIME= 08:42:56
Element 2925 has an angle between adjacent edges of 149.518219 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.300 TIME= 08:42:56
Element 2926 has an angle between adjacent edges of 30.464372 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.300 TIME= 08:42:56
Element 2926 has an angle between adjacent edges of 149.527065 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.300 TIME= 08:42:56
Element 2927 has an angle between adjacent edges of 30.4729354 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.300 TIME= 08:42:56
Element 2927 has an angle between adjacent edges of 149.518219 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.310 TIME= 08:42:56
Element 2928 has an angle between adjacent edges of 30.464372 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.310 TIME= 08:42:56
Element 2928 has an angle between adjacent edges of 149.527065 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.310 TIME= 08:42:56
Element 2929 has an angle between adjacent edges of 30.4729354 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.310 TIME= 08:42:56
Element 2929 has an angle between adjacent edges of 149.518219 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 82.310 TIME= 08:42:56
Element 2930 has an angle between adjacent edges of 30.464372 on face 2
which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.320 TIME= 08:42:56
Element 2930 has an angle between adjacent edges of 149.527065 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 82.320 TIME= 08:42:56
Element 2931 has an angle between adjacent edges of 30.4729354 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 82.320 TIME= 08:42:56
Element 2931 has an angle between adjacent edges of 149.518219 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 82.320 TIME= 08:42:56
Element 2932 has an angle between adjacent edges of 30.464372 on face 2
which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.320 TIME= 08:42:56
Element 2932 has an angle between adjacent edges of 149.527065 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 82.320 TIME= 08:42:56
Element 2933 has an angle between adjacent edges of 30.4729354 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 82.330 TIME= 08:42:56
Element 2933 has an angle between adjacent edges of 149.518219 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 82.330 TIME= 08:42:56
Element 2934 has an angle between adjacent edges of 30.464372 on face 2
which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.330 TIME= 08:42:56
Element 2934 has an angle between adjacent edges of 149.527065 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 82.330 TIME= 08:42:56
Element 2935 has an angle between adjacent edges of 30.4729354 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 82.330 TIME= 08:42:56
Element 2935 has an angle between adjacent edges of 149.518219 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 82.340 TIME= 08:42:56
Element 2936 has an angle between adjacent edges of 30.464372 on face 2
which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.340 TIME= 08:42:56
Element 2936 has an angle between adjacent edges of 149.527065 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 82.340 TIME= 08:42:56
Element 2937 has an angle between adjacent edges of 30.4729354 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 82.340 TIME= 08:42:56
Element 2937 has an angle between adjacent edges of 149.518219 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 82.340 TIME= 08:42:56
Element 2938 has an angle between adjacent edges of 30.464372 on face 2
which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.340 TIME= 08:42:56
Element 2938 has an angle between adjacent edges of 149.527065 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 82.350 TIME= 08:42:56
Element 2939 has an angle between adjacent edges of 30.4729354 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 82.350 TIME= 08:42:56
Element 2939 has an angle between adjacent edges of 149.518219 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 82.350 TIME= 08:42:56
Element 2940 has an angle between adjacent edges of 30.464372 on face 2
which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.350 TIME= 08:42:56
Element 2940 has an angle between adjacent edges of 149.527065 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 82.350 TIME= 08:42:56
Element 2941 has an angle between adjacent edges of 36.9687852 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 82.360 TIME= 08:42:56
Element 2941 has an angle between adjacent edges of 149.527065 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 82.360 TIME= 08:42:56
Element 2942 has an angle between adjacent edges of 143.031215 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 82.360 TIME= 08:42:56
Element 2942 has an angle between adjacent edges of 143.031215 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 82.360 TIME= 08:42:56
Element 2945 has an angle between adjacent edges of 36.9687852 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 82.360 TIME= 08:42:56
Element 2945 has an angle between adjacent edges of 149.527065 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 82.360 TIME= 08:42:56

Element 2946 has an angle between adjacent edges of 143.031215 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.370 TIME= 08:42:56
Element 2946 has an angle between adjacent edges of 143.031215 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.370 TIME= 08:42:56
Element 2949 has an angle between adjacent edges of 36.9687852 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.370 TIME= 08:42:56
Element 2949 has an angle between adjacent edges of 149.527065 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.370 TIME= 08:42:56
Element 2950 has an angle between adjacent edges of 143.031215 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.370 TIME= 08:42:56
Element 2950 has an angle between adjacent edges of 143.031215 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.380 TIME= 08:42:56
Element 2953 has an angle between adjacent edges of 36.9687852 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.380 TIME= 08:42:56
Element 2953 has an angle between adjacent edges of 149.527065 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.380 TIME= 08:42:56
Element 2954 has an angle between adjacent edges of 143.031215 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.380 TIME= 08:42:56
Element 2954 has an angle between adjacent edges of 143.031215 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.390 TIME= 08:42:56
Element 2957 has an angle between adjacent edges of 36.9687852 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.390 TIME= 08:42:56
Element 2957 has an angle between adjacent edges of 149.527065 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.390 TIME= 08:42:56
Element 2958 has an angle between adjacent edges of 143.031215 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.390 TIME= 08:42:56
Element 2958 has an angle between adjacent edges of 143.031215 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.390 TIME= 08:42:56

Element 2961 has an angle between adjacent edges of 36.9687852 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.390 TIME= 08:42:56
Element 2961 has an angle between adjacent edges of 149.527065 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.390 TIME= 08:42:56
Element 2962 has an angle between adjacent edges of 143.031215 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.400 TIME= 08:42:56
Element 2962 has an angle between adjacent edges of 143.031215 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.400 TIME= 08:42:56
Element 2965 has an angle between adjacent edges of 36.9687852 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.400 TIME= 08:42:56
Element 2965 has an angle between adjacent edges of 149.527065 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.400 TIME= 08:42:56
Element 2966 has an angle between adjacent edges of 143.031215 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.400 TIME= 08:42:56
Element 2966 has an angle between adjacent edges of 143.031215 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.410 TIME= 08:42:56
Element 2969 has an angle between adjacent edges of 36.9687852 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.410 TIME= 08:42:56
Element 2969 has an angle between adjacent edges of 149.527065 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.410 TIME= 08:42:56
Element 2970 has an angle between adjacent edges of 143.031215 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.410 TIME= 08:42:56
Element 2970 has an angle between adjacent edges of 143.031215 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.420 TIME= 08:42:56
Element 2973 has an angle between adjacent edges of 36.9687852 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.420 TIME= 08:42:56
Element 2973 has an angle between adjacent edges of 149.527065 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.420 TIME= 08:42:56

Element 2974 has an angle between adjacent edges of 143.031215 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.420 TIME= 08:42:56
Element 2974 has an angle between adjacent edges of 143.031215 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.420 TIME= 08:42:56
Element 2977 has an angle between adjacent edges of 36.9687852 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.430 TIME= 08:42:56
Element 2977 has an angle between adjacent edges of 149.527065 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.430 TIME= 08:42:56
Element 2978 has an angle between adjacent edges of 143.031215 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.430 TIME= 08:42:56
Element 2978 has an angle between adjacent edges of 143.031215 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.430 TIME= 08:42:56
Element 2981 has an angle between adjacent edges of 36.9687852 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.430 TIME= 08:42:56
Element 2981 has an angle between adjacent edges of 149.527065 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.440 TIME= 08:42:56
Element 2982 has an angle between adjacent edges of 143.031215 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.440 TIME= 08:42:56
Element 2982 has an angle between adjacent edges of 143.031215 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.440 TIME= 08:42:56
Element 2985 has an angle between adjacent edges of 36.9687852 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.440 TIME= 08:42:56
Element 2985 has an angle between adjacent edges of 149.527065 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.440 TIME= 08:42:56
Element 2986 has an angle between adjacent edges of 143.031215 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.450 TIME= 08:42:56
Element 2986 has an angle between adjacent edges of 143.031215 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.450 TIME= 08:42:56

Element 2989 has an angle between adjacent edges of 36.9687852 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.450 TIME= 08:42:56
Element 2989 has an angle between adjacent edges of 149.527065 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.450 TIME= 08:42:56
Element 2990 has an angle between adjacent edges of 143.031215 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.450 TIME= 08:42:56
Element 2990 has an angle between adjacent edges of 143.031215 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.450 TIME= 08:42:56
Element 2993 has an angle between adjacent edges of 36.9687852 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.460 TIME= 08:42:56
Element 2993 has an angle between adjacent edges of 149.527065 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.460 TIME= 08:42:56
Element 2994 has an angle between adjacent edges of 143.031215 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.460 TIME= 08:42:56
Element 2994 has an angle between adjacent edges of 143.031215 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.460 TIME= 08:42:56
Element 2997 has an angle between adjacent edges of 36.9687852 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.460 TIME= 08:42:56
Element 2997 has an angle between adjacent edges of 149.527065 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.470 TIME= 08:42:56
Element 2998 has an angle between adjacent edges of 143.031215 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.470 TIME= 08:42:56
Element 2998 has an angle between adjacent edges of 143.031215 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.470 TIME= 08:42:56
Element 3001 has an angle between adjacent edges of 36.9776312 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.470 TIME= 08:42:56
Element 3001 has an angle between adjacent edges of 149.518219 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.480 TIME= 08:42:56

Element 3002 has an angle between adjacent edges of 143.022369 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.480 TIME= 08:42:56
Element 3002 has an angle between adjacent edges of 143.022369 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.480 TIME= 08:42:56
Element 3005 has an angle between adjacent edges of 36.9776312 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.480 TIME= 08:42:56
Element 3005 has an angle between adjacent edges of 149.518219 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.480 TIME= 08:42:56
Element 3006 has an angle between adjacent edges of 143.022369 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.480 TIME= 08:42:56
Element 3006 has an angle between adjacent edges of 143.022369 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.490 TIME= 08:42:56
Element 3009 has an angle between adjacent edges of 36.9776312 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.490 TIME= 08:42:56
Element 3009 has an angle between adjacent edges of 149.518219 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.490 TIME= 08:42:56
Element 3010 has an angle between adjacent edges of 143.022369 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.490 TIME= 08:42:56
Element 3010 has an angle between adjacent edges of 143.022369 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.500 TIME= 08:42:56
Element 3013 has an angle between adjacent edges of 36.9776312 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.500 TIME= 08:42:56
Element 3013 has an angle between adjacent edges of 149.518219 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.500 TIME= 08:42:56
Element 3014 has an angle between adjacent edges of 143.022369 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.500 TIME= 08:42:56
Element 3014 has an angle between adjacent edges of 143.022369 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.510 TIME= 08:42:56

Element 3017 has an angle between adjacent edges of 36.9776312 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.510 TIME= 08:42:56
Element 3017 has an angle between adjacent edges of 149.518219 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.510 TIME= 08:42:56
Element 3018 has an angle between adjacent edges of 143.022369 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 82.510 TIME= 08:42:56
Element 3018 has an angle between adjacent edges of 143.022369 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

Error messages discontinued after 200 messages were displayed.
More may exist. See (adjust.err) for suppressed messages.

*** NOTE *** CP= 86.460 TIME= 08:43:01
The model data was checked and warning messages were found.
Please review output or errors file (adjust.err) for these warning messages.

***** ANSYS - ENGINEERING ANALYSIS SYSTEM REVISION 5.1 24 *****
38303 VERSION=HP 9000/7XX 08:43:01 APR 11, 1996 CP= 86.460
FOR SUPPORT CALL ROBERT BAHNEY PHONE (702) 794-5337 FAX (702) 794-1844

21 PWR Tube Seismic Analysis With Backfill

SOLUTION OPTIONS

PROBLEM DIMENSIONALITY. 3-D
DEGREES OF FREEDOM. UX UY UZ
ANALYSIS TYPE. MODAL
EXTRACTION METHOD. SUBSPACE
NUMBER OF MODES TO EXTRACT. 8

LOAD STEP OPTIONS

LOAD STEP NUMBER. 1

***** CENTROID, MASS, AND MASS MOMENTS OF INERTIA *****

CALCULATIONS ASSUME ELEMENT MASS AT ELEMENT CENTROID

TOTAL MASS = 6157.5

CENTROID	MOM. OF INERTIA ABOUT ORIGIN	MOM. OF INERTIA ABOUT CENTROID
XC = 0.40540	IXX = 0.1261E+05	IXX = 3305.
YC = 0.40804	IYY = 0.1231E+05	IYY = 3015.
ZC = 1.1596	IZZ = 2880.	IZZ = 842.5
	IXY = -881.1	IXY = 137.4
	IYZ = -2895.	IYZ = 18.48
	IZX = -2890.	IZX = 4.899

*** MASS SUMMARY BY ELEMENT TYPE ***

TYPE	MASS
2	491.306
3	332.670
4	180.515
5	95.0035
6	5057.97

Range of element maximum matrix coefficients in global coordinates
 Maximum= 5.474720139E+11 at element 5101.
 Minimum= 148626650 at element 6476.

*** ELEMENT MATRIX FORMULATION TIMES

TYPE	NUMBER	ENAME	TOTAL CP	AVE CP
2	2520	SOLID45	14.520	0.006
3	1560	SOLID45	8.880	0.006
4	600	SOLID45	3.580	0.006
5	2872	SOLID45	16.550	0.006
6	1064	SOLID45	6.090	0.006

Time at end of element matrix formulation CP= 145.67.

Estimated number of active DOF= 37495.
 Maximum wavefront= 1397.

Time at end of matrix triangularization CP= 224.64.

SUBSPACE SIZE OF 12 VECTORS USED FOR CALCULATION OF FIRST 8 EIGENVECTORS.

MAXIMUM ITERATIONS	=	100
NUMBER OF EQUATIONS	=	37495
MAXIMUM WAVEFRONT	=	1397
ITERATIONS PER SHIFT	=	5
MAXIMUM MODES STORED	=	12
MAXIMUM EIGENVALUE	=	0.10000E+07
WORK SPACE (MBYTE)	=	8.0875

Equation solver maximum pivot= 1.43581346E+12 at node 8454 UX.

Equation solver minimum pivot= 1939679.15 at node 7457 UY.

***** ITERATION 1 COMPLETE ***** CP= 2767.240 WALL= 9.5450

***** CURRENT EIGENVALUE CALCULATIONS *****

MODE	CURRENT VALUE	PREVIOUS VALUE	CONVERGENCE RATIO
1	27.781951	0.00000000E+00	0.10000E+01
2	34.602620	0.00000000E+00	0.10000E+01
3	37.485198	0.00000000E+00	0.10000E+01
4	45.708942	0.00000000E+00	0.10000E+01
5	55.508660	0.00000000E+00	0.10000E+01
6	59.472038	0.00000000E+00	0.10000E+01
7	64.310192	0.00000000E+00	0.10000E+01
8	74.980213	0.00000000E+00	0.10000E+01
9	80.630641	0.00000000E+00	0.10000E+01
10	86.173345	0.00000000E+00	0.10000E+01
11	94.172193	0.00000000E+00	0.10000E+01
12	103.06913	0.00000000E+00	0.10000E+01

ITERATIONS SINCE LAST SHIFT= 1
 TOTAL NUMBER OF ITERATIONS= 1
 NUMBER OF MODES CONVERGED= 0
 NUMBER OF WORKING VECTORS= 12
 CURRENT SHIFT POINT= -1.0000
 CP TIME FOR TRIANGULARIZATION= 2386.820
 CP TIME SINCE LAST SHIFT= 151.850

***** ITERATION 2 COMPLETE ***** CP= 2919.560 WALL= 9.6450

```

***** CURRENT EIGENVALUE CALCULATIONS *****
MODE  CURRENT VALUE  PREVIOUS VALUE  CONVERGENCE RATIO
1      21.969329      27.781951      0.59916E+00
2      25.595279      34.602620      0.82767E+00
3      29.274310      37.485198      0.63963E+00
4      33.543745      45.708942      0.85686E+00
5      36.152951      55.508660      0.13574E+01
6      40.637775      59.472038      0.11417E+01
7      50.144555      64.310192      0.64480E+00
8      50.858842      74.980213      0.11735E+01
9      57.139021      80.630641      0.99129E+00
10     62.855802      86.173345      0.87956E+00
11     69.480325      94.172193      0.83705E+00
12     74.431053      103.06913      0.91756E+00

```

```

ITERATIONS SINCE LAST SHIFT= 2
TOTAL NUMBER OF ITERATIONS= 2
NUMBER OF MODES CONVERGED= 0
NUMBER OF WORKING VECTORS= 12
CURRENT SHIFT POINT= -1.0000
CP TIME FOR TRIANGULARIZATION= 2386.820
CP TIME SINCE LAST SHIFT= 304.170

```

***** ITERATION 3 COMPLETE ***** CP= 3071.400 WALL= 9.7456

```

***** CURRENT EIGENVALUE CALCULATIONS *****
MODE  CURRENT VALUE  PREVIOUS VALUE  CONVERGENCE RATIO
1      21.941592      21.969329      0.25299E-02
2      24.646024      25.595279      0.78515E-01
3      29.013088      29.274310      0.18088E-01
4      33.276674      33.543745      0.16116E-01
5      35.948015      36.152951      0.11434E-01
6      38.914408      40.637775      0.90533E-01
7      49.154854      50.144555      0.40674E-01
8      49.717439      50.858842      0.46443E-01
9      55.704624      57.139021      0.52163E-01
10     60.728459      62.855802      0.71288E-01
11     65.071475      69.480325      0.14010E+00
12     70.760644      74.431053      0.10643E+00

```

```

ITERATIONS SINCE LAST SHIFT= 3
TOTAL NUMBER OF ITERATIONS= 3
NUMBER OF MODES CONVERGED= 0
NUMBER OF WORKING VECTORS= 12
CURRENT SHIFT POINT= -1.0000
CP TIME FOR TRIANGULARIZATION= 2386.820
CP TIME SINCE LAST SHIFT= 456.010

```

***** ITERATION 4 COMPLETE ***** CP= 3223.250 WALL= 9.8458

```

***** CURRENT EIGENVALUE CALCULATIONS *****
MODE  CURRENT VALUE  PREVIOUS VALUE  CONVERGENCE RATIO
1      21.941440      21.941592      0.13801E-04
2      24.639193      24.646024      0.55454E-03
3      29.004736      29.013088      0.57601E-03
4      33.263844      33.276674      0.77158E-03
5      35.939049      35.948015      0.49901E-03
6      38.797899      38.914408      0.60150E-02
7      48.955701      49.154854      0.81526E-02
8      49.611387      49.717439      0.42799E-02
9      55.495568      55.704624      0.75483E-02
10     59.846457      60.728459      0.29693E-01
11     63.068724      65.071475      0.64518E-01
12     68.884876      70.760644      0.55202E-01

```


ITERATIONS SINCE LAST SHIFT= 4
 TOTAL NUMBER OF ITERATIONS= 4
 NUMBER OF MODES CONVERGED= 0
 NUMBER OF WORKING VECTORS= 12
 CURRENT SHIFT POINT= -1.0000
 CP TIME FOR TRIANGULARIZATION= 2386.820
 CP TIME SINCE LAST SHIFT= 607.860

***** ITERATION 5 COMPLETE ***** CP= 3375.760 WALL= 9.9464

***** CURRENT EIGENVALUE CALCULATIONS *****

MODE	CURRENT VALUE	PREVIOUS VALUE	CONVERGENCE RATIO
1	21.941439	21.941440	0.12443E-06
2	24.639108	24.639193	0.69185E-05
3	29.004439	29.004736	0.20467E-04
4	33.263120	33.263844	0.43529E-04
5	35.938581	35.939049	0.26058E-04
6	38.786943	38.797899	0.56500E-03
7	48.904020	48.955701	0.21147E-02
8	49.597600	49.611387	0.55606E-03
9	55.442486	55.495568	0.19158E-02
10	58.673552	59.846457	0.40380E-01
11	62.036187	63.068724	0.33565E-01
12	67.316148	68.884876	0.47151E-01

ITERATIONS SINCE LAST SHIFT= 5
 TOTAL NUMBER OF ITERATIONS= 5
 NUMBER OF MODES CONVERGED= 2
 NUMBER OF WORKING VECTORS= 12
 CURRENT SHIFT POINT= -1.0000
 CP TIME FOR TRIANGULARIZATION= 2386.820
 CP TIME SINCE LAST SHIFT= 760.380

*** NOTE *** CP= 3375.770 TIME= 09:56:47
 NEW SHIFT= 28.8018904.

*** NOTE *** CP= 5790.410 TIME= 10:41:45
 STURM number= 2 should be 2.

***** ITERATION 6 COMPLETE ***** CP= 5924.410 WALL= 10.7922

***** PREVIOUS CONVERGED EIGENVALUES *****
 1 21.9414388 2 24.6391077

***** CURRENT EIGENVALUE CALCULATIONS *****

MODE	CURRENT VALUE	PREVIOUS VALUE	CONVERGENCE RATIO
3	29.004427	29.004439	0.82917E-06
4	33.263070	33.263120	0.29781E-05
5	35.938549	35.938581	0.18058E-05
6	38.785596	38.786943	0.69489E-04
7	48.885947	48.904020	0.73950E-03
8	49.595102	49.597600	0.10073E-03
9	55.381592	55.442486	0.22003E-02
10	56.842464	58.673552	0.65464E-01
11	61.484229	62.036187	0.18035E-01
12	65.497923	67.316148	0.56291E-01

ITERATIONS SINCE LAST SHIFT= 1
 TOTAL NUMBER OF ITERATIONS= 6
 NUMBER OF MODES CONVERGED= 5
 NUMBER OF WORKING VECTORS= 12
 CURRENT SHIFT POINT= 28.802
 CP TIME FOR TRIANGULARIZATION= 2414.990
 CP TIME SINCE LAST SHIFT= 133.650

***** ITERATION 7 COMPLETE ***** CP= 6040.010 WALL= 10.8811

***** PREVIOUS CONVERGED EIGENVALUES *****

1	21.9414388	2	24.6391077	3	29.0044270
4	33.2630704	5	35.9335485		

***** CURRENT EIGENVALUE CALCULATIONS *****

MODE	CURRENT VALUE	PREVIOUS VALUE	CONVERGENCE RATIO
6	38.785545	38.785596	0.26002E-05
7	48.882135	48.885947	0.15599E-03
8	49.594762	49.595102	0.13703E-04
9	55.018086	55.381592	0.13258E-01
10	55.694732	56.842464	0.41640E-01
11	61.237526	61.484229	0.80735E-02
12	63.948998	65.497923	0.49029E-01

ITERATIONS SINCE LAST SHIFT= 2
 TOTAL NUMBER OF ITERATIONS= 7
 NUMBER OF MODES CONVERGED= 6
 NUMBER OF WORKING VECTORS= 12
 CURRENT SHIFT POINT= 28.802
 CP TIME FOR TRIANGULARIZATION= 2414.990
 CP TIME SINCE LAST SHIFT= 249.260

***** ITERATION 8 COMPLETE ***** CP= 6149.800 WALL= 10.9678

***** PREVIOUS CONVERGED EIGENVALUES *****

1	21.9414388	2	24.6391077	3	29.0044270
4	33.2630704	5	35.9335485	6	38.7855455

***** CURRENT EIGENVALUE CALCULATIONS *****

MODE	CURRENT VALUE	PREVIOUS VALUE	CONVERGENCE RATIO
7	48.881346	48.882135	0.32265E-04
8	49.594694	49.594762	0.27685E-05
9	54.271209	55.018086	0.27713E-01
10	55.535176	55.694732	0.57544E-02
11	61.093333	61.237526	0.47260E-02
12	62.838015	63.948998	0.35673E-01

ITERATIONS SINCE LAST SHIFT= 3
 TOTAL NUMBER OF ITERATIONS= 8
 NUMBER OF MODES CONVERGED= 6
 NUMBER OF WORKING VECTORS= 12
 CURRENT SHIFT POINT= 28.802
 CP TIME FOR TRIANGULARIZATION= 2414.990
 CP TIME SINCE LAST SHIFT= 359.040

***** ITERATION 9 COMPLETE ***** CP= 6259.940 WALL= 11.0547

***** PREVIOUS CONVERGED EIGENVALUES *****

1	21.9414388	2	24.6391077	3	29.0044270
4	33.2630704	5	35.9335485	6	38.7855455

***** CURRENT EIGENVALUE CALCULATIONS *****

MODE	CURRENT VALUE	PREVIOUS VALUE	CONVERGENCE RATIO
7	48.881189	48.881346	0.64246E-05
8	49.594676	49.594694	0.71542E-06

*** NOTE *** CP= 6259.950 TIME= 11:03:17
 NEW SHIFT= 50.0358483.

*** NOTE *** CP= 8649.250 TIME= 11:45:37
 STURM number= 8 should be 8.

***** ANSYS - ENGINEERING ANALYSIS SYSTEM REVISION 5.1 24 *****
38303 VERSION=HP 9000/7XX 11:45:40 APR 11, 1996 CP= 8649.560
FOR SUPPORT CALL ROBERT BAHNEY PHONE (702) 794-5337 FAX (702) 794-1844

21 PWR Tube Seismic Analysis With Backfill

***** FREQUENCIES FROM SUBSPACE ITERATION *****

MODE FREQUENCY (HERTZ)

1	21.941439
2	24.639108
3	29.004427
4	33.263070
5	35.938549
6	38.785545
7	48.881189
8	49.594676

*** PROBLEM STATISTICS
ACTUAL NO. OF ACTIVE DEGREES OF FREEDOM = 37495
R.M.S. WAVEFRONT SIZE = 902.2

*** ANSYS BINARY FILE STATISTICS
BUFFER SIZE USED= 4096
44.625 MB WRITTEN ON ELEMENT MATRIX FILE: adjust.emat
29.703 MB WRITTEN ON ELEMENT SAVED DATA FILE: adjust.esav
21.094 MB WRITTEN ON ASSEMBLED MATRIX FILE: adjust.full
2.719 MB WRITTEN ON MODAL MATRIX FILE: adjust.mode

FINISH SOLUTION PROCESSING

***** ROUTINE COMPLETED ***** CP = 8656.200

***** ANSYS SOLUTION ROUTINE *****

PERFORM AN EXPANSION PASS

NUMBER OF MODES TO EXPAND= 8
CALCULATE ELEMENT RESULTS AND NODAL DOF SOLUTION

***** ANSYS SOLVE COMMAND *****

1

***** ANSYS - ENGINEERING ANALYSIS SYSTEM REVISION 5.1 24 *****
38303 VERSION=HP 9000/7XX 11:45:54 APR 11, 1996 CP= 8656.210
FOR SUPPORT CALL ROBERT BAHNEY PHONE (702) 794-5337 FAX (702) 794-1844

21 PWR Tube Seismic Analysis With Backfill

SOLUTION OPTIONS

PROBLEM DIMENSIONALITY.3-D
DEGREES OF FREEDOM. UX UY UZ
ANALYSIS TYPEMODAL
EXTRACTION METHOD.SUBSPACE
EXPANSION PASSON
NUMBER OF MODES TO EXPAND 8
ELEMENT RESULTS CALCULATIONON

LOAD STEP CPTIONS

LOAD STEP NUMBER. 1
 PRINT OUTPUT CONTROLS NO PRINTOUT
 DATABASE OUTPUT CONTROLS
 ITEM FREQUENCY COMPONENT
 ALL ALL

*** NOTE *** CP= 8682.710 TIME= 11:46:54
 Page file used.

*** ELEMENT RESULT CALCULATION TIMES

TYPE	NUMBER	ENAME	TOTAL CP	AVE CP
2	2520	SOLID45	8.480	0.003
3	1560	SOLID45	5.400	0.003
4	600	SOLID45	2.070	0.003
5	2872	SOLID45	10.070	0.004
6	1064	SOLID45	3.580	0.003

*** NODAL LOAD CALCULATION TIMES

TYPE	NUMBER	ENAME	TOTAL CP	AVE CP
2	2520	SOLID45	0.950	0.000
3	1560	SOLID45	0.520	0.000
4	600	SOLID45	0.140	0.000
5	2872	SOLID45	1.060	0.000
6	1064	SOLID45	0.450	0.000

*** ANSYS BINARY FILE STATISTICS
 BUFFER SIZE USED= 4096
 106.109 MB WRITTEN ON RESULTS FILE: adjust.rst

FINISH SOLUTION PROCESSING

***** ROUTINE COMPLETED ***** CP = 8931.160

***** ANSYS SOLUTION ROUTINE *****

PERFORM A SPECTRUM ANALYSIS
 THIS WILL BE A NEW ANALYSIS

*** NOTE *** CP= 8931.160 TIME= 11:56:40
 Some analysis options have been reset to their defaults. Please verify
 current settings or respecify as required.

USE SINGLE POINT EXCITATION RESPONSE SPECTRUM
 USE ALL MODES FROM THE MODAL ANALYSIS
 INCLUDE STRESS RESPONSES IN THE CALCULATIONS

SEISMIC EXCITATION DIRECTION = 0.00000E+00 1.0000 0.00000E+00

SPECTRUM TYPE KEY= 2 FACTOR= 1.00000

FREQ= 0.100 100. 0.000E+00 0.000E+00 0.000E+00 0.000E+00 0.000E+00 0.000E+00 0.000E+00
 NUMBER OF FREQUENCIES IN TABLE = 2

DAMPING= 0.00000E+00	SV= 16.285	16.285	0.00000E+00
	0.00000E+00	0.00000E+00	0.00000E+00
	0.00000E+00	0.00000E+00	0.00000E+00

COMBINE MODES USING THE SRSS METHOD

WHOSE SIGNIFICANCE LEVEL EXCEEDS THE THRESHOLD OF 0.10000E-07

WRITE ALL ITEMS TO THE DATABASE WITH A FREQUENCY OF 1
FOR ALL APPLICABLE ENTITIES

ALL CURRENT ANSYS DATA WRITTEN TO FILE NAME= adjust.db
FOR POSSIBLE RESUME FROM THIS POINT

***** ANSYS SOLVE COMMAND *****
1

***** ANSYS - ENGINEERING ANALYSIS SYSTEM REVISION 5.1 24 *****
38303 VERSION=HP 9000/7XX 11:57:10 APR 11, 1996 CP= 8944.320
FOR SUPPORT CALL ROBERT BAHNEY PHONE (702) 794-5337 FAX (702) 794-1844

21 PWR Tube Seismic Analysis With Backfill

SOLUTION OPTIONS

PROBLEM DIMENSIONALITY.3-D
DEGREES OF FREEDOM. UX UY UZ
ANALYSIS TYPE.SPECTRUM
SPECTRUM TYPE.SINGLE POINT
NUMBER OF MODES TO BE USED. 8
ELEMENT RESULTS CALCULATION.ON

LOAD STEP OPTIONS

LOAD STEP NUMBER. 1
SPECTRUM LOADING TYPE.ACCELERATION
EXCITATION DIRECTION. 0.00000E+00 1.0000 0.00000E+00
MODE COMBINATION TYPE.SRSS
SIGNIFICANCE LEVEL FOR COMBINATIONS. 0.10000E-07
PRINT OUTPUT CONTROLS.NO PRINTOUT
DATABASE OUTPUT CONTROLS
ITEM FREQUENCY COMPONENT
ALL ALL

1

***** ANSYS - ENGINEERING ANALYSIS SYSTEM REVISION 5.1 24 *****
38303 VERSION=HP 9000/7XX 11:57:21 APR 11, 1996 CP= 8948.120
FOR SUPPORT CALL ROBERT BAHNEY PHONE (702) 794-5337 FAX (702) 794-1844

21 PWR Tube Seismic Analysis With Backfill

SIGNIFICANCE FACTOR FOR COMBINING MODES = 0.10000E-07

SIGNIFICANT MODE COEFFICIENTS (INCLUDING DAMPING)

MODE	FREQUENCY	DAMPING	SV	MODE COEF.
1	21.94	0.0000	16.285	0.3139E-02
2	24.64	0.0000	16.285	-0.3196E-03
3	29.00	0.0000	16.285	0.1402E-02
4	33.26	0.0000	16.285	0.1669E-01
5	35.94	0.0000	16.285	-0.1181E-03
6	38.79	0.0000	16.285	-0.3109E-03
7	48.88	0.0000	16.285	0.2147E-03
8	49.59	0.0000	16.285	0.5272E-04

MODAL COMBINATION COEFFICIENTS

MODE= 1	FREQUENCY=	21.941	COUPLING COEF.=	1.000
MODE= 2	FREQUENCY=	24.639	COUPLING COEF.=	1.000
MODE= 3	FREQUENCY=	29.004	COUPLING COEF.=	1.000
MODE= 4	FREQUENCY=	33.263	COUPLING COEF.=	1.000

MODE=	5	FREQUENCY=	35.939	COUPLING COEF.=	1.000
MODE=	6	FREQUENCY=	38.736	COUPLING COEF.=	1.000
MODE=	7	FREQUENCY=	48.831	COUPLING COEF.=	1.000
MODE=	8	FREQUENCY=	49.595	COUPLING COEF.=	1.000

SRSS COMBINATION INSTRUCTIONS WRITTEN ON FILE adjust.mcom

*** PROBLEM STATISTICS
ACTUAL NO. OF ACTIVE DEGREES OF FREEDOM = 37495
R.M.S. WAVEFRONT SIZE = 902.2

*** ANSYS BINARY FILE STATISTICS
BUFFER SIZE USED= 4096

FINISH SOLUTION PROCESSING

***** ROUTINE COMPLETED ***** CP = 8948.130

PURGE ALL SOLUTION AND POST DATA
SAVE ALL MODEL DATA

ALL CURRENT ANSYS DATA WRITTEN TO FILE NAME= adjust.db
FOR POSSIBLE RESUME FROM THIS POINT

NUMBER OF WARNING MESSAGES ENCOUNTERED= 1015
NUMBER OF ERROR MESSAGES ENCOUNTERED= 0

*** PAGE FILE USED ***
NUMBER OF R/W OPERATIONS= 788
MAXIMUM RECORD NUMBER = 599
RECORD SIZE (1*4 WORDS) = 16384
PAGE FILE SIZE (MB) = 37.438

```
*-----*
|                                     |
|               ANSYS RUN COMPLETED               |
|-----|
|               REV. 5.1  24               HP 9000/7XX               |
|               CP TIME    (sec) =    8957.240    TIME = 11:57:38    |
|               ELAPSED TIME (sec) =   11768.000    DATE  = 04/11/96    |
|               |                                     |
|-----|
*-----*
```

Outer Barrier Linearized Stresses at Location of Peak Stress

PRINT LINEARIZED STRESS THROUGH A SECTION DEFINED BY LPATH COMMAND. DSYS= 0

***** ANSYS - ENGINEERING ANALYSIS SYSTEM REVISION 5.1 24 *****
 38303 VERSION=HP 9000/7XX 16:51:58 APR 20, 1996 CP= 169.660
 FOR SUPPORT CALL ROBERT BAHNEY PHONE (702) 794-5337 FAX (702) 794-1844

21 PWR Tube Static Analysis With Backfill

***** POST1 LINEARIZED STRESS LISTING *****
 INSIDE NODE = 13477 OUTSIDE NODE = 8071

CALCULATED LOAD CASE= 0

THE FOLLOWING X,Y,Z STRESSES ARE IN GLOBAL COORDINATES.

** MEMBRANE **

	SX	SY	SZ	SXY	SYZ	SXZ
I	0.5968E+06	0.1869E+07	0.8402E+06	0.1331E+07	0.4398E+06	0.2262E+06
C	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
O	-0.5442E+06	-0.4520E+06	-0.7610E+06	-0.1121E+07	0.1812E+06	0.5468E+05
	S1	S2	S3	SINT	SEQV	
I	0.2830E+07	0.7200E+06	-0.2441E+06	0.3074E+07	0.2724E+07	

** BENDING ** I=INSIDE C=CENTER O=OUTSIDE

	SX	SY	SZ	SXY	SYZ	SXZ
I	0.5442E+06	0.4520E+06	0.7610E+06	0.1121E+07	-0.1812E+06	-0.5468E+05
C	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
O	-0.5442E+06	-0.4520E+06	-0.7610E+06	-0.1121E+07	0.1812E+06	0.5468E+05
	S1	S2	S3	SINT	SEQV	
I	0.1651E+07	0.7366E+06	-0.6306E+06	0.2282E+07	0.1989E+07	
C	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	
O	0.6306E+06	-0.7366E+06	-0.1651E+07	0.2282E+07	0.1989E+07	

** MEMBRANE PLUS BENDING ** I=INSIDE C=CENTER O=OUTSIDE

	SX	SY	SZ	SXY	SYZ	SXZ
I	0.1141E+07	0.2321E+07	0.1601E+07	0.2452E+07	0.2586E+06	0.1715E+06
C	0.5968E+06	0.1869E+07	0.8402E+06	0.1331E+07	0.4398E+06	0.2262E+06
O	0.5266E+05	0.1417E+07	0.7916E+05	0.2096E+06	0.6210E+06	0.2809E+06
	S1	S2	S3	SINT	SEQV	
I	0.4289E+07	0.1566E+07	-0.7916E+06	0.5081E+07	0.4404E+07	
C	0.2830E+07	0.7200E+06	-0.2441E+06	0.3074E+07	0.2724E+07	
O	0.1715E+07	0.1168E+06	-0.2826E+06	0.1998E+07	0.1831E+07	

** PEAK ** I=INSIDE C=CENTER O=OUTSIDE

	SX	SY	SZ	SXY	SYZ	SXZ
I	0.6206E+06	0.2732E+05	0.2812E+06	0.1197E+06	-0.4223E+05	0.3413E+05
C	-0.2805E+06	0.1084E+06	-0.1382E+06	-0.5876E+05	0.1845E+05	-0.2783E+05
O	0.4895E+06	-0.3333E+06	0.4112E+06	0.1031E+06	-0.3665E+05	0.7536E+05
	S1	S2	S3	SINT	SEQV	
I	0.6456E+06	0.2875E+06	-4026.	0.6496E+06	0.5636E+06	
C	0.1190E+06	-0.1362E+06	-0.2932E+06	0.4122E+06	0.3603E+06	
O	0.5410E+06	0.3752E+06	-0.3488E+06	0.8898E+06	0.8196E+06	

** TOTAL ** I=INSIDE C=CENTER O=OUTSIDE

	SX	SY	SZ	SXY	SYZ	SXZ
I	0.1762E+07	0.2349E+07	0.1882E+07	0.2572E+07	0.2164E+06	0.2056E+06
C	0.3163E+06	0.1978E+07	0.7019E+06	0.1272E+07	0.4582E+06	0.1984E+06
O	0.5421E+06	0.1084E+07	0.4904E+06	0.3127E+06	0.5843E+06	0.3562E+06
	S1	S2	S3	SINT	SEQV	TEMP
I	0.4676E+07	0.1851E+07	-0.5338E+06	0.5210E+07	0.4517E+07	0.0000E+00
C	0.2785E+07	0.5850E+06	-0.3743E+06	0.3160E+07	0.2806E+07	
O	0.1633E+07	0.4129E+06	0.7084E+05	0.1562E+07	0.1422E+07	0.0000E+00

Inner Barrier Linearized Stresses at Location of Peak Stress

PRINT LINEARIZED STRESS THROUGH A SECTION DEFINED BY LPATH COMMAND. DSYS= 0

1

***** ANSYS - ENGINEERING ANALYSIS SYSTEM REVISION 5.1 24 *****
 38303 VERSION=HP 9000/7XX 16:52:00 APR 20, 1996 CP= 171.370
 FOR SUPPORT CALL ROBERT BAHNEY PHONE (702) 794-5337 FAX (702) 794-1844

21 PWR Tube Static Analysis With Backfill

***** POST1 LINEARIZED STRESS LISTING *****
 INSIDE NODE = 7253 OUTSIDE NODE = 8005

CALCULATED LOAD CASE= 0

THE FOLLOWING X,Y,Z STRESSES ARE IN GLOBAL COORDINATES.

```

** MEMBRANE **
      SX      SY      SZ      SXY      SYZ      SXZ
I 0.5517E+06 0.1645E+07 0.5653E+06 0.1162E+07 0.5252E+06 0.1553E+06
C 0.0000E+00 0.0000E+00 0.0000E+00 0.0000E+00 0.0000E+00 0.0000E+00
O -0.4007E+06 -0.1386E+07 -0.3151E+06 -0.1612E+06 -0.6341E+05 -0.4518E+05
      S1      S2      S3      SINT      SEQV
I 0.2524E+07 0.4564E+06 -0.2188E+06 0.2743E+07 0.2476E+07

** BENDING ** I=INSIDE C=CENTER O=OUTSIDE
      SX      SY      SZ      SXY      SYZ      SXZ
I 0.4007E+06 0.1386E+07 0.3151E+06 0.1612E+06 0.6341E+05 0.4518E+05
C 0.0000E+00 0.0000E+00 0.0000E+00 0.0000E+00 0.0000E+00 0.0000E+00
O -0.4007E+06 -0.1386E+07 -0.3151E+06 -0.1612E+06 -0.6341E+05 -0.4518E+05
      S1      S2      S3      SINT      SEQV
I 0.1417E+07 0.3901E+06 0.2956E+06 0.1121E+07 0.1077E+07
C 0.0000E+00 0.0000E+00 0.0000E+00 0.0000E+00 0.0000E+00
O -0.2956E+06 -0.3901E+06 -0.1417E+07 0.1121E+07 0.1077E+07

** MEMBRANE PLUS BENDING ** I=INSIDE C=CENTER O=OUTSIDE
      SX      SY      SZ      SXY      SYZ      SXZ
I 0.9524E+06 0.3032E+07 0.8804E+06 0.1323E+07 0.5886E+06 0.2004E+06
C 0.5517E+06 0.1645E+07 0.5653E+06 0.1162E+07 0.5252E+06 0.1553E+06
O 0.1510E+06 0.2586E+06 0.2501E+06 0.1000E+07 0.4618E+06 0.1101E+06
      S1      S2      S3      SINT      SEQV
I 0.3805E+07 0.7627E+06 0.2970E+06 0.3508E+07 0.3300E+07
C 0.2524E+07 0.4564E+06 -0.2188E+06 0.2743E+07 0.2476E+07
O 0.1362E+07 0.1500E+06 -0.8525E+06 0.2215E+07 0.1921E+07

** PEAK ** I=INSIDE C=CENTER O=OUTSIDE
      SX      SY      SZ      SXY      SYZ      SXZ
I 0.6228E+05 0.4738E+06 0.1016E+06 -0.4964E+05 0.6014E+05 0.2317E+05
C -0.6211E+05 -0.4732E+06 -0.1014E+06 0.4971E+05 -0.6011E+05 -0.2315E+05
O 0.6194E+05 0.4726E+06 0.1013E+06 -0.4978E+05 0.6008E+05 0.2313E+05
      S1      S2      S3      SINT      SEQV
I 0.4882E+06 0.1098E+06 0.3974E+05 0.4484E+06 0.4178E+06
C -0.3956E+05 -0.1096E+06 -0.4876E+06 0.4480E+06 0.4174E+06
O 0.4870E+06 0.1095E+06 0.3938E+05 0.4476E+06 0.4170E+06

** TOTAL ** I=INSIDE C=CENTER O=OUTSIDE
      SX      SY      SZ      SXY      SYZ      SXZ
I 0.1015E+07 0.3505E+07 0.9819E+06 0.1273E+07 0.6487E+06 0.2236E+06
C 0.4896E+06 0.1172E+07 0.4638E+06 0.1211E+07 0.4651E+06 0.1321E+06
O 0.2129E+06 0.7312E+06 0.3515E+06 0.9507E+06 0.5218E+06 0.1332E+06
      S1      S2      S3      SINT      SEQV      TEMP
I 0.4187E+07 0.8412E+06 0.4736E+06 0.3714E+07 0.3544E+07 0.0000E+00
C 0.2206E+07 0.3828E+06 -0.4640E+06 0.2670E+07 0.2364E+07
O 0.1650E+07 0.2149E+06 -0.5690E+06 0.2219E+07 0.1949E+07 0.0000E+00
  
```


Basket Tubes and Guides Linearized Stresses at Location of Peak Stress

PRINT LINEARIZED STRESS THROUGH A SECTION DEFINED BY LPATH COMMAND. DSYS= 0

1

***** ANSYS - ENGINEERING ANALYSIS SYSTEM REVISION 5.1 24 *****
 38303 VERSION=HP 9000/7XX 16:52:02 APR 20, 1996 CP= 172.930
 FOR SUPPORT CALL ROBERT BAHNEY PHONE (702) 794-5337 FAX (702) 794-1844

21 PWR Tube Static Analysis With Backfill

***** POST1 LINEARIZED STRESS LISTING *****
 INSIDE NODE = 7289 OUTSIDE NODE = 2457

CALCULATED LOAD CASE= 0

THE FOLLOWING X,Y,Z STRESSES ARE IN GLOBAL COORDINATES.

** MEMBRANE **

SX	SY	SZ	SXY	SYZ	SXZ
0.5482E+06	0.5450E+07	0.6798E+06	0.2638E+06	0.1106E+07	0.1927E+06
S1	S2	S3	SINT	SEQV	
0.5711E+07	0.6229E+06	0.3439E+06	0.5367E+07	0.5233E+07	

** BENDING ** I=INSIDE C=CENTER O=OUTSIDE

SX	SY	SZ	SXY	SYZ	SXZ
I -0.1500E+06	0.6222E+06	0.1855E+06	-0.9108E+05	-0.1959E+05	-9968.
C 0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
O 0.1500E+06	-0.6222E+06	-0.1855E+06	0.9108E+05	0.1959E+05	9968.
S1	S2	S3	SINT	SEQV	
I 0.6335E+06	0.1852E+06	-0.1610E+06	0.7946E+06	0.6900E+06	
C 0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	
O 0.1610E+06	-0.1852E+06	-0.6335E+06	0.7946E+06	0.6900E+06	

** MEMBRANE PLUS BENDING ** I=INSIDE C=CENTER O=OUTSIDE

SX	SY	SZ	SXY	SYZ	SXZ
I 0.3982E+06	0.6072E+07	0.8653E+06	0.1728E+06	0.1086E+07	0.1828E+06
C 0.5482E+06	0.5450E+07	0.6798E+06	0.2638E+06	0.1106E+07	0.1927E+06
O 0.6982E+06	0.4828E+07	0.4943E+06	0.3549E+06	0.1125E+07	0.2027E+06
S1	S2	S3	SINT	SEQV	
I 0.6297E+07	0.7133E+06	0.3256E+06	0.5971E+07	0.5787E+07	
C 0.5711E+07	0.6229E+06	0.3439E+06	0.5367E+07	0.5233E+07	
O 0.5137E+07	0.6902E+06	0.1927E+06	0.4944E+07	0.4715E+07	

** PEAK ** I=INSIDE C=CENTER O=OUTSIDE

SX	SY	SZ	SXY	SYZ	SXZ
I -65.13	270.2	80.55	-39.55	-8.507	-4.328
C -0.3492E-09	0.7451E-08	0.1863E-08	-0.7567E-09	-0.2328E-09	-0.1455E-09
O 65.13	-270.2	-80.55	39.55	8.507	4.328
S1	S2	S3	SINT	SEQV	
I 275.1	80.41	-69.92	345.0	299.6	
C 0.7532E-08	0.1866E-08	-0.4342E-09	0.7966E-08	0.7101E-08	
O 69.92	-80.41	-275.1	345.0	299.6	

** TOTAL ** I=INSIDE C=CENTER O=OUTSIDE

SX	SY	SZ	SXY	SYZ	SXZ
I 0.3981E+06	0.6072E+07	0.8654E+06	0.1727E+06	0.1086E+07	0.1828E+06
C 0.5482E+06	0.5450E+07	0.6798E+06	0.2638E+06	0.1106E+07	0.1927E+06
O 0.6982E+06	0.4827E+07	0.4943E+06	0.3550E+06	0.1125E+07	0.2027E+06
S1	S2	S3	SINT	SEQV	TEMP
I 0.6297E+07	0.7134E+06	0.3256E+06	0.5971E+07	0.5787E+07	0.0000E+00
C 0.5711E+07	0.6229E+06	0.3439E+06	0.5367E+07	0.5233E+07	
O 0.5137E+07	0.6902E+06	0.1927E+06	0.4944E+07	0.4715E+07	0.0000E+00

Criticality Control Plates Linearized Stresses at Location of Peak Stress

PRINT LINEARIZED STRESS THROUGH A SECTION DEFINED BY LPATH COMMAND. DSYS= 0

***** ANSYS - ENGINEERING ANALYSIS SYSTEM REVISION 5.1 24 *****
 38303 VERSION=HP 9000/7XX 16:52:04 APR 20, 1996 CP= 174.520
 FOR SUPPORT CALL ROBERT BAHNEY PHONE (702) 794-5337 FAX (702) 794-1844

21 PWR Tube Static Analysis With Backfill

***** POST1 LINEARIZED STRESS LISTING *****
 INSIDE NODE = 2969 OUTSIDE NODE = 5093

CALCULATED LOAD CASE= 0

THE FOLLOWING X,Y,Z STRESSES ARE IN GLOBAL COORDINATES.

```

** MEMBRANE **
      SX      SY      SZ      SXY      SYZ      SXZ
0.1225E+06 0.2873E+07 0.4467E+06 0.5487E+05 0.5565E+06 0.4530E+05
      S1      S2      S3      SINT      SEQV
0.2996E+07 0.3302E+06 0.1161E+06 0.2880E+07 0.2779E+07

** BENDING ** I=INSIDE C=CENTER O=OUTSIDE
      SX      SY      SZ      SXY      SYZ      SXZ
I -0.1110E+05 1534. 3691. -4560. 3166. 9595.
C 0.0000E+00 0.0000E+00 0.0000E+00 0.0000E+00 0.0000E+00 0.0000E+00
O 0.1110E+05 -1534. -3691. 4560. -3166. -9595.
      S1      S2      S3      SINT      SEQV
I 8410. 4185. -0.1847E+05 0.2688E+05 0.2504E+05
C 0.0000E+00 0.0000E+00 0.0000E+00 0.0000E+00 0.0000E+00
O 0.1847E+05 -4185. -8410. 0.2688E+05 0.2504E+05

** MEMBRANE PLUS BENDING ** I=INSIDE C=CENTER O=OUTSIDE
      SX      SY      SZ      SXY      SYZ      SXZ
I 0.1114E+06 0.2875E+07 0.4504E+06 0.4831E+05 0.5597E+06 0.5489E+05
C 0.1225E+06 0.2873E+07 0.4467E+06 0.5487E+05 0.5565E+06 0.4530E+05
O 0.1336E+06 0.2872E+07 0.4430E+06 0.6143E+05 0.5533E+06 0.3570E+05
      S1      S2      S3      SINT      SEQV
I 0.2999E+07 0.3357E+06 0.1019E+06 0.2897E+07 0.2788E+07
C 0.2996E+07 0.3302E+06 0.1161E+06 0.2880E+07 0.2779E+07
O 0.2993E+07 0.3254E+06 0.1295E+06 0.2864E+07 0.2771E+07

** PEAK ** I=INSIDE C=CENTER O=OUTSIDE
      SX      SY      SZ      SXY      SYZ      SXZ
I -4.822 0.6662 1.603 -2.848 1.375 4.166
C -0.2328E-09 -0.1397E-08 -0.5821E-10 -0.1673E-09 0.2328E-09 -0.4366E-10
O 4.822 -0.6662 -1.603 2.848 -1.375 -4.166
      S1      S2      S3      SINT      SEQV
I 3.652 1.817 -8.022 11.67 10.87
C 0.4036E-11 -0.2353E-09 -0.1457E-08 0.1461E-08 0.1357E-08
O 8.022 -1.817 -3.652 11.67 10.87

** TOTAL ** I=INSIDE C=CENTER O=OUTSIDE
      SX      SY      SZ      SXY      SYZ      SXZ
I 0.1114E+06 0.2875E+07 0.4504E+06 0.4830E+05 0.5597E+06 0.5490E+05
C 0.1225E+06 0.2873E+07 0.4467E+06 0.5487E+05 0.5565E+06 0.4530E+05
O 0.1336E+06 0.2872E+07 0.4430E+06 0.6143E+05 0.5533E+06 0.3570E+05
      S1      S2      S3      SINT      SEQV      TEMP
I 0.2999E+07 0.3357E+06 0.1019E+06 0.2897E+07 0.2788E+07 0.0000E+00
C 0.2996E+07 0.3302E+06 0.1161E+06 0.2880E+07 0.2779E+07
O 0.2993E+07 0.3254E+06 0.1295E+06 0.2864E+07 0.2771E+07 0.0000E+00
  
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WELCOME TO THE ANSYS PROGRAM

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PRESS <CR> OR <ENTER> TO CONTINUE

***** ANSYS COMMAND LINE ARGUMENTS *****

INITIAL JOBNAME = seism5
MEMORY REQUESTED (MB) = 72.0
BATCH MODE REQUESTED = LIST
START-UP FILE MODE = READ

*** NOTE *** CP= 0.180 TIME= 17:49:55
There are no parameters and no abbreviations defined.

38303 VERSION=HP 9000/7XX REVISION= 5.1 24
FOR SUPPORT CALL ROBERT BAHNEY PHONE (702) 794-5337 FAX (702) 794-1844
CURRENT JOBNAME=seism5 17:49:55 APR 19, 1996 CP= 0.180

```

1 /com,*****
2 /com,*****
3 /com,***** Seismic Analysis of 21 PWR Waste Package Under Degradation *****
4 /com,***** Degree of Degradation in Outer Barrier: 0% *****
5 /com,***** Degree of Degradation in Inner Barrier: 0% *****
6 /com,***** Degree of Degradation in Basket Assembly: 0% *****
7 /com,***** Backfill Present, Backfill Porosity: 25%, Rock Porosity: 10% *****
8 /com,*****
9 /com,*****
10 /config,nvpag,512
11 /units,si
12 /prep7
13 /title, 21 PWR Tube Static Analysis With Backfill
14 /vcon,,0
15 /com, Define Parameters
16 ibir=0.71095 ! Inner Barrier Inner Radius (DIA = 1.4219 m)
17 obir=0.73095 ! Outer Barrier Inner Radius (DIA = 1.4619 m)
18 obsr=0.77095 ! Outer Barrier Skirt Radius (DIA = 1.5419 m)
19 obor=0.83095 ! Outer Barrier Outer Radius (DIA = 1.6619 m)
20 ts1=.007 ! SS-B Plate Thickness
21 ts2=.005 ! CS Tube Thickness
22 ts3=.010 ! Corner Guide Thickness
23 ts4=.010 ! End Guide Thickness
24 egih=0.0809 ! End Guide Fin Inner Height
25 pie=3.1415926 ! Pi
26 ang1=30*pie/180 ! Angle on end of end guide
27 ang2=80*pie/180 ! Angle on end of end guide fin
28 ang3=58*pie/180 ! Angle on end of corner guide
29 tw=0.2285 ! Tube Inner Side Width
30 pos1=tw/2 ! Dimension to Keypoint Position 1
31 pos2=pos1+ts2 ! Dimension to Keypoint Position 2
32 pos3=pos2+ts1 ! Dimension to Keypoint Position 3
33 pos4=pos3+ts2 ! Dimension to Keypoint Position 4
34 pos5=pos4+tw ! Dimension to Keypoint Position 5
35 pos6=pos5+ts2 ! Dimension to Keypoint Position 6
36 pos7=pos6+ts1 ! Dimension to Keypoint Position 7
37 pos8=pos7+ts2 ! Dimension to Keypoint Position 8
38 pos9=pos8+tw ! Dimension to Keypoint Position 9
39 pos10=pos9+ts2 ! Dimension to Keypoint Position 10
40 pos11=pos10+ts4 ! Dimension to Keypoint Position 11
41 posg=pos6+ts3 ! Dimension to Keypoint on Corner Guide
42 posei=pos11+egih ! Dimension to Keypoint on End Guide Fin Inner
43 poseo=posei-(ts4/tan(ang2)) ! Dimension to Keypoint on End Guide Fin Outer
44 posen=pos2+ts1/2-ts4/2 ! Dimension to Keypoint on End Guide Near Side
45 posef=pos2+ts1/2+ts4/2 ! Dimension to Keypoint on End Guide Far Side
46 poseg=pos6-(ts4/tan(ang1)) ! Dimension to Keypoint on End Guide Side
47 poscg=pos10-(ts3/tan(ang3)) ! Dimension to Keypoint on Corner Guide Side
48 bkht=4.575 ! Basket Height
49 ibht=4.585 ! inner barrier cavity height
50 bgh=ibht-bkht ! Basket Gap Height

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51 iblt=0.025          ! inner lid height
52 elev1=ibht+iblt     ! Elevation of Top of Inner Barrier
53 ltigh=0.030         ! Lid to Lid Gap Height
54 elev2=elev1+ltigh    ! Elevation of Bottom of Upper Outer Barrier Lid
55 oblt=0.11           ! outer lid height
56 elev3=elev2+oblt     ! Elevation of Top of Upper Outer Barrier Lid
57 stht=0.225          ! skirt height
58 elev4=elev3+stht     ! Elevation of Top of Waste Package
59 elev5=-(iblt+oblt)   ! Elevation of Bottom of Lower Outer Barrier Lid
60 elev6=elev5-stht     ! Elevation of Bottom of Waste Package
61 /com, Line Divisions
62 shd=1               ! Skirt Height Divisions
63 obld=1              ! Outer Barrier Lid Divisions
64 gd=1                ! Gap Divisions
65 ibld=1              ! Inner Barrier Lid Divisions
66 bd=15               ! Basket Divisions
67 htwd=4              ! Half Tube Width Divisions
68 twd=4               ! Tube Width Divisions
69 thd=4               ! Tube Height Divisions
70 egfd=4              ! End Guide Fin Divisions
71 ptd=1               ! Plate Thickness Divisions
72 ttd=1               ! Tube Thickness Divisions
73 a1d=4               ! Arc 1 Divisions
74 a2d=4               ! Arc 2 Divisions
75 a3d=4               ! Arc 3 Divisions
76 a4d=4               ! Arc 4 Divisions
77 a5d=4               ! Arc 5 Divisions
78 a6d=4               ! Arc 6 Divisions
79 a7d=4               ! Arc 7 Divisions
80 a8d=4               ! Arc 8 Divisions
81 a9d=4               ! Arc 9 Divisions
82 ibtd=2              ! Inner Barrier Thickness Divisions
83 obtd=2              ! Outer Barrier Inner Thickness Divisions
84 std=2               ! Skirt Thickness Divisions
85 /com, Define Element Properties
86 et,1,solid45         ! Carbon Steel Tube
87 et,2,solid45         ! Stainless Steel - Boron Plate
88 et,3,solid45         ! Carbon Steel End Guide
89 et,4,solid45         ! Carbon Steel Corner Guide
90 et,5,solid45         ! Alloy 625 Inner Barrier
91 et,6,solid45         ! A 516 Carbon Steel Outer Barrier
92 et,7,solid45         ! A 516 Carbon Steel Outer Barrier w/Backfill Weight
93 let,7,contact49      ! Contact Between Basket and Inner Barrier
94 r,7,1.5e8,,,1.298,15 ! Real Constant Set for Contact, kn=1.5E8,
95 /com, ratio of static to dynamic coeff. of friction fact=1.298, Area Tol.=15%
96 /com, Room Temperature Properties of Materials
97 mp,ex,1,206e9        ! A516 Carbon Steel Tube
98 mp,ex,2,195e9        ! 316B6A Stainless Steel - Boron Plate (316L Properties)
99 mp,ex,3,206e9        ! A516 Carbon Steel End Guide
100 mp,ex,4,206e9       ! A516 Carbon Steel Corner Guide
101 mp,ex,5,208e9       ! Alloy 625 Inner Barrier
102 mp,ex,6,206e9       ! A516 Carbon Steel Outer Barrier
103 mp,ex,7,206e9       ! A516 Carbon Steel Outer Barrier w/Backfill Weight
104 mp,nuxy,1,0.3       ! A516 Carbon Steel Tube
105 mp,nuxy,2,0.298     ! 316B6A Stainless Steel - Boron Plate (316 Properties)
106 mp,nuxy,3,0.3       ! A516 Carbon Steel End Guide
107 mp,nuxy,4,0.3       ! A516 Carbon Steel Corner Guide
108 mp,nuxy,5,0.278     ! Alloy 625 Inner Barrier
109 mp,nuxy,6,0.3       ! A516 Carbon Steel Outer Barrier
110 mp,nuxy,7,0.3       ! A516 Carbon Steel Outer Barrier w/Backfill Weight
111 mp,dens,1,44646.96   ! A516 Carbon Steel Tube (Adjusted density)
112 mp,dens,2,7953      ! 316B6A Stainless Steel - Boron Plate
113 mp,dens,3,8131      ! A516 Carbon Steel End Guide
114 mp,dens,4,8131      ! A516 Carbon Steel Corner Guide
115 mp,dens,5,8442      ! Alloy 625 Inner Barrier
116 mp,dens,6,8131      ! A516 Carbon Steel Outer Barrier
117 mp,dens,7,20670     ! A 516 Carbon Steel Outer Barrier w/Backfill Weight
118 !mp,mu,7,0.57        ! Coefficient of Friction (Steel on Steel Assumed)
119 !tb,biso,1
120 !tbdata,,260e6,1.078e9 ! A 516 Carbon Steel Tubes

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121 !tb,biso,2
122 !tbdata,,172e6,0.7767e9 ! 316L Stainless Steel
123 !tb,biso,3
124 !tbdata,,260e6,1.078e9 ! A 516 Carbon Steel End Guide
125 !tb,biso,4
126 !tbdata,,260e6,1.078e9 ! A 516 Carbon Steel Corner Guide
127 !tb,biso,5
128 !tbdata,,379e6,1.271e9 ! Alloy 625
129 !tb,biso,6
130 !tbdata,,260e6,1.078e9 ! A 516 Carbon Steel Outer Barrier
131 !tb,biso,7
132 !tbdata,,260e6,1.078e9 ! A 516 Carbon Steel Outer Barrier w/Backfill Weight
133 /com
134 /com, Define keypoints in the basket assembly
135 csys,0
136 k,1,0,0
137 k,2,pos1,0
138 k,3,pos2,0
139 k,4,pos3,0
140 k,5,pos4,0
141 k,6,pos5,0
142 k,7,pos6,0
143 k,8,pos7,0
144 k,9,pos8,0
145 k,10,pos9,0
146 k,11,pos10,0
147 k,12,pos11,0
148 k,13,pos1,pos1
149 k,14,pos4,pos1
150 k,15,pos5,pos1
151 k,16,pos8,pos1
152 k,17,pos9,pos1
153 k,18,pos2,pos2
154 k,19,pos3,pos2
155 k,20,pos6,pos2
156 k,21,pos7,pos2
157 k,22,pos10,pos2
158 k,23,pos11,posei
159 !k,24,posei,posei
160 csys,1
161 k,24,ibir,(180/pie)*atan(posei/posei)
162 csys,0
163 k,25,pos3,pos3
164 k,26,pos6,pos3
165 k,27,pos7,pos3
166 k,28,pos10,pos3
167 k,29,pos11,posef
168 !k,30,poseo,posef
169 csys,1
170 k,30,ibir,(180/pie)*atan(posef/poseo)
171 csys,0
172 k,31,pos4,pos4
173 k,32,pos5,pos4
174 k,33,pos8,pos4
175 k,34,pos9,pos4
176 k,35,pos5,pos5
177 k,36,pos8,pos5
178 k,37,pos9,pos5
179 !k,38,pos11,poseg
180 csys,1
181 k,38,ibir,(180/pie)*atan(poseg/pos11)
182 csys,0
183 k,39,pos6,pos6
184 k,40,pos7,pos6
185 !k,41,pos10,pos6
186 csys,1
187 k,41,ibir,(180/pie)*atan(pos6/pos10)
188 csys,0
189 k,42,posg,posg
190 !k,43,poscg,posg

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```

191 csys,1
192 k,43,ibir,(180/pie)*atan(posg/poscg)
193 k,44,ibir,0
194 k,45,ibir,45
195 k,46,obir,0
196 k,47,obir,(180/pie)*atan(posed/posei)
197 k,48,obir,(180/pie)*atan(posed/poseo)
198 k,49,obir,(180/pie)*atan(posed/pose11)
199 k,50,obir,(180/pie)*atan(pos6/pos10)
200 k,51,obir,(180/pie)*atan(posg/poscg)
201 k,52,obir,45
202 k,53,obir,0
203 k,54,obir,(180/pie)*atan(posed/posei)
204 k,55,obir,(180/pie)*atan(posed/poseo)
205 k,56,obir,(180/pie)*atan(posed/pose11)
206 k,57,obir,(180/pie)*atan(pos6/pos10)
207 k,58,obir,(180/pie)*atan(posg/poscg)
208 k,59,obir,45
209 k,60,obir,0
210 k,61,obir,(180/pie)*atan(posed/posei)
211 k,62,obir,(180/pie)*atan(posed/poseo)
212 k,63,obir,(180/pie)*atan(posed/pose11)
213 k,64,obir,(180/pie)*atan(pos6/pos10)
214 k,65,obir,(180/pie)*atan(posg/poscg)
215 k,66,obir,45
216 local,11,0,0,0,0,45,0,0,
217 ksymm,y,all,,,0,0,0
218 nummrg,kp
219 csys,0
220 ksymm,y,all,,,0,0,0
221 nummrg,kp
222 kdel,2,12,1
223 k,1001,0,0,bkht
224 l,1,1001 ! Line 1 for VDRAG of Basket
225 lesize,all,,,bd,1,0
226 k,2001,0,0,ibht
227 l,1001,2001 ! Line 2 for VDRAG of Basket to Inner Barrier Lid Gap
228 lesize,all,,,gd,1,0
229 k,3001,0,0,elev1
230 l,2001,3001 ! Line 3 for VDRAG of Inner Barrier Upper Lid
231 lesize,all,,,ibld,1,0
232 k,4001,0,0,elev2
233 l,3001,4001 ! Line 4 for VDRAG of Lid to Lid Gap
234 lesize,all,,,gd,1,0
235 k,5001,0,0,elev3
236 l,4001,5001 ! Line 5 for VDRAG of Outer Barrier Upper Lid
237 lesize,all,,,obld,1,0
238 k,6001,0,0,elev4
239 l,5001,6001 ! Line 6 for VDRAG of Upper Skirt
240 lesize,all,,,shd,1,0
241 k,7001,0,0,-iblt
242 l,1,7001 ! Line 7 for VDRAG of IB Lower Lid
243 lesize,all,,,ibld,1,0
244 k,8001,0,0,elev5
245 l,7001,8001 ! Line 8 for VDRAG of OB Lower Lid
246 lesize,all,,,obld,1,0
247 k,9001,0,0,elev6
248 l,8001,9001 ! Line 9 for VDRAG of Lower Skirt
249 lesize,all,,,shd,1,0
250 /com, line set 1 Tube Width for Half Tubes on Symmetry Plane
251 L, 197, 206
252 L, 196, 205
253 L, 195, 201
254 L, 194, 200
255 L, 193, 204
256 L, 192, 203
257 L, 191, 199
258 L, 190, 198
259 L, 189, 202
260 L, 188, 138

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261	L,	187,	133
262	L,	68,	13
263	L,	69,	18
264	L,	70,	85
265	L,	71,	80
266	L,	72,	81
267	L,	73,	86
268	L,	74,	87
269	L,	75,	82
270	L,	76,	83
271	L,	77,	88
272	L,	78,	89
273	lesize,all,,,htwd,1,0		
274	/com, line set 2 Tube Widths		
275	L,	211,	218
276	L,	210,	220
277	L,	215,	217
278	L,	214,	216
279	L,	209,	219
280	L,	208,	159
281	L,	213,	155
282	L,	151,	152
283	L,	145,	146
284	L,	139,	140
285	L,	134,	135
286	L,	14,	15
287	L,	19,	20
288	L,	25,	26
289	L,	31,	32
290	L,	98,	35
291	L,	92,	39
292	L,	93,	106
293	L,	99,	102
294	L,	100,	103
295	L,	94,	107
296	L,	95,	104
297	lesize,all,,,twd,1,0		
298	/com, line set 3 Tube Widths on End Column		
299	L,	162,	163
300	L,	160,	161
301	L,	156,	157
302	L,	153,	154
303	L,	147,	148
304	L,	141,	142
305	L,	136,	137
306	L,	16,	17
307	L,	21,	22
308	L,	27,	28
309	L,	33,	34
310	L,	36,	37
311	L,	40,	41
312	L,	42,	43
313	lesize,all,,,twd,1,0		
314	/com, line set 4 Tube Heights		
315	L,	201,	200
316	L,	205,	204
317	L,	210,	209
318	L,	215,	214
319	L,	217,	216
320	L,	220,	219
321	L,	221,	162
322	L,	199,	198
323	L,	203,	202
324	L,	208,	145
325	L,	213,	151
326	L,	155,	152
327	L,	159,	146
328	L,	160,	147
329	L,	156,	153
330	L,	157,	154

331	L,	161,	148
332	L,	133,	13
333	L,	138,	18
334	L,	139,	19
335	L,	134,	14
336	L,	135,	15
337	L,	140,	20
338	L,	141,	21
339	L,	136,	16
340	L,	137,	17
341	L,	142,	22
342	L,	143,	23
343	L,	80,	81
344	L,	85,	86
345	L,	25,	92
346	L,	31,	98
347	L,	32,	35
348	L,	26,	39
349	L,	27,	40
350	L,	33,	36
351	L,	34,	37
352	L,	28,	41
353	L,	29,	38
354	L,	82,	83
355	L,	87,	88
356	L,	93,	94
357	L,	99,	100
358	L,	102,	103
359	L,	106,	107
360	L,	42,	109
361	L,	158,	149
362	lesize,all,,,thd,1,0		
363	/com, line set 5 End Guide Fins		
364	L,	207,	206
365	L,	212,	211
366	L,	150,	149
367	L,	144,	143
368	L,	24,	23
369	L,	30,	29
370	L,	96,	95
371	L,	90,	89
372	lesize,all,,,egfd,1,0		
373	/com, line set 6 SS-B Plate Thickness		
374	L,	197,	196
375	L,	206,	205
376	L,	211,	210
377	L,	207,	212
378	L,	206,	211
379	L,	205,	210
380	L,	218,	220
381	L,	220,	221
382	L,	193,	192
383	L,	204,	203
384	L,	209,	208
385	L,	204,	209
386	L,	203,	208
387	L,	219,	159
388	L,	162,	160
389	L,	163,	161
390	L,	161,	158
391	L,	219,	162
392	L,	159,	160
393	L,	189,	188
394	L,	202,	138
395	L,	145,	139
396	L,	202,	145
397	L,	138,	139
398	L,	146,	140
399	L,	147,	141
400	L,	146,	147

401	L,	140,	141
402	L,	148,	142
403	L,	149,	143
404	L,	148,	149
405	L,	142,	143
406	L,	150,	144
407	L,	69,	70
408	L,	18,	85
409	L,	19,	25
410	L,	18,	19
411	L,	85,	25
412	L,	20,	26
413	L,	21,	27
414	L,	20,	21
415	L,	26,	27
416	L,	22,	28
417	L,	22,	23
418	L,	28,	29
419	L,	23,	29
420	L,	24,	30
421	L,	73,	74
422	L,	86,	87
423	L,	92,	93
424	L,	86,	92
425	L,	87,	93
426	L,	39,	106
427	L,	40,	42
428	L,	39,	40
429	L,	106,	42
430	L,	38,	41
431	L,	41,	43
432	L,	77,	78
433	L,	88,	89
434	L,	94,	95
435	L,	88,	94
436	L,	89,	95
437	L,	90,	96
438	L,	109,	107
439	L,	107,	104
440	L,	224,	225
441	L,	230,	231
442	L,	236,	237
443	L,	226,	227
444	L,	227,	228
445	L,	232,	233
446	L,	233,	234
447	L,	238,	239
448	L,	239,	240
449	L,	171,	170
450	L,	170,	169
451	L,	178,	177
452	L,	177,	176
453	L,	185,	184
454	L,	184,	183
455	L,	168,	167
456	L,	175,	174
457	L,	182,	181
458	L,	47,	48
459	L,	54,	55
460	L,	61,	62
461	L,	49,	50
462	L,	50,	51
463	L,	56,	57
464	L,	57,	58
465	L,	63,	64
466	L,	64,	65
467	L,	117,	116
468	L,	116,	115
469	L,	124,	123
470	L,	123,	122

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471 L,      131,      130
472 L,      130,      129
473 L,      114,      113
474 L,      121,      120
475 L,      128,      127
476 lesize,all,,,ptd,1,0
477 /com, line set 7 tube thickness
478 L,      196,      195
479 L,      205,      201
480 L,      204,      200
481 L,      193,      194
482 L,      210,      215
483 L,      220,      217
484 L,      219,      216
485 L,      209,      214
486 L,      192,      191
487 L,      203,      199
488 L,      202,      198
489 L,      189,      190
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491 L,      159,      155
492 L,      146,      152
493 L,      145,      151
494 L,      160,      156
495 L,      161,      157
496 L,      148,      154
497 L,      147,      153
498 L,      188,      187
499 L,      138,      133
500 L,      18,       13
501 L,      69,       68
502 L,      139,      134
503 L,      140,      135
504 L,      20,       15
505 L,      19,       14
506 L,      141,      136
507 L,      142,      137
508 L,      22,       17
509 L,      21,       16
510 L,      70,       71
511 L,      85,       80
512 L,      86,       81
513 L,      73,       72
514 L,      25,       31
515 L,      26,       32
516 L,      39,       35
517 L,      92,       98
518 L,      27,       33
519 L,      28,       34
520 L,      41,       37
521 L,      40,       36
522 L,      74,       75
523 L,      87,       82
524 L,      88,       83
525 L,      77,       76
526 L,      93,       99
527 L,      106,      102
528 L,      107,      103
529 L,      94,       100
530 lesize,all,,,ttd,1,0
531 csys,1
532 /com, line set 8, arc 1 bottom
533 L,      222,      207
534 L,      223,      224
535 L,      229,      230
536 L,      235,      236
537 lesize,all,,,a1d,1,0
538 /com, line set 9, arc 2 side arcs
539 L,      212,      218
540 L,      225,      226

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541 L, 231, 232
542 L, 237, 238
543 lesize,all,,,a2d,1,0
544 /com, line set 10, arc 3 side arcs
545 L, 221, 163
546 L, 228, 171
547 L, 234, 178
548 L, 240, 185
549 lesize,all,,,a3d,1,0
550 /com, line set 11, arc 4 side arcs
551 L, 158, 150
552 L, 169, 168
553 L, 176, 175
554 L, 183, 182
555 lesize,all,,,a4d,1,0
556 /com, line set 12, arc 5 side arcs
557 L, 144, 24
558 L, 167, 47
559 L, 174, 54
560 L, 181, 61
561 lesize,all,,,a5d,1,0
562 /com, line set 13, arc 6 side arcs
563 L, 30, 38
564 L, 48, 49
565 L, 55, 56
566 L, 62, 63
567 lesize,all,,,a6d,1,0
568 /com, line set 14, arc 7 side arcs
569 L, 43, 109
570 L, 51, 117
571 L, 58, 124
572 L, 65, 131
573 lesize,all,,,a7d,1,0
574 /com, line set 15, arc 8 side arcs
575 L, 104, 96
576 L, 115, 114
577 L, 122, 121
578 L, 129, 128
579 lesize,all,,,a8d,1,0
580 /com, line set 16, arc 9 top arcs
581 L, 90, 110
582 L, 113, 112
583 L, 120, 119
584 L, 127, 126
585 lesize,all,,,a9d,1,0
586 csys,0
587 /com, line set 17 IB thickness
588 L, 222, 223
589 L, 207, 224
590 L, 212, 225
591 L, 218, 226
592 L, 220, 227
593 L, 221, 228
594 L, 163, 171
595 L, 161, 170
596 L, 158, 169
597 L, 150, 168
598 L, 144, 167
599 L, 24, 47
600 L, 30, 48
601 L, 38, 49
602 L, 41, 50
603 L, 43, 51
604 L, 109, 117
605 L, 107, 116
606 L, 104, 115
607 L, 96, 114
608 L, 90, 113
609 L, 110, 112
610 lesize,all,,,ibtd,1,0

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611 /com, line set 18 OB inner thickness
612 L, 223, 229
613 L, 224, 230
614 L, 225, 231
615 L, 226, 232
616 L, 227, 233
617 L, 228, 234
618 L, 171, 178
619 L, 170, 177
620 L, 169, 176
621 L, 168, 175
622 L, 167, 174
623 L, 47, 54
624 L, 48, 55
625 L, 49, 56
626 L, 50, 57
627 L, 51, 58
628 L, 117, 124
629 L, 116, 123
630 L, 115, 122
631 L, 114, 121
632 L, 113, 120
633 L, 112, 119
634 lesize,all,,,obitd,1,0
635 /com, line set 19 skirt thickness
636 L, 229, 235
637 L, 230, 236
638 L, 231, 237
639 L, 232, 238
640 L, 233, 239
641 L, 234, 240
642 L, 178, 185
643 L, 177, 184
644 L, 176, 183
645 L, 175, 182
646 L, 174, 181
647 L, 54, 61
648 L, 55, 62
649 L, 56, 63
650 L, 57, 64
651 L, 58, 65
652 L, 124, 131
653 L, 123, 130
654 L, 122, 129
655 L, 121, 128
656 L, 120, 127
657 L, 119, 126
658 lesize,all,,,std,1,0
659 /com, area set 1, tubes
660 a,195,196,205,201
661 a,200,201,205,204
662 a,193,194,200,204
663 a,191,192,203,199
664 a,198,199,203,202
665 a,189,190,198,202
666 a,187,188,138,133
667 a,133,138,18,13
668 a,69,68,13,18
669 a,71,70,85,80
670 a,80,85,86,81
671 a,73,72,81,86
672 a,75,74,87,82
673 a,82,87,88,83
674 a,77,76,83,88
675 a,209,210,215,214
676 a,215,210,220,217
677 a,216,217,220,219
678 a,209,214,216,219
679 a,145,208,213,151
680 a,213,208,159,155

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681 a,152,155,159,146
 682 a,145,151,152,146
 683 a,134,139,140,135
 684 a,135,140,20,15
 685 a,19,14,15,20
 686 a,19,139,134,14
 687 a,92,25,31,98
 688 a,31,25,26,32
 689 a,32,26,39,35
 690 a,92,98,35,39
 691 a,94,93,99,100
 692 a,99,93,106,102
 693 a,102,106,107,103
 694 a,94,100,103,107
 695 a,156,160,161,157
 696 a,157,161,148,154
 697 a,147,153,154,148
 698 a,147,160,156,153
 699 a,136,141,142,137
 700 a,137,142,22,17
 701 a,21,16,17,22
 702 a,21,141,136,16
 703 a,33,27,28,34
 704 a,34,28,41,37
 705 a,40,36,37,41
 706 a,40,27,33,36
 707 /com, area set 2, plates
 708 a,204,205,210,209
 709 a,192,193,204,203
 710 a,203,204,209,208
 711 a,208,209,219,159
 712 a,202,203,208,145
 713 a,146,159,160,147
 714 a,188,189,202,138
 715 a,138,202,145,139
 716 a,139,145,146,140
 717 a,140,146,147,141
 718 a,141,147,148,142
 719 a,18,138,139,19
 720 a,20,140,141,21
 721 a,70,69,18,85
 722 a,85,18,19,25
 723 a,25,19,20,26
 724 a,26,20,21,27
 725 a,27,21,22,28
 726 a,86,85,25,92
 727 a,39,26,27,40
 728 a,74,73,86,87
 729 a,87,86,92,93
 730 a,93,92,39,106
 731 a,88,87,93,94
 732 /com, area set 3, end guides
 733 a,196,197,206,205
 734 a,205,206,211,210
 735 a,206,207,212,211
 736 a,210,211,218,220
 737 a,148,161,158,149
 738 a,142,148,149,143
 739 a,143,149,150,144
 740 a,22,142,143,23
 741 a,28,22,23,29
 742 a,29,23,24,30
 743 a,41,28,29,38
 744 a,95,94,107,104
 745 a,89,88,94,95
 746 a,90,89,95,96
 747 a,78,77,88,89
 748 /com, area set 4, corner guides
 749 a,219,220,221,162
 750 a,159,219,162,160

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751 a,160,162,163,161
752 a,107,106,42,109
753 a,106,39,40,42
754 a,42,40,41,43
755 csys,1
756 /com, area set 5, inner barrier
757 a,222,223,224,207
758 a,207,224,225,212
759 a,212,225,226,218
760 a,218,226,227,220
761 a,220,227,228,221
762 a,221,228,171,163
763 a,163,171,170,161
764 a,161,170,169,158
765 a,158,169,168,150
766 a,150,168,167,144
767 a,144,167,47,24
768 a,24,47,48,30
769 a,30,48,49,38
770 a,38,49,50,41
771 a,41,50,51,43
772 a,43,51,117,109
773 a,109,117,116,107
774 a,107,116,115,104
775 a,104,115,114,96
776 a,90,96,114,113
777 a,90,113,112,110
778 /com, area set 6, outer barrier
779 a,223,229,230,224
780 a,224,230,231,225
781 a,225,231,232,226
782 a,226,232,233,227
783 a,227,233,234,228
784 a,228,234,178,171
785 a,171,178,177,170
786 a,170,177,176,169
787 a,169,176,175,168
788 a,168,175,174,167
789 a,167,174,54,47
790 a,47,54,55,48
791 a,48,55,56,49
792 a,49,56,57,50
793 a,50,57,58,51
794 a,51,58,124,117
795 a,117,124,123,116
796 a,116,123,122,115
797 a,115,122,121,114
798 a,114,121,120,113
799 a,113,120,119,112
800 a,229,235,236,230
801 a,236,237,231,230
802 a,231,237,238,232
803 a,238,239,233,232
804 a,239,240,234,233
805 a,240,185,178,234
806 a,185,184,177,178
807 a,184,183,176,177
808 a,176,183,182,175
809 a,175,182,181,174
810 a,174,181,61,54
811 a,54,61,62,55
812 a,55,62,63,56
813 a,56,63,64,57
814 a,57,64,65,58
815 a,58,65,131,124
816 a,124,131,130,123
817 a,123,130,129,122
818 a,122,129,128,121
819 a,121,128,127,120
820 a,120,127,126,119

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821 csys,0
822 vdrag,all,,,,,1      ! Drag Basket
823 asel,s,loc,z,bkht
824 csys,1
825 asel,u,loc,x,0,ibir-0.03
826 csys,0
827 vdrag,all,,,,,2      ! Drag Basket to Lid Gap
828 asel,s,loc,z,ibht+0.02
829 /com, copy areas from top of basket to bottom of lid
830 asel,s,loc,z,bkht-0.02
831 csys,1
832 asel,r,loc,x,0,ibir-0.03
833 csys,0
834 agen,2,all,,,,,bgh
835 nummrg,kp
836 /com, lines tube height
837 L,      502,      509
838 L,      510,      517
839 L,      518,      525
840 L,      526,      533
841 L,      534,      541
842 lesize,all,,,thd,1,0
843 /com, end lines
844 L,      627,      457
845 L,      414,      606
846 lesize,all,,,egfd,1,0
847 al,955,1369,1373,1396
848 al,1189,1190,1194,1374
849 al,1199,1200,1204,1377
850 al,1209,1212,1214,1378
851 al,1219,1222,1224,1384
852 al,1229,1232,1234,1391
853 al,1055,1394,1400,1404
854 al,965,1375,1376
855 al,1238,1242,1243,1246
856 al,1250,1254,1255,1258
857 al,1263,1266,1268,1271
858 al,1274,1278,1281,1282
859 al,1286,1290,1293,1294
860 al,1045,1397,1401
861 al,980,1406,1409
862 al,1299,1302,1304,1307
863 al,1311,1314,1316,1319
864 al,1323,1326,1328,1331
865 al,1030,1412,1416
866 al,995,1379,1383
867 al,1005,1385,1386,1390
868 al,1015,1392,1393
869 asel,s,loc,z,ibht+0.02
870 vdrag,all,,,,,3      ! Drag Inner Barrier Upper Lid
871 asel,s,loc,z,elev1+0.015
872 csys,1
873 asel,r,loc,x,obir,obor
874 csys,0
875 vdrag,all,,,,,4      ! Drag Lid to Lid Gap
876 asel,s,loc,z,elev1+0.015
877 asel,r,loc,z,elev1-0.015
878 csys,1
879 asel,r,loc,x,0,obir
880 csys,0
881 agen,2,all,,,,,ltlgh
882 nummrg,kp
883 asel,s,loc,z,elev2+0.015
884 vdrag,all,,,,,5      ! Drag Outer Barrier Upper Lid
885 asel,s,loc,z,elev3
886 csys,1
887 asel,r,loc,x,obsr,obor
888 csys,0
889 vdrag,all,,,,,6      ! Drag Upper Skirt
890 /com, lines tube height

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891 l,195,194
892 l,191,190
893 l,187,68
894 l,71,72
895 l,75,76
896 lesize,all,,,thd,1,0
897 /com, end lines
898 l,222,197
899 l,78,110
900 lesize,all,,,egfd,1,0
901 al,10,115,277,3119
902 al,12,13,68,3114
903 al,16,17,75,3115
904 al,20,21,85,3116
905 al,24,25,96,3117
906 al,28,29,107,3118
907 al,31,122,309,3120
908 al,32,116,281
909 al,34,35,71,72
910 al,38,39,78,79
911 al,42,43,88,89
912 al,46,47,99,100
913 al,50,51,110,111
914 al,53,121,305
915 al,54,74,285
916 al,56,57,82,83
917 al,60,61,92,93
918 al,64,65,103,104
919 al,67,113,301
920 al,114,117,289
921 al,95,118,119,293
922 al,106,120,297
923 asel,s,loc,z,0
924 vdrag,all,,,,,7      ! Drag Inner Barrier Lower Lid
925 csys,0
926 asel,s,loc,z,-iblt
927 vdrag,all,,,,,8      ! Drag Outer Barrier Lower Lid
928 asel,s,loc,z,elev5
929 csys,1
930 asel,r,loc,x,obsr,obor
931 csys,0
932 vdrag,all,,,,,9      ! Drag Lower Skirt
933 /com
934 /com, Mesh Volumes
935 /com
936 /com, Mesh the CS Tubes
937 /com
938 vsel,s,volu,,1,47
939 type,1
940 mat,1
941 vmesh,all
942 /com, Mesh SS-B Plates
943 vsel,s,volu,,48,71
944 type,2
945 mat,2
946 vmesh,all
947 /com, Mesh End Guides
948 vsel,s,volu,,72,86
949 type,3
950 mat,3
951 vmesh,all
952 /com, Mesh Corner Guides
953 vsel,s,volu,,87,92
954 type,4
955 mat,4
956 vmesh,all
957 /com, Mesh Inner Barrier
958 vsel,s,loc,z,-iblt,elev1
959 csys,1
960 vsel,r,loc,x,0,obir

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961 vset,u,volu,,1,92
962 csys,0
963 type,5
964 mat,5
965 vmesh,all
966 /com, Mesh Lower Outer Barrier and Lids
967 vset,inve
968 vset,u,volu,,1,92
969 csys,1
970 vset,u,loc,x,obir,obor
971 vset,a,loc,y,-90,5
972 vset,u,volu,,1,92
973 vset,u,type,,5
974 type,6
975 mat,6
976 vmesh,all
977 /com, mesh upper outer barrier adding backfill mass
978 vset,inve
979 vset,u,type,,1,5
980 type,7
981 mat,7
982 vmesh,all
983 /com
984 /com, Apply Symmetry Constraints
985 csys,0
986 nsel,s,loc,x,0
987 dsym,symm,x,0
988 /com, Apply Constraints at Support Locations
989 /com, Span approximately half of basket height, width = 0.305 m
990 csys,1
991 nsel,s,loc,z,(3*bkht/bd)-0.01,(4*bkht/bd)+0.01
992 nsel,a,loc,z,(11*bkht/bd)-0.01,(12*bkht/bd)+0.01
993 nsel,r,loc,x,obor-0.001,obor+0.001
994 nsel,r,loc,y,-70,-50
995 csys,0
996 d,all,uy,0
997 allsel
998 save
999 fini
1000
1001 /sol
1002 antype,modal
1003 modopt,subsp,8
1004 outres,all,1
1005 save
1006 solve
1007 fini
1008
1009 /sol
1010 expass,on
1011 mxpand,8,,,yes
1012 solve
1013 fini
1014
1015 /sol
1016 antype,spectr
1017 spopt,sprs,,on
1018 sed,,1
1019 svtyp,2
1020 freq,0.1,100
1021 sv,,16.285,16.285
1022 mcomb,srss,1e-8
1023 outres,all,1
1024 save
1025 solve
1026 fini
1027 /exit
1028 /eof

```

RUN SETUP PROCEDURE FROM FILE= /ansys51/docu/start.ans

/INPUT FILE= /ansys51/docu/start.ans LINE= 0

ABBREVIATION= REPLOT /REPLOT

PARAMETER PI = 3.141593

ANSYS STARTUP FILE start.ans

ABBREVIATION= VEC /show,,1,

ABBREVIATION= RAS /show,,0,

ABBREVIATION= INP /input,,inp,

ABBREVIATION= ESC /exit,nosav,

ABBREVIATION= K1 /pnum,kp ,1,

ABBREVIATION= K0 /pnum,kp ,0,

ABBREVIATION= L1 /pnum,line,1,

ABBREVIATION= L0 /pnum,line,0,

ABBREVIATION= A1 /pnum,area,1,

ABBREVIATION= A0 /pnum,area,0,

ABBREVIATION= V1 /pnum,volu,1,

ABBREVIATION= V0 /pnum,volu,0,

ABBREVIATION= N1 /pnum,node,1,

ABBREVIATION= N0 /pnum,node,0,

ABBREVIATION= E1 /pnum,elem,1,

ABBREVIATION= E0 /pnum,elem,0,

ABBREVIATION= M1 /pnum,mat ,1,

ABBREVIATION= M0 /pnum,mat ,0,

ABBREVIATION= R1 /pnum,real,1,

ABBREVIATION= R0 /pnum,real,0,

ABBREVIATION= T1 /pnum,type,1,

ABBREVIATION= T0 /pnum,type,0,

ABBREVIATION= C1 /number,1,

ABBREVIATION= C0 /number,0,

ABBREVIATION= PR1 /psf,pres,norm,1,

ABBREVIATION= PR0 /psf,pres,norm,0,

ABBREVIATION= U1 /pbc,u,1,

ABBREVIATION= U0 /pbc,u,0,

ABBREVIATION= X3D /show,3d,

ABBREVIATION= X11 /show,x11,

ABBREVIATION= X11C /show,x11c,

ABBREVIATION= ON /menu,on,
XYZ TRIAD DISPLAY SET TO OFF

VIEW CONE ANGLE FOR WINDOW 1 25.00

END start.ans

To start ANSYS menu:

type: x3d for console
x11 for X-term color
x11c for X-term color contour

type: on

***** Seismic Analysis of 21 PWR Waste Package Under Degradation *****

***** Degree of Degradation in Outer Barrier: 0% *****

***** Degree of Degradation in Inner Barrier: 0% *****

***** Degree of Degradation in Basket Assembly: 0% *****

***** Backfill Present, Backfill Porosity: 25%, Rock Porosity: 10% *****

NUMBER OF DATA BASE PAGES IN MEMORY (NVPAGE)= 512

SI UNITS SPECIFIED FOR INTERNAL

LENGTH (L) = METER(M)
MASS (M) = KILOGRAM(KG)
TIME (t) = SECOND(SEC)
TEMPERATURE (T) = KELVIN(K)
TOFFSET = 0.0 KELVIN
CHARGE (Q) = COULOMB
CURRENT (i) = AMPERE (COULOMBS/SEC)
FORCE (f) = NEWTON(N) (KG-M/SEC2)
PRESSURE = PASCAL (NEWTON/M**2)
ENERGY (W) = JOULE (N-M)
POWER (P) = WATT (N-M/SEC)
CAPACITANCE (C) = FARAD
INDUCTANCE (L) = HENRY
MAGNETIC FLUX = WEBER
RESISTANCE (R) = OHM
ELECTRIC POTENTIAL = VOLT

INPUT UNITS ARE ALSO SET TO SI

1

***** ANSYS - ENGINEERING ANALYSIS SYSTEM REVISION 5.1 24 *****

38303 VERSION=HP 9000/7XX 17:49:56 APR 19, 1996 CP= 0.390

FOR SUPPORT CALL ROBERT BAHNEY PHONE (702) 794-5337 FAX (702) 794-1844

***** ANSYS ANALYSIS DEFINITION (PREP7) *****

TITLE=

21 PWR Tube Static Analysis With Backfill

VIEW CONE ANGLE FOR WINDOW 1 0.00

Define Parameters

PARAMETER IBIR = 0.7109500

PARAMETER OBIR	=	0.7309500
PARAMETER OBSR	=	0.7709500
PARAMETER OBOR	=	0.8309500
PARAMETER TS1	=	0.7000000E-02
PARAMETER TS2	=	0.5000000E-02
PARAMETER TS3	=	0.1000000E-01
PARAMETER TS4	=	0.1000000E-01
PARAMETER EGIH	=	0.8090000E-01
PARAMETER PIE	=	3.141593
PARAMETER ANG1	=	0.5235988
PARAMETER ANG2	=	1.396263
PARAMETER ANG3	=	1.012291
PARAMETER TW	=	0.2285000
PARAMETER POS1	=	0.1142500
PARAMETER POS2	=	0.1192500
PARAMETER POS3	=	0.1262500
PARAMETER POS4	=	0.1312500
PARAMETER POS5	=	0.3597500
PARAMETER POS6	=	0.3647500
PARAMETER POS7	=	0.3717500
PARAMETER POS8	=	0.3767500
PARAMETER POS9	=	0.6052500
PARAMETER POS10	=	0.6102500
PARAMETER POS11	=	0.6202500
PARAMETER POSG	=	0.3747500
PARAMETER POSEI	=	0.7011500
PARAMETER POSEO	=	0.6993867
PARAMETER POSEN	=	0.1177500
PARAMETER POSEF	=	0.1277500
PARAMETER POSEG	=	0.3474295
PARAMETER POSCG	=	0.6040013
PARAMETER BKHT	=	4.575000
PARAMETER IBHT	=	4.585000
PARAMETER BGH	=	0.1000000E-01
PARAMETER IBLT	=	0.2500000E-01

PARAMETER ELEV1 = 4.610000
 PARAMETER LTLGH = 0.3000000E-01
 PARAMETER ELEV2 = 4.640000
 PARAMETER OBLT = 0.1100000
 PARAMETER ELEV3 = 4.750000
 PARAMETER SHTT = 0.2250000
 PARAMETER ELEV4 = 4.975000
 PARAMETER ELEV5 = -0.1350000
 PARAMETER ELEV6 = -0.3600000
 Line Divisions
 PARAMETER SHD = 1.000000
 PARAMETER OBLD = 1.000000
 PARAMETER GD = 1.000000
 PARAMETER IBLD = 1.000000
 PARAMETER BD = 15.00000
 PARAMETER HTWD = 4.000000
 PARAMETER TWD = 4.000000
 PARAMETER THD = 4.000000
 PARAMETER EGFD = 4.000000
 PARAMETER PTD = 1.000000
 PARAMETER TTD = 1.000000
 PARAMETER A1D = 4.000000
 PARAMETER A2D = 4.000000
 PARAMETER A3D = 4.000000
 PARAMETER A4D = 4.000000
 PARAMETER A5D = 4.000000
 PARAMETER A6D = 4.000000
 PARAMETER A7D = 4.000000
 PARAMETER A8D = 4.000000
 PARAMETER A9D = 4.000000
 PARAMETER IBTD = 2.000000
 PARAMETER OBITD = 2.000000
 PARAMETER STD = 2.000000
 Define Element Properties

ELEMENT TYPE 1 IS SOLID45 3-D STRUCTURAL SOLID
 KEYOPT(1-12)= 0 0 0 0 0 0 0 0 0 0 0 0

CURRENT NODAL DOF SET IS UX UY UZ
THREE-DIMENSIONAL MODEL

ELEMENT TYPE 2 IS SOLID45 3-D STRUCTURAL SOLID
KEYOPT(1-12)= 0 0 0 0 0 0 0 0 0 0 0 0

CURRENT NODAL DOF SET IS UX UY UZ
THREE-DIMENSIONAL MODEL

ELEMENT TYPE 3 IS SOLID45 3-D STRUCTURAL SOLID
KEYOPT(1-12)= 0 0 0 0 0 0 0 0 0 0 0 0

CURRENT NODAL DOF SET IS UX UY UZ
THREE-DIMENSIONAL MODEL

ELEMENT TYPE 4 IS SOLID45 3-D STRUCTURAL SOLID
KEYOPT(1-12)= 0 0 0 0 0 0 0 0 0 0 0 0

CURRENT NODAL DOF SET IS UX UY UZ
THREE-DIMENSIONAL MODEL

ELEMENT TYPE 5 IS SOLID45 3-D STRUCTURAL SOLID
KEYOPT(1-12)= 0 0 0 0 0 0 0 0 0 0 0 0

CURRENT NODAL DOF SET IS UX UY UZ
THREE-DIMENSIONAL MODEL

ELEMENT TYPE 6 IS SOLID45 3-D STRUCTURAL SOLID
KEYOPT(1-12)= 0 0 0 0 0 0 0 0 0 0 0 0

CURRENT NODAL DOF SET IS UX UY UZ
THREE-DIMENSIONAL MODEL

ELEMENT TYPE 7 IS SOLID45 3-D STRUCTURAL SOLID
KEYOPT(1-12)= 0 0 0 0 0 0 0 0 0 0 0 0

CURRENT NODAL DOF SET IS UX UY UZ
THREE-DIMENSIONAL MODEL

REAL CONSTANT SET 7 ITEMS 1 TO 6
0.15000E+09 0.00000E+00 0.00000E+00 1.2980 15.000 0.00000E+00
ratio of static to dynamic coeff. of friction fact=1.298, Area Tol.=15%
Room Temperature Properties of Materials

MATERIAL	1	EX	=	0.2060000E+12
MATERIAL	2	EX	=	0.1950000E+12
MATERIAL	3	EX	=	0.2060000E+12
MATERIAL	4	EX	=	0.2060000E+12
MATERIAL	5	EX	=	0.2080000E+12
MATERIAL	6	EX	=	0.2060000E+12
MATERIAL	7	EX	=	0.2060000E+12
MATERIAL	1	NUXY	=	0.3000000
MATERIAL	2	NUXY	=	0.2980000
MATERIAL	3	NUXY	=	0.3000000
MATERIAL	4	NUXY	=	0.3000000
MATERIAL	5	NUXY	=	0.2780000
MATERIAL	6	NUXY	=	0.3000000

MATERIAL 7 NUXY = 0.3000000
MATERIAL 1 DENS = 44646.96
MATERIAL 2 DENS = 7953.000
MATERIAL 3 DENS = 8131.000
MATERIAL 4 DENS = 8131.000
MATERIAL 5 DENS = 8442.000
MATERIAL 6 DENS = 8131.000
MATERIAL 7 DENS = 20670.00

Define keypoints in the basket assembly

ACTIVE COORDINATE SYSTEM SET TO 0 (CARTESIAN)

KEYPOINT	1	X,Y,Z=	0.000000E+00	0.000000E+00	0.000000E+00	IN CSYS=	0
KEYPOINT	2	X,Y,Z=	0.114250	0.000000E+00	0.000000E+00	IN CSYS=	0
KEYPOINT	3	X,Y,Z=	0.119250	0.000000E+00	0.000000E+00	IN CSYS=	0
KEYPOINT	4	X,Y,Z=	0.126250	0.000000E+00	0.000000E+00	IN CSYS=	0
KEYPOINT	5	X,Y,Z=	0.131250	0.000000E+00	0.000000E+00	IN CSYS=	0
KEYPOINT	6	X,Y,Z=	0.359750	0.000000E+00	0.000000E+00	IN CSYS=	0
KEYPOINT	7	X,Y,Z=	0.364750	0.000000E+00	0.000000E+00	IN CSYS=	0
KEYPOINT	8	X,Y,Z=	0.371750	0.000000E+00	0.000000E+00	IN CSYS=	0
KEYPOINT	9	X,Y,Z=	0.376750	0.000000E+00	0.000000E+00	IN CSYS=	0
KEYPOINT	10	X,Y,Z=	0.605250	0.000000E+00	0.000000E+00	IN CSYS=	0
KEYPOINT	11	X,Y,Z=	0.610250	0.000000E+00	0.000000E+00	IN CSYS=	0
KEYPOINT	12	X,Y,Z=	0.620250	0.000000E+00	0.000000E+00	IN CSYS=	0
KEYPOINT	13	X,Y,Z=	0.114250	0.114250	0.000000E+00	IN CSYS=	0
KEYPOINT	14	X,Y,Z=	0.131250	0.114250	0.000000E+00	IN CSYS=	0
KEYPOINT	15	X,Y,Z=	0.359750	0.114250	0.000000E+00	IN CSYS=	0
KEYPOINT	16	X,Y,Z=	0.376750	0.114250	0.000000E+00	IN CSYS=	0
KEYPOINT	17	X,Y,Z=	0.605250	0.114250	0.000000E+00	IN CSYS=	0
KEYPOINT	18	X,Y,Z=	0.119250	0.119250	0.000000E+00	IN CSYS=	0
KEYPOINT	19	X,Y,Z=	0.126250	0.119250	0.000000E+00	IN CSYS=	0
KEYPOINT	20	X,Y,Z=	0.364750	0.119250	0.000000E+00	IN CSYS=	0
KEYPOINT	21	X,Y,Z=	0.371750	0.119250	0.000000E+00	IN CSYS=	0
KEYPOINT	22	X,Y,Z=	0.610250	0.119250	0.000000E+00	IN CSYS=	0
KEYPOINT	23	X,Y,Z=	0.620250	0.117750	0.000000E+00	IN CSYS=	0

ACTIVE COORDINATE SYSTEM SET TO 1 (CYLINDRICAL)

KEYPOINT	24	X,Y,Z=	0.710950	9.53320	0.000000E+00	IN CSYS=	1
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                0.701132      0.117747      0.000000E+00 IN CSYS= 0
ACTIVE COORDINATE SYSTEM SET TO 0 (CARTESIAN)
KEYPOINT    25  X,Y,Z= 0.126250      0.126250      0.000000E+00 IN CSYS= 0
KEYPOINT    26  X,Y,Z= 0.364750      0.126250      0.000000E+00 IN CSYS= 0
KEYPOINT    27  X,Y,Z= 0.371750      0.126250      0.000000E+00 IN CSYS= 0
KEYPOINT    28  X,Y,Z= 0.610250      0.126250      0.000000E+00 IN CSYS= 0
KEYPOINT    29  X,Y,Z= 0.620250      0.127750      0.000000E+00 IN CSYS= 0
ACTIVE COORDINATE SYSTEM SET TO 1 (CYLINDRICAL)
KEYPOINT    30  X,Y,Z= 0.710950      10.3515      0.000000E+00 IN CSYS= 1
                0.699378      0.127748      0.000000E+00 IN CSYS= 0
ACTIVE COORDINATE SYSTEM SET TO 0 (CARTESIAN)
KEYPOINT    31  X,Y,Z= 0.131250      0.131250      0.000000E+00 IN CSYS= 0
KEYPOINT    32  X,Y,Z= 0.359750      0.131250      0.000000E+00 IN CSYS= 0
KEYPOINT    33  X,Y,Z= 0.376750      0.131250      0.000000E+00 IN CSYS= 0
KEYPOINT    34  X,Y,Z= 0.605250      0.131250      0.000000E+00 IN CSYS= 0
KEYPOINT    35  X,Y,Z= 0.359750      0.359750      0.000000E+00 IN CSYS= 0
KEYPOINT    36  X,Y,Z= 0.376750      0.359750      0.000000E+00 IN CSYS= 0
KEYPOINT    37  X,Y,Z= 0.605250      0.359750      0.000000E+00 IN CSYS= 0
ACTIVE COORDINATE SYSTEM SET TO 1 (CYLINDRICAL)
KEYPOINT    38  X,Y,Z= 0.710950      29.2551      0.000000E+00 IN CSYS= 1
                0.620270      0.347441      0.000000E+00 IN CSYS= 0
ACTIVE COORDINATE SYSTEM SET TO 0 (CARTESIAN)
KEYPOINT    39  X,Y,Z= 0.364750      0.364750      0.000000E+00 IN CSYS= 0
KEYPOINT    40  X,Y,Z= 0.371750      0.364750      0.000000E+00 IN CSYS= 0
ACTIVE COORDINATE SYSTEM SET TO 1 (CYLINDRICAL)
KEYPOINT    41  X,Y,Z= 0.710950      30.8670      0.000000E+00 IN CSYS= 1
                0.610251      0.364751      0.000000E+00 IN CSYS= 0
ACTIVE COORDINATE SYSTEM SET TO 0 (CARTESIAN)
KEYPOINT    42  X,Y,Z= 0.374750      0.374750      0.000000E+00 IN CSYS= 0
ACTIVE COORDINATE SYSTEM SET TO 1 (CYLINDRICAL)
KEYPOINT    43  X,Y,Z= 0.710950      31.8174      0.000000E+00 IN CSYS= 1
                0.604118      0.374822      0.000000E+00 IN CSYS= 0
KEYPOINT    44  X,Y,Z= 0.710950      0.000000E+00 0.000000E+00 IN CSYS= 1
                0.710950      0.000000E+00 0.000000E+00 IN CSYS= 0
KEYPOINT    45  X,Y,Z= 0.710950      45.0000      0.000000E+00 IN CSYS= 1

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		0.502718	0.502718	0.000000E+00	IN CSYS= 0
KEYPOINT	46	X,Y,Z= 0.730950	0.000000E+00	0.000000E+00	IN CSYS= 1
		0.730950	0.000000E+00	0.000000E+00	IN CSYS= 0
KEYPOINT	47	X,Y,Z= 0.730950	9.53320	0.000000E+00	IN CSYS= 1
		0.720855	0.121059	0.000000E+00	IN CSYS= 0
KEYPOINT	48	X,Y,Z= 0.730950	10.3515	0.000000E+00	IN CSYS= 1
		0.719053	0.131342	0.000000E+00	IN CSYS= 0
KEYPOINT	49	X,Y,Z= 0.730950	29.2551	0.000000E+00	IN CSYS= 1
		0.637719	0.357215	0.000000E+00	IN CSYS= 0
KEYPOINT	50	X,Y,Z= 0.730950	30.8670	0.000000E+00	IN CSYS= 1
		0.627419	0.375012	0.000000E+00	IN CSYS= 0
KEYPOINT	51	X,Y,Z= 0.730950	31.8174	0.000000E+00	IN CSYS= 1
		0.621112	0.385366	0.000000E+00	IN CSYS= 0
KEYPOINT	52	X,Y,Z= 0.730950	45.0000	0.000000E+00	IN CSYS= 1
		0.516860	0.516860	0.000000E+00	IN CSYS= 0
KEYPOINT	53	X,Y,Z= 0.770950	0.000000E+00	0.000000E+00	IN CSYS= 1
		0.770950	0.000000E+00	0.000000E+00	IN CSYS= 0
KEYPOINT	54	X,Y,Z= 0.770950	9.53320	0.000000E+00	IN CSYS= 1
		0.760303	0.127684	0.000000E+00	IN CSYS= 0
KEYPOINT	55	X,Y,Z= 0.770950	10.3515	0.000000E+00	IN CSYS= 1
		0.758402	0.138530	0.000000E+00	IN CSYS= 0
KEYPOINT	56	X,Y,Z= 0.770950	29.2551	0.000000E+00	IN CSYS= 1
		0.672617	0.376763	0.000000E+00	IN CSYS= 0
KEYPOINT	57	X,Y,Z= 0.770950	30.8670	0.000000E+00	IN CSYS= 1
		0.661753	0.395534	0.000000E+00	IN CSYS= 0
KEYPOINT	58	X,Y,Z= 0.770950	31.8174	0.000000E+00	IN CSYS= 1
		0.655102	0.406455	0.000000E+00	IN CSYS= 0
KEYPOINT	59	X,Y,Z= 0.770950	45.0000	0.000000E+00	IN CSYS= 1
		0.545144	0.545144	0.000000E+00	IN CSYS= 0
KEYPOINT	60	X,Y,Z= 0.830950	0.000000E+00	0.000000E+00	IN CSYS= 1
		0.830950	0.000000E+00	0.000000E+00	IN CSYS= 0
KEYPOINT	61	X,Y,Z= 0.830950	9.53320	0.000000E+00	IN CSYS= 1
		0.819474	0.137621	0.000000E+00	IN CSYS= 0
KEYPOINT	62	X,Y,Z= 0.830950	10.3515	0.000000E+00	IN CSYS= 1
		0.817425	0.149311	0.000000E+00	IN CSYS= 0

KEYPOINT 63 X,Y,Z= 0.830950 29.2551 0.000000E+00 IN CSYS= 1
 0.724964 0.406085 0.000000E+00 IN CSYS= 0
 KEYPOINT 64 X,Y,Z= 0.830950 30.8670 0.000000E+00 IN CSYS= 1
 0.713255 0.426316 0.000000E+00 IN CSYS= 0
 KEYPOINT 65 X,Y,Z= 0.830950 31.8174 0.000000E+00 IN CSYS= 1
 0.706086 0.438088 0.000000E+00 IN CSYS= 0
 KEYPOINT 66 X,Y,Z= 0.830950 45.0000 0.000000E+00 IN CSYS= 1
 0.587570 0.587570 0.000000E+00 IN CSYS= 0

COORDINATE SYSTEM 11 DEFINITION. TYPE= 0 (CARTESIAN)
 XC,YC,ZC= 0.00000E+00 0.00000E+00 0.00000E+00
 ANGLES= 45.00 0.00 0.00 PARAMETERS= 1.000 1.000
 ORIENTATION= 0.71 0.71 0.00 -0.71 0.71 0.00 0.00 0.00 1.00

ACTIVE COORDINATE SYSTEM SET TO 11 (CARTESIAN)

SYMMETRY TRANSFORMATION OF KEYPOINTS USING COMPONENT Y
 SET IS ALL SELECTED KEYPOINTS

MERGE COINCIDENT KEYPOINTS WITHIN TOLERANCE OF 0.10000E-03

KEYPOINT 1 USED FOR KEYPOINT(S) 67
 KEYPOINT 13 USED FOR KEYPOINT(S) 79
 KEYPOINT 18 USED FOR KEYPOINT(S) 84
 KEYPOINT 25 USED FOR KEYPOINT(S) 91
 KEYPOINT 31 USED FOR KEYPOINT(S) 97
 KEYPOINT 35 USED FOR KEYPOINT(S) 101
 KEYPOINT 39 USED FOR KEYPOINT(S) 105
 KEYPOINT 42 USED FOR KEYPOINT(S) 108
 KEYPOINT 45 USED FOR KEYPOINT(S) 111
 KEYPOINT 52 USED FOR KEYPOINT(S) 118
 KEYPOINT 59 USED FOR KEYPOINT(S) 125
 KEYPOINT 66 USED FOR KEYPOINT(S) 132

ACTIVE COORDINATE SYSTEM SET TO 0 (CARTESIAN)

SYMMETRY TRANSFORMATION OF KEYPOINTS USING COMPONENT Y
 SET IS ALL SELECTED KEYPOINTS

MERGE COINCIDENT KEYPOINTS WITHIN TOLERANCE OF 0.10000E-03

KEYPOINT 1 USED FOR KEYPOINT(S) 67
 KEYPOINT 2 USED FOR KEYPOINT(S) 79
 KEYPOINT 3 USED FOR KEYPOINT(S) 84
 KEYPOINT 4 USED FOR KEYPOINT(S) 91
 KEYPOINT 5 USED FOR KEYPOINT(S) 97
 KEYPOINT 6 USED FOR KEYPOINT(S) 101
 KEYPOINT 7 USED FOR KEYPOINT(S) 105
 KEYPOINT 8 USED FOR KEYPOINT(S) 108
 KEYPOINT 9 USED FOR KEYPOINT(S) 111
 KEYPOINT 10 USED FOR KEYPOINT(S) 118
 KEYPOINT 11 USED FOR KEYPOINT(S) 125
 KEYPOINT 12 USED FOR KEYPOINT(S) 132
 KEYPOINT 44 USED FOR KEYPOINT(S) 164
 KEYPOINT 46 USED FOR KEYPOINT(S) 166
 KEYPOINT 53 USED FOR KEYPOINT(S) 173
 KEYPOINT 60 USED FOR KEYPOINT(S) 180

DELETE SELECTED KEYPOINTS FROM 2 TO 12 BY 1

KEYPOINT 1001 X,Y,Z= 0.000000E+00 0.000000E+00 4.57500 IN CSYS= 0

LINE CONNECTS KEYPOINTS 1 1001
 LINE NO.= 1 KP1= 1 TAN1= 0.0000 0.0000 -1.0000
 KP2= 1001 TAN2= 0.0000 0.0000 1.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
TO NDIV = 15, SPACING RATIO = 1.000

KEYPOINT 2001 X,Y,Z= 0.000000E+00 0.000000E+00 4.58500 IN CSYS= 0

LINE CONNECTS KEYPOINTS 1001 2001
LINE NO.= 2 KP1= 1001 TAN1= 0.0000 0.0000 -1.0000
KP2= 2001 TAN2= 0.0000 0.0000 1.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
TO NDIV = 1, SPACING RATIO = 1.000

KEYPOINT 3001 X,Y,Z= 0.000000E+00 0.000000E+00 4.61000 IN CSYS= 0

LINE CONNECTS KEYPOINTS 2001 3001
LINE NO.= 3 KP1= 2001 TAN1= 0.0000 0.0000 -1.0000
KP2= 3001 TAN2= 0.0000 0.0000 1.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
TO NDIV = 1, SPACING RATIO = 1.000

KEYPOINT 4001 X,Y,Z= 0.000000E+00 0.000000E+00 4.64000 IN CSYS= 0

LINE CONNECTS KEYPOINTS 3001 4001
LINE NO.= 4 KP1= 3001 TAN1= 0.0000 0.0000 -1.0000
KP2= 4001 TAN2= 0.0000 0.0000 1.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
TO NDIV = 1, SPACING RATIO = 1.000

KEYPOINT 5001 X,Y,Z= 0.000000E+00 0.000000E+00 4.75000 IN CSYS= 0

LINE CONNECTS KEYPOINTS 4001 5001
LINE NO.= 5 KP1= 4001 TAN1= 0.0000 0.0000 -1.0000
KP2= 5001 TAN2= 0.0000 0.0000 1.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
TO NDIV = 1, SPACING RATIO = 1.000

KEYPOINT 6001 X,Y,Z= 0.000000E+00 0.000000E+00 4.97500 IN CSYS= 0

LINE CONNECTS KEYPOINTS 5001 6001
LINE NO.= 6 KP1= 5001 TAN1= 0.0000 0.0000 -1.0000
KP2= 6001 TAN2= 0.0000 0.0000 1.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
TO NDIV = 1, SPACING RATIO = 1.000

KEYPOINT 7001 X,Y,Z= 0.000000E+00 0.000000E+00 -0.250000E-01 IN CSYS= 0

LINE CONNECTS KEYPOINTS 1 7001
LINE NO.= 7 KP1= 1 TAN1= 0.0000 0.0000 1.0000
KP2= 7001 TAN2= 0.0000 0.0000 -1.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
TO NDIV = 1, SPACING RATIO = 1.000

KEYPOINT 8001 X,Y,Z= 0.000000E+00 0.000000E+00 -0.135000 IN CSYS= 0

LINE CONNECTS KEYPOINTS 7001 8001
LINE NO.= 8 KP1= 7001 TAN1= 0.0000 0.0000 1.0000
KP2= 8001 TAN2= 0.0000 0.0000 -1.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
TO NDIV = 1, SPACING RATIO = 1.000

KEYPOINT 9001 X,Y,Z= 0.000000E+00 0.000000E+00 -0.360000 IN CSYS= 0

LINE CONNECTS KEYPOINTS 8001 9001

LINE NO.= 9 KP1= 8001 TAN1= 0.0000 0.0000 1.0000
 KP2= 9001 TAN2= 0.0000 0.0000 -1.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
 TO NDIV = 1, SPACING RATIO = 1.000
 Line set 1 Tube Width for Half Tubes on Symmetry Plane

LINE CONNECTS KEYPOINTS 197 206
 LINE NO.= 10 KP1= 197 TAN1= -1.0000 0.0000 0.0000
 KP2= 206 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 196 205
 LINE NO.= 11 KP1= 196 TAN1= -1.0000 0.0000 0.0000
 KP2= 205 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 195 201
 LINE NO.= 12 KP1= 195 TAN1= -1.0000 0.0000 0.0000
 KP2= 201 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 194 200
 LINE NO.= 13 KP1= 194 TAN1= -1.0000 0.0000 0.0000
 KP2= 200 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 193 204
 LINE NO.= 14 KP1= 193 TAN1= -1.0000 0.0000 0.0000
 KP2= 204 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 192 203
 LINE NO.= 15 KP1= 192 TAN1= -1.0000 0.0000 0.0000
 KP2= 203 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 191 199
 LINE NO.= 16 KP1= 191 TAN1= -1.0000 0.0000 0.0000
 KP2= 199 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 190 198
 LINE NO.= 17 KP1= 190 TAN1= -1.0000 0.0000 0.0000
 KP2= 198 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 189 202
 LINE NO.= 18 KP1= 189 TAN1= -1.0000 0.0000 0.0000
 KP2= 202 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 188 138
 LINE NO.= 19 KP1= 188 TAN1= -1.0000 0.0000 0.0000
 KP2= 138 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 187 133
 LINE NO.= 20 KP1= 187 TAN1= -1.0000 0.0000 0.0000
 KP2= 133 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 68 13
 LINE NO.= 21 KP1= 68 TAN1= -1.0000 0.0000 0.0000
 KP2= 13 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 69 18
 LINE NO.= 22 KP1= 69 TAN1= -1.0000 0.0000 0.0000
 KP2= 18 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 70 85
 LINE NO.= 23 KP1= 70 TAN1= -1.0000 0.0000 0.0000
 KP2= 85 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 71 80
 LINE NO.= 24 KP1= 71 TAN1= -1.0000 0.0000 0.0000
 KP2= 80 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 72 81
 LINE NO.= 25 KP1= 72 TAN1= -1.0000 0.0000 0.0000
 KP2= 81 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 73 86
 LINE NO.= 26 KP1= 73 TAN1= -1.0000 0.0000 0.0000
 KP2= 86 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 74 87
 LINE NO.= 27 KP1= 74 TAN1= -1.0000 0.0000 0.0000
 KP2= 87 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 75 82
 LINE NO.= 28 KP1= 75 TAN1= -1.0000 0.0000 0.0000
 KP2= 82 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 76 83
 LINE NO.= 29 KP1= 76 TAN1= -1.0000 0.0000 0.0000
 KP2= 83 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 77 88
 LINE NO.= 30 KP1= 77 TAN1= -1.0000 0.0000 0.0000
 KP2= 88 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 78 89
 LINE NO.= 31 KP1= 78 TAN1= -1.0000 0.0000 0.0000
 KP2= 89 TAN2= 1.0000 0.0000 0.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
 TO NDIV = 4, SPACING RATIO = 1.000
 line set 2 Tube Widths

LINE CONNECTS KEYPOINTS 211 218
 LINE NO.= 32 KP1= 211 TAN1= -1.0000 0.0001 0.0000
 KP2= 218 TAN2= 1.0000 -0.0001 0.0000

LINE CONNECTS KEYPOINTS 210 220
 LINE NO.= 33 KP1= 210 TAN1= -1.0000 0.0000 0.0000
 KP2= 220 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 215 217
 LINE NO.= 34 KP1= 215 TAN1= -1.0000 0.0000 0.0000
 KP2= 217 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 214 216
 LINE NO.= 35 KP1= 214 TAN1= -1.0000 0.0000 0.0000
 KP2= 216 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 209 219
 LINE NO.= 36 KP1= 209 TAN1= -1.0000 0.0000 0.0000
 KP2= 219 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 208 159
 LINE NO.= 37 KP1= 208 TAN1= -1.0000 0.0000 0.0000
 KP2= 159 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 213 155
 LINE NO.= 38 KP1= 213 TAN1= -1.0000 0.0000 0.0000
 KP2= 155 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 151 152
 LINE NO.= 39 KP1= 151 TAN1= -1.0000 0.0000 0.0000
 KP2= 152 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 145 146
 LINE NO.= 40 KP1= 145 TAN1= -1.0000 0.0000 0.0000
 KP2= 146 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 139 140
 LINE NO.= 41 KP1= 139 TAN1= -1.0000 0.0000 0.0000
 KP2= 140 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 134 135

LINE NO.=	42	KP1=	134	TAN1=	-1.0000	0.0000	0.0000
		KP2=	135	TAN2=	1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 14 15							
LINE NO.=	43	KP1=	14	TAN1=	-1.0000	0.0000	0.0000
		KP2=	15	TAN2=	1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 19 20							
LINE NO.=	44	KP1=	19	TAN1=	-1.0000	0.0000	0.0000
		KP2=	20	TAN2=	1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 25 26							
LINE NO.=	45	KP1=	25	TAN1=	-1.0000	0.0000	0.0000
		KP2=	26	TAN2=	1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 31 32							
LINE NO.=	46	KP1=	31	TAN1=	-1.0000	0.0000	0.0000
		KP2=	32	TAN2=	1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 98 35							
LINE NO.=	47	KP1=	98	TAN1=	-1.0000	0.0000	0.0000
		KP2=	35	TAN2=	1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 92 39							
LINE NO.=	48	KP1=	92	TAN1=	-1.0000	0.0000	0.0000
		KP2=	39	TAN2=	1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 93 106							
LINE NO.=	49	KP1=	93	TAN1=	-1.0000	0.0000	0.0000
		KP2=	106	TAN2=	1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 99 102							
LINE NO.=	50	KP1=	99	TAN1=	-1.0000	0.0000	0.0000
		KP2=	102	TAN2=	1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 100 103							
LINE NO.=	51	KP1=	100	TAN1=	-1.0000	0.0000	0.0000
		KP2=	103	TAN2=	1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 94 107							
LINE NO.=	52	KP1=	94	TAN1=	-1.0000	0.0000	0.0000
		KP2=	107	TAN2=	1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 95 104							
LINE NO.=	53	KP1=	95	TAN1=	-1.0000	-0.0001	0.0000
		KP2=	104	TAN2=	1.0000	0.0001	0.0000
SET DIVISIONS ON ALL SELECTED UNMESHED LINES							
TO NDIV = 4, SPACING RATIO = 1.000							
Line set 3 Tube Widths on End Column							
LINE CONNECTS KEYPOINTS 162 163							
LINE NO.=	54	KP1=	162	TAN1=	-1.0000	0.0003	0.0000
		KP2=	163	TAN2=	1.0000	-0.0003	0.0000
LINE CONNECTS KEYPOINTS 160 161							
LINE NO.=	55	KP1=	160	TAN1=	-1.0000	0.0000	0.0000
		KP2=	161	TAN2=	1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 156 157							
LINE NO.=	56	KP1=	156	TAN1=	-1.0000	0.0000	0.0000
		KP2=	157	TAN2=	1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 153 154							
LINE NO.=	57	KP1=	153	TAN1=	-1.0000	0.0000	0.0000
		KP2=	154	TAN2=	1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 147 148							
LINE NO.=	58	KP1=	147	TAN1=	-1.0000	0.0000	0.0000
		KP2=	148	TAN2=	1.0000	0.0000	0.0000

LINE CONNECTS KEYPOINTS		141	142			
LINE NO.=	59	KP1=	141	TAN1=	-1.0000	0.0000 0.0000
		KP2=	142	TAN2=	1.0000	0.0000 0.0000
LINE CONNECTS KEYPOINTS		136	137			
LINE NO.=	60	KP1=	136	TAN1=	-1.0000	0.0000 0.0000
		KP2=	137	TAN2=	1.0000	0.0000 0.0000
LINE CONNECTS KEYPOINTS		16	17			
LINE NO.=	61	KP1=	16	TAN1=	-1.0000	0.0000 0.0000
		KP2=	17	TAN2=	1.0000	0.0000 0.0000
LINE CONNECTS KEYPOINTS		21	22			
LINE NO.=	62	KP1=	21	TAN1=	-1.0000	0.0000 0.0000
		KP2=	22	TAN2=	1.0000	0.0000 0.0000
LINE CONNECTS KEYPOINTS		27	28			
LINE NO.=	63	KP1=	27	TAN1=	-1.0000	0.0000 0.0000
		KP2=	28	TAN2=	1.0000	0.0000 0.0000
LINE CONNECTS KEYPOINTS		33	34			
LINE NO.=	64	KP1=	33	TAN1=	-1.0000	0.0000 0.0000
		KP2=	34	TAN2=	1.0000	0.0000 0.0000
LINE CONNECTS KEYPOINTS		36	37			
LINE NO.=	65	KP1=	36	TAN1=	-1.0000	0.0000 0.0000
		KP2=	37	TAN2=	1.0000	0.0000 0.0000
LINE CONNECTS KEYPOINTS		40	41			
LINE NO.=	66	KP1=	40	TAN1=	-1.0000	0.0000 0.0000
		KP2=	41	TAN2=	1.0000	0.0000 0.0000
LINE CONNECTS KEYPOINTS		42	43			
LINE NO.=	67	KP1=	42	TAN1=	-1.0000	-0.0003 0.0000
		KP2=	43	TAN2=	1.0000	0.0003 0.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
 TO NDIV = 4, SPACING RATIO = 1.000
 Line set 4 Tube Heights

LINE CONNECTS KEYPOINTS		201	200			
LINE NO.=	68	KP1=	201	TAN1=	0.0000	-1.0000 0.0000
		KP2=	200	TAN2=	0.0000	1.0000 0.0000
LINE CONNECTS KEYPOINTS		205	204			
LINE NO.=	69	KP1=	205	TAN1=	0.0000	-1.0000 0.0000
		KP2=	204	TAN2=	0.0000	1.0000 0.0000
LINE CONNECTS KEYPOINTS		210	209			
LINE NO.=	70	KP1=	210	TAN1=	0.0000	-1.0000 0.0000
		KP2=	209	TAN2=	0.0000	1.0000 0.0000
LINE CONNECTS KEYPOINTS		215	214			
LINE NO.=	71	KP1=	215	TAN1=	0.0000	-1.0000 0.0000
		KP2=	214	TAN2=	0.0000	1.0000 0.0000
LINE CONNECTS KEYPOINTS		217	216			
LINE NO.=	72	KP1=	217	TAN1=	0.0000	-1.0000 0.0000
		KP2=	216	TAN2=	0.0000	1.0000 0.0000
LINE CONNECTS KEYPOINTS		220	219			
LINE NO.=	73	KP1=	220	TAN1=	0.0000	-1.0000 0.0000
		KP2=	219	TAN2=	0.0000	1.0000 0.0000
LINE CONNECTS KEYPOINTS		221	162			
LINE NO.=	74	KP1=	221	TAN1=	0.0003	-1.0000 0.0000
		KP2=	162	TAN2=	-0.0003	1.0000 0.0000
LINE CONNECTS KEYPOINTS		199	198			

LINE NO.=	75	KP1=	199	TAN1=	0.0000	-1.0000	0.0000
		KP2=	198	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 203 202							
LINE NO.=	76	KP1=	203	TAN1=	0.0000	-1.0000	0.0000
		KP2=	202	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 208 145							
LINE NO.=	77	KP1=	208	TAN1=	0.0000	-1.0000	0.0000
		KP2=	145	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 213 151							
LINE NO.=	78	KP1=	213	TAN1=	0.0000	-1.0000	0.0000
		KP2=	151	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 155 152							
LINE NO.=	79	KP1=	155	TAN1=	0.0000	-1.0000	0.0000
		KP2=	152	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 159 146							
LINE NO.=	80	KP1=	159	TAN1=	0.0000	-1.0000	0.0000
		KP2=	146	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 160 147							
LINE NO.=	81	KP1=	160	TAN1=	0.0000	-1.0000	0.0000
		KP2=	147	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 156 153							
LINE NO.=	82	KP1=	156	TAN1=	0.0000	-1.0000	0.0000
		KP2=	153	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 157 154							
LINE NO.=	83	KP1=	157	TAN1=	0.0000	-1.0000	0.0000
		KP2=	154	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 161 148							
LINE NO.=	84	KP1=	161	TAN1=	0.0000	-1.0000	0.0000
		KP2=	148	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 133 13							
LINE NO.=	85	KP1=	133	TAN1=	0.0000	-1.0000	0.0000
		KP2=	13	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 138 18							
LINE NO.=	86	KP1=	138	TAN1=	0.0000	-1.0000	0.0000
		KP2=	18	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 139 19							
LINE NO.=	87	KP1=	139	TAN1=	0.0000	-1.0000	0.0000
		KP2=	19	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 134 14							
LINE NO.=	88	KP1=	134	TAN1=	0.0000	-1.0000	0.0000
		KP2=	14	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 135 15							
LINE NO.=	89	KP1=	135	TAN1=	0.0000	-1.0000	0.0000
		KP2=	15	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 140 20							
LINE NO.=	90	KP1=	140	TAN1=	0.0000	-1.0000	0.0000
		KP2=	20	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 141 21							
LINE NO.=	91	KP1=	141	TAN1=	0.0000	-1.0000	0.0000
		KP2=	21	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 136 16							
LINE NO.=	92	KP1=	136	TAN1=	0.0000	-1.0000	0.0000
		KP2=	16	TAN2=	0.0000	1.0000	0.0000

LINE CONNECTS KEYPOINTS	137	17			
LINE NO.= 93 KP1=	137	TAN1=	0.0000	-1.0000	0.0000
KP2=	17	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS	142	22			
LINE NO.= 94 KP1=	142	TAN1=	0.0000	-1.0000	0.0000
KP2=	22	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS	143	23			
LINE NO.= 95 KP1=	143	TAN1=	0.0000	-1.0000	0.0000
KP2=	23	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS	80	81			
LINE NO.= 96 KP1=	80	TAN1=	0.0000	-1.0000	0.0000
KP2=	81	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS	85	86			
LINE NO.= 97 KP1=	85	TAN1=	0.0000	-1.0000	0.0000
KP2=	86	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS	25	92			
LINE NO.= 98 KP1=	25	TAN1=	0.0000	-1.0000	0.0000
KP2=	92	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS	31	98			
LINE NO.= 99 KP1=	31	TAN1=	0.0000	-1.0000	0.0000
KP2=	98	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS	32	35			
LINE NO.= 100 KP1=	32	TAN1=	0.0000	-1.0000	0.0000
KP2=	35	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS	26	39			
LINE NO.= 101 KP1=	26	TAN1=	0.0000	-1.0000	0.0000
KP2=	39	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS	27	40			
LINE NO.= 102 KP1=	27	TAN1=	0.0000	-1.0000	0.0000
KP2=	40	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS	33	36			
LINE NO.= 103 KP1=	33	TAN1=	0.0000	-1.0000	0.0000
KP2=	36	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS	34	37			
LINE NO.= 104 KP1=	34	TAN1=	0.0000	-1.0000	0.0000
KP2=	37	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS	28	41			
LINE NO.= 105 KP1=	28	TAN1=	0.0000	-1.0000	0.0000
KP2=	41	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS	29	38			
LINE NO.= 106 KP1=	29	TAN1=	-0.0001	-1.0000	0.0000
KP2=	38	TAN2=	0.0001	1.0000	0.0000
LINE CONNECTS KEYPOINTS	82	83			
LINE NO.= 107 KP1=	82	TAN1=	0.0000	-1.0000	0.0000
KP2=	83	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS	87	88			
LINE NO.= 108 KP1=	87	TAN1=	0.0000	-1.0000	0.0000
KP2=	88	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS	93	94			
LINE NO.= 109 KP1=	93	TAN1=	0.0000	-1.0000	0.0000
KP2=	94	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS	99	100			

LINE NO.= 110 KP1= 99 TAN1= 0.0000 -1.0000 0.0000
 KP2= 100 TAN2= 0.0000 1.0000 0.0000

LINE CONNECTS KEYPOINTS 102 103
 LINE NO.= 111 KP1= 102 TAN1= 0.0000 -1.0000 0.0000
 KP2= 103 TAN2= 0.0000 1.0000 0.0000

LINE CONNECTS KEYPOINTS 106 107
 LINE NO.= 112 KP1= 106 TAN1= 0.0000 -1.0000 0.0000
 KP2= 107 TAN2= 0.0000 1.0000 0.0000

LINE CONNECTS KEYPOINTS 42 109
 LINE NO.= 113 KP1= 42 TAN1= -0.0003 -1.0000 0.0000
 KP2= 109 TAN2= 0.0003 1.0000 0.0000

LINE CONNECTS KEYPOINTS 158 149
 LINE NO.= 114 KP1= 158 TAN1= 0.0001 -1.0000 0.0000
 KP2= 149 TAN2= -0.0001 1.0000 0.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
 TO NDIV = 4, SPACING RATIO = 1.000
 line set 5 End Guide Fins

LINE CONNECTS KEYPOINTS 207 206
 LINE NO.= 115 KP1= 207 TAN1= 0.0000 -1.0000 0.0000
 KP2= 206 TAN2= 0.0000 1.0000 0.0000

LINE CONNECTS KEYPOINTS 212 211
 LINE NO.= 116 KP1= 212 TAN1= 0.0000 -1.0000 0.0000
 KP2= 211 TAN2= 0.0000 1.0000 0.0000

LINE CONNECTS KEYPOINTS 150 149
 LINE NO.= 117 KP1= 150 TAN1= 1.0000 0.0000 0.0000
 KP2= 149 TAN2= -1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 144 143
 LINE NO.= 118 KP1= 144 TAN1= 1.0000 0.0000 0.0000
 KP2= 143 TAN2= -1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 24 23
 LINE NO.= 119 KP1= 24 TAN1= 1.0000 0.0000 0.0000
 KP2= 23 TAN2= -1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 30 29
 LINE NO.= 120 KP1= 30 TAN1= 1.0000 0.0000 0.0000
 KP2= 29 TAN2= -1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 96 95
 LINE NO.= 121 KP1= 96 TAN1= 0.0000 1.0000 0.0000
 KP2= 95 TAN2= 0.0000 -1.0000 0.0000

LINE CONNECTS KEYPOINTS 90 89
 LINE NO.= 122 KP1= 90 TAN1= 0.0000 1.0000 0.0000
 KP2= 89 TAN2= 0.0000 -1.0000 0.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
 TO NDIV = 4, SPACING RATIO = 1.000
 line set 6 SS-B Plate Thickness

LINE CONNECTS KEYPOINTS 197 196
 LINE NO.= 123 KP1= 197 TAN1= 0.0000 -1.0000 0.0000
 KP2= 196 TAN2= 0.0000 1.0000 0.0000

LINE CONNECTS KEYPOINTS 206 205
 LINE NO.= 124 KP1= 206 TAN1= -0.1483 -0.9889 0.0000
 KP2= 205 TAN2= 0.1483 0.9889 0.0000

LINE CONNECTS KEYPOINTS 211 210
 LINE NO.= 125 KP1= 211 TAN1= 0.1483 -0.9889 0.0000
 KP2= 210 TAN2= -0.1483 0.9889 0.0000

LINE CONNECTS KEYPOINTS		207	212			
LINE NO.=	126	KP1=	207	TAN1=	-0.9850	-0.1727 0.0000
		KP2=	212	TAN2=	0.9850	0.1727 0.0000
LINE CONNECTS KEYPOINTS		206	211			
LINE NO.=	127	KP1=	206	TAN1=	-1.0000	0.0000 0.0000
		KP2=	211	TAN2=	1.0000	0.0000 0.0000
LINE CONNECTS KEYPOINTS		205	210			
LINE NO.=	128	KP1=	205	TAN1=	-1.0000	0.0000 0.0000
		KP2=	210	TAN2=	1.0000	0.0000 0.0000
LINE CONNECTS KEYPOINTS		218	220			
LINE NO.=	129	KP1=	218	TAN1=	-0.8655	-0.5009 0.0000
		KP2=	220	TAN2=	0.8655	0.5009 0.0000
LINE CONNECTS KEYPOINTS		220	221			
LINE NO.=	130	KP1=	220	TAN1=	-0.8541	-0.5201 0.0000
		KP2=	221	TAN2=	0.8541	0.5201 0.0000
LINE CONNECTS KEYPOINTS		193	192			
LINE NO.=	131	KP1=	193	TAN1=	0.0000	-1.0000 0.0000
		KP2=	192	TAN2=	0.0000	1.0000 0.0000
LINE CONNECTS KEYPOINTS		204	203			
LINE NO.=	132	KP1=	204	TAN1=	0.0000	-1.0000 0.0000
		KP2=	203	TAN2=	0.0000	1.0000 0.0000
LINE CONNECTS KEYPOINTS		209	208			
LINE NO.=	133	KP1=	209	TAN1=	0.0000	-1.0000 0.0000
		KP2=	208	TAN2=	0.0000	1.0000 0.0000
LINE CONNECTS KEYPOINTS		204	209			
LINE NO.=	134	KP1=	204	TAN1=	-1.0000	0.0000 0.0000
		KP2=	209	TAN2=	1.0000	0.0000 0.0000
LINE CONNECTS KEYPOINTS		203	208			
LINE NO.=	135	KP1=	203	TAN1=	-1.0000	0.0000 0.0000
		KP2=	208	TAN2=	1.0000	0.0000 0.0000
LINE CONNECTS KEYPOINTS		219	159			
LINE NO.=	136	KP1=	219	TAN1=	0.0000	-1.0000 0.0000
		KP2=	159	TAN2=	0.0000	1.0000 0.0000
LINE CONNECTS KEYPOINTS		162	160			
LINE NO.=	137	KP1=	162	TAN1=	0.2873	-0.9578 0.0000
		KP2=	160	TAN2=	-0.2873	0.9578 0.0000
LINE CONNECTS KEYPOINTS		163	161			
LINE NO.=	138	KP1=	163	TAN1=	-0.5201	-0.8541 0.0000
		KP2=	161	TAN2=	0.5201	0.8541 0.0000
LINE CONNECTS KEYPOINTS		161	158			
LINE NO.=	139	KP1=	161	TAN1=	-0.5009	-0.8655 0.0000
		KP2=	158	TAN2=	0.5009	0.8655 0.0000
LINE CONNECTS KEYPOINTS		219	162			
LINE NO.=	140	KP1=	219	TAN1=	-0.9578	0.2873 0.0000
		KP2=	162	TAN2=	0.9578	-0.2873 0.0000
LINE CONNECTS KEYPOINTS		159	160			
LINE NO.=	141	KP1=	159	TAN1=	-1.0000	0.0000 0.0000
		KP2=	160	TAN2=	1.0000	0.0000 0.0000
LINE CONNECTS KEYPOINTS		189	188			
LINE NO.=	142	KP1=	189	TAN1=	0.0000	-1.0000 0.0000
		KP2=	188	TAN2=	0.0000	1.0000 0.0000
LINE CONNECTS KEYPOINTS		202	138			

LINE NO.= 143	KP1= 202	TAN1= 0.0000	-1.0000	0.0000
	KP2= 138	TAN2= 0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 145 139				
LINE NO.= 144	KP1= 145	TAN1= 0.0000	-1.0000	0.0000
	KP2= 139	TAN2= 0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 202 145				
LINE NO.= 145	KP1= 202	TAN1= -1.0000	0.0000	0.0000
	KP2= 145	TAN2= 1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 138 139				
LINE NO.= 146	KP1= 138	TAN1= -1.0000	0.0000	0.0000
	KP2= 139	TAN2= 1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 146 140				
LINE NO.= 147	KP1= 146	TAN1= 0.0000	-1.0000	0.0000
	KP2= 140	TAN2= 0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 147 141				
LINE NO.= 148	KP1= 147	TAN1= 0.0000	-1.0000	0.0000
	KP2= 141	TAN2= 0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 146 147				
LINE NO.= 149	KP1= 146	TAN1= -1.0000	0.0000	0.0000
	KP2= 147	TAN2= 1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 140 141				
LINE NO.= 150	KP1= 140	TAN1= -1.0000	0.0000	0.0000
	KP2= 141	TAN2= 1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 148 142				
LINE NO.= 151	KP1= 148	TAN1= 0.0000	-1.0000	0.0000
	KP2= 142	TAN2= 0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 149 143				
LINE NO.= 152	KP1= 149	TAN1= 0.0000	-1.0000	0.0000
	KP2= 143	TAN2= 0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 148 149				
LINE NO.= 153	KP1= 148	TAN1= -0.9889	0.1483	0.0000
	KP2= 149	TAN2= 0.9889	-0.1483	0.0000
LINE CONNECTS KEYPOINTS 142 143				
LINE NO.= 154	KP1= 142	TAN1= -0.9889	-0.1483	0.0000
	KP2= 143	TAN2= 0.9889	0.1483	0.0000
LINE CONNECTS KEYPOINTS 150 144				
LINE NO.= 155	KP1= 150	TAN1= -0.1727	-0.9850	0.0000
	KP2= 144	TAN2= 0.1727	0.9850	0.0000
LINE CONNECTS KEYPOINTS 69 70				
LINE NO.= 156	KP1= 69	TAN1= 0.0000	-1.0000	0.0000
	KP2= 70	TAN2= 0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 18 85				
LINE NO.= 157	KP1= 18	TAN1= 0.0000	-1.0000	0.0000
	KP2= 85	TAN2= 0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 19 25				
LINE NO.= 158	KP1= 19	TAN1= 0.0000	-1.0000	0.0000
	KP2= 25	TAN2= 0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 18 19				
LINE NO.= 159	KP1= 18	TAN1= -1.0000	0.0000	0.0000
	KP2= 19	TAN2= 1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 85 25				
LINE NO.= 160	KP1= 85	TAN1= -1.0000	0.0000	0.0000
	KP2= 25	TAN2= 1.0000	0.0000	0.0000

LINE CONNECTS KEYPOINTS	20	26			
LINE NO.= 161 KP1=	20	TAN1=	0.0000	-1.0000	0.0000
KP2=	26	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS	21	27			
LINE NO.= 162 KP1=	21	TAN1=	0.0000	-1.0000	0.0000
KP2=	27	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS	20	21			
LINE NO.= 163 KP1=	20	TAN1=	-1.0000	0.0000	0.0000
KP2=	21	TAN2=	1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS	26	27			
LINE NO.= 164 KP1=	26	TAN1=	-1.0000	0.0000	0.0000
KP2=	27	TAN2=	1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS	22	28			
LINE NO.= 165 KP1=	22	TAN1=	0.0000	-1.0000	0.0000
KP2=	28	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS	22	23			
LINE NO.= 166 KP1=	22	TAN1=	-0.9889	0.1483	0.0000
KP2=	23	TAN2=	0.9889	-0.1483	0.0000
LINE CONNECTS KEYPOINTS	28	29			
LINE NO.= 167 KP1=	28	TAN1=	-0.9889	-0.1483	0.0000
KP2=	29	TAN2=	0.9889	0.1483	0.0000
LINE CONNECTS KEYPOINTS	23	29			
LINE NO.= 168 KP1=	23	TAN1=	0.0000	-1.0000	0.0000
KP2=	29	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS	24	30			
LINE NO.= 169 KP1=	24	TAN1=	0.1727	-0.9850	0.0000
KP2=	30	TAN2=	-0.1727	0.9850	0.0000
LINE CONNECTS KEYPOINTS	73	74			
LINE NO.= 170 KP1=	73	TAN1=	0.0000	-1.0000	0.0000
KP2=	74	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS	86	87			
LINE NO.= 171 KP1=	86	TAN1=	0.0000	-1.0000	0.0000
KP2=	87	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS	92	93			
LINE NO.= 172 KP1=	92	TAN1=	0.0000	-1.0000	0.0000
KP2=	93	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS	86	92			
LINE NO.= 173 KP1=	86	TAN1=	-1.0000	0.0000	0.0000
KP2=	92	TAN2=	1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS	87	93			
LINE NO.= 174 KP1=	87	TAN1=	-1.0000	0.0000	0.0000
KP2=	93	TAN2=	1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS	39	106			
LINE NO.= 175 KP1=	39	TAN1=	0.0000	-1.0000	0.0000
KP2=	106	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS	40	42			
LINE NO.= 176 KP1=	40	TAN1=	-0.2873	-0.9578	0.0000
KP2=	42	TAN2=	0.2873	0.9578	0.0000
LINE CONNECTS KEYPOINTS	39	40			
LINE NO.= 177 KP1=	39	TAN1=	-1.0000	0.0000	0.0000
KP2=	40	TAN2=	1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS	106	42			

LINE NO.=	178	KP1=	106	TAN1=	-0.9578	-0.2873	0.0000
		KP2=	42	TAN2=	0.9578	0.2873	0.0000
LINE CONNECTS KEYPOINTS 38 41							
LINE NO.=	179	KP1=	38	TAN1=	0.5009	-0.8655	0.0000
		KP2=	41	TAN2=	-0.5009	0.8655	0.0000
LINE CONNECTS KEYPOINTS 41 43							
LINE NO.=	180	KP1=	41	TAN1=	0.5201	-0.8541	0.0000
		KP2=	43	TAN2=	-0.5201	0.8541	0.0000
LINE CONNECTS KEYPOINTS 77 78							
LINE NO.=	181	KP1=	77	TAN1=	0.0000	-1.0000	0.0000
		KP2=	78	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 88 89							
LINE NO.=	182	KP1=	88	TAN1=	0.1483	-0.9889	0.0000
		KP2=	89	TAN2=	-0.1483	0.9889	0.0000
LINE CONNECTS KEYPOINTS 94 95							
LINE NO.=	183	KP1=	94	TAN1=	-0.1483	-0.9889	0.0000
		KP2=	95	TAN2=	0.1483	0.9889	0.0000
LINE CONNECTS KEYPOINTS 88 94							
LINE NO.=	184	KP1=	88	TAN1=	-1.0000	0.0000	0.0000
		KP2=	94	TAN2=	1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 89 95							
LINE NO.=	185	KP1=	89	TAN1=	-1.0000	0.0000	0.0000
		KP2=	95	TAN2=	1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 90 96							
LINE NO.=	186	KP1=	90	TAN1=	-0.9850	0.1727	0.0000
		KP2=	96	TAN2=	0.9850	-0.1727	0.0000
LINE CONNECTS KEYPOINTS 109 107							
LINE NO.=	187	KP1=	109	TAN1=	0.8541	-0.5201	0.0000
		KP2=	107	TAN2=	-0.8541	0.5201	0.0000
LINE CONNECTS KEYPOINTS 107 104							
LINE NO.=	188	KP1=	107	TAN1=	0.8655	-0.5009	0.0000
		KP2=	104	TAN2=	-0.8655	0.5009	0.0000
LINE CONNECTS KEYPOINTS 224 225							
LINE NO.=	189	KP1=	224	TAN1=	-0.9850	-0.1727	0.0000
		KP2=	225	TAN2=	0.9850	0.1727	0.0000
LINE CONNECTS KEYPOINTS 230 231							
LINE NO.=	190	KP1=	230	TAN1=	-0.9850	-0.1727	0.0000
		KP2=	231	TAN2=	0.9850	0.1727	0.0000
LINE CONNECTS KEYPOINTS 236 237							
LINE NO.=	191	KP1=	236	TAN1=	-0.9850	-0.1727	0.0000
		KP2=	237	TAN2=	0.9850	0.1727	0.0000
LINE CONNECTS KEYPOINTS 226 227							
LINE NO.=	192	KP1=	226	TAN1=	-0.8655	-0.5009	0.0000
		KP2=	227	TAN2=	0.8655	0.5009	0.0000
LINE CONNECTS KEYPOINTS 227 228							
LINE NO.=	193	KP1=	227	TAN1=	-0.8541	-0.5201	0.0000
		KP2=	228	TAN2=	0.8541	0.5201	0.0000
LINE CONNECTS KEYPOINTS 232 233							
LINE NO.=	194	KP1=	232	TAN1=	-0.8655	-0.5009	0.0000
		KP2=	233	TAN2=	0.8655	0.5009	0.0000
LINE CONNECTS KEYPOINTS 233 234							
LINE NO.=	195	KP1=	233	TAN1=	-0.8541	-0.5201	0.0000
		KP2=	234	TAN2=	0.8541	0.5201	0.0000

LINE CONNECTS KEYPOINTS	238	239			
LINE NO.= 196 KP1=	238	TAN1=	-0.8655	-0.5009	0.0000
KP2=	239	TAN2=	0.8655	0.5009	0.0000
LINE CONNECTS KEYPOINTS	239	240			
LINE NO.= 197 KP1=	239	TAN1=	-0.8541	-0.5201	0.0000
KP2=	240	TAN2=	0.8541	0.5201	0.0000
LINE CONNECTS KEYPOINTS	171	170			
LINE NO.= 198 KP1=	171	TAN1=	-0.5201	-0.8541	0.0000
KP2=	170	TAN2=	0.5201	0.8541	0.0000
LINE CONNECTS KEYPOINTS	170	169			
LINE NO.= 199 KP1=	170	TAN1=	-0.5009	-0.8655	0.0000
KP2=	169	TAN2=	0.5009	0.8655	0.0000
LINE CONNECTS KEYPOINTS	178	177			
LINE NO.= 200 KP1=	178	TAN1=	-0.5201	-0.8541	0.0000
KP2=	177	TAN2=	0.5201	0.8541	0.0000
LINE CONNECTS KEYPOINTS	177	176			
LINE NO.= 201 KP1=	177	TAN1=	-0.5009	-0.8655	0.0000
KP2=	176	TAN2=	0.5009	0.8655	0.0000
LINE CONNECTS KEYPOINTS	185	184			
LINE NO.= 202 KP1=	185	TAN1=	-0.5201	-0.8541	0.0000
KP2=	184	TAN2=	0.5201	0.8541	0.0000
LINE CONNECTS KEYPOINTS	184	183			
LINE NO.= 203 KP1=	184	TAN1=	-0.5009	-0.8655	0.0000
KP2=	183	TAN2=	0.5009	0.8655	0.0000
LINE CONNECTS KEYPOINTS	168	167			
LINE NO.= 204 KP1=	168	TAN1=	-0.1727	-0.9850	0.0000
KP2=	167	TAN2=	0.1727	0.9850	0.0000
LINE CONNECTS KEYPOINTS	175	174			
LINE NO.= 205 KP1=	175	TAN1=	-0.1727	-0.9850	0.0000
KP2=	174	TAN2=	0.1727	0.9850	0.0000
LINE CONNECTS KEYPOINTS	182	181			
LINE NO.= 206 KP1=	182	TAN1=	-0.1727	-0.9850	0.0000
KP2=	181	TAN2=	0.1727	0.9850	0.0000
LINE CONNECTS KEYPOINTS	47	48			
LINE NO.= 207 KP1=	47	TAN1=	0.1727	-0.9850	0.0000
KP2=	48	TAN2=	-0.1727	0.9850	0.0000
LINE CONNECTS KEYPOINTS	54	55			
LINE NO.= 208 KP1=	54	TAN1=	0.1727	-0.9850	0.0000
KP2=	55	TAN2=	-0.1727	0.9850	0.0000
LINE CONNECTS KEYPOINTS	61	62			
LINE NO.= 209 KP1=	61	TAN1=	0.1727	-0.9850	0.0000
KP2=	62	TAN2=	-0.1727	0.9850	0.0000
LINE CONNECTS KEYPOINTS	49	50			
LINE NO.= 210 KP1=	49	TAN1=	0.5009	-0.8655	0.0000
KP2=	50	TAN2=	-0.5009	0.8655	0.0000
LINE CONNECTS KEYPOINTS	50	51			
LINE NO.= 211 KP1=	50	TAN1=	0.5201	-0.8541	0.0000
KP2=	51	TAN2=	-0.5201	0.8541	0.0000
LINE CONNECTS KEYPOINTS	56	57			
LINE NO.= 212 KP1=	56	TAN1=	0.5009	-0.8655	0.0000
KP2=	57	TAN2=	-0.5009	0.8655	0.0000
LINE CONNECTS KEYPOINTS	57	58			

LINE NO.= 213	KP1= 57	TAN1= 0.5201	-0.8541	0.0000
	KP2= 58	TAN2= -0.5201	0.8541	0.0000
LINE CONNECTS KEYPOINTS 63 64				
LINE NO.= 214	KP1= 63	TAN1= 0.5009	-0.8655	0.0000
	KP2= 64	TAN2= -0.5009	0.8655	0.0000
LINE CONNECTS KEYPOINTS 64 65				
LINE NO.= 215	KP1= 64	TAN1= 0.5201	-0.8541	0.0000
	KP2= 65	TAN2= -0.5201	0.8541	0.0000
LINE CONNECTS KEYPOINTS 117 116				
LINE NO.= 216	KP1= 117	TAN1= 0.8541	-0.5201	0.0000
	KP2= 116	TAN2= -0.8541	0.5201	0.0000
LINE CONNECTS KEYPOINTS 116 115				
LINE NO.= 217	KP1= 116	TAN1= 0.8655	-0.5009	0.0000
	KP2= 115	TAN2= -0.8655	0.5009	0.0000
LINE CONNECTS KEYPOINTS 124 123				
LINE NO.= 218	KP1= 124	TAN1= 0.8541	-0.5201	0.0000
	KP2= 123	TAN2= -0.8541	0.5201	0.0000
LINE CONNECTS KEYPOINTS 123 122				
LINE NO.= 219	KP1= 123	TAN1= 0.8655	-0.5009	0.0000
	KP2= 122	TAN2= -0.8655	0.5009	0.0000
LINE CONNECTS KEYPOINTS 131 130				
LINE NO.= 220	KP1= 131	TAN1= 0.8541	-0.5201	0.0000
	KP2= 130	TAN2= -0.8541	0.5201	0.0000
LINE CONNECTS KEYPOINTS 130 129				
LINE NO.= 221	KP1= 130	TAN1= 0.8655	-0.5009	0.0000
	KP2= 129	TAN2= -0.8655	0.5009	0.0000
LINE CONNECTS KEYPOINTS 114 113				
LINE NO.= 222	KP1= 114	TAN1= 0.9850	-0.1727	0.0000
	KP2= 113	TAN2= -0.9850	0.1727	0.0000
LINE CONNECTS KEYPOINTS 121 120				
LINE NO.= 223	KP1= 121	TAN1= 0.9850	-0.1727	0.0000
	KP2= 120	TAN2= -0.9850	0.1727	0.0000
LINE CONNECTS KEYPOINTS 128 127				
LINE NO.= 224	KP1= 128	TAN1= 0.9850	-0.1727	0.0000
	KP2= 127	TAN2= -0.9850	0.1727	0.0000
SET DIVISIONS ON ALL SELECTED UNMESHED LINES				
TO NDIV = 1, SPACING RATIO = 1.000				
line set 7 tube thickness				
LINE CONNECTS KEYPOINTS 196 195				
LINE NO.= 225	KP1= 196	TAN1= 0.0000	-1.0000	0.0000
	KP2= 195	TAN2= 0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 205 201				
LINE NO.= 226	KP1= 205	TAN1= 0.7071	-0.7071	0.0000
	KP2= 201	TAN2= -0.7071	0.7071	0.0000
LINE CONNECTS KEYPOINTS 204 200				
LINE NO.= 227	KP1= 204	TAN1= 0.7071	0.7071	0.0000
	KP2= 200	TAN2= -0.7071	-0.7071	0.0000
LINE CONNECTS KEYPOINTS 193 194				
LINE NO.= 228	KP1= 193	TAN1= 0.0000	1.0000	0.0000
	KP2= 194	TAN2= 0.0000	-1.0000	0.0000
LINE CONNECTS KEYPOINTS 210 215				
LINE NO.= 229	KP1= 210	TAN1= -0.7071	-0.7071	0.0000
	KP2= 215	TAN2= 0.7071	0.7071	0.0000

LINE CONNECTS KEYPOINTS	220	217			
LINE NO.= 230	KP1= 220	TAN1= 0.7071	-0.7071	0.0000	
	KP2= 217	TAN2= -0.7071	0.7071	0.0000	
LINE CONNECTS KEYPOINTS	219	216			
LINE NO.= 231	KP1= 219	TAN1= 0.7071	0.7071	0.0000	
	KP2= 216	TAN2= -0.7071	-0.7071	0.0000	
LINE CONNECTS KEYPOINTS	209	214			
LINE NO.= 232	KP1= 209	TAN1= -0.7071	0.7071	0.0000	
	KP2= 214	TAN2= 0.7071	-0.7071	0.0000	
LINE CONNECTS KEYPOINTS	192	191			
LINE NO.= 233	KP1= 192	TAN1= 0.0000	-1.0000	0.0000	
	KP2= 191	TAN2= 0.0000	1.0000	0.0000	
LINE CONNECTS KEYPOINTS	203	199			
LINE NO.= 234	KP1= 203	TAN1= 0.7071	-0.7071	0.0000	
	KP2= 199	TAN2= -0.7071	0.7071	0.0000	
LINE CONNECTS KEYPOINTS	202	198			
LINE NO.= 235	KP1= 202	TAN1= 0.7071	0.7071	0.0000	
	KP2= 198	TAN2= -0.7071	-0.7071	0.0000	
LINE CONNECTS KEYPOINTS	189	190			
LINE NO.= 236	KP1= 189	TAN1= 0.0000	1.0000	0.0000	
	KP2= 190	TAN2= 0.0000	-1.0000	0.0000	
LINE CONNECTS KEYPOINTS	208	213			
LINE NO.= 237	KP1= 208	TAN1= -0.7071	-0.7071	0.0000	
	KP2= 213	TAN2= 0.7071	0.7071	0.0000	
LINE CONNECTS KEYPOINTS	159	155			
LINE NO.= 238	KP1= 159	TAN1= 0.7071	-0.7071	0.0000	
	KP2= 155	TAN2= -0.7071	0.7071	0.0000	
LINE CONNECTS KEYPOINTS	146	152			
LINE NO.= 239	KP1= 146	TAN1= 0.7071	0.7071	0.0000	
	KP2= 152	TAN2= -0.7071	-0.7071	0.0000	
LINE CONNECTS KEYPOINTS	145	151			
LINE NO.= 240	KP1= 145	TAN1= -0.7071	0.7071	0.0000	
	KP2= 151	TAN2= 0.7071	-0.7071	0.0000	
LINE CONNECTS KEYPOINTS	160	156			
LINE NO.= 241	KP1= 160	TAN1= -0.7071	-0.7071	0.0000	
	KP2= 156	TAN2= 0.7071	0.7071	0.0000	
LINE CONNECTS KEYPOINTS	161	157			
LINE NO.= 242	KP1= 161	TAN1= 0.7071	-0.7071	0.0000	
	KP2= 157	TAN2= -0.7071	0.7071	0.0000	
LINE CONNECTS KEYPOINTS	148	154			
LINE NO.= 243	KP1= 148	TAN1= 0.7071	0.7071	0.0000	
	KP2= 154	TAN2= -0.7071	-0.7071	0.0000	
LINE CONNECTS KEYPOINTS	147	153			
LINE NO.= 244	KP1= 147	TAN1= -0.7071	0.7071	0.0000	
	KP2= 153	TAN2= 0.7071	-0.7071	0.0000	
LINE CONNECTS KEYPOINTS	188	187			
LINE NO.= 245	KP1= 188	TAN1= 0.0000	-1.0000	0.0000	
	KP2= 187	TAN2= 0.0000	1.0000	0.0000	
LINE CONNECTS KEYPOINTS	138	133			
LINE NO.= 246	KP1= 138	TAN1= 0.7071	-0.7071	0.0000	
	KP2= 133	TAN2= -0.7071	0.7071	0.0000	
LINE CONNECTS KEYPOINTS	18	13			

LINE NO.= 247	KP1= 18	TAN1= 0.7071	0.7071	0.0000
	KP2= 13	TAN2= -0.7071	-0.7071	0.0000
LINE CONNECTS KEYPOINTS 69 68				
LINE NO.= 248	KP1= 69	TAN1= 0.0000	1.0000	0.0000
	KP2= 68	TAN2= 0.0000	-1.0000	0.0000
LINE CONNECTS KEYPOINTS 139 134				
LINE NO.= 249	KP1= 139	TAN1= -0.7071	-0.7071	0.0000
	KP2= 134	TAN2= 0.7071	0.7071	0.0000
LINE CONNECTS KEYPOINTS 140 135				
LINE NO.= 250	KP1= 140	TAN1= 0.7071	-0.7071	0.0000
	KP2= 135	TAN2= -0.7071	0.7071	0.0000
LINE CONNECTS KEYPOINTS 20 15				
LINE NO.= 251	KP1= 20	TAN1= 0.7071	0.7071	0.0000
	KP2= 15	TAN2= -0.7071	-0.7071	0.0000
LINE CONNECTS KEYPOINTS 19 14				
LINE NO.= 252	KP1= 19	TAN1= -0.7071	0.7071	0.0000
	KP2= 14	TAN2= 0.7071	-0.7071	0.0000
LINE CONNECTS KEYPOINTS 141 136				
LINE NO.= 253	KP1= 141	TAN1= -0.7071	-0.7071	0.0000
	KP2= 136	TAN2= 0.7071	0.7071	0.0000
LINE CONNECTS KEYPOINTS 142 137				
LINE NO.= 254	KP1= 142	TAN1= 0.7071	-0.7071	0.0000
	KP2= 137	TAN2= -0.7071	0.7071	0.0000
LINE CONNECTS KEYPOINTS 22 17				
LINE NO.= 255	KP1= 22	TAN1= 0.7071	0.7071	0.0000
	KP2= 17	TAN2= -0.7071	-0.7071	0.0000
LINE CONNECTS KEYPOINTS 21 16				
LINE NO.= 256	KP1= 21	TAN1= -0.7071	0.7071	0.0000
	KP2= 16	TAN2= 0.7071	-0.7071	0.0000
LINE CONNECTS KEYPOINTS 70 71				
LINE NO.= 257	KP1= 70	TAN1= 0.0000	-1.0000	0.0000
	KP2= 71	TAN2= 0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 85 80				
LINE NO.= 258	KP1= 85	TAN1= 0.7071	-0.7071	0.0000
	KP2= 80	TAN2= -0.7071	0.7071	0.0000
LINE CONNECTS KEYPOINTS 86 81				
LINE NO.= 259	KP1= 86	TAN1= 0.7071	0.7071	0.0000
	KP2= 81	TAN2= -0.7071	-0.7071	0.0000
LINE CONNECTS KEYPOINTS 73 72				
LINE NO.= 260	KP1= 73	TAN1= 0.0000	1.0000	0.0000
	KP2= 72	TAN2= 0.0000	-1.0000	0.0000
LINE CONNECTS KEYPOINTS 25 31				
LINE NO.= 261	KP1= 25	TAN1= -0.7071	-0.7071	0.0000
	KP2= 31	TAN2= 0.7071	0.7071	0.0000
LINE CONNECTS KEYPOINTS 26 32				
LINE NO.= 262	KP1= 26	TAN1= 0.7071	-0.7071	0.0000
	KP2= 32	TAN2= -0.7071	0.7071	0.0000
LINE CONNECTS KEYPOINTS 39 35				
LINE NO.= 263	KP1= 39	TAN1= 0.7071	0.7071	0.0000
	KP2= 35	TAN2= -0.7071	-0.7071	0.0000
LINE CONNECTS KEYPOINTS 92 98				
LINE NO.= 264	KP1= 92	TAN1= -0.7071	0.7071	0.0000
	KP2= 98	TAN2= 0.7071	-0.7071	0.0000

LINE CONNECTS KEYPOINTS		27	33			
LINE NO.=	265	KP1=	27	TAN1=	-0.7071	-0.7071 0.0000
		KP2=	33	TAN2=	0.7071	0.7071 0.0000
LINE CONNECTS KEYPOINTS		28	34			
LINE NO.=	266	KP1=	28	TAN1=	0.7071	-0.7071 0.0000
		KP2=	34	TAN2=	-0.7071	0.7071 0.0000
LINE CONNECTS KEYPOINTS		41	37			
LINE NO.=	267	KP1=	41	TAN1=	0.7071	0.7071 0.0000
		KP2=	37	TAN2=	-0.7071	-0.7071 0.0000
LINE CONNECTS KEYPOINTS		40	36			
LINE NO.=	268	KP1=	40	TAN1=	-0.7071	0.7071 0.0000
		KP2=	36	TAN2=	0.7071	-0.7071 0.0000
LINE CONNECTS KEYPOINTS		74	75			
LINE NO.=	269	KP1=	74	TAN1=	0.0000	-1.0000 0.0000
		KP2=	75	TAN2=	0.0000	1.0000 0.0000
LINE CONNECTS KEYPOINTS		87	82			
LINE NO.=	270	KP1=	87	TAN1=	0.7071	-0.7071 0.0000
		KP2=	82	TAN2=	-0.7071	0.7071 0.0000
LINE CONNECTS KEYPOINTS		88	83			
LINE NO.=	271	KP1=	88	TAN1=	0.7071	0.7071 0.0000
		KP2=	83	TAN2=	-0.7071	-0.7071 0.0000
LINE CONNECTS KEYPOINTS		77	76			
LINE NO.=	272	KP1=	77	TAN1=	0.0000	1.0000 0.0000
		KP2=	76	TAN2=	0.0000	-1.0000 0.0000
LINE CONNECTS KEYPOINTS		93	99			
LINE NO.=	273	KP1=	93	TAN1=	-0.7071	-0.7071 0.0000
		KP2=	99	TAN2=	0.7071	0.7071 0.0000
LINE CONNECTS KEYPOINTS		106	102			
LINE NO.=	274	KP1=	106	TAN1=	0.7071	-0.7071 0.0000
		KP2=	102	TAN2=	-0.7071	0.7071 0.0000
LINE CONNECTS KEYPOINTS		107	103			
LINE NO.=	275	KP1=	107	TAN1=	0.7071	0.7071 0.0000
		KP2=	103	TAN2=	-0.7071	-0.7071 0.0000
LINE CONNECTS KEYPOINTS		94	100			
LINE NO.=	276	KP1=	94	TAN1=	-0.7071	0.7071 0.0000
		KP2=	100	TAN2=	0.7071	-0.7071 0.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
TO NDIV = 1, SPACING RATIO = 1.000

ACTIVE COORDINATE SYSTEM SET TO 1 (CYLINDRICAL)
line set 8, arc 1 bottom

LINE CONNECTS KEYPOINTS		222	207			
LINE NO.=	277	KP1=	222	TAN1=	-1.0000	0.0000 0.0000
		KP2=	207	TAN2=	0.9862	0.1656 0.0000
LINE CONNECTS KEYPOINTS		223	224			
LINE NO.=	278	KP1=	223	TAN1=	-1.0000	0.0000 0.0000
		KP2=	224	TAN2=	0.9862	0.1656 0.0000
LINE CONNECTS KEYPOINTS		229	230			
LINE NO.=	279	KP1=	229	TAN1=	-1.0000	0.0000 0.0000
		KP2=	230	TAN2=	0.9862	0.1656 0.0000
LINE CONNECTS KEYPOINTS		235	236			
LINE NO.=	280	KP1=	235	TAN1=	-1.0000	0.0000 0.0000
		KP2=	236	TAN2=	0.9862	0.1656 0.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
 TO NDIV = 4, SPACING RATIO = 1.000
 line set 9, arc 2 side arcs

LINE CONNECTS KEYPOINTS		212	218			
LINE NO.=	281	KP1=	212	TAN1=	-0.9837	-0.1797 0.0000
		KP2=	218	TAN2=	0.8725	0.4887 0.0000

LINE CONNECTS KEYPOINTS		225	226			
LINE NO.=	282	KP1=	225	TAN1=	-0.9837	-0.1797 0.0000
		KP2=	226	TAN2=	0.8725	0.4887 0.0000

LINE CONNECTS KEYPOINTS		231	232			
LINE NO.=	283	KP1=	231	TAN1=	-0.9837	-0.1797 0.0000
		KP2=	232	TAN2=	0.8725	0.4887 0.0000

LINE CONNECTS KEYPOINTS		237	238			
LINE NO.=	284	KP1=	237	TAN1=	-0.9837	-0.1797 0.0000
		KP2=	238	TAN2=	0.8725	0.4887 0.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
 TO NDIV = 4, SPACING RATIO = 1.000
 line set 10, arc 3 side arcs

LINE CONNECTS KEYPOINTS		221	163			
LINE NO.=	285	KP1=	221	TAN1=	-0.8497	-0.5272 0.0000
		KP2=	163	TAN2=	0.5272	0.8497 0.0000

LINE CONNECTS KEYPOINTS		228	171			
LINE NO.=	286	KP1=	228	TAN1=	-0.8497	-0.5272 0.0000
		KP2=	171	TAN2=	0.5272	0.8497 0.0000

LINE CONNECTS KEYPOINTS		234	178			
LINE NO.=	287	KP1=	234	TAN1=	-0.8497	-0.5272 0.0000
		KP2=	178	TAN2=	0.5272	0.8497 0.0000

LINE CONNECTS KEYPOINTS		240	185			
LINE NO.=	288	KP1=	240	TAN1=	-0.8497	-0.5272 0.0000
		KP2=	185	TAN2=	0.5272	0.8497 0.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
 TO NDIV = 4, SPACING RATIO = 1.000
 line set 11, arc 4 side arcs

LINE CONNECTS KEYPOINTS		158	150			
LINE NO.=	289	KP1=	158	TAN1=	-0.4887	-0.8725 0.0000
		KP2=	150	TAN2=	0.1797	0.9837 0.0000

LINE CONNECTS KEYPOINTS		169	168			
LINE NO.=	290	KP1=	169	TAN1=	-0.4887	-0.8725 0.0000
		KP2=	168	TAN2=	0.1797	0.9837 0.0000

LINE CONNECTS KEYPOINTS		176	175			
LINE NO.=	291	KP1=	176	TAN1=	-0.4887	-0.8725 0.0000
		KP2=	175	TAN2=	0.1797	0.9837 0.0000

LINE CONNECTS KEYPOINTS		183	182			
LINE NO.=	292	KP1=	183	TAN1=	-0.4887	-0.8725 0.0000
		KP2=	182	TAN2=	0.1797	0.9837 0.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
 TO NDIV = 4, SPACING RATIO = 1.000
 line set 12, arc 5 side arcs

LINE CONNECTS KEYPOINTS		144	24			
LINE NO.=	293	KP1=	144	TAN1=	-0.1656	-0.9862 0.0000
		KP2=	24	TAN2=	-0.1656	0.9862 0.0000

LINE CONNECTS KEYPOINTS		167	47			
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LINE NO.= 294 KP1= 167 TAN1= -0.1656 -0.9862 0.0000
 KP2= 47 TAN2= -0.1656 0.9862 0.0000

LINE CONNECTS KEYPOINTS 174 54
 LINE NO.= 295 KP1= 174 TAN1= -0.1656 -0.9862 0.0000
 KP2= 54 TAN2= -0.1656 0.9862 0.0000

LINE CONNECTS KEYPOINTS 181 61
 LINE NO.= 296 KP1= 181 TAN1= -0.1656 -0.9862 0.0000
 KP2= 61 TAN2= -0.1656 0.9862 0.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
 TO NDIV = 4, SPACING RATIO = 1.000
 line set 13, arc 6 side arcs

LINE CONNECTS KEYPOINTS 30 38
 LINE NO.= 297 KP1= 30 TAN1= 0.1797 -0.9837 0.0000
 KP2= 38 TAN2= -0.4887 0.8725 0.0000

LINE CONNECTS KEYPOINTS 48 49
 LINE NO.= 298 KP1= 48 TAN1= 0.1797 -0.9837 0.0000
 KP2= 49 TAN2= -0.4887 0.8725 0.0000

LINE CONNECTS KEYPOINTS 55 56
 LINE NO.= 299 KP1= 55 TAN1= 0.1797 -0.9837 0.0000
 KP2= 56 TAN2= -0.4887 0.8725 0.0000

LINE CONNECTS KEYPOINTS 62 63
 LINE NO.= 300 KP1= 62 TAN1= 0.1797 -0.9837 0.0000
 KP2= 63 TAN2= -0.4887 0.8725 0.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
 TO NDIV = 4, SPACING RATIO = 1.000
 line set 14, arc 7 side arcs

LINE CONNECTS KEYPOINTS 43 109
 LINE NO.= 301 KP1= 43 TAN1= 0.5272 -0.8497 0.0000
 KP2= 109 TAN2= -0.8497 0.5272 0.0000

LINE CONNECTS KEYPOINTS 51 117
 LINE NO.= 302 KP1= 51 TAN1= 0.5272 -0.8497 0.0000
 KP2= 117 TAN2= -0.8497 0.5272 0.0000

LINE CONNECTS KEYPOINTS 58 124
 LINE NO.= 303 KP1= 58 TAN1= 0.5272 -0.8497 0.0000
 KP2= 124 TAN2= -0.8497 0.5272 0.0000

LINE CONNECTS KEYPOINTS 65 131
 LINE NO.= 304 KP1= 65 TAN1= 0.5272 -0.8497 0.0000
 KP2= 131 TAN2= -0.8497 0.5272 0.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
 TO NDIV = 4, SPACING RATIO = 1.000
 line set 15, arc 8 side arcs

LINE CONNECTS KEYPOINTS 104 96
 LINE NO.= 305 KP1= 104 TAN1= 0.8725 -0.4887 0.0000
 KP2= 96 TAN2= -0.9837 0.1797 0.0000

LINE CONNECTS KEYPOINTS 115 114
 LINE NO.= 306 KP1= 115 TAN1= 0.8725 -0.4887 0.0000
 KP2= 114 TAN2= -0.9837 0.1797 0.0000

LINE CONNECTS KEYPOINTS 122 121
 LINE NO.= 307 KP1= 122 TAN1= 0.8725 -0.4887 0.0000
 KP2= 121 TAN2= -0.9837 0.1797 0.0000

LINE CONNECTS KEYPOINTS 129 128
 LINE NO.= 308 KP1= 129 TAN1= 0.8725 -0.4887 0.0000
 KP2= 128 TAN2= -0.9837 0.1797 0.0000

SET DIVISIONS ON ALL SELECTED UNMESHD LINES
 TO NDIV = 4, SPACING RATIO = 1.000
 line set 16, arc 9 top arcs

LINE CONNECTS KEYPOINTS	90	110			
LINE NO.= 309	KP1= 90	TAN1= 0.9862	-0.1656	0.0000	
	KP2= 110	TAN2= -1.0000	0.0000	0.0000	

LINE CONNECTS KEYPOINTS	113	112			
LINE NO.= 310	KP1= 113	TAN1= 0.9862	-0.1656	0.0000	
	KP2= 112	TAN2= -1.0000	0.0000	0.0000	

LINE CONNECTS KEYPOINTS	120	119			
LINE NO.= 311	KP1= 120	TAN1= 0.9862	-0.1656	0.0000	
	KP2= 119	TAN2= -1.0000	0.0000	0.0000	

LINE CONNECTS KEYPOINTS	127	126			
LINE NO.= 312	KP1= 127	TAN1= 0.9862	-0.1656	0.0000	
	KP2= 126	TAN2= -1.0000	0.0000	0.0000	

SET DIVISIONS ON ALL SELECTED UNMESHD LINES
 TO NDIV = 4, SPACING RATIO = 1.000

ACTIVE COORDINATE SYSTEM SET TO 0 (CARTESIAN)
 line set 17 IB thickness

LINE CONNECTS KEYPOINTS	222	223			
LINE NO.= 313	KP1= 222	TAN1= 0.0000	1.0000	0.0000	
	KP2= 223	TAN2= 0.0000	-1.0000	0.0000	

LINE CONNECTS KEYPOINTS	207	224			
LINE NO.= 314	KP1= 207	TAN1= -0.1656	0.9862	0.0000	
	KP2= 224	TAN2= 0.1656	-0.9862	0.0000	

LINE CONNECTS KEYPOINTS	212	225			
LINE NO.= 315	KP1= 212	TAN1= -0.1797	0.9837	0.0000	
	KP2= 225	TAN2= 0.1797	-0.9837	0.0000	

LINE CONNECTS KEYPOINTS	218	226			
LINE NO.= 316	KP1= 218	TAN1= -0.4887	0.8725	0.0000	
	KP2= 226	TAN2= 0.4887	-0.8725	0.0000	

LINE CONNECTS KEYPOINTS	220	227			
LINE NO.= 317	KP1= 220	TAN1= -0.5130	0.8584	0.0000	
	KP2= 227	TAN2= 0.5130	-0.8584	0.0000	

LINE CONNECTS KEYPOINTS	221	228			
LINE NO.= 318	KP1= 221	TAN1= -0.5272	0.8497	0.0000	
	KP2= 228	TAN2= 0.5272	-0.8497	0.0000	

LINE CONNECTS KEYPOINTS	163	171			
LINE NO.= 319	KP1= 163	TAN1= -0.8497	0.5272	0.0000	
	KP2= 171	TAN2= 0.8497	-0.5272	0.0000	

LINE CONNECTS KEYPOINTS	161	170			
LINE NO.= 320	KP1= 161	TAN1= -0.8584	0.5130	0.0000	
	KP2= 170	TAN2= 0.8584	-0.5130	0.0000	

LINE CONNECTS KEYPOINTS	158	169			
LINE NO.= 321	KP1= 158	TAN1= -0.8725	0.4887	0.0000	
	KP2= 169	TAN2= 0.8725	-0.4887	0.0000	

LINE CONNECTS KEYPOINTS	150	168			
LINE NO.= 322	KP1= 150	TAN1= -0.9837	0.1797	0.0000	
	KP2= 168	TAN2= 0.9837	-0.1797	0.0000	

LINE CONNECTS KEYPOINTS	144	167			
LINE NO.= 323	KP1= 144	TAN1= -0.9862	0.1656	0.0000	
	KP2= 167	TAN2= 0.9862	-0.1656	0.0000	

LINE CONNECTS KEYPOINTS 24 47
 LINE NO.= 324 KP1= 24 TAN1= -0.9862 -0.1656 0.0000
 KP2= 47 TAN2= 0.9862 0.1656 0.0000

LINE CONNECTS KEYPOINTS 30 48
 LINE NO.= 325 KP1= 30 TAN1= -0.9837 -0.1797 0.0000
 KP2= 48 TAN2= 0.9837 0.1797 0.0000

LINE CONNECTS KEYPOINTS 38 49
 LINE NO.= 326 KP1= 38 TAN1= -0.8725 -0.4887 0.0000
 KP2= 49 TAN2= 0.8725 0.4887 0.0000

LINE CONNECTS KEYPOINTS 41 50
 LINE NO.= 327 KP1= 41 TAN1= -0.8584 -0.5130 0.0000
 KP2= 50 TAN2= 0.8584 0.5130 0.0000

LINE CONNECTS KEYPOINTS 43 51
 LINE NO.= 328 KP1= 43 TAN1= -0.8497 -0.5272 0.0000
 KP2= 51 TAN2= 0.8497 0.5272 0.0000

LINE CONNECTS KEYPOINTS 109 117
 LINE NO.= 329 KP1= 109 TAN1= -0.5272 -0.8497 0.0000
 KP2= 117 TAN2= 0.5272 0.8497 0.0000

LINE CONNECTS KEYPOINTS 107 116
 LINE NO.= 330 KP1= 107 TAN1= -0.5130 -0.8584 0.0000
 KP2= 116 TAN2= 0.5130 0.8584 0.0000

LINE CONNECTS KEYPOINTS 104 115
 LINE NO.= 331 KP1= 104 TAN1= -0.4887 -0.8725 0.0000
 KP2= 115 TAN2= 0.4887 0.8725 0.0000

LINE CONNECTS KEYPOINTS 96 114
 LINE NO.= 332 KP1= 96 TAN1= -0.1797 -0.9837 0.0000
 KP2= 114 TAN2= 0.1797 0.9837 0.0000

LINE CONNECTS KEYPOINTS 90 113
 LINE NO.= 333 KP1= 90 TAN1= -0.1656 -0.9862 0.0000
 KP2= 113 TAN2= 0.1656 0.9862 0.0000

LINE CONNECTS KEYPOINTS 110 112
 LINE NO.= 334 KP1= 110 TAN1= 0.0000 -1.0000 0.0000
 KP2= 112 TAN2= 0.0000 1.0000 0.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
 TO NDIV = 2, SPACING RATIO = 1.000
 line set 18 OB inner thickness

LINE CONNECTS KEYPOINTS 223 229
 LINE NO.= 335 KP1= 223 TAN1= 0.0000 1.0000 0.0000
 KP2= 229 TAN2= 0.0000 -1.0000 0.0000

LINE CONNECTS KEYPOINTS 224 230
 LINE NO.= 336 KP1= 224 TAN1= -0.1656 0.9862 0.0000
 KP2= 230 TAN2= 0.1656 -0.9862 0.0000

LINE CONNECTS KEYPOINTS 225 231
 LINE NO.= 337 KP1= 225 TAN1= -0.1797 0.9837 0.0000
 KP2= 231 TAN2= 0.1797 -0.9837 0.0000

LINE CONNECTS KEYPOINTS 226 232
 LINE NO.= 338 KP1= 226 TAN1= -0.4887 0.8725 0.0000
 KP2= 232 TAN2= 0.4887 -0.8725 0.0000

LINE CONNECTS KEYPOINTS 227 233
 LINE NO.= 339 KP1= 227 TAN1= -0.5130 0.8584 0.0000
 KP2= 233 TAN2= 0.5130 -0.8584 0.0000

LINE CONNECTS KEYPOINTS 228 234

LINE NO.= 340	KP1= 228	TAN1= -0.5272	0.8497	0.0000
	KP2= 234	TAN2= 0.5272	-0.8497	0.0000
LINE CONNECTS KEYPOINTS 171 178				
LINE NO.= 341	KP1= 171	TAN1= -0.8497	0.5272	0.0000
	KP2= 178	TAN2= 0.8497	-0.5272	0.0000
LINE CONNECTS KEYPOINTS 170 177				
LINE NO.= 342	KP1= 170	TAN1= -0.8584	0.5130	0.0000
	KP2= 177	TAN2= 0.8584	-0.5130	0.0000
LINE CONNECTS KEYPOINTS 169 176				
LINE NO.= 343	KP1= 169	TAN1= -0.8725	0.4887	0.0000
	KP2= 176	TAN2= 0.8725	-0.4887	0.0000
LINE CONNECTS KEYPOINTS 168 175				
LINE NO.= 344	KP1= 168	TAN1= -0.9837	0.1797	0.0000
	KP2= 175	TAN2= 0.9837	-0.1797	0.0000
LINE CONNECTS KEYPOINTS 167 174				
LINE NO.= 345	KP1= 167	TAN1= -0.9862	0.1656	0.0000
	KP2= 174	TAN2= 0.9862	-0.1656	0.0000
LINE CONNECTS KEYPOINTS 47 54				
LINE NO.= 346	KP1= 47	TAN1= -0.9862	-0.1656	0.0000
	KP2= 54	TAN2= 0.9862	0.1656	0.0000
LINE CONNECTS KEYPOINTS 48 55				
LINE NO.= 347	KP1= 48	TAN1= -0.9837	-0.1797	0.0000
	KP2= 55	TAN2= 0.9837	0.1797	0.0000
LINE CONNECTS KEYPOINTS 49 56				
LINE NO.= 348	KP1= 49	TAN1= -0.8725	-0.4887	0.0000
	KP2= 56	TAN2= 0.8725	0.4887	0.0000
LINE CONNECTS KEYPOINTS 50 57				
LINE NO.= 349	KP1= 50	TAN1= -0.8584	-0.5130	0.0000
	KP2= 57	TAN2= 0.8584	0.5130	0.0000
LINE CONNECTS KEYPOINTS 51 58				
LINE NO.= 350	KP1= 51	TAN1= -0.8497	-0.5272	0.0000
	KP2= 58	TAN2= 0.8497	0.5272	0.0000
LINE CONNECTS KEYPOINTS 117 124				
LINE NO.= 351	KP1= 117	TAN1= -0.5272	-0.8497	0.0000
	KP2= 124	TAN2= 0.5272	0.8497	0.0000
LINE CONNECTS KEYPOINTS 116 123				
LINE NO.= 352	KP1= 116	TAN1= -0.5130	-0.8584	0.0000
	KP2= 123	TAN2= 0.5130	0.8584	0.0000
LINE CONNECTS KEYPOINTS 115 122				
LINE NO.= 353	KP1= 115	TAN1= -0.4887	-0.8725	0.0000
	KP2= 122	TAN2= 0.4887	0.8725	0.0000
LINE CONNECTS KEYPOINTS 114 121				
LINE NO.= 354	KP1= 114	TAN1= -0.1797	-0.9837	0.0000
	KP2= 121	TAN2= 0.1797	0.9837	0.0000
LINE CONNECTS KEYPOINTS 113 120				
LINE NO.= 355	KP1= 113	TAN1= -0.1656	-0.9862	0.0000
	KP2= 120	TAN2= 0.1656	0.9862	0.0000
LINE CONNECTS KEYPOINTS 112 119				
LINE NO.= 356	KP1= 112	TAN1= 0.0000	-1.0000	0.0000
	KP2= 119	TAN2= 0.0000	1.0000	0.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
 TO NDIV = 2, SPACING RATIO = 1.000
 line set 19 skirt thickness

LINE CONNECTS KEYPOINTS	229	235			
LINE NO.= 357 KP1=	229	TAN1=	0.0000	1.0000	0.0000
KP2=	235	TAN2=	0.0000	-1.0000	0.0000
LINE CONNECTS KEYPOINTS	230	236			
LINE NO.= 358 KP1=	230	TAN1=	-0.1656	0.9862	0.0000
KP2=	236	TAN2=	0.1656	-0.9862	0.0000
LINE CONNECTS KEYPOINTS	231	237			
LINE NO.= 359 KP1=	231	TAN1=	-0.1797	0.9837	0.0000
KP2=	237	TAN2=	0.1797	-0.9837	0.0000
LINE CONNECTS KEYPOINTS	232	238			
LINE NO.= 360 KP1=	232	TAN1=	-0.4887	0.8725	0.0000
KP2=	238	TAN2=	0.4887	-0.8725	0.0000
LINE CONNECTS KEYPOINTS	233	239			
LINE NO.= 361 KP1=	233	TAN1=	-0.5130	0.8584	0.0000
KP2=	239	TAN2=	0.5130	-0.8584	0.0000
LINE CONNECTS KEYPOINTS	234	240			
LINE NO.= 362 KP1=	234	TAN1=	-0.5272	0.8497	0.0000
KP2=	240	TAN2=	0.5272	-0.8497	0.0000
LINE CONNECTS KEYPOINTS	178	185			
LINE NO.= 363 KP1=	178	TAN1=	-0.8497	0.5272	0.0000
KP2=	185	TAN2=	0.8497	-0.5272	0.0000
LINE CONNECTS KEYPOINTS	177	184			
LINE NO.= 364 KP1=	177	TAN1=	-0.8584	0.5130	0.0000
KP2=	184	TAN2=	0.8584	-0.5130	0.0000
LINE CONNECTS KEYPOINTS	176	183			
LINE NO.= 365 KP1=	176	TAN1=	-0.8725	0.4887	0.0000
KP2=	183	TAN2=	0.8725	-0.4887	0.0000
LINE CONNECTS KEYPOINTS	175	182			
LINE NO.= 366 KP1=	175	TAN1=	-0.9837	0.1797	0.0000
KP2=	182	TAN2=	0.9837	-0.1797	0.0000
LINE CONNECTS KEYPOINTS	174	181			
LINE NO.= 367 KP1=	174	TAN1=	-0.9862	0.1656	0.0000
KP2=	181	TAN2=	0.9862	-0.1656	0.0000
LINE CONNECTS KEYPOINTS	54	61			
LINE NO.= 368 KP1=	54	TAN1=	-0.9862	-0.1656	0.0000
KP2=	61	TAN2=	0.9862	0.1656	0.0000
LINE CONNECTS KEYPOINTS	55	62			
LINE NO.= 369 KP1=	55	TAN1=	-0.9837	-0.1797	0.0000
KP2=	62	TAN2=	0.9837	0.1797	0.0000
LINE CONNECTS KEYPOINTS	56	63			
LINE NO.= 370 KP1=	56	TAN1=	-0.8725	-0.4887	0.0000
KP2=	63	TAN2=	0.8725	0.4887	0.0000
LINE CONNECTS KEYPOINTS	57	64			
LINE NO.= 371 KP1=	57	TAN1=	-0.8584	-0.5130	0.0000
KP2=	64	TAN2=	0.8584	0.5130	0.0000
LINE CONNECTS KEYPOINTS	58	65			
LINE NO.= 372 KP1=	58	TAN1=	-0.8497	-0.5272	0.0000
KP2=	65	TAN2=	0.8497	0.5272	0.0000
LINE CONNECTS KEYPOINTS	124	131			
LINE NO.= 373 KP1=	124	TAN1=	-0.5272	-0.8497	0.0000
KP2=	131	TAN2=	0.5272	0.8497	0.0000
LINE CONNECTS KEYPOINTS	123	130			

LINE NO.= 374 KP1= 123 TAN1= -0.5130 -0.8584 0.0000
 KP2= 130 TAN2= 0.5130 0.8584 0.0000

LINE CONNECTS KEYPOINTS 122 129
 LINE NO.= 375 KP1= 122 TAN1= -0.4887 -0.8725 0.0000
 KP2= 129 TAN2= 0.4887 0.8725 0.0000

LINE CONNECTS KEYPOINTS 121 128
 LINE NO.= 376 KP1= 121 TAN1= -0.1797 -0.9837 0.0000
 KP2= 128 TAN2= 0.1797 0.9837 0.0000

LINE CONNECTS KEYPOINTS 120 127
 LINE NO.= 377 KP1= 120 TAN1= -0.1656 -0.9862 0.0000
 KP2= 127 TAN2= 0.1656 0.9862 0.0000

LINE CONNECTS KEYPOINTS 119 126
 LINE NO.= 378 KP1= 119 TAN1= 0.0000 -1.0000 0.0000
 KP2= 126 TAN2= 0.0000 1.0000 0.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
 TO NDIV = 2, SPACING RATIO = 1.000
 area set 1, tubes

DEFINE AREA BY LIST OF KEYPOINTS
 KEYPOINT LIST = 195 196 205 201

AREA NUMBER = 1

DEFINE AREA BY LIST OF KEYPOINTS
 KEYPOINT LIST = 200 201 205 204

AREA NUMBER = 2

DEFINE AREA BY LIST OF KEYPOINTS
 KEYPOINT LIST = 193 194 200 204

AREA NUMBER = 3

DEFINE AREA BY LIST OF KEYPOINTS
 KEYPOINT LIST = 191 192 203 199

AREA NUMBER = 4

DEFINE AREA BY LIST OF KEYPOINTS
 KEYPOINT LIST = 198 199 203 202

AREA NUMBER = 5

DEFINE AREA BY LIST OF KEYPOINTS
 KEYPOINT LIST = 189 190 198 202

AREA NUMBER = 6

DEFINE AREA BY LIST OF KEYPOINTS
 KEYPOINT LIST = 187 188 138 133

AREA NUMBER = 7

DEFINE AREA BY LIST OF KEYPOINTS
 KEYPOINT LIST = 133 138 18 13

AREA NUMBER = 8

DEFINE AREA BY LIST OF KEYPOINTS
 KEYPOINT LIST = 69 68 13 18

AREA NUMBER = 9

DEFINE AREA BY LIST OF KEYPOINTS
 KEYPOINT LIST = 71 70 85 80

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AREA NUMBER = 10
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 80 85 86 81
AREA NUMBER = 11
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 73 72 81 86
AREA NUMBER = 12
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 75 74 87 82
AREA NUMBER = 13
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 82 87 88 83
AREA NUMBER = 14
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 77 76 83 88
AREA NUMBER = 15
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 209 210 215 214
AREA NUMBER = 16
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 215 210 220 217
AREA NUMBER = 17
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 216 217 220 219
AREA NUMBER = 18
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 209 214 216 219
AREA NUMBER = 19
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 145 208 213 151
AREA NUMBER = 20
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 213 208 159 155
AREA NUMBER = 21
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 152 155 159 146
AREA NUMBER = 22
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 145 151 152 146
AREA NUMBER = 23
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 134 139 140 135
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AREA NUMBER = 24

DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 135 140 20 15

AREA NUMBER = 25

DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 19 14 15 20

AREA NUMBER = 26

DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 19 139 134 14

AREA NUMBER = 27

DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 92 25 31 98

AREA NUMBER = 28

DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 31 25 26 32

AREA NUMBER = 29

DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 32 26 39 35

AREA NUMBER = 30

DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 92 98 35 39

AREA NUMBER = 31

DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 94 93 99 100

AREA NUMBER = 32

DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 99 93 106 102

AREA NUMBER = 33

DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 102 106 107 103

AREA NUMBER = 34

DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 94 100 103 107

AREA NUMBER = 35

DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 156 160 161 157

AREA NUMBER = 36

DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 157 161 148 154

AREA NUMBER = 37

DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 147 153 154 148

AREA NUMBER = 38

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 147 160 156 153

AREA NUMBER = 39

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 136 141 142 137

AREA NUMBER = 40

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 137 142 22 17

AREA NUMBER = 41

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 21 16 17 22

AREA NUMBER = 42

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 21 141 136 16

AREA NUMBER = 43

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 33 27 28 34

AREA NUMBER = 44

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 34 28 41 37

AREA NUMBER = 45

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 40 36 37 41

AREA NUMBER = 46

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 40 27 33 36

AREA NUMBER = 47

area set 2, plates

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 204 205 210 209

AREA NUMBER = 48

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 192 193 204 203

AREA NUMBER = 49

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 203 204 209 208

AREA NUMBER = 50

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 208 209 219 159

AREA NUMBER = 51

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 202 203 208 145

AREA NUMBER = 52

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 146 159 160 147

AREA NUMBER = 53

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 188 189 202 138

AREA NUMBER = 54

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 138 202 145 139

AREA NUMBER = 55

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 139 145 146 140

AREA NUMBER = 56

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 140 146 147 141

AREA NUMBER = 57

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 141 147 148 142

AREA NUMBER = 58

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 18 138 139 19

AREA NUMBER = 59

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 20 140 141 21

AREA NUMBER = 60

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 70 69 18 35

AREA NUMBER = 61

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 85 18 19 25

AREA NUMBER = 62

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 25 19 20 26

AREA NUMBER = 63

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 26 20 21 27

AREA NUMBER = 64

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 27 21 22 28

AREA NUMBER = 65

DEFINE AREA BY LIST OF KEYPOINTS

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KEYPOINT LIST =      86      85      25      92
  AREA NUMBER =      66

DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST =      39      26      27      40
  AREA NUMBER =      67

DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST =      74      73      86      87
  AREA NUMBER =      68

DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST =      87      86      92      93
  AREA NUMBER =      69

DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST =      93      92      39     106
  AREA NUMBER =      70

DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST =      88      87      93      94
  AREA NUMBER =      71
area set 3, end guides

DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST =     196     197     206     205
  AREA NUMBER =      72

DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST =     205     206     211     210
  AREA NUMBER =      73

DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST =     206     207     212     211
  AREA NUMBER =      74

DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST =     210     211     218     220
  AREA NUMBER =      75

DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST =     148     161     158     149
  AREA NUMBER =      76

DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST =     142     148     149     143
  AREA NUMBER =      77

DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST =     143     149     150     144
  AREA NUMBER =      78

DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST =      22     142     143     123
  AREA NUMBER =      79

```


DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 28 22 23 29

AREA NUMBER = 80

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 29 23 24 30

AREA NUMBER = 81

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 41 28 29 38

AREA NUMBER = 82

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 95 94 107 104

AREA NUMBER = 83

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 89 88 94 95

AREA NUMBER = 84

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 90 89 95 96

AREA NUMBER = 85

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 78 77 88 89

AREA NUMBER = 86

area set 4, corner guides

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 219 220 221 162

AREA NUMBER = 87

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 159 219 162 160

AREA NUMBER = 88

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 160 162 163 161

AREA NUMBER = 89

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 107 106 42 139

AREA NUMBER = 90

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 106 39 40 42

AREA NUMBER = 91

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 42 40 41 43

AREA NUMBER = 92

ACTIVE COORDINATE SYSTEM SET TO 1 (CYLINDRICAL)

area set 5, inner barrier

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 222 223 224 207

AREA NUMBER = 93

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 207 224 225 212

AREA NUMBER = 94

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 212 225 226 218

AREA NUMBER = 95

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 218 226 227 220

AREA NUMBER = 96

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 220 227 228 221

AREA NUMBER = 97

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 221 228 171 163

AREA NUMBER = 98

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 163 171 170 161

AREA NUMBER = 99

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 161 170 169 158

AREA NUMBER = 100

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 158 169 168 150

AREA NUMBER = 101

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 150 168 167 144

AREA NUMBER = 102

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 144 167 47 24

AREA NUMBER = 103

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 24 47 48 30

AREA NUMBER = 104

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 30 48 49 38

AREA NUMBER = 105

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 38 49 50 41

AREA NUMBER = 106

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 41 50 51 43
AREA NUMBER = 107

DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 43 51 117 109
AREA NUMBER = 108

DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 109 117 116 107
AREA NUMBER = 109

DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 107 116 115 104
AREA NUMBER = 110

DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 104 115 114 96
AREA NUMBER = 111

DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 90 96 114 113
AREA NUMBER = 112

DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 90 113 112 110
AREA NUMBER = 113
area set 6, outer barrier

DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 223 229 230 224
AREA NUMBER = 114

DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 224 230 231 225
AREA NUMBER = 115

DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 225 231 232 226
AREA NUMBER = 116

DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 226 232 233 227
AREA NUMBER = 117

DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 227 233 234 228
AREA NUMBER = 118

DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 228 234 178 171
AREA NUMBER = 119

DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 171 178 177 170
AREA NUMBER = 120

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 170 177 176 169

AREA NUMBER = 121

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 169 176 175 168

AREA NUMBER = 122

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 168 175 174 167

AREA NUMBER = 123

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 167 174 54 47

AREA NUMBER = 124

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 47 54 55 48

AREA NUMBER = 125

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 48 55 56 49

AREA NUMBER = 126

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 49 56 57 50

AREA NUMBER = 127

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 50 57 58 51

AREA NUMBER = 128

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 51 58 124 117

AREA NUMBER = 129

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 117 124 123 116

AREA NUMBER = 130

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 116 123 122 115

AREA NUMBER = 131

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 115 122 121 114

AREA NUMBER = 132

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 114 121 120 113

AREA NUMBER = 133

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 113 120 119 112

AREA NUMBER = 134

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 229 235 236 230

AREA NUMBER = 135

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 236 237 231 230

AREA NUMBER = 136

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 231 237 238 232

AREA NUMBER = 137

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 238 239 233 232

AREA NUMBER = 138

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 239 240 234 233

AREA NUMBER = 139

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 240 185 178 234

AREA NUMBER = 140

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 185 184 177 178

AREA NUMBER = 141

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 184 183 176 177

AREA NUMBER = 142

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 176 183 182 175

AREA NUMBER = 143

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 175 182 181 174

AREA NUMBER = 144

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 174 181 61 54

AREA NUMBER = 145

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 54 61 62 55

AREA NUMBER = 146

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 55 62 63 56

AREA NUMBER = 147

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 56 63 64 57

AREA NUMBER = 148

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 57 64 65 58

AREA NUMBER = 149

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 58 65 131 124

AREA NUMBER = 150

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 124 131 130 123

AREA NUMBER = 151

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 123 130 129 122

AREA NUMBER = 152

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 122 129 128 121

AREA NUMBER = 153

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 121 128 127 120

AREA NUMBER = 154

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 120 127 126 119

AREA NUMBER = 155

ACTIVE COORDINATE SYSTEM SET TO 0 (CARTESIAN)

DRAG ALL SELECTED AREAS

ALONG LINES

1,

*** WARNING *** CP= 5.940 TIME= 17:50:05
Area 1 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.940 TIME= 17:50:05
Area 2 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.940 TIME= 17:50:05
Area 3 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.940 TIME= 17:50:05
Area 4 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.940 TIME= 17:50:05
Area 5 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.940 TIME= 17:50:05
Area 6 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.940 TIME= 17:50:05
Area 7 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.950 TIME= 17:50:05
Area 8 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.950 TIME= 17:50:05
Area 9 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.950 TIME= 17:50:05
Area 10 is not meshed. Volume will be generated without elements.

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*** WARNING ***           CP=    5.950  TIME= 17:50:05
Area 11 is not meshed. Volume will be generated without elements.

*** WARNING ***           CP=    5.950  TIME= 17:50:05
Area 12 is not meshed. Volume will be generated without elements.

*** WARNING ***           CP=    5.950  TIME= 17:50:05
Area 13 is not meshed. Volume will be generated without elements.

*** WARNING ***           CP=    5.950  TIME= 17:50:05
Area 14 is not meshed. Volume will be generated without elements.

*** WARNING ***           CP=    5.950  TIME= 17:50:05
Area 15 is not meshed. Volume will be generated without elements.

*** WARNING ***           CP=    5.950  TIME= 17:50:05
Area 16 is not meshed. Volume will be generated without elements.

*** WARNING ***           CP=    5.950  TIME= 17:50:05
Area 17 is not meshed. Volume will be generated without elements.

*** WARNING ***           CP=    5.950  TIME= 17:50:05
Area 18 is not meshed. Volume will be generated without elements.

*** WARNING ***           CP=    5.950  TIME= 17:50:05
Area 19 is not meshed. Volume will be generated without elements.

*** WARNING ***           CP=    5.960  TIME= 17:50:05
Area 20 is not meshed. Volume will be generated without elements.

*** WARNING ***           CP=    5.960  TIME= 17:50:05
Area 21 is not meshed. Volume will be generated without elements.

*** WARNING ***           CP=    5.960  TIME= 17:50:05
Area 22 is not meshed. Volume will be generated without elements.

*** WARNING ***           CP=    5.960  TIME= 17:50:05
Area 23 is not meshed. Volume will be generated without elements.

*** WARNING ***           CP=    5.960  TIME= 17:50:05
Area 24 is not meshed. Volume will be generated without elements.

*** WARNING ***           CP=    5.960  TIME= 17:50:05
Area 25 is not meshed. Volume will be generated without elements.

*** WARNING ***           CP=    5.960  TIME= 17:50:05
Area 26 is not meshed. Volume will be generated without elements.

*** WARNING ***           CP=    5.960  TIME= 17:50:05
Area 27 is not meshed. Volume will be generated without elements.

*** WARNING ***           CP=    5.960  TIME= 17:50:05
Area 28 is not meshed. Volume will be generated without elements.

*** WARNING ***           CP=    5.960  TIME= 17:50:05
Area 29 is not meshed. Volume will be generated without elements.

*** WARNING ***           CP=    5.960  TIME= 17:50:05
Area 30 is not meshed. Volume will be generated without elements.

*** WARNING ***           CP=    5.960  TIME= 17:50:05
Area 31 is not meshed. Volume will be generated without elements.

*** WARNING ***           CP=    5.970  TIME= 17:50:05
Area 32 is not meshed. Volume will be generated without elements.

*** WARNING ***           CP=    5.970  TIME= 17:50:05
Area 33 is not meshed. Volume will be generated without elements.
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*** WARNING *** CP= 5.970 TIME= 17:50:05
Area 34 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.970 TIME= 17:50:05
Area 35 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.970 TIME= 17:50:05
Area 36 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.970 TIME= 17:50:05
Area 37 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.970 TIME= 17:50:05
Area 38 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.970 TIME= 17:50:05
Area 39 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.970 TIME= 17:50:05
Area 40 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.970 TIME= 17:50:05
Area 41 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.970 TIME= 17:50:05
Area 42 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.970 TIME= 17:50:05
Area 43 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.980 TIME= 17:50:05
Area 44 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.980 TIME= 17:50:05
Area 45 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.980 TIME= 17:50:05
Area 46 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.980 TIME= 17:50:05
Area 47 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.980 TIME= 17:50:05
Area 48 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.980 TIME= 17:50:05
Area 49 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.980 TIME= 17:50:05
Area 50 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.980 TIME= 17:50:05
Area 51 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.980 TIME= 17:50:05
Area 52 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.980 TIME= 17:50:05
Area 53 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.980 TIME= 17:50:05
Area 54 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.990 TIME= 17:50:05
Area 55 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.990 TIME= 17:50:05
Area 56 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.990 TIME= 17:50:05

Area 57 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.990 TIME= 17:50:05
Area 58 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.990 TIME= 17:50:05
Area 59 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.990 TIME= 17:50:05
Area 60 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.990 TIME= 17:50:05
Area 61 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.990 TIME= 17:50:05
Area 62 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.990 TIME= 17:50:05
Area 63 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.000 TIME= 17:50:05
Area 64 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.000 TIME= 17:50:05
Area 65 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.000 TIME= 17:50:05
Area 66 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.000 TIME= 17:50:05
Area 67 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.000 TIME= 17:50:05
Area 68 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.000 TIME= 17:50:05
Area 69 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.000 TIME= 17:50:05
Area 70 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.000 TIME= 17:50:05
Area 71 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.000 TIME= 17:50:05
Area 72 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.000 TIME= 17:50:05
Area 73 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.000 TIME= 17:50:05
Area 74 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.010 TIME= 17:50:05
Area 75 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.010 TIME= 17:50:05
Area 76 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.010 TIME= 17:50:05
Area 77 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.010 TIME= 17:50:05
Area 78 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.010 TIME= 17:50:05
Area 79 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.010 TIME= 17:50:05
Area 80 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.010 TIME= 17:50:05
Area 81 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.010 TIME= 17:50:05
Area 82 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.010 TIME= 17:50:05
Area 83 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.010 TIME= 17:50:05
Area 84 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.010 TIME= 17:50:05
Area 85 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.020 TIME= 17:50:05
Area 86 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.020 TIME= 17:50:05
Area 87 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.020 TIME= 17:50:05
Area 88 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.020 TIME= 17:50:05
Area 89 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.020 TIME= 17:50:05
Area 90 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.020 TIME= 17:50:05
Area 91 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.020 TIME= 17:50:05
Area 92 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.020 TIME= 17:50:05
Area 93 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.020 TIME= 17:50:05
Area 94 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.020 TIME= 17:50:05
Area 95 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.020 TIME= 17:50:05
Area 96 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.020 TIME= 17:50:05
Area 97 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.030 TIME= 17:50:05
Area 98 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.030 TIME= 17:50:05
Area 99 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.030 TIME= 17:50:05
Area 100 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.030 TIME= 17:50:05
Area 101 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.030 TIME= 17:50:05
Area 102 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.030 TIME= 17:50:05
Area 103 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.030 TIME= 17:50:05
Area 104 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.030 TIME= 17:50:05
Area 105 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.030 TIME= 17:50:05
Area 106 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.030 TIME= 17:50:05
Area 107 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.030 TIME= 17:50:05
Area 108 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.040 TIME= 17:50:05
Area 109 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.040 TIME= 17:50:05
Area 110 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.040 TIME= 17:50:05
Area 111 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.040 TIME= 17:50:05
Area 112 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.040 TIME= 17:50:05
Area 113 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.040 TIME= 17:50:05
Area 114 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.040 TIME= 17:50:05
Area 115 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.040 TIME= 17:50:05
Area 116 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.040 TIME= 17:50:05
Area 117 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.040 TIME= 17:50:05
Area 118 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.040 TIME= 17:50:05
Area 119 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.040 TIME= 17:50:05
Area 120 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.050 TIME= 17:50:05
Area 121 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.050 TIME= 17:50:05
Area 122 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.050 TIME= 17:50:05
Area 123 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.050 TIME= 17:50:05
Area 124 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.050 TIME= 17:50:05
Area 125 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.050 TIME= 17:50:05
Area 126 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.050 TIME= 17:50:05

Area 127 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.050 TIME= 17:50:05
Area 128 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.050 TIME= 17:50:05
Area 129 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.050 TIME= 17:50:05
Area 130 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.050 TIME= 17:50:05
Area 131 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.060 TIME= 17:50:05
Area 132 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.060 TIME= 17:50:05
Area 133 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.060 TIME= 17:50:05
Area 134 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.060 TIME= 17:50:05
Area 135 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.060 TIME= 17:50:05
Area 136 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.060 TIME= 17:50:05
Area 137 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.060 TIME= 17:50:05
Area 138 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.060 TIME= 17:50:05
Area 139 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.060 TIME= 17:50:05
Area 140 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.060 TIME= 17:50:05
Area 141 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.060 TIME= 17:50:05
Area 142 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.070 TIME= 17:50:05
Area 143 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.070 TIME= 17:50:05
Area 144 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.070 TIME= 17:50:05
Area 145 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.070 TIME= 17:50:05
Area 146 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.070 TIME= 17:50:05
Area 147 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.080 TIME= 17:50:05
Area 148 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.080 TIME= 17:50:05
Area 149 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.080 TIME= 17:50:05
Area 150 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.080 TIME= 17:50:05
Area 151 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.080 TIME= 17:50:05
Area 152 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.080 TIME= 17:50:05
Area 153 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.080 TIME= 17:50:05
Area 154 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.080 TIME= 17:50:05
Area 155 is not meshed. Volume will be generated without elements.

SELECT FOR ITEM=LOC COMPONENT=Z BETWEEN 4.5750 AND 4.5750
KABS= 0. TOLERANCE= 0.228750E-01

155 AREAS (OF 679 DEFINED) SELECTED BY ASEL COMMAND.

ACTIVE COORDINATE SYSTEM SET TO 1 (CYLINDRICAL)

UNSELECT FOR ITEM=LOC COMPONENT=X BETWEEN 0.00000E+00 AND 0.68095
KABS= 0. TOLERANCE= 0.000000E+00

63 AREAS (OF 679 DEFINED) SELECTED BY ASEL COMMAND.

ACTIVE COORDINATE SYSTEM SET TO 0 (CARTESIAN)

DRAG ALL SELECTED AREAS
ALONG LINES
2,

*** WARNING *** CP= 15.450 TIME= 17:50:22
Area 483 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.450 TIME= 17:50:22
Area 486 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.450 TIME= 17:50:22
Area 490 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.450 TIME= 17:50:22
Area 493 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.450 TIME= 17:50:22
Area 496 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.450 TIME= 17:50:22
Area 500 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.460 TIME= 17:50:22
Area 503 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.460 TIME= 17:50:22
Area 506 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.460 TIME= 17:50:22
Area 510 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.460 TIME= 17:50:22
Area 513 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.460 TIME= 17:50:22
Area 517 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.460 TIME= 17:50:22
Area 520 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.460 TIME= 17:50:22
Area 524 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.460 TIME= 17:50:22
Area 527 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.460 TIME= 17:50:22
Area 530 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.460 TIME= 17:50:22
Area 534 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.460 TIME= 17:50:22
Area 537 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.470 TIME= 17:50:22
Area 540 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.470 TIME= 17:50:22
Area 544 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.470 TIME= 17:50:22
Area 547 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.470 TIME= 17:50:22
Area 551 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.470 TIME= 17:50:22
Area 555 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.470 TIME= 17:50:22
Area 558 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.470 TIME= 17:50:22
Area 561 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.470 TIME= 17:50:22
Area 564 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.470 TIME= 17:50:22
Area 567 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.470 TIME= 17:50:22
Area 570 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.470 TIME= 17:50:22
Area 573 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.470 TIME= 17:50:22
Area 576 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.480 TIME= 17:50:22
Area 579 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.480 TIME= 17:50:22
Area 582 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.480 TIME= 17:50:22
Area 585 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.480 TIME= 17:50:22
Area 588 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.480 TIME= 17:50:22
Area 591 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.480 TIME= 17:50:22
Area 594 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.480 TIME= 17:50:22

Area 597 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.480 TIME= 17:50:22
Area 600 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.480 TIME= 17:50:22
Area 603 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.480 TIME= 17:50:22
Area 606 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.480 TIME= 17:50:22
Area 609 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.490 TIME= 17:50:22
Area 612 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.490 TIME= 17:50:22
Area 615 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.490 TIME= 17:50:22
Area 619 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.490 TIME= 17:50:22
Area 622 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.490 TIME= 17:50:22
Area 625 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.490 TIME= 17:50:22
Area 628 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.490 TIME= 17:50:22
Area 631 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.490 TIME= 17:50:22
Area 634 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.490 TIME= 17:50:22
Area 637 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.490 TIME= 17:50:22
Area 640 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.490 TIME= 17:50:22
Area 643 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.500 TIME= 17:50:22
Area 646 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.500 TIME= 17:50:22
Area 649 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.500 TIME= 17:50:22
Area 652 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.500 TIME= 17:50:22
Area 655 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.500 TIME= 17:50:22
Area 658 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.500 TIME= 17:50:22
Area 661 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.500 TIME= 17:50:22
Area 664 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.500 TIME= 17:50:22
Area 667 is not meshed. Volume will be generated without elements.

*** WARNING *** (P= 15.500 TIME= 17:50:22
Area 670 is not meshed. Volume will be generated without elements.

*** WARNING *** (P= 15.500 TIME= 17:50:22
Area 673 is not meshed. Volume will be generated without elements.

*** WARNING *** (P= 15.500 TIME= 17:50:22
Area 676 is not meshed. Volume will be generated without elements.

*** WARNING *** (P= 15.500 TIME= 17:50:22
Area 679 is not meshed. Volume will be generated without elements.

SELECT FOR ITEM=LOC COMPONENT=Z BETWEEN 4.6050 AND 4.6050
KABS= 0. TOLERANCE= 0.230250E-01

63 AREAS (OF 892 DEFINED) SELECTED BY ASEL COMMAND.
copy areas from top of basket to bottom of lid

SELECT FOR ITEM=LOC COMPONENT=Z BETWEEN 4.5550 AND 4.5550
KABS= 0. TOLERANCE= 0.227750E-01

155 AREAS (OF 892 DEFINED) SELECTED BY ASEL COMMAND.

ACTIVE COORDINATE SYSTEM SET TO 1 (CYLINDRICAL)

RESELECT FOR ITEM=LOC COMPONENT=X BETWEEN 0.00000E+00 AND 0.68095
KABS= 0. TOLERANCE= 0.000000E+00

92 AREAS (OF 892 DEFINED) SELECTED BY ASEL COMMAND.

ACTIVE COORDINATE SYSTEM SET TO 0 (CARTESIAN)

GENERATE 2 TOTAL SETS OF AREAS
SET IS ALL SELECTED AREAS
DX,DY,DZ= 0.000E+00 0.000E+00 0.000E-01 CSYS= 0

MERGE COINCIDENT KEYPOINTS WITHIN TOLERANCE OF 0.10000E-03

KEYPOINT	417 USED FOR KEYPOINT(S)	609
KEYPOINT	419 USED FOR KEYPOINT(S)	610
KEYPOINT	421 USED FOR KEYPOINT(S)	611
KEYPOINT	423 USED FOR KEYPOINT(S)	546
KEYPOINT	425 USED FOR KEYPOINT(S)	628
KEYPOINT	427 USED FOR KEYPOINT(S)	630
KEYPOINT	429 USED FOR KEYPOINT(S)	584
KEYPOINT	431 USED FOR KEYPOINT(S)	612
KEYPOINT	433 USED FOR KEYPOINT(S)	615
KEYPOINT	435 USED FOR KEYPOINT(S)	616
KEYPOINT	437 USED FOR KEYPOINT(S)	619
KEYPOINT	439 USED FOR KEYPOINT(S)	620
KEYPOINT	441 USED FOR KEYPOINT(S)	621
KEYPOINT	443 USED FOR KEYPOINT(S)	602
KEYPOINT	445 USED FOR KEYPOINT(S)	633
KEYPOINT	447 USED FOR KEYPOINT(S)	632
KEYPOINT	449 USED FOR KEYPOINT(S)	580
KEYPOINT	451 USED FOR KEYPOINT(S)	623
KEYPOINT	453 USED FOR KEYPOINT(S)	626
KEYPOINT	454 USED FOR KEYPOINT(S)	625
LINE	960 USED FOR LINE(S)	1374
LINE	970 USED FOR LINE(S)	1377
LINE	975 USED FOR LINE(S)	1405
LINE	985 USED FOR LINE(S)	1410
LINE	990 USED FOR LINE(S)	1378
LINE	1000 USED FOR LINE(S)	1384
LINE	1010 USED FOR LINE(S)	1391
LINE	1020 USED FOR LINE(S)	1394
LINE	1025 USED FOR LINE(S)	1415
LINE	1035 USED FOR LINE(S)	1413
LINE	1040 USED FOR LINE(S)	1396
LINE	1046 USED FOR LINE(S)	1402

lines tube height

LINE CONNECTS KEYPOINTS 502 509
 LINE NO.= 1374 KP1= 502 TAN1= 0.0000 -1.0000 0.0000
 KP2= 509 TAN2= 0.0000 1.0000 0.0000

LINE CONNECTS KEYPOINTS 510 517
 LINE NO.= 1377 KP1= 510 TAN1= 0.0000 -1.0000 0.0000
 KP2= 517 TAN2= 0.0000 1.0000 0.0000

LINE CONNECTS KEYPOINTS 518 525
 LINE NO.= 1378 KP1= 518 TAN1= 0.0000 -1.0000 0.0000
 KP2= 525 TAN2= 0.0000 1.0000 0.0000

LINE CONNECTS KEYPOINTS 526 533
 LINE NO.= 1384 KP1= 526 TAN1= 0.0000 -1.0000 0.0000
 KP2= 533 TAN2= 0.0000 1.0000 0.0000

LINE CONNECTS KEYPOINTS 534 541
 LINE NO.= 1391 KP1= 534 TAN1= 0.0000 -1.0000 0.0000
 KP2= 541 TAN2= 0.0000 1.0000 0.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
 TO NDIV = 4, SPACING RATIO = 1.000
 end lines

LINE CONNECTS KEYPOINTS 627 457
 LINE NO.= 1394 KP1= 627 TAN1= 0.0000 -1.0000 0.0000
 KP2= 457 TAN2= 0.0000 1.0000 0.0000

LINE CONNECTS KEYPOINTS 414 606
 LINE NO.= 1396 KP1= 414 TAN1= 0.0000 -1.0000 0.0000
 KP2= 606 TAN2= 0.0000 1.0000 0.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
 TO NDIV = 4, SPACING RATIO = 1.000

DEFINE AREA BY LIST OF LINES
 LINE LIST = 955 1369 1373 1396
 (TRAVERSED IN SAME DIRECTION AS LINE 955)

AREA NUMBER = 985

DEFINE AREA BY LIST OF LINES
 LINE LIST = 1189 1190 1194 1374
 (TRAVERSED IN SAME DIRECTION AS LINE 1189)

AREA NUMBER = 986

DEFINE AREA BY LIST OF LINES
 LINE LIST = 1199 1200 1204 1377
 (TRAVERSED IN SAME DIRECTION AS LINE 1199)

AREA NUMBER = 987

DEFINE AREA BY LIST OF LINES
 LINE LIST = 1209 1212 1214 1378
 (TRAVERSED IN SAME DIRECTION AS LINE 1209)

AREA NUMBER = 988

DEFINE AREA BY LIST OF LINES
 LINE LIST = 1219 1222 1224 1384
 (TRAVERSED IN SAME DIRECTION AS LINE 1219)

AREA NUMBER = 989

DEFINE AREA BY LIST OF LINES
 LINE LIST = 1229 1232 1234 1391
 (TRAVERSED IN SAME DIRECTION AS LINE 1229)

AREA NUMBER = 990

DEFINE AREA BY LIST OF LINES

LINE LIST = 1055 1394 1400 1404
(TRAVERSED IN SAME DIRECTION AS LINE 1055)

AREA NUMBER = 991

DEFINE AREA BY LIST OF LINES

LINE LIST = 965 1375 1376
(TRAVERSED IN SAME DIRECTION AS LINE 965)

AREA NUMBER = 992

DEFINE AREA BY LIST OF LINES

LINE LIST = 1238 1242 1243 1246
(TRAVERSED IN SAME DIRECTION AS LINE 1238)

AREA NUMBER = 993

DEFINE AREA BY LIST OF LINES

LINE LIST = 1250 1254 1255 1258
(TRAVERSED IN SAME DIRECTION AS LINE 1250)

AREA NUMBER = 994

DEFINE AREA BY LIST OF LINES

LINE LIST = 1263 1266 1268 1271
(TRAVERSED IN SAME DIRECTION AS LINE 1263)

AREA NUMBER = 995

DEFINE AREA BY LIST OF LINES

LINE LIST = 1274 1278 1281 1282
(TRAVERSED IN SAME DIRECTION AS LINE 1274)

AREA NUMBER = 996

DEFINE AREA BY LIST OF LINES

LINE LIST = 1286 1290 1293 1294
(TRAVERSED IN SAME DIRECTION AS LINE 1286)

AREA NUMBER = 997

DEFINE AREA BY LIST OF LINES

LINE LIST = 1045 1397 1401
(TRAVERSED IN SAME DIRECTION AS LINE 1045)

AREA NUMBER = 998

DEFINE AREA BY LIST OF LINES

LINE LIST = 980 1406 1409
(TRAVERSED IN SAME DIRECTION AS LINE 980)

AREA NUMBER = 999

DEFINE AREA BY LIST OF LINES

LINE LIST = 1299 1302 1304 1307
(TRAVERSED IN SAME DIRECTION AS LINE 1299)

AREA NUMBER = 1000

DEFINE AREA BY LIST OF LINES

LINE LIST = 1311 1314 1316 1319
(TRAVERSED IN SAME DIRECTION AS LINE 1311)

AREA NUMBER = 1001

DEFINE AREA BY LIST OF LINES

LINE LIST = 1323 1326 1328 1331
(TRAVERSED IN SAME DIRECTION AS LINE 1323)

AREA NUMBER = 1002

DEFINE AREA BY LIST OF LINES

LINE LIST = 1030 1412 1416
(TRAVERSED IN SAME DIRECTION AS LINE 1030)

AREA NUMBER = 1003

DEFINE AREA BY LIST OF LINES

LINE LIST = 995 1379 1383
(TRAVERSED IN SAME DIRECTION AS LINE 995)

AREA NUMBER = 1004

DEFINE AREA BY LIST OF LINES

LINE LIST = 1005 1385 1386 1390
(TRAVERSED IN SAME DIRECTION AS LINE 1005)

AREA NUMBER = 1005

DEFINE AREA BY LIST OF LINES

LINE LIST = 1015 1392 1393
(TRAVERSED IN SAME DIRECTION AS LINE 1015)

AREA NUMBER = 1006

SELECT FOR ITEM=LOC COMPONENT=Z BETWEEN 4.6050 AND 4.6050
KABS= 0. TOLERANCE= 0.230250E-01

177 AREAS (OF 1006 DEFINED) SELECTED BY ASEL COMMAND.

DRAG ALL SELECTED AREAS
ALONG LINES
3,

*** WARNING *** CP= 22.160 TIME= 17:50:33
Area 684 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.170 TIME= 17:50:33
Area 688 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.170 TIME= 17:50:33
Area 692 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.170 TIME= 17:50:33
Area 696 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.170 TIME= 17:50:33
Area 700 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.170 TIME= 17:50:33
Area 704 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.170 TIME= 17:50:33
Area 708 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.170 TIME= 17:50:33
Area 712 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.170 TIME= 17:50:33
Area 716 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.170 TIME= 17:50:33
Area 720 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.170 TIME= 17:50:33
Area 724 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.170 TIME= 17:50:33
Area 728 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.180 TIME= 17:50:33
Area 732 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.180 TIME= 17:50:33
Area 736 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.180 TIME= 17:50:33
Area 740 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.180 TIME= 17:50:33
Area 744 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.180 TIME= 17:50:33
Area 748 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.180 TIME= 17:50:33
Area 752 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.180 TIME= 17:50:33
Area 756 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.180 TIME= 17:50:33
Area 760 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.180 TIME= 17:50:33
Area 764 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.180 TIME= 17:50:33
Area 768 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.180 TIME= 17:50:33
Area 771 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.190 TIME= 17:50:33
Area 774 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.190 TIME= 17:50:33
Area 777 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.190 TIME= 17:50:33
Area 780 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.190 TIME= 17:50:33
Area 783 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.190 TIME= 17:50:33
Area 786 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.190 TIME= 17:50:33
Area 789 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.190 TIME= 17:50:33
Area 792 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.190 TIME= 17:50:33
Area 795 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.190 TIME= 17:50:33
Area 798 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.190 TIME= 17:50:33
Area 801 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.190 TIME= 17:50:33
Area 804 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.200 TIME= 17:50:33
Area 807 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.200 TIME= 17:50:33
Area 810 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.200 TIME= 17:50:33
Area 813 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.200 TIME= 17:50:33
Area 816 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.200 TIME= 17:50:33
Area 819 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.200 TIME= 17:50:33
Area 822 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.200 TIME= 17:50:33
Area 825 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.200 TIME= 17:50:33
Area 828 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.200 TIME= 17:50:33
Area 832 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.200 TIME= 17:50:33
Area 835 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.200 TIME= 17:50:33
Area 838 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.210 TIME= 17:50:34
Area 841 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.210 TIME= 17:50:34
Area 844 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.210 TIME= 17:50:34
Area 847 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.210 TIME= 17:50:34
Area 850 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.210 TIME= 17:50:34
Area 853 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.210 TIME= 17:50:34
Area 856 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.210 TIME= 17:50:34
Area 859 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.210 TIME= 17:50:34
Area 862 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.210 TIME= 17:50:34
Area 865 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.210 TIME= 17:50:34
Area 868 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.210 TIME= 17:50:34
Area 871 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.210 TIME= 17:50:34
Area 874 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.210 TIME= 17:50:34

Area 877 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.210 TIME= 17:50:34
Area 880 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.220 TIME= 17:50:34
Area 883 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.220 TIME= 17:50:34
Area 886 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.220 TIME= 17:50:34
Area 889 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.220 TIME= 17:50:34
Area 892 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.220 TIME= 17:50:34
Area 893 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.220 TIME= 17:50:34
Area 894 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.220 TIME= 17:50:34
Area 895 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.220 TIME= 17:50:34
Area 896 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.220 TIME= 17:50:34
Area 897 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.220 TIME= 17:50:34
Area 898 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.220 TIME= 17:50:34
Area 899 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.220 TIME= 17:50:34
Area 900 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.230 TIME= 17:50:34
Area 901 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.230 TIME= 17:50:34
Area 902 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.230 TIME= 17:50:34
Area 903 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.230 TIME= 17:50:34
Area 904 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.230 TIME= 17:50:34
Area 905 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.230 TIME= 17:50:34
Area 906 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.230 TIME= 17:50:34
Area 907 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.230 TIME= 17:50:34
Area 908 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.230 TIME= 17:50:34
Area 909 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.230 TIME= 17:50:34
Area 910 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.230 TIME= 17:50:34
Area 911 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.240 TIME= 17:50:34
Area 912 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.240 TIME= 17:50:34
Area 913 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.240 TIME= 17:50:34
Area 914 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.240 TIME= 17:50:34
Area 915 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.240 TIME= 17:50:34
Area 916 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.240 TIME= 17:50:34
Area 917 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.240 TIME= 17:50:34
Area 918 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.240 TIME= 17:50:34
Area 919 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.240 TIME= 17:50:34
Area 920 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.240 TIME= 17:50:34
Area 921 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.250 TIME= 17:50:34
Area 922 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.250 TIME= 17:50:34
Area 923 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.250 TIME= 17:50:34
Area 924 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.250 TIME= 17:50:34
Area 925 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.250 TIME= 17:50:34
Area 926 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.250 TIME= 17:50:34
Area 927 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.250 TIME= 17:50:34
Area 928 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.250 TIME= 17:50:34
Area 929 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.250 TIME= 17:50:34
Area 930 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.250 TIME= 17:50:34
Area 931 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.250 TIME= 17:50:34
Area 932 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.260 TIME= 17:50:34
Area 933 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.260 TIME= 17:50:34
Area 934 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.260 TIME= 17:50:34
Area 935 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.260 TIME= 17:50:34
Area 936 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.260 TIME= 17:50:34
Area 937 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.260 TIME= 17:50:34
Area 938 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.260 TIME= 17:50:34
Area 939 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.260 TIME= 17:50:34
Area 940 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.260 TIME= 17:50:34
Area 941 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.260 TIME= 17:50:34
Area 942 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.260 TIME= 17:50:34
Area 943 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.270 TIME= 17:50:34
Area 944 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.270 TIME= 17:50:34
Area 945 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.270 TIME= 17:50:34
Area 946 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.270 TIME= 17:50:34
Area 947 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.270 TIME= 17:50:34
Area 948 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.270 TIME= 17:50:34
Area 949 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.270 TIME= 17:50:34
Area 950 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.270 TIME= 17:50:34
Area 951 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.270 TIME= 17:50:34
Area 952 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.270 TIME= 17:50:34
Area 953 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.270 TIME= 17:50:34
Area 954 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.280 TIME= 17:50:34
Area 955 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.280 TIME= 17:50:34
Area 956 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.280 TIME= 17:50:34

Area 957 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.280 TIME= 17:50:34
Area 958 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.280 TIME= 17:50:34
Area 959 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.280 TIME= 17:50:34
Area 960 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.280 TIME= 17:50:34
Area 961 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.280 TIME= 17:50:34
Area 962 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.280 TIME= 17:50:34
Area 963 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.280 TIME= 17:50:34
Area 964 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.280 TIME= 17:50:34
Area 965 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.280 TIME= 17:50:34
Area 966 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.290 TIME= 17:50:34
Area 967 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.290 TIME= 17:50:34
Area 968 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.290 TIME= 17:50:34
Area 969 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.290 TIME= 17:50:34
Area 970 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.290 TIME= 17:50:34
Area 971 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.290 TIME= 17:50:34
Area 972 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.290 TIME= 17:50:34
Area 973 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.290 TIME= 17:50:34
Area 974 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.290 TIME= 17:50:34
Area 975 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.290 TIME= 17:50:34
Area 976 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.290 TIME= 17:50:34
Area 977 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.300 TIME= 17:50:34
Area 978 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.300 TIME= 17:50:34
Area 979 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.300 TIME= 17:50:34
Area 980 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.300 TIME= 17:50:34
Area 981 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.300 TIME= 17:50:34
Area 982 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.300 TIME= 17:50:34
Area 983 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.300 TIME= 17:50:34
Area 984 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.300 TIME= 17:50:34
Area 985 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.300 TIME= 17:50:34
Area 986 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.300 TIME= 17:50:34
Area 987 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.300 TIME= 17:50:34
Area 988 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.300 TIME= 17:50:34
Area 989 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.310 TIME= 17:50:34
Area 990 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.310 TIME= 17:50:34
Area 991 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.310 TIME= 17:50:34
Area 992 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.310 TIME= 17:50:34
Area 993 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.310 TIME= 17:50:34
Area 994 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.310 TIME= 17:50:34
Area 995 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.320 TIME= 17:50:34
Area 996 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.320 TIME= 17:50:34
Area 997 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.320 TIME= 17:50:34
Area 998 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.320 TIME= 17:50:34
Area 999 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.320 TIME= 17:50:34
Area 1000 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.320 TIME= 17:50:34
Area 1001 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.320 TIME= 17:50:34
Area 1002 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.320 TIME= 17:50:34
Area 1003 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.320 TIME= 17:50:34
Area 1004 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.320 TIME= 17:50:34
Area 1005 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.330 TIME= 17:50:34
Area 1006 is not meshed. Volume will be generated without elements.

SELECT FOR ITEM=LOC COMPONENT=Z BETWEEN 4.6250 AND 4.6250
KABS= 0. TOLERANCE= 0.231250E-01

177 AREAS (OF 1559 DEFINED) SELECTED BY ASEL COMMAND.

ACTIVE COORDINATE SYSTEM SET TO 1 (CYLINDRICAL)

RESELECT FOR ITEM=LOC COMPONENT=X BETWEEN 0.73095 AND 0.83095
KABS= 0. TOLERANCE= 0.000000E+00

42 AREAS (OF 1559 DEFINED) SELECTED BY ASEL COMMAND.

ACTIVE COORDINATE SYSTEM SET TO 0 (CARTESIAN)

DRAG ALL SELECTED AREAS
ALONG LINES
4,

*** WARNING *** CP= 32.720 TIME= 17:50:52
Area 1095 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 32.720 TIME= 17:50:52
Area 1098 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 32.720 TIME= 17:50:52
Area 1101 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 32.720 TIME= 17:50:52
Area 1104 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 32.720 TIME= 17:50:52
Area 1107 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 32.720 TIME= 17:50:52
Area 1110 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 32.720 TIME= 17:50:52
Area 1113 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 32.720 TIME= 17:50:52
Area 1116 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 32.720 TIME= 17:50:52
Area 1119 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 32.720 TIME= 17:50:52
Area 1122 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 32.730 TIME= 17:50:52
Area 1125 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 32.730 TIME= 17:50:52
Area 1128 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 32.730 TIME= 17:50:52
Area 1131 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 32.730 TIME= 17:50:52
Area 1134 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 32.730 TIME= 17:50:52

Area 1137 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 32.730 TIME= 17:50:52
Area 1140 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 32.730 TIME= 17:50:52
Area 1143 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 32.730 TIME= 17:50:52
Area 1146 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 32.730 TIME= 17:50:52
Area 1149 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 32.730 TIME= 17:50:52
Area 1152 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 32.730 TIME= 17:50:52
Area 1155 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 32.740 TIME= 17:50:52
Area 1159 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 32.740 TIME= 17:50:52
Area 1162 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 32.740 TIME= 17:50:52
Area 1165 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 32.740 TIME= 17:50:52
Area 1168 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 32.740 TIME= 17:50:52
Area 1171 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 32.740 TIME= 17:50:52
Area 1174 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 32.740 TIME= 17:50:52
Area 1177 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 32.740 TIME= 17:50:52
Area 1180 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 32.740 TIME= 17:50:52
Area 1183 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 32.740 TIME= 17:50:52
Area 1186 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 32.740 TIME= 17:50:52
Area 1189 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 32.740 TIME= 17:50:52
Area 1192 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 32.750 TIME= 17:50:52
Area 1195 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 32.750 TIME= 17:50:52
Area 1198 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 32.750 TIME= 17:50:52
Area 1201 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 32.750 TIME= 17:50:52
Area 1204 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 32.750 TIME= 17:50:52
Area 1207 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 32.750 TIME= 17:50:52
Area 1210 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 32.750 TIME= 17:50:52
Area 1213 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 32.750 TIME= 17:50:52
Area 1216 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 32.750 TIME= 17:50:52
Area 1219 is not meshed. Volume will be generated without elements.

SELECT FOR ITEM=LOC COMPONENT=Z BETWEEN 4.6250 AND 4.6250
KABS= 0. TOLERANCE= 0.231250E-01

326 AREAS (OF 1708 DEFINED) SELECTED BY ASEL COMMAND.

RESELECT FOR ITEM=LOC COMPONENT=Z BETWEEN 4.5950 AND 4.5950
KABS= 0. TOLERANCE= 0.229750E-01

177 AREAS (OF 1708 DEFINED) SELECTED BY ASEL COMMAND.

ACTIVE COORDINATE SYSTEM SET TO 1 (CYLINDRICAL)

RESELECT FOR ITEM=LOC COMPONENT=X BETWEEN 0.00000E+00 AND 0.73095
KABS= 0. TOLERANCE= 0.000000E+00

135 AREAS (OF 1708 DEFINED) SELECTED BY ASEL COMMAND.

ACTIVE COORDINATE SYSTEM SET TO 0 (CARTESIAN)

GENERATE 2 TOTAL SETS OF AREAS
SET IS ALL SELECTED AREAS
DX,DY,DZ= 0.000E+00 0.000E+00 0.300E-01 CSYS= 0

MERGE COINCIDENT KEYPOINTS WITHIN TOLERANCE OF 0.10000E-03

KEYPOINT	814 USED FOR KEYPOINT(S)	881
KEYPOINT	817 USED FOR KEYPOINT(S)	882
KEYPOINT	819 USED FOR KEYPOINT(S)	884
KEYPOINT	821 USED FOR KEYPOINT(S)	886
KEYPOINT	823 USED FOR KEYPOINT(S)	888
KEYPOINT	825 USED FOR KEYPOINT(S)	890
KEYPOINT	827 USED FOR KEYPOINT(S)	892
KEYPOINT	829 USED FOR KEYPOINT(S)	894
KEYPOINT	831 USED FOR KEYPOINT(S)	896
KEYPOINT	833 USED FOR KEYPOINT(S)	898
KEYPOINT	835 USED FOR KEYPOINT(S)	900
KEYPOINT	837 USED FOR KEYPOINT(S)	902
KEYPOINT	839 USED FOR KEYPOINT(S)	904
KEYPOINT	841 USED FOR KEYPOINT(S)	906
KEYPOINT	843 USED FOR KEYPOINT(S)	908
KEYPOINT	845 USED FOR KEYPOINT(S)	910
KEYPOINT	847 USED FOR KEYPOINT(S)	912
KEYPOINT	849 USED FOR KEYPOINT(S)	914
KEYPOINT	851 USED FOR KEYPOINT(S)	916
KEYPOINT	853 USED FOR KEYPOINT(S)	918
KEYPOINT	855 USED FOR KEYPOINT(S)	921
KEYPOINT	857 USED FOR KEYPOINT(S)	922
LINE	1995 USED FOR LINE(S)	2162
LINE	2000 USED FOR LINE(S)	2165
LINE	2005 USED FOR LINE(S)	2168
LINE	2010 USED FOR LINE(S)	2171
LINE	2015 USED FOR LINE(S)	2174
LINE	2020 USED FOR LINE(S)	2177
LINE	2025 USED FOR LINE(S)	2180
LINE	2030 USED FOR LINE(S)	2183
LINE	2035 USED FOR LINE(S)	2186
LINE	2040 USED FOR LINE(S)	2189
LINE	2045 USED FOR LINE(S)	2192

LINE 2050 USED FOR LINE(S) 2195
LINE 2055 USED FOR LINE(S) 2198
LINE 2060 USED FOR LINE(S) 2201
LINE 2065 USED FOR LINE(S) 2204
LINE 2070 USED FOR LINE(S) 2207
LINE 2075 USED FOR LINE(S) 2210
LINE 2080 USED FOR LINE(S) 2213
LINE 2085 USED FOR LINE(S) 2216
LINE 2090 USED FOR LINE(S) 2220
LINE 2095 USED FOR LINE(S) 2222

SELECT FOR ITEM=LOC COMPONENT=Z BETWEEN 4.6550 AND 4.6550
KABS= 0. TOLERANCE= 0.232750E-01

177 AREAS (OF 1843 DEFINED) SELECTED BY ASEL COMMAND.

DRAG ALL SELECTED AREAS
ALONG LINES
5,

*** WARNING *** CP= 39.200 TIME= 17:51:03
Area 1564 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.200 TIME= 17:51:03
Area 1568 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.200 TIME= 17:51:03
Area 1572 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.200 TIME= 17:51:03
Area 1576 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.210 TIME= 17:51:03
Area 1580 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.210 TIME= 17:51:03
Area 1584 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.210 TIME= 17:51:03
Area 1588 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.210 TIME= 17:51:03
Area 1592 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.210 TIME= 17:51:03
Area 1596 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.210 TIME= 17:51:03
Area 1600 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.210 TIME= 17:51:03
Area 1604 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.210 TIME= 17:51:03
Area 1608 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.210 TIME= 17:51:03
Area 1612 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.220 TIME= 17:51:03
Area 1616 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.220 TIME= 17:51:03
Area 1620 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.220 TIME= 17:51:03
Area 1624 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.220 TIME= 17:51:03
Area 1628 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.220 TIME= 17:51:03
Area 1632 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.220 TIME= 17:51:03
Area 1636 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.220 TIME= 17:51:03
Area 1640 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.220 TIME= 17:51:03
Area 1644 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.220 TIME= 17:51:03
Area 1648 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.220 TIME= 17:51:03
Area 1651 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.220 TIME= 17:51:03
Area 1654 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.230 TIME= 17:51:03
Area 1657 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.230 TIME= 17:51:03
Area 1660 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.230 TIME= 17:51:03
Area 1663 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.230 TIME= 17:51:03
Area 1666 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.230 TIME= 17:51:03
Area 1669 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.230 TIME= 17:51:03
Area 1672 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.230 TIME= 17:51:03
Area 1675 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.230 TIME= 17:51:03
Area 1678 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.230 TIME= 17:51:03
Area 1681 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.230 TIME= 17:51:03
Area 1684 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.230 TIME= 17:51:03
Area 1687 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.230 TIME= 17:51:03
Area 1690 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.240 TIME= 17:51:03
Area 1693 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.240 TIME= 17:51:03
Area 1696 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.240 TIME= 17:51:03
Area 1699 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.240 TIME= 17:51:03
Area 1702 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.240 TIME= 17:51:03
Area 1705 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.240 TIME= 17:51:03
Area 1708 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.240 TIME= 17:51:03
Area 1709 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.240 TIME= 17:51:03
Area 1710 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.240 TIME= 17:51:03
Area 1711 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.240 TIME= 17:51:03
Area 1712 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.240 TIME= 17:51:03
Area 1713 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.240 TIME= 17:51:03
Area 1714 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.250 TIME= 17:51:03
Area 1715 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.250 TIME= 17:51:03
Area 1716 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.250 TIME= 17:51:03
Area 1717 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.250 TIME= 17:51:03
Area 1718 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.250 TIME= 17:51:03
Area 1719 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.250 TIME= 17:51:03
Area 1720 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.250 TIME= 17:51:03
Area 1721 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.250 TIME= 17:51:03
Area 1722 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.250 TIME= 17:51:03
Area 1723 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.250 TIME= 17:51:03
Area 1724 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.250 TIME= 17:51:03
Area 1725 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.260 TIME= 17:51:03
Area 1726 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.260 TIME= 17:51:03
Area 1727 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.260 TIME= 17:51:03
Area 1728 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.260 TIME= 17:51:03
Area 1729 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.260 TIME= 17:51:03

Area 1730 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.260 TIME= 17:51:03
Area 1731 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.260 TIME= 17:51:03
Area 1732 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.260 TIME= 17:51:03
Area 1733 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.260 TIME= 17:51:03
Area 1734 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.260 TIME= 17:51:03
Area 1735 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.260 TIME= 17:51:03
Area 1736 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.260 TIME= 17:51:03
Area 1737 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.270 TIME= 17:51:03
Area 1738 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.270 TIME= 17:51:03
Area 1739 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.270 TIME= 17:51:03
Area 1740 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.270 TIME= 17:51:03
Area 1741 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.270 TIME= 17:51:03
Area 1742 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.270 TIME= 17:51:03
Area 1743 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.280 TIME= 17:51:03
Area 1744 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.280 TIME= 17:51:03
Area 1745 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.280 TIME= 17:51:03
Area 1746 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.280 TIME= 17:51:03
Area 1747 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.280 TIME= 17:51:03
Area 1748 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.280 TIME= 17:51:03
Area 1749 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.280 TIME= 17:51:03
Area 1750 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.280 TIME= 17:51:03
Area 1751 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.280 TIME= 17:51:03
Area 1752 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.280 TIME= 17:51:03
Area 1753 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.280 TIME= 17:51:03
Area 1754 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.290 TIME= 17:51:03
Area 1755 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.290 TIME= 17:51:03
Area 1756 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.290 TIME= 17:51:03
Area 1757 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.290 TIME= 17:51:03
Area 1758 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.290 TIME= 17:51:03
Area 1759 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.290 TIME= 17:51:03
Area 1760 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.290 TIME= 17:51:03
Area 1761 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.290 TIME= 17:51:03
Area 1762 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.290 TIME= 17:51:03
Area 1763 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.290 TIME= 17:51:03
Area 1764 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.290 TIME= 17:51:03
Area 1765 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.300 TIME= 17:51:03
Area 1766 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.300 TIME= 17:51:03
Area 1767 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.300 TIME= 17:51:03
Area 1768 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.300 TIME= 17:51:03
Area 1769 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.300 TIME= 17:51:03
Area 1770 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.300 TIME= 17:51:03
Area 1771 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.300 TIME= 17:51:03
Area 1772 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.300 TIME= 17:51:03
Area 1773 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.300 TIME= 17:51:03
Area 1774 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.300 TIME= 17:51:03
Area 1775 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.300 TIME= 17:51:03
Area 1776 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.300 TIME= 17:51:03
Area 1777 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.310 TIME= 17:51:03
Area 1778 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.310 TIME= 17:51:03
Area 1779 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.310 TIME= 17:51:03
Area 1780 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.310 TIME= 17:51:03
Area 1781 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.310 TIME= 17:51:03
Area 1782 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.310 TIME= 17:51:03
Area 1783 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.310 TIME= 17:51:03
Area 1784 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.310 TIME= 17:51:03
Area 1785 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.310 TIME= 17:51:03
Area 1786 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.310 TIME= 17:51:03
Area 1787 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.310 TIME= 17:51:03
Area 1788 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.320 TIME= 17:51:03
Area 1789 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.320 TIME= 17:51:03
Area 1790 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.320 TIME= 17:51:03
Area 1791 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.320 TIME= 17:51:03
Area 1792 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.320 TIME= 17:51:03
Area 1793 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.320 TIME= 17:51:03
Area 1794 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.320 TIME= 17:51:03
Area 1795 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.320 TIME= 17:51:03
Area 1796 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.320 TIME= 17:51:03
Area 1797 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.320 TIME= 17:51:03
Area 1798 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.320 TIME= 17:51:03
Area 1799 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.330 TIME= 17:51:03

Area 1800 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.330 TIME= 17:51:03
Area 1801 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.330 TIME= 17:51:03
Area 1802 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.330 TIME= 17:51:03
Area 1803 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.330 TIME= 17:51:03
Area 1804 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.330 TIME= 17:51:03
Area 1805 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.330 TIME= 17:51:03
Area 1806 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.330 TIME= 17:51:03
Area 1807 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.330 TIME= 17:51:03
Area 1808 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.330 TIME= 17:51:03
Area 1809 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.330 TIME= 17:51:03
Area 1810 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.340 TIME= 17:51:03
Area 1811 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.340 TIME= 17:51:03
Area 1812 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.340 TIME= 17:51:03
Area 1813 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.340 TIME= 17:51:03
Area 1814 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.340 TIME= 17:51:03
Area 1815 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.340 TIME= 17:51:03
Area 1816 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.340 TIME= 17:51:03
Area 1817 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.340 TIME= 17:51:03
Area 1818 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.340 TIME= 17:51:03
Area 1819 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.340 TIME= 17:51:03
Area 1820 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.340 TIME= 17:51:03
Area 1821 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.340 TIME= 17:51:03
Area 1822 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.350 TIME= 17:51:03
Area 1823 is not meshed. Volume will be generated without elements.

```
*** WARNING *** CP= 39.350 TIME= 17:51:03
Area 1824 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.350 TIME= 17:51:03
Area 1825 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.350 TIME= 17:51:03
Area 1826 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.350 TIME= 17:51:03
Area 1827 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.350 TIME= 17:51:03
Area 1828 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.350 TIME= 17:51:03
Area 1829 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.350 TIME= 17:51:03
Area 1830 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.350 TIME= 17:51:03
Area 1831 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.350 TIME= 17:51:03
Area 1832 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.350 TIME= 17:51:03
Area 1833 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.350 TIME= 17:51:03
Area 1834 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.360 TIME= 17:51:03
Area 1835 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.360 TIME= 17:51:03
Area 1836 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.360 TIME= 17:51:03
Area 1837 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.360 TIME= 17:51:03
Area 1838 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.360 TIME= 17:51:03
Area 1839 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.360 TIME= 17:51:03
Area 1840 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.360 TIME= 17:51:03
Area 1841 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.360 TIME= 17:51:03
Area 1842 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.360 TIME= 17:51:03
Area 1843 is not meshed. Volume will be generated without elements.

SELECT FOR ITEM=LOC COMPONENT=Z BETWEEN 4.7500 AND 4.7500
KABS= 0. TOLERANCE= 0.237500E-01

177 AREAS (OF 2396 DEFINED) SELECTED BY ASEL COMMAND.

ACTIVE COORDINATE SYSTEM SET TO 1 (CYLINDRICAL)

RESELECT FOR ITEM=LOC COMPONENT=X BETWEEN 0.77095 AND 0.83095
KABS= 0. TOLERANCE= 0.000000E+00
```

21 AREAS (OF 2396 DEFINED) SELECTED BY ASEL COMMAND.

ACTIVE COORDINATE SYSTEM SET TO 0 (CARTESIAN)

DRAG ALL SELECTED AREAS
ALONG LINES
6,

*** WARNING *** CP= 49.980 TIME= 17:51:22
Area 1932 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 49.990 TIME= 17:51:22
Area 1935 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 49.990 TIME= 17:51:22
Area 1938 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 49.990 TIME= 17:51:22
Area 1941 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 49.990 TIME= 17:51:22
Area 1944 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 49.990 TIME= 17:51:22
Area 1947 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 49.990 TIME= 17:51:22
Area 1950 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 49.990 TIME= 17:51:22
Area 1953 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 49.990 TIME= 17:51:22
Area 1956 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 49.990 TIME= 17:51:22
Area 1959 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 49.990 TIME= 17:51:22
Area 1962 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 49.990 TIME= 17:51:22
Area 1965 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 50.000 TIME= 17:51:22
Area 1968 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 50.000 TIME= 17:51:22
Area 1971 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 50.000 TIME= 17:51:22
Area 1974 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 50.000 TIME= 17:51:22
Area 1977 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 50.000 TIME= 17:51:22
Area 1980 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 50.000 TIME= 17:51:22
Area 1983 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 50.000 TIME= 17:51:22
Area 1986 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 50.000 TIME= 17:51:22
Area 1989 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 50.000 TIME= 17:51:22

Area 1992 is not meshed. Volume will be generated without elements.
lines tube height

LINE CONNECTS KEYPOINTS 195 194
LINE NO.= 3114 KP1= 195 TAN1= 0.0000 -1.0000 0.0000
KP2= 194 TAN2= 0.0000 1.0000 0.0000

LINE CONNECTS KEYPOINTS 191 190
LINE NO.= 3115 KP1= 191 TAN1= 0.0000 -1.0000 0.0000
KP2= 190 TAN2= 0.0000 1.0000 0.0000

LINE CONNECTS KEYPOINTS 187 68
LINE NO.= 3116 KP1= 187 TAN1= 0.0000 -1.0000 0.0000
KP2= 68 TAN2= 0.0000 1.0000 0.0000

LINE CONNECTS KEYPOINTS 71 72
LINE NO.= 3117 KP1= 71 TAN1= 0.0000 -1.0000 0.0000
KP2= 72 TAN2= 0.0000 1.0000 0.0000

LINE CONNECTS KEYPOINTS 75 76
LINE NO.= 3118 KP1= 75 TAN1= 0.0000 -1.0000 0.0000
KP2= 76 TAN2= 0.0000 1.0000 0.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
TO NDIV = 4, SPACING RATIO = 1.000
end lines

LINE CONNECTS KEYPOINTS 222 197
LINE NO.= 3119 KP1= 222 TAN1= 0.0000 -1.0000 0.0000
KP2= 197 TAN2= 0.0000 1.0000 0.0000

LINE CONNECTS KEYPOINTS 78 110
LINE NO.= 3120 KP1= 78 TAN1= 0.0000 -1.0000 0.0000
KP2= 110 TAN2= 0.0000 1.0000 0.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
TO NDIV = 4, SPACING RATIO = 1.000

DEFINE AREA BY LIST OF LINES
LINE LIST = 10 115 277 3119
(TRAVERSED IN SAME DIRECTION AS LINE 10)

AREA NUMBER = 2482

DEFINE AREA BY LIST OF LINES
LINE LIST = 12 13 68 3114
(TRAVERSED IN SAME DIRECTION AS LINE 12)

AREA NUMBER = 2483

DEFINE AREA BY LIST OF LINES
LINE LIST = 16 17 75 3115
(TRAVERSED IN SAME DIRECTION AS LINE 16)

AREA NUMBER = 2484

DEFINE AREA BY LIST OF LINES
LINE LIST = 20 21 85 3116
(TRAVERSED IN SAME DIRECTION AS LINE 20)

AREA NUMBER = 2485

DEFINE AREA BY LIST OF LINES
LINE LIST = 24 25 96 3117
(TRAVERSED IN SAME DIRECTION AS LINE 24)

AREA NUMBER = 2486

DEFINE AREA BY LIST OF LINES
LINE LIST = 28 29 107 3118

```
(TRAVERSED IN SAME DIRECTION AS LINE 28)

AREA NUMBER = 2487

DEFINE AREA BY LIST OF LINES
LINE LIST = 31 122 309 3120
(TRAVERSED IN SAME DIRECTION AS LINE 31)

AREA NUMBER = 2488

DEFINE AREA BY LIST OF LINES
LINE LIST = 32 116 281
(TRAVERSED IN SAME DIRECTION AS LINE 32)

AREA NUMBER = 2489

DEFINE AREA BY LIST OF LINES
LINE LIST = 34 35 71 72
(TRAVERSED IN SAME DIRECTION AS LINE 34)

AREA NUMBER = 2490

DEFINE AREA BY LIST OF LINES
LINE LIST = 38 39 78 79
(TRAVERSED IN SAME DIRECTION AS LINE 38)

AREA NUMBER = 2491

DEFINE AREA BY LIST OF LINES
LINE LIST = 42 43 88 89
(TRAVERSED IN SAME DIRECTION AS LINE 42)

AREA NUMBER = 2492

DEFINE AREA BY LIST OF LINES
LINE LIST = 46 47 99 100
(TRAVERSED IN SAME DIRECTION AS LINE 46)

AREA NUMBER = 2493

DEFINE AREA BY LIST OF LINES
LINE LIST = 50 51 110 111
(TRAVERSED IN SAME DIRECTION AS LINE 50)

AREA NUMBER = 2494

DEFINE AREA BY LIST OF LINES
LINE LIST = 53 121 305
(TRAVERSED IN SAME DIRECTION AS LINE 53)

AREA NUMBER = 2495

DEFINE AREA BY LIST OF LINES
LINE LIST = 54 74 285
(TRAVERSED IN SAME DIRECTION AS LINE 54)

AREA NUMBER = 2496

DEFINE AREA BY LIST OF LINES
LINE LIST = 56 57 82 83
(TRAVERSED IN SAME DIRECTION AS LINE 56)

AREA NUMBER = 2497

DEFINE AREA BY LIST OF LINES
LINE LIST = 60 61 92 93
(TRAVERSED IN SAME DIRECTION AS LINE 60)

AREA NUMBER = 2498
```


DEFINE AREA BY LIST OF LINES

LINE LIST = 64 65 103 104
(TRAVERSED IN SAME DIRECTION AS LINE 64)

AREA NUMBER = 2499

DEFINE AREA BY LIST OF LINES

LINE LIST = 67 113 301
(TRAVERSED IN SAME DIRECTION AS LINE 67)

AREA NUMBER = 2500

DEFINE AREA BY LIST OF LINES

LINE LIST = 114 117 289
(TRAVERSED IN SAME DIRECTION AS LINE 114)

AREA NUMBER = 2501

DEFINE AREA BY LIST OF LINES

LINE LIST = 95 118 119 293
(TRAVERSED IN SAME DIRECTION AS LINE 95)

AREA NUMBER = 2502

DEFINE AREA BY LIST OF LINES

LINE LIST = 106 120 297
(TRAVERSED IN SAME DIRECTION AS LINE 106)

AREA NUMBER = 2503

SELECT FOR ITEM=LOC COMPONENT=Z BETWEEN 0.00000E+00 AND 0.00000E+00
KABS= 0. TOLERANCE= 0.100000E-05

177 AREAS (OF 2503 DEFINED) SELECTED BY ASEL COMMAND.

DRAG ALL SELECTED AREAS

ALONG LINES

7,

*** WARNING *** CP= 52.520 TIME= 17:51:26
Area 1 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 52.530 TIME= 17:51:26
Area 2 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 52.530 TIME= 17:51:26
Area 3 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 52.530 TIME= 17:51:26
Area 4 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 52.530 TIME= 17:51:26
Area 5 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 52.530 TIME= 17:51:26
Area 6 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 52.530 TIME= 17:51:26
Area 7 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 52.530 TIME= 17:51:26
Area 8 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 52.530 TIME= 17:51:26
Area 9 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 52.530 TIME= 17:51:26
Area 10 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 52.530 TIME= 17:51:26

Area 11 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 52.530 TIME= 17:51:26
Area 12 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 52.530 TIME= 17:51:26
Area 13 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 52.540 TIME= 17:51:26
Area 14 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 52.540 TIME= 17:51:26
Area 15 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 52.540 TIME= 17:51:26
Area 16 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 52.540 TIME= 17:51:26
Area 17 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 52.540 TIME= 17:51:26
Area 18 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 52.540 TIME= 17:51:26
Area 19 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 52.540 TIME= 17:51:26
Area 20 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 52.540 TIME= 17:51:26
Area 21 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 52.540 TIME= 17:51:26
Area 22 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 52.540 TIME= 17:51:26
Area 23 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 52.540 TIME= 17:51:26
Area 24 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 52.550 TIME= 17:51:26
Area 25 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 52.550 TIME= 17:51:26
Area 26 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 52.550 TIME= 17:51:26
Area 27 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 52.550 TIME= 17:51:26
Area 28 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 52.550 TIME= 17:51:26
Area 29 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 52.550 TIME= 17:51:26
Area 30 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 52.550 TIME= 17:51:26
Area 31 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 52.550 TIME= 17:51:26
Area 32 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 52.550 TIME= 17:51:26
Area 33 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 52.550 TIME= 17:51:26
Area 34 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 52.550 TIME= 17:51:26
Area 35 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 52.550 TIME= 17:51:26
Area 36 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 52.560 TIME= 17:51:26
Area 37 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 52.560 TIME= 17:51:26
Area 38 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 52.560 TIME= 17:51:26
Area 39 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 52.560 TIME= 17:51:26
Area 40 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 52.560 TIME= 17:51:26
Area 41 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 52.560 TIME= 17:51:26
Area 42 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 52.560 TIME= 17:51:26
Area 43 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 52.560 TIME= 17:51:26
Area 44 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 52.560 TIME= 17:51:26
Area 45 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 52.560 TIME= 17:51:26
Area 46 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 52.560 TIME= 17:51:26
Area 47 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 52.570 TIME= 17:51:26
Area 48 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 52.570 TIME= 17:51:26
Area 49 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 52.570 TIME= 17:51:26
Area 50 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 52.570 TIME= 17:51:26
Area 51 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 52.570 TIME= 17:51:26
Area 52 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 52.570 TIME= 17:51:26
Area 53 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 52.570 TIME= 17:51:26
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*** WARNING *** CP= 52.570 TIME= 17:51:26
Area 55 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 52.570 TIME= 17:51:26
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*** WARNING *** CP= 52.580 TIME= 17:51:26
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*** WARNING *** CP= 52.580 TIME= 17:51:26
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Area 63 is not meshed. Volume will be generated without elements.

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Area 68 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 52.590 TIME= 17:51:26
Area 69 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 52.590 TIME= 17:51:26
Area 70 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 52.590 TIME= 17:51:26
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*** WARNING *** CP= 52.590 TIME= 17:51:26
Area 79 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 52.600 TIME= 17:51:26
Area 80 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 52.600 TIME= 17:51:26

Area 81 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 52.600 TIME= 17:51:26
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*** WARNING *** CP= 52.600 TIME= 17:51:26
Area 91 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 52.610 TIME= 17:51:26
Area 92 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 52.610 TIME= 17:51:26
Area 93 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 52.610 TIME= 17:51:26
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*** WARNING *** CP= 52.610 TIME= 17:51:26
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*** WARNING *** CP= 52.610 TIME= 17:51:26
Area 100 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 52.610 TIME= 17:51:26
Area 101 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 52.610 TIME= 17:51:26
Area 102 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 52.620 TIME= 17:51:26
Area 103 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 52.620 TIME= 17:51:26
Area 104 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 52.620 TIME= 17:51:26
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*** WARNING *** CP= 52.620 TIME= 17:51:26
Area 108 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 52.620 TIME= 17:51:26
Area 109 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 52.620 TIME= 17:51:26
Area 110 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 52.620 TIME= 17:51:26
Area 111 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 52.620 TIME= 17:51:26
Area 112 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 52.620 TIME= 17:51:26
Area 113 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 52.630 TIME= 17:51:26
Area 114 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 52.630 TIME= 17:51:26
Area 115 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 52.630 TIME= 17:51:26
Area 116 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 52.630 TIME= 17:51:26
Area 117 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 52.630 TIME= 17:51:26
Area 118 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 52.630 TIME= 17:51:26
Area 119 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 52.630 TIME= 17:51:26
Area 120 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 52.630 TIME= 17:51:26
Area 121 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 52.630 TIME= 17:51:26
Area 122 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 52.630 TIME= 17:51:26
Area 123 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 52.630 TIME= 17:51:26
Area 124 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 52.630 TIME= 17:51:26
Area 125 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 52.640 TIME= 17:51:26
Area 126 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 52.640 TIME= 17:51:26
Area 127 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 52.640 TIME= 17:51:26
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*** WARNING *** CP= 52.640 TIME= 17:51:26
Area 129 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 52.640 TIME= 17:51:26
Area 130 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 52.640 TIME= 17:51:26
Area 131 is not meshed. Volume will be generated without elements.

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Area 132 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 52.640 TIME= 17:51:26
Area 133 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 52.640 TIME= 17:51:26
Area 134 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 52.640 TIME= 17:51:26
Area 135 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 52.650 TIME= 17:51:26
Area 136 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 52.650 TIME= 17:51:26
Area 137 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 52.650 TIME= 17:51:26
Area 138 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 52.650 TIME= 17:51:26
Area 139 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 52.650 TIME= 17:51:27
Area 140 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 52.650 TIME= 17:51:27
Area 141 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 52.650 TIME= 17:51:27
Area 142 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 52.650 TIME= 17:51:27
Area 143 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 52.650 TIME= 17:51:27
Area 144 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 52.650 TIME= 17:51:27
Area 145 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 52.650 TIME= 17:51:27
Area 146 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 52.650 TIME= 17:51:27
Area 147 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 52.650 TIME= 17:51:27
Area 148 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 52.650 TIME= 17:51:27
Area 149 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 52.660 TIME= 17:51:27
Area 150 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 52.660 TIME= 17:51:27

Area 151 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 52.660 TIME= 17:51:27
Area 152 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 52.660 TIME= 17:51:27
Area 153 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 52.660 TIME= 17:51:27
Area 154 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 52.660 TIME= 17:51:27
Area 155 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 52.660 TIME= 17:51:27
Area 2482 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 52.660 TIME= 17:51:27
Area 2483 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 52.660 TIME= 17:51:27
Area 2484 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 52.660 TIME= 17:51:27
Area 2485 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 52.670 TIME= 17:51:27
Area 2486 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 52.670 TIME= 17:51:27
Area 2487 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 52.670 TIME= 17:51:27
Area 2488 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 52.670 TIME= 17:51:27
Area 2489 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 52.670 TIME= 17:51:27
Area 2490 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 52.670 TIME= 17:51:27
Area 2491 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 52.670 TIME= 17:51:27
Area 2492 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 52.670 TIME= 17:51:27
Area 2493 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 52.670 TIME= 17:51:27
Area 2494 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 52.670 TIME= 17:51:27
Area 2495 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 52.680 TIME= 17:51:27
Area 2496 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 52.680 TIME= 17:51:27
Area 2497 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 52.680 TIME= 17:51:27
Area 2498 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 52.680 TIME= 17:51:27
Area 2499 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 52.680 TIME= 17:51:27
Area 2500 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 52.680 TIME= 17:51:27
Area 2501 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 52.680 TIME= 17:51:27
Area 2502 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 52.680 TIME= 17:51:27
Area 2503 is not meshed. Volume will be generated without elements.

ACTIVE COORDINATE SYSTEM SET TO 0 (CARTESIAN)

SELECT FOR ITEM=LOC COMPONENT=Z BETWEEN-0.25000E-01 AND -0.25000E-01
KABS= 0. TOLERANCE= 0.125000E-03

177 AREAS (OF 3056 DEFINED) SELECTED BY ASEL COMMAND.

DRAG ALL SELECTED AREAS
ALONG LINES
8,

*** WARNING *** CP= 63.730 TIME= 17:51:45
Area 2508 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.730 TIME= 17:51:45
Area 2512 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.730 TIME= 17:51:45
Area 2516 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.740 TIME= 17:51:45
Area 2521 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.740 TIME= 17:51:45
Area 2525 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.740 TIME= 17:51:45
Area 2529 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.740 TIME= 17:51:45
Area 2534 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.740 TIME= 17:51:45
Area 2538 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.740 TIME= 17:51:45
Area 2542 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.740 TIME= 17:51:45
Area 2547 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.740 TIME= 17:51:45
Area 2551 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.740 TIME= 17:51:45
Area 2555 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.740 TIME= 17:51:45
Area 2560 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.740 TIME= 17:51:45
Area 2564 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.750 TIME= 17:51:45
Area 2568 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.750 TIME= 17:51:45
Area 2573 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.750 TIME= 17:51:45

Area 2577 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.750 TIME= 17:51:45
Area 2581 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.750 TIME= 17:51:45
Area 2584 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.750 TIME= 17:51:45
Area 2589 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.750 TIME= 17:51:45
Area 2593 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.750 TIME= 17:51:45
Area 2597 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.750 TIME= 17:51:45
Area 2600 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.750 TIME= 17:51:45
Area 2605 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.750 TIME= 17:51:45
Area 2609 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.750 TIME= 17:51:45
Area 2613 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.760 TIME= 17:51:45
Area 2616 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.760 TIME= 17:51:45
Area 2621 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.760 TIME= 17:51:45
Area 2625 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.760 TIME= 17:51:45
Area 2629 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.760 TIME= 17:51:45
Area 2632 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.760 TIME= 17:51:45
Area 2637 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.760 TIME= 17:51:45
Area 2641 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.760 TIME= 17:51:45
Area 2645 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.760 TIME= 17:51:45
Area 2648 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.760 TIME= 17:51:45
Area 2653 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.760 TIME= 17:51:45
Area 2657 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.770 TIME= 17:51:45
Area 2661 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.770 TIME= 17:51:45
Area 2664 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.770 TIME= 17:51:45
Area 2669 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.770 TIME= 17:51:45
Area 2673 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.770 TIME= 17:51:45
Area 2677 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.770 TIME= 17:51:45
Area 2680 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.770 TIME= 17:51:45
Area 2685 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.770 TIME= 17:51:45
Area 2689 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.770 TIME= 17:51:45
Area 2693 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.770 TIME= 17:51:45
Area 2696 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.770 TIME= 17:51:45
Area 2699 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.780 TIME= 17:51:45
Area 2702 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.780 TIME= 17:51:45
Area 2705 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.780 TIME= 17:51:45
Area 2707 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.780 TIME= 17:51:45
Area 2709 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.780 TIME= 17:51:45
Area 2712 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.780 TIME= 17:51:45
Area 2715 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.780 TIME= 17:51:45
Area 2718 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.780 TIME= 17:51:45
Area 2720 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.780 TIME= 17:51:45
Area 2723 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.780 TIME= 17:51:45
Area 2725 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.780 TIME= 17:51:45
Area 2727 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.780 TIME= 17:51:45
Area 2729 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.790 TIME= 17:51:45
Area 2732 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.790 TIME= 17:51:45
Area 2735 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.790 TIME= 17:51:45
Area 2737 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.790 TIME= 17:51:45
Area 2740 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.790 TIME= 17:51:45
Area 2742 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.790 TIME= 17:51:45
Area 2744 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.790 TIME= 17:51:45
Area 2746 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.790 TIME= 17:51:45
Area 2749 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.790 TIME= 17:51:45
Area 2752 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.790 TIME= 17:51:45
Area 2754 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.790 TIME= 17:51:45
Area 2756 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.800 TIME= 17:51:45
Area 2760 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.800 TIME= 17:51:45
Area 2763 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.800 TIME= 17:51:45
Area 2767 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.800 TIME= 17:51:45
Area 2770 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.800 TIME= 17:51:45
Area 2774 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.800 TIME= 17:51:45
Area 2777 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.800 TIME= 17:51:45
Area 2781 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.800 TIME= 17:51:45
Area 2784 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.800 TIME= 17:51:45
Area 2787 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.800 TIME= 17:51:45
Area 2791 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.800 TIME= 17:51:45
Area 2794 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.810 TIME= 17:51:45
Area 2798 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.810 TIME= 17:51:45
Area 2801 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.810 TIME= 17:51:45
Area 2805 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.810 TIME= 17:51:45
Area 2808 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.810 TIME= 17:51:45

Area 2812 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.810 TIME= 17:51:45
Area 2814 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.810 TIME= 17:51:45
Area 2817 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.810 TIME= 17:51:45
Area 2821 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.810 TIME= 17:51:45
Area 2823 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.810 TIME= 17:51:45
Area 2826 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.820 TIME= 17:51:45
Area 2831 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.820 TIME= 17:51:45
Area 2834 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.820 TIME= 17:51:45
Area 2838 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.820 TIME= 17:51:45
Area 2841 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.820 TIME= 17:51:45
Area 2844 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.820 TIME= 17:51:45
Area 2848 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.820 TIME= 17:51:45
Area 2851 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.820 TIME= 17:51:45
Area 2854 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.820 TIME= 17:51:45
Area 2858 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.830 TIME= 17:51:45
Area 2861 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.830 TIME= 17:51:45
Area 2865 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.830 TIME= 17:51:45
Area 2868 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.830 TIME= 17:51:45
Area 2872 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.830 TIME= 17:51:45
Area 2875 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.830 TIME= 17:51:45
Area 2878 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.830 TIME= 17:51:45
Area 2882 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.830 TIME= 17:51:45
Area 2885 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.830 TIME= 17:51:45
Area 2888 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.830 TIME= 17:51:45
Area 2892 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.830 TIME= 17:51:45
Area 2895 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.830 TIME= 17:51:45
Area 2899 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.840 TIME= 17:51:45
Area 2903 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.840 TIME= 17:51:45
Area 2906 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.840 TIME= 17:51:45
Area 2909 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.840 TIME= 17:51:45
Area 2912 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.840 TIME= 17:51:45
Area 2915 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.840 TIME= 17:51:45
Area 2918 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.840 TIME= 17:51:45
Area 2921 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.840 TIME= 17:51:45
Area 2924 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.840 TIME= 17:51:45
Area 2927 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.840 TIME= 17:51:45
Area 2930 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.840 TIME= 17:51:45
Area 2933 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.840 TIME= 17:51:45
Area 2936 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.850 TIME= 17:51:45
Area 2939 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.850 TIME= 17:51:45
Area 2942 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.850 TIME= 17:51:45
Area 2945 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.850 TIME= 17:51:45
Area 2948 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.850 TIME= 17:51:45
Area 2951 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.850 TIME= 17:51:45
Area 2954 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.850 TIME= 17:51:45
Area 2957 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.850 TIME= 17:51:45
Area 2960 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.850 TIME= 17:51:45
Area 2963 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.850 TIME= 17:51:45
Area 2967 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.860 TIME= 17:51:45
Area 2970 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.860 TIME= 17:51:45
Area 2973 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.860 TIME= 17:51:45
Area 2976 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.860 TIME= 17:51:45
Area 2979 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.860 TIME= 17:51:45
Area 2982 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.860 TIME= 17:51:46
Area 2985 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.860 TIME= 17:51:46
Area 2988 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.860 TIME= 17:51:46
Area 2991 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.860 TIME= 17:51:46
Area 2994 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.860 TIME= 17:51:46
Area 2997 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.860 TIME= 17:51:46
Area 3000 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.860 TIME= 17:51:46
Area 3003 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.860 TIME= 17:51:46
Area 3006 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.860 TIME= 17:51:46
Area 3009 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.860 TIME= 17:51:46
Area 3012 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.860 TIME= 17:51:46
Area 3015 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.870 TIME= 17:51:46
Area 3018 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.870 TIME= 17:51:46
Area 3021 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.870 TIME= 17:51:46
Area 3024 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.870 TIME= 17:51:46
Area 3027 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.870 TIME= 17:51:46
Area 3029 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.870 TIME= 17:51:46

Area 3031 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.870 TIME= 17:51:46
Area 3033 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.870 TIME= 17:51:46
Area 3035 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.870 TIME= 17:51:46
Area 3037 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.870 TIME= 17:51:46
Area 3039 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.870 TIME= 17:51:46
Area 3041 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.880 TIME= 17:51:46
Area 3042 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.880 TIME= 17:51:46
Area 3043 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.880 TIME= 17:51:46
Area 3044 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.880 TIME= 17:51:46
Area 3045 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.880 TIME= 17:51:46
Area 3046 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.880 TIME= 17:51:46
Area 3047 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.880 TIME= 17:51:46
Area 3048 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.880 TIME= 17:51:46
Area 3049 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.880 TIME= 17:51:46
Area 3050 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.880 TIME= 17:51:46
Area 3051 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.880 TIME= 17:51:46
Area 3052 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.890 TIME= 17:51:46
Area 3053 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.890 TIME= 17:51:46
Area 3054 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.890 TIME= 17:51:46
Area 3055 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.890 TIME= 17:51:46
Area 3056 is not meshed. Volume will be generated without elements.

SELECT FOR ITEM=LOC COMPONENT=Z BETWEEN-0.13500 AND -0.13500
KABS= 0. TOLERANCE= 0.675000E-03

177 AREAS (OF 3609 DEFINED) SELECTED BY ASEL COMMAND.

ACTIVE COORDINATE SYSTEM SET TO 1 (CYLINDRICAL)

RESELECT FOR ITEM=LOC COMPONENT=X BETWEEN 0.77095 AND 0.83095

KABS= 0. TOLERANCE= 0.000000E+00

21 AREAS (OF 3609 DEFINED) SELECTED BY ASEL COMMAND.

ACTIVE COORDINATE SYSTEM SET TO 0 (CARTESIAN)

DRAG ALL SELECTED AREAS
ALONG LINES
9,

```
*** WARNING ***           CP= 74.960 TIME= 17:52:05
Area 3520 is not meshed. Volume will be generated without elements.

*** WARNING ***           CP= 74.960 TIME= 17:52:05
Area 3523 is not meshed. Volume will be generated without elements.

*** WARNING ***           CP= 74.960 TIME= 17:52:05
Area 3526 is not meshed. Volume will be generated without elements.

*** WARNING ***           CP= 74.970 TIME= 17:52:05
Area 3529 is not meshed. Volume will be generated without elements.

*** WARNING ***           CP= 74.970 TIME= 17:52:05
Area 3532 is not meshed. Volume will be generated without elements.

*** WARNING ***           CP= 74.970 TIME= 17:52:05
Area 3535 is not meshed. Volume will be generated without elements.

*** WARNING ***           CP= 74.970 TIME= 17:52:05
Area 3538 is not meshed. Volume will be generated without elements.

*** WARNING ***           CP= 74.970 TIME= 17:52:05
Area 3541 is not meshed. Volume will be generated without elements.

*** WARNING ***           CP= 74.970 TIME= 17:52:05
Area 3544 is not meshed. Volume will be generated without elements.

*** WARNING ***           CP= 74.970 TIME= 17:52:05
Area 3547 is not meshed. Volume will be generated without elements.

*** WARNING ***           CP= 74.970 TIME= 17:52:05
Area 3550 is not meshed. Volume will be generated without elements.

*** WARNING ***           CP= 74.970 TIME= 17:52:05
Area 3553 is not meshed. Volume will be generated without elements.

*** WARNING ***           CP= 74.970 TIME= 17:52:05
Area 3556 is not meshed. Volume will be generated without elements.

*** WARNING ***           CP= 74.980 TIME= 17:52:05
Area 3559 is not meshed. Volume will be generated without elements.

*** WARNING ***           CP= 74.980 TIME= 17:52:05
Area 3562 is not meshed. Volume will be generated without elements.

*** WARNING ***           CP= 74.980 TIME= 17:52:05
Area 3565 is not meshed. Volume will be generated without elements.

*** WARNING ***           CP= 74.980 TIME= 17:52:05
Area 3568 is not meshed. Volume will be generated without elements.

*** WARNING ***           CP= 74.980 TIME= 17:52:05
Area 3571 is not meshed. Volume will be generated without elements.

*** WARNING ***           CP= 74.980 TIME= 17:52:05
Area 3574 is not meshed. Volume will be generated without elements.

*** WARNING ***           CP= 74.980 TIME= 17:52:05
Area 3577 is not meshed. Volume will be generated without elements.
```

*** WARNING *** CP= 74.980 TIME= 17:52:05
Area 3580 is not meshed. Volume will be generated without elements.

Mesh Volumes

Mesh the CS Tubes

SELECT FOR ITEM=VOLU COMPONENT=
IN RANGE 1 TO 47 STEP 1

47 VOLUMES (OF 1010 DEFINED) SELECTED BY VSEL COMMAND.

ELEMENT TYPE SET TO 1

MATERIAL NUMBER SET TO 1

GENERATE NODES AND ELEMENTS IN ALL SELECTED VOLUMES

NUMBER OF VOLUMES MESHED = 47
MAXIMUM NODE NUMBER = 6176
MAXIMUM ELEMENT NUMBER = 2820
Mesh SS-B Plates

SELECT FOR ITEM=VOLU COMPONENT=
IN RANGE 48 TO 71 STEP 1

24 VOLUMES (OF 1010 DEFINED) SELECTED BY VSEL COMMAND.

ELEMENT TYPE SET TO 2

MATERIAL NUMBER SET TO 2

GENERATE NODES AND ELEMENTS IN ALL SELECTED VOLUMES

*** WARNING *** CP= 89.460 TIME= 17:52:30
Meshing of volume 50 produced 15 elements with excessive aspect ratio.
Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 50 WITH EXCESSIVE ASPECT RATIO ***
2941 2942 2943 2944 2945 2946 2947 2948
2949 2950 2951 2952 2953 2954 2955

*** WARNING *** CP= 90.450 TIME= 17:52:31
Meshing of volume 55 produced 15 elements with excessive aspect ratio.
Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 55 WITH EXCESSIVE ASPECT RATIO ***
3196 3197 3198 3199 3200 3201 3202 3203
3204 3205 3206 3207 3208 3209 3210

*** WARNING *** CP= 90.790 TIME= 17:52:32
Meshing of volume 57 produced 15 elements with excessive aspect ratio.
Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 57 WITH EXCESSIVE ASPECT RATIO ***
3271 3272 3273 3274 3275 3276 3277 3278
3279 3280 3281 3282 3283 3284 3285

*** WARNING *** CP= 91.780 TIME= 17:52:34
Meshing of volume 62 produced 15 elements with excessive aspect ratio.
Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 62 WITH EXCESSIVE ASPECT RATIO ***
3526 3527 3528 3529 3530 3531 3532 3533
3534 3535 3536 3537 3538 3539 3540

*** WARNING *** CP= 92.120 TIME= 17:52:34
 Meshing of volume 64 produced 15 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 64 WITH EXCESSIVE ASPECT RATIO ***

3601	3602	3603	3604	3605	3606	3607	3608
3609	3610	3611	3612	3613	3614	3615	

*** WARNING *** CP= 93.160 TIME= 17:52:36
 Meshing of volume 69 produced 15 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 69 WITH EXCESSIVE ASPECT RATIO ***

3856	3857	3858	3859	3860	3861	3862	3863
3864	3865	3866	3867	3868	3869	3870	

NUMBER OF VOLUMES MESHD = 24
 MAXIMUM NODE NUMBER = 6176
 MAXIMUM ELEMENT NUMBER = 3990
 Mesh End Guides

SELECT FOR ITEM=VOLU COMPONENT=
 IN RANGE 72 TO 86 STEP 1

15 VOLUMES (OF 1010 DEFINED) SELECTED BY VSEL COMMAND.

ELEMENT TYPE SET TO 3

MATERIAL NUMBER SET TO 3

GENERATE NODES AND ELEMENTS IN ALL SELECTED VOLUMES

*** WARNING *** CP= 94.280 TIME= 17:52:38
 Meshing of volume 73 produced 15 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 73 WITH EXCESSIVE ASPECT RATIO ***

4051	4052	4053	4054	4055	4056	4057	4058
4059	4060	4061	4062	4063	4064	4065	

*** WARNING *** CP= 94.590 TIME= 17:52:39
 Volume 75 area 75 has a corner angle of 150 degrees. This is not
 recommended for hexahedral elements.

*** WARNING *** CP= 94.590 TIME= 17:52:39
 Volume 75 area 422 has a corner angle of 150 degrees. This is not
 recommended for hexahedral elements.

*** WARNING *** CP= 94.740 TIME= 17:52:39
 Meshing of volume 75 produced 30 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 75 WITH EXCESSIVE DISTORTION ***

4156	4157	4158	4159	4160	4161	4162	4163
4164	4165	4166	4167	4168	4169	4170	4171
4172	4173	4174	4175	4176	4177	4178	4179
4180	4181	4182	4183	4184	4185		

*** WARNING *** CP= 94.830 TIME= 17:52:39
 Volume 76 area 76 has a corner angle of 30 degrees. This is not
 recommended for hexahedral elements.

*** WARNING *** CP= 94.840 TIME= 17:52:39
 Volume 76 area 426 has a corner angle of 30 degrees. This is not
 recommended for hexahedral elements.

*** WARNING *** CP= 94.980 TIME= 17:52:39
Meshing of volume 76 produced 30 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 76 WITH EXCESSIVE DISTORTION ***

4186	4187	4190	4191	4194	4195	4198	4199
4202	4203	4206	4207	4210	4211	4214	4215
4218	4219	4222	4223	4226	4227	4230	4231
4234	4235	4238	4239	4242	4243		

*** WARNING *** CP= 95.090 TIME= 17:52:40
Meshing of volume 77 produced 15 elements with excessive aspect ratio.
Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 77 WITH EXCESSIVE ASPECT RATIO ***

4246	4247	4248	4249	4250	4251	4252	4253
4254	4255	4256	4257	4258	4259	4260	

*** WARNING *** CP= 95.640 TIME= 17:52:41
Meshing of volume 80 produced 15 elements with excessive aspect ratio.
Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 80 WITH EXCESSIVE ASPECT RATIO ***

4381	4382	4383	4384	4385	4386	4387	4388
4389	4390	4391	4392	4393	4394	4395	

*** WARNING *** CP= 95.930 TIME= 17:52:41
Volume 82 area 82 has a corner angle of 150 degrees. This is not recommended for hexahedral elements.

*** WARNING *** CP= 95.940 TIME= 17:52:41
Volume 82 area 446 has a corner angle of 150 degrees. This is not recommended for hexahedral elements.

*** WARNING *** CP= 96.080 TIME= 17:52:41
Meshing of volume 82 produced 30 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 82 WITH EXCESSIVE DISTORTION ***

4458	4459	4462	4463	4466	4467	4470	4471
4474	4475	4478	4479	4482	4483	4486	4487
4490	4491	4494	4495	4498	4499	4502	4503
4506	4507	4510	4511	4514	4515		

*** WARNING *** CP= 96.170 TIME= 17:52:41
Volume 83 area 83 has a corner angle of 30 degrees. This is not recommended for hexahedral elements.

*** WARNING *** CP= 96.180 TIME= 17:52:41
Volume 83 area 450 has a corner angle of 30 degrees. This is not recommended for hexahedral elements.

*** WARNING *** CP= 96.330 TIME= 17:52:42
Meshing of volume 83 produced 30 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 83 WITH EXCESSIVE DISTORTION ***

4546	4547	4548	4549	4550	4551	4552	4553
4554	4555	4556	4557	4558	4559	4560	4561
4562	4563	4564	4565	4566	4567	4568	4569
4570	4571	4572	4573	4574	4575		

*** WARNING *** CP= 96.440 TIME= 17:52:42
Meshing of volume 84 produced 15 elements with excessive aspect ratio.
Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 84 WITH EXCESSIVE ASPECT RATIO ***

4576	4577	4578	4579	4580	4581	4582	4583
------	------	------	------	------	------	------	------

4584 4585 4586 4587 4588 4589 4590

NUMBER OF VOLUMES MESHED = 15
 MAXIMUM NODE NUMBER = 7248
 MAXIMUM ELEMENT NUMBER = 4710
 Mesh Corner Guides

SELECT FOR ITEM=VOLU COMPONENT=
 IN RANGE 87 TO 92 STEP 1

6 VOLUMES (OF 1010 DEFINED) SELECTED BY VSEL COMMAND.

ELEMENT TYPE SET TO 4

MATERIAL NUMBER SET TO 4

GENERATE NODES AND ELEMENTS IN ALL SELECTED VOLUMES

*** WARNING *** CP= 97.350 TIME= 17:52:44
 Meshing of volume 88 produced 15 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 88 WITH EXCESSIVE ASPECT RATIO ***
 4771 4772 4773 4774 4775 4776 4777 4778
 4779 4780 4781 4782 4783 4784 4785

*** WARNING *** CP= 97.920 TIME= 17:52:45
 Meshing of volume 91 produced 15 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 91 WITH EXCESSIVE ASPECT RATIO ***
 4906 4907 4908 4909 4910 4911 4912 4913
 4914 4915 4916 4917 4918 4919 4920

NUMBER OF VOLUMES MESHED = 6
 MAXIMUM NODE NUMBER = 7536
 MAXIMUM ELEMENT NUMBER = 4980
 Mesh Inner Barrier

SELECT FOR ITEM=LOC COMPONENT=Z BETWEEN-0.25000E-01 AND 4.6100
 KABS= 0. TOLERANCE= 0.000000E+00

572 VOLUMES (OF 1010 DEFINED) SELECTED BY VSEL COMMAND.

ACTIVE COORDINATE SYSTEM SET TO 1 (CYLINDRICAL)

RESELECT FOR ITEM=LOC COMPONENT=X BETWEEN 0.00000E+00 AND 0.73095
 KABS= 0. TOLERANCE= 0.000000E+00

404 VOLUMES (OF 1010 DEFINED) SELECTED BY VSEL COMMAND.

UNSELECT FOR ITEM=VOLU COMPONENT=
 IN RANGE 1 TO 92 STEP 1

312 VOLUMES (OF 1010 DEFINED) SELECTED BY VSEL COMMAND.

ACTIVE COORDINATE SYSTEM SET TO 0 (CARTESIAN)

ELEMENT TYPE SET TO 5

MATERIAL NUMBER SET TO 5

GENERATE NODES AND ELEMENTS IN ALL SELECTED VOLUMES

*** NOTE *** CP= 117.070 TIME= 17:53:22
 Page file used.

*** WARNING *** CP= 121.050 TIME= 17:53:29
Volume 356 area 967 has a corner angle of 150 degrees. This is not
recommended for hexahedral elements.

*** WARNING *** CP= 121.060 TIME= 17:53:29
Volume 356 area 1484 has a corner angle of 150 degrees. This is not
recommended for hexahedral elements.

*** WARNING *** CP= 121.080 TIME= 17:53:29
Meshing of volume 356 produced 2 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 356 WITH EXCESSIVE DISTORTION ***
6890 6891

*** WARNING *** CP= 121.150 TIME= 17:53:29
Volume 357 area 968 has a corner angle of 30 degrees. This is not
recommended for hexahedral elements.

*** WARNING *** CP= 121.160 TIME= 17:53:29
Volume 357 area 1487 has a corner angle of 30 degrees. This is not
recommended for hexahedral elements.

*** WARNING *** CP= 121.180 TIME= 17:53:29
Meshing of volume 357 produced 2 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 357 WITH EXCESSIVE DISTORTION ***
6892 6893

*** WARNING *** CP= 121.600 TIME= 17:53:30
Volume 363 area 974 has a corner angle of 150 degrees. This is not
recommended for hexahedral elements.

*** WARNING *** CP= 121.610 TIME= 17:53:30
Volume 363 area 1504 has a corner angle of 150 degrees. This is not
recommended for hexahedral elements.

*** WARNING *** CP= 121.630 TIME= 17:53:30
Meshing of volume 363 produced 2 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 363 WITH EXCESSIVE DISTORTION ***
6912 6913

*** WARNING *** CP= 121.690 TIME= 17:53:30
Volume 364 area 975 has a corner angle of 30 degrees. This is not
recommended for hexahedral elements.

*** WARNING *** CP= 121.710 TIME= 17:53:30
Volume 364 area 1507 has a corner angle of 30 degrees. This is not
recommended for hexahedral elements.

*** WARNING *** CP= 121.730 TIME= 17:53:30
Meshing of volume 364 produced 2 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 364 WITH EXCESSIVE DISTORTION ***
6916 6917

*** WARNING *** CP= 123.100 TIME= 17:53:32
Volume 381 area 992 has a corner angle of 29 degrees. This is not
recommended for hexahedral elements.

*** WARNING *** CP= 123.120 TIME= 17:53:33
Volume 381 area 1545 has a corner angle of 29 degrees. This is not
recommended for hexahedral elements.

*** WARNING *** CP= 123.160 TIME= 17:53:33
Meshing of volume 381 produced 7 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 381 WITH EXCESSIVE DISTORTION ***
7057 7058 7059 7060 7062 7064 7066

*** WARNING *** CP= 123.660 TIME= 17:53:34
Volume 387 area 998 has a corner angle of 29 degrees. This is not
recommended for hexahedral elements.

*** WARNING *** CP= 123.680 TIME= 17:53:34
Volume 387 area 1551 has a corner angle of 29 degrees. This is not
recommended for hexahedral elements.

*** WARNING *** CP= 123.720 TIME= 17:53:34
Meshing of volume 387 produced 7 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 387 WITH EXCESSIVE DISTORTION ***
7150 7153 7154 7157 7158 7159 7160

*** WARNING *** CP= 123.830 TIME= 17:53:34
Meshing of volume 388 produced 1 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 388 WITH EXCESSIVE DISTORTION ***
7166

*** WARNING *** CP= 124.180 TIME= 17:53:35
Meshing of volume 392 produced 1 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 392 WITH EXCESSIVE DISTORTION ***
7226

*** WARNING *** CP= 124.200 TIME= 17:53:35
Volume 393 area 1004 has a corner angle of 29 degrees. This is not
recommended for hexahedral elements.

*** WARNING *** CP= 124.220 TIME= 17:53:35
Volume 393 area 1557 has a corner angle of 29 degrees. This is not
recommended for hexahedral elements.

*** WARNING *** CP= 124.260 TIME= 17:53:35
Meshing of volume 393 produced 7 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 393 WITH EXCESSIVE DISTORTION ***
7234 7237 7238 7241 7242 7243 7244

*** WARNING *** CP= 124.380 TIME= 17:53:35
Volume 395 area 1006 has a corner angle of 29 degrees. This is not
recommended for hexahedral elements.

*** WARNING *** CP= 124.400 TIME= 17:53:35
Volume 395 area 1559 has a corner angle of 29 degrees. This is not
recommended for hexahedral elements.

*** WARNING *** CP= 124.460 TIME= 17:53:35
Meshing of volume 395 produced 7 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 395 WITH EXCESSIVE DISTORTION ***
7261 7262 7263 7264 7266 7268 7270

*** WARNING *** CP= 130.280 TIME= 17:53:46
Volume 710 area 75 has a corner angle of 150 degrees. This is not
recommended for hexahedral elements.

*** WARNING *** CP= 130.290 TIME= 17:53:46
Volume 710 area 2770 has a corner angle of 150 degrees. This is not

recommended for hexahedral elements.

*** WARNING *** CP= 130.320 TIME= 17:53:46
Meshing of volume 710 produced 2 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 710 WITH EXCESSIVE DISTORTION ***
7550 7551

*** WARNING *** CP= 130.370 TIME= 17:53:46
Volume 711 area 76 has a corner angle of 30 degrees. This is not recommended for hexahedral elements.

*** WARNING *** CP= 130.380 TIME= 17:53:46
Volume 711 area 2774 has a corner angle of 30 degrees. This is not recommended for hexahedral elements.

*** WARNING *** CP= 130.400 TIME= 17:53:46
Meshing of volume 711 produced 2 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 711 WITH EXCESSIVE DISTORTION ***
7552 7553

*** WARNING *** CP= 130.750 TIME= 17:53:47
Volume 717 area 82 has a corner angle of 150 degrees. This is not recommended for hexahedral elements.

*** WARNING *** CP= 130.760 TIME= 17:53:47
Volume 717 area 2794 has a corner angle of 150 degrees. This is not recommended for hexahedral elements.

*** WARNING *** CP= 130.780 TIME= 17:53:47
Meshing of volume 717 produced 2 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 717 WITH EXCESSIVE DISTORTION ***
7572 7573

*** WARNING *** CP= 130.830 TIME= 17:53:47
Volume 718 area 83 has a corner angle of 30 degrees. This is not recommended for hexahedral elements.

*** WARNING *** CP= 130.840 TIME= 17:53:47
Volume 718 area 2798 has a corner angle of 30 degrees. This is not recommended for hexahedral elements.

*** WARNING *** CP= 130.870 TIME= 17:53:47
Meshing of volume 718 produced 2 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 718 WITH EXCESSIVE DISTORTION ***
7576 7577

*** WARNING *** CP= 134.010 TIME= 17:53:52
Volume 798 area 2489 has a corner angle of 29 degrees. This is not recommended for hexahedral elements.

*** WARNING *** CP= 134.030 TIME= 17:53:52
Volume 798 area 3042 has a corner angle of 29 degrees. This is not recommended for hexahedral elements.

*** WARNING *** CP= 134.070 TIME= 17:53:52
Meshing of volume 798 produced 7 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 798 WITH EXCESSIVE DISTORTION ***
7813 7814 7817 7818 7819 7820 7822

*** WARNING *** CP= 134.560 TIME= 17:53:53

Volume 804 area 2495 has a corner angle of 29 degrees. This is not recommended for hexahedral elements.

*** WARNING *** CP= 134.580 TIME= 17:53:53
Volume 804 area 3048 has a corner angle of 29 degrees. This is not recommended for hexahedral elements.

*** WARNING *** CP= 134.620 TIME= 17:53:53
Meshing of volume 804 produced 7 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 804 WITH EXCESSIVE DISTORTION ***
7906 7908 7910 7913 7914 7915 7916

*** WARNING *** CP= 134.700 TIME= 17:53:53
Meshing of volume 805 produced 1 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 805 WITH EXCESSIVE DISTORTION ***
7918

*** WARNING *** CP= 135.060 TIME= 17:53:54
Meshing of volume 809 produced 1 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 809 WITH EXCESSIVE DISTORTION ***
7978

*** WARNING *** CP= 135.100 TIME= 17:53:54
Volume 810 area 2501 has a corner angle of 29 degrees. This is not recommended for hexahedral elements.

*** WARNING *** CP= 135.120 TIME= 17:53:54
Volume 810 area 3054 has a corner angle of 29 degrees. This is not recommended for hexahedral elements.

*** WARNING *** CP= 135.160 TIME= 17:53:54
Meshing of volume 810 produced 7 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 810 WITH EXCESSIVE DISTORTION ***
7989 7990 7991 7992 7994 7996 7998

*** WARNING *** CP= 135.280 TIME= 17:53:54
Volume 812 area 2503 has a corner angle of 29 degrees. This is not recommended for hexahedral elements.

*** WARNING *** CP= 135.290 TIME= 17:53:54
Volume 812 area 3056 has a corner angle of 29 degrees. This is not recommended for hexahedral elements.

*** WARNING *** CP= 135.340 TIME= 17:53:54
Meshing of volume 812 produced 7 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 812 WITH EXCESSIVE DISTORTION ***
8017 8018 8021 8022 8023 8024 8026

NUMBER OF VOLUMES MESHED = 312
MAXIMUM NODE NUMBER = 12190
MAXIMUM ELEMENT NUMBER = 8028
Mesh Lower Outer Barrier and Lids

INVERT FOR ITEM=VOLUME COMPONENT=
IN RANGE 1 TO 1010 STEP 1

698 VOLUMES (OF 1010 DEFINED) SELECTED BY VSEL COMMAND.

UNSELECT FOR ITEM=VOLUME COMPONENT=
IN RANGE 1 TO 92 STEP 1

606 VOLUMES (OF 1010 DEFINED) SELECTED BY VSEL COMMAND.

ACTIVE COORDINATE SYSTEM SET TO 1 (CYLINDRICAL)

UNSELECT FOR ITEM=LOC COMPONENT=X BETWEEN 0.73095 AND 0.83095
KABS= 0. TOLERANCE= 0.000000E+00

270 VOLUMES (OF 1010 DEFINED) SELECTED BY VSEL COMMAND.

ALSO SELECT FOR ITEM=LOC COMPONENT=Y BETWEEN -90.000 AND 5.0000
KABS= 0. TOLERANCE= 0.000000E+00

666 VOLUMES (OF 1010 DEFINED) SELECTED BY VSEL COMMAND.

UNSELECT FOR ITEM=VOLU COMPONENT=
IN RANGE 1 TO 92 STEP 1

616 VOLUMES (OF 1010 DEFINED) SELECTED BY VSEL COMMAND.

UNSELECT FOR ITEM=TYPE COMPONENT=
IN RANGE 5 TO 5 STEP 1

446 VOLUMES (OF 1010 DEFINED) SELECTED BY VSEL COMMAND.

ELEMENT TYPE SET TO 6

MATERIAL NUMBER SET TO 6

GENERATE NODES AND ELEMENTS IN ALL SELECTED VOLUMES

*** WARNING *** CP= 166.060 TIME= 17:54:49
Volume 575 area 1804 has a corner angle of 150 degrees. This is not
recommended for hexahedral elements.

*** WARNING *** CP= 166.070 TIME= 17:54:49
Volume 575 area 2321 has a corner angle of 150 degrees. This is not
recommended for hexahedral elements.

*** WARNING *** CP= 166.090 TIME= 17:54:49
Meshing of volume 575 produced 2 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 575 WITH EXCESSIVE DISTORTION ***
10378 10379

*** WARNING *** CP= 166.130 TIME= 17:54:49
Volume 576 area 1805 has a corner angle of 30 degrees. This is not
recommended for hexahedral elements.

*** WARNING *** CP= 166.140 TIME= 17:54:49
Volume 576 area 2324 has a corner angle of 30 degrees. This is not
recommended for hexahedral elements.

*** WARNING *** CP= 166.160 TIME= 17:54:49
Meshing of volume 576 produced 2 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 576 WITH EXCESSIVE DISTORTION ***
10380 10381

*** WARNING *** CP= 166.520 TIME= 17:54:50
Volume 582 area 1811 has a corner angle of 150 degrees. This is not
recommended for hexahedral elements.

*** WARNING *** CP= 166.530 TIME= 17:54:50
Volume 582 area 2341 has a corner angle of 150 degrees. This is not
recommended for hexahedral elements.

*** WARNING *** CP= 166.550 TIME= 17:54:50

Meshing of volume 582 produced 2 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 582 WITH EXCESSIVE DISTORTION ***
10400 10401

*** WARNING *** CP= 166.610 TIME= 17:54:50
Volume 583 area 1812 has a corner angle of 30 degrees. This is not recommended for hexahedral elements.

*** WARNING *** CP= 166.620 TIME= 17:54:50
Volume 583 area 2344 has a corner angle of 30 degrees. This is not recommended for hexahedral elements.

*** WARNING *** CP= 166.640 TIME= 17:54:50
Meshing of volume 583 produced 2 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 583 WITH EXCESSIVE DISTORTION ***
10404 10405

*** WARNING *** CP= 167.950 TIME= 17:54:52
Volume 600 area 1829 has a corner angle of 29 degrees. This is not recommended for hexahedral elements.

*** WARNING *** CP= 167.970 TIME= 17:54:52
Volume 600 area 2382 has a corner angle of 29 degrees. This is not recommended for hexahedral elements.

*** WARNING *** CP= 168.000 TIME= 17:54:52
Meshing of volume 600 produced 7 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 600 WITH EXCESSIVE DISTORTION ***
10545 10546 10547 10548 10550 10552 10554

*** WARNING *** CP= 168.500 TIME= 17:54:53
Volume 606 area 1835 has a corner angle of 29 degrees. This is not recommended for hexahedral elements.

*** WARNING *** CP= 168.510 TIME= 17:54:53
Volume 606 area 2388 has a corner angle of 29 degrees. This is not recommended for hexahedral elements.

*** WARNING *** CP= 168.560 TIME= 17:54:53
Meshing of volume 606 produced 7 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 606 WITH EXCESSIVE DISTORTION ***
10638 10641 10642 10645 10646 10647 10648

*** WARNING *** CP= 168.630 TIME= 17:54:53
Meshing of volume 607 produced 1 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 607 WITH EXCESSIVE DISTORTION ***
10654

*** WARNING *** CP= 169.010 TIME= 17:54:54
Meshing of volume 611 produced 1 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 611 WITH EXCESSIVE DISTORTION ***
10714

*** WARNING *** CP= 169.030 TIME= 17:54:54
Volume 612 area 1841 has a corner angle of 29 degrees. This is not recommended for hexahedral elements.

*** WARNING *** CP= 169.050 TIME= 17:54:54

Volume 612 area 2394 has a corner angle of 29 degrees. This is not recommended for hexahedral elements.

*** WARNING *** CP= 169.080 TIME= 17:54:54
Meshing of volume 612 produced 7 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 612 WITH EXCESSIVE DISTORTION ***
10722 10725 10726 10729 10730 10731 10732

*** WARNING *** CP= 169.200 TIME= 17:54:54
Volume 614 area 1843 has a corner angle of 29 degrees. This is not recommended for hexahedral elements.

*** WARNING *** CP= 169.220 TIME= 17:54:54
Volume 614 area 2396 has a corner angle of 29 degrees. This is not recommended for hexahedral elements.

*** WARNING *** CP= 169.270 TIME= 17:54:55
Meshing of volume 614 produced 7 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 614 WITH EXCESSIVE DISTORTION ***
10749 10750 10751 10752 10754 10756 10758

*** WARNING *** CP= 177.590 TIME= 17:55:09
Volume 887 area 2770 has a corner angle of 150 degrees. This is not recommended for hexahedral elements.

*** WARNING *** CP= 177.600 TIME= 17:55:09
Volume 887 area 3323 has a corner angle of 150 degrees. This is not recommended for hexahedral elements.

*** WARNING *** CP= 177.620 TIME= 17:55:09
Meshing of volume 887 produced 2 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 887 WITH EXCESSIVE DISTORTION ***
11194 11195

*** WARNING *** CP= 177.670 TIME= 17:55:09
Volume 888 area 2774 has a corner angle of 30 degrees. This is not recommended for hexahedral elements.

*** WARNING *** CP= 177.670 TIME= 17:55:09
Volume 888 area 3327 has a corner angle of 30 degrees. This is not recommended for hexahedral elements.

*** WARNING *** CP= 177.690 TIME= 17:55:09
Meshing of volume 888 produced 2 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 888 WITH EXCESSIVE DISTORTION ***
11196 11197

*** WARNING *** CP= 178.060 TIME= 17:55:09
Volume 894 area 2794 has a corner angle of 150 degrees. This is not recommended for hexahedral elements.

*** WARNING *** CP= 178.070 TIME= 17:55:09
Volume 894 area 3347 has a corner angle of 150 degrees. This is not recommended for hexahedral elements.

*** WARNING *** CP= 178.100 TIME= 17:55:09
Meshing of volume 894 produced 2 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 894 WITH EXCESSIVE DISTORTION ***
11216 11217

*** WARNING *** CP= 178.150 TIME= 17:55:10
Volume 895 area 2798 has a corner angle of 30 degrees. This is not
recommended for hexahedral elements.

*** WARNING *** CP= 178.160 TIME= 17:55:10
Volume 895 area 3351 has a corner angle of 30 degrees. This is not
recommended for hexahedral elements.

*** WARNING *** CP= 178.190 TIME= 17:55:10
Meshing of volume 895 produced 2 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 895 WITH EXCESSIVE DISTORTION ***
11220 11221

*** WARNING *** CP= 182.890 TIME= 17:55:17
Volume 975 area 3595 has a corner angle of 29 degrees. This is not
recommended for hexahedral elements.

*** WARNING *** CP= 182.930 TIME= 17:55:17
Meshing of volume 975 produced 7 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 975 WITH EXCESSIVE DISTORTION ***
11561 11562 11565 11566 11567 11568 11570

*** WARNING *** CP= 183.390 TIME= 17:55:18
Volume 981 area 3601 has a corner angle of 29 degrees. This is not
recommended for hexahedral elements.

*** WARNING *** CP= 183.440 TIME= 17:55:18
Meshing of volume 981 produced 7 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 981 WITH EXCESSIVE DISTORTION ***
11654 11656 11658 11661 11662 11663 11664

*** WARNING *** CP= 183.500 TIME= 17:55:18
Meshing of volume 982 produced 1 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 982 WITH EXCESSIVE DISTORTION ***
11666

*** WARNING *** CP= 183.860 TIME= 17:55:19
Meshing of volume 986 produced 1 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 986 WITH EXCESSIVE DISTORTION ***
11726

*** WARNING *** CP= 183.880 TIME= 17:55:19
Volume 987 area 3607 has a corner angle of 29 degrees. This is not
recommended for hexahedral elements.

*** WARNING *** CP= 183.920 TIME= 17:55:19
Meshing of volume 987 produced 7 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 987 WITH EXCESSIVE DISTORTION ***
11737 11738 11739 11740 11742 11744 11746

*** WARNING *** CP= 184.050 TIME= 17:55:19
Volume 989 area 3609 has a corner angle of 29 degrees. This is not
recommended for hexahedral elements.

*** WARNING *** CP= 184.090 TIME= 17:55:19
Meshing of volume 989 produced 7 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 989 WITH EXCESSIVE DISTORTION ***

11765 11766 11769 11770 11771 11772 11774

NUMBER OF VOLUMES MESHED = 446
 MAXIMUM NODE NUMBER = 17143
 MAXIMUM ELEMENT NUMBER = 11828
 mesh upper outer barrier adding backfill mass

INVERT FOR ITEM=VOLU COMPONENT=
 IN RANGE 1 TO 1010 STEP 1

564 VOLUMES (OF 1010 DEFINED) SELECTED BY VSEL COMMAND.

UNSELECT FOR ITEM=TYPE COMPONENT=
 IN RANGE 1 TO 5 STEP 1

160 VOLUMES (OF 1010 DEFINED) SELECTED BY VSEL COMMAND.

ELEMENT TYPE SET TO 7

MATERIAL NUMBER SET TO 7

GENERATE NODES AND ELEMENTS IN ALL SELECTED VOLUMES

NUMBER OF VOLUMES MESHED = 160
 MAXIMUM NODE NUMBER = 19211
 MAXIMUM ELEMENT NUMBER = 13764

Apply Symmetry Constraints

ACTIVE COORDINATE SYSTEM SET TO 0 (CARTESIAN).

SELECT FOR ITEM=LOC COMPONENT=X BETWEEN 0.00000E+00 AND 0.00000E+00
 KABS= 0. TOLERANCE= 0.100000E-05

951 NODES (OF 19211 DEFINED) SELECTED BY NSEL COMMAND.

SYMMETRY CONSTRAINTS FOR COORDINATE SYSTEM 0 IN DIRECTION X
 ON SURFACE DEFINED BY ALL SELECTED NODES

*** NOTE *** CP= 206.740 TIME= 17:56:04
 Nodes on symmetry surfaces are rotated into coordinate system 0.

TOTAL SPECIFIED CONSTRAINTS= 951
 Apply Constraints at Support Locations
 Span approximately half of basket height, width = 0.305 m

ACTIVE COORDINATE SYSTEM SET TO 1 (CYLINDRICAL)

SELECT FOR ITEM=LOC COMPONENT=Z BETWEEN 0.90500 AND 1.2300
 KABS= 0. TOLERANCE= 0.000000E+00

1588 NODES (OF 19211 DEFINED) SELECTED BY NSEL COMMAND.

ALSO SELECT FOR ITEM=LOC COMPONENT=Z BETWEEN 3.3450 AND 3.6700
 KABS= 0. TOLERANCE= 0.000000E+00

3176 NODES (OF 19211 DEFINED) SELECTED BY NSEL COMMAND.

RESELECT FOR ITEM=LOC COMPONENT=X BETWEEN 0.82995 AND 0.83195
 KABS= 0. TOLERANCE= 0.000000E+00

196 NODES (OF 19211 DEFINED) SELECTED BY NSEL COMMAND.

RESELECT FOR ITEM=LOC COMPONENT=Y BETWEEN -70.000 AND -50.000
 KABS= 0. TOLERANCE= 0.000000E+00

20 NODES (OF 19211 DEFINED) SELECTED BY NSEL COMMAND.

ACTIVE COORDINATE SYSTEM SET TO 0 (CARTESIAN)

SPECIFIED CONSTRAINT UY FOR SELECTED NODES 1 TO 19211 BY 1
REAL= 0.000000000E+00 IMAG= 0.000000000E+00

SELECT ALL ENTITIES OF TYPE= ALL AND BELOW

ALL SELECT FOR ITEM=VOLUME COMPONENT=
IN RANGE 1 TO 1010 STEP 1

1010 VOLUMES (OF 1010 DEFINED) SELECTED BY VSEL COMMAND.

ALL SELECT FOR ITEM=AREA COMPONENT=
IN RANGE 1 TO 3694 STEP 1

3694 AREAS (OF 3694 DEFINED) SELECTED BY ASEL COMMAND.

ALL SELECT FOR ITEM=LINE COMPONENT=
IN RANGE 1 TO 4380 STEP 1

4380 LINES (OF 4380 DEFINED) SELECTED BY LSEL COMMAND.

ALL SELECT FOR ITEM=KP COMPONENT=
IN RANGE 1 TO 9001 STEP 1

1710 KEYPOINTS (OF 1710 DEFINED) SELECTED BY KSEL COMMAND.

ALL SELECT FOR ITEM=ELEM COMPONENT=
IN RANGE 1 TO 13764 STEP 1

13764 ELEMENTS (OF 13764 DEFINED) SELECTED BY ESEL COMMAND.

ALL SELECT FOR ITEM=NODE COMPONENT=
IN RANGE 1 TO 19211 STEP 1

19211 NODES (OF 19211 DEFINED) SELECTED BY NSEL COMMAND.

ALL CURRENT ANSYS DATA WRITTEN TO FILE NAME= seism5.db
FOR POSSIBLE RESUME FROM THIS POINT

***** ROUTINE COMPLETED ***** CP = 233.920

***** ANSYS SOLUTION ROUTINE *****

PERFORM A MODAL ANALYSIS
THIS WILL BE A NEW ANALYSIS

USE SUBSPACE ITERATION METHOD
EXTRACT 8 MODES
NORMALIZE THE MODE SHAPES TO THE MASS MATRIX

WRITE ALL ITEMS TO THE DATABASE WITH A FREQUENCY OF 1
FOR ALL APPLICABLE ENTITIES

ALL CURRENT ANSYS DATA WRITTEN TO FILE NAME= seism5.db
FOR POSSIBLE RESUME FROM THIS POINT

***** ANSYS SOLVE COMMAND *****

*** WARNING *** CP= 267.620 TIME= 18:01:04
Element 4156 has an angle between adjacent edges of 38.4597531 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 267.620 TIME= 18:01:04
Element 4156 has an angle between adjacent edges of 141.535362 on face

4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 267.620 TIME= 18:01:04
Element 4157 has an angle between adjacent edges of 38.4597531 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 267.620 TIME= 18:01:04
Element 4157 has an angle between adjacent edges of 141.535362 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 267.630 TIME= 18:01:04
Element 4158 has an angle between adjacent edges of 38.4597531 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 267.630 TIME= 18:01:04
Element 4158 has an angle between adjacent edges of 141.535362 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 267.640 TIME= 18:01:04
Element 4159 has an angle between adjacent edges of 38.4597531 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 267.640 TIME= 18:01:04
Element 4159 has an angle between adjacent edges of 141.535362 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 267.640 TIME= 18:01:04
Element 4160 has an angle between adjacent edges of 38.4597531 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 267.640 TIME= 18:01:04
Element 4160 has an angle between adjacent edges of 141.535362 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 267.650 TIME= 18:01:04
Element 4161 has an angle between adjacent edges of 38.4597531 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 267.650 TIME= 18:01:04
Element 4161 has an angle between adjacent edges of 141.535362 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 267.650 TIME= 18:01:04
Element 4162 has an angle between adjacent edges of 38.4597531 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 267.650 TIME= 18:01:04
Element 4162 has an angle between adjacent edges of 141.535362 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 267.650 TIME= 18:01:04
Element 4163 has an angle between adjacent edges of 38.4597531 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 267.650 TIME= 18:01:04
Element 4163 has an angle between adjacent edges of 141.535362 on face

4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 267.660 TIME= 18:01:05
Element 4164 has an angle between adjacent edges of 38.4597531 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 267.670 TIME= 18:01:05
Element 4164 has an angle between adjacent edges of 141.535362 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 267.670 TIME= 18:01:05
Element 4165 has an angle between adjacent edges of 38.4597531 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 267.670 TIME= 18:01:05
Element 4165 has an angle between adjacent edges of 141.535362 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 267.670 TIME= 18:01:05
Element 4166 has an angle between adjacent edges of 38.4597531 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 267.680 TIME= 18:01:05
Element 4166 has an angle between adjacent edges of 141.535362 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 267.680 TIME= 18:01:05
Element 4167 has an angle between adjacent edges of 38.4597531 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 267.680 TIME= 18:01:05
Element 4167 has an angle between adjacent edges of 141.535362 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 267.690 TIME= 18:01:05
Element 4168 has an angle between adjacent edges of 38.4597531 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 267.690 TIME= 18:01:05
Element 4168 has an angle between adjacent edges of 141.535362 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 267.690 TIME= 18:01:05
Element 4169 has an angle between adjacent edges of 38.4597531 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 267.690 TIME= 18:01:05
Element 4169 has an angle between adjacent edges of 141.535362 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 267.690 TIME= 18:01:05
Element 4170 has an angle between adjacent edges of 38.4597531 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 267.690 TIME= 18:01:05
Element 4170 has an angle between adjacent edges of 141.535362 on face

4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 267.690 TIME= 18:01:05
Element 4171 has an angle between adjacent edges of 30.0613937 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 267.690 TIME= 18:01:05
Element 4171 has an angle between adjacent edges of 149.933722 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 267.690 TIME= 18:01:05
Element 4172 has an angle between adjacent edges of 30.0613937 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 267.690 TIME= 18:01:05
Element 4172 has an angle between adjacent edges of 149.933722 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 267.690 TIME= 18:01:05
Element 4173 has an angle between adjacent edges of 30.0613937 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 267.700 TIME= 18:01:05
Element 4173 has an angle between adjacent edges of 149.933722 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 267.700 TIME= 18:01:05
Element 4174 has an angle between adjacent edges of 30.0613937 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 267.700 TIME= 18:01:05
Element 4174 has an angle between adjacent edges of 149.933722 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 267.700 TIME= 18:01:05
Element 4175 has an angle between adjacent edges of 30.0613937 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 267.700 TIME= 18:01:05
Element 4175 has an angle between adjacent edges of 149.933722 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 267.710 TIME= 18:01:05
Element 4176 has an angle between adjacent edges of 30.0613937 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 267.710 TIME= 18:01:05
Element 4176 has an angle between adjacent edges of 149.933722 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 267.710 TIME= 18:01:05
Element 4177 has an angle between adjacent edges of 30.0613937 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 267.710 TIME= 18:01:05
Element 4177 has an angle between adjacent edges of 149.933722 on face

4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 267.720 TIME= 18:01:05
Element 4178 has an angle between adjacent edges of 30.0613937 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 267.720 TIME= 18:01:05
Element 4178 has an angle between adjacent edges of 149.933722 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 267.720 TIME= 18:01:05
Element 4179 has an angle between adjacent edges of 30.0613937 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 267.720 TIME= 18:01:05
Element 4179 has an angle between adjacent edges of 149.933722 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 267.720 TIME= 18:01:05
Element 4180 has an angle between adjacent edges of 30.0613937 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 267.720 TIME= 18:01:05
Element 4180 has an angle between adjacent edges of 149.933722 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 267.720 TIME= 18:01:05
Element 4181 has an angle between adjacent edges of 30.0613937 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 267.730 TIME= 18:01:05
Element 4181 has an angle between adjacent edges of 149.933722 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 267.730 TIME= 18:01:05
Element 4182 has an angle between adjacent edges of 30.0613937 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 267.730 TIME= 18:01:05
Element 4182 has an angle between adjacent edges of 149.933722 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 267.730 TIME= 18:01:05
Element 4183 has an angle between adjacent edges of 30.0613937 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 267.730 TIME= 18:01:05
Element 4183 has an angle between adjacent edges of 149.933722 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 267.740 TIME= 18:01:05
Element 4184 has an angle between adjacent edges of 30.0613937 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 267.740 TIME= 18:01:05
Element 4184 has an angle between adjacent edges of 149.933722 on face

4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 267.750 TIME= 18:01:05
Element 4185 has an angle between adjacent edges of 30.0613937 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 267.750 TIME= 18:01:05
Element 4185 has an angle between adjacent edges of 149.933722 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 267.750 TIME= 18:01:05
Element 4186 has an angle between adjacent edges of 38.4646378 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 267.750 TIME= 18:01:05
Element 4186 has an angle between adjacent edges of 149.933722 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 267.750 TIME= 18:01:05
Element 4187 has an angle between adjacent edges of 141.535362 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 267.760 TIME= 18:01:05
Element 4187 has an angle between adjacent edges of 141.535362 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 267.760 TIME= 18:01:05
Element 4190 has an angle between adjacent edges of 38.4646378 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 267.760 TIME= 18:01:05
Element 4190 has an angle between adjacent edges of 149.933722 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 267.760 TIME= 18:01:05
Element 4191 has an angle between adjacent edges of 141.535362 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 267.760 TIME= 18:01:05
Element 4191 has an angle between adjacent edges of 141.535362 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 267.770 TIME= 18:01:05
Element 4194 has an angle between adjacent edges of 38.4646378 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 267.770 TIME= 18:01:05
Element 4194 has an angle between adjacent edges of 149.933722 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 267.770 TIME= 18:01:05
Element 4195 has an angle between adjacent edges of 141.535362 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 267.770 TIME= 18:01:05
Element 4195 has an angle between adjacent edges of 141.535362 on face

4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 267.780 TIME= 18:01:05
Element 4198 has an angle between adjacent edges of 38.4646378 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 267.780 TIME= 18:01:05
Element 4198 has an angle between adjacent edges of 149.933722 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 267.780 TIME= 18:01:05
Element 4199 has an angle between adjacent edges of 141.535362 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 267.780 TIME= 18:01:05
Element 4199 has an angle between adjacent edges of 141.535362 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 267.780 TIME= 18:01:05
Element 4202 has an angle between adjacent edges of 38.4646378 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 267.790 TIME= 18:01:05
Element 4202 has an angle between adjacent edges of 149.933722 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 267.790 TIME= 18:01:05
Element 4203 has an angle between adjacent edges of 141.535362 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 267.790 TIME= 18:01:05
Element 4203 has an angle between adjacent edges of 141.535362 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 267.790 TIME= 18:01:05
Element 4206 has an angle between adjacent edges of 38.4646378 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 267.800 TIME= 18:01:05
Element 4206 has an angle between adjacent edges of 149.933722 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 267.800 TIME= 18:01:05
Element 4207 has an angle between adjacent edges of 141.535362 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 267.800 TIME= 18:01:05
Element 4207 has an angle between adjacent edges of 141.535362 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 267.800 TIME= 18:01:05
Element 4210 has an angle between adjacent edges of 38.4646378 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 267.800 TIME= 18:01:05
Element 4210 has an angle between adjacent edges of 149.933722 on face

4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 267.800 TIME= 18:01:05
Element 4211 has an angle between adjacent edges of 141.535362 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 267.800 TIME= 18:01:05
Element 4211 has an angle between adjacent edges of 141.535362 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 267.800 TIME= 18:01:05
Element 4214 has an angle between adjacent edges of 38.4646378 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 267.810 TIME= 18:01:05
Element 4214 has an angle between adjacent edges of 149.933722 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 267.810 TIME= 18:01:05
Element 4215 has an angle between adjacent edges of 141.535362 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 267.810 TIME= 18:01:05
Element 4215 has an angle between adjacent edges of 141.535362 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 267.810 TIME= 18:01:05
Element 4218 has an angle between adjacent edges of 38.4646378 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 267.810 TIME= 18:01:05
Element 4218 has an angle between adjacent edges of 149.933722 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 267.820 TIME= 18:01:05
Element 4219 has an angle between adjacent edges of 141.535362 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 267.820 TIME= 18:01:05
Element 4219 has an angle between adjacent edges of 141.535362 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 267.820 TIME= 18:01:05
Element 4222 has an angle between adjacent edges of 38.4646378 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 267.820 TIME= 18:01:05
Element 4222 has an angle between adjacent edges of 149.933722 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 267.820 TIME= 18:01:05
Element 4223 has an angle between adjacent edges of 141.535362 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 267.820 TIME= 18:01:05
Element 4223 has an angle between adjacent edges of 141.535362 on face

4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 267.830 TIME= 18:01:05
Element 4226 has an angle between adjacent edges of 38.4646378 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 267.830 TIME= 18:01:05
Element 4226 has an angle between adjacent edges of 149.933722 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 267.830 TIME= 18:01:05
Element 4227 has an angle between adjacent edges of 141.535362 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 267.830 TIME= 18:01:05
Element 4227 has an angle between adjacent edges of 141.535362 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 267.840 TIME= 18:01:05
Element 4230 has an angle between adjacent edges of 38.4646378 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 267.840 TIME= 18:01:05
Element 4230 has an angle between adjacent edges of 149.933722 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 267.840 TIME= 18:01:05
Element 4231 has an angle between adjacent edges of 141.535362 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 267.840 TIME= 18:01:05
Element 4231 has an angle between adjacent edges of 141.535362 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 267.840 TIME= 18:01:05
Element 4234 has an angle between adjacent edges of 38.4646378 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 267.850 TIME= 18:01:05
Element 4234 has an angle between adjacent edges of 149.933722 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 267.850 TIME= 18:01:05
Element 4235 has an angle between adjacent edges of 141.535362 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 267.850 TIME= 18:01:05
Element 4235 has an angle between adjacent edges of 141.535362 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 267.850 TIME= 18:01:05
Element 4238 has an angle between adjacent edges of 38.4646378 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 267.850 TIME= 18:01:05
Element 4238 has an angle between adjacent edges of 149.933722 on face

4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 267.860 TIME= 18:01:05
Element 4239 has an angle between adjacent edges of 141.535362 on face
2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 267.860 TIME= 18:01:05
Element 4239 has an angle between adjacent edges of 141.535362 on face
4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 267.860 TIME= 18:01:05
Element 4242 has an angle between adjacent edges of 38.4646378 on face
2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 267.860 TIME= 18:01:05
Element 4242 has an angle between adjacent edges of 149.933722 on face
4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 267.870 TIME= 18:01:05
Element 4243 has an angle between adjacent edges of 141.535362 on face
2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 267.870 TIME= 18:01:05
Element 4243 has an angle between adjacent edges of 141.535362 on face
4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 268.030 TIME= 18:01:05
Element 4458 has an angle between adjacent edges of 141.535362 on face
2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 268.030 TIME= 18:01:05
Element 4458 has an angle between adjacent edges of 141.535362 on face
4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 268.030 TIME= 18:01:05
Element 4459 has an angle between adjacent edges of 149.933722 on face
2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 268.040 TIME= 18:01:05
Element 4459 has an angle between adjacent edges of 38.4646378 on face
4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 268.040 TIME= 18:01:05
Element 4462 has an angle between adjacent edges of 141.535362 on face
2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 268.040 TIME= 18:01:05
Element 4462 has an angle between adjacent edges of 141.535362 on face
4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 268.040 TIME= 18:01:05
Element 4463 has an angle between adjacent edges of 149.933722 on face
2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 268.040 TIME= 18:01:05
Element 4463 has an angle between adjacent edges of 38.4646378 on face

4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 268.050 TIME= 18:01:05
Element 4466 has an angle between adjacent edges of 141.535362 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 268.050 TIME= 18:01:05
Element 4466 has an angle between adjacent edges of 141.535362 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 268.050 TIME= 18:01:05
Element 4467 has an angle between adjacent edges of 149.933722 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 268.050 TIME= 18:01:05
Element 4467 has an angle between adjacent edges of 38.4646378 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 268.060 TIME= 18:01:05
Element 4470 has an angle between adjacent edges of 141.535362 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 268.060 TIME= 18:01:05
Element 4470 has an angle between adjacent edges of 141.535362 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 268.060 TIME= 18:01:05
Element 4471 has an angle between adjacent edges of 149.933722 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 268.060 TIME= 18:01:05
Element 4471 has an angle between adjacent edges of 38.4646378 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 268.060 TIME= 18:01:05
Element 4474 has an angle between adjacent edges of 141.535362 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 268.060 TIME= 18:01:05
Element 4474 has an angle between adjacent edges of 141.535362 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 268.060 TIME= 18:01:05
Element 4475 has an angle between adjacent edges of 149.933722 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 268.060 TIME= 18:01:05
Element 4475 has an angle between adjacent edges of 38.4646378 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 268.060 TIME= 18:01:05
Element 4478 has an angle between adjacent edges of 141.535362 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 268.060 TIME= 18:01:05
Element 4478 has an angle between adjacent edges of 141.535362 on face

4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 268.060 TIME= 18:01:05
Element 4479 has an angle between adjacent edges of 149.933722 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 268.060 TIME= 18:01:05
Element 4479 has an angle between adjacent edges of 38.4646378 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 268.070 TIME= 18:01:05
Element 4482 has an angle between adjacent edges of 141.535362 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 268.080 TIME= 18:01:05
Element 4482 has an angle between adjacent edges of 141.535362 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 268.080 TIME= 18:01:05
Element 4483 has an angle between adjacent edges of 149.933722 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 268.080 TIME= 18:01:05
Element 4483 has an angle between adjacent edges of 38.4646378 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 268.100 TIME= 18:01:05
Element 4486 has an angle between adjacent edges of 141.535362 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 268.100 TIME= 18:01:05
Element 4486 has an angle between adjacent edges of 141.535362 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 268.100 TIME= 18:01:05
Element 4487 has an angle between adjacent edges of 149.933722 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 268.100 TIME= 18:01:05
Element 4487 has an angle between adjacent edges of 38.4646378 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 268.100 TIME= 18:01:05
Element 4490 has an angle between adjacent edges of 141.535362 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 268.100 TIME= 18:01:05
Element 4490 has an angle between adjacent edges of 141.535362 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 268.100 TIME= 18:01:05
Element 4491 has an angle between adjacent edges of 149.933722 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 268.100 TIME= 18:01:05
Element 4491 has an angle between adjacent edges of 38.4646378 on face

4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 268.100 TIME= 18:01:05
Element 4494 has an angle between adjacent edges of 141.535362 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 268.100 TIME= 18:01:05
Element 4494 has an angle between adjacent edges of 141.535362 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 268.100 TIME= 18:01:05
Element 4495 has an angle between adjacent edges of 149.933722 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 268.100 TIME= 18:01:05
Element 4495 has an angle between adjacent edges of 38.4646378 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 268.100 TIME= 18:01:05
Element 4498 has an angle between adjacent edges of 141.535362 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 268.110 TIME= 18:01:05
Element 4498 has an angle between adjacent edges of 141.535362 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 268.110 TIME= 18:01:05
Element 4499 has an angle between adjacent edges of 149.933722 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 268.110 TIME= 18:01:05
Element 4499 has an angle between adjacent edges of 38.4646378 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 268.110 TIME= 18:01:05
Element 4502 has an angle between adjacent edges of 141.535362 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 268.110 TIME= 18:01:05
Element 4502 has an angle between adjacent edges of 141.535362 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 268.110 TIME= 18:01:05
Element 4503 has an angle between adjacent edges of 149.933722 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 268.120 TIME= 18:01:05
Element 4503 has an angle between adjacent edges of 38.4646378 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 268.130 TIME= 18:01:05
Element 4506 has an angle between adjacent edges of 141.535362 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 268.130 TIME= 18:01:05
Element 4506 has an angle between adjacent edges of 141.535362 on face

4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 268.140 TIME= 18:01:05
Element 4507 has an angle between adjacent edges of 149.933722 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 268.140 TIME= 18:01:05
Element 4507 has an angle between adjacent edges of 38.4646378 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 268.140 TIME= 18:01:05
Element 4510 has an angle between adjacent edges of 141.535362 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 268.140 TIME= 18:01:05
Element 4510 has an angle between adjacent edges of 141.535362 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 268.140 TIME= 18:01:05
Element 4511 has an angle between adjacent edges of 149.933722 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 268.140 TIME= 18:01:05
Element 4511 has an angle between adjacent edges of 38.4646378 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 268.150 TIME= 18:01:05
Element 4514 has an angle between adjacent edges of 141.535362 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 268.150 TIME= 18:01:05
Element 4514 has an angle between adjacent edges of 141.535362 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 268.150 TIME= 18:01:05
Element 4515 has an angle between adjacent edges of 149.933722 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 268.150 TIME= 18:01:05
Element 4515 has an angle between adjacent edges of 38.4646378 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 268.170 TIME= 18:01:06
Element 4546 has an angle between adjacent edges of 38.4597531 on face 3 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 268.170 TIME= 18:01:06
Element 4546 has an angle between adjacent edges of 141.535362 on face 5 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 268.170 TIME= 18:01:06
Element 4547 has an angle between adjacent edges of 38.4597531 on face 3 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 268.180 TIME= 18:01:06
Element 4547 has an angle between adjacent edges of 141.535362 on face

5 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 268.180 TIME= 18:01:06
Element 4548 has an angle between adjacent edges of 38.4597531 on face 3 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 268.180 TIME= 18:01:06
Element 4548 has an angle between adjacent edges of 141.535362 on face 5 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 268.190 TIME= 18:01:06
Element 4549 has an angle between adjacent edges of 38.4597531 on face 3 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 268.190 TIME= 18:01:06
Element 4549 has an angle between adjacent edges of 141.535362 on face 5 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 268.190 TIME= 18:01:06
Element 4550 has an angle between adjacent edges of 38.4597531 on face 3 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 268.190 TIME= 18:01:06
Element 4550 has an angle between adjacent edges of 141.535362 on face 5 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 268.200 TIME= 18:01:06
Element 4551 has an angle between adjacent edges of 38.4597531 on face 3 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 268.200 TIME= 18:01:06
Element 4551 has an angle between adjacent edges of 141.535362 on face 5 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 268.200 TIME= 18:01:06
Element 4552 has an angle between adjacent edges of 38.4597531 on face 3 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 268.200 TIME= 18:01:06
Element 4552 has an angle between adjacent edges of 141.535362 on face 5 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 268.210 TIME= 18:01:06
Element 4553 has an angle between adjacent edges of 38.4597531 on face 3 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 268.210 TIME= 18:01:06
Element 4553 has an angle between adjacent edges of 141.535362 on face 5 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 268.220 TIME= 18:01:06
Element 4554 has an angle between adjacent edges of 38.4597531 on face 3 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 268.220 TIME= 18:01:06
Element 4554 has an angle between adjacent edges of 141.535362 on face

5 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 268.220 TIME= 18:01:06
Element 4555 has an angle between adjacent edges of 38.4597531 on face 3 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 268.230 TIME= 18:01:06
Element 4555 has an angle between adjacent edges of 141.535362 on face 5 which is outside the recommended range of 90 plus or minus 45 degrees.

Error messages discontinued after 200 messages were displayed.
More may exist. See (seism5.err) for suppressed messages.

*** NOTE *** CP= 275.070 TIME= 18:01:20
The model data was checked and warning messages were found.
Please review output or errors file (seism5.err) for these warning messages.

1

***** ANSYS - ENGINEERING ANALYSIS SYSTEM REVISION 5.1 24 *****
38303 VERSION=HP 9000/7XX 18:01:20 APR 19, 1996 CP= 275.080
FOR SUPPORT CALL ROBERT BAHNEY PHONE (702) 794-5337 FAX (702) 794-1844

21 PWR Tube Static Analysis With Backfill

SOLUTION OPTIONS

PROBLEM DIMENSIONALITY. 3-D
DEGREES OF FREEDOM. UX UY UZ
ANALYSIS TYPE MODAL
EXTRACTION METHOD. SUBSPACE
NUMBER OF MODES TO EXTRACT. 8

LOAD STEP OPTIONS

LOAD STEP NUMBER. 1

***** CENTROID, MASS, AND MASS MOMENTS OF INERTIA *****

CALCULATIONS ASSUME ELEMENT MASS AT ELEMENT CENTROID

TOTAL MASS = 32981.

CENTROID	MOM. OF INERTIA ABOUT ORIGIN	MOM. OF INERTIA ABOUT CENTROID
XC = 0.40090	IXX = 0.2550E+06	IXX = 0.8015E+05
YC = 0.11812	IYY = 0.2545E+06	IYY = 0.7480E+05
ZC = 2.2993	IZZ = 0.1474E+05	IZZ = 8983.
	IXY = -1505.	IXY = 56.41
	IYZ = -8989.	IYZ = -32.08
	IZX = -0.3043E+05	IZX = -26.66

*** MASS SUMMARY BY ELEMENT TYPE ***

TYPE	MASS
1	10016.1
2	982.613
3	649.245
4	354.547

5 2104.91
6 7186.21
7 11687.1

Range of element maximum matrix coefficients in global coordinates

Maximum= 1.047821976E+11 at element 2547.

Minimum= 480530912 at element 6464.

*** ELEMENT MATRIX FORMULATION TIMES

TYPE	NUMBER	ENAME	TOTAL CP	AVE CP
1	2820	SOLID45	18.120	0.006
2	1170	SOLID45	7.580	0.006
3	720	SOLID45	4.670	0.006
4	270	SOLID45	1.880	0.007
5	3048	SOLID45	19.270	0.006
6	3800	SOLID45	24.700	0.006
7	1936	SOLID45	11.790	0.006

Time at end of element matrix formulation CP= 380.92.

Estimated number of active DOF= 56662.

Maximum wavefront= 2121.

Time at end of matrix triangularization CP= 612.03.

SUBSPACE SIZE OF 12 VECTORS USED FOR CALCULATION OF FIRST 8 EIGENVECTORS.

MAXIMUM ITERATIONS = 100
NUMBER OF EQUATIONS = 56662
MAXIMUM WAVEFRONT = 2121
ITERATIONS PER SHIFT = 5
MAXIMUM MODES STORED = 12
MAXIMUM EIGENVALUE = 0.10000E+07
WORK SPACE (MBYTE) = 17.997

Equation solver maximum pivot= 5.3814112E+11 at node 3291 UX.

Equation solver minimum pivot= 1301409.26 at node 18432 UZ.

***** ITERATION 1 COMPLETE ***** CP= 10640.560 WALL= 21.9278

***** CURRENT EIGENVALUE CALCULATIONS *****

MODE	CURRENT VALUE	PREVIOUS VALUE	CONVERGENCE RATIO
1	0.51954974E-02	0.00000000E+00	0.10656E-02
2	158.25102	0.00000000E+00	0.10000E+01
3	218.29320	0.00000000E+00	0.10000E+01
4	303.46580	0.00000000E+00	0.10000E+01
5	476.67849	0.00000000E+00	0.10000E+01
6	640.60700	0.00000000E+00	0.10000E+01
7	686.40120	0.00000000E+00	0.10000E+01
8	721.46079	0.00000000E+00	0.10000E+01
9	740.03657	0.00000000E+00	0.10000E+01
10	785.21039	0.00000000E+00	0.10000E+01
11	840.31051	0.00000000E+00	0.10000E+01
12	888.07219	0.00000000E+00	0.10000E+01

ITERATIONS SINCE LAST SHIFT= 1
TOTAL NUMBER OF ITERATIONS= 1
NUMBER OF MODES CONVERGED= 0
NUMBER OF WORKING VECTORS= 12
CURRENT SHIFT POINT= -1.0000
CP TIME FOR TRIANGULARIZATION= 9570.000
CP TIME SINCE LAST SHIFT= 451.220

***** ITERATION 2 COMPLETE ***** CP= 11091.590 WALL= 22.1922

***** CURRENT EIGENVALUE CALCULATIONS *****

MODE	CURRENT VALUE	PREVIOUS VALUE	CONVERGENCE RATIO
1	0.26602956E-03	0.51954974E-02	0.10629E-02
2	117.56938	158.25102	0.81178E+00
3	121.45196	218.29320	0.22305E+01
4	155.09350	303.46580	0.28285E+01
5	194.00059	476.67849	0.50373E+01
6	283.61500	640.60700	0.41018E+01
7	371.25614	686.40120	0.24183E+01
8	395.33077	721.46079	0.23305E+01
9	457.01669	740.03657	0.16221E+01
10	493.67204	785.21039	0.15299E+01
11	496.18739	840.31051	0.18681E+01
12	544.10704	888.07219	0.16640E+01

ITERATIONS SINCE LAST SHIFT= 2
 TOTAL NUMBER OF ITERATIONS= 2
 NUMBER OF MODES CONVERGED= 0
 NUMBER OF WORKING VECTORS= 12
 CURRENT SHIFT POINT= -1.0000
 CP TIME FOR TRIANGULARIZATION= 9570.000
 CP TIME SINCE LAST SHIFT= 902.250

***** ITERATION 3 COMPLETE ***** CP= 11542.200 WALL= 22.4561

***** CURRENT EIGENVALUE CALCULATIONS *****

MODE	CURRENT VALUE	PREVIOUS VALUE	CONVERGENCE RATIO
1	0.26266456E-03	0.26602956E-03	0.70234E-07
2	116.57277	117.56938	0.17172E-01
3	121.40220	121.45196	0.81986E-03
4	154.82691	155.09350	0.34467E-02
5	192.99931	194.00059	0.10403E-01
6	245.24875	283.61500	0.33735E+00
7	336.40472	371.25614	0.21793E+00
8	362.78342	395.33077	0.18748E+00
9	410.19310	457.01669	0.24133E+00
10	442.83706	493.67204	0.24277E+00
11	449.71761	496.18739	0.21734E+00
12	475.27201	544.10704	0.31064E+00

ITERATIONS SINCE LAST SHIFT= 3
 TOTAL NUMBER OF ITERATIONS= 3
 NUMBER OF MODES CONVERGED= 1
 NUMBER OF WORKING VECTORS= 12
 CURRENT SHIFT POINT= -1.0000
 CP TIME FOR TRIANGULARIZATION= 9570.000
 CP TIME SINCE LAST SHIFT= 1352.860

*** NOTE *** CP= 11542.200 TIME= 22:27:22
 NEW SHIFT= 113.621084.

*** NOTE *** CP= 20688.230 TIME= 01:05:49
 STURM number= 1 should be 1.

***** ITERATION 4 COMPLETE ***** CP= 21115.120 WALL= 25.3556

***** PREVIOUS CONVERGED EIGENVALUES *****

1 0.262664560E-03

***** CURRENT EIGENVALUE CALCULATIONS *****

MODE	CURRENT VALUE	PREVIOUS VALUE	CONVERGENCE RATIO
2	116.57024	116.57277	0.43430E-04
3	121.40206	121.40220	0.23755E-05
4	154.82476	154.82691	0.27795E-04
5	192.97318	192.99931	0.27091E-03
6	243.00294	245.24875	0.18569E-01
7	328.84508	336.40472	0.46505E-01

8	356.32269	362.78342	0.36592E-01
9	397.02118	410.19310	0.67454E-01
10	417.04386	442.83706	0.12752E+00
11	428.18761	449.71761	0.10309E+00
12	455.01237	475.27201	0.91033E-01

ITERATIONS SINCE LAST SHIFT= 1
 TOTAL NUMBER OF ITERATIONS= 4
 NUMBER OF MODES CONVERGED= 1
 NUMBER OF WORKING VECTORS= 12
 CURRENT SHIFT POINT= 113.62
 CP TIME FOR TRIANGULARIZATION= 9146.600
 CP TIME SINCE LAST SHIFT= 426.320

***** ITERATION 5 COMPLETE ***** CP= 21541.250 WALL= 25.6119

***** PREVIOUS CONVERGED EIGENVALUES *****
 1 0.262664560E-03

***** CURRENT EIGENVALUE CALCULATIONS *****			
MODE	CURRENT VALUE	PREVIOUS VALUE	CONVERGENCE RATIO
2	116.57024	116.57024	0.44123E-09
3	121.40206	121.40206	0.16855E-09
4	154.82475	154.82476	0.72935E-07
5	192.97274	192.97318	0.45035E-05
6	242.89864	243.00294	0.85894E-03
7	327.14970	328.84508	0.10391E-01
8	355.04166	356.32269	0.72292E-02
9	393.03788	397.02118	0.20372E-01
10	406.15708	417.04386	0.54327E-01
11	418.36294	428.18761	0.47519E-01
12	447.39996	455.01237	0.34319E-01

ITERATIONS SINCE LAST SHIFT= 2
 TOTAL NUMBER OF ITERATIONS= 5
 NUMBER OF MODES CONVERGED= 5
 NUMBER OF WORKING VECTORS= 12
 CURRENT SHIFT POINT= 113.62
 CP TIME FOR TRIANGULARIZATION= 9146.600
 CP TIME SINCE LAST SHIFT= 852.450

***** ITERATION 6 COMPLETE ***** CP= 21856.770 WALL= 25.8411

***** PREVIOUS CONVERGED EIGENVALUES *****
 1 0.262664560E-03 2 116.570241 3 121.402056
 4 154.824751 5 192.972742

***** CURRENT EIGENVALUE CALCULATIONS *****			
MODE	CURRENT VALUE	PREVIOUS VALUE	CONVERGENCE RATIO
6	242.89278	242.89864	0.48290E-04
7	326.74712	327.14970	0.24657E-02
8	354.74285	355.04166	0.16854E-02
9	391.55629	393.03788	0.75820E-02
10	401.23377	406.15708	0.24691E-01
11	413.31339	418.36294	0.24584E-01
12	443.60932	447.39996	0.17163E-01

ITERATIONS SINCE LAST SHIFT= 3
 TOTAL NUMBER OF ITERATIONS= 6
 NUMBER OF MODES CONVERGED= 5
 NUMBER OF WORKING VECTORS= 12
 CURRENT SHIFT POINT= 113.62
 CP TIME FOR TRIANGULARIZATION= 9146.600
 CP TIME SINCE LAST SHIFT= 1167.970

***** ITERATION 7 COMPLETE ***** CP= 22171.800 WALL= 26.0700

***** PREVIOUS CONVERGED EIGENVALUES *****

1 0.262664560E-03	2 116.570241	3 121.402056
4 154.824751	5 192.972742	

***** CURRENT EIGENVALUE CALCULATIONS *****

MODE	CURRENT VALUE	PREVIOUS VALUE	CONVERGENCE RATIO
6	242.89241	242.89278	0.30844E-05
7	326.64159	326.74712	0.64622E-03
8	354.65594	354.74285	0.49017E-03
9	390.85252	391.55629	0.36044E-02
10	398.63835	401.23377	0.13064E-01
11	410.42005	413.31339	0.14149E-01
12	441.37570	443.60932	0.10147E-01

ITERATIONS SINCE LAST SHIFT= 4
TOTAL NUMBER OF ITERATIONS= 7
NUMBER OF MODES CONVERGED= 6
NUMBER OF WORKING VECTORS= 12
CURRENT SHIFT POINT= 113.62
CP TIME FOR TRIANGULARIZATION= 9146.600
CP TIME SINCE LAST SHIFT= 1483.000

***** ITERATION 8 COMPLETE ***** CP= 22458.830 WALL= 26.2911

***** PREVIOUS CONVERGED EIGENVALUES *****

1 0.262664560E-03	2 116.570241	3 121.402056
4 154.824751	5 192.972742	6 242.892405

***** CURRENT EIGENVALUE CALCULATIONS *****

MODE	CURRENT VALUE	PREVIOUS VALUE	CONVERGENCE RATIO
7	326.61123	326.64159	0.18595E-03
8	354.62505	354.65594	0.17423E-03
9	390.44720	390.85252	0.20772E-02
10	397.15440	398.63835	0.74868E-02
11	408.51448	410.42005	0.93510E-02
12	439.83320	441.37570	0.70263E-02

ITERATIONS SINCE LAST SHIFT= 5
TOTAL NUMBER OF ITERATIONS= 8
NUMBER OF MODES CONVERGED= 6
NUMBER OF WORKING VECTORS= 12
CURRENT SHIFT POINT= 113.62
CP TIME FOR TRIANGULARIZATION= 9146.600
CP TIME SINCE LAST SHIFT= 1770.030

*** NOTE *** CP= 22458.830 TIME= 02:17:28
NEW SHIFT= 322.941147.

*** NOTE *** CP= 31606.890 TIME= 04:55:58
STURM number= 6 should be 6.

***** ITERATION 9 COMPLETE ***** CP= 31894.450 WALL= 29.1558

***** PREVIOUS CONVERGED EIGENVALUES *****

1 0.262664560E-03	2 116.570241	3 121.402056
4 154.824751	5 192.972742	6 242.892405

***** CURRENT EIGENVALUE CALCULATIONS *****

MODE	CURRENT VALUE	PREVIOUS VALUE	CONVERGENCE RATIO
7	326.59744	326.61123	0.84415E-04
8	354.60467	354.62505	0.11493E-03
9	389.93433	390.44720	0.26323E-02
10	395.56270	397.15440	0.80640E-02

11	405.58834	408.51448	0.14481E-01
12	437.31455	439.83320	0.11552E-01

ITERATIONS SINCE LAST SHIFT= 1
TOTAL NUMBER OF ITERATIONS= 9
NUMBER OF MODES CONVERGED= 6
NUMBER OF WORKING VECTORS= 12
CURRENT SHIFT POINT= 322.94
CP TIME FOR TRIANGULARIZATION= 9148.610
CP TIME SINCE LAST SHIFT= 287.010

***** ITERATION 10 COMPLETE ***** CP= 32180.870 WALL= 29.3775

***** PREVIOUS CONVERGED EIGENVALUES *****

1	0.262664560E-03	2	116.570241	3	121.402056
4	154.824751	5	192.572742	6	242.892405

***** CURRENT EIGENVALUE CALCULATIONS *****

MODE	CURRENT VALUE	PREVIOUS VALUE	CONVERGENCE RATIO
7	326.59743	326.59744	0.91507E-07
8	354.60315	354.60467	0.85920E-05

*** NOTE *** CP= 32180.870 TIME= 05:22:39
NEW SHIFT= 358.266804.

*** NOTE *** CP= 41331.270 TIME= 08:01:09
STURM number= 8 should be 8.

1

***** ANSYS - ENGINEERING ANALYSIS SYSTEM REVISION 5.1 24 *****
38303 VERSION=HP 9000/7XX 08:01:13 APR 20, 1996 CP= 41331.860
FOR SUPPORT CALL ROBERT BAHNEY PHONE (702) 794-5337 FAX (702) 794-1844

21 PWR Tube Static Analysis With Backfill

***** FREQUENCIES FROM SUBSPACE ITERATION *****

MODE FREQUENCY (HERTZ)

1	0.26266456E-03
2	116.57024
3	121.40206
4	154.82475
5	192.97274
6	242.89241
7	326.59743
8	354.60315

*** PROBLEM STATISTICS
ACTUAL NO. OF ACTIVE DEGREES OF FREEDOM = 56662
R.M.S. WAVEFRONT SIZE = 1441.5

*** ANSYS BINARY FILE STATISTICS
BUFFER SIZE USED= 4096
71.250 MB WRITTEN ON ELEMENT MATRIX FILE: seism5.emat
47.250 MB WRITTEN ON ELEMENT SAVED DATA FILE: seism5.esav
35.000 MB WRITTEN ON ASSEMBLED MATRIX FILE: seism5.full
4.047 MB WRITTEN ON MODAL MATRIX FILE: seism5.mode

FINISH SOLUTION PROCESSING

***** ROUTINE COMPLETED ***** CP = 41342.900

***** ANSYS SOLUTION ROUTINE *****

PERFORM AN EXPANSION PASS

NUMBER OF MODES TO EXPAND= 8
CALCULATE ELEMENT RESULTS AND NODAL DOF SOLUTION

***** ANSYS SOLVE COMMAND *****

1

***** ANSYS - ENGINEERING ANALYSIS SYSTEM REVISION 5.1 24 *****
38303 VERSION=HP 9000/7XX 08:02:01 APR 20, 1996 CP= 41342.910
FOR SUPPORT CALL ROBERT BAHNEY PHONE (702) 794-5337 FAX (702) 794-1844

21 PWR Tube Static Analysis With Backfill

SOLUTION OPTIONS

PROBLEM DIMENSIONALITY.3-D
DEGREES OF FREEDOM. UX UY UZ
ANALYSIS TYPEMODAL
EXTRACTION METHOD.SUBSPACE
EXPANSION PASSON
NUMBER OF MODES TO EXPAND 8
ELEMENT RESULTS CALCULATIONON

LOAD STEP OPTIONS

LOAD STEP NUMBER. 1
PRINT OUTPUT CONTROLSNO PRINTOUT
DATABASE OUTPUT CONTROLS
ITEM FREQUENCY COMPONENT
ALL ALL

*** ELEMENT RESULT CALCULATION TIMES

TYPE	NUMBER	ENAME	TOTAL CP	AVE CP
1	2820	SOLID45	10.170	0.004
2	1170	SOLID45	4.220	0.004
3	720	SOLID45	2.430	0.003
4	270	SOLID45	0.980	0.004
5	3048	SOLID45	11.080	0.004
6	3800	SOLID45	13.330	0.004
7	1936	SOLID45	7.140	0.004

*** NODAL LOAD CALCULATION TIMES

TYPE	NUMBER	ENAME	TOTAL CP	AVE CP
1	2820	SOLID45	1.120	0.000
2	1170	SOLID45	0.510	0.000
3	720	SOLID45	0.340	0.000
4	270	SOLID45	0.110	0.000
5	3048	SOLID45	1.090	0.000
6	3800	SOLID45	1.630	0.000
7	1936	SOLID45	0.610	0.000

*** ANSYS BINARY FILE STATISTICS

BUFFER SIZE USED= 4096
168.797 MB WRITTEN ON RESULTS FILE: seism5.rst

FINISH SOLUTION PROCESSING

***** ROUTINE COMPLETED ***** CP = 41821.530

***** ANSYS SOLUTION ROUTINE *****

PERFORM A SPECTRUM ANALYSIS
THIS WILL BE A NEW ANALYSIS

*** NOTE *** CP= 41821.530 TIME= 08:26:56
Some analysis options have been reset to their defaults. Please verify
current settings or respecify as required.

USE SINGLE POINT EXCITATION RESPONSE SPECTRUM
USE ALL MODES FROM THE MODAL ANALYSIS
INCLUDE STRESS RESPONSES IN THE CALCULATIONS

SEISMIC EXCITATION DIRECTION = 0.00000E+00 1.0000 0.00000E+00

SPECTRUM TYPE KEY= 2 FACTOR= 1.00000

FREQ= 0.100 100. 0.000E+00 0.000E+00 0.000E+00 0.000E+00 0.000E+00 0.000E+00 0.000E+00
NUMBER OF FREQUENCIES IN TABLE = 2

DAMPING= 0.00000E+00 SV= 16.285 16.285 0.00000E+00
0.00000E+00 0.00000E+00 0.00000E+00
0.00000E+00 0.00000E+00 0.00000E+00

COMBINE MODES USING THE SRSS METHOD
WHOSE SIGNIFICANCE LEVEL EXCEEDS THE THRESHOLD OF 0.10000E-07

WRITE ALL ITEMS TO THE DATABASE WITH A FREQUENCY OF 1
FOR ALL APPLICABLE ENTITIES

ALL CURRENT ANSYS DATA WRITTEN TO FILE NAME= seism5.db
FOR POSSIBLE RESUME FROM THIS POINT

***** ANSYS SOLVE COMMAND *****

1

***** ANSYS - ENGINEERING ANALYSIS SYSTEM REVISION 5.1 24 *****
38303 VERSION=HP 9000/7XX 08:29:12 APR 20, 1996 CP= 41852.020
FOR SUPPORT CALL ROBERT BAHNEY PHONE (702) 794-5337 FAX (702) 794-1844

21 PWR Tube Static Analysis With Backfill

SOLUTION OPTIONS

PROBLEM DIMENSIONALITY.3-D
DEGREES OF FREEDOM. . . . UX UY UZ
ANALYSIS TYPE.SPECTRUM
SPECTRUM TYPE.SINGLE POINT
NUMBER OF MODES TO BE USED.8
ELEMENT RESULTS CALCULATION.ON

LOAD STEP OPTIONS

LOAD STEP NUMBER.1
SPECTRUM LOADING TYPE.ACCELERATION
EXCITATION DIRECTION. . . . 0.00000E+00 1.0000 0.00000E+00
MODE COMBINATION TYPE.SRSS
SIGNIFICANCE LEVEL FOR COMBINATIONS. . . . 0.10000E-07
PRINT OUTPUT CONTROLS.NO PRINTOUT
DATABASE OUTPUT CONTROLS
ITEM FREQUENCY COMPONENT
ALL ALL

1

***** ANSYS - ENGINEERING ANALYSIS SYSTEM REVISION 5.1 24 *****
 38303 VERSION=HP 9000/7XX 08:29:40 APR 20, 1996 CP= 41858.850
 FOR SUPPORT CALL ROBERT BANNEY PHONE (702) 794-5337 FAX (702) 794-1844

21 PWR Tube Static Analysis With Backfill

SIGNIFICANCE FACTOR FOR COMBINING MODES = 0.10000E-07

SIGNIFICANT MODE COEFFICIENTS (INCLUDING DAMPING)

MODE	FREQUENCY	DAMPING	SV	MODE COEF.
1	0.2627E-03	0.0000	16.285	0.2461
2	116.6	0.0000	16.285	-0.9736E-05
3	121.4	0.0000	16.285	0.1635E-03
4	154.8	0.0000	16.285	0.2709E-02
5	193.0	0.0000	16.285	0.9061E-03
6	242.9	0.0000	16.285	0.5612E-05
7	326.6	0.0000	16.285	0.2714E-04
8	354.6	0.0000	16.285	-0.2449E-06

MODAL COMBINATION COEFFICIENTS

MODE=	1	FREQUENCY=	0.300	COUPLING COEF.=	1.000
MODE=	2	FREQUENCY=	116.570	COUPLING COEF.=	1.000
MODE=	3	FREQUENCY=	121.402	COUPLING COEF.=	1.000
MODE=	4	FREQUENCY=	154.325	COUPLING COEF.=	1.000
MODE=	5	FREQUENCY=	192.973	COUPLING COEF.=	1.000
MODE=	6	FREQUENCY=	242.392	COUPLING COEF.=	1.000
MODE=	7	FREQUENCY=	326.597	COUPLING COEF.=	1.000
MODE=	8	FREQUENCY=	354.503	COUPLING COEF.=	1.000

SRSS COMBINATION INSTRUCTIONS WRITTEN ON FILE seism5.mcom

*** PROBLEM STATISTICS

ACTUAL NO. OF ACTIVE DEGREES OF FREEDOM = 56662
 R.M.S. WAVEFRONT SIZE = 1441.5

*** ANSYS BINARY FILE STATISTICS

BUFFER SIZE USED= 4096

FINISH SOLUTION PROCESSING

***** ROUTINE COMPLETED ***** CP = 41858.860

PURGE ALL SOLUTION AND POST DATA
 SAVE ALL MODEL DATA

ALL CURRENT ANSYS DATA WRITTEN TO FILE NAME= seism5.db
 FOR POSSIBLE RESUME FROM THIS POINT

NUMBER OF WARNING MESSAGES ENCOUNTERED= 1678
 NUMBER OF ERROR MESSAGES ENCOUNTERED= 0

*** PAGE FILE USED ***

NUMBER OF R/W OPERATIONS= 22776
 MAXIMUM RECORD NUMBER = 1184
 RECORD SIZE (1*4 WORDS) = 16384
 PAGE FILE SIZE (MB) = 74.000

```
*-----*
|                                     |
|               ANSYS RUN COMPLETED |
|                                     |
|-----|
|               REV. 5.1  24         |               HP 9000/7XX
| CP TIME      (sec) =   41885.570    | TIME = 08:32:02
| ELAPSED TIME (sec) =   52928.000    | DATE  = 04/20/96
|                                     |
*-----*
```


| WELCOME TO THE ANSYS PROGRAM |

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PRESS <CR> OR <ENTER> TO CONTINUE

***** ANSYS COMMAND LINE ARGUMENTS *****

INITIAL JOBNAME = postf5
MEMORY REQUESTED (MB) = 64.0
BATCH MODE REQUESTED = LIST
START-UP FILE MODE = READ

*** NOTE *** CP= 0.190 TIME= 15:56:31
There are no parameters and no abbreviations defined.

38303 VERSION=HP 9000/7XX REVISION= 5.1 24
FOR SUPPORT CALL ROBERT BAHNEY PHONE (702) 794-5337 FAX (702) 794-1844
CURRENT JOBNAME=postf5 15:56:31 APR 20, 1996 CP= 0.190

```
1 resume,seism5,db
2 /filnam,seism5
3 /post1
4 set,1,5
5 /input,,mcom
6 /out,seism4,res
7 /com, 0% Degradation of Outer Barrier, Backfill Present, Supports in From Ends
8 /com, 0% Degradation of Inner Barrier
9 /com,
10 /com,
11 /com, MAXIMUM STRESS INTENSITY IN THE OUTER BARRIER
12 /com,
13 /com, Outer Barrier
14 esel,s,type,,6,7
15 nsle
16 esln
17 nsort,s,int,0,0,1
18 prns,s,prin
19
20 /com,
21 /com,
22 /com, MAXIMUM STRESS INTENSITY IN THE INNER BARRIER
23 /com,
24 /com,
25 esel,s,type,,5
26 nsle
27 esln
28 nsort,s,int,0,0,1
29 prns,s,prin
30
31 /com,
32 /com,
33 /com, MAXIMUM STRESS INTENSITY IN BASKET TUBES, CORNER GUIDES, AND END GUIDES
34 /com,
35 /com,
36 esel,s,type,,1
37 esel,a,type,,3,4
38 nsle
39 esln
40 nsort,s,int,0,0,1
41 prns,s,prin
42
43 /com,
44 /com,
45 /com, MAXIMUM STRESS INTENSITY IN CRITICALITY CONTROL PLATES
46 /com,
47 /com,
48 esel,s,type,,2
49 nsle
50 esln
```

```

51 nsort,s,int,0,0,1
52 prns,s,prin
53
54 /out
55 fini
56 /exit,nosave
57 /eof

```

RUN SETUP PROCEDURE FROM FILE= /ansys51/docu/start.ans

/INPUT FILE= /ansys51/docu/start.ans LINE= 0

ABBREVIATION= REplot /REplot

PARAMETER PI = 3.141593

ANSYS STARTUP FILE start.ans

```

ABBREVIATION= VEC      /show,,1,
ABBREVIATION= RAS      /show,,0,
ABBREVIATION= INP      /input,,inp,
ABBREVIATION= ESC      /exit,nosav,
ABBREVIATION= K1       /pnum,kp ,1,
ABBREVIATION= K0       /pnum,kp ,0,
ABBREVIATION= L1       /pnum,line,1,
ABBREVIATION= L0       /pnum,line,0,
ABBREVIATION= A1       /pnum,area,1,
ABBREVIATION= A0       /pnum,area,0,
ABBREVIATION= V1       /pnum,volu,1,
ABBREVIATION= V0       /pnum,volu,0,
ABBREVIATION= N1       /pnum,node,1,
ABBREVIATION= N0       /pnum,node,0,
ABBREVIATION= E1       /pnum,elem,1,
ABBREVIATION= E0       /pnum,elem,0,
ABBREVIATION= M1       /pnum,mat ,1,
ABBREVIATION= M0       /pnum,mat ,0,
ABBREVIATION= R1       /pnum,real,1,
ABBREVIATION= R0       /pnum,real,0,
ABBREVIATION= T1       /pnum,type,1,
ABBREVIATION= T0       /pnum,type,0,
ABBREVIATION= C1       /number,1,
ABBREVIATION= C0       /number,0,
ABBREVIATION= PR1      /psf,pres,norm,1,
ABBREVIATION= PR0      /psf,pres,norm,0,

```

ABBREVIATION= U1 /pbc,u,1,
 ABBREVIATION= U0 /pbc,u,0,
 ABBREVIATION= X3D /show,3d,
 ABBREVIATION= X11 /show,x11,
 ABBREVIATION= X11C /show,x11c,
 ABBREVIATION= ON /menu,on,
 XYZ TRIAD DISPLAY SET TO OFF

VIEW CONE ANGLE FOR WINDOW 1 25.00

 END start.ans

To start ANSYS menu:

type: x3d for console
 x11 for X-term color
 x11c for X-term color contour

type: on

RESUME ANSYS DATA FROM FILE NAME=seism5.db

*** NOTE *** CP= 7.190 TIME= 15:56:47
 Page file used.

*** ANSYS GLOBAL STATUS ***

TITLE = 21 PWR Tube Static Analysis With Backfill
 ANALYSIS TYPE = SPECTRUM
 NUMBER OF ELEMENT TYPES = 7
 13764 ELEMENTS CURRENTLY SELECTED. MAX ELEMENT NUMBER = 13764
 19211 NODES CURRENTLY SELECTED. MAX NODE NUMBER = 19211
 1710 KEYPOINTS CURRENTLY SELECTED. MAX KEYPOINT NUMBER = 9001
 4380 LINES CURRENTLY SELECTED. MAX LINE NUMBER = 4380
 3694 AREAS CURRENTLY SELECTED. MAX AREA NUMBER = 3694
 1010 VOLUMES CURRENTLY SELECTED. MAX VOL. NUMBER = 1010
 MAXIMUM LINEAR PROPERTY NUMBER = 7
 MAXIMUM REAL CONSTANT SET NUMBER = 7
 ACTIVE COORDINATE SYSTEM = 0 (CARTESIAN)
 NUMBER OF SPECIFIED CONSTRAINTS = 971

INITIAL JOBNAME = postf5
 CURRENT JOBNAME = postf5

CURRENT JOBNAME REDEFINED AS seism5

1

***** ANSYS - ENGINEERING ANALYSIS SYSTEM REVISION 5.1 24 *****
 38303 VERSION=HP 9000/7XX 15:57:09 APR 20, 1996 CP= 14.210
 FOR SUPPORT CALL ROBERT BAHNEY PHONE (702) 794-5337 FAX (702) 794-1844

21 PWR Tube Static Analysis With Backfill

***** ANSYS RESULTS INTERPRETATION (POST1) *****

USE LOAD STEP 1 SUBSTEP 5 FOR LOAD CASE 0

SET COMMAND GOT LOAD STEP= 1 SUBSTEP= 5 CUMULATIVE ITERATION= 5
 TIME/FREQUENCY= 192.97

TITLE= 21 PWR Tube Static Analysis With Backfill

/INPUT FILE= seism5.mcom LINE= 0
ANSYS REVISION 5.1 24 08:29:40 04/20/1996
seism5.mcom

CURRENT LOAD SET IN DATABASE IS ERASED

LOAD CASE 1 IS LOAD STEP 1 SUBSTEP 1 COMPLEX= 0
FILE= seism5.rst
21 PWR Tube Static Analysis With Backfill

LOAD CASE 1 FACTOR SET TO 0.24614

COPY LOAD CASE 1 FROM FILE TO DATABASE

SQUARE THE CURRENT LOAD SET IN DATABASE

*** NOTE *** CP= 59.230 TIME= 16:01:44
Load case combination data may not be correct unless viewed in the
solution phase coordinate system (RSYS=SOLU).

LOAD CASE 1 IS LOAD STEP 1 SUBSTEP 2 COMPLEX= 0
FILE= seism5.rst
21 PWR Tube Static Analysis With Backfill

LOAD CASE 1 FACTOR SET TO -0.97360E-05

LCOPER OPERATION ADD USING LOAD CASE= 1 FACTOR= -0.97360E-05 ABS= 0
MULTIPLIED BY LOAD CASE= 1 FACTOR= -0.97360E-05 ABS= 0

LOAD CASE 1 IS LOAD STEP 1 SUBSTEP 3 COMPLEX= 0
FILE= seism5.rst
21 PWR Tube Static Analysis With Backfill

LOAD CASE 1 FACTOR SET TO 0.16350E-03

LCOPER OPERATION ADD USING LOAD CASE= 1 FACTOR= 0.16350E-03 ABS= 0
MULTIPLIED BY LOAD CASE= 1 FACTOR= 0.16350E-03 ABS= 0

LOAD CASE 1 IS LOAD STEP 1 SUBSTEP 4 COMPLEX= 0
FILE= seism5.rst
21 PWR Tube Static Analysis With Backfill

LOAD CASE 1 FACTOR SET TO 0.27086E-02

LCOPER OPERATION ADD USING LOAD CASE= 1 FACTOR= 0.27086E-02 ABS= 0
MULTIPLIED BY LOAD CASE= 1 FACTOR= 0.27086E-02 ABS= 0

LOAD CASE 1 IS LOAD STEP 1 SUBSTEP 5 COMPLEX= 0
FILE= seism5.rst
21 PWR Tube Static Analysis With Backfill

LOAD CASE 1 FACTOR SET TO 0.90607E-03

LCOPER OPERATION ADD USING LOAD CASE= 1 FACTOR= 0.90607E-03 ABS= 0
MULTIPLIED BY LOAD CASE= 1 FACTOR= 0.90607E-03 ABS= 0

LOAD CASE 1 IS LOAD STEP 1 SUBSTEP 6 COMPLEX= 0
FILE= seism5.rst
21 PWR Tube Static Analysis With Backfill

LOAD CASE 1 FACTOR SET TO 0.56121E-05

LCOPER OPERATION ADD USING LOAD CASE= 1 FACTOR= 0.56121E-05 ABS= 0
MULTIPLIED BY LOAD CASE= 1 FACTOR= 0.56121E-05 ABS= 0

LOAD CASE 1 IS LOAD STEP 1 SUBSTEP 7 COMPLEX= 0
FILE= seism5.rst
21 PWR Tube Static Analysis With Backfill

LOAD CASE 1 FACTOR SET TO 0.27137E-04

LCOPER OPERATION ADD USING LOAD CASE= 1 FACTOR= 0.27137E-04 ABS= 0
MULTIPLIED BY LOAD CASE= 1 FACTOR= 0.27137E-04 ABS= 0

LOAD CASE 1 IS LOAD STEP 1 SUBSTEP 8 COMPLEX= 0
FILE= seism5.rst
21 PWR Tube Static Analysis With Backfill

LOAD CASE 1 FACTOR SET TO -0.24494E-06

LCOPER OPERATION ADD USING LOAD CASE= 1 FACTOR= -0.24494E-06 ABS= 0
MULTIPLIED BY LOAD CASE= 1 FACTOR= -0.24494E-06 ABS= 0

TAKE SQRT OF CURRENT LOAD SET IN DATABASE

/OUTPUT FILE= seism4.res

EXIT THE ANSYS POST1 DATABASE PROCESSOR

***** ROUTINE COMPLETED ***** CP = 209.990

EXIT ANSYS WITHOUT SAVING DATABASE

NUMBER OF WARNING MESSAGES ENCOUNTERED= 0
NUMBER OF ERROR MESSAGES ENCOUNTERED= 0

*** PAGE FILE USED ***
NUMBER OF R/W OPERATIONS= 27085
MAXIMUM RECORD NUMBER = 1039
RECORD SIZE (1*4 WORDS) = 16384
PAGE FILE SIZE (MB) = 64.938

```
*-----*
|                                     |
|               ANSYS RUN COMPLETED               |
|-----|
| REV. 5.1  24                                HP 9000/7XX |
| CP TIME      (sec) =      210.020          TIME = 16:19:03 |
| ELAPSED TIME (sec) =     1353.000          DATE  = 04/20/96 |
|-----|
*-----*
```

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***** ANSYS COMMAND LINE ARGUMENTS *****

INITIAL JOBNAME = postlin5
MEMORY REQUESTED (MB) = 64.0
BATCH MODE REQUESTED = LIST
START-UP FILE MODE = READ

*** NOTE *** CP= 0.190 TIME= 16:33:59
There are no parameters and no abbreviations defined.

38303 VERSION=HP 9000/7XX REVISION= 5.1 24
FOR SUPPORT CALL ROBERT BAHNEY PHONE (702) 794-5337 FAX (702) 794-1844
CURRENT JOBNAME=postlin5 16:33:59 APR 20, 1996 CP= 0.200

```
1 resume,seism5.db
2 /filnam,seism5
3 /post1
4 set,1,5
5 /input,,mcom
6 /com, Outer Barrier Stress Distribution
7 nsel,s,node,,13477
8 nsel,a,node,,13532
9 nsel,a,node,,12613
10 nsel,a,node,,12668
11 nsel,a,node,,8071
12 esln
13 lpath,13477,8071
14 /out,obstress
15 /com, Outer Barrier Linearized Stresses at Location of Peak Stress
16 prsect
17 /out
18 /show,obdist,grph
19 plsect,s,int
20 /show,term
21 /com, Inner Barrier Stress Distribution
22 nsel,s,node,,7253
23 nsel,a,node,,8021
24 nsel,a,node,,8005
25 esln
26 lpath,7253,8005
27 /out,ibstress
28 /com, Inner Barrier Linearized Stresses at Location of Peak Stress
29 prsect
30 /out
31 /show,ibdist,grph
32 plsect,s,int
33 /show,term
34 /com, Basket Stress Distribution
35 nsel,s,node,,7289
36 nsel,a,node,,2457
37 esln
38 lpath,7289,2457
39 /out,bktstress
40 /com, Basket Tubes and Guides Linearized Stresses at Location of Peak Stress
41 prsect
42 /out
43 /show,bktdist,grph
44 plsect,s,int
45 /show,term
46 /com, Criticality Control Plate Stress Distribution
47 nsel,s,node,,2969
48 nsel,a,node,,5093
49 esln
50 lpath,2969,5093
```

```

51 /out,pltstress
52 /com, Criticality Control Plates Linearized Stresses at Location of Peak Stress
53 prsect
54 /out
55 /show,pltdist,grph
56 plsect,s,int
57 /show,term
58 fini
59 /exit,nosave

```

RUN SETUP PROCEDURE FROM FILE= /ansys51/docu/start.ans

/INPUT FILE= /ansys51/docu/start.ans LINE= 0

ABBREVIATION= REPLOT /REPLOT

PARAMETER PI = 3.141593

 ANSYS STARTUP FILE start.ans

```

ABBREVIATION= VEC      /show,,1,
ABBREVIATION= RAS      /show,,0,
ABBREVIATION= INP      /input,,inp,
ABBREVIATION= ESC      /exit,nosav,
ABBREVIATION= K1       /pnum,kp ,1,
ABBREVIATION= K0       /pnum,kp ,0,
ABBREVIATION= L1       /pnum,line,1,
ABBREVIATION= L0       /pnum,line,0,
ABBREVIATION= A1       /pnum,area,1,
ABBREVIATION= A0       /pnum,area,0,
ABBREVIATION= V1       /pnum,volu,1,
ABBREVIATION= V0       /pnum,volu,0,
ABBREVIATION= N1       /pnum,node,1,
ABBREVIATION= N0       /pnum,node,0,
ABBREVIATION= E1       /pnum,elem,1,
ABBREVIATION= E0       /pnum,elem,0,
ABBREVIATION= M1       /pnum,mat ,1,
ABBREVIATION= M0       /pnum,mat ,0,
ABBREVIATION= R1       /pnum,real,1,
ABBREVIATION= R0       /pnum,real,0,
ABBREVIATION= T1       /pnum,type,1,
ABBREVIATION= T0       /pnum,type,0,
ABBREVIATION= C1       /number,1,
ABBREVIATION= C0       /number,0,
ABBREVIATION= PR1      /psf,pres,norm,1,

```


ABBREVIATION= PRO /psf,pres,norm,0,
ABBREVIATION= U1 /pbc,u,1,
ABBREVIATION= U0 /pbc,u,0,
ABBREVIATION= X3D /show,3d,
ABBREVIATION= X11 /show,x11,
ABBREVIATION= X11C /show,x11c,
ABBREVIATION= ON /menu,on,
XYZ TRIAD DISPLAY SET TO OFF

VIEW CONE ANGLE FOR WINDOW 1 25.00

END start.ans

To start ANSYS menu:

type: x3d for console
x11 for X-term color
x11c for X-term color contour

type: on

RESUME ANSYS DATA FROM FILE NAME=seism5.db

*** NOTE *** CP= 6.870 TIME= 16:34:12
Page file used.

*** ANSYS GLOBAL STATUS ***

TITLE = 21 PWR Tube Static Analysis With Backfill

ANALYSIS TYPE = SPECTRUM

NUMBER OF ELEMENT TYPES = 7

13764 ELEMENTS CURRENTLY SELECTED.	MAX ELEMENT NUMBER	=	13764
19211 NODES CURRENTLY SELECTED.	MAX NODE NUMBER	=	19211
1710 KEYPOINTS CURRENTLY SELECTED.	MAX KEYPOINT NUMBER	=	9001
4380 LINES CURRENTLY SELECTED.	MAX LINE NUMBER	=	4380
3694 AREAS CURRENTLY SELECTED.	MAX AREA NUMBER	=	3694
1010 VOLUMES CURRENTLY SELECTED.	MAX VOL. NUMBER	=	1010
MAXIMUM LINEAR PROPERTY NUMBER	=	7	
MAXIMUM REAL CONSTANT SET NUMBER	=	7	
ACTIVE COORDINATE SYSTEM	=	0	(CARTESIAN)
NUMBER OF SPECIFIED CONSTRAINTS	=	971	

INITIAL JOBNAME = postlin5

CURRENT JOBNAME = postlin5

CURRENT JOBNAME REDEFINED AS seism5

1

***** ANSYS - ENGINEERING ANALYSIS SYSTEM REVISION 5.1 24 *****
38303 VERSION=HP 9000/7XX 16:34:32 APR 20, 1996 CP= 13.680
FOR SUPPORT CALL ROBERT BAHNEY PHONE (702) 794-5337 FAX (702) 794-1844

21 PWR Tube Static Analysis With Backfill

***** ANSYS RESULTS INTERPRETATION (POST1) *****

USE LOAD STEP 1 SUBSTEP 5 FOR LOAD CASE 0

SET COMMAND GOT LOAD STEP= 1 SUBSTEP= 5 CUMULATIVE ITERATION= 5
TIME/FREQUENCY= 192.97
TITLE= 21 PWR Tube Static Analysis With Backfill

/INPUT FILE= seism5.mcom LINE= 0
ANSYS REVISION 5.1 24 08:29:40 04/20/1996
seism5.mcom

CURRENT LOAD SET IN DATABASE IS ERASED

LOAD CASE 1 IS LOAD STEP 1 SUBSTEP 1 COMPLEX= 0
FILE= seism5.rst
21 PWR Tube Static Analysis With Backfill

LOAD CASE 1 FACTOR SET TO 0.24614

COPY LOAD CASE 1 FROM FILE TO DATABASE

SQUARE THE CURRENT LOAD SET IN DATABASE

*** NOTE *** CP= 55.330 TIME= 16:38:44
Load case combination data may not be correct unless viewed in the
solution phase coordinate system (RSYS=SOLU).

LOAD CASE 1 IS LOAD STEP 1 SUBSTEP 2 COMPLEX= 0
FILE= seism5.rst
21 PWR Tube Static Analysis With Backfill

LOAD CASE 1 FACTOR SET TO -0.97360E-05

LCOPER OPERATION ADD USING LOAD CASE= 1 FACTOR= -0.97360E-05 ABS= 0
MULTIPLIED BY LOAD CASE= 1 FACTOR= -0.97360E-05 ABS= 0

LOAD CASE 1 IS LOAD STEP 1 SUBSTEP 3 COMPLEX= 0
FILE= seism5.rst
21 PWR Tube Static Analysis With Backfill

LOAD CASE 1 FACTOR SET TO 0.16350E-03

LCOPER OPERATION ADD USING LOAD CASE= 1 FACTOR= 0.16350E-03 ABS= 0
MULTIPLIED BY LOAD CASE= 1 FACTOR= 0.16350E-03 ABS= 0

LOAD CASE 1 IS LOAD STEP 1 SUBSTEP 4 COMPLEX= 0
FILE= seism5.rst
21 PWR Tube Static Analysis With Backfill

LOAD CASE 1 FACTOR SET TO 0.27086E-02

LCOPER OPERATION ADD USING LOAD CASE= 1 FACTOR= 0.27086E-02 ABS= 0
MULTIPLIED BY LOAD CASE= 1 FACTOR= 0.27086E-02 ABS= 0

LOAD CASE 1 IS LOAD STEP 1 SUBSTEP 5 COMPLEX= 0
FILE= seism5.rst
21 PWR Tube Static Analysis With Backfill

LOAD CASE 1 FACTOR SET TO 0.90607E-03

LCOPER OPERATION ADD USING LOAD CASE= 1 FACTOR= 0.90607E-03 ABS= 0
MULTIPLIED BY LOAD CASE= 1 FACTOR= 0.90607E-03 ABS= 0

LOAD CASE 1 IS LOAD STEP 1 SUBSTEP 6 COMPLEX= 0
FILE= seism5.rst
21 PWR Tube Static Analysis With Backfill

LOAD CASE 1 FACTOR SET TO 0.56121E-05

LCOPER OPERATION ADD USING LOAD CASE= 1 FACTOR= 0.56121E-05 ABS= 0
MULTIPLIED BY LOAD CASE= 1 FACTOR= 0.56121E-05 ABS= 0

LOAD CASE 1 IS LOAD STEP 1 SUBSTEP 7 COMPLEX= 0
FILE= seism5.rst
21 PWR Tube Static Analysis With Backfill

LOAD CASE 1 FACTOR SET TO 0.27137E-04

LCOPER OPERATION ADD USING LOAD CASE= 1 FACTOR= 0.27137E-04 ABS= 0
MULTIPLIED BY LOAD CASE= 1 FACTOR= 0.27137E-04 ABS= 0

LOAD CASE 1 IS LOAD STEP 1 SUBSTEP 8 COMPLEX= 0
FILE= seism5.rst
21 PWR Tube Static Analysis With Backfill

LOAD CASE 1 FACTOR SET TO-0.24494E-06

LCOPER OPERATION ADD USING LOAD CASE= 1 FACTOR=-0.24494E-06 ABS= 0
MULTIPLIED BY LOAD CASE= 1 FACTOR=-0.24494E-06 ABS= 0

TAKE SQRT OF CURRENT LOAD SET IN DATABASE
Outer Barrier Stress Distribution

SELECT FOR ITEM=NODE COMPONENT=
IN RANGE 13477 TO 13477 STEP 1
1 NODES (OF 19211 DEFINED) SELECTED BY NSEL COMMAND.

ALSO SELECT FOR ITEM=NODE COMPONENT=
IN RANGE 13532 TO 13532 STEP 1
2 NODES (OF 19211 DEFINED) SELECTED BY NSEL COMMAND.

ALSO SELECT FOR ITEM=NODE COMPONENT=
IN RANGE 12613 TO 12613 STEP 1
3 NODES (OF 19211 DEFINED) SELECTED BY NSEL COMMAND.

ALSO SELECT FOR ITEM=NODE COMPONENT=
IN RANGE 12668 TO 12668 STEP 1
4 NODES (OF 19211 DEFINED) SELECTED BY NSEL COMMAND.

ALSO SELECT FOR ITEM=NODE COMPONENT=
IN RANGE 8071 TO 8071 STEP 1
5 NODES (OF 19211 DEFINED) SELECTED BY NSEL COMMAND.

SELECT ALL ELEMENTS HAVING ANY NODE IN NODAL SET.
20 ELEMENTS (OF 13764 DEFINED) SELECTED FROM
5 SELECTED NODES BY ESLN COMMAND.

DEFINE A PATH FOR SUBSEQUENT CALCULATIONS THROUGH NODES:
13477 8071

/OUTPUT FILE= obstress

/SHOW SWITCH PLOTS TO FILE obdist.grph - RASTER MODE.

DISPLAY LINEARIZED STRESS USING NODES DEFINED BY LPATH COMMAND.
ITEM=S COMP=INT RHO= 0.00000E+00

CUMULATIVE DISPLAY NUMBER 1 WRITTEN TO FILE obdist.grph - RASTER MODE.
DISPLAY TITLE=

21 PWR Tube Static Analysis With Backfill
Inner Barrier Stress Distribution

```
SELECT      FOR ITEM=NODE COMPONENT=
IN RANGE    7253 TO      7253 STEP      1

      1 NODES (OF 19211 DEFINED) SELECTED BY NSEL COMMAND.
```

```
ALSO SELECT FOR ITEM=NODE COMPONENT=
IN RANGE    8021 TO      8021 STEP      1

      2 NODES (OF 19211 DEFINED) SELECTED BY NSEL COMMAND.
```

```
ALSO SELECT FOR ITEM=NODE COMPONENT=
IN RANGE    8005 TO      8005 STEP      1

      3 NODES (OF 19211 DEFINED) SELECTED BY NSEL COMMAND.
```

```
SELECT      ALL ELEMENTS HAVING ANY NODE IN NODAL SET.
```

```
      14 ELEMENTS (OF 13764 DEFINED) SELECTED FROM
      3 SELECTED NODES BY ESLN COMMAND.
```

```
DEFINE A PATH FOR SUBSEQUENT CALCULATIONS THROUGH NODES:
      7253 8005
```

```
/OUTPUT FILE= ibstress
```

```
/SHOW SWITCH PLOTS TO FILE ibdist.grph      - RASTER MODE.
```

```
DISPLAY LINEARIZED STRESS USING NODES DEFINED BY LPATH COMMAND.
ITEM=S      COMP=INT RHO= 0.00000E+00
```

```
CUMULATIVE DISPLAY NUMBER 1 WRITTEN TO FILE ibdist.grph      - RASTER MODE.
DISPLAY TITLE=
21 PWR Tube Static Analysis With Backfill
Basket Stress Distribution
```

```
SELECT      FOR ITEM=NODE COMPONENT=
IN RANGE    7289 TO      7289 STEP      1

      1 NODES (OF 19211 DEFINED) SELECTED BY NSEL COMMAND.
```

```
ALSO SELECT FOR ITEM=NODE COMPONENT=
IN RANGE    2457 TO      2457 STEP      1

      2 NODES (OF 19211 DEFINED) SELECTED BY NSEL COMMAND.
```

```
SELECT      ALL ELEMENTS HAVING ANY NODE IN NODAL SET.
```

```
      8 ELEMENTS (OF 13764 DEFINED) SELECTED FROM
      2 SELECTED NODES BY ESLN COMMAND.
```

```
DEFINE A PATH FOR SUBSEQUENT CALCULATIONS THROUGH NODES:
      7289 2457
```

```
/OUTPUT FILE= bktstres
```

```
/SHOW SWITCH PLOTS TO FILE bktdist.grph      - RASTER MODE.
```

```
DISPLAY LINEARIZED STRESS USING NODES DEFINED BY LPATH COMMAND.
ITEM=S      COMP=INT RHO= 0.00000E+00
```

```
CUMULATIVE DISPLAY NUMBER 1 WRITTEN TO FILE bktdist.grph      - RASTER MODE.
DISPLAY TITLE=
21 PWR Tube Static Analysis With Backfill
Criticality Control Plate Stress Distribution
```

```
SELECT      FOR ITEM=NODE COMPONENT=
IN RANGE    2969 TO      2969 STEP      1
```

```
1 NODES (OF 19211 DEFINED) SELECTED BY NSEL COMMAND.
ALSO SELECT FOR ITEM=NODE COMPONENT=
  IN RANGE 5093 TO 5093 STEP 1
2 NODES (OF 19211 DEFINED) SELECTED BY NSEL COMMAND.
SELECT ALL ELEMENTS HAVING ANY NODE IN NODAL SET.
12 ELEMENTS (OF 13764 DEFINED) SELECTED FROM
2 SELECTED NODES BY ESLN COMMAND.
DEFINE A PATH FOR SUBSEQUENT CALCULATIONS THROUGH NODES:
 2969 5093
/OUTPUT FILE= pltstres
/SHOW SWITCH PLOTS TO FILE pltdist.grph - RASTER MODE.
DISPLAY LINEARIZED STRESS USING NODES DEFINED BY LPATH COMMAND.
  ITEM=S COMP=INT RHO= 0.00000E+00
CUMULATIVE DISPLAY NUMBER 1 WRITTEN TO FILE pltdist.grph - RASTER MODE.
DISPLAY TITLE=
 21 PWR Tube Static Analysis With Backfill
EXIT THE ANSYS POST1 DATABASE PROCESSOR

***** ROUTINE COMPLETED ***** CP = 174.610
```

EXIT ANSYS WITHOUT SAVING DATABASE

```
NUMBER OF WARNING MESSAGES ENCOUNTERED= 0
NUMBER OF ERROR MESSAGES ENCOUNTERED= 0
```

```
*** PAGE FILE USED ***
NUMBER OF R/W OPERATIONS= 23393
MAXIMUM RECORD NUMBER = 1003
RECORD SIZE (1*4 WORDS) = 16384
PAGE FILE SIZE (MB) = 62.688
```

```
*-----*
|                                     |
|               ANSYS RUN COMPLETED |
|                                     |
|-----|
|               REV. 5.1 24           | HP 9000/7XX
| CP TIME      (sec) = 174.650         | TIME = 16:52:05
| ELAPSED TIME (sec) = 1087.000        | DATE  = 04/20/96
|                                     |
|-----|
*-----*
```

```
/COM,ANSYS REVISION 5.1
/COM, seism5.mcom
LCOPER,ZERO
LCDEFI,1, 1, 1
LCFACT,1, 0.246141
LCASE,1
LCOPER,SQUARE
LCDEFI,1, 1, 2
LCFACT,1, -0.973604E-05
LCOPER,ADD,1,MULT,1
LCDEFI,1, 1, 3
LCFACT,1, 0.163501E-03
LCOPER,ADD,1,MULT,1
LCDEFI,1, 1, 4
LCFACT,1, 0.270855E-02
LCOPER,ADD,1,MULT,1
LCDEFI,1, 1, 5
LCFACT,1, 0.906065E-03
LCOPER,ADD,1,MULT,1
LCDEFI,1, 1, 6
LCFACT,1, 0.561205E-05
LCOPER,ADD,1,MULT,1
LCDEFI,1, 1, 7
LCFACT,1, 0.271374E-04
LCOPER,ADD,1,MULT,1
LCDEFI,1, 1, 8
LCFACT,1, -0.244939E-06
LCOPER,ADD,1,MULT,1
LCOPER,SQRT
```

0% Degradation of Outer Barrier, Backfill Present, Supports in From Ends
0% Degradation of Inner Barrier

MAXIMUM STRESS INTENSITY IN THE OUTER BARRIER

Outer Barrier

SELECT FOR ITEM=TYPE COMPONENT=
IN RANGE 6 TO 7 STEP 1

5736 ELEMENTS (OF 13764 DEFINED) SELECTED BY ESEL COMMAND.

SELECT ALL NODES HAVING ANY ELEMENT IN ELEMENT SET.

8708 NODES (OF 19211 DEFINED) SELECTED FROM
5736 SELECTED ELEMENTS BY NSLE COMMAND.

SELECT ALL ELEMENTS HAVING ANY NODE IN NODAL SET.

7308 ELEMENTS (OF 13764 DEFINED) SELECTED FROM
8708 SELECTED NODES BY ESLN COMMAND.

SORT ON ITEM=S COMPONENT=INT ORDER= 0 KABS= 0 NMAX= 1

SORT COMPLETED FOR 1 VALUES.

PRINT S NODAL SOLUTION PER NODE

1

***** ANSYS - ENGINEERING ANALYSIS SYSTEM REVISION 5.1 24 *****
38303 VERSION=HP 9000/7XX 16:17:27 APR 20, 1996 CP= 192.780
FOR SUPPORT CALL ROBERT BAHNEY PHONE (702) 794-5337 FAX (702) 794-1844

21 PWR Tube Static Analysis With Backfill

***** POST1 NODAL STRESS LISTING *****

CALCULATED LOAD CASE= 0

NODE	S1	S2	S3	SINT	SEQV
13477	0.46759E+07	0.18506E+07	-0.53385E+06	0.52097E+07	0.45171E+07

MINIMUM VALUES

NODE	13477	13477	13477	13477	13477
VALUE	0.46759E+07	0.18506E+07	-0.53385E+06	0.52097E+07	0.45171E+07

MAXIMUM VALUES

NODE	13477	13477	13477	13477	13477
VALUE	0.46759E+07	0.18506E+07	-0.53385E+06	0.52097E+07	0.45171E+07

MAXIMUM STRESS INTENSITY IN THE INNER BARRIER

SELECT FOR ITEM=TYPE COMPONENT=
IN RANGE 5 TO 5 STEP 1

3048 ELEMENTS (OF 13764 DEFINED) SELECTED BY ESEL COMMAND.

SELECT ALL NODES HAVING ANY ELEMENT IN ELEMENT SET.

5425 NODES (OF 19211 DEFINED) SELECTED FROM
3048 SELECTED ELEMENTS BY NSLE COMMAND.

SELECT ALL ELEMENTS HAVING ANY NODE IN NODAL SET.

5376 ELEMENTS (OF 13764 DEFINED) SELECTED FROM

5425 SELECTED NODES BY ESLN COMMAND.

SORT ON ITEM=S COMPONENT=INT ORDER= 0 KABS= 0 NMAX= 1

SORT COMPLETED FOR 1 VALUES.

PRINT S NODAL SOLUTION PER NODE

1

***** ANSYS - ENGINEERING ANALYSIS SYSTEM REVISION 5.1 24 *****
38303 VERSION=HP 9000/7XX 16:18:17 APR 20, 1996 CP= 199.890
FOR SUPPORT CALL ROBERT BAHNEY PHONE (702) 794-5337 FAX (702) 794-1844

21 PWR Tube Static Analysis With Backfill

***** POST1 NODAL STRESS LISTING *****

CALCULATED LOAD CASE= 0

NODE	S1	S2	S3	SINT	SEQV
7253	0.41873E+07	0.84116E+06	0.47358E+06	0.37137E+07	0.35443E+07

MINIMUM VALUES

NODE	7253	7253	7253	7253	7253
VALUE	0.41873E+07	0.84116E+06	0.47358E+06	0.37137E+07	0.35443E+07

MAXIMUM VALUES

NODE	7253	7253	7253	7253	7253
VALUE	0.41873E+07	0.84116E+06	0.47358E+06	0.37137E+07	0.35443E+07

MAXIMUM STRESS INTENSITY IN BASKET TUBES, CORNER GUIDES, AND END GUIDES

SELECT FOR ITEM=TYPE COMPONENT=
IN RANGE 1 TO 1 STEP 1

2820 ELEMENTS (OF 13764 DEFINED) SELECTED BY ESEL COMMAND.

ALSO SELECT FOR ITEM=TYPE COMPONENT=
IN RANGE 3 TO 4 STEP 1

3810 ELEMENTS (OF 13764 DEFINED) SELECTED BY ESEL COMMAND.

SELECT ALL NODES HAVING ANY ELEMENT IN ELEMENT SET.

7536 NODES (OF 19211 DEFINED) SELECTED FROM
3810 SELECTED ELEMENTS BY NSLE COMMAND.

SELECT ALL ELEMENTS HAVING ANY NODE IN NODAL SET.

6000 ELEMENTS (OF 13764 DEFINED) SELECTED FROM
7536 SELECTED NODES BY ESLN COMMAND.

SORT ON ITEM=S COMPONENT=INT ORDER= 0 KABS= 0 NMAX= 1

SORT COMPLETED FOR 1 VALUES.

PRINT S NODAL SOLUTION PER NODE

1

***** ANSYS - ENGINEERING ANALYSIS SYSTEM REVISION 5.1 24 *****
38303 VERSION=HP 9000/7XX 15:18:46 APR 20, 1996 CP= 205.970
FOR SUPPORT CALL ROBERT BAHNEY PHONE (702) 794-5337 FAX (702) 794-1844

21 PWR Tube Static Analysis With Backfill

***** POST1 NODAL STRESS LISTING *****

CALCULATED LOAD CASE= 0

NODE	S1	S2	S3	SINT	SEQV
7289	0.62969E+07	0.71338E+06	0.32558E+06	0.59713E+07	0.57872E+07

MINIMUM VALUES

NODE	7289	7289	7289	7289	7289
VALUE	0.62969E+07	0.71338E+06	0.32558E+06	0.59713E+07	0.57872E+07

MAXIMUM VALUES

NODE	7289	7289	7289	7289	7289
VALUE	0.62969E+07	0.71338E+06	0.32558E+06	0.59713E+07	0.57872E+07

MAXIMUM STRESS INTENSITY IN CRITICALITY CONTROL PLATES

SELECT FOR ITEM=TYPE COMPONENT=
IN RANGE 2 TO 2 STEP 1

1170 ELEMENTS (OF 13764 DEFINED) SELECTED BY ESEL COMMAND.

SELECT ALL NODES HAVING ANY ELEMENT IN ELEMENT SET.

2464 NODES (OF 19211 DEFINED) SELECTED FROM
1170 SELECTED ELEMENTS BY NSLE COMMAND.

SELECT ALL ELEMENTS HAVING ANY NODE IN NODAL SET.

4032 ELEMENTS (OF 13764 DEFINED) SELECTED FROM
2464 SELECTED NODES BY ESLN COMMAND.

SORT ON ITEM=S COMPONENT=INT ORDER= 0 KABS= 0 NMAX= 1

SORT COMPLETED FOR 1 VALUES.

PRINT S NODAL SOLUTION PER NODE

1

***** ANSYS - ENGINEERING ANALYSIS SYSTEM REVISION 5.1 24 *****
38303 VERSION=HP 9000/7XX 16:19:02 APR 20, 1996 CP= 209.960
FOR SUPPORT CALL ROBERT BAHNEY PHONE (702) 794-5337 FAX (702) 794-1844

21 PWR Tube Static Analysis With Backfill

***** POST1 NODAL STRESS LISTING *****

CALCULATED LOAD CASE= 0

NODE	S1	S2	S3	SINT	SEQV
2969	0.29990E+07	0.33573E+06	0.10190E+06	0.28971E+07	0.27875E+07

MINIMUM VALUES

NODE	2969	2969	2969	2969	2969
VALUE	0.29990E+07	0.33573E+06	0.10190E+06	0.28971E+07	0.27875E+07

MAXIMUM VALUES

NODE	2969	2969	2969	2969	2969
VALUE	0.29990E+07	0.33573E+06	0.10190E+06	0.28971E+07	0.27875E+07

100% Degradation of Outer Barrier, Backfill Present, Supports in From Ends
75% Degradation of Inner Barrier

MAXIMUM STRESS INTENSITY IN THE OUTER BARRIER

No Outer Barrier

MAXIMUM STRESS INTENSITY IN THE INNER BARRIER

SELECT FOR ITEM=TYPE COMPONENT=
IN RANGE 5 TO 6 STEP 1

3936 ELEMENTS (OF 8616 DEFINED) SELECTED BY ESEL COMMAND.

SELECT ALL NODES HAVING ANY ELEMENT IN ELEMENT SET.

6129 NODES (OF 12897 DEFINED) SELECTED FROM
3936 SELECTED ELEMENTS BY NSLE COMMAND.

SELECT ALL ELEMENTS HAVING ANY NODE IN NODAL SET.

4296 ELEMENTS (OF 8616 DEFINED) SELECTED FROM
6129 SELECTED NODES BY ESLN COMMAND.

SORT ON ITEM=S COMPONENT=INT ORDER= 0 KABS= 0 NMAX= 1

SORT COMPLETED FOR 1 VALUES.

PRINT S NODAL SOLUTION PER NODE

1

***** ANSYS - ENGINEERING ANALYSIS SYSTEM REVISION 5.1 24 *****
38303 VERSION=HP 9000/7XX 08:56:20 APR 10, 1996 CP= 104.270
FOR SUPPORT CALL ROBERT BAHNEY PHONE (702) 794-5337 FAX (702) 794-1844

21 PWR Tube Seismic Analysis With Backfill

***** POST1 NODAL STRESS LISTING *****

CALCULATED LOAD CASE= 0

NODE	S1	S2	S3	SINT	SEQV
12757	0.12013E+09	0.34785E+08	0.90363E-07	0.11110E+09	0.10072E+09

MINIMUM VALUES

NODE	12757	12757	12757	12757	12757
VALUE	0.12013E+09	0.34785E+08	0.90363E-07	0.11110E+09	0.10072E+09

MAXIMUM VALUES

NODE	12757	12757	12757	12757	12757
VALUE	0.12013E+09	0.34785E+08	0.90363E-07	0.11110E+09	0.10072E+09

MAXIMUM STRESS INTENSITY IN BASKET TUBES, CORNER GUIDES, AND END GUIDES

SELECT FOR ITEM=TYPE COMPONENT=
IN RANGE 1 TO 1 STEP 1

0 ELEMENTS (OF 8616 DEFINED) SELECTED BY ESEL COMMAND.

ALSO SELECT FOR ITEM=TYPE COMPONENT=
IN RANGE 3 TO 4 STEP 1

2160 ELEMENTS (OF 8616 DEFINED) SELECTED BY ESEL COMMAND.

SELECT ALL NODES HAVING ANY ELEMENT IN ELEMENT SET.

3632 NODES (OF 12897 DEFINED) SELECTED FROM
2160 SELECTED ELEMENTS BY NSLE COMMAND.

SELECT ALL ELEMENTS HAVING ANY NODE IN NODAL SET.

3040 ELEMENTS (OF 8616 DEFINED) SELECTED FROM
3632 SELECTED NODES BY ESLN COMMAND.

SORT ON ITEM=S COMPONENT=INT ORDER= 0 KABS= 0 NMAX= 1

SORT COMPLETED FOR 1 VALUES.

PRINT S NODAL SOLUTION PER NODE

1

***** ANSYS - ENGINEERING ANALYSIS SYSTEM REVISION 5.1 24 *****
38303 VERSION=HP 9000/7XX 08:56:23 APR 10, 1996 CP= 107.450
FOR SUPPORT CALL ROBERT BAHNEY PHONE (702) 794-5337 FAX (702) 794-1844

21 PWR Tube Seismic Analysis With Backfill

***** POST1 NODAL STRESS LISTING *****

CALCULATED LOAD CASE= 0

NODE	S1	S2	S3	SINT	SEQV
4388	0.68906E+08	0.52819E+07-0.11621E+07	0.70068E+08	0.67078E+08	

MINIMUM VALUES

NODE	4388	4388	4388	4388	4388
VALUE	0.68906E+08	0.52819E+07-0.11621E+07	0.70068E+08	0.67078E+08	

MAXIMUM VALUES

NODE	4388	4388	4388	4388	4388
VALUE	0.68906E+08	0.52819E+07-0.11621E+07	0.70068E+08	0.67078E+08	

MAXIMUM STRESS INTENSITY IN CRITICALITY CONTROL PLATES

SELECT FOR ITEM=TYPE COMPONENT=
IN RANGE 2 TO 2 STEP 1

2520 ELEMENTS (OF 8616 DEFINED) SELECTED BY ESEL COMMAND.

SELECT ALL NODES HAVING ANY ELEMENT IN ELEMENT SET.

4000 NODES (OF 12897 DEFINED) SELECTED FROM
2520 SELECTED ELEMENTS BY NSLE COMMAND.

SELECT ALL ELEMENTS HAVING ANY NODE IN NODAL SET.

2910 ELEMENTS (OF 8616 DEFINED) SELECTED FROM
4000 SELECTED NODES BY ESLN COMMAND.

SORT ON ITEM=S COMPONENT=INT ORDER= 0 KABS= 0 NMAX= 1

SORT COMPLETED FOR 1 VALUES.

PRINT S NODAL SOLUTION PER NODE

1

***** ANSYS - ENGINEERING ANALYSIS SYSTEM REVISION 5.1 24 *****
38303 VERSION=HP 9000/7XX 08:56:26 APR 10, 1996 CP= 110.240

FOR SUPPORT CALL ROBERT BAHNEY PHONE (702) 794-5337 FAX (702) 794-1844

21 PWR Tube Seismic Analysis With Backfill

***** POST1 NODAL STRESS LISTING *****

CALCULATED LOAD CASE= 0

NODE	S1	S2	S3	SINT	SEQV
940	0.16742E+08	0.15945E+07	0.41819E+06	0.16323E+08	0.15768E+08

MINIMUM VALUES

NODE	940	940	940	940	940
VALUE	0.16742E+08	0.15945E+07	0.41819E+06	0.16323E+08	0.15768E+08

MAXIMUM VALUES

NODE	940	940	940	940	940
VALUE	0.16742E+08	0.15945E+07	0.41819E+06	0.16323E+08	0.15768E+08

100% Degradation of Outer Barrier, Backfill Present, Supports in From Ends
90% Degradation of Inner Barrier

MAXIMUM STRESS INTENSITY IN THE OUTER BARRIER

No Outer Barrier

MAXIMUM STRESS INTENSITY IN THE INNER BARRIER

SELECT FOR ITEM=TYPE COMPONENT=
IN RANGE 5 TO 6 STEP 1

3936 ELEMENTS (OF 8616 DEFINED) SELECTED BY ESEL COMMAND.

SELECT ALL NODES HAVING ANY ELEMENT IN ELEMENT SET.

6129 NODES (OF 12897 DEFINED) SELECTED FROM
3936 SELECTED ELEMENTS BY NSLE COMMAND.

SELECT ALL ELEMENTS HAVING ANY NODE IN NODAL SET.

4296 ELEMENTS (OF 8616 DEFINED) SELECTED FROM
6129 SELECTED NODES BY ESLN COMMAND.

SORT ON ITEM=S COMPONENT=INT ORDER=: 0 KABS= 0 NMAX= 1

SORT COMPLETED FOR 1 VALUES.

PRINT S NODAL SOLUTION PER NODE

1

***** ANSYS - ENGINEERING ANALYSIS SYSTEM REVISION 5.1 24 *****
38303 VERSION=HP 9000/7XX 07:56:32 APR 11, 1996 CP= 103.820
FOR SUPPORT CALL ROBERT BAHNEY PHONE (702) 794-5337 FAX (702) 794-1844

21 PWR Tube Seismic Analysis With Backfill

***** POST1 NODAL STRESS LISTING *****

CALCULATED LOAD CASE= 0

NODE	S1	S2	S3	SINT	SEQV
12757	0.79880E+09	0.25614E+09	0.14911E+09	0.64969E+09	0.60333E+09

MINIMUM VALUES

NODE	12757	12757	12757	12757	12757
VALUE	0.79880E+09	0.25614E+09	0.14911E+09	0.64969E+09	0.60333E+09

MAXIMUM VALUES

NODE	12757	12757	12757	12757	12757
VALUE	0.79880E+09	0.25614E+09	0.14911E+09	0.64969E+09	0.60333E+09

MAXIMUM STRESS INTENSITY IN BASKET TUBES, CORNER GUIDES, AND END GUIDES

SELECT FOR ITEM=TYPE COMPONENT=
IN RANGE 1 TO 1 STEP 1

0 ELEMENTS (OF 8616 DEFINED) SELECTED BY ESEL COMMAND.

ALSO SELECT FOR ITEM=TYPE COMPONENT=
IN RANGE 3 TO 4 STEP 1

2160 ELEMENTS (OF 8616 DEFINED) SELECTED BY ESEL COMMAND.

SELECT ALL NODES HAVING ANY ELEMENT IN ELEMENT SET.

3632 NODES (OF 12897 DEFINED) SELECTED FROM
2160 SELECTED ELEMENTS BY NSLE COMMAND.

SELECT ALL ELEMENTS HAVING ANY NODE IN NODAL SET.

3040 ELEMENTS (OF 8616 DEFINED) SELECTED FROM
3632 SELECTED NODES BY ESLN COMMAND.

SORT ON ITEM=S COMPONENT=INT ORDER= 0 KABS= 0 NMAX= 1

SORT COMPLETED FOR 1 VALUES.

PRINT S NODAL SOLUTION PER NODE

1
***** ANSYS - ENGINEERING ANALYSIS SYSTEM REVISION 5.1 24 *****
38303 VERSION=HP 9000/7XX 07:56:35 APR 11, 1996 CP= 107.020
FOR SUPPORT CALL ROBERT BAHNEY PHONE (702) 794-5337 FAX (702) 794-1844

21 PWR Tube Seismic Analysis With Backfill

***** POST1 NODAL STRESS LISTING *****

CALCULATED LOAD CASE= 0

NODE	S1	S2	S3	SINT	SEQV
6133	0.40416E+09	0.11688E+09	0.54628E+08	0.34953E+09	0.32293E+09

MINIMUM VALUES
NODE 6133 6133 6133 6133 6133
VALUE 0.40416E+09 0.11688E+09 0.54628E+08 0.34953E+09 0.32293E+09

MAXIMUM VALUES
NODE 6133 6133 6133 6133 6133
VALUE 0.40416E+09 0.11688E+09 0.54628E+08 0.34953E+09 0.32293E+09

MAXIMUM STRESS INTENSITY IN CRITICALITY CONTROL PLATES

SELECT FOR ITEM=TYPE COMPONENT=
IN RANGE 2 TO 2 STEP 1

2520 ELEMENTS (OF 8616 DEFINED) SELECTED BY ESEL COMMAND.

SELECT ALL NODES HAVING ANY ELEMENT IN ELEMENT SET.

4000 NODES (OF 12897 DEFINED) SELECTED FROM
2520 SELECTED ELEMENTS BY NSLE COMMAND.

SELECT ALL ELEMENTS HAVING ANY NODE IN NODAL SET.

2910 ELEMENTS (OF 8616 DEFINED) SELECTED FROM
4000 SELECTED NODES BY ESLN COMMAND.

SORT ON ITEM=S COMPONENT=INT ORDER= 0 KABS= 0 NMAX= 1

SORT COMPLETED FOR 1 VALUES.

PRINT S NODAL SOLUTION PER NODE

1
***** ANSYS - ENGINEERING ANALYSIS SYSTEM REVISION 5.1 24 *****
38303 VERSION=HP 9000/7XX 07:56:38 APR 11, 1996 CP= 109.850

FOR SUPPORT CALL ROBERT BAHNEY PHONE (702) 794-5337 FAX (702) 794-1844

21 PWR Tube Seismic Analysis With Backfill

***** POST1 NODAL STRESS LISTING *****

CALCULATED LOAD CASE= 0

NODE	S1	S2	S3	SINT	SEQV
3938	0.22951E+08	0.25162E+07	0.16351E+06	0.22787E+08	0.21707E+08

MINIMUM VALUES

NODE	3938	3938	3938	3938	3938
VALUE	0.22951E+08	0.25162E+07	0.16351E+06	0.22787E+08	0.21707E+08

MAXIMUM VALUES

NODE	3938	3938	3938	3938	3938
VALUE	0.22951E+08	0.25162E+07	0.16351E+06	0.22787E+08	0.21707E+08

100% Degradation of Outer Barrier, Backfill Present, Supports in From Ends
90% Degradation of Inner Barrier

MAXIMUM STRESS INTENSITY IN THE OUTER BARRIER

No Outer Barrier

MAXIMUM STRESS INTENSITY IN THE INNER BARRIER

SELECT FOR ITEM=TYPE COMPONENT=
IN RANGE 5 TO 6 STEP 1

3936 ELEMENTS (OF 8616 DEFINED) SELECTED BY ESEL COMMAND.

SELECT ALL NODES HAVING ANY ELEMENT IN ELEMENT SET.

6129 NODES (OF 12897 DEFINED) SELECTED FROM
3936 SELECTED ELEMENTS BY NSLE COMMAND.

SELECT ALL ELEMENTS HAVING ANY NODE IN NODAL SET.

4296 ELEMENTS (OF 8616 DEFINED) SELECTED FROM
6129 SELECTED NODES BY ESLN COMMAND.

SORT ON ITEM=S COMPONENT=INT ORDER= 0 KABS= 0 NMAX= 1

SORT COMPLETED FOR 1 VALUES.

PRINT S NODAL SOLUTION PER NODE

1

***** ANSYS - ENGINEERING ANALYSIS SYSTEM REVISION 5.1 24 *****
38303 VERSION=HP 9000/7XX 19:30:05 APR 10, 1996 CP= 112.420
FOR SUPPORT CALL ROBERT BAHNEY PHONE (702) 794-5337 FAX (702) 794-1844

21 PWR Tube Seismic Analysis With Backfill

***** POST1 NODAL STRESS LISTING *****

CALCULATED LOAD CASE= 0

NODE	S1	S2	S3	SINT	SEQV
8632	0.10789E+10	0.34399E+09	0.20275E+09	0.87612E+09	0.81474E+09

MINIMUM VALUES

NODE	8632	8632	8632	8632	8632
VALUE	0.10789E+10	0.34399E+09	0.20275E+09	0.87612E+09	0.81474E+09

MAXIMUM VALUES

NODE	8632	8632	8632	8632	8632
VALUE	0.10789E+10	0.34399E+09	0.20275E+09	0.87612E+09	0.81474E+09

MAXIMUM STRESS INTENSITY IN BASKET TUBES, CORNER GUIDES, AND END GUIDES

SELECT FOR ITEM=TYPE COMPONENT=
IN RANGE 1 TO 1 STEP 1

0 ELEMENTS (OF 8616 DEFINED) SELECTED BY ESEL COMMAND.

ALSO SELECT FOR ITEM=TYPE COMPONENT=
IN RANGE 3 TO 4 STEP 1

2160 ELEMENTS (OF 8616 DEFINED) SELECTED BY ESEL COMMAND.

SELECT ALL NODES HAVING ANY ELEMENT IN ELEMENT SET.

3632 NODES (OF 12897 DEFINED) SELECTED FROM
2160 SELECTED ELEMENTS BY NSLE COMMAND.

SELECT ALL ELEMENTS HAVING ANY NODE IN NODAL SET.

3040 ELEMENTS (OF 8616 DEFINED) SELECTED FROM
3632 SELECTED NODES BY ESLN COMMAND.

SORT ON ITEM=S COMPONENT=INT ORDER= 0 KABS= 0 NMAX= 1

SORT COMPLETED FOR 1 VALUES.

PRINT S NODAL SOLUTION PER NODE

1

***** ANSYS - ENGINEERING ANALYSIS SYSTEM REVISION 5.1 24 *****
38303 VERSION=HP 9000/7XX 19:30:16 APR 10, 1996 CP= 115.860
FOR SUPPORT CALL ROBERT BAHNEY PHONE (702) 794-5337 FAX (702) 794-1844

21 PWR Tube Seismic Analysis With Backfill

***** POST1 NODAL STRESS LISTING *****

CALCULATED LOAD CASE= 0

NODE	S1	S2	S3	SINT	SEQV
4355	0.50925E+09	0.14298E+09	0.64610E+08	0.44464E+09	0.41110E+09

MINIMUM VALUES

NODE	4355	4355	4355	4355	4355
VALUE	0.50925E+09	0.14298E+09	0.64610E+08	0.44464E+09	0.41110E+09

MAXIMUM VALUES

NODE	4355	4355	4355	4355	4355
VALUE	0.50925E+09	0.14298E+09	0.64610E+08	0.44464E+09	0.41110E+09

MAXIMUM STRESS INTENSITY IN CRITICALITY CONTROL PLATES

SELECT FOR ITEM=TYPE COMPONENT=
IN RANGE 2 TO 2 STEP 1

2520 ELEMENTS (OF 8616 DEFINED) SELECTED BY ESEL COMMAND.

SELECT ALL NODES HAVING ANY ELEMENT IN ELEMENT SET.

4000 NODES (OF 12897 DEFINED) SELECTED FROM
2520 SELECTED ELEMENTS BY NSLE COMMAND.

SELECT ALL ELEMENTS HAVING ANY NODE IN NODAL SET.

2910 ELEMENTS (OF 8616 DEFINED) SELECTED FROM
4000 SELECTED NODES BY ESLN COMMAND.

SORT ON ITEM=S COMPONENT=INT ORDER= 0 KABS= 0 NMAX= 1

SORT COMPLETED FOR 1 VALUES.

PRINT S NODAL SOLUTION PER NODE

1

***** ANSYS - ENGINEERING ANALYSIS SYSTEM REVISION 5.1 24 *****
38303 VERSION=HP 9000/7XX 19:30:24 APR 10, 1996 CP= 118.840

FOR SUPPORT CALL ROBERT BAHNEY PHONE (702) 794-5337 FAX (702) 794-1844

21 PWR Tube Seismic Analysis With Backfill

***** POST1 NODAL STRESS LISTING *****

CALCULATED LOAD CASE= 0

NODE	S1	S2	S3	SINT	SEQV
3878	0.50410E+08	0.46854E+07	0.27423E+07	0.47668E+08	0.46727E+08

MINIMUM VALUES					
NODE	3878	3878	3878	3878	3878
VALUE	0.50410E+08	0.46854E+07	0.27423E+07	0.47668E+08	0.46727E+08

MAXIMUM VALUES					
NODE	3878	3878	3878	3878	3878
VALUE	0.50410E+08	0.46854E+07	0.27423E+07	0.47668E+08	0.46727E+08

PROFILE E.C. 06/19/96

BACKFILL PROFILE OF A TYPICAL WASTE EMPLACEMENT DRIFT

Civilian Radioactive Waste
Management System

Management & Operating
Contractor

Sandia National Laboratories

Laurence S. Costin
Acting Manager, YMP Management Department

P.O. Box 5800
Albuquerque, New Mexico 87185-1325

June 28, 1995

Robert M. Sandifer
MGDS Operations
M&O/TRW
101 Convention Center Drive
Suite P110
Las Vegas, NV 89109

WBS: 1.2.2.4.3
1.2.3.13.2
QA: N/A

Attn: Thomas Geer

Subject: Transmittal of Draft Copy of SAND94-2320, *Bench-Scale Experimental Determination of the Thermal Diffusivity of Crushed Tuff*

Gentlemen:

Attached you will find a draft copy of SAND94-2320, *Bench-Scale Experimental Determination of the Thermal Diffusivity of Crushed Tuff*. This report has completed the internal review process at Sandia National Laboratories and is currently being prepared for programmatic and policy review. Because of the report's relevance to the Fiscal Year (FY) 1995 Backfill Evaluation, an information copy of the report is being provided to assist in your study of backfill issues.

If you have any questions concerning this report, please contact Eric Ryder at (505) 848-0779.

Yours truly,

Laurence Costin

Attachment

LSC/EER/lasc

Copy to (with attachment)

M. Voegelé M&O/SAIC

V. Dulock M&O/TRW

L. Rickertsen M&O/TRW

R. Andrews M&O/INTERA

C. T. Statton M&O/WCFS

T. Doering M&O/B&W

J.C. DeLaGarza DOE/YMSCO

MS-1325 Laurence S. Costin, 6302

MS-1399 Mikey Brady, 6314

✓ MS-1325 Eric E. Ryder, 6313

crushed tuff in the container. This porosity is consistent with the 25 to 53% porosities obtained in large-scale laboratory tests of backfill emplacement techniques reported by Stout and Friel [1982].

Once the test set-up was complete, full power was applied to the heater for approximately 23.5 hours. Due to power grid fluctuations, the actual heater power ranged from approximately 1730 W to 1940 W. Based on linear regression of the data, the mean power output of the heater over the first 23.5 hours was 1853 W. After 23.5 hours, temperatures near the potting adapters of the thermocouple probes were such that the heater power had to be regulated to guarantee survival of the instruments. The set point on the feedback loop was therefore set to 250°C. Since the feedback thermocouple was already reading 273°C, this resulted in a short power-down cycle (approximately 1 hour) followed by a continuous regulation of the heater power for an additional 72.5 hours. Heater power was terminated when the temperature readings for all thermocouples on Probes 1, 2, 3, and 6 showed less than a 0.3°C/hr rate of change. Measurements of temperature continued for approximately 18 days following the termination of heater power. Figures 3-11 presents isothermal plots of the experimental data for Probes 1, 2, and 3 and the outer shell thermocouples at various times during Test 1. Complete heater power and thermocouple data from Test 1 are presented in Appendix A.

3.4 TEST 2

A second heating and cooling cycle of the test bed was completed prior to the dismantling of the experiment. The purpose of the second test was to obtain some temperature data over the time period between 5 and 13 hours of full-power heating. This time period corresponds to a failure in the Test 1 data acquisition system during which no temperature data were recorded. In addition, Test 2 was used as a means of developing a limited assessment of the reproducibility of the data obtained in the first experiment. Full power was applied to the heater for approximately 11.6 hours followed by 10.8 hours of regulated power. During the full-power cycle, power readings ranged from 1740 W to

-----*

W E L C O M E T O T H E A N S Y S P R O G R A M

-----*

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PRESS <CR> OR <ENTER> TO CONTINUE

***** ANSYS COMMAND LINE ARGUMENTS *****
INITIAL JOBNAME = seism5
MEMORY REQUESTED (MB) = 72.0
BATCH MODE REQUESTED = LIST
START-UP FILE MODE = READ

*** NOTE *** CP= 0.810 TIME= 16:21:40
There are no parameters and no abbreviations defined.

38303 VERSION=HP 9000/7XX REVISION= 5.1 24
FOR SUPPORT CALL ROBERT BAHNEY PHONE (702) 794-5337 FAX (702) 794-1844
CURRENT JOBNAME=seism5 16:21:40 MAY 31, 1996 CP= 0.810

```

1 /com,*****
2 /com,*****
3 /com,***** Seismic Analysis of 21 PWR Waste Package Under Degradation *****
4 /com,***** Degree of Degradation in Outer Barrier: 0% *****
5 /com,***** Degree of Degradation in Inner Barrier: 0% *****
6 /com,***** Degree of Degradation in Basket Assembly: 0% *****
7 /com,***** Backfill Present, Backfill Porosity: 25%, Rock Porosity: 10% *****
8 /com,*****
9 /com,*****
10 !/config,nvpag,512
11 /units,si
12 /prep7
13 /title, 21 PWR Tube Static Analysis With Backfill
14 /vcon,,0
15 /com, Define Parameters
16 ibir=0.71095 ! Inner Barrier Inner Radius (DIA = 1.4219 m)
17 obir=0.73095 ! Outer Barrier Inner Radius (DIA = 1.4619 m)
18 obsr=0.77095 ! Outer Barrier Skirt Radius (DIA = 1.5419 m)
19 obor=0.83095 ! Outer Barrier Outer Radius (DIA = 1.6619 m)
20 ts1=.007 ! SS-B Plate Thickness
21 ts2=.005 ! CS Tube Thickness
22 ts3=.010 ! Corner Guide Thickness
23 ts4=.010 ! End Guide Thickness
24 egiH=0.0809 ! End Guide Fin Inner Height
25 pie=3.1415926 ! Pi
26 ang1=30*pie/180 ! Angle on end of end guide
27 ang2=80*pie/180 ! Angle on end of end guide fin
28 ang3=58*pie/180 ! Angle on end of corner guide
29 tw=0.2285 ! Tube Inner Side Width
30 pos1=tw/2 ! Dimension to Keypoint Position 1
31 pos2=pos1+ts2 ! Dimension to Keypoint Position 2
32 pos3=pos2+ts1 ! Dimension to Keypoint Position 3
33 pos4=pos3+ts2 ! Dimension to Keypoint Position 4
34 pos5=pos4+tw ! Dimension to Keypoint Position 5
35 pos6=pos5+ts2 ! Dimension to Keypoint Position 6
36 pos7=pos6+ts1 ! Dimension to Keypoint Position 7
37 pos8=pos7+ts2 ! Dimension to Keypoint Position 8
38 pos9=pos8+tw ! Dimension to Keypoint Position 9
39 pos10=pos9+ts2 ! Dimension to Keypoint Position 10
40 pos11=pos10+ts4 ! Dimension to Keypoint Position 11
41 posg=pos6+ts3 ! Dimension to Keypoint on Corner Guide
42 posei=pos11+egiH ! Dimension to Keypoint on End Guide Fin Inner
43 poseo=posei-(ts4/tan(ang2)) ! Dimension to Keypoint on End Guide Fin Outer
44 posen=pos2+ts1/2-ts4/2 ! Dimension to Keypoint on End Guide Near Side
45 posef=pos2+ts1/2+ts4/2 ! Dimension to Keypoint on End Guide Far Side
46 poseg=pos6-(ts4/tan(ang1)) ! Dimension to Keypoint on End Guide Side
47 poscg=pos10-(ts3/tan(ang3)) ! Dimension to Keypoint on Corner Guide Side
48 bkht=4.575 ! Basket Height
49 ibht=4.585 ! Inner Barrier cavity height
50 bgh=ibht-bkht ! Basket Gap Height

```

```

51 iblt=0.025          ! inner lid height
52 elev1=ibht+iblt     ! Elevation of Top of Inner Barrier
53 ltlgh=0.030         ! Lid to Lid Gap Height
54 elev2=elev1+ltlgh   ! Elevation of Bottom of Upper Outer Barrier Lid
55 oblt=0.11           ! outer lid height
56 elev3=elev2+oblt    ! Elevation of Top of Upper Outer Barrier Lid
57 stht=0.225         ! skirt height
58 elev4=elev3+stht    ! Elevation of Top of Waste Package
59 elev5=-(iblt+oblt)  ! Elevation of Bottom of Lower Outer Barrier Lid
60 elev6=elev5-stht    ! Elevation of Bottom of Waste Package
61 /com, Line Divisions
62 shd=1               ! Skirt Height Divisions
63 obld=1              ! Outer Barrier Lid Divisions
64 gd=1                ! Gap Divisions
65 ibld=1              ! Inner Barrier Lid Divisions
66 bd=15               ! Basket Divisions
67 htwd=4              ! Half Tube Width Divisions
68 twd=4               ! Tube Width Divisions
69 thd=4               ! Tube Height Divisions
70 egfd=4              ! End Guide Fin Divisions
71 ptd=1               ! Plate Thickness Divisions
72 ttd=1               ! Tube Thickness Divisions
73 a1d=4               ! Arc 1 Divisions
74 a2d=4               ! Arc 2 Divisions
75 a3d=4               ! Arc 3 Divisions
76 a4d=4               ! Arc 4 Divisions
77 a5d=4               ! Arc 5 Divisions
78 a6d=4               ! Arc 6 Divisions
79 a7d=4               ! Arc 7 Divisions
80 a8d=4               ! Arc 8 Divisions
81 a9d=4               ! Arc 9 Divisions
82 ibtd=2              ! Inner Barrier Thickness Divisions
83 obitd=2             ! Outer Barrier Inner Thickness Divisions
84 std=2               ! Skirt Thickness Divisions
85 /com, Define Element Properties
86 et,1,solid45        ! Carbon Steel Tube
87 et,2,solid45        ! Stainless Steel - Boron Plate
88 et,3,solid45        ! Carbon Steel End Guide
89 et,4,solid45        ! Carbon Steel Corner Guide
90 et,5,solid45        ! Alloy 625 Inner Barrier
91 et,6,solid45        ! A 516 Carbon Steel Outer Barrier
92 et,7,solid45        ! A 516 Carbon Steel Outer Barrier w/Backfill Weight
93 !et,7,contact49     ! Contact Between Basket and Inner Barrier
94 r,7,1.5e8,,,1.298,15 ! Real Constant Set for Contact, kn=1.5E8,
95 /com, ratio of static to dynamic coeff. of friction fact=1.298, Area Tol.=15%
96 /com, Room Temperature Properties of Materials
97 mp,ex,1,206e9        ! A516 Carbon Steel Tube
98 mp,ex,2,195e9        ! 316B6A Stainless Steel - Boron Plate (316L Properties)
99 mp,ex,3,206e9        ! A516 Carbon Steel End Guide
100 mp,ex,4,206e9       ! A516 Carbon Steel Corner Guide
101 mp,ex,5,208e9       ! Alloy 625 Inner Barrier
102 mp,ex,6,206e9       ! A516 Carbon Steel Outer Barrier
103 mp,ex,7,206e9       ! A516 Carbon Steel Outer Barrier w/Backfill Weight
104 mp,nuxy,1,0.3       ! A516 Carbon Steel Tube
105 mp,nuxy,2,0.298     ! 316B6A Stainless Steel - Boron Plate (316 Properties)
106 mp,nuxy,3,0.3       ! A516 Carbon Steel End Guide
107 mp,nuxy,4,0.3       ! A516 Carbon Steel Corner Guide
108 mp,nuxy,5,0.278     ! Alloy 625 Inner Barrier
109 mp,nuxy,6,0.3       ! A516 Carbon Steel Outer Barrier
110 mp,nuxy,7,0.3       ! A516 Carbon Steel Outer Barrier w/Backfill Weight
111 !mp,dens,1,44646.96 ! A516 Carbon Steel Tube (Adjusted density)
112 mp,dens,1,8131      ! A516 Carbon Steel Tube
113 mp,dens,2,7953      ! 316B6A Stainless Steel - Boron Plate
114 mp,dens,3,8131      ! A516 Carbon Steel End Guide
115 mp,dens,4,8131      ! A516 Carbon Steel Corner Guide
116 mp,dens,5,8442      ! Alloy 625 Inner Barrier
117 mp,dens,6,8131      ! A516 Carbon Steel Outer Barrier
118 mp,dens,7,20670     ! A 516 Carbon Steel Outer Barrier w/Backfill Weight
119 !mp,mu,7,0.57       ! Coefficient of Friction (Steel on Steel Assumed)
120 !tb,biso,1

```



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121 !tbdata,,260e6,1.078e9 ! A 516 Carbon Steel Tubes
122 !tb,biso,2
123 !tbdata,,172e6,0.7767e9 ! 316L Stainless Steel
124 !tb,biso,3
125 !tbdata,,260e6,1.078e9 ! A 516 Carbon Steel End Guide
126 !tb,biso,4
127 !tbdata,,260e6,1.078e9 ! A 516 Carbon Steel Corner Guide
128 !tb,biso,5
129 !tbdata,,379e6,1.271e9 ! Alloy 625
130 !tb,biso,6
131 !tbdata,,260e6,1.078e9 ! A 516 Carbon Steel Outer Barrier
132 !tb,biso,7
133 !tbdata,,260e6,1.078e9 ! A 516 Carbon Steel Outer Barrier w/Backfill Weight
134 /com
135 /com, Define keypoints in the basket assembly
136 csys,0
137 k,1,0,0
138 k,2,pos1,0
139 k,3,pos2,0
140 k,4,pos3,0
141 k,5,pos4,0
142 k,6,pos5,0
143 k,7,pos6,0
144 k,8,pos7,0
145 k,9,pos8,0
146 k,10,pos9,0
147 k,11,pos10,0
148 k,12,pos11,0
149 k,13,pos1,pos1
150 k,14,pos4,pos1
151 k,15,pos5,pos1
152 k,16,pos8,pos1
153 k,17,pos9,pos1
154 k,18,pos2,pos2
155 k,19,pos3,pos2
156 k,20,pos6,pos2
157 k,21,pos7,pos2
158 k,22,pos10,pos2
159 k,23,pos11,posef
160 !k,24,posei,posef
161 csys,1
162 k,24,ibir,(180/pie)*atan(posef/posei)
163 csys,0
164 k,25,pos3,pos3
165 k,26,pos6,pos3
166 k,27,pos7,pos3
167 k,28,pos10,pos3
168 k,29,pos11,posef
169 !k,30,poseo,posef
170 csys,1
171 k,30,ibir,(180/pie)*atan(posef/poseo)
172 csys,0
173 k,31,pos4,pos4
174 k,32,pos5,pos4
175 k,33,pos8,pos4
176 k,34,pos9,pos4
177 k,35,pos5,pos5
178 k,36,pos8,pos5
179 k,37,pos9,pos5
180 !k,38,pos11,poseg
181 csys,1
182 k,38,ibir,(180/pie)*atan(poseg/posef)
183 csys,0
184 k,39,pos6,pos6
185 k,40,pos7,pos6
186 !k,41,pos10,pos6
187 csys,1
188 k,41,ibir,(180/pie)*atan(pos6/pos10)
189 csys,0
190 k,42,posg,posg

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```

191 lk,43,poscg,posg
192 csys,1
193 k,43,ibir,(180/pie)*atan(posg/poscg)
194 k,44,ibir,0
195 k,45,ibir,45
196 k,46,obir,0
197 k,47,obir,(180/pie)*atan(posen/posei)
198 k,48,obir,(180/pie)*atan(posef/poseo)
199 k,49,obir,(180/pie)*atan(poseg/pos11)
200 k,50,obir,(180/pie)*atan(pos6/pos10)
201 k,51,obir,(180/pie)*atan(posg/poscg)
202 k,52,obir,45
203 k,53,obsr,0
204 k,54,obsr,(180/pie)*atan(posen/posei)
205 k,55,obsr,(180/pie)*atan(posef/poseo)
206 k,56,obsr,(180/pie)*atan(poseg/pos11)
207 k,57,obsr,(180/pie)*atan(pos6/pos10)
208 k,58,obsr,(180/pie)*atan(posg/poscg)
209 k,59,obsr,45
210 k,60,obor,0
211 k,61,obor,(180/pie)*atan(posen/posei)
212 k,62,obor,(180/pie)*atan(posef/poseo)
213 k,63,obor,(180/pie)*atan(poseg/pos11)
214 k,64,obor,(180/pie)*atan(pos6/pos10)
215 k,65,obor,(180/pie)*atan(posg/poscg)
216 k,66,obor,45
217 local,11,0,0,0,0,45,0,0,
218 ksymm,y,all,,,0,0,0
219 nummrg,kp
220 csys,0
221 ksymm,y,all,,,0,0,0
222 nummrg,kp
223 kdel,2,12,1
224 k,1001,0,0,bkht
225 l,1,1001 ! Line 1 for VDRAG of Basket
226 lesize,all,,,bd,1,0
227 k,2001,0,0,ibht
228 l,1001,2001 ! Line 2 for VDRAG of Basket to Inner Barrier Lid Gap
229 lesize,all,,,gd,1,0
230 k,3001,0,0,elev1
231 l,2001,3001 ! Line 3 for VDRAG of Inner Barrier Upper Lid
232 lesize,all,,,ibld,1,0
233 k,4001,0,0,elev2
234 l,3001,4001 ! Line 4 for VDRAG of Lid to Lid Gap
235 lesize,all,,,gd,1,0
236 k,5001,0,0,elev3
237 l,4001,5001 ! Line 5 for VDRAG of Outer Barrier Upper Lid
238 lesize,all,,,obld,1,0
239 k,6001,0,0,elev4
240 l,5001,6001 ! Line 6 for VDRAG of Upper Skirt
241 lesize,all,,,shd,1,0
242 k,7001,0,0,-iblt
243 l,1,7001 ! Line 7 for VDRAG of IB Lower Lid
244 lesize,all,,,ibld,1,0
245 k,8001,0,0,elev5
246 l,7001,8001 ! Line 8 for VDRAG of OB Lower Lid
247 lesize,all,,,obld,1,0
248 k,9001,0,0,elev6
249 l,8001,9001 ! Line 9 for VDRAG of Lower Skirt
250 lesize,all,,,shd,1,0
251 /com, line set 1 Tube Width for Half Tubes on Symmetry Plane
252 L, 197, 206
253 L, 196, 205
254 L, 195, 201
255 L, 194, 200
256 L, 193, 204
257 L, 192, 203
258 L, 191, 199
259 L, 190, 198
260 L, 189, 202

```

261	L,	188,	138
262	L,	187,	133
263	L,	68,	13
264	L,	69,	18
265	L,	70,	85
266	L,	71,	80
267	L,	72,	81
268	L,	73,	86
269	L,	74,	87
270	L,	75,	82
271	L,	76,	83
272	L,	77,	88
273	L,	78,	89
274	lesize,all,,,htwd,1,0		
275	/com, line set 2 Tube Widths		
276	L,	211,	218
277	L,	210,	220
278	L,	215,	217
279	L,	214,	216
280	L,	209,	219
281	L,	208,	159
282	L,	213,	155
283	L,	151,	152
284	L,	145,	146
285	L,	139,	140
286	L,	134,	135
287	L,	14,	15
288	L,	19,	20
289	L,	25,	26
290	L,	31,	32
291	L,	98,	35
292	L,	92,	39
293	L,	93,	106
294	L,	99,	102
295	L,	100,	103
296	L,	94,	107
297	L,	95,	104
298	lesize,all,,,twd,1,0		
299	/com, line set 3 Tube Widths on End Column		
300	L,	162,	163
301	L,	160,	161
302	L,	156,	157
303	L,	153,	154
304	L,	147,	148
305	L,	141,	142
306	L,	136,	137
307	L,	16,	17
308	L,	21,	22
309	L,	27,	28
310	L,	33,	34
311	L,	36,	37
312	L,	40,	41
313	L,	42,	43
314	lesize,all,,,twd,1,0		
315	/com, line set 4 Tube Heights		
316	L,	201,	200
317	L,	205,	204
318	L,	210,	209
319	L,	215,	214
320	L,	217,	216
321	L,	220,	219
322	L,	221,	162
323	L,	199,	198
324	L,	203,	202
325	L,	208,	145
326	L,	213,	151
327	L,	155,	152
328	L,	159,	146
329	L,	160,	147
330	L,	156,	153

331	L,	157,	154
332	L,	161,	148
333	L,	133,	13
334	L,	138,	18
335	L,	139,	19
336	L,	134,	14
337	L,	135,	15
338	L,	140,	20
339	L,	141,	21
340	L,	136,	16
341	L,	137,	17
342	L,	142,	22
343	L,	143,	23
344	L,	80,	81
345	L,	85,	86
346	L,	25,	92
347	L,	31,	98
348	L,	32,	35
349	L,	26,	39
350	L,	27,	40
351	L,	33,	36
352	L,	34,	37
353	L,	28,	41
354	L,	29,	38
355	L,	82,	83
356	L,	87,	88
357	L,	93,	94
358	L,	99,	100
359	L,	102,	103
360	L,	106,	107
361	L,	42,	109
362	L,	158,	149
363	lesize,all,,,thd,1,0		
364	/com, line set 5 End Guide Fins		
365	L,	207,	206
366	L,	212,	211
367	L,	150,	149
368	L,	144,	143
369	L,	24,	23
370	L,	30,	29
371	L,	96,	95
372	L,	90,	89
373	lesize,all,,,egfd,1,0		
374	/com, line set 6 SS-B Plate Thickness		
375	L,	197,	196
376	L,	206,	205
377	L,	211,	210
378	L,	207,	212
379	L,	206,	211
380	L,	205,	210
381	L,	218,	220
382	L,	220,	221
383	L,	193,	192
384	L,	204,	203
385	L,	209,	208
386	L,	204,	209
387	L,	203,	208
388	L,	219,	159
389	L,	162,	160
390	L,	163,	161
391	L,	161,	158
392	L,	219,	162
393	L,	159,	160
394	L,	189,	188
395	L,	202,	138
396	L,	145,	139
397	L,	202,	145
398	L,	138,	139
399	L,	146,	140
400	L,	147,	141

401	L,	146,	147
402	L,	140,	141
403	L,	148,	142
404	L,	149,	143
405	L,	148,	149
406	L,	142,	143
407	L,	150,	144
408	L,	69,	70
409	L,	18,	85
410	L,	19,	25
411	L,	18,	19
412	L,	85,	25
413	L,	20,	26
414	L,	21,	27
415	L,	20,	21
416	L,	26,	27
417	L,	22,	28
418	L,	22,	23
419	L,	28,	29
420	L,	23,	29
421	L,	24,	30
422	L,	73,	74
423	L,	86,	87
424	L,	92,	93
425	L,	86,	92
426	L,	87,	93
427	L,	39,	106
428	L,	40,	42
429	L,	39,	40
430	L,	106,	42
431	L,	38,	41
432	L,	41,	43
433	L,	77,	78
434	L,	88,	89
435	L,	94,	95
436	L,	88,	94
437	L,	89,	95
438	L,	90,	96
439	L,	109,	107
440	L,	107,	104
441	L,	224,	225
442	L,	230,	231
443	L,	236,	237
444	L,	226,	227
445	L,	227,	228
446	L,	232,	233
447	L,	233,	234
448	L,	238,	239
449	L,	239,	240
450	L,	171,	170
451	L,	170,	169
452	L,	178,	177
453	L,	177,	176
454	L,	185,	184
455	L,	184,	183
456	L,	168,	167
457	L,	175,	174
458	L,	182,	181
459	L,	47,	48
460	L,	54,	55
461	L,	61,	62
462	L,	49,	50
463	L,	50,	51
464	L,	56,	57
465	L,	57,	58
466	L,	63,	64
467	L,	64,	65
468	L,	117,	116
469	L,	116,	115
470	L,	124,	123

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471 L,      123,      122
472 L,      131,      130
473 L,      130,      129
474 L,      114,      113
475 L,      121,      120
476 L,      128,      127
477 lesize,all,,,ptd,1,0
478 /com, line set 7 tube thickness
479 L,      196,      195
480 L,      205,      201
481 L,      204,      200
482 L,      193,      194
483 L,      210,      215
484 L,      220,      217
485 L,      219,      216
486 L,      209,      214
487 L,      192,      191
488 L,      203,      199
489 L,      202,      198
490 L,      189,      190
491 L,      208,      213
492 L,      159,      155
493 L,      146,      152
494 L,      145,      151
495 L,      160,      156
496 L,      161,      157
497 L,      148,      154
498 L,      147,      153
499 L,      188,      187
500 L,      138,      133
501 L,      18,       13
502 L,      69,       68
503 L,      139,      134
504 L,      140,      135
505 L,      20,       15
506 L,      19,       14
507 L,      141,      136
508 L,      142,      137
509 L,      22,       17
510 L,      21,       16
511 L,      70,       71
512 L,      85,       80
513 L,      86,       81
514 L,      73,       72
515 L,      25,       31
516 L,      26,       32
517 L,      39,       35
518 L,      92,       98
519 L,      27,       33
520 L,      28,       34
521 L,      41,       37
522 L,      40,       36
523 L,      74,       75
524 L,      87,       82
525 L,      88,       83
526 L,      77,       76
527 L,      93,       99
528 L,      106,      102
529 L,      107,      103
530 L,      94,       100
531 lesize,all,,,ttd,1,0
532 csys,1
533 /com, line set 8, arc 1 bottom
534 L,      222,      207
535 L,      223,      224
536 L,      229,      230
537 L,      235,      236
538 lesize,all,,,ald,1,0
539 /com, line set 9, arc 2 side arcs
540 L,      212,      218

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541 L,      225,      226
542 L,      231,      232
543 L,      237,      238
544 lesize,all,,,a2d,1,0
545 /com, line set 10, arc 3 side arcs
546 L,      221,      163
547 L,      228,      171
548 L,      234,      178
549 L,      240,      185
550 lesize,all,,,a3d,1,0
551 /com, line set 11, arc 4 side arcs
552 L,      158,      150
553 L,      169,      168
554 L,      176,      175
555 L,      183,      182
556 lesize,all,,,a4d,1,0
557 /com, line set 12, arc 5 side arcs
558 L,      144,      24
559 L,      167,      47
560 L,      174,      54
561 L,      181,      61
562 lesize,all,,,a5d,1,0
563 /com, line set 13, arc 6 side arcs
564 L,      30,      38
565 L,      48,      49
566 L,      55,      56
567 L,      62,      63
568 lesize,all,,,a6d,1,0
569 /com, line set 14, arc 7 side arcs
570 L,      43,      109
571 L,      51,      117
572 L,      58,      124
573 L,      65,      131
574 lesize,all,,,a7d,1,0
575 /com, line set 15, arc 8 side arcs
576 L,      104,      96
577 L,      115,      114
578 L,      122,      121
579 L,      129,      128
580 lesize,all,,,a8d,1,0
581 /com, line set 16, arc 9 top arcs
582 L,      90,      110
583 L,      113,      112
584 L,      120,      119
585 L,      127,      126
586 lesize,all,,,a9d,1,0
587 csys,0
588 /com, line set 17 IB thickness
589 L,      222,      223
590 L,      207,      224
591 L,      212,      225
592 L,      218,      226
593 L,      220,      227
594 L,      221,      228
595 L,      163,      171
596 L,      161,      170
597 L,      158,      169
598 L,      150,      168
599 L,      144,      167
600 L,      24,      47
601 L,      30,      48
602 L,      38,      49
603 L,      41,      50
604 L,      43,      51
605 L,      109,      117
606 L,      107,      116
607 L,      104,      115
608 L,      96,      114
609 L,      90,      113
610 L,      110,      112

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611 lesize,all,,,ibtd,1,0
612 /com, line set 18 OB inner thickness
613 L, 223, 229
614 L, 224, 230
615 L, 225, 231
616 L, 226, 232
617 L, 227, 233
618 L, 228, 234
619 L, 171, 178
620 L, 170, 177
621 L, 169, 176
622 L, 168, 175
623 L, 167, 174
624 L, 47, 54
625 L, 48, 55
626 L, 49, 56
627 L, 50, 57
628 L, 51, 58
629 L, 117, 124
630 L, 116, 123
631 L, 115, 122
632 L, 114, 121
633 L, 113, 120
634 L, 112, 119
635 lesize,all,,,obtd,1,0
636 /com, line set 19 skirt thickness
637 L, 229, 235
638 L, 230, 236
639 L, 231, 237
640 L, 232, 238
641 L, 233, 239
642 L, 234, 240
643 L, 178, 185
644 L, 177, 184
645 L, 176, 183
646 L, 175, 182
647 L, 174, 181
648 L, 54, 61
649 L, 55, 62
650 L, 56, 63
651 L, 57, 64
652 L, 58, 65
653 L, 124, 131
654 L, 123, 130
655 L, 122, 129
656 L, 121, 128
657 L, 120, 127
658 L, 119, 126
659 lesize,all,,,std,1,0
660 /com, area set 1, tubes
661 a,195,196,205,201
662 a,200,201,205,204
663 a,193,194,200,204
664 a,191,192,203,199
665 a,198,199,203,202
666 a,189,190,198,202
667 a,187,188,138,133
668 a,133,138,18,13
669 a,69,68,13,18
670 a,71,70,85,80
671 a,80,85,86,81
672 a,73,72,81,86
673 a,75,74,87,82
674 a,82,87,88,83
675 a,77,76,83,88
676 a,209,210,215,214
677 a,215,210,220,217
678 a,216,217,220,219
679 a,209,214,216,219
680 a,145,208,213,151

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681 a,213,208,159,155
 682 a,152,155,159,146
 683 a,145,151,152,146
 684 a,134,139,140,135
 685 a,135,140,20,15
 686 a,19,14,15,20
 687 a,19,139,134,14
 688 a,92,25,31,98
 689 a,31,25,26,32
 690 a,32,26,39,35
 691 a,92,98,35,39
 692 a,94,93,99,100
 693 a,99,93,106,102
 694 a,102,106,107,103
 695 a,94,100,103,107
 696 a,156,160,161,157
 697 a,157,161,148,154
 698 a,147,153,154,148
 699 a,147,160,156,153
 700 a,136,141,142,137
 701 a,137,142,22,17
 702 a,21,16,17,22
 703 a,21,141,136,16
 704 a,33,27,28,34
 705 a,34,28,41,37
 706 a,40,36,37,41
 707 a,40,27,33,36
 708 /com, area set 2, plates
 709 a,204,205,210,209
 710 a,192,193,204,203
 711 a,203,204,209,208
 712 a,208,209,219,159
 713 a,202,203,208,145
 714 a,146,159,160,147
 715 a,188,189,202,138
 716 a,138,202,145,139
 717 a,139,145,146,140
 718 a,140,146,147,141
 719 a,141,147,148,142
 720 a,18,138,139,19
 721 a,20,140,141,21
 722 a,70,69,18,85
 723 a,85,18,19,25
 724 a,25,19,20,26
 725 a,26,20,21,27
 726 a,27,21,22,28
 727 a,86,85,25,92
 728 a,39,26,27,40
 729 a,74,73,86,87
 730 a,87,86,92,93
 731 a,93,92,39,106
 732 a,88,87,93,94
 733 /com, area set 3, end guides
 734 a,196,197,206,205
 735 a,205,206,211,210
 736 a,206,207,212,211
 737 a,210,211,218,220
 738 a,148,161,158,149
 739 a,142,148,149,143
 740 a,143,149,150,144
 741 a,22,142,143,23
 742 a,28,22,23,29
 743 a,29,23,24,30
 744 a,41,28,29,38
 745 a,95,94,107,104
 746 a,89,88,94,95
 747 a,90,89,95,96
 748 a,78,77,88,89
 749 /com, area set 4, corner guides
 750 a,219,220,221,162

751 a,159,219,162,160
752 a,160,162,163,161
753 a,107,106,42,109
754 a,106,39,40,42
755 a,42,40,41,43
756 csys,1
757 /com, area set 5, inner barrier
758 a,222,223,224,207
759 a,207,224,225,212
760 a,212,225,226,218
761 a,218,226,227,220
762 a,220,227,228,221
763 a,221,228,171,163
764 a,163,171,170,161
765 a,161,170,169,158
766 a,158,169,168,150
767 a,150,168,167,144
768 a,144,167,47,24
769 a,24,47,48,30
770 a,30,48,49,38
771 a,38,49,50,41
772 a,41,50,51,43
773 a,43,51,117,109
774 a,109,117,116,107
775 a,107,116,115,104
776 a,104,115,114,96
777 a,90,96,114,113
778 a,90,113,112,110
779 /com, area set 6, outer barrier
780 a,223,229,230,224
781 a,224,230,231,225
782 a,225,231,232,226
783 a,226,232,233,227
784 a,227,233,234,228
785 a,228,234,178,171
786 a,171,178,177,170
787 a,170,177,176,169
788 a,169,176,175,168
789 a,168,175,174,167
790 a,167,174,54,47
791 a,47,54,55,48
792 a,48,55,56,49
793 a,49,56,57,50
794 a,50,57,58,51
795 a,51,58,124,117
796 a,117,124,123,116
797 a,116,123,122,115
798 a,115,122,121,114
799 a,114,121,120,113
800 a,113,120,119,112
801 a,229,235,236,230
802 a,236,237,231,230
803 a,231,237,238,232
804 a,238,239,233,232
805 a,239,240,234,233
806 a,240,185,178,234
807 a,185,184,177,178
808 a,184,183,176,177
809 a,176,183,182,175
810 a,175,182,181,174
811 a,174,181,61,54
812 a,54,61,62,55
813 a,55,62,63,56
814 a,56,63,64,57
815 a,57,64,65,58
816 a,58,65,131,124
817 a,124,131,130,123
818 a,123,130,129,122
819 a,122,129,128,121
820 a,121,128,127,120

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821 a,120,127,126,119
822 csys,0
823 vdrag,all,,,,,1      ! Drag Basket
824 asel,s,loc,z,bkht
825 csys,1
826 asel,u,loc,x,0,ibir-0.03
827 csys,0
828 vdrag,all,,,,,2      ! Drag Basket to Lid Gap
829 asel,s,loc,z,ibht+0.02
830 /com, copy areas from top of basket to bottom of lid
831 asel,s,loc,z,bkht-0.02
832 csys,1
833 asel,r,loc,x,0,ibir-0.03
834 csys,0
835 agen,2,all,,,,,bgh
836 nummrg,kp
837 /com, lines tube height
838 L, 502, 509
839 L, 510, 517
840 L, 518, 525
841 L, 526, 533
842 L, 534, 541
843 lesize,all,,,thd,1,0
844 /com, end lines
845 L, 627, 457
846 L, 414, 606
847 lesize,all,,,egfd,1,0
848 al,955,1369,1373,1396
849 al,1189,1190,1194,1374
850 al,1199,1200,1204,1377
851 al,1209,1212,1214,1378
852 al,1219,1222,1224,1384
853 al,1229,1232,1234,1391
854 al,1055,1394,1400,1404
855 al,965,1375,1376
856 al,1238,1242,1243,1246
857 al,1250,1254,1255,1258
858 al,1263,1266,1268,1271
859 al,1274,1278,1281,1282
860 al,1286,1290,1293,1294
861 al,1045,1397,1401
862 al,980,1406,1409
863 al,1299,1302,1304,1307
864 al,1311,1314,1316,1319
865 al,1323,1326,1328,1331
866 al,1030,1412,1416
867 al,995,1379,1383
868 al,1005,1385,1386,1390
869 al,1015,1392,1393
870 asel,s,loc,z,ibht+0.02
871 vdrag,all,,,,,3      ! Drag Inner Barrier Upper Lid
872 asel,s,loc,z,elev1+0.015
873 csys,1
874 asel,r,loc,x,obir,obor
875 csys,0
876 vdrag,all,,,,,4      ! Drag Lid to Lid Gap
877 asel,s,loc,z,elev1+0.015
878 asel,r,loc,z,elev1-0.015
879 csys,1
880 asel,r,loc,x,0,obir
881 csys,0
882 agen,2,all,,,,,ltlgh
883 nummrg,kp
884 asel,s,loc,z,elev2+0.015
885 vdrag,all,,,,,5      ! Drag Outer Barrier Upper Lid
886 asel,s,loc,z,elev3
887 csys,1
888 asel,r,loc,x,obsr,obor
889 csys,0
890 vdrag,all,,,,,6      ! Drag Upper Skirt

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891 /com, lines tube height
892 l,195,194
893 l,191,190
894 l,187,68
895 l,71,72
896 l,75,76
897 lesize,all,,,thd,1,0
898 /com, end lines
899 l,222,197
900 l,78,110
901 lesize,all,,,egfd,1,0
902 al,10,115,277,3119
903 al,12,13,68,3114
904 al,16,17,75,3115
905 al,20,21,85,3116
906 al,24,25,96,3117
907 al,28,29,107,3118
908 al,31,122,309,3120
909 al,32,116,281
910 al,34,35,71,72
911 al,38,39,78,79
912 al,42,43,88,89
913 al,46,47,99,100
914 al,50,51,110,111
915 al,53,121,305
916 al,54,74,285
917 al,56,57,82,83
918 al,60,61,92,93
919 al,64,65,103,104
920 al,67,113,301
921 al,114,117,289
922 al,95,118,119,293
923 al,106,120,297
924 asel,s,loc,z,0
925 vdrag,all,,,,,7      ! Drag Inner Barrier Lower Lid
926 csys,0
927 asel,s,loc,z,-iblt
928 vdrag,all,,,,,8      ! Drag Outer Barrier Lower Lid
929 asel,s,loc,z,elev5
930 csys,1
931 asel,r,loc,x,obsr,obor
932 csys,0
933 vdrag,all,,,,,9      ! Drag Lower Skirt
934 /com
935 /com, Mesh Volumes
936 /com
937 /com, Mesh the CS Tubes
938 /com
939 vsel,s,volu,,1,47
940 type,1
941 mat,1
942 vmesh,all
943 /com, Mesh SS-B Plates
944 vsel,s,volu,,48,71
945 type,2
946 mat,2
947 vmesh,all
948 /com, Mesh End Guides
949 vsel,s,volu,,72,86
950 type,3
951 mat,3
952 vmesh,all
953 /com, Mesh Corner Guides
954 vsel,s,volu,,87,92
955 type,4
956 mat,4
957 vmesh,all
958 /com, Mesh Inner Barrier
959 vsel,s,loc,z,-iblt,elev1
960 csys,1

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961 vsel,r,loc,x,0,obir
962 vsel,u,volu,,1,92
963 csys,0
964 type,5
965 mat,5
966 vmesh,all
967 /com, Mesh Lower Outer Barrier and Lids
968 vsel,inve
969 vsel,u,volu,,1,92
970 csys,1
971 vsel,u,loc,x,obir,obor
972 vsel,a,loc,y,-90,5
973 vsel,u,volu,,1,92
974 vsel,u,type,,5
975 type,6
976 mat,6
977 vmesh,all
978 /com, mesh upper outer barrier adding backfill mass
979 vsel,inve
980 vsel,u,type,,1,5
981 type,7
982 mat,7
983 vmesh,all
984 /com
985 /com, Apply Symmetry Constraints
986 csys,0
987 nsel,s,loc,x,0
988 dsym,symm,x,0
989 /com, Apply Constraints at Support Locations
990 /com, Span approximately half of basket height, width = 0.305 m
991 csys,1
992 nsel,s,loc,z,(3*bkht/bd)-0.01,(4*bkht/bd)+0.01
993 nsel,a,loc,z,(11*bkht/bd)-0.01,(12*bkht/bd)+0.01
994 nsel,r,loc,x,obor-0.001,obor+0.001
995 nsel,r,loc,y,-70,-50
996 csys,0
997 d,all,uy,0
998 allsel
999 save
1000 fini
1001
1002 /sol
1003 antype,modal
1004 modopt,subsp,1
1005 outres,all,1
1006 save
1007 solve
1008 fini
1009
1010
1011 /exit
1012 /eof
1013
1014
1015 /sol
1016 expass,on
1017 mxpand,8,,,yes
1018 solve
1019 fini
1020
1021 /sol
1022 antype,spectr
1023 spopt,sprs,,on
1024 sed,,1
1025 svtyp,2
1026 freq,0.1,100
1027 sv,,16.285,16.285
1028 mcomb,srss,1e-8
1029 outres,all,1
1030 save

```

```
1031 solve
1032 fini
1033 /exit
1034 /eof
```

RUN SETUP PROCEDURE FROM FILE= /ansys51/docu/start.ans

/INPUT FILE= /ansys51/docu/start.ans LINE= 0

ABBREVIATION= REplot /REplot

PARAMETER PI = 3.141593

```
*****
ANSYS STARTUP FILE start.ans
*****
```

```
ABBREVIATION= VEC      /show,,1,
ABBREVIATION= RAS      /show,,0,
ABBREVIATION= INP      /input,,inp,
ABBREVIATION= ESC      /exit,nosav,
ABBREVIATION= K1       /pnum,kp ,1,
ABBREVIATION= K0       /pnum,kp ,0,
ABBREVIATION= L1       /pnum,line,1,
ABBREVIATION= L0       /pnum,line,0,
ABBREVIATION= A1       /pnum,area,1,
ABBREVIATION= A0       /pnum,area,0,
ABBREVIATION= V1       /pnum,volu,1,
ABBREVIATION= V0       /pnum,volu,0,
ABBREVIATION= N1       /pnum,node,1,
ABBREVIATION= N0       /pnum,node,0,
ABBREVIATION= E1       /pnum,elem,1,
ABBREVIATION= E0       /pnum,elem,0,
ABBREVIATION= M1       /pnum,mat ,1,
ABBREVIATION= M0       /pnum,mat ,0,
ABBREVIATION= R1       /pnum,real,1,
ABBREVIATION= R0       /pnum,real,0,
ABBREVIATION= T1       /pnum,type,1,
ABBREVIATION= T0       /pnum,type,0,
ABBREVIATION= C1       /number,1,
ABBREVIATION= C0       /number,0,
ABBREVIATION= PR1      /psf,pres,norm,1,
ABBREVIATION= PRO      /psf,pres,norm,(),
ABBREVIATION= U1       /pbc,u,1,
```

ABBREVIATION= U0 /pbc,u,0,
 ABBREVIATION= X3D /show,3d,
 ABBREVIATION= X11 /show,x11,
 ABBREVIATION= X11C /show,x11c,
 ABBREVIATION= ON /menu,on,
 XYZ TRIAD DISPLAY SET TO OFF

VIEW CONE ANGLE FOR WINDOW 1 25.00

 END start.ans

To start ANSYS menu:

type: x3d for console
 x11 for X-term color
 x11c for X-term color contour

type: on

 ***** Seismic Analysis of 21 PWR Waste Package Under Degradation *****
 ***** Degree of Degradation in Outer Barrier: 0% *****
 ***** Degree of Degradation in Inner Barrier: 0% *****
 ***** Degree of Degradation in Basket Assembly: 0% *****
 ***** Backfill Present, Backfill Porosity: 25%, Rock Porosity: 10% *****

SI UNITS SPECIFIED FOR INTERNAL

LENGTH (L) = METER(M)
 MASS (M) = KILOGRAM(KG)
 TIME (t) = SECOND(SEC)
 TEMPERATURE (T) = KELVIN(K)
 TOFFSET = 0.0 KELVIN
 CHARGE (Q) = COULOMB
 CURRENT (i) = AMPERE (COULOMBS/SEC)
 FORCE (f) = NEWTON(N) (KG-M/SEC2)
 PRESSURE = PASCAL (NEWTON/M**2)
 ENERGY (W) = JOULE (N-M)
 POWER (P) = WATT (N-M/SEC)
 CAPACITANCE (C) = FARAD
 INDUCTANCE (L) = HENRY
 MAGNETIC FLUX = WEBER
 RESISTANCE (R) = OHM
 ELECTRIC POTENTIAL = VOLT

INPUT UNITS ARE ALSO SET TO SI

1

***** ANSYS - ENGINEERING ANALYSIS SYSTEM REVISION 5.1 24 *****
 38303 VERSION=HP 9000/7XX 16:21:40 MAY 31, 1996 CP= 1.020
 FOR SUPPORT CALL ROBERT BAHNEY PHONE (702) 794-5337 FAX (702) 794-1844

***** ANSYS ANALYSIS DEFINITION (PREP7) *****

TITLE=
 21 PWR Tube Static Analysis With Backfill

VIEW CONE ANGLE FOR WINDOW 1 0.00

Define Parameters

PARAMETER IBIR	=	0.7109500
PARAMETER OBIR	=	0.7309500
PARAMETER OBSR	=	0.7709500
PARAMETER OBOR	=	0.8309500
PARAMETER TS1	=	0.7000000E-02
PARAMETER TS2	=	0.5000000E-02
PARAMETER TS3	=	0.1000000E-01
PARAMETER TS4	=	0.1000000E-01
PARAMETER EGIH	=	0.8090000E-01
PARAMETER PIE	=	3.141593
PARAMETER ANG1	=	0.5235988
PARAMETER ANG2	=	1.396263
PARAMETER ANG3	=	1.012291
PARAMETER TW	=	0.2285000
PARAMETER POS1	=	0.1142500
PARAMETER POS2	=	0.1192500
PARAMETER POS3	=	0.1262500
PARAMETER POS4	=	0.1312500
PARAMETER POS5	=	0.3597500
PARAMETER POS6	=	0.3647500
PARAMETER POS7	=	0.3717500
PARAMETER POS8	=	0.3767500
PARAMETER POS9	=	0.6052500
PARAMETER POS10	=	0.6102500
PARAMETER POS11	=	0.6202500
PARAMETER POSG	=	0.3747500
PARAMETER POSEI	=	0.7011500
PARAMETER POSEO	=	0.6993867
PARAMETER POSEN	=	0.1177500
PARAMETER POSEF	=	0.1277500
PARAMETER POSEG	=	0.3474295
PARAMETER POSCG	=	0.6040013
PARAMETER BKHT	=	4.575000
PARAMETER IBHT	=	4.585000

PARAMETER BGH	=	0.1000000E-01
PARAMETER IBLT	=	0.2500000E-01
PARAMETER ELEV1	=	4.610000
PARAMETER LTLGH	=	0.3000000E-01
PARAMETER ELEV2	=	4.640000
PARAMETER OBLT	=	0.1100000
PARAMETER ELEV3	=	4.750000
PARAMETER SHTT	=	0.2250000
PARAMETER ELEV4	=	4.975000
PARAMETER ELEV5	=	-0.1350000
PARAMETER ELEV6	=	-0.3600000
Line Divisions		
PARAMETER SHD	=	1.000000
PARAMETER OBLD	=	1.000000
PARAMETER GD	=	1.000000
PARAMETER IBLD	=	1.000000
PARAMETER BD	=	15.00000
PARAMETER HTWD	=	4.000000
PARAMETER TWD	=	4.000000
PARAMETER THD	=	4.000000
PARAMETER EGFD	=	4.000000
PARAMETER PTD	=	1.000000
PARAMETER TTD	=	1.000000
PARAMETER A1D	=	4.000000
PARAMETER A2D	=	4.000000
PARAMETER A3D	=	4.000000
PARAMETER A4D	=	4.000000
PARAMETER A5D	=	4.000000
PARAMETER A6D	=	4.000000
PARAMETER A7D	=	4.000000
PARAMETER A8D	=	4.000000
PARAMETER A9D	=	4.000000
PARAMETER IBTD	=	2.000000
PARAMETER OBTD	=	2.000000
PARAMETER STD	=	2.000000
Define Element Properties		

ELEMENT TYPE 1 IS SOLID45 3-D STRUCTURAL SOLID
KEYOPT(1-12)= 0 0 0 0 0 0 0 0 0 0 0 0

CURRENT NODAL DOF SET IS UX UY UZ
THREE-DIMENSIONAL MODEL

ELEMENT TYPE 2 IS SOLID45 3-D STRUCTURAL SOLID
KEYOPT(1-12)= 0 0 0 0 0 0 0 0 0 0 0 0

CURRENT NODAL DOF SET IS UX UY UZ
THREE-DIMENSIONAL MODEL

ELEMENT TYPE 3 IS SOLID45 3-D STRUCTURAL SOLID
KEYOPT(1-12)= 0 0 0 0 0 0 0 0 0 0 0 0

CURRENT NODAL DOF SET IS UX UY UZ
THREE-DIMENSIONAL MODEL

ELEMENT TYPE 4 IS SOLID45 3-D STRUCTURAL SOLID
KEYOPT(1-12)= 0 0 0 0 0 0 0 0 0 0 0 0

CURRENT NODAL DOF SET IS UX UY UZ
THREE-DIMENSIONAL MODEL

ELEMENT TYPE 5 IS SOLID45 3-D STRUCTURAL SOLID
KEYOPT(1-12)= 0 0 0 0 0 0 0 0 0 0 0 0

CURRENT NODAL DOF SET IS UX UY UZ
THREE-DIMENSIONAL MODEL

ELEMENT TYPE 6 IS SOLID45 3-D STRUCTURAL SOLID
KEYOPT(1-12)= 0 0 0 0 0 0 0 0 0 0 0 0

CURRENT NODAL DOF SET IS UX UY UZ
THREE-DIMENSIONAL MODEL

ELEMENT TYPE 7 IS SOLID45 3-D STRUCTURAL SOLID
KEYOPT(1-12)= 0 0 0 0 0 0 0 0 0 0 0 0

CURRENT NODAL DOF SET IS UX UY UZ
THREE-DIMENSIONAL MODEL

REAL CONSTANT SET 7 ITEMS 1 TO 6
0.15000E+09 0.00000E+00 0.00000E+00 1.2980 15.000 0.00000E+00
ratio of static to dynamic coeff. of friction fact=1.298, Area Tol.=15%
Room Temperature Properties of Materials

MATERIAL	1	EX	=	0.2060000E+12
MATERIAL	2	EX	=	0.1950000E+12
MATERIAL	3	EX	=	0.2060000E+12
MATERIAL	4	EX	=	0.2060000E+12
MATERIAL	5	EX	=	0.2080000E+12
MATERIAL	6	EX	=	0.2060000E+12
MATERIAL	7	EX	=	0.2060000E+12
MATERIAL	1	NUXY	=	0.3000000
MATERIAL	2	NUXY	=	0.2980000
MATERIAL	3	NUXY	=	0.3000000
MATERIAL	4	NUXY	=	0.3000000
MATERIAL	5	NUXY	=	0.2780000

MATERIAL	6	NUXY =	0.3000000
MATERIAL	7	NUXY =	0.3000000
MATERIAL	1	DENS =	8131.000
MATERIAL	2	DENS =	7953.000
MATERIAL	3	DENS =	8131.000
MATERIAL	4	DENS =	8131.000
MATERIAL	5	DENS =	8442.000
MATERIAL	6	DENS =	8131.000
MATERIAL	7	DENS =	20670.00

Define keypoints in the basket assembly

ACTIVE COORDINATE SYSTEM SET TO 0 (CARTESIAN)

KEYPOINT	1	X,Y,Z=	0.000000E+00	0.000000E+00	0.000000E+00	IN CSYS=	0
KEYPOINT	2	X,Y,Z=	0.114250	0.000000E+00	0.000000E+00	IN CSYS=	0
KEYPOINT	3	X,Y,Z=	0.119250	0.000000E+00	0.000000E+00	IN CSYS=	0
KEYPOINT	4	X,Y,Z=	0.126250	0.000000E+00	0.000000E+00	IN CSYS=	0
KEYPOINT	5	X,Y,Z=	0.131250	0.000000E+00	0.000000E+00	IN CSYS=	0
KEYPOINT	6	X,Y,Z=	0.359750	0.000000E+00	0.000000E+00	IN CSYS=	0
KEYPOINT	7	X,Y,Z=	0.364750	0.000000E+00	0.000000E+00	IN CSYS=	0
KEYPOINT	8	X,Y,Z=	0.371750	0.000000E+00	0.000000E+00	IN CSYS=	0
KEYPOINT	9	X,Y,Z=	0.376750	0.000000E+00	0.000000E+00	IN CSYS=	0
KEYPOINT	10	X,Y,Z=	0.605250	0.000000E+00	0.000000E+00	IN CSYS=	0
KEYPOINT	11	X,Y,Z=	0.610250	0.000000E+00	0.000000E+00	IN CSYS=	0
KEYPOINT	12	X,Y,Z=	0.620250	0.000000E+00	0.000000E+00	IN CSYS=	0
KEYPOINT	13	X,Y,Z=	0.114250	0.114250	0.000000E+00	IN CSYS=	0
KEYPOINT	14	X,Y,Z=	0.131250	0.114250	0.000000E+00	IN CSYS=	0
KEYPOINT	15	X,Y,Z=	0.359750	0.114250	0.000000E+00	IN CSYS=	0
KEYPOINT	16	X,Y,Z=	0.376750	0.114250	0.000000E+00	IN CSYS=	0
KEYPOINT	17	X,Y,Z=	0.605250	0.114250	0.000000E+00	IN CSYS=	0
KEYPOINT	18	X,Y,Z=	0.119250	0.119250	0.000000E+00	IN CSYS=	0
KEYPOINT	19	X,Y,Z=	0.126250	0.119250	0.000000E+00	IN CSYS=	0
KEYPOINT	20	X,Y,Z=	0.364750	0.119250	0.000000E+00	IN CSYS=	0
KEYPOINT	21	X,Y,Z=	0.371750	0.119250	0.000000E+00	IN CSYS=	0
KEYPOINT	22	X,Y,Z=	0.610250	0.119250	0.000000E+00	IN CSYS=	0
KEYPOINT	23	X,Y,Z=	0.620250	0.117750	0.000000E+00	IN CSYS=	0

ACTIVE COORDINATE SYSTEM SET TO 1 (CYLINDRICAL)

KEYPOINT 24 X,Y,Z= 0.710950 9.53320 0.000000E+00 IN CSYS= 1
 0.701132 0.117747 0.000000E+00 IN CSYS= 0

ACTIVE COORDINATE SYSTEM SET TO 0 (CARTESIAN)

KEYPOINT 25 X,Y,Z= 0.126250 0.126250 0.000000E+00 IN CSYS= 0
 KEYPOINT 26 X,Y,Z= 0.364750 0.126250 0.000000E+00 IN CSYS= 0
 KEYPOINT 27 X,Y,Z= 0.371750 0.126250 0.000000E+00 IN CSYS= 0
 KEYPOINT 28 X,Y,Z= 0.610250 0.126250 0.000000E+00 IN CSYS= 0
 KEYPOINT 29 X,Y,Z= 0.620250 0.127750 0.000000E+00 IN CSYS= 0

ACTIVE COORDINATE SYSTEM SET TO 1 (CYLINDRICAL)

KEYPOINT 30 X,Y,Z= 0.710950 10.3515 0.000000E+00 IN CSYS= 1
 0.699378 0.127748 0.000000E+00 IN CSYS= 0

ACTIVE COORDINATE SYSTEM SET TO 0 (CARTESIAN)

KEYPOINT 31 X,Y,Z= 0.131250 0.131250 0.000000E+00 IN CSYS= 0
 KEYPOINT 32 X,Y,Z= 0.359750 0.131250 0.000000E+00 IN CSYS= 0
 KEYPOINT 33 X,Y,Z= 0.376750 0.131250 0.000000E+00 IN CSYS= 0
 KEYPOINT 34 X,Y,Z= 0.605250 0.131250 0.000000E+00 IN CSYS= 0
 KEYPOINT 35 X,Y,Z= 0.359750 0.359750 0.000000E+00 IN CSYS= 0
 KEYPOINT 36 X,Y,Z= 0.376750 0.359750 0.000000E+00 IN CSYS= 0
 KEYPOINT 37 X,Y,Z= 0.605250 0.359750 0.000000E+00 IN CSYS= 0

ACTIVE COORDINATE SYSTEM SET TO 1 (CYLINDRICAL)

KEYPOINT 38 X,Y,Z= 0.710950 29.2551 0.000000E+00 IN CSYS= 1
 0.620270 0.347441 0.000000E+00 IN CSYS= 0

ACTIVE COORDINATE SYSTEM SET TO 0 (CARTESIAN)

KEYPOINT 39 X,Y,Z= 0.364750 0.364750 0.000000E+00 IN CSYS= 0
 KEYPOINT 40 X,Y,Z= 0.371750 0.364750 0.000000E+00 IN CSYS= 0

ACTIVE COORDINATE SYSTEM SET TO 1 (CYLINDRICAL)

KEYPOINT 41 X,Y,Z= 0.710950 30.8670 0.000000E+00 IN CSYS= 1
 0.610251 0.364751 0.000000E+00 IN CSYS= 0

ACTIVE COORDINATE SYSTEM SET TO 0 (CARTESIAN)

KEYPOINT 42 X,Y,Z= 0.374750 0.374750 0.000000E+00 IN CSYS= 0

ACTIVE COORDINATE SYSTEM SET TO 1 (CYLINDRICAL)

KEYPOINT 43 X,Y,Z= 0.710950 31.8174 0.000000E+00 IN CSYS= 1
 0.604118 0.374822 0.000000E+00 IN CSYS= 0

KEYPOINT 44 X,Y,Z= 0.710950 0.000000E+00 0.000000E+00 IN CSYS= 1
 0.710950 0.000000E+00 0.000000E+00 IN CSYS= 0

KEYPOINT	45	X,Y,Z=	0.710950	45.0000	0.000000E+00	IN CSYS= 1
			0.502718	0.502718	0.000000E+00	IN CSYS= 0
KEYPOINT	46	X,Y,Z=	0.730950	0.000000E+00	0.000000E+00	IN CSYS= 1
			0.730950	0.000000E+00	0.000000E+00	IN CSYS= 0
KEYPOINT	47	X,Y,Z=	0.730950	9.53320	0.000000E+00	IN CSYS= 1
			0.720855	0.121059	0.000000E+00	IN CSYS= 0
KEYPOINT	48	X,Y,Z=	0.730950	10.3515	0.000000E+00	IN CSYS= 1
			0.719053	0.131342	0.000000E+00	IN CSYS= 0
KEYPOINT	49	X,Y,Z=	0.730950	29.2551	0.000000E+00	IN CSYS= 1
			0.637719	0.357215	0.000000E+00	IN CSYS= 0
KEYPOINT	50	X,Y,Z=	0.730950	30.8670	0.000000E+00	IN CSYS= 1
			0.627419	0.375012	0.000000E+00	IN CSYS= 0
KEYPOINT	51	X,Y,Z=	0.730950	31.8174	0.000000E+00	IN CSYS= 1
			0.621112	0.385366	0.000000E+00	IN CSYS= 0
KEYPOINT	52	X,Y,Z=	0.730950	45.0000	0.000000E+00	IN CSYS= 1
			0.516860	0.516860	0.000000E+00	IN CSYS= 0
KEYPOINT	53	X,Y,Z=	0.770950	0.000000E+00	0.000000E+00	IN CSYS= 1
			0.770950	0.000000E+00	0.000000E+00	IN CSYS= 0
KEYPOINT	54	X,Y,Z=	0.770950	9.53320	0.000000E+00	IN CSYS= 1
			0.760303	0.127684	0.000000E+00	IN CSYS= 0
KEYPOINT	55	X,Y,Z=	0.770950	10.3515	0.000000E+00	IN CSYS= 1
			0.758402	0.138530	0.000000E+00	IN CSYS= 0
KEYPOINT	56	X,Y,Z=	0.770950	29.2551	0.000000E+00	IN CSYS= 1
			0.672617	0.376763	0.000000E+00	IN CSYS= 0
KEYPOINT	57	X,Y,Z=	0.770950	30.8670	0.000000E+00	IN CSYS= 1
			0.661753	0.395534	0.000000E+00	IN CSYS= 0
KEYPOINT	58	X,Y,Z=	0.770950	31.8174	0.000000E+00	IN CSYS= 1
			0.655102	0.406455	0.000000E+00	IN CSYS= 0
KEYPOINT	59	X,Y,Z=	0.770950	45.0000	0.000000E+00	IN CSYS= 1
			0.545144	0.545144	0.000000E+00	IN CSYS= 0
KEYPOINT	60	X,Y,Z=	0.830950	0.000000E+00	0.000000E+00	IN CSYS= 1
			0.830950	0.000000E+00	0.000000E+00	IN CSYS= 0
KEYPOINT	61	X,Y,Z=	0.830950	9.53320	0.000000E+00	IN CSYS= 1
			0.819474	0.137621	0.000000E+00	IN CSYS= 0
KEYPOINT	62	X,Y,Z=	0.830950	10.3515	0.000000E+00	IN CSYS= 1

			0.817425	0.149311	0.000000E+00	IN CSYS= 0
KEYPOINT	63	X,Y,Z=	0.830950	29.2551	0.000000E+00	IN CSYS= 1
			0.724964	0.406085	0.000000E+00	IN CSYS= 0
KEYPOINT	64	X,Y,Z=	0.830950	30.8670	0.000000E+00	IN CSYS= 1
			0.713255	0.426316	0.000000E+00	IN CSYS= 0
KEYPOINT	65	X,Y,Z=	0.830950	31.8174	0.000000E+00	IN CSYS= 1
			0.706086	0.438088	0.000000E+00	IN CSYS= 0
KEYPOINT	66	X,Y,Z=	0.830950	45.0000	0.000000E+00	IN CSYS= 1
			0.587570	0.587570	0.000000E+00	IN CSYS= 0

COORDINATE SYSTEM 11 DEFINITION. TYPE= 0 (CARTESIAN)
 XC,YC,ZC= 0.00000E+00 0.00000E+00 0.00000E+00
 ANGLES= 45.00 0.00 0.00 PARAMETERS= 1.000 1.000
 ORIENTATION= 0.71 0.71 0.00 -0.71 0.71 0.00 0.00 0.00 1.00

ACTIVE COORDINATE SYSTEM SET TO 11 (CARTESIAN)

SYMMETRY TRANSFORMATION OF KEYPOINTS USING COMPONENT Y
 SET IS ALL SELECTED KEYPOINTS

MERGE COINCIDENT KEYPOINTS WITHIN TOLERANCE OF 0.10000E-03

KEYPOINT	1	USED FOR KEYPOINT(S)	67
KEYPOINT	13	USED FOR KEYPOINT(S)	79
KEYPOINT	18	USED FOR KEYPOINT(S)	84
KEYPOINT	25	USED FOR KEYPOINT(S)	91
KEYPOINT	31	USED FOR KEYPOINT(S)	97
KEYPOINT	35	USED FOR KEYPOINT(S)	101
KEYPOINT	39	USED FOR KEYPOINT(S)	105
KEYPOINT	42	USED FOR KEYPOINT(S)	108
KEYPOINT	45	USED FOR KEYPOINT(S)	111
KEYPOINT	52	USED FOR KEYPOINT(S)	118
KEYPOINT	59	USED FOR KEYPOINT(S)	125
KEYPOINT	66	USED FOR KEYPOINT(S)	132

ACTIVE COORDINATE SYSTEM SET TO 0 (CARTESIAN)

SYMMETRY TRANSFORMATION OF KEYPOINTS USING COMPONENT Y
 SET IS ALL SELECTED KEYPOINTS

MERGE COINCIDENT KEYPOINTS WITHIN TOLERANCE OF 0.10000E-03

KEYPOINT	1	USED FOR KEYPOINT(S)	67
KEYPOINT	2	USED FOR KEYPOINT(S)	79
KEYPOINT	3	USED FOR KEYPOINT(S)	84
KEYPOINT	4	USED FOR KEYPOINT(S)	91
KEYPOINT	5	USED FOR KEYPOINT(S)	97
KEYPOINT	6	USED FOR KEYPOINT(S)	101
KEYPOINT	7	USED FOR KEYPOINT(S)	105
KEYPOINT	8	USED FOR KEYPOINT(S)	108
KEYPOINT	9	USED FOR KEYPOINT(S)	111
KEYPOINT	10	USED FOR KEYPOINT(S)	118
KEYPOINT	11	USED FOR KEYPOINT(S)	125
KEYPOINT	12	USED FOR KEYPOINT(S)	132
KEYPOINT	44	USED FOR KEYPOINT(S)	164
KEYPOINT	46	USED FOR KEYPOINT(S)	166
KEYPOINT	53	USED FOR KEYPOINT(S)	173
KEYPOINT	60	USED FOR KEYPOINT(S)	180

DELETE SELECTED KEYPOINTS FROM 2 TO 12 BY 1

KEYPOINT	1001	X,Y,Z=	0.000000E+00	0.000000E+00	4.57500	IN CSYS= 0
----------	------	--------	--------------	--------------	---------	------------

LINE CONNECTS KEYPOINTS 1 1001
 LINE NO.= 1 KP1= 1 TAN1= 0.0000 0.0000 -1.0000
 KP2= 1001 TAN2= 0.0000 0.0000 1.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
 TO NDIV = 15, SPACING RATIO = 1.000

KEYPOINT 2001 X,Y,Z= 0.000000E+00 0.000000E+00 4.58500 IN CSYS= 0

LINE CONNECTS KEYPOINTS 1001 2001
 LINE NO.= 2 KP1= 1001 TAN1= 0.0000 0.0000 -1.0000
 KP2= 2001 TAN2= 0.0000 0.0000 1.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
 TO NDIV = 1, SPACING RATIO = 1.000

KEYPOINT 3001 X,Y,Z= 0.000000E+00 0.000000E+00 4.61000 IN CSYS= 0

LINE CONNECTS KEYPOINTS 2001 3001
 LINE NO.= 3 KP1= 2001 TAN1= 0.0000 0.0000 -1.0000
 KP2= 3001 TAN2= 0.0000 0.0000 1.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
 TO NDIV = 1, SPACING RATIO = 1.000

KEYPOINT 4001 X,Y,Z= 0.000000E+00 0.000000E+00 4.64000 IN CSYS= 0

LINE CONNECTS KEYPOINTS 3001 4001
 LINE NO.= 4 KP1= 3001 TAN1= 0.0000 0.0000 -1.0000
 KP2= 4001 TAN2= 0.0000 0.0000 1.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
 TO NDIV = 1, SPACING RATIO = 1.000

KEYPOINT 5001 X,Y,Z= 0.000000E+00 0.000000E+00 4.75000 IN CSYS= 0

LINE CONNECTS KEYPOINTS 4001 5001
 LINE NO.= 5 KP1= 4001 TAN1= 0.0000 0.0000 -1.0000
 KP2= 5001 TAN2= 0.0000 0.0000 1.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
 TO NDIV = 1, SPACING RATIO = 1.000

KEYPOINT 6001 X,Y,Z= 0.000000E+00 0.000000E+00 4.97500 IN CSYS= 0

LINE CONNECTS KEYPOINTS 5001 6001
 LINE NO.= 6 KP1= 5001 TAN1= 0.0000 0.0000 -1.0000
 KP2= 6001 TAN2= 0.0000 0.0000 1.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
 TO NDIV = 1, SPACING RATIO = 1.000

KEYPOINT 7001 X,Y,Z= 0.000000E+00 0.000000E+00 -0.250000E-01 IN CSYS= 0

LINE CONNECTS KEYPOINTS 1 7001
 LINE NO.= 7 KP1= 1 TAN1= 0.0000 0.0000 1.0000
 KP2= 7001 TAN2= 0.0000 0.0000 -1.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
 TO NDIV = 1, SPACING RATIO = 1.000

KEYPOINT 8001 X,Y,Z= 0.000000E+00 0.000000E+00 -0.135000 IN CSYS= 0

LINE CONNECTS KEYPOINTS 7001 8001
 LINE NO.= 8 KP1= 7001 TAN1= 0.0000 0.0000 1.0000
 KP2= 8001 TAN2= 0.0000 0.0000 -1.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
 TO NDIV = 1, SPACING RATIO = 1.000

KEYPOINT 9001 X,Y,Z= 0.000000E+00 0.000000E+00 -0.360000 IN CSYS= 0

LINE CONNECTS KEYPOINTS 8001 9001
 LINE NO.= 9 KP1= 8001 TAN1= 0.0000 0.0000 1.0000
 KP2= 9001 TAN2= 0.0000 0.0000 -1.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
 TO NDIV = 1, SPACING RATIO = 1.000
 Line set 1 Tube Width for Half Tubes on Symmetry Plane

LINE CONNECTS KEYPOINTS 197 206
 LINE NO.= 10 KP1= 197 TAN1= -1.0000 0.0000 0.0000
 KP2= 206 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 196 205
 LINE NO.= 11 KP1= 196 TAN1= -1.0000 0.0000 0.0000
 KP2= 205 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 195 201
 LINE NO.= 12 KP1= 195 TAN1= -1.0000 0.0000 0.0000
 KP2= 201 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 194 200
 LINE NO.= 13 KP1= 194 TAN1= -1.0000 0.0000 0.0000
 KP2= 200 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 193 204
 LINE NO.= 14 KP1= 193 TAN1= -1.0000 0.0000 0.0000
 KP2= 204 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 192 203
 LINE NO.= 15 KP1= 192 TAN1= -1.0000 0.0000 0.0000
 KP2= 203 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 191 199
 LINE NO.= 16 KP1= 191 TAN1= -1.0000 0.0000 0.0000
 KP2= 199 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 190 198
 LINE NO.= 17 KP1= 190 TAN1= -1.0000 0.0000 0.0000
 KP2= 198 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 189 202
 LINE NO.= 18 KP1= 189 TAN1= -1.0000 0.0000 0.0000
 KP2= 202 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 188 138
 LINE NO.= 19 KP1= 188 TAN1= -1.0000 0.0000 0.0000
 KP2= 138 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 187 133
 LINE NO.= 20 KP1= 187 TAN1= -1.0000 0.0000 0.0000
 KP2= 133 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 68 13
 LINE NO.= 21 KP1= 68 TAN1= -1.0000 0.0000 0.0000
 KP2= 13 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 69 18
 LINE NO.= 22 KP1= 69 TAN1= -1.0000 0.0000 0.0000
 KP2= 18 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 70 85
 LINE NO.= 23 KP1= 70 TAN1= -1.0000 0.0000 0.0000
 KP2= 85 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 71 80
 LINE NO.= 24 KP1= 71 TAN1= -1.0000 0.0000 0.0000
 KP2= 80 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 72 81
 LINE NO.= 25 KP1= 72 TAN1= -1.0000 0.0000 0.0000
 KP2= 81 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 73 86
 LINE NO.= 26 KP1= 73 TAN1= -1.0000 0.0000 0.0000
 KP2= 86 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 74 87
 LINE NO.= 27 KP1= 74 TAN1= -1.0000 0.0000 0.0000
 KP2= 87 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 75 82
 LINE NO.= 28 KP1= 75 TAN1= -1.0000 0.0000 0.0000
 KP2= 82 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 76 83
 LINE NO.= 29 KP1= 76 TAN1= -1.0000 0.0000 0.0000
 KP2= 83 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 77 88
 LINE NO.= 30 KP1= 77 TAN1= -1.0000 0.0000 0.0000
 KP2= 88 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 78 89
 LINE NO.= 31 KP1= 78 TAN1= -1.0000 0.0000 0.0000
 KP2= 89 TAN2= 1.0000 0.0000 0.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
 TO NDIV = 4, SPACING RATIO = 1.000
 Line set 2 Tube Widths

LINE CONNECTS KEYPOINTS 211 218
 LINE NO.= 32 KP1= 211 TAN1= -1.0000 0.0001 0.0000
 KP2= 218 TAN2= 1.0000 -0.0001 0.0000

LINE CONNECTS KEYPOINTS 210 220
 LINE NO.= 33 KP1= 210 TAN1= -1.0000 0.0000 0.0000
 KP2= 220 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 215 217
 LINE NO.= 34 KP1= 215 TAN1= -1.0000 0.0000 0.0000
 KP2= 217 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 214 216
 LINE NO.= 35 KP1= 214 TAN1= -1.0000 0.0000 0.0000
 KP2= 216 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 209 219
 LINE NO.= 36 KP1= 209 TAN1= -1.0000 0.0000 0.0000
 KP2= 219 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 208 159
 LINE NO.= 37 KP1= 208 TAN1= -1.0000 0.0000 0.0000
 KP2= 159 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 213 155
 LINE NO.= 38 KP1= 213 TAN1= -1.0000 0.0000 0.0000
 KP2= 155 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 151 152
 LINE NO.= 39 KP1= 151 TAN1= -1.0000 0.0000 0.0000
 KP2= 152 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 145 146
 LINE NO.= 40 KP1= 145 TAN1= -1.0000 0.0000 0.0000
 KP2= 146 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 139 140
 LINE NO.= 41 KP1= 139 TAN1= -1.0000 0.0000 0.0000

	KP2=	140	TAN2=	1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 134 135						
LINE NO.=	42	KP1=	134	TAN1=	-1.0000	0.0000
		KP2=	135	TAN2=	1.0000	0.0000
LINE CONNECTS KEYPOINTS 14 15						
LINE NO.=	43	KP1=	14	TAN1=	-1.0000	0.0000
		KP2=	15	TAN2=	1.0000	0.0000
LINE CONNECTS KEYPOINTS 19 20						
LINE NO.=	44	KP1=	19	TAN1=	-1.0000	0.0000
		KP2=	20	TAN2=	1.0000	0.0000
LINE CONNECTS KEYPOINTS 25 26						
LINE NO.=	45	KP1=	25	TAN1=	-1.0000	0.0000
		KP2=	26	TAN2=	1.0000	0.0000
LINE CONNECTS KEYPOINTS 31 32						
LINE NO.=	46	KP1=	31	TAN1=	-1.0000	0.0000
		KP2=	32	TAN2=	1.0000	0.0000
LINE CONNECTS KEYPOINTS 98 35						
LINE NO.=	47	KP1=	98	TAN1=	-1.0000	0.0000
		KP2=	35	TAN2=	1.0000	0.0000
LINE CONNECTS KEYPOINTS 92 39						
LINE NO.=	48	KP1=	92	TAN1=	-1.0000	0.0000
		KP2=	39	TAN2=	1.0000	0.0000
LINE CONNECTS KEYPOINTS 93 106						
LINE NO.=	49	KP1=	93	TAN1=	-1.0000	0.0000
		KP2=	106	TAN2=	1.0000	0.0000
LINE CONNECTS KEYPOINTS 99 102						
LINE NO.=	50	KP1=	99	TAN1=	-1.0000	0.0000
		KP2=	102	TAN2=	1.0000	0.0000
LINE CONNECTS KEYPOINTS 100 103						
LINE NO.=	51	KP1=	100	TAN1=	-1.0000	0.0000
		KP2=	103	TAN2=	1.0000	0.0000
LINE CONNECTS KEYPOINTS 94 107						
LINE NO.=	52	KP1=	94	TAN1=	-1.0000	0.0000
		KP2=	107	TAN2=	1.0000	0.0000
LINE CONNECTS KEYPOINTS 95 104						
LINE NO.=	53	KP1=	95	TAN1=	-1.0000	-0.0001
		KP2=	104	TAN2=	1.0000	0.0001
SET DIVISIONS ON ALL SELECTED UNMESHED LINES						
TO NDIV = 4, SPACING RATIO = 1.000						
Line set 3 Tube Widths on End Column						
LINE CONNECTS KEYPOINTS 162 163						
LINE NO.=	54	KP1=	162	TAN1=	-1.0000	0.0003
		KP2=	163	TAN2=	1.0000	-0.0003
LINE CONNECTS KEYPOINTS 160 161						
LINE NO.=	55	KP1=	160	TAN1=	-1.0000	0.0000
		KP2=	161	TAN2=	1.0000	0.0000
LINE CONNECTS KEYPOINTS 156 157						
LINE NO.=	56	KP1=	156	TAN1=	-1.0000	0.0000
		KP2=	157	TAN2=	1.0000	0.0000
LINE CONNECTS KEYPOINTS 153 154						
LINE NO.=	57	KP1=	153	TAN1=	-1.0000	0.0000
		KP2=	154	TAN2=	1.0000	0.0000

LINE CONNECTS KEYPOINTS 147 148
 LINE NO.= 58 KP1= 147 TAN1= -1.0000 0.0000 0.0000
 KP2= 148 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 141 142
 LINE NO.= 59 KP1= 141 TAN1= -1.0000 0.0000 0.0000
 KP2= 142 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 136 137
 LINE NO.= 60 KP1= 136 TAN1= -1.0000 0.0000 0.0000
 KP2= 137 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 16 17
 LINE NO.= 61 KP1= 16 TAN1= -1.0000 0.0000 0.0000
 KP2= 17 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 21 22
 LINE NO.= 62 KP1= 21 TAN1= -1.0000 0.0000 0.0000
 KP2= 22 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 27 28
 LINE NO.= 63 KP1= 27 TAN1= -1.0000 0.0000 0.0000
 KP2= 28 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 33 34
 LINE NO.= 64 KP1= 33 TAN1= -1.0000 0.0000 0.0000
 KP2= 34 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 36 37
 LINE NO.= 65 KP1= 36 TAN1= -1.0000 0.0000 0.0000
 KP2= 37 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 40 41
 LINE NO.= 66 KP1= 40 TAN1= -1.0000 0.0000 0.0000
 KP2= 41 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 42 43
 LINE NO.= 67 KP1= 42 TAN1= -1.0000 -0.0003 0.0000
 KP2= 43 TAN2= 1.0000 0.0003 0.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
 TO NDIV = 4, SPACING RATIO = 1.000
 Line set 4 Tube Heights

LINE CONNECTS KEYPOINTS 201 200
 LINE NO.= 68 KP1= 201 TAN1= 0.0000 -1.0000 0.0000
 KP2= 200 TAN2= 0.0000 1.0000 0.0000

LINE CONNECTS KEYPOINTS 205 204
 LINE NO.= 69 KP1= 205 TAN1= 0.0000 -1.0000 0.0000
 KP2= 204 TAN2= 0.0000 1.0000 0.0000

LINE CONNECTS KEYPOINTS 210 209
 LINE NO.= 70 KP1= 210 TAN1= 0.0000 -1.0000 0.0000
 KP2= 209 TAN2= 0.0000 1.0000 0.0000

LINE CONNECTS KEYPOINTS 215 214
 LINE NO.= 71 KP1= 215 TAN1= 0.0000 -1.0000 0.0000
 KP2= 214 TAN2= 0.0000 1.0000 0.0000

LINE CONNECTS KEYPOINTS 217 216
 LINE NO.= 72 KP1= 217 TAN1= 0.0000 -1.0000 0.0000
 KP2= 216 TAN2= 0.0000 1.0000 0.0000

LINE CONNECTS KEYPOINTS 220 219
 LINE NO.= 73 KP1= 220 TAN1= 0.0000 -1.0000 0.0000
 KP2= 219 TAN2= 0.0000 1.0000 0.0000

LINE CONNECTS KEYPOINTS 221 162
 LINE NO.= 74 KP1= 221 TAN1= 0.0003 -1.0000 0.0000

	KP2=	162	TAN2=	-0.0003	1.0000	0.0000
LINE CONNECTS KEYPOINTS		199	198			
LINE NO.= 75	KP1=	199	TAN1=	0.0000	-1.0000	0.0000
	KP2=	198	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS		203	202			
LINE NO.= 76	KP1=	203	TAN1=	0.0000	-1.0000	0.0000
	KP2=	202	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS		208	145			
LINE NO.= 77	KP1=	208	TAN1=	0.0000	-1.0000	0.0000
	KP2=	145	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS		213	151			
LINE NO.= 78	KP1=	213	TAN1=	0.0000	-1.0000	0.0000
	KP2=	151	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS		155	152			
LINE NO.= 79	KP1=	155	TAN1=	0.0000	-1.0000	0.0000
	KP2=	152	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS		159	146			
LINE NO.= 80	KP1=	159	TAN1=	0.0000	-1.0000	0.0000
	KP2=	146	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS		160	147			
LINE NO.= 81	KP1=	160	TAN1=	0.0000	-1.0000	0.0000
	KP2=	147	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS		156	153			
LINE NO.= 82	KP1=	156	TAN1=	0.0000	-1.0000	0.0000
	KP2=	153	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS		157	154			
LINE NO.= 83	KP1=	157	TAN1=	0.0000	-1.0000	0.0000
	KP2=	154	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS		161	148			
LINE NO.= 84	KP1=	161	TAN1=	0.0000	-1.0000	0.0000
	KP2=	148	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS		133	13			
LINE NO.= 85	KP1=	133	TAN1=	0.0000	-1.0000	0.0000
	KP2=	13	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS		138	18			
LINE NO.= 86	KP1=	138	TAN1=	0.0000	-1.0000	0.0000
	KP2=	18	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS		139	19			
LINE NO.= 87	KP1=	139	TAN1=	0.0000	-1.0000	0.0000
	KP2=	19	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS		134	14			
LINE NO.= 88	KP1=	134	TAN1=	0.0000	-1.0000	0.0000
	KP2=	14	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS		135	15			
LINE NO.= 89	KP1=	135	TAN1=	0.0000	-1.0000	0.0000
	KP2=	15	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS		140	20			
LINE NO.= 90	KP1=	140	TAN1=	0.0000	-1.0000	0.0000
	KP2=	20	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS		141	21			
LINE NO.= 91	KP1=	141	TAN1=	0.0000	-1.0000	0.0000
	KP2=	21	TAN2=	0.0000	1.0000	0.0000

KEYPOINT 9001 X,Y,Z= 0.000000E+00 0.000000E+00 -0.360000 IN CSYS= 0

LINE CONNECTS KEYPOINTS 8001 9001
 LINE NO.= 9 KP1= 8001 TAN1= 0.0000 0.0000 1.0000
 KP2= 9001 TAN2= 0.0000 0.0000 -1.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
 TO NDIIV = 1, SPACING RATIO = 1.000
 Line set 1 Tube Width for Half Tubes on Symmetry Plane

LINE CONNECTS KEYPOINTS 197 206
 LINE NO.= 10 KP1= 197 TAN1= -1.0000 0.0000 0.0000
 KP2= 206 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 196 205
 LINE NO.= 11 KP1= 196 TAN1= -1.0000 0.0000 0.0000
 KP2= 205 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 195 201
 LINE NO.= 12 KP1= 195 TAN1= -1.0000 0.0000 0.0000
 KP2= 201 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 194 200
 LINE NO.= 13 KP1= 194 TAN1= -1.0000 0.0000 0.0000
 KP2= 200 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 193 204
 LINE NO.= 14 KP1= 193 TAN1= -1.0000 0.0000 0.0000
 KP2= 204 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 192 203
 LINE NO.= 15 KP1= 192 TAN1= -1.0000 0.0000 0.0000
 KP2= 203 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 191 199
 LINE NO.= 16 KP1= 191 TAN1= -1.0000 0.0000 0.0000
 KP2= 199 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 190 198
 LINE NO.= 17 KP1= 190 TAN1= -1.0000 0.0000 0.0000
 KP2= 198 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 189 202
 LINE NO.= 18 KP1= 189 TAN1= -1.0000 0.0000 0.0000
 KP2= 202 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 188 138
 LINE NO.= 19 KP1= 188 TAN1= -1.0000 0.0000 0.0000
 KP2= 138 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 187 133
 LINE NO.= 20 KP1= 187 TAN1= -1.0000 0.0000 0.0000
 KP2= 133 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 68 13
 LINE NO.= 21 KP1= 68 TAN1= -1.0000 0.0000 0.0000
 KP2= 13 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 69 18
 LINE NO.= 22 KP1= 69 TAN1= -1.0000 0.0000 0.0000
 KP2= 18 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 70 85
 LINE NO.= 23 KP1= 70 TAN1= -1.0000 0.0000 0.0000
 KP2= 85 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 71 80
 LINE NO.= 24 KP1= 71 TAN1= -1.0000 0.0000 0.0000
 KP2= 80 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS	136	16			
LINE NO.= 92 KP1=	136	TAN1=	0.0000	-1.0000	0.0000
KP2=	16	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS	137	17			
LINE NO.= 93 KP1=	137	TAN1=	0.0000	-1.0000	0.0000
KP2=	17	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS	142	22			
LINE NO.= 94 KP1=	142	TAN1=	0.0000	-1.0000	0.0000
KP2=	22	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS	143	23			
LINE NO.= 95 KP1=	143	TAN1=	0.0000	-1.0000	0.0000
KP2=	23	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS	80	81			
LINE NO.= 96 KP1=	80	TAN1=	0.0000	-1.0000	0.0000
KP2=	81	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS	85	86			
LINE NO.= 97 KP1=	85	TAN1=	0.0000	-1.0000	0.0000
KP2=	86	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS	25	92			
LINE NO.= 98 KP1=	25	TAN1=	0.0000	-1.0000	0.0000
KP2=	92	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS	31	98			
LINE NO.= 99 KP1=	31	TAN1=	0.0000	-1.0000	0.0000
KP2=	98	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS	32	35			
LINE NO.= 100 KP1=	32	TAN1=	0.0000	-1.0000	0.0000
KP2=	35	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS	26	39			
LINE NO.= 101 KP1=	26	TAN1=	0.0000	-1.0000	0.0000
KP2=	39	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS	27	40			
LINE NO.= 102 KP1=	27	TAN1=	0.0000	-1.0000	0.0000
KP2=	40	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS	33	36			
LINE NO.= 103 KP1=	33	TAN1=	0.0000	-1.0000	0.0000
KP2=	36	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS	34	37			
LINE NO.= 104 KP1=	34	TAN1=	0.0000	-1.0000	0.0000
KP2=	37	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS	28	41			
LINE NO.= 105 KP1=	28	TAN1=	0.0000	-1.0000	0.0000
KP2=	41	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS	29	38			
LINE NO.= 106 KP1=	29	TAN1=	-0.0001	-1.0000	0.0000
KP2=	38	TAN2=	0.0001	1.0000	0.0000
LINE CONNECTS KEYPOINTS	82	83			
LINE NO.= 107 KP1=	82	TAN1=	0.0000	-1.0000	0.0000
KP2=	83	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS	87	88			
LINE NO.= 108 KP1=	87	TAN1=	0.0000	-1.0000	0.0000
KP2=	88	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS	93	94			
LINE NO.= 109 KP1=	93	TAN1=	0.0000	-1.0000	0.0000

	KP2=	94	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 99 100						
LINE NO.=	110	KP1=	99	TAN1=	0.0000	-1.0000
		KP2=	100	TAN2=	0.0000	1.0000
LINE CONNECTS KEYPOINTS 102 103						
LINE NO.=	111	KP1=	102	TAN1=	0.0000	-1.0000
		KP2=	103	TAN2=	0.0000	1.0000
LINE CONNECTS KEYPOINTS 106 107						
LINE NO.=	112	KP1=	106	TAN1=	0.0000	-1.0000
		KP2=	107	TAN2=	0.0000	1.0000
LINE CONNECTS KEYPOINTS 42 109						
LINE NO.=	113	KP1=	42	TAN1=	-0.0003	-1.0000
		KP2=	109	TAN2=	0.0003	1.0000
LINE CONNECTS KEYPOINTS 158 149						
LINE NO.=	114	KP1=	158	TAN1=	0.0001	-1.0000
		KP2=	149	TAN2=	-0.0001	1.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
 TO NDIV = 4, SPACING RATIO = 1.000
 line set 5 End Guide Fins

LINE CONNECTS KEYPOINTS 207 206						
LINE NO.=	115	KP1=	207	TAN1=	0.0000	-1.0000
		KP2=	206	TAN2=	0.0000	1.0000
LINE CONNECTS KEYPOINTS 212 211						
LINE NO.=	116	KP1=	212	TAN1=	0.0000	-1.0000
		KP2=	211	TAN2=	0.0000	1.0000
LINE CONNECTS KEYPOINTS 150 149						
LINE NO.=	117	KP1=	150	TAN1=	1.0000	0.0000
		KP2=	149	TAN2=	-1.0000	0.0000
LINE CONNECTS KEYPOINTS 144 143						
LINE NO.=	118	KP1=	144	TAN1=	1.0000	0.0000
		KP2=	143	TAN2=	-1.0000	0.0000
LINE CONNECTS KEYPOINTS 24 23						
LINE NO.=	119	KP1=	24	TAN1=	1.0000	0.0000
		KP2=	23	TAN2=	-1.0000	0.0000
LINE CONNECTS KEYPOINTS 30 29						
LINE NO.=	120	KP1=	30	TAN1=	1.0000	0.0000
		KP2=	29	TAN2=	-1.0000	0.0000
LINE CONNECTS KEYPOINTS 96 95						
LINE NO.=	121	KP1=	96	TAN1=	0.0000	1.0000
		KP2=	95	TAN2=	0.0000	-1.0000
LINE CONNECTS KEYPOINTS 90 89						
LINE NO.=	122	KP1=	90	TAN1=	0.0000	1.0000
		KP2=	89	TAN2=	0.0000	-1.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
 TO NDIV = 4, SPACING RATIO = 1.000
 line set 6 SS-B Plate Thickness

LINE CONNECTS KEYPOINTS 197 196						
LINE NO.=	123	KP1=	197	TAN1=	0.0000	-1.0000
		KP2=	196	TAN2=	0.0000	1.0000
LINE CONNECTS KEYPOINTS 206 205						
LINE NO.=	124	KP1=	206	TAN1=	-0.1483	-0.9889
		KP2=	205	TAN2=	0.1483	0.9889

LINE CONNECTS KEYPOINTS		211	210			
LINE NO.=	125	KP1=	211	TAN1=	0.1483	-0.9889 0.0000
		KP2=	210	TAN2=	-0.1483	0.9889 0.0000
LINE CONNECTS KEYPOINTS		207	212			
LINE NO.=	126	KP1=	207	TAN1=	-0.9850	-0.1727 0.0000
		KP2=	212	TAN2=	0.9850	0.1727 0.0000
LINE CONNECTS KEYPOINTS		206	211			
LINE NO.=	127	KP1=	206	TAN1=	-1.0000	0.0000 0.0000
		KP2=	211	TAN2=	1.0000	0.0000 0.0000
LINE CONNECTS KEYPOINTS		205	210			
LINE NO.=	128	KP1=	205	TAN1=	-1.0000	0.0000 0.0000
		KP2=	210	TAN2=	1.0000	0.0000 0.0000
LINE CONNECTS KEYPOINTS		218	220			
LINE NO.=	129	KP1=	218	TAN1=	-0.8655	-0.5009 0.0000
		KP2=	220	TAN2=	0.8655	0.5009 0.0000
LINE CONNECTS KEYPOINTS		220	221			
LINE NO.=	130	KP1=	220	TAN1=	-0.8541	-0.5201 0.0000
		KP2=	221	TAN2=	0.8541	0.5201 0.0000
LINE CONNECTS KEYPOINTS		193	192			
LINE NO.=	131	KP1=	193	TAN1=	0.0000	-1.0000 0.0000
		KP2=	192	TAN2=	0.0000	1.0000 0.0000
LINE CONNECTS KEYPOINTS		204	203			
LINE NO.=	132	KP1=	204	TAN1=	0.0000	-1.0000 0.0000
		KP2=	203	TAN2=	0.0000	1.0000 0.0000
LINE CONNECTS KEYPOINTS		209	208			
LINE NO.=	133	KP1=	209	TAN1=	0.0000	-1.0000 0.0000
		KP2=	208	TAN2=	0.0000	1.0000 0.0000
LINE CONNECTS KEYPOINTS		204	209			
LINE NO.=	134	KP1=	204	TAN1=	-1.0000	0.0000 0.0000
		KP2=	209	TAN2=	1.0000	0.0000 0.0000
LINE CONNECTS KEYPOINTS		203	208			
LINE NO.=	135	KP1=	203	TAN1=	-1.0000	0.0000 0.0000
		KP2=	208	TAN2=	1.0000	0.0000 0.0000
LINE CONNECTS KEYPOINTS		219	159			
LINE NO.=	136	KP1=	219	TAN1=	0.0000	-1.0000 0.0000
		KP2=	159	TAN2=	0.0000	1.0000 0.0000
LINE CONNECTS KEYPOINTS		162	160			
LINE NO.=	137	KP1=	162	TAN1=	0.2873	-0.9578 0.0000
		KP2=	160	TAN2=	-0.2873	0.9578 0.0000
LINE CONNECTS KEYPOINTS		163	161			
LINE NO.=	138	KP1=	163	TAN1=	-0.5201	-0.8541 0.0000
		KP2=	161	TAN2=	0.5201	0.8541 0.0000
LINE CONNECTS KEYPOINTS		161	158			
LINE NO.=	139	KP1=	161	TAN1=	-0.5009	-0.8655 0.0000
		KP2=	158	TAN2=	0.5009	0.8655 0.0000
LINE CONNECTS KEYPOINTS		219	162			
LINE NO.=	140	KP1=	219	TAN1=	-0.9578	0.2873 0.0000
		KP2=	162	TAN2=	0.9578	-0.2873 0.0000
LINE CONNECTS KEYPOINTS		159	160			
LINE NO.=	141	KP1=	159	TAN1=	-1.0000	0.0000 0.0000
		KP2=	160	TAN2=	1.0000	0.0000 0.0000
LINE CONNECTS KEYPOINTS		189	188			
LINE NO.=	142	KP1=	189	TAN1=	0.0000	-1.0000 0.0000

	KP2=	188	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 202 138						
LINE NO.=	143	KP1=	202	TAN1=	0.0000	-1.0000
		KP2=	138	TAN2=	0.0000	1.0000
LINE CONNECTS KEYPOINTS 145 139						
LINE NO.=	144	KP1=	145	TAN1=	0.0000	-1.0000
		KP2=	139	TAN2=	0.0000	1.0000
LINE CONNECTS KEYPOINTS 202 145						
LINE NO.=	145	KP1=	202	TAN1=	-1.0000	0.0000
		KP2=	145	TAN2=	1.0000	0.0000
LINE CONNECTS KEYPOINTS 138 139						
LINE NO.=	146	KP1=	138	TAN1=	-1.0000	0.0000
		KP2=	139	TAN2=	1.0000	0.0000
LINE CONNECTS KEYPOINTS 146 140						
LINE NO.=	147	KP1=	146	TAN1=	0.0000	-1.0000
		KP2=	140	TAN2=	0.0000	1.0000
LINE CONNECTS KEYPOINTS 147 141						
LINE NO.=	148	KP1=	147	TAN1=	0.0000	-1.0000
		KP2=	141	TAN2=	0.0000	1.0000
LINE CONNECTS KEYPOINTS 146 147						
LINE NO.=	149	KP1=	146	TAN1=	-1.0000	0.0000
		KP2=	147	TAN2=	1.0000	0.0000
LINE CONNECTS KEYPOINTS 140 141						
LINE NO.=	150	KP1=	140	TAN1=	-1.0000	0.0000
		KP2=	141	TAN2=	1.0000	0.0000
LINE CONNECTS KEYPOINTS 148 142						
LINE NO.=	151	KP1=	148	TAN1=	0.0000	-1.0000
		KP2=	142	TAN2=	0.0000	1.0000
LINE CONNECTS KEYPOINTS 149 143						
LINE NO.=	152	KP1=	149	TAN1=	0.0000	-1.0000
		KP2=	143	TAN2=	0.0000	1.0000
LINE CONNECTS KEYPOINTS 148 149						
LINE NO.=	153	KP1=	148	TAN1=	-0.9889	0.1483
		KP2=	149	TAN2=	0.9889	-0.1483
LINE CONNECTS KEYPOINTS 142 143						
LINE NO.=	154	KP1=	142	TAN1=	-0.9889	-0.1483
		KP2=	143	TAN2=	0.9889	0.1483
LINE CONNECTS KEYPOINTS 150 144						
LINE NO.=	155	KP1=	150	TAN1=	-0.1727	-0.9850
		KP2=	144	TAN2=	0.1727	0.9850
LINE CONNECTS KEYPOINTS 69 70						
LINE NO.=	156	KP1=	69	TAN1=	0.0000	-1.0000
		KP2=	70	TAN2=	0.0000	1.0000
LINE CONNECTS KEYPOINTS 18 85						
LINE NO.=	157	KP1=	18	TAN1=	0.0000	-1.0000
		KP2=	85	TAN2=	0.0000	1.0000
LINE CONNECTS KEYPOINTS 19 25						
LINE NO.=	158	KP1=	19	TAN1=	0.0000	-1.0000
		KP2=	25	TAN2=	0.0000	1.0000
LINE CONNECTS KEYPOINTS 18 19						
LINE NO.=	159	KP1=	18	TAN1=	-1.0000	0.0000
		KP2=	19	TAN2=	1.0000	0.0000

LINE CONNECTS KEYPOINTS		85	25			
LINE NO.=	160	KP1=	85	TAN1=	-1.0000	0.0000 0.0000
		KP2=	25	TAN2=	1.0000	0.0000 0.0000
LINE CONNECTS KEYPOINTS		20	26			
LINE NO.=	161	KP1=	20	TAN1=	0.0000	-1.0000 0.0000
		KP2=	26	TAN2=	0.0000	1.0000 0.0000
LINE CONNECTS KEYPOINTS		21	27			
LINE NO.=	162	KP1=	21	TAN1=	-0.0000	-1.0000 0.0000
		KP2=	27	TAN2=	0.0000	1.0000 0.0000
LINE CONNECTS KEYPOINTS		20	21			
LINE NO.=	163	KP1=	20	TAN1=	-1.0000	0.0000 0.0000
		KP2=	21	TAN2=	1.0000	0.0000 0.0000
LINE CONNECTS KEYPOINTS		26	27			
LINE NO.=	164	KP1=	26	TAN1=	-1.0000	0.0000 0.0000
		KP2=	27	TAN2=	1.0000	0.0000 0.0000
LINE CONNECTS KEYPOINTS		22	28			
LINE NO.=	165	KP1=	22	TAN1=	0.0000	-1.0000 0.0000
		KP2=	28	TAN2=	0.0000	1.0000 0.0000
LINE CONNECTS KEYPOINTS		22	23			
LINE NO.=	166	KP1=	22	TAN1=	-0.9889	0.1483 0.0000
		KP2=	23	TAN2=	0.9889	-0.1483 0.0000
LINE CONNECTS KEYPOINTS		28	29			
LINE NO.=	167	KP1=	28	TAN1=	-0.9889	-0.1483 0.0000
		KP2=	29	TAN2=	0.9889	0.1483 0.0000
LINE CONNECTS KEYPOINTS		23	29			
LINE NO.=	168	KP1=	23	TAN1=	0.0000	-1.0000 0.0000
		KP2=	29	TAN2=	0.0000	1.0000 0.0000
LINE CONNECTS KEYPOINTS		24	30			
LINE NO.=	169	KP1=	24	TAN1=	0.1727	-0.9850 0.0000
		KP2=	30	TAN2=	-0.1727	0.9850 0.0000
LINE CONNECTS KEYPOINTS		73	74			
LINE NO.=	170	KP1=	73	TAN1=	0.0000	-1.0000 0.0000
		KP2=	74	TAN2=	0.0000	1.0000 0.0000
LINE CONNECTS KEYPOINTS		86	87			
LINE NO.=	171	KP1=	86	TAN1=	0.0000	-1.0000 0.0000
		KP2=	87	TAN2=	0.0000	1.0000 0.0000
LINE CONNECTS KEYPOINTS		92	93			
LINE NO.=	172	KP1=	92	TAN1=	0.0000	-1.0000 0.0000
		KP2=	93	TAN2=	0.0000	1.0000 0.0000
LINE CONNECTS KEYPOINTS		86	92			
LINE NO.=	173	KP1=	86	TAN1=	-1.0000	0.0000 0.0000
		KP2=	92	TAN2=	1.0000	0.0000 0.0000
LINE CONNECTS KEYPOINTS		87	93			
LINE NO.=	174	KP1=	87	TAN1=	-1.0000	0.0000 0.0000
		KP2=	93	TAN2=	1.0000	0.0000 0.0000
LINE CONNECTS KEYPOINTS		39	106			
LINE NO.=	175	KP1=	39	TAN1=	0.0000	-1.0000 0.0000
		KP2=	106	TAN2=	0.0000	1.0000 0.0000
LINE CONNECTS KEYPOINTS		40	42			
LINE NO.=	176	KP1=	40	TAN1=	-0.2873	-0.9578 0.0000
		KP2=	42	TAN2=	0.2873	0.9578 0.0000
LINE CONNECTS KEYPOINTS		39	40			
LINE NO.=	177	KP1=	39	TAN1=	-1.0000	0.0000 0.0000

	KP2=	40	TAN2=	1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS		106	42			
LINE NO.= 178	KP1=	106	TAN1=	-0.9578	-0.2873	0.0000
	KP2=	42	TAN2=	0.9578	0.2873	0.0000
LINE CONNECTS KEYPOINTS		38	41			
LINE NO.= 179	KP1=	38	TAN1=	0.5009	-0.8655	0.0000
	KP2=	41	TAN2=	-0.5009	0.8655	0.0000
LINE CONNECTS KEYPOINTS		41	43			
LINE NO.= 180	KP1=	41	TAN1=	0.5201	-0.8541	0.0000
	KP2=	43	TAN2=	-0.5201	0.8541	0.0000
LINE CONNECTS KEYPOINTS		77	78			
LINE NO.= 181	KP1=	77	TAN1=	0.0000	-1.0000	0.0000
	KP2=	78	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS		88	89			
LINE NO.= 182	KP1=	88	TAN1=	0.1483	-0.9889	0.0000
	KP2=	89	TAN2=	-0.1483	0.9889	0.0000
LINE CONNECTS KEYPOINTS		94	95			
LINE NO.= 183	KP1=	94	TAN1=	-0.1483	-0.9889	0.0000
	KP2=	95	TAN2=	0.1483	0.9889	0.0000
LINE CONNECTS KEYPOINTS		88	94			
LINE NO.= 184	KP1=	88	TAN1=	-1.0000	0.0000	0.0000
	KP2=	94	TAN2=	1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS		89	95			
LINE NO.= 185	KP1=	89	TAN1=	-1.0000	0.0000	0.0000
	KP2=	95	TAN2=	1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS		90	96			
LINE NO.= 186	KP1=	90	TAN1=	-0.9850	0.1727	0.0000
	KP2=	96	TAN2=	0.9850	-0.1727	0.0000
LINE CONNECTS KEYPOINTS		109	107			
LINE NO.= 187	KP1=	109	TAN1=	0.8541	-0.5201	0.0000
	KP2=	107	TAN2=	-0.8541	0.5201	0.0000
LINE CONNECTS KEYPOINTS		107	104			
LINE NO.= 188	KP1=	107	TAN1=	0.8655	-0.5009	0.0000
	KP2=	104	TAN2=	-0.8655	0.5009	0.0000
LINE CONNECTS KEYPOINTS		224	225			
LINE NO.= 189	KP1=	224	TAN1=	-0.9850	-0.1727	0.0000
	KP2=	225	TAN2=	0.9850	0.1727	0.0000
LINE CONNECTS KEYPOINTS		230	231			
LINE NO.= 190	KP1=	230	TAN1=	-0.9850	-0.1727	0.0000
	KP2=	231	TAN2=	0.9850	0.1727	0.0000
LINE CONNECTS KEYPOINTS		236	237			
LINE NO.= 191	KP1=	236	TAN1=	-0.9850	-0.1727	0.0000
	KP2=	237	TAN2=	0.9850	0.1727	0.0000
LINE CONNECTS KEYPOINTS		226	227			
LINE NO.= 192	KP1=	226	TAN1=	-0.8655	-0.5009	0.0000
	KP2=	227	TAN2=	0.8655	0.5009	0.0000
LINE CONNECTS KEYPOINTS		227	228			
LINE NO.= 193	KP1=	227	TAN1=	-0.8541	-0.5201	0.0000
	KP2=	228	TAN2=	0.8541	0.5201	0.0000
LINE CONNECTS KEYPOINTS		232	233			
LINE NO.= 194	KP1=	232	TAN1=	-0.8655	-0.5009	0.0000
	KP2=	233	TAN2=	0.8655	0.5009	0.0000

LINE CONNECTS KEYPOINTS	233	234			
LINE NO.= 195 KP1=	233	TAN1=	-0.8541	-0.5201	0.0000
KP2=	234	TAN2=	0.8541	0.5201	0.0000
LINE CONNECTS KEYPOINTS	238	239			
LINE NO.= 196 KP1=	238	TAN1=	-0.8655	-0.5009	0.0000
KP2=	239	TAN2=	0.8655	0.5009	0.0000
LINE CONNECTS KEYPOINTS	239	240			
LINE NO.= 197 KP1=	239	TAN1=	-0.8541	-0.5201	0.0000
KP2=	240	TAN2=	0.8541	0.5201	0.0000
LINE CONNECTS KEYPOINTS	171	170			
LINE NO.= 198 KP1=	171	TAN1=	-0.5201	-0.8541	0.0000
KP2=	170	TAN2=	0.5201	0.8541	0.0000
LINE CONNECTS KEYPOINTS	170	169			
LINE NO.= 199 KP1=	170	TAN1=	-0.5009	-0.8655	0.0000
KP2=	169	TAN2=	0.5009	0.8655	0.0000
LINE CONNECTS KEYPOINTS	178	177			
LINE NO.= 200 KP1=	178	TAN1=	-0.5201	-0.8541	0.0000
KP2=	177	TAN2=	0.5201	0.8541	0.0000
LINE CONNECTS KEYPOINTS	177	176			
LINE NO.= 201 KP1=	177	TAN1=	-0.5009	-0.8655	0.0000
KP2=	176	TAN2=	0.5009	0.8655	0.0000
LINE CONNECTS KEYPOINTS	185	184			
LINE NO.= 202 KP1=	185	TAN1=	-0.5201	-0.8541	0.0000
KP2=	184	TAN2=	0.5201	0.8541	0.0000
LINE CONNECTS KEYPOINTS	184	183			
LINE NO.= 203 KP1=	184	TAN1=	-0.5009	-0.8655	0.0000
KP2=	183	TAN2=	0.5009	0.8655	0.0000
LINE CONNECTS KEYPOINTS	168	167			
LINE NO.= 204 KP1=	168	TAN1=	-0.1727	-0.9850	0.0000
KP2=	167	TAN2=	0.1727	0.9850	0.0000
LINE CONNECTS KEYPOINTS	175	174			
LINE NO.= 205 KP1=	175	TAN1=	-0.1727	-0.9850	0.0000
KP2=	174	TAN2=	0.1727	0.9850	0.0000
LINE CONNECTS KEYPOINTS	182	181			
LINE NO.= 206 KP1=	182	TAN1=	-0.1727	-0.9850	0.0000
KP2=	181	TAN2=	0.1727	0.9850	0.0000
LINE CONNECTS KEYPOINTS	47	48			
LINE NO.= 207 KP1=	47	TAN1=	0.1727	-0.9850	0.0000
KP2=	48	TAN2=	-0.1727	0.9850	0.0000
LINE CONNECTS KEYPOINTS	54	55			
LINE NO.= 208 KP1=	54	TAN1=	0.1727	-0.9850	0.0000
KP2=	55	TAN2=	-0.1727	0.9850	0.0000
LINE CONNECTS KEYPOINTS	61	62			
LINE NO.= 209 KP1=	61	TAN1=	0.1727	-0.9850	0.0000
KP2=	62	TAN2=	-0.1727	0.9850	0.0000
LINE CONNECTS KEYPOINTS	49	50			
LINE NO.= 210 KP1=	49	TAN1=	0.5009	-0.8655	0.0000
KP2=	50	TAN2=	-0.5009	0.8655	0.0000
LINE CONNECTS KEYPOINTS	50	51			
LINE NO.= 211 KP1=	50	TAN1=	0.5201	-0.8541	0.0000
KP2=	51	TAN2=	-0.5201	0.8541	0.0000
LINE CONNECTS KEYPOINTS	56	57			
LINE NO.= 212 KP1=	56	TAN1=	0.5009	-0.8655	0.0000

	KP2=	57	TAN2=	-0.5009	0.8655	0.0000
LINE CONNECTS KEYPOINTS 57 58						
LINE NO.=	213	KP1=	57	TAN1=	0.5201	-0.8541
		KP2=	58	TAN2=	-0.5201	0.8541
LINE CONNECTS KEYPOINTS 63 64						
LINE NO.=	214	KP1=	63	TAN1=	0.5009	-0.8655
		KP2=	64	TAN2=	-0.5009	0.8655
LINE CONNECTS KEYPOINTS 64 65						
LINE NO.=	215	KP1=	64	TAN1=	0.5201	-0.8541
		KP2=	65	TAN2=	-0.5201	0.8541
LINE CONNECTS KEYPOINTS 117 116						
LINE NO.=	216	KP1=	117	TAN1=	0.8541	-0.5201
		KP2=	116	TAN2=	-0.8541	0.5201
LINE CONNECTS KEYPOINTS 116 115						
LINE NO.=	217	KP1=	116	TAN1=	0.8655	-0.5009
		KP2=	115	TAN2=	-0.8655	0.5009
LINE CONNECTS KEYPOINTS 124 123						
LINE NO.=	218	KP1=	124	TAN1=	0.8541	-0.5201
		KP2=	123	TAN2=	-0.8541	0.5201
LINE CONNECTS KEYPOINTS 123 122						
LINE NO.=	219	KP1=	123	TAN1=	0.8655	-0.5009
		KP2=	122	TAN2=	-0.8655	0.5009
LINE CONNECTS KEYPOINTS 131 130						
LINE NO.=	220	KP1=	131	TAN1=	0.8541	-0.5201
		KP2=	130	TAN2=	-0.8541	0.5201
LINE CONNECTS KEYPOINTS 130 129						
LINE NO.=	221	KP1=	130	TAN1=	0.8655	-0.5009
		KP2=	129	TAN2=	-0.8655	0.5009
LINE CONNECTS KEYPOINTS 114 113						
LINE NO.=	222	KP1=	114	TAN1=	0.9850	-0.1727
		KP2=	113	TAN2=	-0.9850	0.1727
LINE CONNECTS KEYPOINTS 121 120						
LINE NO.=	223	KP1=	121	TAN1=	0.9850	-0.1727
		KP2=	120	TAN2=	-0.9850	0.1727
LINE CONNECTS KEYPOINTS 128 127						
LINE NO.=	224	KP1=	128	TAN1=	0.9850	-0.1727
		KP2=	127	TAN2=	-0.9850	0.1727
SET DIVISIONS ON ALL SELECTED UNMESHED LINES						
TO NDIV = 1, SPACING RATIO = 1.000						
line set 7 tube thickness						
LINE CONNECTS KEYPOINTS 196 195						
LINE NO.=	225	KP1=	196	TAN1=	0.0000	-1.0000
		KP2=	195	TAN2=	0.0000	1.0000
LINE CONNECTS KEYPOINTS 205 201						
LINE NO.=	226	KP1=	205	TAN1=	0.7071	-0.7071
		KP2=	201	TAN2=	-0.7071	0.7071
LINE CONNECTS KEYPOINTS 204 200						
LINE NO.=	227	KP1=	204	TAN1=	0.7071	0.7071
		KP2=	200	TAN2=	-0.7071	-0.7071
LINE CONNECTS KEYPOINTS 193 194						
LINE NO.=	228	KP1=	193	TAN1=	0.0000	1.0000
		KP2=	194	TAN2=	0.0000	-1.0000

LINE CONNECTS KEYPOINTS	210	215			
LINE NO.= 229 KP1=	210	TAN1=	-0.7071	-0.7071	0.0000
KP2=	215	TAN2=	0.7071	0.7071	0.0000
LINE CONNECTS KEYPOINTS	220	217			
LINE NO.= 230 KP1=	220	TAN1=	0.7071	-0.7071	0.0000
KP2=	217	TAN2=	-0.7071	0.7071	0.0000
LINE CONNECTS KEYPOINTS	219	216			
LINE NO.= 231 KP1=	219	TAN1=	0.7071	0.7071	0.0000
KP2=	216	TAN2=	-0.7071	-0.7071	0.0000
LINE CONNECTS KEYPOINTS	209	214			
LINE NO.= 232 KP1=	209	TAN1=	-0.7071	0.7071	0.0000
KP2=	214	TAN2=	0.7071	-0.7071	0.0000
LINE CONNECTS KEYPOINTS	192	191			
LINE NO.= 233 KP1=	192	TAN1=	0.0000	-1.0000	0.0000
KP2=	191	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS	203	199			
LINE NO.= 234 KP1=	203	TAN1=	0.7071	-0.7071	0.0000
KP2=	199	TAN2=	-0.7071	0.7071	0.0000
LINE CONNECTS KEYPOINTS	202	198			
LINE NO.= 235 KP1=	202	TAN1=	0.7071	0.7071	0.0000
KP2=	198	TAN2=	-0.7071	-0.7071	0.0000
LINE CONNECTS KEYPOINTS	189	190			
LINE NO.= 236 KP1=	189	TAN1=	0.0000	1.0000	0.0000
KP2=	190	TAN2=	0.0000	-1.0000	0.0000
LINE CONNECTS KEYPOINTS	208	213			
LINE NO.= 237 KP1=	208	TAN1=	-0.7071	-0.7071	0.0000
KP2=	213	TAN2=	0.7071	0.7071	0.0000
LINE CONNECTS KEYPOINTS	159	155			
LINE NO.= 238 KP1=	159	TAN1=	0.7071	-0.7071	0.0000
KP2=	155	TAN2=	-0.7071	0.7071	0.0000
LINE CONNECTS KEYPOINTS	146	152			
LINE NO.= 239 KP1=	146	TAN1=	0.7071	0.7071	0.0000
KP2=	152	TAN2=	-0.7071	-0.7071	0.0000
LINE CONNECTS KEYPOINTS	145	151			
LINE NO.= 240 KP1=	145	TAN1=	-0.7071	0.7071	0.0000
KP2=	151	TAN2=	0.7071	-0.7071	0.0000
LINE CONNECTS KEYPOINTS	160	156			
LINE NO.= 241 KP1=	160	TAN1=	-0.7071	-0.7071	0.0000
KP2=	156	TAN2=	0.7071	0.7071	0.0000
LINE CONNECTS KEYPOINTS	161	157			
LINE NO.= 242 KP1=	161	TAN1=	0.7071	-0.7071	0.0000
KP2=	157	TAN2=	-0.7071	0.7071	0.0000
LINE CONNECTS KEYPOINTS	148	154			
LINE NO.= 243 KP1=	148	TAN1=	0.7071	0.7071	0.0000
KP2=	154	TAN2=	-0.7071	-0.7071	0.0000
LINE CONNECTS KEYPOINTS	147	153			
LINE NO.= 244 KP1=	147	TAN1=	-0.7071	0.7071	0.0000
KP2=	153	TAN2=	0.7071	-0.7071	0.0000
LINE CONNECTS KEYPOINTS	188	187			
LINE NO.= 245 KP1=	188	TAN1=	0.0000	-1.0000	0.0000
KP2=	187	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS	138	133			
LINE NO.= 246 KP1=	138	TAN1=	0.7071	-0.7071	0.0000

	KP2=	133	TAN2=	-0.7071	0.7071	0.0000
LINE CONNECTS KEYPOINTS 18 13						
LINE NO.=	247	KP1=	18	TAN1=	0.7071	0.0000
		KP2=	13	TAN2=	-0.7071	0.0000
LINE CONNECTS KEYPOINTS 69 68						
LINE NO.=	248	KP1=	69	TAN1=	0.0000	1.0000
		KP2=	68	TAN2=	0.0000	-1.0000
LINE CONNECTS KEYPOINTS 139 134						
LINE NO.=	249	KP1=	139	TAN1=	-0.7071	-0.7071
		KP2=	134	TAN2=	0.7071	0.0000
LINE CONNECTS KEYPOINTS 140 135						
LINE NO.=	250	KP1=	140	TAN1=	0.7071	-0.7071
		KP2=	135	TAN2=	-0.7071	0.0000
LINE CONNECTS KEYPOINTS 20 15						
LINE NO.=	251	KP1=	20	TAN1=	0.7071	0.7071
		KP2=	15	TAN2=	-0.7071	0.0000
LINE CONNECTS KEYPOINTS 19 14						
LINE NO.=	252	KP1=	19	TAN1=	-0.7071	0.7071
		KP2=	14	TAN2=	0.7071	-0.7071
LINE CONNECTS KEYPOINTS 141 136						
LINE NO.=	253	KP1=	141	TAN1=	-0.7071	-0.7071
		KP2=	136	TAN2=	0.7071	0.0000
LINE CONNECTS KEYPOINTS 142 137						
LINE NO.=	254	KP1=	142	TAN1=	0.7071	-0.7071
		KP2=	137	TAN2=	-0.7071	0.0000
LINE CONNECTS KEYPOINTS 22 17						
LINE NO.=	255	KP1=	22	TAN1=	0.7071	0.7071
		KP2=	17	TAN2=	-0.7071	0.0000
LINE CONNECTS KEYPOINTS 21 16						
LINE NO.=	256	KP1=	21	TAN1=	-0.7071	0.7071
		KP2=	16	TAN2=	0.7071	-0.7071
LINE CONNECTS KEYPOINTS 70 71						
LINE NO.=	257	KP1=	70	TAN1=	0.0000	-1.0000
		KP2=	71	TAN2=	0.0000	1.0000
LINE CONNECTS KEYPOINTS 85 80						
LINE NO.=	258	KP1=	85	TAN1=	0.7071	-0.7071
		KP2=	80	TAN2=	-0.7071	0.0000
LINE CONNECTS KEYPOINTS 86 81						
LINE NO.=	259	KP1=	86	TAN1=	0.7071	0.7071
		KP2=	81	TAN2=	-0.7071	-0.7071
LINE CONNECTS KEYPOINTS 73 72						
LINE NO.=	260	KP1=	73	TAN1=	0.0000	1.0000
		KP2=	72	TAN2=	0.0000	-1.0000
LINE CONNECTS KEYPOINTS 25 31						
LINE NO.=	261	KP1=	25	TAN1=	-0.7071	-0.7071
		KP2=	31	TAN2=	0.7071	0.0000
LINE CONNECTS KEYPOINTS 26 32						
LINE NO.=	262	KP1=	26	TAN1=	0.7071	-0.7071
		KP2=	32	TAN2=	-0.7071	0.0000
LINE CONNECTS KEYPOINTS 39 35						
LINE NO.=	263	KP1=	39	TAN1=	0.7071	0.7071
		KP2=	35	TAN2=	-0.7071	-0.7071

LINE CONNECTS KEYPOINTS 92 98
 LINE NO.= 264 KP1= 92 TAN1= -0.7071 0.7071 0.0000
 KP2= 98 TAN2= 0.7071 -0.7071 0.0000

LINE CONNECTS KEYPOINTS 27 33
 LINE NO.= 265 KP1= 27 TAN1= -0.7071 -0.7071 0.0000
 KP2= 33 TAN2= 0.7071 0.7071 0.0000

LINE CONNECTS KEYPOINTS 28 34
 LINE NO.= 266 KP1= 28 TAN1= 0.7071 -0.7071 0.0000
 KP2= 34 TAN2= -0.7071 0.7071 0.0000

LINE CONNECTS KEYPOINTS 41 37
 LINE NO.= 267 KP1= 41 TAN1= 0.7071 0.7071 0.0000
 KP2= 37 TAN2= -0.7071 -0.7071 0.0000

LINE CONNECTS KEYPOINTS 40 36
 LINE NO.= 268 KP1= 40 TAN1= -0.7071 0.7071 0.0000
 KP2= 36 TAN2= 0.7071 -0.7071 0.0000

LINE CONNECTS KEYPOINTS 74 75
 LINE NO.= 269 KP1= 74 TAN1= 0.0000 -1.0000 0.0000
 KP2= 75 TAN2= 0.0000 1.0000 0.0000

LINE CONNECTS KEYPOINTS 87 82
 LINE NO.= 270 KP1= 87 TAN1= 0.7071 -0.7071 0.0000
 KP2= 82 TAN2= -0.7071 0.7071 0.0000

LINE CONNECTS KEYPOINTS 88 83
 LINE NO.= 271 KP1= 88 TAN1= 0.7071 0.7071 0.0000
 KP2= 83 TAN2= -0.7071 -0.7071 0.0000

LINE CONNECTS KEYPOINTS 77 76
 LINE NO.= 272 KP1= 77 TAN1= 0.0000 1.0000 0.0000
 KP2= 76 TAN2= 0.0000 -1.0000 0.0000

LINE CONNECTS KEYPOINTS 93 99
 LINE NO.= 273 KP1= 93 TAN1= -0.7071 -0.7071 0.0000
 KP2= 99 TAN2= 0.7071 0.7071 0.0000

LINE CONNECTS KEYPOINTS 106 102
 LINE NO.= 274 KP1= 106 TAN1= 0.7071 -0.7071 0.0000
 KP2= 102 TAN2= -0.7071 0.7071 0.0000

LINE CONNECTS KEYPOINTS 107 103
 LINE NO.= 275 KP1= 107 TAN1= 0.7071 0.7071 0.0000
 KP2= 103 TAN2= -0.7071 -0.7071 0.0000

LINE CONNECTS KEYPOINTS 94 100
 LINE NO.= 276 KP1= 94 TAN1= -0.7071 0.7071 0.0000
 KP2= 100 TAN2= 0.7071 -0.7071 0.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
 TO NDIV = 1, SPACING RATIO = 1.000

ACTIVE COORDINATE SYSTEM SET TO 1 (CYLINDRICAL)
 line set 8, arc 1 bottom

LINE CONNECTS KEYPOINTS 222 207
 LINE NO.= 277 KP1= 222 TAN1= -1.0000 0.0000 0.0000
 KP2= 207 TAN2= 0.9862 0.1656 0.0000

LINE CONNECTS KEYPOINTS 223 224
 LINE NO.= 278 KP1= 223 TAN1= -1.0000 0.0000 0.0000
 KP2= 224 TAN2= 0.9862 0.1656 0.0000

LINE CONNECTS KEYPOINTS 229 230
 LINE NO.= 279 KP1= 229 TAN1= -1.0000 0.0000 0.0000
 KP2= 230 TAN2= 0.9862 0.1656 0.0000

LINE CONNECTS KEYPOINTS 235 236
 LINE NO.= 280 KP1= 235 TAN1= -1.0000 0.0000 0.0000
 KP2= 236 TAN2= 0.9862 0.1656 0.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
 TO NDIV = 4, SPACING RATIO = 1.000
 line set 9, arc 2 side arcs

LINE CONNECTS KEYPOINTS 212 218
 LINE NO.= 281 KP1= 212 TAN1= -0.9837 -0.1797 0.0000
 KP2= 218 TAN2= 0.8725 0.4887 0.0000

LINE CONNECTS KEYPOINTS 225 226
 LINE NO.= 282 KP1= 225 TAN1= -0.9837 -0.1797 0.0000
 KP2= 226 TAN2= 0.8725 0.4887 0.0000

LINE CONNECTS KEYPOINTS 231 232
 LINE NO.= 283 KP1= 231 TAN1= -0.9837 -0.1797 0.0000
 KP2= 232 TAN2= 0.8725 0.4887 0.0000

LINE CONNECTS KEYPOINTS 237 238
 LINE NO.= 284 KP1= 237 TAN1= -0.9837 -0.1797 0.0000
 KP2= 238 TAN2= 0.8725 0.4887 0.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
 TO NDIV = 4, SPACING RATIO = 1.000
 line set 10, arc 3 side arcs

LINE CONNECTS KEYPOINTS 221 163
 LINE NO.= 285 KP1= 221 TAN1= -0.8497 -0.5272 0.0000
 KP2= 163 TAN2= 0.5272 0.8497 0.0000

LINE CONNECTS KEYPOINTS 228 171
 LINE NO.= 286 KP1= 228 TAN1= -0.8497 -0.5272 0.0000
 KP2= 171 TAN2= 0.5272 0.8497 0.0000

LINE CONNECTS KEYPOINTS 234 178
 LINE NO.= 287 KP1= 234 TAN1= -0.8497 -0.5272 0.0000
 KP2= 178 TAN2= 0.5272 0.8497 0.0000

LINE CONNECTS KEYPOINTS 240 185
 LINE NO.= 288 KP1= 240 TAN1= -0.8497 -0.5272 0.0000
 KP2= 185 TAN2= 0.5272 0.8497 0.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
 TO NDIV = 4, SPACING RATIO = 1.000
 line set 11, arc 4 side arcs

LINE CONNECTS KEYPOINTS 158 150
 LINE NO.= 289 KP1= 158 TAN1= -0.4887 -0.8725 0.0000
 KP2= 150 TAN2= 0.1797 0.9837 0.0000

LINE CONNECTS KEYPOINTS 169 168
 LINE NO.= 290 KP1= 169 TAN1= -0.4887 -0.8725 0.0000
 KP2= 168 TAN2= 0.1797 0.9837 0.0000

LINE CONNECTS KEYPOINTS 176 175
 LINE NO.= 291 KP1= 176 TAN1= -0.4887 -0.8725 0.0000
 KP2= 175 TAN2= 0.1797 0.9837 0.0000

LINE CONNECTS KEYPOINTS 183 182
 LINE NO.= 292 KP1= 183 TAN1= -0.4887 -0.8725 0.0000
 KP2= 182 TAN2= 0.1797 0.9837 0.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
 TO NDIV = 4, SPACING RATIO = 1.000
 line set 12, arc 5 side arcs

LINE CONNECTS KEYPOINTS 144 24
 LINE NO.= 293 KP1= 144 TAN1= -0.1656 -0.9862 0.0000

	KP2=	24	TAN2=	-0.1656	0.9862	0.0000
LINE CONNECTS KEYPOINTS 167 47						
LINE NO.=	294	KP1=	167	TAN1=	-0.1656	-0.9862 0.0000
		KP2=	47	TAN2=	-0.1656	0.9862 0.0000
LINE CONNECTS KEYPOINTS 174 54						
LINE NO.=	295	KP1=	174	TAN1=	-0.1656	-0.9862 0.0000
		KP2=	54	TAN2=	-0.1656	0.9862 0.0000
LINE CONNECTS KEYPOINTS 181 61						
LINE NO.=	296	KP1=	181	TAN1=	-0.1656	-0.9862 0.0000
		KP2=	61	TAN2=	-0.1656	0.9862 0.0000
SET DIVISIONS ON ALL SELECTED UNMESHED LINES						
TO NDIV = 4, SPACING RATIO = 1.000						
line set 13, arc 6 side arcs						
LINE CONNECTS KEYPOINTS 30 38						
LINE NO.=	297	KP1=	30	TAN1=	0.1797	-0.9837 0.0000
		KP2=	38	TAN2=	-0.4887	0.8725 0.0000
LINE CONNECTS KEYPOINTS 48 49						
LINE NO.=	298	KP1=	48	TAN1=	0.1797	-0.9837 0.0000
		KP2=	49	TAN2=	-0.4887	0.8725 0.0000
LINE CONNECTS KEYPOINTS 55 56						
LINE NO.=	299	KP1=	55	TAN1=	0.1797	-0.9837 0.0000
		KP2=	56	TAN2=	-0.4887	0.8725 0.0000
LINE CONNECTS KEYPOINTS 62 63						
LINE NO.=	300	KP1=	62	TAN1=	0.1797	-0.9837 0.0000
		KP2=	63	TAN2=	-0.4887	0.8725 0.0000
SET DIVISIONS ON ALL SELECTED UNMESHED LINES						
TO NDIV = 4, SPACING RATIO = 1.000						
line set 14, arc 7 side arcs						
LINE CONNECTS KEYPOINTS 43 109						
LINE NO.=	301	KP1=	43	TAN1=	0.5272	-0.8497 0.0000
		KP2=	109	TAN2=	-0.8497	0.5272 0.0000
LINE CONNECTS KEYPOINTS 51 117						
LINE NO.=	302	KP1=	51	TAN1=	0.5272	-0.8497 0.0000
		KP2=	117	TAN2=	-0.8497	0.5272 0.0000
LINE CONNECTS KEYPOINTS 58 124						
LINE NO.=	303	KP1=	58	TAN1=	0.5272	-0.8497 0.0000
		KP2=	124	TAN2=	-0.8497	0.5272 0.0000
LINE CONNECTS KEYPOINTS 65 131						
LINE NO.=	304	KP1=	65	TAN1=	0.5272	-0.8497 0.0000
		KP2=	131	TAN2=	-0.8497	0.5272 0.0000
SET DIVISIONS ON ALL SELECTED UNMESHED LINES						
TO NDIV = 4, SPACING RATIO = 1.000						
line set 15, arc 8 side arcs						
LINE CONNECTS KEYPOINTS 104 96						
LINE NO.=	305	KP1=	104	TAN1=	0.8725	-0.4887 0.0000
		KP2=	96	TAN2=	-0.9837	0.1797 0.0000
LINE CONNECTS KEYPOINTS 115 114						
LINE NO.=	306	KP1=	115	TAN1=	0.8725	-0.4887 0.0000
		KP2=	114	TAN2=	-0.9837	0.1797 0.0000
LINE CONNECTS KEYPOINTS 122 121						
LINE NO.=	307	KP1=	122	TAN1=	0.8725	-0.4887 0.0000
		KP2=	121	TAN2=	-0.9837	0.1797 0.0000

LINE CONNECTS KEYPOINTS 129 128
 LINE NO.= 308 KP1= 129 TAN1= 0.8725 -0.4887 0.0000
 KP2= 128 TAN2= -0.9837 0.1797 0.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
 TO NDIV = 4, SPACING RATIO = 1.000
 line set 16, arc 9 top arcs

LINE CONNECTS KEYPOINTS 90 110
 LINE NO.= 309 KP1= 90 TAN1= 0.9862 -0.1656 0.0000
 KP2= 110 TAN2= -1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 113 112
 LINE NO.= 310 KP1= 113 TAN1= 0.9862 -0.1656 0.0000
 KP2= 112 TAN2= -1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 120 119
 LINE NO.= 311 KP1= 120 TAN1= 0.9862 -0.1656 0.0000
 KP2= 119 TAN2= -1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 127 126
 LINE NO.= 312 KP1= 127 TAN1= 0.9862 -0.1656 0.0000
 KP2= 126 TAN2= -1.0000 0.0000 0.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
 TO NDIV = 4, SPACING RATIO = 1.000

ACTIVE COORDINATE SYSTEM SET TO 0 (CARTESIAN)
 line set 17 1B thickness

LINE CONNECTS KEYPOINTS 222 223
 LINE NO.= 313 KP1= 222 TAN1= 0.0000 1.0000 0.0000
 KP2= 223 TAN2= 0.0000 -1.0000 0.0000

LINE CONNECTS KEYPOINTS 207 224
 LINE NO.= 314 KP1= 207 TAN1= -0.1656 0.9862 0.0000
 KP2= 224 TAN2= 0.1656 -0.9862 0.0000

LINE CONNECTS KEYPOINTS 212 225
 LINE NO.= 315 KP1= 212 TAN1= -0.1797 0.9837 0.0000
 KP2= 225 TAN2= 0.1797 -0.9837 0.0000

LINE CONNECTS KEYPOINTS 218 226
 LINE NO.= 316 KP1= 218 TAN1= -0.4887 0.8725 0.0000
 KP2= 226 TAN2= 0.4887 -0.8725 0.0000

LINE CONNECTS KEYPOINTS 220 227
 LINE NO.= 317 KP1= 220 TAN1= -0.5130 0.8584 0.0000
 KP2= 227 TAN2= 0.5130 -0.8584 0.0000

LINE CONNECTS KEYPOINTS 221 228
 LINE NO.= 318 KP1= 221 TAN1= -0.5272 0.8497 0.0000
 KP2= 228 TAN2= 0.5272 -0.8497 0.0000

LINE CONNECTS KEYPOINTS 163 171
 LINE NO.= 319 KP1= 163 TAN1= -0.8497 0.5272 0.0000
 KP2= 171 TAN2= 0.8497 -0.5272 0.0000

LINE CONNECTS KEYPOINTS 161 170
 LINE NO.= 320 KP1= 161 TAN1= -0.8584 0.5130 0.0000
 KP2= 170 TAN2= 0.8584 -0.5130 0.0000

LINE CONNECTS KEYPOINTS 158 169
 LINE NO.= 321 KP1= 158 TAN1= -0.8725 0.4887 0.0000
 KP2= 169 TAN2= 0.8725 -0.4887 0.0000

LINE CONNECTS KEYPOINTS 150 168
 LINE NO.= 322 KP1= 150 TAN1= -0.9837 0.1797 0.0000
 KP2= 168 TAN2= 0.9837 -0.1797 0.0000

LINE CONNECTS KEYPOINTS 144 167
 LINE NO.= 323 KP1= 144 TAN1= -0.9862 0.1656 0.0000
 KP2= 167 TAN2= 0.9862 -0.1656 0.0000

LINE CONNECTS KEYPOINTS 24 47
 LINE NO.= 324 KP1= 24 TAN1= -0.9862 -0.1656 0.0000
 KP2= 47 TAN2= 0.9862 0.1656 0.0000

LINE CONNECTS KEYPOINTS 30 48
 LINE NO.= 325 KP1= 30 TAN1= -0.9837 -0.1797 0.0000
 KP2= 48 TAN2= 0.9837 0.1797 0.0000

LINE CONNECTS KEYPOINTS 38 49
 LINE NO.= 326 KP1= 38 TAN1= -0.8725 -0.4887 0.0000
 KP2= 49 TAN2= 0.8725 0.4887 0.0000

LINE CONNECTS KEYPOINTS 41 50
 LINE NO.= 327 KP1= 41 TAN1= -0.8584 -0.5130 0.0000
 KP2= 50 TAN2= 0.8584 0.5130 0.0000

LINE CONNECTS KEYPOINTS 43 51
 LINE NO.= 328 KP1= 43 TAN1= -0.8497 -0.5272 0.0000
 KP2= 51 TAN2= 0.8497 0.5272 0.0000

LINE CONNECTS KEYPOINTS 109 117
 LINE NO.= 329 KP1= 109 TAN1= -0.5272 -0.8497 0.0000
 KP2= 117 TAN2= 0.5272 0.8497 0.0000

LINE CONNECTS KEYPOINTS 107 116
 LINE NO.= 330 KP1= 107 TAN1= -0.5130 -0.8584 0.0000
 KP2= 116 TAN2= 0.5130 0.8584 0.0000

LINE CONNECTS KEYPOINTS 104 115
 LINE NO.= 331 KP1= 104 TAN1= -0.4887 -0.8725 0.0000
 KP2= 115 TAN2= 0.4887 0.8725 0.0000

LINE CONNECTS KEYPOINTS 96 114
 LINE NO.= 332 KP1= 96 TAN1= -0.1797 -0.9837 0.0000
 KP2= 114 TAN2= 0.1797 0.9837 0.0000

LINE CONNECTS KEYPOINTS 90 113
 LINE NO.= 333 KP1= 90 TAN1= -0.1656 -0.9862 0.0000
 KP2= 113 TAN2= 0.1656 0.9862 0.0000

LINE CONNECTS KEYPOINTS 110 112
 LINE NO.= 334 KP1= 110 TAN1= 0.0000 -1.0000 0.0000
 KP2= 112 TAN2= 0.0000 1.0000 0.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
 TO NDIV = 2, SPACING RATIO = 1.000
 Line set 18 08 inner thickness

LINE CONNECTS KEYPOINTS 223 229
 LINE NO.= 335 KP1= 223 TAN1= 0.0000 1.0000 0.0000
 KP2= 229 TAN2= 0.0000 -1.0000 0.0000

LINE CONNECTS KEYPOINTS 224 230
 LINE NO.= 336 KP1= 224 TAN1= -0.1656 0.9862 0.0000
 KP2= 230 TAN2= 0.1656 -0.9862 0.0000

LINE CONNECTS KEYPOINTS 225 231
 LINE NO.= 337 KP1= 225 TAN1= -0.1797 0.9837 0.0000
 KP2= 231 TAN2= 0.1797 -0.9837 0.0000

LINE CONNECTS KEYPOINTS 226 232
 LINE NO.= 338 KP1= 226 TAN1= -0.4887 0.8725 0.0000
 KP2= 232 TAN2= 0.4887 -0.8725 0.0000

LINE CONNECTS KEYPOINTS 227 233
 LINE NO.= 339 KP1= 227 TAN1= -0.5130 0.8584 0.0000

	KP2=	233	TAN2=	0.5130	-0.8584	0.0000
LINE CONNECTS KEYPOINTS 228 234						
LINE NO.=	340	KP1=	228	TAN1=	-0.5272	0.8497
		KP2=	234	TAN2=	0.5272	-0.8497
					0.0000	0.0000
LINE CONNECTS KEYPOINTS 171 178						
LINE NO.=	341	KP1=	171	TAN1=	-0.8497	0.5272
		KP2=	178	TAN2=	0.8497	-0.5272
					0.0000	0.0000
LINE CONNECTS KEYPOINTS 170 177						
LINE NO.=	342	KP1=	170	TAN1=	-0.8584	0.5130
		KP2=	177	TAN2=	0.8584	-0.5130
					0.0000	0.0000
LINE CONNECTS KEYPOINTS 169 176						
LINE NO.=	343	KP1=	169	TAN1=	-0.8725	0.4887
		KP2=	176	TAN2=	0.8725	-0.4887
					0.0000	0.0000
LINE CONNECTS KEYPOINTS 168 175						
LINE NO.=	344	KP1=	168	TAN1=	-0.9837	0.1797
		KP2=	175	TAN2=	0.9837	-0.1797
					0.0000	0.0000
LINE CONNECTS KEYPOINTS 167 174						
LINE NO.=	345	KP1=	167	TAN1=	-0.9862	0.1656
		KP2=	174	TAN2=	0.9862	-0.1656
					0.0000	0.0000
LINE CONNECTS KEYPOINTS 47 54						
LINE NO.=	346	KP1=	47	TAN1=	-0.9862	-0.1656
		KP2=	54	TAN2=	0.9862	0.1656
					0.0000	0.0000
LINE CONNECTS KEYPOINTS 48 55						
LINE NO.=	347	KP1=	48	TAN1=	-0.9837	-0.1797
		KP2=	55	TAN2=	0.9837	0.1797
					0.0000	0.0000
LINE CONNECTS KEYPOINTS 49 56						
LINE NO.=	348	KP1=	49	TAN1=	-0.8725	-0.4887
		KP2=	56	TAN2=	0.8725	0.4887
					0.0000	0.0000
LINE CONNECTS KEYPOINTS 50 57						
LINE NO.=	349	KP1=	50	TAN1=	-0.8584	-0.5130
		KP2=	57	TAN2=	0.8584	0.5130
					0.0000	0.0000
LINE CONNECTS KEYPOINTS 51 58						
LINE NO.=	350	KP1=	51	TAN1=	-0.8497	-0.5272
		KP2=	58	TAN2=	0.8497	0.5272
					0.0000	0.0000
LINE CONNECTS KEYPOINTS 117 124						
LINE NO.=	351	KP1=	117	TAN1=	-0.5272	-0.8497
		KP2=	124	TAN2=	0.5272	0.8497
					0.0000	0.0000
LINE CONNECTS KEYPOINTS 116 123						
LINE NO.=	352	KP1=	116	TAN1=	-0.5130	-0.8584
		KP2=	123	TAN2=	0.5130	0.8584
					0.0000	0.0000
LINE CONNECTS KEYPOINTS 115 122						
LINE NO.=	353	KP1=	115	TAN1=	-0.4887	-0.8725
		KP2=	122	TAN2=	0.4887	0.8725
					0.0000	0.0000
LINE CONNECTS KEYPOINTS 114 121						
LINE NO.=	354	KP1=	114	TAN1=	-0.1797	-0.9837
		KP2=	121	TAN2=	0.1797	0.9837
					0.0000	0.0000
LINE CONNECTS KEYPOINTS 113 120						
LINE NO.=	355	KP1=	113	TAN1=	-0.1656	-0.9862
		KP2=	120	TAN2=	0.1656	0.9862
					0.0000	0.0000
LINE CONNECTS KEYPOINTS 112 119						
LINE NO.=	356	KP1=	112	TAN1=	0.0000	-1.0000
		KP2=	119	TAN2=	0.0000	1.0000
					0.0000	0.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
 TO NDIV = 2, SPACING RATIO = 1.000
 line set 19 skirt thickness

LINE CONNECTS KEYPOINTS		229	235			
LINE NO. =	357	KP1 =	229	TAN1 =	0.0000	1.0000
		KP2 =	235	TAN2 =	0.0000	-1.0000
LINE CONNECTS KEYPOINTS		230	236			
LINE NO. =	358	KP1 =	230	TAN1 =	-0.1656	0.9862
		KP2 =	236	TAN2 =	0.1656	-0.9862
LINE CONNECTS KEYPOINTS		231	237			
LINE NO. =	359	KP1 =	231	TAN1 =	-0.1797	0.9837
		KP2 =	237	TAN2 =	0.1797	-0.9837
LINE CONNECTS KEYPOINTS		232	238			
LINE NO. =	360	KP1 =	232	TAN1 =	-0.4887	0.8725
		KP2 =	238	TAN2 =	0.4887	-0.8725
LINE CONNECTS KEYPOINTS		233	239			
LINE NO. =	361	KP1 =	233	TAN1 =	-0.5130	0.8584
		KP2 =	239	TAN2 =	0.5130	-0.8584
LINE CONNECTS KEYPOINTS		234	240			
LINE NO. =	362	KP1 =	234	TAN1 =	-0.5272	0.8497
		KP2 =	240	TAN2 =	0.5272	-0.8497
LINE CONNECTS KEYPOINTS		178	185			
LINE NO. =	363	KP1 =	178	TAN1 =	-0.8497	0.5272
		KP2 =	185	TAN2 =	0.8497	-0.5272
LINE CONNECTS KEYPOINTS		177	184			
LINE NO. =	364	KP1 =	177	TAN1 =	-0.8584	0.5130
		KP2 =	184	TAN2 =	0.8584	-0.5130
LINE CONNECTS KEYPOINTS		176	183			
LINE NO. =	365	KP1 =	176	TAN1 =	-0.8725	0.4887
		KP2 =	183	TAN2 =	0.8725	-0.4887
LINE CONNECTS KEYPOINTS		175	182			
LINE NO. =	366	KP1 =	175	TAN1 =	-0.9837	0.1797
		KP2 =	182	TAN2 =	0.9837	-0.1797
LINE CONNECTS KEYPOINTS		174	181			
LINE NO. =	367	KP1 =	174	TAN1 =	-0.9862	0.1656
		KP2 =	181	TAN2 =	0.9862	-0.1656
LINE CONNECTS KEYPOINTS		54	61			
LINE NO. =	368	KP1 =	54	TAN1 =	-0.9862	-0.1656
		KP2 =	61	TAN2 =	0.9862	0.1656
LINE CONNECTS KEYPOINTS		55	62			
LINE NO. =	369	KP1 =	55	TAN1 =	-0.9837	-0.1797
		KP2 =	62	TAN2 =	0.9837	0.1797
LINE CONNECTS KEYPOINTS		56	63			
LINE NO. =	370	KP1 =	56	TAN1 =	-0.8725	-0.4887
		KP2 =	63	TAN2 =	0.8725	0.4887
LINE CONNECTS KEYPOINTS		57	64			
LINE NO. =	371	KP1 =	57	TAN1 =	-0.8584	-0.5130
		KP2 =	64	TAN2 =	0.8584	0.5130
LINE CONNECTS KEYPOINTS		58	65			
LINE NO. =	372	KP1 =	58	TAN1 =	-0.8497	-0.5272
		KP2 =	65	TAN2 =	0.8497	0.5272
LINE CONNECTS KEYPOINTS		124	131			
LINE NO. =	373	KP1 =	124	TAN1 =	-0.5272	-0.8497

KP2= 131 TAN2= 0.5272 0.8497 0.0000
 LINE CONNECTS KEYPOINTS 123 130
 LINE NO.= 374 KP1= 123 TAN1= -0.5130 -0.8584 0.0000
 KP2= 130 TAN2= 0.5130 0.8584 0.0000
 LINE CONNECTS KEYPOINTS 122 129
 LINE NO.= 375 KP1= 122 TAN1= -0.4887 -0.8725 0.0000
 KP2= 129 TAN2= 0.4887 0.8725 0.0000
 LINE CONNECTS KEYPOINTS 121 128
 LINE NO.= 376 KP1= 121 TAN1= -0.1797 -0.9837 0.0000
 KP2= 128 TAN2= 0.1797 0.9837 0.0000
 LINE CONNECTS KEYPOINTS 120 127
 LINE NO.= 377 KP1= 120 TAN1= -0.1656 -0.9862 0.0000
 KP2= 127 TAN2= 0.1656 0.9862 0.0000
 LINE CONNECTS KEYPOINTS 119 126
 LINE NO.= 378 KP1= 119 TAN1= 0.0000 -1.0000 0.0000
 KP2= 126 TAN2= 0.0000 1.0000 0.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
 TO NDIV = 2, SPACING RATIO = 1.000
 area set 1, tubes

DEFINE AREA BY LIST OF KEYPOINTS
 KEYPOINT LIST = 195 196 205 201
 AREA NUMBER = 1

DEFINE AREA BY LIST OF KEYPOINTS
 KEYPOINT LIST = 200 201 205 204
 AREA NUMBER = 2

DEFINE AREA BY LIST OF KEYPOINTS
 KEYPOINT LIST = 193 194 200 204
 AREA NUMBER = 3

DEFINE AREA BY LIST OF KEYPOINTS
 KEYPOINT LIST = 191 192 203 199
 AREA NUMBER = 4

DEFINE AREA BY LIST OF KEYPOINTS
 KEYPOINT LIST = 198 199 203 202
 AREA NUMBER = 5

DEFINE AREA BY LIST OF KEYPOINTS
 KEYPOINT LIST = 189 190 198 202
 AREA NUMBER = 6

DEFINE AREA BY LIST OF KEYPOINTS
 KEYPOINT LIST = 187 188 138 133
 AREA NUMBER = 7

DEFINE AREA BY LIST OF KEYPOINTS
 KEYPOINT LIST = 133 138 18 13
 AREA NUMBER = 8

DEFINE AREA BY LIST OF KEYPOINTS
 KEYPOINT LIST = 69 68 13 18
 AREA NUMBER = 9

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 71 70 85 80

AREA NUMBER = 10

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 80 85 86 81

AREA NUMBER = 11

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 73 72 81 86

AREA NUMBER = 12

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 75 74 87 82

AREA NUMBER = 13

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 82 87 88 83

AREA NUMBER = 14

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 77 76 83 88

AREA NUMBER = 15

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 209 210 215 214

AREA NUMBER = 16

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 215 210 220 217

AREA NUMBER = 17

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 216 217 220 219

AREA NUMBER = 18

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 209 214 216 219

AREA NUMBER = 19

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 145 208 213 151

AREA NUMBER = 20

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 213 208 159 155

AREA NUMBER = 21

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 152 155 159 146

AREA NUMBER = 22

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 145 151 152 146

AREA NUMBER = 23

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 134 139 140 135

AREA NUMBER = 24

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 135 140 20 15

AREA NUMBER = 25

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 19 14 15 20

AREA NUMBER = 26

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 19 139 134 14

AREA NUMBER = 27

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 92 25 31 98

AREA NUMBER = 28

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 31 25 26 32

AREA NUMBER = 29

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 32 26 39 35

AREA NUMBER = 30

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 92 98 35 39

AREA NUMBER = 31

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 94 93 99 100

AREA NUMBER = 32

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 99 93 106 102

AREA NUMBER = 33

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 102 106 107 103

AREA NUMBER = 34

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 94 100 103 107

AREA NUMBER = 35

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 156 160 161 157

AREA NUMBER = 36

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 157 161 148 154

AREA NUMBER = 37

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 147 153 154 148

AREA NUMBER = 38

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 147 160 156 153

AREA NUMBER = 39

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 136 141 142 137

AREA NUMBER = 40

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 137 142 22 17

AREA NUMBER = 41

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 21 16 17 22

AREA NUMBER = 42

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 21 141 136 16

AREA NUMBER = 43

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 33 27 28 34

AREA NUMBER = 44

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 34 28 41 37

AREA NUMBER = 45

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 40 36 37 41

AREA NUMBER = 46

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 40 27 33 36

AREA NUMBER = 47

area set 2, plates

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 204 205 210 209

AREA NUMBER = 48

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 192 193 204 203

AREA NUMBER = 49

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 203 204 209 208

AREA NUMBER = 50

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 208 209 219 159

AREA NUMBER = 51
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 202 203 208 45
AREA NUMBER = 52
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 146 159 160 47
AREA NUMBER = 53
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 188 189 202 138
AREA NUMBER = 54
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 138 202 145 139
AREA NUMBER = 55
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 139 145 146 140
AREA NUMBER = 56
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 140 146 147 141
AREA NUMBER = 57
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 141 147 148 142
AREA NUMBER = 58
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 18 138 139 19
AREA NUMBER = 59
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 20 140 141 21
AREA NUMBER = 60
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 70 69 18 85
AREA NUMBER = 61
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 85 18 19 25
AREA NUMBER = 62
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 25 19 20 26
AREA NUMBER = 63
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 26 20 21 27
AREA NUMBER = 64
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 27 21 22 28

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AREA NUMBER = 65
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 86 85 25 92

AREA NUMBER = 66
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 39 26 27 40

AREA NUMBER = 67
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 74 73 86 87

AREA NUMBER = 68
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 87 86 92 93

AREA NUMBER = 69
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 93 92 39 106

AREA NUMBER = 70
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 88 87 93 94

AREA NUMBER = 71
area set 3, end guides

DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 196 197 206 205

AREA NUMBER = 72
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 205 206 211 210

AREA NUMBER = 73
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 206 207 212 211

AREA NUMBER = 74
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 210 211 218 220

AREA NUMBER = 75
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 148 161 158 149

AREA NUMBER = 76
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 142 148 149 143

AREA NUMBER = 77
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 143 149 150 144

AREA NUMBER = 78
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 22 142 143 23

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AREA NUMBER =      79
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST =    28    22    23    29

AREA NUMBER =      80
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST =    29    23    24    30

AREA NUMBER =      81
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST =    41    28    29    38

AREA NUMBER =      82
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST =    95    94   107   104

AREA NUMBER =      83
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST =    89    88    94    95

AREA NUMBER =      84
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST =    90    89    95    96

AREA NUMBER =      85
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST =    78    77    88    89

AREA NUMBER =      86
area set 4, corner guides
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST =   219   220   221   162

AREA NUMBER =      87
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST =   159   219   162   160

AREA NUMBER =      88
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST =   160   162   163   161

AREA NUMBER =      89
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST =   107   106    42   109

AREA NUMBER =      90
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST =   106    39    40    42

AREA NUMBER =      91
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST =    42    40    41    43

AREA NUMBER =      92
ACTIVE COORDINATE SYSTEM SET TO      1 (CYLINDRICAL)

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area set 5, inner barrier

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 222 223 224 207

AREA NUMBER = 93

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 207 224 225 212

AREA NUMBER = 94

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 212 225 226 218

AREA NUMBER = 95

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 218 226 227 220

AREA NUMBER = 96

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 220 227 228 221

AREA NUMBER = 97

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 221 228 171 163

AREA NUMBER = 98

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 163 171 170 161

AREA NUMBER = 99

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 161 170 169 158

AREA NUMBER = 100

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 158 169 168 150

AREA NUMBER = 101

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 150 168 167 144

AREA NUMBER = 102

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 144 167 47 24

AREA NUMBER = 103

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 24 47 48 30

AREA NUMBER = 104

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 30 48 49 38

AREA NUMBER = 105

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 38 49 50 41

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AREA NUMBER = 106
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 41 50 51 43

AREA NUMBER = 107
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 43 51 117 109

AREA NUMBER = 108
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 109 117 116 107

AREA NUMBER = 109
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 107 116 115 104

AREA NUMBER = 110
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 104 115 114 96

AREA NUMBER = 111
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 90 96 114 113

AREA NUMBER = 112
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 90 113 112 110

AREA NUMBER = 113
area set 6, outer barrier

DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 223 229 230 224

AREA NUMBER = 114
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 224 230 231 225

AREA NUMBER = 115
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 225 231 232 226

AREA NUMBER = 116
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 226 232 233 227

AREA NUMBER = 117
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 227 233 234 228

AREA NUMBER = 118
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 228 234 178 171

AREA NUMBER = 119
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 171 178 177 170

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AREA NUMBER = 120

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 170 177 176 169

AREA NUMBER = 121

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 169 176 175 168

AREA NUMBER = 122

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 168 175 174 167

AREA NUMBER = 123

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 167 174 54 47

AREA NUMBER = 124

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 47 54 55 48

AREA NUMBER = 125

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 48 55 56 49

AREA NUMBER = 126

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 49 56 57 50

AREA NUMBER = 127

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 50 57 58 51

AREA NUMBER = 128

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 51 58 124 117

AREA NUMBER = 129

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 117 124 123 116

AREA NUMBER = 130

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 116 123 122 115

AREA NUMBER = 131

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 115 122 121 114

AREA NUMBER = 132

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 114 121 120 113

AREA NUMBER = 133

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 113 120 119 112


```
AREA NUMBER = 134
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 229 235 236 230
AREA NUMBER = 135
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 236 237 231 230
AREA NUMBER = 136
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 231 237 238 232
AREA NUMBER = 137
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 238 239 233 232
AREA NUMBER = 138
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 239 240 234 233
AREA NUMBER = 139
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 240 185 178 234
AREA NUMBER = 140
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 185 184 177 178
AREA NUMBER = 141
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 184 183 176 177
AREA NUMBER = 142
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 176 183 182 175
AREA NUMBER = 143
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 175 182 181 174
AREA NUMBER = 144
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 174 181 61 54
AREA NUMBER = 145
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 54 61 62 55
AREA NUMBER = 146
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 55 62 63 56
AREA NUMBER = 147
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 56 63 64 57
```

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AREA NUMBER = 148
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 57 64 65 58
AREA NUMBER = 149
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 58 65 131 124
AREA NUMBER = 150
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 124 131 130 123
AREA NUMBER = 151
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 123 130 129 122
AREA NUMBER = 152
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 122 129 128 121
AREA NUMBER = 153
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 121 128 127 120
AREA NUMBER = 154
DEFINE AREA BY LIST OF KEYPOINTS
KEYPOINT LIST = 120 127 126 119
AREA NUMBER = 155

```

ACTIVE COORDINATE SYSTEM SET TO 0 (CARTESIAN)

DRAG ALL SELECTED AREAS
ALONG LINES
1,

```

*** WARNING *** CP= 6.230 TIME= 16:21:46
Area 1 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.230 TIME= 16:21:46
Area 2 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.230 TIME= 16:21:46
Area 3 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.230 TIME= 16:21:46
Area 4 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.230 TIME= 16:21:46
Area 5 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.240 TIME= 16:21:46
Area 6 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.240 TIME= 16:21:46
Area 7 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.240 TIME= 16:21:46
Area 8 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.240 TIME= 16:21:46
Area 9 is not meshed. Volume will be generated without elements.

```

*** WARNING *** CP= 6.240 TIME= 16:21:46
Area 10 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.240 TIME= 16:21:46
Area 11 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.240 TIME= 16:21:46
Area 12 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.240 TIME= 16:21:46
Area 13 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.240 TIME= 16:21:46
Area 14 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.240 TIME= 16:21:46
Area 15 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.240 TIME= 16:21:46
Area 16 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.240 TIME= 16:21:46
Area 17 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.250 TIME= 16:21:46
Area 18 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.250 TIME= 16:21:46
Area 19 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.250 TIME= 16:21:46
Area 20 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.250 TIME= 16:21:46
Area 21 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.250 TIME= 16:21:46
Area 22 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.250 TIME= 16:21:46
Area 23 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.250 TIME= 16:21:46
Area 24 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.250 TIME= 16:21:46
Area 25 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.250 TIME= 16:21:46
Area 26 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.250 TIME= 16:21:46
Area 27 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.250 TIME= 16:21:46
Area 28 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.260 TIME= 16:21:46
Area 29 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.260 TIME= 16:21:46
Area 30 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.260 TIME= 16:21:46
Area 31 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.260 TIME= 16:21:46
Area 32 is not meshed. Volume will be generated without elements.

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*** WARNING ***                CP=      6.260  TIME= 16:21:46
Area 33 is not meshed. Volume will be generated without elements.

*** WARNING ***                CP=      6.260  TIME= 16:21:46
Area 34 is not meshed. Volume will be generated without elements.

*** WARNING ***                CP=      6.260  TIME= 16:21:46
Area 35 is not meshed. Volume will be generated without elements.

*** WARNING ***                CP=      6.260  TIME= 16:21:46
Area 36 is not meshed. Volume will be generated without elements.

*** WARNING ***                CP=      6.260  TIME= 16:21:46
Area 37 is not meshed. Volume will be generated without elements.

*** WARNING ***                CP=      6.260  TIME= 16:21:46
Area 38 is not meshed. Volume will be generated without elements.

*** WARNING ***                CP=      6.260  TIME= 16:21:46
Area 39 is not meshed. Volume will be generated without elements.

*** WARNING ***                CP=      6.260  TIME= 16:21:46
Area 40 is not meshed. Volume will be generated without elements.

*** WARNING ***                CP=      6.270  TIME= 16:21:46
Area 41 is not meshed. Volume will be generated without elements.

*** WARNING ***                CP=      6.270  TIME= 16:21:46
Area 42 is not meshed. Volume will be generated without elements.

*** WARNING ***                CP=      6.270  TIME= 16:21:46
Area 43 is not meshed. Volume will be generated without elements.

*** WARNING ***                CP=      6.270  TIME= 16:21:46
Area 44 is not meshed. Volume will be generated without elements.

*** WARNING ***                CP=      6.270  TIME= 16:21:46
Area 45 is not meshed. Volume will be generated without elements.

*** WARNING ***                CP=      6.270  TIME= 16:21:46
Area 46 is not meshed. Volume will be generated without elements.

*** WARNING ***                CP=      6.270  TIME= 16:21:46
Area 47 is not meshed. Volume will be generated without elements.

*** WARNING ***                CP=      6.270  TIME= 16:21:46
Area 48 is not meshed. Volume will be generated without elements.

*** WARNING ***                CP=      6.270  TIME= 16:21:46
Area 49 is not meshed. Volume will be generated without elements.

*** WARNING ***                CP=      6.270  TIME= 16:21:46
Area 50 is not meshed. Volume will be generated without elements.

*** WARNING ***                CP=      6.270  TIME= 16:21:46
Area 51 is not meshed. Volume will be generated without elements.

*** WARNING ***                CP=      6.280  TIME= 16:21:46
Area 52 is not meshed. Volume will be generated without elements.

*** WARNING ***                CP=      6.280  TIME= 16:21:46
Area 53 is not meshed. Volume will be generated without elements.

*** WARNING ***                CP=      6.280  TIME= 16:21:46
Area 54 is not meshed. Volume will be generated without elements.

*** WARNING ***                CP=      6.280  TIME= 16:21:46
Area 55 is not meshed. Volume will be generated without elements.

*** WARNING ***                CP=      6.280  TIME= 16:21:46

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Area 56 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.280 TIME= 16:21:46
Area 57 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.280 TIME= 16:21:46
Area 58 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.280 TIME= 16:21:46
Area 59 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.280 TIME= 16:21:46
Area 60 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.280 TIME= 16:21:46
Area 61 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.280 TIME= 16:21:46
Area 62 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.280 TIME= 16:21:46
Area 63 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.290 TIME= 16:21:46
Area 64 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.290 TIME= 16:21:46
Area 65 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.290 TIME= 16:21:46
Area 66 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.290 TIME= 16:21:46
Area 67 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.290 TIME= 16:21:46
Area 68 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.290 TIME= 16:21:46
Area 69 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.290 TIME= 16:21:46
Area 70 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.290 TIME= 16:21:46
Area 71 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.290 TIME= 16:21:46
Area 72 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.290 TIME= 16:21:46
Area 73 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.290 TIME= 16:21:46
Area 74 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.290 TIME= 16:21:46
Area 75 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.300 TIME= 16:21:46
Area 76 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.300 TIME= 16:21:46
Area 77 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.300 TIME= 16:21:46
Area 78 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.300 TIME= 16:21:46
Area 79 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.300 TIME= 16:21:46
Area 80 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.300 TIME= 16:21:46
Area 81 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.300 TIME= 16:21:46
Area 82 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.300 TIME= 16:21:46
Area 83 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.300 TIME= 16:21:46
Area 84 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.300 TIME= 16:21:46
Area 85 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.300 TIME= 16:21:46
Area 86 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.310 TIME= 16:21:46
Area 87 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.310 TIME= 16:21:46
Area 88 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.310 TIME= 16:21:46
Area 89 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.310 TIME= 16:21:46
Area 90 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.310 TIME= 16:21:46
Area 91 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.310 TIME= 16:21:46
Area 92 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.310 TIME= 16:21:46
Area 93 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.310 TIME= 16:21:46
Area 94 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.310 TIME= 16:21:46
Area 95 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.310 TIME= 16:21:46
Area 96 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.310 TIME= 16:21:46
Area 97 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.320 TIME= 16:21:46
Area 98 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.320 TIME= 16:21:46
Area 99 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.320 TIME= 16:21:46
Area 100 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.320 TIME= 16:21:46
Area 101 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.320 TIME= 16:21:46
Area 102 is not meshed. Volume will be generated without elements.

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*** WARNING ***           CP=      6.320   TIME= 16:21:46
Area 103 is not meshed. Volume will be generated without elements.

*** WARNING ***           CP=      6.320   TIME= 16:21:46
Area 104 is not meshed. Volume will be generated without elements.

*** WARNING ***           CP=      6.320   TIME= 16:21:46
Area 105 is not meshed. Volume will be generated without elements.

*** WARNING ***           CP=      6.320   TIME= 16:21:46
Area 106 is not meshed. Volume will be generated without elements.

*** WARNING ***           CP=      6.320   TIME= 16:21:46
Area 107 is not meshed. Volume will be generated without elements.

*** WARNING ***           CP=      6.320   TIME= 16:21:46
Area 108 is not meshed. Volume will be generated without elements.

*** WARNING ***           CP=      6.320   TIME= 16:21:46
Area 109 is not meshed. Volume will be generated without elements.

*** WARNING ***           CP=      6.330   TIME= 16:21:46
Area 110 is not meshed. Volume will be generated without elements.

*** WARNING ***           CP=      6.330   TIME= 16:21:46
Area 111 is not meshed. Volume will be generated without elements.

*** WARNING ***           CP=      6.330   TIME= 16:21:46
Area 112 is not meshed. Volume will be generated without elements.

*** WARNING ***           CP=      6.330   TIME= 16:21:46
Area 113 is not meshed. Volume will be generated without elements.

*** WARNING ***           CP=      6.330   TIME= 16:21:46
Area 114 is not meshed. Volume will be generated without elements.

*** WARNING ***           CP=      6.330   TIME= 16:21:46
Area 115 is not meshed. Volume will be generated without elements.

*** WARNING ***           CP=      6.330   TIME= 16:21:46
Area 116 is not meshed. Volume will be generated without elements.

*** WARNING ***           CP=      6.330   TIME= 16:21:46
Area 117 is not meshed. Volume will be generated without elements.

*** WARNING ***           CP=      6.330   TIME= 16:21:46
Area 118 is not meshed. Volume will be generated without elements.

*** WARNING ***           CP=      6.330   TIME= 16:21:46
Area 119 is not meshed. Volume will be generated without elements.

*** WARNING ***           CP=      6.330   TIME= 16:21:46
Area 120 is not meshed. Volume will be generated without elements.

*** WARNING ***           CP=      6.340   TIME= 16:21:46
Area 121 is not meshed. Volume will be generated without elements.

*** WARNING ***           CP=      6.340   TIME= 16:21:46
Area 122 is not meshed. Volume will be generated without elements.

*** WARNING ***           CP=      6.340   TIME= 16:21:46
Area 123 is not meshed. Volume will be generated without elements.

*** WARNING ***           CP=      6.340   TIME= 16:21:46
Area 124 is not meshed. Volume will be generated without elements.

*** WARNING ***           CP=      6.340   TIME= 16:21:46
Area 125 is not meshed. Volume will be generated without elements.

*** WARNING ***           CP=      6.340   TIME= 16:21:46

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Area 126 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.340 TIME= 16:21:46
Area 127 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.340 TIME= 16:21:46
Area 128 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.340 TIME= 16:21:46
Area 129 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.340 TIME= 16:21:46
Area 130 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.340 TIME= 16:21:46
Area 131 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.340 TIME= 16:21:46
Area 132 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.350 TIME= 16:21:46
Area 133 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.350 TIME= 16:21:46
Area 134 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.350 TIME= 16:21:46
Area 135 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.350 TIME= 16:21:46
Area 136 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.350 TIME= 16:21:46
Area 137 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.350 TIME= 16:21:46
Area 138 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.350 TIME= 16:21:46
Area 139 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.350 TIME= 16:21:46
Area 140 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.350 TIME= 16:21:46
Area 141 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.350 TIME= 16:21:46
Area 142 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.350 TIME= 16:21:46
Area 143 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.360 TIME= 16:21:46
Area 144 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.360 TIME= 16:21:46
Area 145 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.360 TIME= 16:21:46
Area 146 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.360 TIME= 16:21:46
Area 147 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.360 TIME= 16:21:46
Area 148 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.360 TIME= 16:21:46
Area 149 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.360 TIME= 16:21:46
Area 150 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.360 TIME= 16:21:46
Area 151 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.360 TIME= 16:21:46
Area 152 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.360 TIME= 16:21:46
Area 153 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.360 TIME= 16:21:46
Area 154 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 6.360 TIME= 16:21:46
Area 155 is not meshed. Volume will be generated without elements.

SELECT FOR ITEM=LOC COMPONENT=Z BETWEEN 4.5750 AND 4.5750
KABS= 0. TOLERANCE= 0.228750E-01

155 AREAS (OF 679 DEFINED) SELECTED BY ASEL COMMAND.

ACTIVE COORDINATE SYSTEM SET TO 1 (CYLINDRICAL)

UNSELECT FOR ITEM=LOC COMPONENT=X BETWEEN 0.00000E+00 AND 0.68095
KABS= 0. TOLERANCE= 0.000000E+00

63 AREAS (OF 679 DEFINED) SELECTED BY ASEL COMMAND.

ACTIVE COORDINATE SYSTEM SET TO 0 (CARTESIAN)

DRAG ALL SELECTED AREAS
ALONG LINES
2,

*** WARNING *** CP= 15.560 TIME= 16:21:56
Area 483 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.560 TIME= 16:21:56
Area 486 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.560 TIME= 16:21:56
Area 490 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.560 TIME= 16:21:56
Area 493 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.560 TIME= 16:21:56
Area 496 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.560 TIME= 16:21:56
Area 500 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.570 TIME= 16:21:56
Area 503 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.570 TIME= 16:21:56
Area 506 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.570 TIME= 16:21:56
Area 510 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.570 TIME= 16:21:56
Area 513 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.570 TIME= 16:21:56
Area 517 is not meshed. Volume will be generated without elements.

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*** WARNING ***                CP= 15.570  TIME= 16:21:56
Area 520 is not meshed. Volume will be generated without elements.

*** WARNING ***                CP= 15.570  TIME= 16:21:56
Area 524 is not meshed. Volume will be generated without elements.

*** WARNING ***                CP= 15.570  TIME= 16:21:56
Area 527 is not meshed. Volume will be generated without elements.

*** WARNING ***                CP= 15.570  TIME= 16:21:56
Area 530 is not meshed. Volume will be generated without elements.

*** WARNING ***                CP= 15.570  TIME= 16:21:56
Area 534 is not meshed. Volume will be generated without elements.

*** WARNING ***                CP= 15.570  TIME= 16:21:56
Area 537 is not meshed. Volume will be generated without elements.

*** WARNING ***                CP= 15.580  TIME= 16:21:56
Area 540 is not meshed. Volume will be generated without elements.

*** WARNING ***                CP= 15.580  TIME= 16:21:56
Area 544 is not meshed. Volume will be generated without elements.

*** WARNING ***                CP= 15.580  TIME= 16:21:56
Area 547 is not meshed. Volume will be generated without elements.

*** WARNING ***                CP= 15.580  TIME= 16:21:56
Area 551 is not meshed. Volume will be generated without elements.

*** WARNING ***                CP= 15.580  TIME= 16:21:56
Area 555 is not meshed. Volume will be generated without elements.

*** WARNING ***                CP= 15.580  TIME= 16:21:56
Area 558 is not meshed. Volume will be generated without elements.

*** WARNING ***                CP= 15.580  TIME= 16:21:56
Area 561 is not meshed. Volume will be generated without elements.

*** WARNING ***                CP= 15.580  TIME= 16:21:56
Area 564 is not meshed. Volume will be generated without elements.

*** WARNING ***                CP= 15.580  TIME= 16:21:56
Area 567 is not meshed. Volume will be generated without elements.

*** WARNING ***                CP= 15.580  TIME= 16:21:56
Area 570 is not meshed. Volume will be generated without elements.

*** WARNING ***                CP= 15.580  TIME= 16:21:56
Area 573 is not meshed. Volume will be generated without elements.

*** WARNING ***                CP= 15.590  TIME= 16:21:56
Area 576 is not meshed. Volume will be generated without elements.

*** WARNING ***                CP= 15.590  TIME= 16:21:56
Area 579 is not meshed. Volume will be generated without elements.

*** WARNING ***                CP= 15.590  TIME= 16:21:56
Area 582 is not meshed. Volume will be generated without elements.

*** WARNING ***                CP= 15.590  TIME= 16:21:56
Area 585 is not meshed. Volume will be generated without elements.

*** WARNING ***                CP= 15.590  TIME= 16:21:56
Area 588 is not meshed. Volume will be generated without elements.

*** WARNING ***                CP= 15.590  TIME= 16:21:56
Area 591 is not meshed. Volume will be generated without elements.

*** WARNING ***                CP= 15.590  TIME= 16:21:56

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Area 594 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.590 TIME= 16:21:56
Area 597 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.590 TIME= 16:21:56
Area 600 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.590 TIME= 16:21:56
Area 603 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.600 TIME= 16:21:56
Area 606 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.600 TIME= 16:21:56
Area 609 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.600 TIME= 16:21:56
Area 612 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.610 TIME= 16:21:56
Area 615 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.610 TIME= 16:21:56
Area 619 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.610 TIME= 16:21:56
Area 622 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.610 TIME= 16:21:56
Area 625 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.610 TIME= 16:21:56
Area 628 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.610 TIME= 16:21:56
Area 631 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.610 TIME= 16:21:56
Area 634 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.610 TIME= 16:21:56
Area 637 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.610 TIME= 16:21:56
Area 640 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.610 TIME= 16:21:56
Area 643 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.620 TIME= 16:21:56
Area 646 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.620 TIME= 16:21:56
Area 649 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.620 TIME= 16:21:56
Area 652 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.620 TIME= 16:21:56
Area 655 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.620 TIME= 16:21:56
Area 658 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.620 TIME= 16:21:56
Area 661 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.620 TIME= 16:21:56
Area 664 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.620 TIME= 16:21:56
Area 667 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.620 TIME= 16:21:56
Area 670 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.620 TIME= 16:21:56
Area 673 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.620 TIME= 16:21:56
Area 676 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.630 TIME= 16:21:56
Area 679 is not meshed. Volume will be generated without elements.

SELECT FOR ITEM=LOC COMPONENT=Z BETWEEN 4.6050 AND 4.6050
KABS= 0. TOLERANCE= 0.230250E-01

63 AREAS (OF 892 DEFINED) SELECTED BY ASEL COMMAND.
copy areas from top of basket to bottom of lid

SELECT FOR ITEM=LOC COMPONENT=Z BETWEEN 4.5550 AND 4.5550
KABS= 0. TOLERANCE= 0.227750E-01

155 AREAS (OF 892 DEFINED) SELECTED BY ASEL COMMAND.

ACTIVE COORDINATE SYSTEM SET TO 1 (CYLINDRICAL)

RESELECT FOR ITEM=LOC COMPONENT=X BETWEEN 0.00000E+00 AND 0.68095
KABS= 0. TOLERANCE= 0.000000E+00

92 AREAS (OF 892 DEFINED) SELECTED BY ASEL COMMAND.

ACTIVE COORDINATE SYSTEM SET TO 0 (CARTESIAN)

GENERATE 2 TOTAL SETS OF AREAS
SET IS ALL SELECTED AREAS
DX,DY,DZ= 0.000E+00 0.000E+00 0.100E-01 CSYS= 0

MERGE COINCIDENT KEYPOINTS WITHIN TOLERANCE OF 0.10000E-03

KEYPOINT	417 USED FOR KEYPOINT(S)	609
KEYPOINT	419 USED FOR KEYPOINT(S)	610
KEYPOINT	421 USED FOR KEYPOINT(S)	611
KEYPOINT	423 USED FOR KEYPOINT(S)	546
KEYPOINT	425 USED FOR KEYPOINT(S)	628
KEYPOINT	427 USED FOR KEYPOINT(S)	630
KEYPOINT	429 USED FOR KEYPOINT(S)	584
KEYPOINT	431 USED FOR KEYPOINT(S)	612
KEYPOINT	433 USED FOR KEYPOINT(S)	615
KEYPOINT	435 USED FOR KEYPOINT(S)	616
KEYPOINT	437 USED FOR KEYPOINT(S)	619
KEYPOINT	439 USED FOR KEYPOINT(S)	620
KEYPOINT	441 USED FOR KEYPOINT(S)	621
KEYPOINT	443 USED FOR KEYPOINT(S)	602
KEYPOINT	445 USED FOR KEYPOINT(S)	633
KEYPOINT	447 USED FOR KEYPOINT(S)	632
KEYPOINT	449 USED FOR KEYPOINT(S)	580
KEYPOINT	451 USED FOR KEYPOINT(S)	623
KEYPOINT	453 USED FOR KEYPOINT(S)	626
KEYPOINT	454 USED FOR KEYPOINT(S)	625
LINE	960 USED FOR LINE(S)	1374
LINE	970 USED FOR LINE(S)	1377
LINE	975 USED FOR LINE(S)	1405
LINE	985 USED FOR LINE(S)	1410
LINE	990 USED FOR LINE(S)	1378
LINE	1000 USED FOR LINE(S)	1384
LINE	1010 USED FOR LINE(S)	1391
LINE	1020 USED FOR LINE(S)	1394
LINE	1025 USED FOR LINE(S)	1415

LINE 1035 USED FOR LINE(S) 1413
 LINE 1040 USED FOR LINE(S) 1396
 LINE 1046 USED FOR LINE(S) 1402
 lines tube height

LINE CONNECTS KEYPOINTS 502 509
 LINE NO.= 1374 KP1= 502 TAN1= 0.0000 -1.0000 0.0000
 KP2= 509 TAN2= 0.0000 1.0000 0.0000

LINE CONNECTS KEYPOINTS 510 517
 LINE NO.= 1377 KP1= 510 TAN1= 0.0000 -1.0000 0.0000
 KP2= 517 TAN2= 0.0000 1.0000 0.0000

LINE CONNECTS KEYPOINTS 518 525
 LINE NO.= 1378 KP1= 518 TAN1= 0.0000 -1.0000 0.0000
 KP2= 525 TAN2= 0.0000 1.0000 0.0000

LINE CONNECTS KEYPOINTS 526 533
 LINE NO.= 1384 KP1= 526 TAN1= 0.0000 -1.0000 0.0000
 KP2= 533 TAN2= 0.0000 1.0000 0.0000

LINE CONNECTS KEYPOINTS 534 541
 LINE NO.= 1391 KP1= 534 TAN1= 0.0000 -1.0000 0.0000
 KP2= 541 TAN2= 0.0000 1.0000 0.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
 TO NDIV = 4, SPACING RATIO = 1.000
 end lines

LINE CONNECTS KEYPOINTS 627 457
 LINE NO.= 1394 KP1= 627 TAN1= 0.0000 -1.0000 0.0000
 KP2= 457 TAN2= 0.0000 1.0000 0.0000

LINE CONNECTS KEYPOINTS 414 606
 LINE NO.= 1396 KP1= 414 TAN1= 0.0000 -1.0000 0.0000
 KP2= 606 TAN2= 0.0000 1.0000 0.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
 TO NDIV = 4, SPACING RATIO = 1.000

DEFINE AREA BY LIST OF LINES
 LINE LIST = 955 1369 1373 1396
 (TRAVERSED IN SAME DIRECTION AS LINE 955)

AREA NUMBER = 985

DEFINE AREA BY LIST OF LINES
 LINE LIST = 1189 1190 1194 1374
 (TRAVERSED IN SAME DIRECTION AS LINE 1189)

AREA NUMBER = 986

DEFINE AREA BY LIST OF LINES
 LINE LIST = 1199 1200 1204 1377
 (TRAVERSED IN SAME DIRECTION AS LINE 1199)

AREA NUMBER = 987

DEFINE AREA BY LIST OF LINES
 LINE LIST = 1209 1212 1214 1378
 (TRAVERSED IN SAME DIRECTION AS LINE 1209)

AREA NUMBER = 988

DEFINE AREA BY LIST OF LINES
 LINE LIST = 1219 1222 1224 1384
 (TRAVERSED IN SAME DIRECTION AS LINE 1219)

AREA NUMBER = 989

DEFINE AREA BY LIST OF LINES
LINE LIST = 1229 1232 1234 1391
(TRAVERSED IN SAME DIRECTION AS LINE 1229)

AREA NUMBER = 990

DEFINE AREA BY LIST OF LINES
LINE LIST = 1055 1394 1400 1404
(TRAVERSED IN SAME DIRECTION AS LINE 1055)

AREA NUMBER = 991

DEFINE AREA BY LIST OF LINES
LINE LIST = 965 1375 1376
(TRAVERSED IN SAME DIRECTION AS LINE 965)

AREA NUMBER = 992

DEFINE AREA BY LIST OF LINES
LINE LIST = 1238 1242 1243 1246
(TRAVERSED IN SAME DIRECTION AS LINE 1238)

AREA NUMBER = 993

DEFINE AREA BY LIST OF LINES
LINE LIST = 1250 1254 1255 1258
(TRAVERSED IN SAME DIRECTION AS LINE 1250)

AREA NUMBER = 994

DEFINE AREA BY LIST OF LINES
LINE LIST = 1263 1266 1268 1271
(TRAVERSED IN SAME DIRECTION AS LINE 1263)

AREA NUMBER = 995

DEFINE AREA BY LIST OF LINES
LINE LIST = 1274 1278 1281 1282
(TRAVERSED IN SAME DIRECTION AS LINE 1274)

AREA NUMBER = 996

DEFINE AREA BY LIST OF LINES
LINE LIST = 1286 1290 1293 1294
(TRAVERSED IN SAME DIRECTION AS LINE 1286)

AREA NUMBER = 997

DEFINE AREA BY LIST OF LINES
LINE LIST = 1045 1397 1401
(TRAVERSED IN SAME DIRECTION AS LINE 1045)

AREA NUMBER = 998

DEFINE AREA BY LIST OF LINES
LINE LIST = 980 1406 1409
(TRAVERSED IN SAME DIRECTION AS LINE 980)

AREA NUMBER = 999

DEFINE AREA BY LIST OF LINES
LINE LIST = 1299 1302 1304 1307
(TRAVERSED IN SAME DIRECTION AS LINE 1299)

AREA NUMBER = 1000

DEFINE AREA BY LIST OF LINES
LINE LIST = 1311 1314 1316 1319
(TRAVERSED IN SAME DIRECTION AS LINE 1311)

AREA NUMBER = 1001

DEFINE AREA BY LIST OF LINES

LINE LIST = 1323 1326 1328 1331
(TRAVERSED IN SAME DIRECTION AS LINE 1323)

AREA NUMBER = 1002

DEFINE AREA BY LIST OF LINES

LINE LIST = 1030 1412 1416
(TRAVERSED IN SAME DIRECTION AS LINE 1030)

AREA NUMBER = 1003

DEFINE AREA BY LIST OF LINES

LINE LIST = 995 1379 1383
(TRAVERSED IN SAME DIRECTION AS LINE 995)

AREA NUMBER = 1004

DEFINE AREA BY LIST OF LINES

LINE LIST = 1005 1385 1386 1390
(TRAVERSED IN SAME DIRECTION AS LINE 1005)

AREA NUMBER = 1005

DEFINE AREA BY LIST OF LINES

LINE LIST = 1015 1392 1393
(TRAVERSED IN SAME DIRECTION AS LINE 1015)

AREA NUMBER = 1006

SELECT FOR ITEM=LOC COMPONENT=Z BETWEEN 4.6050 AND 4.6050
KABS= 0. TOLERANCE= 0.230250E-01

177 AREAS (OF 1006 DEFINED) SELECTED BY ASEL COMMAND.

DRAG ALL SELECTED AREAS

ALONG LINES

3,

*** WARNING *** CP= 22.310 TIME= 16:22:03
Area 684 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.310 TIME= 16:22:03
Area 688 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.310 TIME= 16:22:03
Area 692 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.310 TIME= 16:22:03
Area 696 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.310 TIME= 16:22:03
Area 700 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.310 TIME= 16:22:03
Area 704 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.310 TIME= 16:22:03
Area 708 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.310 TIME= 16:22:03
Area 712 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.310 TIME= 16:22:03
Area 716 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.310 TIME= 16:22:03
Area 720 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.320 TIME= 16:22:03
Area 724 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.320 TIME= 16:22:03
Area 728 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.320 TIME= 16:22:03
Area 732 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.320 TIME= 16:22:03
Area 736 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.320 TIME= 16:22:03
Area 740 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.320 TIME= 16:22:03
Area 744 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.320 TIME= 16:22:03
Area 748 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.320 TIME= 16:22:03
Area 752 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.320 TIME= 16:22:03
Area 756 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.320 TIME= 16:22:03
Area 760 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.320 TIME= 16:22:03
Area 764 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.320 TIME= 16:22:03
Area 768 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.330 TIME= 16:22:03
Area 771 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.330 TIME= 16:22:03
Area 774 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.330 TIME= 16:22:03
Area 777 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.330 TIME= 16:22:03
Area 780 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.330 TIME= 16:22:03
Area 783 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.330 TIME= 16:22:03
Area 786 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.330 TIME= 16:22:03
Area 789 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.330 TIME= 16:22:03
Area 792 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.330 TIME= 16:22:03
Area 795 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.340 TIME= 16:22:03
Area 798 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.340 TIME= 16:22:03
Area 801 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.340 TIME= 16:22:03
Area 804 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.340 TIME= 16:22:03
Area 807 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.340 TIME= 16:22:03
Area 810 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.340 TIME= 16:22:03
Area 813 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.340 TIME= 16:22:03
Area 816 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.350 TIME= 16:22:03
Area 819 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.350 TIME= 16:22:03
Area 822 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.350 TIME= 16:22:03
Area 825 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.350 TIME= 16:22:03
Area 828 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.350 TIME= 16:22:03
Area 832 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.350 TIME= 16:22:03
Area 835 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.350 TIME= 16:22:03
Area 838 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.350 TIME= 16:22:03
Area 841 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.350 TIME= 16:22:03
Area 844 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.350 TIME= 16:22:03
Area 847 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.360 TIME= 16:22:03
Area 850 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.360 TIME= 16:22:03
Area 853 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.360 TIME= 16:22:03
Area 856 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.360 TIME= 16:22:03
Area 859 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.360 TIME= 16:22:03
Area 862 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.360 TIME= 16:22:03
Area 865 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.360 TIME= 16:22:03
Area 868 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.360 TIME= 16:22:03
Area 871 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.370 TIME= 16:22:03

Area 874 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.370 TIME= 16:22:03
Area 877 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.370 TIME= 16:22:03
Area 880 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.370 TIME= 16:22:03
Area 883 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.370 TIME= 16:22:03
Area 886 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.370 TIME= 16:22:03
Area 889 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.370 TIME= 16:22:03
Area 892 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.370 TIME= 16:22:03
Area 893 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.370 TIME= 16:22:03
Area 894 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.370 TIME= 16:22:03
Area 895 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.380 TIME= 16:22:03
Area 896 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.380 TIME= 16:22:03
Area 897 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.380 TIME= 16:22:03
Area 898 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.380 TIME= 16:22:03
Area 899 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.380 TIME= 16:22:03
Area 900 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.380 TIME= 16:22:03
Area 901 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.380 TIME= 16:22:03
Area 902 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.380 TIME= 16:22:03
Area 903 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.390 TIME= 16:22:03
Area 904 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.390 TIME= 16:22:03
Area 905 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.390 TIME= 16:22:03
Area 906 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.390 TIME= 16:22:03
Area 907 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.390 TIME= 16:22:03
Area 908 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.390 TIME= 16:22:03
Area 909 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.390 TIME= 16:22:03
Area 910 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.390 TIME= 16:22:03
Area 911 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.390 TIME= 16:22:03
Area 912 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.390 TIME= 16:22:03
Area 913 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.390 TIME= 16:22:03
Area 914 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.400 TIME= 16:22:03
Area 915 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.400 TIME= 16:22:03
Area 916 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.400 TIME= 16:22:03
Area 917 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.400 TIME= 16:22:03
Area 918 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.400 TIME= 16:22:03
Area 919 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.400 TIME= 16:22:03
Area 920 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.400 TIME= 16:22:03
Area 921 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.410 TIME= 16:22:03
Area 922 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.410 TIME= 16:22:03
Area 923 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.410 TIME= 16:22:03
Area 924 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.410 TIME= 16:22:03
Area 925 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.410 TIME= 16:22:03
Area 926 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.410 TIME= 16:22:03
Area 927 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.410 TIME= 16:22:03
Area 928 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.410 TIME= 16:22:03
Area 929 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.410 TIME= 16:22:03
Area 930 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.410 TIME= 16:22:03
Area 931 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.410 TIME= 16:22:03
Area 932 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.410 TIME= 16:22:03
Area 933 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.420 TIME= 16:22:03
Area 934 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.420 TIME= 16:22:03
Area 935 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.420 TIME= 16:22:03
Area 936 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.420 TIME= 16:22:03
Area 937 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.420 TIME= 16:22:03
Area 938 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.420 TIME= 16:22:03
Area 939 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.420 TIME= 16:22:03
Area 940 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.420 TIME= 16:22:03
Area 941 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.420 TIME= 16:22:03
Area 942 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.430 TIME= 16:22:03
Area 943 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.430 TIME= 16:22:03
Area 944 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.430 TIME= 16:22:03
Area 945 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.430 TIME= 16:22:03
Area 946 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.430 TIME= 16:22:03
Area 947 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.430 TIME= 16:22:03
Area 948 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.430 TIME= 16:22:03
Area 949 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.430 TIME= 16:22:03
Area 950 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.440 TIME= 16:22:03
Area 951 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.440 TIME= 16:22:03
Area 952 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.440 TIME= 16:22:03
Area 953 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.440 TIME= 16:22:03
Area 954 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.440 TIME= 16:22:03
Area 955 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.440 TIME= 16:22:03

Area 956 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.440 TIME= 16:22:03
Area 957 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.440 TIME= 16:22:03
Area 958 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.440 TIME= 16:22:03
Area 959 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.440 TIME= 16:22:03
Area 960 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.440 TIME= 16:22:03
Area 961 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.440 TIME= 16:22:03
Area 962 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.440 TIME= 16:22:03
Area 963 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.440 TIME= 16:22:03
Area 964 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.440 TIME= 16:22:03
Area 965 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.440 TIME= 16:22:03
Area 966 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.440 TIME= 16:22:03
Area 967 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.440 TIME= 16:22:03
Area 968 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.450 TIME= 16:22:03
Area 969 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.450 TIME= 16:22:03
Area 970 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.450 TIME= 16:22:03
Area 971 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.450 TIME= 16:22:03
Area 972 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.450 TIME= 16:22:03
Area 973 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.450 TIME= 16:22:03
Area 974 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.450 TIME= 16:22:03
Area 975 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.450 TIME= 16:22:03
Area 976 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.450 TIME= 16:22:03
Area 977 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.460 TIME= 16:22:03
Area 978 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.460 TIME= 16:22:03
Area 979 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.460 TIME= 16:22:03
Area 980 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.460 TIME= 16:22:03
Area 981 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.460 TIME= 16:22:03
Area 982 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.460 TIME= 16:22:03
Area 983 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.460 TIME= 16:22:03
Area 984 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.460 TIME= 16:22:03
Area 985 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.460 TIME= 16:22:03
Area 986 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.460 TIME= 16:22:03
Area 987 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.460 TIME= 16:22:03
Area 988 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.460 TIME= 16:22:03
Area 989 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.470 TIME= 16:22:03
Area 990 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.470 TIME= 16:22:03
Area 991 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.470 TIME= 16:22:03
Area 992 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.470 TIME= 16:22:03
Area 993 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.470 TIME= 16:22:03
Area 994 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.470 TIME= 16:22:03
Area 995 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.470 TIME= 16:22:03
Area 996 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.470 TIME= 16:22:03
Area 997 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.470 TIME= 16:22:03
Area 998 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.470 TIME= 16:22:03
Area 999 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.470 TIME= 16:22:03
Area 1000 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.470 TIME= 16:22:03
Area 1001 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.480 TIME= 16:22:03
Area 1002 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.480 TIME= 16:22:03
Area 1003 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.480 TIME= 16:22:03
Area 1004 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.480 TIME= 16:22:03
Area 1005 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 22.480 TIME= 16:22:03
Area 1006 is not meshed. Volume will be generated without elements.

SELECT FOR ITEM=LOC COMPONENT=Z BETWEEN 4.6250 AND 4.6250
KABS= 0. TOLERANCE= 0.231250E-01

177 AREAS (OF 1559 DEFINED) SELECTED BY ASEL COMMAND.

ACTIVE COORDINATE SYSTEM SET TO 1 (CYLINDRICAL)

RESELECT FOR ITEM=LOC COMPONENT=X BETWEEN 0.73095 AND 0.83095
KABS= 0. TOLERANCE= 0.000000E+00

42 AREAS (OF 1559 DEFINED) SELECTED BY ASEL COMMAND.

ACTIVE COORDINATE SYSTEM SET TO 0 (CARTESIAN)

DRAG ALL SELECTED AREAS
ALONG LINES
4,

*** WARNING *** CP= 32.470 TIME= 16:22:14
Area 1095 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 32.470 TIME= 16:22:14
Area 1098 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 32.470 TIME= 16:22:14
Area 1101 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 32.470 TIME= 16:22:14
Area 1104 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 32.470 TIME= 16:22:14
Area 1107 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 32.480 TIME= 16:22:14
Area 1110 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 32.480 TIME= 16:22:14
Area 1113 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 32.480 TIME= 16:22:14
Area 1116 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 32.480 TIME= 16:22:14
Area 1119 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 32.480 TIME= 16:22:14
Area 1122 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 32.480 TIME= 16:22:14
Area 1125 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 32.480 TIME= 16:22:14
Area 1128 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 32.480 TIME= 16:22:14
Area 1131 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 32.480 TIME= 16:22:14

Area 1134 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 32.480 TIME= 16:22:14
Area 1137 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 32.480 TIME= 16:22:14
Area 1140 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 32.480 TIME= 16:22:14
Area 1143 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 32.490 TIME= 16:22:14
Area 1146 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 32.490 TIME= 16:22:14
Area 1149 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 32.490 TIME= 16:22:14
Area 1152 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 32.490 TIME= 16:22:14
Area 1155 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 32.490 TIME= 16:22:14
Area 1159 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 32.490 TIME= 16:22:14
Area 1162 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 32.490 TIME= 16:22:14
Area 1165 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 32.490 TIME= 16:22:14
Area 1168 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 32.490 TIME= 16:22:14
Area 1171 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 32.490 TIME= 16:22:14
Area 1174 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 32.490 TIME= 16:22:14
Area 1177 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 32.500 TIME= 16:22:14
Area 1180 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 32.500 TIME= 16:22:14
Area 1183 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 32.500 TIME= 16:22:14
Area 1186 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 32.500 TIME= 16:22:14
Area 1189 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 32.500 TIME= 16:22:14
Area 1192 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 32.500 TIME= 16:22:14
Area 1195 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 32.500 TIME= 16:22:14
Area 1198 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 32.500 TIME= 16:22:14
Area 1201 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 32.500 TIME= 16:22:14
Area 1204 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 32.500 TIME= 16:22:14
Area 1207 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 32.500 TIME= 16:22:14
Area 1210 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 32.500 TIME= 16:22:14
Area 1213 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 32.510 TIME= 16:22:14
Area 1216 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 32.510 TIME= 16:22:14
Area 1219 is not meshed. Volume will be generated without elements.

SELECT FOR ITEM=LOC COMPONENT=Z BETWEEN 4.6250 AND 4.6250
KABS= 0. TOLERANCE= 0.231250E-01

326 AREAS (OF 1708 DEFINED) SELECTED BY ASEL COMMAND.

RESELECT FOR ITEM=LOC COMPONENT=Z BETWEEN 4.5950 AND 4.5950
KABS= 0. TOLERANCE= 0.229750E-01

177 AREAS (OF 1708 DEFINED) SELECTED BY ASEL COMMAND.

ACTIVE COORDINATE SYSTEM SET TO 1 (CYLINDRICAL)

RESELECT FOR ITEM=LOC COMPONENT=X BETWEEN 0.00000E+00 AND 0.73095
KABS= 0. TOLERANCE= 0.000000E+00

135 AREAS (OF 1708 DEFINED) SELECTED BY ASEL COMMAND.

ACTIVE COORDINATE SYSTEM SET TO 0 (CARTESIAN)

GENERATE 2 TOTAL SETS OF AREAS
SET IS ALL SELECTED AREAS
DX,DY,DZ= 0.000E+00 0.000E+00 0.300E-01 CSYS= 0

MERGE COINCIDENT KEYPOINTS WITHIN TOLERANCE OF 0.10000E-03

KEYPOINT	814 USED FOR KEYPOINT(S)	881
KEYPOINT	817 USED FOR KEYPOINT(S)	882
KEYPOINT	819 USED FOR KEYPOINT(S)	884
KEYPOINT	821 USED FOR KEYPOINT(S)	886
KEYPOINT	823 USED FOR KEYPOINT(S)	888
KEYPOINT	825 USED FOR KEYPOINT(S)	890
KEYPOINT	827 USED FOR KEYPOINT(S)	892
KEYPOINT	829 USED FOR KEYPOINT(S)	894
KEYPOINT	831 USED FOR KEYPOINT(S)	896
KEYPOINT	833 USED FOR KEYPOINT(S)	898
KEYPOINT	835 USED FOR KEYPOINT(S)	900
KEYPOINT	837 USED FOR KEYPOINT(S)	902
KEYPOINT	839 USED FOR KEYPOINT(S)	904
KEYPOINT	841 USED FOR KEYPOINT(S)	906
KEYPOINT	843 USED FOR KEYPOINT(S)	908
KEYPOINT	845 USED FOR KEYPOINT(S)	910
KEYPOINT	847 USED FOR KEYPOINT(S)	912
KEYPOINT	849 USED FOR KEYPOINT(S)	914
KEYPOINT	851 USED FOR KEYPOINT(S)	916
KEYPOINT	853 USED FOR KEYPOINT(S)	918
KEYPOINT	855 USED FOR KEYPOINT(S)	921
KEYPOINT	857 USED FOR KEYPOINT(S)	922
LINE	1995 USED FOR LINE(S)	2162
LINE	2000 USED FOR LINE(S)	2165
LINE	2005 USED FOR LINE(S)	2168
LINE	2010 USED FOR LINE(S)	2171
LINE	2015 USED FOR LINE(S)	2174
LINE	2020 USED FOR LINE(S)	2177
LINE	2025 USED FOR LINE(S)	2180
LINE	2030 USED FOR LINE(S)	2183

LINE 2035 USED FOR LINE(S) 2186
 LINE 2040 USED FOR LINE(S) 2189
 LINE 2045 USED FOR LINE(S) 2192
 LINE 2050 USED FOR LINE(S) 2195
 LINE 2055 USED FOR LINE(S) 2198
 LINE 2060 USED FOR LINE(S) 2201
 LINE 2065 USED FOR LINE(S) 2204
 LINE 2070 USED FOR LINE(S) 2207
 LINE 2075 USED FOR LINE(S) 2210
 LINE 2080 USED FOR LINE(S) 2213
 LINE 2085 USED FOR LINE(S) 2216
 LINE 2090 USED FOR LINE(S) 2220
 LINE 2095 USED FOR LINE(S) 2222

SELECT FOR ITEM=LOC COMPONENT=Z BETWEEN 4.6550 AND 4.6550
 KABS= 0. TOLERANCE= 0.232750E-01

177 AREAS (OF 1843 DEFINED) SELECTED BY ASEL COMMAND.

DRAG ALL SELECTED AREAS
 ALONG LINES
 5,

*** WARNING *** CP= 38.850 TIME= 16:22:20
 Area 1564 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.850 TIME= 16:22:20
 Area 1568 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.850 TIME= 16:22:20
 Area 1572 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.860 TIME= 16:22:20
 Area 1576 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.860 TIME= 16:22:20
 Area 1580 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.860 TIME= 16:22:20
 Area 1584 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.860 TIME= 16:22:20
 Area 1588 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.860 TIME= 16:22:20
 Area 1592 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.860 TIME= 16:22:20
 Area 1596 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.860 TIME= 16:22:20
 Area 1600 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.860 TIME= 16:22:20
 Area 1604 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.860 TIME= 16:22:20
 Area 1608 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.860 TIME= 16:22:20
 Area 1612 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.860 TIME= 16:22:20
 Area 1616 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.870 TIME= 16:22:20
 Area 1620 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.870 TIME= 16:22:20
 Area 1624 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.870 TIME= 16:22:20
Area 1628 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.870 TIME= 16:22:20
Area 1632 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.870 TIME= 16:22:20
Area 1636 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.870 TIME= 16:22:20
Area 1640 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.870 TIME= 16:22:20
Area 1644 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.870 TIME= 16:22:20
Area 1648 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.870 TIME= 16:22:20
Area 1651 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.870 TIME= 16:22:20
Area 1654 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.870 TIME= 16:22:20
Area 1657 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.870 TIME= 16:22:20
Area 1660 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.880 TIME= 16:22:20
Area 1663 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.880 TIME= 16:22:20
Area 1666 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.880 TIME= 16:22:20
Area 1669 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.880 TIME= 16:22:20
Area 1672 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.880 TIME= 16:22:20
Area 1675 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.880 TIME= 16:22:20
Area 1678 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.880 TIME= 16:22:20
Area 1681 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.880 TIME= 16:22:20
Area 1684 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.880 TIME= 16:22:20
Area 1687 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.880 TIME= 16:22:20
Area 1690 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.880 TIME= 16:22:20
Area 1693 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.890 TIME= 16:22:20
Area 1696 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.890 TIME= 16:22:20
Area 1699 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.890 TIME= 16:22:20
Area 1702 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.890 TIME= 16:22:20
Area 1705 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.890 TIME= 16:22:20
Area 1708 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.890 TIME= 16:22:20
Area 1709 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.890 TIME= 16:22:20
Area 1710 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.890 TIME= 16:22:20
Area 1711 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.890 TIME= 16:22:20
Area 1712 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.890 TIME= 16:22:20
Area 1713 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.890 TIME= 16:22:20
Area 1714 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.890 TIME= 16:22:20
Area 1715 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.900 TIME= 16:22:20
Area 1716 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.900 TIME= 16:22:20
Area 1717 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.900 TIME= 16:22:20
Area 1718 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.900 TIME= 16:22:20
Area 1719 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.900 TIME= 16:22:20
Area 1720 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.900 TIME= 16:22:20
Area 1721 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.900 TIME= 16:22:20
Area 1722 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.900 TIME= 16:22:20
Area 1723 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.900 TIME= 16:22:20
Area 1724 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.900 TIME= 16:22:20
Area 1725 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.900 TIME= 16:22:20
Area 1726 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.910 TIME= 16:22:20
Area 1727 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.910 TIME= 16:22:20
Area 1728 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.910 TIME= 16:22:20

Area 1729 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.910 TIME= 16:22:20
Area 1730 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.910 TIME= 16:22:20
Area 1731 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.910 TIME= 16:22:20
Area 1732 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.910 TIME= 16:22:20
Area 1733 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.910 TIME= 16:22:20
Area 1734 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.910 TIME= 16:22:20
Area 1735 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.910 TIME= 16:22:20
Area 1736 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.910 TIME= 16:22:20
Area 1737 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.920 TIME= 16:22:20
Area 1738 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.920 TIME= 16:22:20
Area 1739 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.920 TIME= 16:22:20
Area 1740 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.920 TIME= 16:22:20
Area 1741 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.920 TIME= 16:22:20
Area 1742 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.920 TIME= 16:22:20
Area 1743 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.920 TIME= 16:22:20
Area 1744 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.920 TIME= 16:22:20
Area 1745 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.920 TIME= 16:22:20
Area 1746 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.920 TIME= 16:22:20
Area 1747 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.920 TIME= 16:22:20
Area 1748 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.920 TIME= 16:22:20
Area 1749 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.930 TIME= 16:22:20
Area 1750 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.930 TIME= 16:22:20
Area 1751 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.930 TIME= 16:22:20
Area 1752 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.930 TIME= 16:22:20
Area 1753 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.930 TIME= 16:22:20
Area 1754 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.930 TIME= 16:22:20
Area 1755 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.930 TIME= 16:22:20
Area 1756 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.930 TIME= 16:22:20
Area 1757 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.930 TIME= 16:22:20
Area 1758 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.930 TIME= 16:22:20
Area 1759 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.930 TIME= 16:22:20
Area 1760 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.940 TIME= 16:22:20
Area 1761 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.940 TIME= 16:22:20
Area 1762 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.940 TIME= 16:22:20
Area 1763 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.940 TIME= 16:22:20
Area 1764 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.940 TIME= 16:22:20
Area 1765 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.940 TIME= 16:22:20
Area 1766 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.940 TIME= 16:22:20
Area 1767 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.940 TIME= 16:22:20
Area 1768 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.940 TIME= 16:22:20
Area 1769 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.940 TIME= 16:22:20
Area 1770 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.940 TIME= 16:22:20
Area 1771 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.940 TIME= 16:22:20
Area 1772 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.950 TIME= 16:22:20
Area 1773 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.950 TIME= 16:22:20
Area 1774 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.950 TIME= 16:22:20
Area 1775 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.950 TIME= 16:22:20
Area 1776 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.950 TIME= 16:22:20
Area 1777 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.950 TIME= 16:22:20
Area 1778 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.950 TIME= 16:22:20
Area 1779 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.950 TIME= 16:22:20
Area 1780 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.950 TIME= 16:22:20
Area 1781 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.950 TIME= 16:22:20
Area 1782 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.950 TIME= 16:22:20
Area 1783 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.960 TIME= 16:22:20
Area 1784 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.960 TIME= 16:22:20
Area 1785 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.960 TIME= 16:22:20
Area 1786 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.960 TIME= 16:22:20
Area 1787 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.960 TIME= 16:22:20
Area 1788 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.960 TIME= 16:22:20
Area 1789 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.960 TIME= 16:22:20
Area 1790 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.960 TIME= 16:22:20
Area 1791 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.960 TIME= 16:22:20
Area 1792 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.960 TIME= 16:22:20
Area 1793 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.960 TIME= 16:22:20
Area 1794 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.970 TIME= 16:22:20
Area 1795 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.970 TIME= 16:22:20
Area 1796 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.970 TIME= 16:22:20
Area 1797 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.970 TIME= 16:22:20
Area 1798 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.970 TIME= 16:22:20

Area 1799 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.970 TIME= 16:22:20
Area 1800 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.970 TIME= 16:22:20
Area 1801 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.970 TIME= 16:22:20
Area 1802 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.970 TIME= 16:22:20
Area 1803 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.970 TIME= 16:22:20
Area 1804 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.970 TIME= 16:22:20
Area 1805 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.970 TIME= 16:22:20
Area 1806 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.980 TIME= 16:22:20
Area 1807 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.980 TIME= 16:22:20
Area 1808 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.980 TIME= 16:22:20
Area 1809 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.980 TIME= 16:22:20
Area 1810 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.980 TIME= 16:22:20
Area 1811 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.980 TIME= 16:22:20
Area 1812 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.980 TIME= 16:22:20
Area 1813 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.980 TIME= 16:22:20
Area 1814 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.980 TIME= 16:22:20
Area 1815 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.980 TIME= 16:22:20
Area 1816 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.980 TIME= 16:22:20
Area 1817 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.990 TIME= 16:22:20
Area 1818 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.990 TIME= 16:22:20
Area 1819 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.990 TIME= 16:22:20
Area 1820 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.990 TIME= 16:22:20
Area 1821 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.990 TIME= 16:22:20
Area 1822 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.990 TIME= 16:22:20
Area 1823 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.990 TIME= 16:22:20
Area 1824 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.990 TIME= 16:22:20
Area 1825 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.990 TIME= 16:22:20
Area 1826 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.990 TIME= 16:22:20
Area 1827 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 38.990 TIME= 16:22:20
Area 1828 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.000 TIME= 16:22:20
Area 1829 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.000 TIME= 16:22:20
Area 1830 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.000 TIME= 16:22:20
Area 1831 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.000 TIME= 16:22:20
Area 1832 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.000 TIME= 16:22:20
Area 1833 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.000 TIME= 16:22:20
Area 1834 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.000 TIME= 16:22:20
Area 1835 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.000 TIME= 16:22:20
Area 1836 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.000 TIME= 16:22:20
Area 1837 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.000 TIME= 16:22:20
Area 1838 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.000 TIME= 16:22:20
Area 1839 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.000 TIME= 16:22:20
Area 1840 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.010 TIME= 16:22:20
Area 1841 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.010 TIME= 16:22:20
Area 1842 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 39.010 TIME= 16:22:20
Area 1843 is not meshed. Volume will be generated without elements.

SELECT FOR ITEM=LOC COMPONENT=Z BETWEEN 4.7500 AND 4.7500
KABS= 0. TOLERANCE= 0.237500E-01

177 AREAS (OF 2396 DEFINED) SELECTED BY ASEL COMMAND.

ACTIVE COORDINATE SYSTEM SET TO 1 (CYLINDRICAL)

RESELECT FOR ITEM=LOC COMPONENT=X BETWEEN 0.77095 AND 0.83095
KABS= 0. TOLERANCE= 0.000000E+00

21 AREAS (OF 2396 DEFINED) SELECTED BY ASEL COMMAND.

ACTIVE COORDINATE SYSTEM SET TO 0 (CARTESIAN)

DRAG ALL SELECTED AREAS
ALONG LINES
6,

*** WARNING *** CP= 49.040 TIME= 16:22:31
Area 1932 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 49.050 TIME= 16:22:31
Area 1935 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 49.050 TIME= 16:22:31
Area 1938 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 49.050 TIME= 16:22:31
Area 1941 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 49.050 TIME= 16:22:31
Area 1944 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 49.050 TIME= 16:22:31
Area 1947 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 49.050 TIME= 16:22:31
Area 1950 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 49.050 TIME= 16:22:31
Area 1953 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 49.050 TIME= 16:22:31
Area 1956 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 49.050 TIME= 16:22:31
Area 1959 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 49.050 TIME= 16:22:31
Area 1962 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 49.060 TIME= 16:22:31
Area 1965 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 49.060 TIME= 16:22:31
Area 1968 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 49.060 TIME= 16:22:31
Area 1971 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 49.060 TIME= 16:22:31
Area 1974 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 49.060 TIME= 16:22:31
Area 1977 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 49.060 TIME= 16:22:31
Area 1980 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 49.060 TIME= 16:22:31
Area 1983 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 49.060 TIME= 16:22:31
Area 1986 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 49.060 TIME= 16:22:31

Area 1989 is not meshed. Volume will be generated without elements.

*** WARNING ***

CP= 49.060 TIME= 16:22:31

Area 1992 is not meshed. Volume will be generated without elements.
lines tube height

LINE CONNECTS KEYPOINTS 195 194
LINE NO.= 3114 KP1= 195 TAN1= 0.0000 -1.0000 0.0000
KP2= 194 TAN2= 0.0000 1.0000 0.0000

LINE CONNECTS KEYPOINTS 191 190
LINE NO.= 3115 KP1= 191 TAN1= 0.0000 -1.0000 0.0000
KP2= 190 TAN2= 0.0000 1.0000 0.0000

LINE CONNECTS KEYPOINTS 187 68
LINE NO.= 3116 KP1= 187 TAN1= 0.0000 -1.0000 0.0000
KP2= 68 TAN2= 0.0000 1.0000 0.0000

LINE CONNECTS KEYPOINTS 71 72
LINE NO.= 3117 KP1= 71 TAN1= 0.0000 -1.0000 0.0000
KP2= 72 TAN2= 0.0000 1.0000 0.0000

LINE CONNECTS KEYPOINTS 75 76
LINE NO.= 3118 KP1= 75 TAN1= 0.0000 -1.0000 0.0000
KP2= 76 TAN2= 0.0000 1.0000 0.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
TO NDIV = 4, SPACING RATIO = 1.000
end lines

LINE CONNECTS KEYPOINTS 222 197
LINE NO.= 3119 KP1= 222 TAN1= 0.0000 -1.0000 0.0000
KP2= 197 TAN2= 0.0000 1.0000 0.0000

LINE CONNECTS KEYPOINTS 78 110
LINE NO.= 3120 KP1= 78 TAN1= 0.0000 -1.0000 0.0000
KP2= 110 TAN2= 0.0000 1.0000 0.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
TO NDIV = 4, SPACING RATIO = 1.000

DEFINE AREA BY LIST OF LINES
LINE LIST = 10 115 277 3119
(TRAVERSED IN SAME DIRECTION AS LINE 10)

AREA NUMBER = 2482

DEFINE AREA BY LIST OF LINES
LINE LIST = 12 13 68 3114
(TRAVERSED IN SAME DIRECTION AS LINE 12)

AREA NUMBER = 2483

DEFINE AREA BY LIST OF LINES
LINE LIST = 16 17 75 3115
(TRAVERSED IN SAME DIRECTION AS LINE 16)

AREA NUMBER = 2484

DEFINE AREA BY LIST OF LINES
LINE LIST = 20 21 85 3116
(TRAVERSED IN SAME DIRECTION AS LINE 20)

AREA NUMBER = 2485

DEFINE AREA BY LIST OF LINES
LINE LIST = 24 25 96 3117
(TRAVERSED IN SAME DIRECTION AS LINE 24)

AREA NUMBER = 2486

DEFINE AREA BY LIST OF LINES

LINE LIST = 28 29 107 3118
(TRAVERSED IN SAME DIRECTION AS LINE 28)

AREA NUMBER = 2487

DEFINE AREA BY LIST OF LINES

LINE LIST = 31 122 309 3120
(TRAVERSED IN SAME DIRECTION AS LINE 31)

AREA NUMBER = 2488

DEFINE AREA BY LIST OF LINES

LINE LIST = 32 116 281
(TRAVERSED IN SAME DIRECTION AS LINE 32)

AREA NUMBER = 2489

DEFINE AREA BY LIST OF LINES

LINE LIST = 34 35 71 72
(TRAVERSED IN SAME DIRECTION AS LINE 34)

AREA NUMBER = 2490

DEFINE AREA BY LIST OF LINES

LINE LIST = 38 39 78 79
(TRAVERSED IN SAME DIRECTION AS LINE 38)

AREA NUMBER = 2491

DEFINE AREA BY LIST OF LINES

LINE LIST = 42 43 88 89
(TRAVERSED IN SAME DIRECTION AS LINE 42)

AREA NUMBER = 2492

DEFINE AREA BY LIST OF LINES

LINE LIST = 46 47 99 100
(TRAVERSED IN SAME DIRECTION AS LINE 46)

AREA NUMBER = 2493

DEFINE AREA BY LIST OF LINES

LINE LIST = 50 51 110 111
(TRAVERSED IN SAME DIRECTION AS LINE 50)

AREA NUMBER = 2494

DEFINE AREA BY LIST OF LINES

LINE LIST = 53 121 305
(TRAVERSED IN SAME DIRECTION AS LINE 53)

AREA NUMBER = 2495

DEFINE AREA BY LIST OF LINES

LINE LIST = 54 74 285
(TRAVERSED IN SAME DIRECTION AS LINE 54)

AREA NUMBER = 2496

DEFINE AREA BY LIST OF LINES

LINE LIST = 56 57 82 83
(TRAVERSED IN SAME DIRECTION AS LINE 56)

AREA NUMBER = 2497

DEFINE AREA BY LIST OF LINES

LINE LIST = 60 61 92 93
(TRAVERSED IN SAME DIRECTION AS LINE 60)

AREA NUMBER = 2498

DEFINE AREA BY LIST OF LINES

LINE LIST = 64 65 103 104
(TRAVERSED IN SAME DIRECTION AS LINE 64)

AREA NUMBER = 2499

DEFINE AREA BY LIST OF LINES

LINE LIST = 67 113 301
(TRAVERSED IN SAME DIRECTION AS LINE 67)

AREA NUMBER = 2500

DEFINE AREA BY LIST OF LINES

LINE LIST = 114 117 289
(TRAVERSED IN SAME DIRECTION AS LINE 114)

AREA NUMBER = 2501

DEFINE AREA BY LIST OF LINES

LINE LIST = 95 118 119 293
(TRAVERSED IN SAME DIRECTION AS LINE 95)

AREA NUMBER = 2502

DEFINE AREA BY LIST OF LINES

LINE LIST = 106 120 297
(TRAVERSED IN SAME DIRECTION AS LINE 106)

AREA NUMBER = 2503

SELECT FOR ITEM=LOC COMPONENT=Z BETWEEN 0.00000E+00 AND 0.00000E+00
KABS= 0. TOLERANCE= 0.100000E-05

177 AREAS (OF 2503 DEFINED) SELECTED BY ASEL COMMAND.

DRAG ALL SELECTED AREAS
ALONG LINES

7,

*** WARNING *** CP= 51.390 TIME= 16:22:33
Area 1 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.400 TIME= 16:22:33
Area 2 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.400 TIME= 16:22:33
Area 3 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.400 TIME= 16:22:33
Area 4 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.400 TIME= 16:22:33
Area 5 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.400 TIME= 16:22:33
Area 6 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.400 TIME= 16:22:33
Area 7 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.400 TIME= 16:22:33
Area 8 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.400 TIME= 16:22:33
Area 9 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.410 TIME= 16:22:33

Area 10 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.410 TIME= 16:22:33
Area 11 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.410 TIME= 16:22:33
Area 12 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.410 TIME= 16:22:33
Area 13 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.410 TIME= 16:22:33
Area 14 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.410 TIME= 16:22:33
Area 15 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.410 TIME= 16:22:33
Area 16 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.410 TIME= 16:22:33
Area 17 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.410 TIME= 16:22:33
Area 18 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.410 TIME= 16:22:33
Area 19 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.420 TIME= 16:22:33
Area 20 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.420 TIME= 16:22:33
Area 21 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.420 TIME= 16:22:33
Area 22 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.420 TIME= 16:22:33
Area 23 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.420 TIME= 16:22:33
Area 24 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.420 TIME= 16:22:33
Area 25 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.420 TIME= 16:22:33
Area 26 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.420 TIME= 16:22:33
Area 27 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.420 TIME= 16:22:33
Area 28 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.430 TIME= 16:22:33
Area 29 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.430 TIME= 16:22:33
Area 30 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.430 TIME= 16:22:33
Area 31 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.430 TIME= 16:22:33
Area 32 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.430 TIME= 16:22:33
Area 33 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.430 TIME= 16:22:33
Area 34 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.430 TIME= 16:22:33
Area 35 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.430 TIME= 16:22:33
Area 36 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.430 TIME= 16:22:33
Area 37 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.440 TIME= 16:22:33
Area 38 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.440 TIME= 16:22:33
Area 39 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.440 TIME= 16:22:33
Area 40 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.440 TIME= 16:22:33
Area 41 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.440 TIME= 16:22:33
Area 42 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.440 TIME= 16:22:33
Area 43 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.440 TIME= 16:22:33
Area 44 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.440 TIME= 16:22:33
Area 45 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.440 TIME= 16:22:33
Area 46 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.440 TIME= 16:22:33
Area 47 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.440 TIME= 16:22:33
Area 48 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.450 TIME= 16:22:33
Area 49 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.450 TIME= 16:22:33
Area 50 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.450 TIME= 16:22:33
Area 51 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.450 TIME= 16:22:33
Area 52 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.450 TIME= 16:22:33
Area 53 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.450 TIME= 16:22:33
Area 54 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.450 TIME= 16:22:33
Area 55 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.460 TIME= 16:22:33
Area 56 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.460 TIME= 16:22:33
Area 57 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.460 TIME= 16:22:33
Area 58 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.460 TIME= 16:22:33
Area 59 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.460 TIME= 16:22:33
Area 60 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.460 TIME= 16:22:33
Area 61 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.460 TIME= 16:22:33
Area 62 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.460 TIME= 16:22:33
Area 63 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.460 TIME= 16:22:33
Area 64 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.460 TIME= 16:22:33
Area 65 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.460 TIME= 16:22:33
Area 66 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.470 TIME= 16:22:33
Area 67 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.470 TIME= 16:22:33
Area 68 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.470 TIME= 16:22:33
Area 69 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.470 TIME= 16:22:33
Area 70 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.470 TIME= 16:22:33
Area 71 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.470 TIME= 16:22:33
Area 72 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.470 TIME= 16:22:33
Area 73 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.470 TIME= 16:22:33
Area 74 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.470 TIME= 16:22:33
Area 75 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.470 TIME= 16:22:33
Area 76 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.470 TIME= 16:22:33
Area 77 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.480 TIME= 16:22:33
Area 78 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.480 TIME= 16:22:33
Area 79 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.480 TIME= 16:22:33

Area 80 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.480 TIME= 16:22:33
Area 81 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.480 TIME= 16:22:33
Area 82 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.480 TIME= 16:22:33
Area 83 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.480 TIME= 16:22:33
Area 84 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.480 TIME= 16:22:33
Area 85 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.480 TIME= 16:22:33
Area 86 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.490 TIME= 16:22:33
Area 87 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.490 TIME= 16:22:33
Area 88 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.490 TIME= 16:22:33
Area 89 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.490 TIME= 16:22:33
Area 90 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.490 TIME= 16:22:33
Area 91 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.490 TIME= 16:22:33
Area 92 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.490 TIME= 16:22:33
Area 93 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.490 TIME= 16:22:33
Area 94 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.490 TIME= 16:22:33
Area 95 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.490 TIME= 16:22:33
Area 96 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.500 TIME= 16:22:33
Area 97 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.500 TIME= 16:22:33
Area 98 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.500 TIME= 16:22:33
Area 99 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.500 TIME= 16:22:33
Area 100 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.500 TIME= 16:22:33
Area 101 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.500 TIME= 16:22:33
Area 102 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.500 TIME= 16:22:33
Area 103 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.500 TIME= 16:22:33
Area 104 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.500 TIME= 16:22:33
Area 105 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.500 TIME= 16:22:33
Area 106 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.500 TIME= 16:22:33
Area 107 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.500 TIME= 16:22:33
Area 108 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.510 TIME= 16:22:33
Area 109 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.510 TIME= 16:22:33
Area 110 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.510 TIME= 16:22:33
Area 111 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.510 TIME= 16:22:33
Area 112 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.510 TIME= 16:22:33
Area 113 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.510 TIME= 16:22:33
Area 114 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.510 TIME= 16:22:33
Area 115 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.510 TIME= 16:22:33
Area 116 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.510 TIME= 16:22:33
Area 117 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.510 TIME= 16:22:33
Area 118 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.510 TIME= 16:22:33
Area 119 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.520 TIME= 16:22:33
Area 120 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.520 TIME= 16:22:33
Area 121 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.520 TIME= 16:22:33
Area 122 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.520 TIME= 16:22:33
Area 123 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.520 TIME= 16:22:33
Area 124 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.520 TIME= 16:22:33
Area 125 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.520 TIME= 16:22:33
Area 126 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.520 TIME= 16:22:33
Area 127 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.520 TIME= 16:22:33
Area 128 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.520 TIME= 16:22:33
Area 129 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.520 TIME= 16:22:33
Area 130 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.530 TIME= 16:22:33
Area 131 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.530 TIME= 16:22:33
Area 132 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.530 TIME= 16:22:33
Area 133 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.530 TIME= 16:22:33
Area 134 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.530 TIME= 16:22:33
Area 135 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.530 TIME= 16:22:33
Area 136 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.530 TIME= 16:22:33
Area 137 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.530 TIME= 16:22:33
Area 138 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.530 TIME= 16:22:33
Area 139 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.530 TIME= 16:22:33
Area 140 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.530 TIME= 16:22:33
Area 141 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.540 TIME= 16:22:33
Area 142 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.540 TIME= 16:22:33
Area 143 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.540 TIME= 16:22:33
Area 144 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.540 TIME= 16:22:33
Area 145 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.540 TIME= 16:22:33
Area 146 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.540 TIME= 16:22:33
Area 147 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.540 TIME= 16:22:33
Area 148 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.540 TIME= 16:22:33
Area 149 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.540 TIME= 16:22:33

Area 150 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.540 TIME= 16:22:33
Area 151 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.540 TIME= 16:22:33
Area 152 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.540 TIME= 16:22:33
Area 153 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.550 TIME= 16:22:33
Area 154 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.550 TIME= 16:22:33
Area 155 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.550 TIME= 16:22:33
Area 2482 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.550 TIME= 16:22:33
Area 2483 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.550 TIME= 16:22:33
Area 2484 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.550 TIME= 16:22:33
Area 2485 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.550 TIME= 16:22:33
Area 2486 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.550 TIME= 16:22:33
Area 2487 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.550 TIME= 16:22:33
Area 2488 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.550 TIME= 16:22:33
Area 2489 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.550 TIME= 16:22:33
Area 2490 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.560 TIME= 16:22:33
Area 2491 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.560 TIME= 16:22:33
Area 2492 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.560 TIME= 16:22:33
Area 2493 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.560 TIME= 16:22:33
Area 2494 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.560 TIME= 16:22:33
Area 2495 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.560 TIME= 16:22:33
Area 2496 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.560 TIME= 16:22:33
Area 2497 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.560 TIME= 16:22:33
Area 2498 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.560 TIME= 16:22:33
Area 2499 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.560 TIME= 16:22:33
Area 2500 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.560 TIME= 16:22:33
Area 2501 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.570 TIME= 16:22:33
Area 2502 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 51.570 TIME= 16:22:33
Area 2503 is not meshed. Volume will be generated without elements.

*** NOTE *** CP= 52.480 TIME= 16:22:34
Page file used.

ACTIVE COORDINATE SYSTEM SET TO 0 (CARTESIAN)

SELECT FOR ITEM=LOC COMPONENT=Z BETWEEN-0.25000E-01 AND -0.25000E-01
KABS= 0. TOLERANCE= 0.125000E-03

177 AREAS (OF 3056 DEFINED) SELECTED BY ASEL COMMAND.

DRAG ALL SELECTED AREAS
ALONG LINES
8,

*** WARNING *** CP= 63.520 TIME= 16:22:49
Area 2508 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.530 TIME= 16:22:49
Area 2512 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.530 TIME= 16:22:49
Area 2516 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.530 TIME= 16:22:49
Area 2521 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.530 TIME= 16:22:49
Area 2525 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.530 TIME= 16:22:49
Area 2529 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.530 TIME= 16:22:49
Area 2534 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.530 TIME= 16:22:49
Area 2538 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.530 TIME= 16:22:49
Area 2542 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.530 TIME= 16:22:49
Area 2547 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.530 TIME= 16:22:49
Area 2551 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.540 TIME= 16:22:49
Area 2555 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.540 TIME= 16:22:49
Area 2560 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.540 TIME= 16:22:49
Area 2564 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.540 TIME= 16:22:49

Area 2568 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.540 TIME= 16:22:49
Area 2573 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.540 TIME= 16:22:49
Area 2577 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.540 TIME= 16:22:49
Area 2581 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.540 TIME= 16:22:49
Area 2584 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.540 TIME= 16:22:49
Area 2589 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.540 TIME= 16:22:49
Area 2593 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.550 TIME= 16:22:49
Area 2597 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.550 TIME= 16:22:49
Area 2600 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.550 TIME= 16:22:49
Area 2605 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.550 TIME= 16:22:49
Area 2609 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.550 TIME= 16:22:49
Area 2613 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.550 TIME= 16:22:49
Area 2616 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.550 TIME= 16:22:49
Area 2621 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.550 TIME= 16:22:49
Area 2625 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.550 TIME= 16:22:49
Area 2629 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.550 TIME= 16:22:49
Area 2632 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.560 TIME= 16:22:49
Area 2637 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.560 TIME= 16:22:49
Area 2641 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.560 TIME= 16:22:49
Area 2645 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.560 TIME= 16:22:49
Area 2648 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.560 TIME= 16:22:49
Area 2653 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.560 TIME= 16:22:49
Area 2657 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.560 TIME= 16:22:49
Area 2661 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.560 TIME= 16:22:49
Area 2664 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.560 TIME= 16:22:49
Area 2669 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.560 TIME= 16:22:49
Area 2673 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.570 TIME= 16:22:49
Area 2677 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.570 TIME= 16:22:49
Area 2680 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.570 TIME= 16:22:49
Area 2685 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.570 TIME= 16:22:49
Area 2689 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.570 TIME= 16:22:49
Area 2693 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.570 TIME= 16:22:49
Area 2696 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.570 TIME= 16:22:49
Area 2699 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.570 TIME= 16:22:49
Area 2702 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.570 TIME= 16:22:49
Area 2705 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.570 TIME= 16:22:49
Area 2707 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.580 TIME= 16:22:49
Area 2709 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.580 TIME= 16:22:49
Area 2712 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.580 TIME= 16:22:49
Area 2715 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.580 TIME= 16:22:49
Area 2718 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.580 TIME= 16:22:49
Area 2720 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.580 TIME= 16:22:49
Area 2723 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.580 TIME= 16:22:49
Area 2725 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.580 TIME= 16:22:49
Area 2727 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.580 TIME= 16:22:49
Area 2729 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.580 TIME= 16:22:49
Area 2732 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.580 TIME= 16:22:49
Area 2735 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.590 TIME= 16:22:49
Area 2737 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.590 TIME= 16:22:49
Area 2740 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.590 TIME= 16:22:49
Area 2742 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.590 TIME= 16:22:49
Area 2744 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.590 TIME= 16:22:49
Area 2746 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.590 TIME= 16:22:49
Area 2749 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.590 TIME= 16:22:49
Area 2752 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.590 TIME= 16:22:49
Area 2754 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.590 TIME= 16:22:49
Area 2756 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.590 TIME= 16:22:49
Area 2760 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.600 TIME= 16:22:49
Area 2763 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.600 TIME= 16:22:49
Area 2767 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.600 TIME= 16:22:49
Area 2770 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.600 TIME= 16:22:49
Area 2774 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.600 TIME= 16:22:49
Area 2777 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.600 TIME= 16:22:49
Area 2781 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.600 TIME= 16:22:49
Area 2784 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.600 TIME= 16:22:49
Area 2787 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.600 TIME= 16:22:49
Area 2791 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.600 TIME= 16:22:49
Area 2794 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.600 TIME= 16:22:49
Area 2798 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.610 TIME= 16:22:49
Area 2801 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.610 TIME= 16:22:49

Area 2805 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.610 TIME= 16:22:49
Area 2808 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.610 TIME= 16:22:49
Area 2812 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.610 TIME= 16:22:49
Area 2814 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.610 TIME= 16:22:49
Area 2817 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.610 TIME= 16:22:49
Area 2821 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.610 TIME= 16:22:49
Area 2823 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.610 TIME= 16:22:49
Area 2826 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.610 TIME= 16:22:49
Area 2831 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.620 TIME= 16:22:49
Area 2834 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.620 TIME= 16:22:49
Area 2838 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.620 TIME= 16:22:49
Area 2841 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.620 TIME= 16:22:49
Area 2844 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.620 TIME= 16:22:49
Area 2848 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.620 TIME= 16:22:49
Area 2851 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.620 TIME= 16:22:49
Area 2854 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.620 TIME= 16:22:49
Area 2858 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.620 TIME= 16:22:49
Area 2861 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.620 TIME= 16:22:49
Area 2865 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.630 TIME= 16:22:49
Area 2868 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.630 TIME= 16:22:49
Area 2872 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.630 TIME= 16:22:49
Area 2875 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.630 TIME= 16:22:49
Area 2878 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.630 TIME= 16:22:49
Area 2882 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.630 TIME= 16:22:49
Area 2885 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.630 TIME= 16:22:49
Area 2888 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.630 TIME= 16:22:49
Area 2892 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.630 TIME= 16:22:49
Area 2895 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.630 TIME= 16:22:49
Area 2899 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.640 TIME= 16:22:49
Area 2903 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.640 TIME= 16:22:49
Area 2906 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.640 TIME= 16:22:49
Area 2909 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.640 TIME= 16:22:49
Area 2912 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.640 TIME= 16:22:49
Area 2915 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.640 TIME= 16:22:49
Area 2918 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.640 TIME= 16:22:49
Area 2921 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.640 TIME= 16:22:49
Area 2924 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.640 TIME= 16:22:49
Area 2927 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.640 TIME= 16:22:49
Area 2930 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.650 TIME= 16:22:49
Area 2933 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.650 TIME= 16:22:49
Area 2936 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.650 TIME= 16:22:49
Area 2939 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.650 TIME= 16:22:49
Area 2942 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.650 TIME= 16:22:49
Area 2945 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.650 TIME= 16:22:49
Area 2948 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.650 TIME= 16:22:49
Area 2951 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.650 TIME= 16:22:49
Area 2954 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.650 TIME= 16:22:49
Area 2957 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.650 TIME= 16:22:49
Area 2960 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.660 TIME= 16:22:49
Area 2963 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.660 TIME= 16:22:49
Area 2967 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.660 TIME= 16:22:49
Area 2970 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.660 TIME= 16:22:49
Area 2973 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.660 TIME= 16:22:49
Area 2976 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.660 TIME= 16:22:49
Area 2979 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.660 TIME= 16:22:49
Area 2982 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.660 TIME= 16:22:49
Area 2985 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.660 TIME= 16:22:49
Area 2988 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.660 TIME= 16:22:49
Area 2991 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.670 TIME= 16:22:49
Area 2994 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.670 TIME= 16:22:49
Area 2997 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.670 TIME= 16:22:49
Area 3000 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.670 TIME= 16:22:49
Area 3003 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.670 TIME= 16:22:49
Area 3006 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.670 TIME= 16:22:49
Area 3009 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.670 TIME= 16:22:49
Area 3012 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.670 TIME= 16:22:49
Area 3015 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.670 TIME= 16:22:49
Area 3018 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.670 TIME= 16:22:49
Area 3021 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.680 TIME= 16:22:49
Area 3024 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.680 TIME= 16:22:49

Area 3027 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.680 TIME= 16:22:49
Area 3029 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.680 TIME= 16:22:49
Area 3031 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.680 TIME= 16:22:49
Area 3033 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.680 TIME= 16:22:49
Area 3035 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.680 TIME= 16:22:49
Area 3037 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.680 TIME= 16:22:49
Area 3039 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.680 TIME= 16:22:49
Area 3041 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.680 TIME= 16:22:49
Area 3042 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.680 TIME= 16:22:49
Area 3043 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.690 TIME= 16:22:49
Area 3044 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.690 TIME= 16:22:49
Area 3045 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.690 TIME= 16:22:49
Area 3046 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.690 TIME= 16:22:49
Area 3047 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.690 TIME= 16:22:49
Area 3048 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.690 TIME= 16:22:49
Area 3049 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.690 TIME= 16:22:49
Area 3050 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.690 TIME= 16:22:49
Area 3051 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.690 TIME= 16:22:49
Area 3052 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.690 TIME= 16:22:49
Area 3053 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.700 TIME= 16:22:49
Area 3054 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.700 TIME= 16:22:49
Area 3055 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 63.700 TIME= 16:22:49
Area 3056 is not meshed. Volume will be generated without elements.

SELECT FOR ITEM=LOC COMPONENT=Z BETWEEN-0.13500 AND -0.13500
KABS= 0. TOLERANCE= 0.675000E-03

177 AREAS (OF 3609 DEFINED) SELECTED BY ASEL COMMAND.

ACTIVE COORDINATE SYSTEM SET TO 1 (CYLINDRICAL)

RESELECT FOR ITEM=LOC COMPONENT=X BETWEEN 0.77095 AND 0.83095
KABS= 0. TOLERANCE= 0.000000E+00

21 AREAS (OF 3609 DEFINED) SELECTED BY ASEL COMMAND.

ACTIVE COORDINATE SYSTEM SET TO 0 (CARTESIAN)

DRAG ALL SELECTED AREAS
ALONG LINES
9,

*** WARNING *** CP= 75.070 TIME= 16:23:01
Area 3520 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 75.080 TIME= 16:23:01
Area 3523 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 75.080 TIME= 16:23:01
Area 3526 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 75.080 TIME= 16:23:01
Area 3529 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 75.080 TIME= 16:23:01
Area 3532 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 75.080 TIME= 16:23:01
Area 3535 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 75.080 TIME= 16:23:01
Area 3538 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 75.080 TIME= 16:23:01
Area 3541 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 75.080 TIME= 16:23:01
Area 3544 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 75.080 TIME= 16:23:01
Area 3547 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 75.080 TIME= 16:23:01
Area 3550 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 75.090 TIME= 16:23:01
Area 3553 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 75.090 TIME= 16:23:01
Area 3556 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 75.090 TIME= 16:23:01
Area 3559 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 75.090 TIME= 16:23:01
Area 3562 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 75.090 TIME= 16:23:01
Area 3565 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 75.090 TIME= 16:23:01
Area 3568 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 75.090 TIME= 16:23:01
Area 3571 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 75.090 TIME= 16:23:01
Area 3574 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 75.090 TIME= 16:23:01
Area 3577 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 75.090 TIME= 16:23:01
Area 3580 is not meshed. Volume will be generated without elements.

Mesh Volumes

Mesh the CS Tubes

SELECT FOR ITEM=VOLU COMPONENT=
IN RANGE 1 TO 47 STEP 1

47 VOLUMES (OF 1010 DEFINED) SELECTED BY VSEL COMMAND.

ELEMENT TYPE SET TO 1

MATERIAL NUMBER SET TO 1

GENERATE NODES AND ELEMENTS IN ALL SELECTED VOLUMES

NUMBER OF VOLUMES MESHED = 47
MAXIMUM NODE NUMBER = 6176
MAXIMUM ELEMENT NUMBER = 2820
Mesh SS-B Plates

SELECT FOR ITEM=VOLU COMPONENT=
IN RANGE 48 TO 71 STEP 1

24 VOLUMES (OF 1010 DEFINED) SELECTED BY VSEL COMMAND.

ELEMENT TYPE SET TO 2

MATERIAL NUMBER SET TO 2

GENERATE NODES AND ELEMENTS IN ALL SELECTED VOLUMES

*** WARNING *** CP= 89.110 TIME= 16:23:16
Meshing of volume 50 produced 15 elements with excessive aspect ratio.
Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 50 WITH EXCESSIVE ASPECT RATIO ***
2941 2942 2943 2944 2945 2946 2947 2948
2949 2950 2951 2952 2953 2954 2955

*** WARNING *** CP= 90.090 TIME= 16:23:17
Meshing of volume 55 produced 15 elements with excessive aspect ratio.
Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 55 WITH EXCESSIVE ASPECT RATIO ***
3196 3197 3198 3199 3200 3201 3202 3203
3204 3205 3206 3207 3208 3209 3210

*** WARNING *** CP= 90.430 TIME= 16:23:17
Meshing of volume 57 produced 15 elements with excessive aspect ratio.
Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 57 WITH EXCESSIVE ASPECT RATIO ***
3271 3272 3273 3274 3275 3276 3277 3278
3279 3280 3281 3282 3283 3284 3285

*** WARNING *** CP= 91.420 TIME= 16:23:18
Meshing of volume 62 produced 15 elements with excessive aspect ratio.

Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 62 WITH EXCESSIVE ASPECT RATIO ***
 3526 3527 3528 3529 3530 3531 3532 3533
 3534 3535 3536 3537 3538 3539 3540

*** WARNING *** CP= 91.760 TIME= 16:23:18
 Meshing of volume 64 produced 15 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 64 WITH EXCESSIVE ASPECT RATIO ***
 3601 3602 3603 3604 3605 3606 3607 3608
 3609 3610 3611 3612 3613 3614 3615

*** WARNING *** CP= 92.710 TIME= 16:23:19
 Meshing of volume 69 produced 15 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 69 WITH EXCESSIVE ASPECT RATIO ***
 3856 3857 3858 3859 3860 3861 3862 3863
 3864 3865 3866 3867 3868 3869 3870

NUMBER OF VOLUMES MESHED = 24
 MAXIMUM NODE NUMBER = 6176
 MAXIMUM ELEMENT NUMBER = 3990
 Mesh End Guides

SELECT FOR ITEM=VOLU COMPONENT=
 IN RANGE 72 TO 86 STEP 1

15 VOLUMES (OF 1010 DEFINED) SELECTED BY VSEL COMMAND.

ELEMENT TYPE SET TO 3

MATERIAL NUMBER SET TO 3

GENERATE NODES AND ELEMENTS IN ALL SELECTED VOLUMES

*** WARNING *** CP= 93.890 TIME= 16:23:20
 Meshing of volume 73 produced 15 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 73 WITH EXCESSIVE ASPECT RATIO ***
 4051 4052 4053 4054 4055 4056 4057 4058
 4059 4060 4061 4062 4063 4064 4065

*** WARNING *** CP= 94.170 TIME= 16:23:21
 Volume 75 area 75 has a corner angle of 150 degrees. This is not
 recommended for hexahedral elements.

*** WARNING *** CP= 94.180 TIME= 16:23:21
 Volume 75 area 422 has a corner angle of 150 degrees. This is not
 recommended for hexahedral elements.

*** WARNING *** CP= 94.320 TIME= 16:23:21
 Meshing of volume 75 produced 30 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 75 WITH EXCESSIVE DISTORTION ***
 4156 4157 4158 4159 4160 4161 4162 4163
 4164 4165 4166 4167 4168 4169 4170 4171
 4172 4173 4174 4175 4176 4177 4178 4179
 4180 4181 4182 4183 4184 4185

*** WARNING *** CP= 94.400 TIME= 16:23:21
 Volume 76 area 76 has a corner angle of 30 degrees. This is not

recommended for hexahedral elements.

*** WARNING *** CP= 94.410 TIME= 16:23:21
Volume 76 area 426 has a corner angle of 30 degrees. This is not recommended for hexahedral elements.

*** WARNING *** CP= 94.550 TIME= 16:23:21
Meshing of volume 76 produced 30 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 76 WITH EXCESSIVE DISTORTION ***

4186	4187	4190	4191	4194	4195	4198	4199
4202	4203	4206	4207	4210	4211	4214	4215
4218	4219	4222	4223	4226	4227	4230	4231
4234	4235	4238	4239	4242	4243		

*** WARNING *** CP= 94.670 TIME= 16:23:21
Meshing of volume 77 produced 15 elements with excessive aspect ratio.
Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 77 WITH EXCESSIVE ASPECT RATIO ***

4246	4247	4248	4249	4250	4251	4252	4253
4254	4255	4256	4257	4258	4259	4260	

*** WARNING *** CP= 95.210 TIME= 16:23:22
Meshing of volume 80 produced 15 elements with excessive aspect ratio.
Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 80 WITH EXCESSIVE ASPECT RATIO ***

4381	4382	4383	4384	4385	4386	4387	4388
4389	4390	4391	4392	4393	4394	4395	

*** WARNING *** CP= 95.520 TIME= 16:23:22
Volume 82 area 82 has a corner angle of 150 degrees. This is not recommended for hexahedral elements.

*** WARNING *** CP= 95.520 TIME= 16:23:22
Volume 82 area 446 has a corner angle of 150 degrees. This is not recommended for hexahedral elements.

*** WARNING *** CP= 95.650 TIME= 16:23:22
Meshing of volume 82 produced 30 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 82 WITH EXCESSIVE DISTORTION ***

4458	4459	4462	4463	4466	4467	4470	4471
4474	4475	4478	4479	4482	4483	4486	4487
4490	4491	4494	4495	4498	4499	4502	4503
4506	4507	4510	4511	4514	4515		

*** WARNING *** CP= 95.740 TIME= 16:23:22
Volume 83 area 83 has a corner angle of 30 degrees. This is not recommended for hexahedral elements.

*** WARNING *** CP= 95.750 TIME= 16:23:22
Volume 83 area 450 has a corner angle of 30 degrees. This is not recommended for hexahedral elements.

*** WARNING *** CP= 95.890 TIME= 16:23:23
Meshing of volume 83 produced 30 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 83 WITH EXCESSIVE DISTORTION ***

4546	4547	4548	4549	4550	4551	4552	4553
4554	4555	4556	4557	4558	4559	4560	4561
4562	4563	4564	4565	4566	4567	4568	4569
4570	4571	4572	4573	4574	4575		

*** WARNING *** CP= 96.020 TIME= 16:23:23
 Meshing of volume 84 produced 15 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 84 WITH EXCESSIVE ASPECT RATIO ***
 4576 4577 4578 4579 4580 4581 4582 4583
 4584 4585 4586 4587 4588 4589 4590

NUMBER OF VOLUMES MESHED = 15
 MAXIMUM NODE NUMBER = 7248
 MAXIMUM ELEMENT NUMBER = 4710
 Mesh Corner Guides

SELECT FOR ITEM=VOLU COMPONENT=
 IN RANGE 87 TO 92 STEP 1

6 VOLUMES (OF 1010 DEFINED) SELECTED BY VSEL COMMAND.

ELEMENT TYPE SET TO 4

MATERIAL NUMBER SET TO 4

GENERATE NODES AND ELEMENTS IN ALL SELECTED VOLUMES

*** WARNING *** CP= 96.950 TIME= 16:23:24
 Meshing of volume 88 produced 15 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 88 WITH EXCESSIVE ASPECT RATIO ***
 4771 4772 4773 4774 4775 4776 4777 4778
 4779 4780 4781 4782 4783 4784 4785

*** WARNING *** CP= 97.500 TIME= 16:23:24
 Meshing of volume 91 produced 15 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 91 WITH EXCESSIVE ASPECT RATIO ***
 4906 4907 4908 4909 4910 4911 4912 4913
 4914 4915 4916 4917 4918 4919 4920

NUMBER OF VOLUMES MESHED = 6
 MAXIMUM NODE NUMBER = 7536
 MAXIMUM ELEMENT NUMBER = 4980
 Mesh Inner Barrier

SELECT FOR ITEM=LOC COMPONENT=Z BETWEEN -0.25000E-01 AND 4.6100
 KABS= 0. TOLERANCE= 0.000000E+00

572 VOLUMES (OF 1010 DEFINED) SELECTED BY VSEL COMMAND.

ACTIVE COORDINATE SYSTEM SET TO 1 (CYLINDRICAL)

RESELECT FOR ITEM=LOC COMPONENT=X BETWEEN 0.00000E+00 AND 0.73095
 KABS= 0. TOLERANCE= 0.000000E+00

404 VOLUMES (OF 1010 DEFINED) SELECTED BY VSEL COMMAND.

UNSELECT FOR ITEM=VOLU COMPONENT=
 IN RANGE 1 TO 92 STEP 1

312 VOLUMES (OF 1010 DEFINED) SELECTED BY VSEL COMMAND.

ACTIVE COORDINATE SYSTEM SET TO 0 (CARTESIAN)

ELEMENT TYPE SET TO 5

MATERIAL NUMBER SET TO 5

GENERATE NODES AND ELEMENTS IN ALL SELECTED VOLUMES

*** WARNING *** CP= 120.260 TIME= 16:23:56
Volume 356 area 967 has a corner angle of 150 degrees. This is not
recommended for hexahedral elements.

*** WARNING *** CP= 120.270 TIME= 16:23:56
Volume 356 area 1484 has a corner angle of 150 degrees. This is not
recommended for hexahedral elements.

*** WARNING *** CP= 120.290 TIME= 16:23:56
Meshing of volume 356 produced 2 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 356 WITH EXCESSIVE DISTORTION ***
6890 6891

*** WARNING *** CP= 120.330 TIME= 16:23:57
Volume 357 area 968 has a corner angle of 30 degrees. This is not
recommended for hexahedral elements.

*** WARNING *** CP= 120.340 TIME= 16:23:57
Volume 357 area 1487 has a corner angle of 30 degrees. This is not
recommended for hexahedral elements.

*** WARNING *** CP= 120.360 TIME= 16:23:57
Meshing of volume 357 produced 2 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 357 WITH EXCESSIVE DISTORTION ***
6892 6893

*** WARNING *** CP= 120.700 TIME= 16:23:57
Volume 363 area 974 has a corner angle of 150 degrees. This is not
recommended for hexahedral elements.

*** WARNING *** CP= 120.710 TIME= 16:23:57
Volume 363 area 1504 has a corner angle of 150 degrees. This is not
recommended for hexahedral elements.

*** WARNING *** CP= 120.730 TIME= 16:23:57
Meshing of volume 363 produced 2 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 363 WITH EXCESSIVE DISTORTION ***
6912 6913

*** WARNING *** CP= 120.780 TIME= 16:23:57
Volume 364 area 975 has a corner angle of 30 degrees. This is not
recommended for hexahedral elements.

*** WARNING *** CP= 120.790 TIME= 16:23:57
Volume 364 area 1507 has a corner angle of 30 degrees. This is not
recommended for hexahedral elements.

*** WARNING *** CP= 120.810 TIME= 16:23:57
Meshing of volume 364 produced 2 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 364 WITH EXCESSIVE DISTORTION ***
6916 6917

*** WARNING *** CP= 122.010 TIME= 16:23:58
Volume 381 area 992 has a corner angle of 29 degrees. This is not
recommended for hexahedral elements.

*** WARNING *** CP= 122.020 TIME= 16:23:58
Volume 381 area 1545 has a corner angle of 29 degrees. This is not
recommended for hexahedral elements.

*** WARNING *** CP= 122.060 TIME= 16:23:58
Meshing of volume 381 produced 7 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 381 WITH EXCESSIVE DISTORTION ***
7057 7058 7059 7060 7062 7064 7066

*** WARNING *** CP= 122.510 TIME= 16:23:59
Volume 387 area 998 has a corner angle of 29 degrees. This is not recommended for hexahedral elements.

*** WARNING *** CP= 122.530 TIME= 16:23:59
Volume 387 area 1551 has a corner angle of 29 degrees. This is not recommended for hexahedral elements.

*** WARNING *** CP= 122.570 TIME= 16:23:59
Meshing of volume 387 produced 7 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 387 WITH EXCESSIVE DISTORTION ***
7150 7153 7154 7157 7158 7159 7160

*** WARNING *** CP= 122.650 TIME= 16:23:59
Meshing of volume 388 produced 1 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 388 WITH EXCESSIVE DISTORTION ***
7166

*** WARNING *** CP= 122.970 TIME= 16:23:59
Meshing of volume 392 produced 1 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 392 WITH EXCESSIVE DISTORTION ***
7226

*** WARNING *** CP= 123.000 TIME= 16:23:59
Volume 393 area 1004 has a corner angle of 29 degrees. This is not recommended for hexahedral elements.

*** WARNING *** CP= 123.010 TIME= 16:23:59
Volume 393 area 1557 has a corner angle of 29 degrees. This is not recommended for hexahedral elements.

*** WARNING *** CP= 123.060 TIME= 16:23:59
Meshing of volume 393 produced 7 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 393 WITH EXCESSIVE DISTORTION ***
7234 7237 7238 7241 7242 7243 7244

*** WARNING *** CP= 123.180 TIME= 16:23:59
Volume 395 area 1006 has a corner angle of 29 degrees. This is not recommended for hexahedral elements.

*** WARNING *** CP= 123.190 TIME= 16:24:00
Volume 395 area 1559 has a corner angle of 29 degrees. This is not recommended for hexahedral elements.

*** WARNING *** CP= 123.230 TIME= 16:24:00
Meshing of volume 395 produced 7 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 395 WITH EXCESSIVE DISTORTION ***
7261 7262 7263 7264 7266 7268 7270

*** WARNING *** CP= 129.050 TIME= 16:24:08
Volume 710 area 75 has a corner angle of 150 degrees. This is not recommended for hexahedral elements.

*** WARNING *** CP= 129.070 TIME= 16:24:08
Volume 710 area 2770 has a corner angle of 150 degrees. This is not
recommended for hexahedral elements.

*** WARNING *** CP= 129.100 TIME= 16:24:08
Meshing of volume 710 produced 2 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 710 WITH EXCESSIVE DISTORTION ***
7550 7551

*** WARNING *** CP= 129.140 TIME= 16:24:08
Volume 711 area 76 has a corner angle of 30 degrees. This is not
recommended for hexahedral elements.

*** WARNING *** CP= 129.150 TIME= 16:24:08
Volume 711 area 2774 has a corner angle of 30 degrees. This is not
recommended for hexahedral elements.

*** WARNING *** CP= 129.180 TIME= 16:24:08
Meshing of volume 711 produced 2 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 711 WITH EXCESSIVE DISTORTION ***
7552 7553

*** WARNING *** CP= 129.670 TIME= 16:24:08
Volume 717 area 82 has a corner angle of 150 degrees. This is not
recommended for hexahedral elements.

*** WARNING *** CP= 129.690 TIME= 16:24:08
Volume 717 area 2794 has a corner angle of 150 degrees. This is not
recommended for hexahedral elements.

*** WARNING *** CP= 129.710 TIME= 16:24:08
Meshing of volume 717 produced 2 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 717 WITH EXCESSIVE DISTORTION ***
7572 7573

*** WARNING *** CP= 129.760 TIME= 16:24:08
Volume 718 area 83 has a corner angle of 30 degrees. This is not
recommended for hexahedral elements.

*** WARNING *** CP= 129.770 TIME= 16:24:08
Volume 718 area 2798 has a corner angle of 30 degrees. This is not
recommended for hexahedral elements.

*** WARNING *** CP= 129.800 TIME= 16:24:08
Meshing of volume 718 produced 2 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 718 WITH EXCESSIVE DISTORTION ***
7576 7577

*** WARNING *** CP= 133.270 TIME= 16:24:13
Volume 798 area 2489 has a corner angle of 29 degrees. This is not
recommended for hexahedral elements.

*** WARNING *** CP= 133.290 TIME= 16:24:13
Volume 798 area 3042 has a corner angle of 29 degrees. This is not
recommended for hexahedral elements.

*** WARNING *** CP= 133.330 TIME= 16:24:13
Meshing of volume 798 produced 7 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 798 WITH EXCESSIVE DISTORTION ***
7813 7814 7817 7818 7819 7820 7822

*** WARNING *** CP= 133.810 TIME= 16:24:13
Volume 804 area 2495 has a corner angle of 29 degrees. This is not
recommended for hexahedral elements.

*** WARNING *** CP= 133.820 TIME= 16:24:13
Volume 804 area 3048 has a corner angle of 29 degrees. This is not
recommended for hexahedral elements.

*** WARNING *** CP= 133.860 TIME= 16:24:13
Meshing of volume 804 produced 7 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 804 WITH EXCESSIVE DISTORTION ***
7906 7908 7910 7913 7914 7915 7916

*** WARNING *** CP= 133.950 TIME= 16:24:14
Meshing of volume 805 produced 1 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 805 WITH EXCESSIVE DISTORTION ***
7918

*** WARNING *** CP= 134.290 TIME= 16:24:14
Meshing of volume 809 produced 1 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 809 WITH EXCESSIVE DISTORTION ***
7978

*** WARNING *** CP= 134.310 TIME= 16:24:14
Volume 810 area 2501 has a corner angle of 29 degrees. This is not
recommended for hexahedral elements.

*** WARNING *** CP= 134.330 TIME= 16:24:14
Volume 810 area 3054 has a corner angle of 29 degrees. This is not
recommended for hexahedral elements.

*** WARNING *** CP= 134.370 TIME= 16:24:14
Meshing of volume 810 produced 7 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 810 WITH EXCESSIVE DISTORTION ***
7989 7990 7991 7992 7994 7996 7998

*** WARNING *** CP= 134.480 TIME= 16:24:14
Volume 812 area 2503 has a corner angle of 29 degrees. This is not
recommended for hexahedral elements.

*** WARNING *** CP= 134.500 TIME= 16:24:14
Volume 812 area 3056 has a corner angle of 29 degrees. This is not
recommended for hexahedral elements.

*** WARNING *** CP= 134.540 TIME= 16:24:14
Meshing of volume 812 produced 7 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 812 WITH EXCESSIVE DISTORTION ***
8017 8018 8021 8022 8023 8024 8026

NUMBER OF VOLUMES MESHED = 312
MAXIMUM NODE NUMBER = 12190
MAXIMUM ELEMENT NUMBER = 8028
Mesh Lower Outer Barrier and Lids

INVERT FOR ITEM=VOLUME COMPONENT=
IN RANGE 1 TO 1010 STEP 1

698 VOLUMES (OF 1010 DEFINED) SELECTED BY VSEL COMMAND.

UNSELECT FOR ITEM=VOLU COMPONENT=
IN RANGE 1 TO 92 STEP 1

606 VOLUMES (OF 1010 DEFINED) SELECTED BY VSEL COMMAND.

ACTIVE COORDINATE SYSTEM SET TO 1 (CYLINDRICAL)

UNSELECT FOR ITEM=LOC COMPONENT=X BETWEEN 0.73095 AND 0.83095
KABS= 0. TOLERANCE= 0.000000E+00

270 VOLUMES (OF 1010 DEFINED) SELECTED BY VSEL COMMAND.

ALSO SELECT FOR ITEM=LOC COMPONENT=Y BETWEEN -90.000 AND 5.0000
KABS= 0. TOLERANCE= 0.000000E+00

666 VOLUMES (OF 1010 DEFINED) SELECTED BY VSEL COMMAND.

UNSELECT FOR ITEM=VOLU COMPONENT=
IN RANGE 1 TO 92 STEP 1

616 VOLUMES (OF 1010 DEFINED) SELECTED BY VSEL COMMAND.

UNSELECT FOR ITEM=TYPE COMPONENT=
IN RANGE 5 TO 5 STEP 1

446 VOLUMES (OF 1010 DEFINED) SELECTED BY VSEL COMMAND.

ELEMENT TYPE SET TO 6

MATERIAL NUMBER SET TO 6

GENERATE NODES AND ELEMENTS IN ALL SELECTED VOLUMES

*** WARNING *** CP= 165.640 TIME= 16:25:04
Volume 575 area 1804 has a corner angle of 150 degrees. This is not
recommended for hexahedral elements.

*** WARNING *** CP= 165.650 TIME= 16:25:04
Volume 575 area 2321 has a corner angle of 150 degrees. This is not
recommended for hexahedral elements.

*** WARNING *** CP= 165.670 TIME= 16:25:04
Meshing of volume 575 produced 2 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 575 WITH EXCESSIVE DISTORTION ***
10378 10379

*** WARNING *** CP= 165.730 TIME= 16:25:04
Volume 576 area 1805 has a corner angle of 30 degrees. This is not
recommended for hexahedral elements.

*** WARNING *** CP= 165.740 TIME= 16:25:04
Volume 576 area 2324 has a corner angle of 30 degrees. This is not
recommended for hexahedral elements.

*** WARNING *** CP= 165.770 TIME= 16:25:04
Meshing of volume 576 produced 2 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 576 WITH EXCESSIVE DISTORTION ***
10380 10381

*** WARNING *** CP= 166.160 TIME= 16:25:05
Volume 582 area 1811 has a corner angle of 150 degrees. This is not
recommended for hexahedral elements.

*** WARNING *** CP= 166.170 TIME= 16:25:05
Volume 582 area 2341 has a corner angle of 150 degrees. This is not

recommended for hexahedral elements.

*** WARNING *** CP= 166.190 TIME= 16:25:05
Meshing of volume 582 produced 2 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 582 WITH EXCESSIVE DISTORTION ***
10400 10401

*** WARNING *** CP= 166.230 TIME= 16:25:05
Volume 583 area 1812 has a corner angle of 30 degrees. This is not
recommended for hexahedral elements.

*** WARNING *** CP= 166.240 TIME= 16:25:05
Volume 583 area 2344 has a corner angle of 30 degrees. This is not
recommended for hexahedral elements.

*** WARNING *** CP= 166.260 TIME= 16:25:05
Meshing of volume 583 produced 2 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 583 WITH EXCESSIVE DISTORTION ***
10404 10405

*** WARNING *** CP= 167.490 TIME= 16:25:06
Volume 600 area 1829 has a corner angle of 29 degrees. This is not
recommended for hexahedral elements.

*** WARNING *** CP= 167.510 TIME= 16:25:06
Volume 600 area 2382 has a corner angle of 29 degrees. This is not
recommended for hexahedral elements.

*** WARNING *** CP= 167.550 TIME= 16:25:06
Meshing of volume 600 produced 7 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 600 WITH EXCESSIVE DISTORTION ***
10545 10546 10547 10548 10550 10552 10554

*** WARNING *** CP= 168.030 TIME= 16:25:07
Volume 606 area 1835 has a corner angle of 29 degrees. This is not
recommended for hexahedral elements.

*** WARNING *** CP= 168.040 TIME= 16:25:07
Volume 606 area 2388 has a corner angle of 29 degrees. This is not
recommended for hexahedral elements.

*** WARNING *** CP= 168.080 TIME= 16:25:07
Meshing of volume 606 produced 7 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 606 WITH EXCESSIVE DISTORTION ***
10638 10641 10642 10645 10646 10647 10648

*** WARNING *** CP= 168.160 TIME= 16:25:07
Meshing of volume 607 produced 1 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 607 WITH EXCESSIVE DISTORTION ***
10654

*** WARNING *** CP= 168.510 TIME= 16:25:07
Meshing of volume 611 produced 1 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 611 WITH EXCESSIVE DISTORTION ***
10714

*** WARNING *** CP= 168.530 TIME= 16:25:07
Volume 612 area 1841 has a corner angle of 29 degrees. This is not

recommended for hexahedral elements.

*** WARNING *** CP= 168.550 TIME= 16:25:08
Volume 612 area 2394 has a corner angle of 29 degrees. This is not
recommended for hexahedral elements.

*** WARNING *** CP= 168.590 TIME= 16:25:08
Meshing of volume 612 produced 7 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 612 WITH EXCESSIVE DISTORTION ***
10722 10725 10726 10729 10730 10731 10732

*** WARNING *** CP= 168.700 TIME= 16:25:08
Volume 614 area 1843 has a corner angle of 29 degrees. This is not
recommended for hexahedral elements.

*** WARNING *** CP= 168.720 TIME= 16:25:08
Volume 614 area 2396 has a corner angle of 29 degrees. This is not
recommended for hexahedral elements.

*** WARNING *** CP= 168.750 TIME= 16:25:08
Meshing of volume 614 produced 7 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 614 WITH EXCESSIVE DISTORTION ***
10749 10750 10751 10752 10754 10756 10758

*** WARNING *** CP= 177.090 TIME= 16:25:22
Volume 887 area 2770 has a corner angle of 150 degrees. This is not
recommended for hexahedral elements.

*** WARNING *** CP= 177.100 TIME= 16:25:22
Volume 887 area 3323 has a corner angle of 150 degrees. This is not
recommended for hexahedral elements.

*** WARNING *** CP= 177.120 TIME= 16:25:22
Meshing of volume 887 produced 2 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 887 WITH EXCESSIVE DISTORTION ***
11194 11195

*** WARNING *** CP= 177.160 TIME= 16:25:22
Volume 888 area 2774 has a corner angle of 30 degrees. This is not
recommended for hexahedral elements.

*** WARNING *** CP= 177.170 TIME= 16:25:22
Volume 888 area 3327 has a corner angle of 30 degrees. This is not
recommended for hexahedral elements.

*** WARNING *** CP= 177.190 TIME= 16:25:22
Meshing of volume 888 produced 2 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 888 WITH EXCESSIVE DISTORTION ***
11196 11197

*** WARNING *** CP= 177.570 TIME= 16:25:22
Volume 894 area 2794 has a corner angle of 150 degrees. This is not
recommended for hexahedral elements.

*** WARNING *** CP= 177.580 TIME= 16:25:22
Volume 894 area 3347 has a corner angle of 150 degrees. This is not
recommended for hexahedral elements.

*** WARNING *** CP= 177.600 TIME= 16:25:22
Meshing of volume 894 produced 2 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 894 WITH EXCESSIVE DISTORTION ***

11216 11217

*** WARNING *** CP= 177.650 TIME= 16:25:22
Volume 895 area 2798 has a corner angle of 30 degrees. This is not
recommended for hexahedral elements.

*** WARNING *** CP= 177.660 TIME= 16:25:22
Volume 895 area 3351 has a corner angle of 30 degrees. This is not
recommended for hexahedral elements.

*** WARNING *** CP= 177.680 TIME= 16:25:22
Meshing of volume 895 produced 2 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 895 WITH EXCESSIVE DISTORTION ***
11220 11221

*** WARNING *** CP= 182.680 TIME= 16:25:28
Volume 975 area 3595 has a corner angle of 29 degrees. This is not
recommended for hexahedral elements.

*** WARNING *** CP= 182.730 TIME= 16:25:28
Meshing of volume 975 produced 7 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 975 WITH EXCESSIVE DISTORTION ***
11561 11562 11565 11566 11567 11568 11570

*** WARNING *** CP= 183.220 TIME= 16:25:29
Volume 981 area 3601 has a corner angle of 29 degrees. This is not
recommended for hexahedral elements.

*** WARNING *** CP= 183.260 TIME= 16:25:29
Meshing of volume 981 produced 7 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 981 WITH EXCESSIVE DISTORTION ***
11654 11656 11658 11661 11662 11663 11664

*** WARNING *** CP= 183.330 TIME= 16:25:29
Meshing of volume 982 produced 1 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 982 WITH EXCESSIVE DISTORTION ***
11666

*** WARNING *** CP= 183.720 TIME= 16:25:29
Meshing of volume 986 produced 1 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 986 WITH EXCESSIVE DISTORTION ***
11726

*** WARNING *** CP= 183.760 TIME= 16:25:30
Volume 987 area 3607 has a corner angle of 29 degrees. This is not
recommended for hexahedral elements.

*** WARNING *** CP= 183.770 TIME= 16:25:30
Meshing of volume 987 produced 7 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 987 WITH EXCESSIVE DISTORTION ***
11737 11738 11739 11740 11742 11744 11746

*** WARNING *** CP= 183.910 TIME= 16:25:30
Volume 989 area 3609 has a corner angle of 29 degrees. This is not
recommended for hexahedral elements.

*** WARNING *** CP= 183.960 TIME= 16:25:30

Meshing of volume 989 produced 7 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 989 WITH EXCESSIVE DISTORTION ***
11765 11766 11769 11770 11771 11772 11774

NUMBER OF VOLUMES MESHED = 446
MAXIMUM NODE NUMBER = 17143
MAXIMUM ELEMENT NUMBER = 11828
mesh upper outer barrier adding backfill mass

INVERT FOR ITEM=VOLU COMPONENT=
IN RANGE 1 TO 1010 STEP 1

564 VOLUMES (OF 1010 DEFINED) SELECTED BY VSEL COMMAND.

UNSELECT FOR ITEM=TYPE COMPONENT=
IN RANGE 1 TO 5 STEP 1

160 VOLUMES (OF 1010 DEFINED) SELECTED BY VSEL COMMAND.

ELEMENT TYPE SET TO 7

MATERIAL NUMBER SET TO 7

GENERATE NODES AND ELEMENTS IN ALL SELECTED VOLUMES

NUMBER OF VOLUMES MESHED = 160
MAXIMUM NODE NUMBER = 19211
MAXIMUM ELEMENT NUMBER = 13764

Apply Symmetry Constraints

ACTIVE COORDINATE SYSTEM SET TO 0 (CARTESIAN)

SELECT FOR ITEM=LOC COMPONENT=X BETWEEN 0.00000E+00 AND 0.00000E+00
KABS= 0. TOLERANCE= 0.100000E-05

951 NODES (OF 19211 DEFINED) SELECTED BY NSEL COMMAND.

SYMMETRY CONSTRAINTS FOR COORDINATE SYSTEM 0 IN DIRECTION X
ON SURFACE DEFINED BY ALL SELECTED NODES

*** NOTE *** CP= 206.430 TIME= 16:26:16
Nodes on symmetry surfaces are rotated into coordinate system 0.

TOTAL SPECIFIED CONSTRAINTS= 951
Apply Constraints at Support Locations
Span approximately half of basket height, width = 0.305 m

ACTIVE COORDINATE SYSTEM SET TO 1 (CYLINDRICAL)

SELECT FOR ITEM=LOC COMPONENT=Z BETWEEN 0.90500 AND 1.2300
KABS= 0. TOLERANCE= 0.000000E+00

1588 NODES (OF 19211 DEFINED) SELECTED BY NSEL COMMAND.

ALSO SELECT FOR ITEM=LOC COMPONENT=Z BETWEEN 3.3450 AND 3.6700
KABS= 0. TOLERANCE= 0.000000E+00

3176 NODES (OF 19211 DEFINED) SELECTED BY NSEL COMMAND.

RESELECT FOR ITEM=LOC COMPONENT=X BETWEEN 0.82995 AND 0.83195
KABS= 0. TOLERANCE= 0.000000E+00

196 NODES (OF 19211 DEFINED) SELECTED BY NSEL COMMAND.

RESELECT FOR ITEM=LOC COMPONENT=Y BETWEEN -70.000 AND -50.000
KABS= 0. TOLERANCE= 0.000000E+00

20 NODES (OF 19211 DEFINED) SELECTED BY NSEL COMMAND.

ACTIVE COORDINATE SYSTEM SET TO 0 (CARTESIAN)

SPECIFIED CONSTRAINT UY FOR SELECTED NODES 1 TO 19211 BY 1
REAL= 0.000000000E+00 IMAG= 0.000000000E+00

SELECT ALL ENTITIES OF TYPE= ALL AND BELOW

ALL SELECT FOR ITEM=VOLU COMPONENT=
IN RANGE 1 TO 1010 STEP 1

1010 VOLUMES (OF 1010 DEFINED) SELECTED BY VSEL COMMAND.

ALL SELECT FOR ITEM=AREA COMPONENT=
IN RANGE 1 TO 3694 STEP 1

3694 AREAS (OF 3694 DEFINED) SELECTED BY ASEL COMMAND.

ALL SELECT FOR ITEM=LINE COMPONENT=
IN RANGE 1 TO 4380 STEP 1

4380 LINES (OF 4380 DEFINED) SELECTED BY LSEL COMMAND.

ALL SELECT FOR ITEM=KP COMPONENT=
IN RANGE 1 TO 9001 STEP 1

1710 KEYPOINTS (OF 1710 DEFINED) SELECTED BY KSEL COMMAND.

ALL SELECT FOR ITEM=ELEM COMPONENT=
IN RANGE 1 TO 13764 STEP 1

13764 ELEMENTS (OF 13764 DEFINED) SELECTED BY ESEL COMMAND.

ALL SELECT FOR ITEM=NODE COMPONENT=
IN RANGE 1 TO 19211 STEP 1

19211 NODES (OF 19211 DEFINED) SELECTED BY NSEL COMMAND.

ALL CURRENT ANSYS DATA WRITTEN TO FILE NAME= seism5.db
FOR POSSIBLE RESUME FROM THIS POINT

***** ROUTINE COMPLETED ***** CP = 238.010

***** ANSYS SOLUTION ROUTINE *****

PERFORM A MODAL ANALYSIS
THIS WILL BE A NEW ANALYSIS

USE SUBSPACE ITERATION METHOD
EXTRACT 1 MODES
NORMALIZE THE MODE SHAPES TO THE MASS MATRIX

WRITE ALL ITEMS TO THE DATABASE WITH A FREQUENCY OF 1
FOR ALL APPLICABLE ENTITIES

ALL CURRENT ANSYS DATA WRITTEN TO FILE NAME= seism5.db
FOR POSSIBLE RESUME FROM THIS POINT

***** ANSYS SOLVE COMMAND *****

*** WARNING *** CP= 278.300 TIME= 16:32:12
Element 4156 has an angle between adjacent edges of 38.4597531 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.300 TIME= 16:32:12
Element 4156 has an angle between adjacent edges of 141.535362 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.300 TIME= 16:32:12
Element 4157 has an angle between adjacent edges of 38.4597531 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.300 TIME= 16:32:12
Element 4157 has an angle between adjacent edges of 141.535362 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.300 TIME= 16:32:12
Element 4158 has an angle between adjacent edges of 38.4597531 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.320 TIME= 16:32:12
Element 4158 has an angle between adjacent edges of 141.535362 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.320 TIME= 16:32:12
Element 4159 has an angle between adjacent edges of 38.4597531 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.320 TIME= 16:32:12
Element 4159 has an angle between adjacent edges of 141.535362 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.320 TIME= 16:32:12
Element 4160 has an angle between adjacent edges of 38.4597531 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.320 TIME= 16:32:12
Element 4160 has an angle between adjacent edges of 141.535362 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.320 TIME= 16:32:12
Element 4161 has an angle between adjacent edges of 38.4597531 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.330 TIME= 16:32:12
Element 4161 has an angle between adjacent edges of 141.535362 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.330 TIME= 16:32:12
Element 4162 has an angle between adjacent edges of 38.4597531 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.330 TIME= 16:32:12
Element 4162 has an angle between adjacent edges of 141.535362 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.330 TIME= 16:32:12
Element 4163 has an angle between adjacent edges of 38.4597531 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.330 TIME= 16:32:12
Element 4163 has an angle between adjacent edges of 141.535362 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.330 TIME= 16:32:12
Element 4164 has an angle between adjacent edges of 38.4597531 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.340 TIME= 16:32:12
Element 4164 has an angle between adjacent edges of 141.535362 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.340 TIME= 16:32:12
Element 4165 has an angle between adjacent edges of 38.4597531 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.340 TIME= 16:32:12
Element 4165 has an angle between adjacent edges of 141.535362 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.340 TIME= 16:32:12
Element 4166 has an angle between adjacent edges of 38.4597531 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.340 TIME= 16:32:12
Element 4166 has an angle between adjacent edges of 141.535362 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.340 TIME= 16:32:12
Element 4167 has an angle between adjacent edges of 38.4597531 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.350 TIME= 16:32:12
Element 4167 has an angle between adjacent edges of 141.535362 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.350 TIME= 16:32:12
Element 4168 has an angle between adjacent edges of 38.4597531 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.350 TIME= 16:32:12
Element 4168 has an angle between adjacent edges of 141.535362 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.350 TIME= 16:32:12
Element 4169 has an angle between adjacent edges of 38.4597531 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.350 TIME= 16:32:12
Element 4169 has an angle between adjacent edges of 141.535362 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.350 TIME= 16:32:12
Element 4170 has an angle between adjacent edges of 38.4597531 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.360 TIME= 16:32:12
Element 4170 has an angle between adjacent edges of 141.535362 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.360 TIME= 16:32:12
Element 4171 has an angle between adjacent edges of 30.0613937 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.360 TIME= 16:32:12
Element 4171 has an angle between adjacent edges of 149.933722 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.360 TIME= 16:32:12
Element 4172 has an angle between adjacent edges of 30.0613937 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.360 TIME= 16:32:12
Element 4172 has an angle between adjacent edges of 149.933722 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.370 TIME= 16:32:12
Element 4173 has an angle between adjacent edges of 30.0613937 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.370 TIME= 16:32:12
Element 4173 has an angle between adjacent edges of 149.933722 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.370 TIME= 16:32:12
Element 4174 has an angle between adjacent edges of 30.0613937 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.370 TIME= 16:32:12
Element 4174 has an angle between adjacent edges of 149.933722 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.370 TIME= 16:32:12
Element 4175 has an angle between adjacent edges of 30.0613937 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.370 TIME= 16:32:12
Element 4175 has an angle between adjacent edges of 149.933722 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.380 TIME= 16:32:12
Element 4176 has an angle between adjacent edges of 30.0613937 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.380 TIME= 16:32:12
Element 4176 has an angle between adjacent edges of 149.933722 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.380 TIME= 16:32:12
Element 4177 has an angle between adjacent edges of 30.0613937 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.380 TIME= 16:32:12
Element 4177 has an angle between adjacent edges of 149.933722 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.380 TIME= 16:32:12
Element 4178 has an angle between adjacent edges of 30.0613937 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.380 TIME= 16:32:12
Element 4178 has an angle between adjacent edges of 149.933722 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.390 TIME= 16:32:12
Element 4179 has an angle between adjacent edges of 30.0613937 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.390 TIME= 16:32:12
Element 4179 has an angle between adjacent edges of 149.933722 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.390 TIME= 16:32:12
Element 4180 has an angle between adjacent edges of 30.0613937 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.390 TIME= 16:32:12
Element 4180 has an angle between adjacent edges of 149.933722 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.390 TIME= 16:32:12
Element 4181 has an angle between adjacent edges of 30.0613937 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.390 TIME= 16:32:12
Element 4181 has an angle between adjacent edges of 149.933722 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.400 TIME= 16:32:12
Element 4182 has an angle between adjacent edges of 30.0613937 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.400 TIME= 16:32:12
Element 4182 has an angle between adjacent edges of 149.933722 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.400 TIME= 16:32:12
Element 4183 has an angle between adjacent edges of 30.0613937 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.400 TIME= 16:32:12
Element 4183 has an angle between adjacent edges of 149.933722 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.400 TIME= 16:32:12
Element 4184 has an angle between adjacent edges of 30.0613937 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.400 TIME= 16:32:12
Element 4184 has an angle between adjacent edges of 149.933722 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.410 TIME= 16:32:12
Element 4185 has an angle between adjacent edges of 30.0613937 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.410 TIME= 16:32:12
Element 4185 has an angle between adjacent edges of 149.933722 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.410 TIME= 16:32:12
Element 4186 has an angle between adjacent edges of 38.4646378 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.410 TIME= 16:32:12
Element 4186 has an angle between adjacent edges of 149.933722 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.410 TIME= 16:32:12
Element 4187 has an angle between adjacent edges of 141.535362 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.420 TIME= 16:32:12
Element 4187 has an angle between adjacent edges of 141.535362 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.420 TIME= 16:32:12
Element 4190 has an angle between adjacent edges of 38.4646378 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.420 TIME= 16:32:12
Element 4190 has an angle between adjacent edges of 149.933722 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.420 TIME= 16:32:12
Element 4191 has an angle between adjacent edges of 141.535362 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.420 TIME= 16:32:12
Element 4191 has an angle between adjacent edges of 141.535362 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.430 TIME= 16:32:12
Element 4194 has an angle between adjacent edges of 38.4646378 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.430 TIME= 16:32:12
Element 4194 has an angle between adjacent edges of 149.933722 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.430 TIME= 16:32:12
Element 4195 has an angle between adjacent edges of 141.535362 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.430 TIME= 16:32:12
Element 4195 has an angle between adjacent edges of 141.535362 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.430 TIME= 16:32:12
Element 4198 has an angle between adjacent edges of 38.4646378 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.440 TIME= 16:32:12
Element 4198 has an angle between adjacent edges of 149.933722 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.440 TIME= 16:32:12
Element 4199 has an angle between adjacent edges of 141.535362 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.440 TIME= 16:32:12
Element 4199 has an angle between adjacent edges of 141.535362 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.440 TIME= 16:32:12
Element 4202 has an angle between adjacent edges of 38.4646378 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.440 TIME= 16:32:12
Element 4202 has an angle between adjacent edges of 149.933722 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.450 TIME= 16:32:12
Element 4203 has an angle between adjacent edges of 141.535362 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.450 TIME= 16:32:12
Element 4203 has an angle between adjacent edges of 141.535362 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.450 TIME= 16:32:12
Element 4206 has an angle between adjacent edges of 38.4646378 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.450 TIME= 16:32:12
Element 4206 has an angle between adjacent edges of 149.933722 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.450 TIME= 16:32:12
Element 4207 has an angle between adjacent edges of 141.535362 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.460 TIME= 16:32:12
Element 4207 has an angle between adjacent edges of 141.535362 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.460 TIME= 16:32:12
Element 4210 has an angle between adjacent edges of 38.4646378 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.460 TIME= 16:32:12
Element 4210 has an angle between adjacent edges of 149.933722 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.460 TIME= 16:32:12
Element 4211 has an angle between adjacent edges of 141.535362 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.460 TIME= 16:32:12
Element 4211 has an angle between adjacent edges of 141.535362 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.470 TIME= 16:32:12
Element 4214 has an angle between adjacent edges of 38.4646378 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.470 TIME= 16:32:12
Element 4214 has an angle between adjacent edges of 149.933722 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.470 TIME= 16:32:12
Element 4215 has an angle between adjacent edges of 141.535362 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.470 TIME= 16:32:12
Element 4215 has an angle between adjacent edges of 141.535362 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.470 TIME= 16:32:12
Element 4218 has an angle between adjacent edges of 38.4646378 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.480 TIME= 16:32:12
Element 4218 has an angle between adjacent edges of 149.933722 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.480 TIME= 16:32:12
Element 4219 has an angle between adjacent edges of 141.535362 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.480 TIME= 16:32:12
Element 4219 has an angle between adjacent edges of 141.535362 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.480 TIME= 16:32:12
Element 4222 has an angle between adjacent edges of 38.4646378 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.480 TIME= 16:32:12
Element 4222 has an angle between adjacent edges of 149.933722 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.490 TIME= 16:32:12
Element 4223 has an angle between adjacent edges of 141.535362 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.490 TIME= 16:32:12
Element 4223 has an angle between adjacent edges of 141.535362 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.490 TIME= 16:32:12
Element 4226 has an angle between adjacent edges of 38.4646378 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.490 TIME= 16:32:12
Element 4226 has an angle between adjacent edges of 149.933722 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.490 TIME= 16:32:12
Element 4227 has an angle between adjacent edges of 141.535362 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.500 TIME= 16:32:12
Element 4227 has an angle between adjacent edges of 141.535362 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.500 TIME= 16:32:12
Element 4230 has an angle between adjacent edges of 38.4646378 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.500 TIME= 16:32:12
Element 4230 has an angle between adjacent edges of 149.933722 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.500 TIME= 16:32:12
Element 4231 has an angle between adjacent edges of 141.535362 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.500 TIME= 16:32:12
Element 4231 has an angle between adjacent edges of 141.535362 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.510 TIME= 16:32:12
Element 4234 has an angle between adjacent edges of 38.4646378 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.510 TIME= 16:32:12
Element 4234 has an angle between adjacent edges of 149.933722 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.510 TIME= 16:32:12
Element 4235 has an angle between adjacent edges of 141.535362 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.510 TIME= 16:32:12
Element 4235 has an angle between adjacent edges of 141.535362 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.520 TIME= 16:32:12
Element 4238 has an angle between adjacent edges of 38.4646378 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.520 TIME= 16:32:12
Element 4238 has an angle between adjacent edges of 149.933722 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.520 TIME= 16:32:12
Element 4239 has an angle between adjacent edges of 141.535362 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.520 TIME= 16:32:12
Element 4239 has an angle between adjacent edges of 141.535362 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.520 TIME= 16:32:12
Element 4242 has an angle between adjacent edges of 38.4646378 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.530 TIME= 16:32:12
Element 4242 has an angle between adjacent edges of 149.933722 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.530 TIME= 16:32:12
Element 4243 has an angle between adjacent edges of 141.535362 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.530 TIME= 16:32:12
Element 4243 has an angle between adjacent edges of 141.535362 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.670 TIME= 16:32:12
Element 4458 has an angle between adjacent edges of 141.535362 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.670 TIME= 16:32:12
Element 4458 has an angle between adjacent edges of 141.535362 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.680 TIME= 16:32:12
Element 4459 has an angle between adjacent edges of 149.933722 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.680 TIME= 16:32:12
Element 4459 has an angle between adjacent edges of 38.4646378 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.680 TIME= 16:32:12
Element 4462 has an angle between adjacent edges of 141.535362 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.680 TIME= 16:32:12
Element 4462 has an angle between adjacent edges of 141.535362 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.680 TIME= 16:32:12
Element 4463 has an angle between adjacent edges of 149.933722 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.690 TIME= 16:32:12
Element 4463 has an angle between adjacent edges of 38.4646378 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.690 TIME= 16:32:12
Element 4466 has an angle between adjacent edges of 141.535362 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.690 TIME= 16:32:12
Element 4466 has an angle between adjacent edges of 141.535362 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.690 TIME= 16:32:12
Element 4467 has an angle between adjacent edges of 149.933722 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.690 TIME= 16:32:12
Element 4467 has an angle between adjacent edges of 38.4646378 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.700 TIME= 16:32:12
Element 4470 has an angle between adjacent edges of 141.535362 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.700 TIME= 16:32:12
Element 4470 has an angle between adjacent edges of 141.535362 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.700 TIME= 16:32:12
Element 4471 has an angle between adjacent edges of 149.933722 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.700 TIME= 16:32:12
Element 4471 has an angle between adjacent edges of 38.4646378 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.710 TIME= 16:32:12
Element 4474 has an angle between adjacent edges of 141.535362 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.710 TIME= 16:32:12
Element 4474 has an angle between adjacent edges of 141.535362 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.710 TIME= 16:32:12
Element 4475 has an angle between adjacent edges of 149.933722 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.710 TIME= 16:32:12
Element 4475 has an angle between adjacent edges of 38.4646378 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.710 TIME= 16:32:12
Element 4478 has an angle between adjacent edges of 141.535362 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.720 TIME= 16:32:12
Element 4478 has an angle between adjacent edges of 141.535362 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.720 TIME= 16:32:12
Element 4479 has an angle between adjacent edges of 149.933722 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.720 TIME= 16:32:12
Element 4479 has an angle between adjacent edges of 38.4646378 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.720 TIME= 16:32:12
Element 4482 has an angle between adjacent edges of 141.535362 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.730 TIME= 16:32:12
Element 4482 has an angle between adjacent edges of 141.535362 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.730 TIME= 16:32:12
Element 4483 has an angle between adjacent edges of 149.933722 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.730 TIME= 16:32:12
Element 4483 has an angle between adjacent edges of 38.4646378 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.730 TIME= 16:32:12
Element 4486 has an angle between adjacent edges of 141.535362 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.730 TIME= 16:32:12
Element 4486 has an angle between adjacent edges of 141.535362 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.740 TIME= 16:32:12
Element 4487 has an angle between adjacent edges of 149.933722 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.740 TIME= 16:32:12
Element 4487 has an angle between adjacent edges of 38.4646378 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.740 TIME= 16:32:12
Element 4490 has an angle between adjacent edges of 141.535362 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.740 TIME= 16:32:12
Element 4490 has an angle between adjacent edges of 141.535362 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.740 TIME= 16:32:12
Element 4491 has an angle between adjacent edges of 149.933722 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.750 TIME= 16:32:12
Element 4491 has an angle between adjacent edges of 38.4646378 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.750 TIME= 16:32:12
Element 4494 has an angle between adjacent edges of 141.535362 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.750 TIME= 16:32:12
Element 4494 has an angle between adjacent edges of 141.535362 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.750 TIME= 16:32:12
Element 4495 has an angle between adjacent edges of 149.933722 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.750 TIME= 16:32:12
Element 4495 has an angle between adjacent edges of 38.4646378 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.760 TIME= 16:32:12
Element 4498 has an angle between adjacent edges of 141.535362 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.760 TIME= 16:32:12
Element 4498 has an angle between adjacent edges of 141.535362 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.760 TIME= 16:32:12
Element 4499 has an angle between adjacent edges of 149.933722 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.760 TIME= 16:32:12
Element 4499 has an angle between adjacent edges of 38.4646378 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.760 TIME= 16:32:12
Element 4502 has an angle between adjacent edges of 141.535362 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.770 TIME= 16:32:12
Element 4502 has an angle between adjacent edges of 141.535362 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.770 TIME= 16:32:12
Element 4503 has an angle between adjacent edges of 149.933722 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.770 TIME= 16:32:12
Element 4503 has an angle between adjacent edges of 38.4646378 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.770 TIME= 16:32:12
Element 4506 has an angle between adjacent edges of 141.535362 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.770 TIME= 16:32:12
Element 4506 has an angle between adjacent edges of 141.535362 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.780 TIME= 16:32:12
Element 4507 has an angle between adjacent edges of 149.933722 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.780 TIME= 16:32:12
Element 4507 has an angle between adjacent edges of 38.4646378 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.780 TIME= 16:32:12
Element 4510 has an angle between adjacent edges of 141.535362 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.780 TIME= 16:32:12
Element 4510 has an angle between adjacent edges of 141.535362 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.780 TIME= 16:32:12
Element 4511 has an angle between adjacent edges of 149.933722 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.800 TIME= 16:32:13
Element 4511 has an angle between adjacent edges of 38.4646378 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.800 TIME= 16:32:13
Element 4514 has an angle between adjacent edges of 141.535362 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.800 TIME= 16:32:13
Element 4514 has an angle between adjacent edges of 141.535362 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.800 TIME= 16:32:13
Element 4515 has an angle between adjacent edges of 149.933722 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.800 TIME= 16:32:13
Element 4515 has an angle between adjacent edges of 38.4646378 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.830 TIME= 16:32:13
Element 4546 has an angle between adjacent edges of 38.4597531 on face
3 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.830 TIME= 16:32:13
Element 4546 has an angle between adjacent edges of 141.535362 on face
5 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.830 TIME= 16:32:13
Element 4547 has an angle between adjacent edges of 38.4597531 on face
3 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.830 TIME= 16:32:13
Element 4547 has an angle between adjacent edges of 141.535362 on face
5 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.830 TIME= 16:32:13
Element 4548 has an angle between adjacent edges of 38.4597531 on face
3 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.830 TIME= 16:32:13
Element 4548 has an angle between adjacent edges of 141.535362 on face
5 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.840 TIME= 16:32:13
Element 4549 has an angle between adjacent edges of 38.4597531 on face
3 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.840 TIME= 16:32:13
Element 4549 has an angle between adjacent edges of 141.535362 on face
5 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.840 TIME= 16:32:13
Element 4550 has an angle between adjacent edges of 38.4597531 on face
3 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.840 TIME= 16:32:13
Element 4550 has an angle between adjacent edges of 141.535362 on face
5 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.840 TIME= 16:32:13
Element 4551 has an angle between adjacent edges of 38.4597531 on face
3 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.840 TIME= 16:32:13
Element 4551 has an angle between adjacent edges of 141.535362 on face
5 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.850 TIME= 16:32:13
Element 4552 has an angle between adjacent edges of 38.4597531 on face
3 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.850 TIME= 16:32:13
Element 4552 has an angle between adjacent edges of 141.535362 on face
5 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.850 TIME= 16:32:13
Element 4553 has an angle between adjacent edges of 38.4597531 on face
3 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.850 TIME= 16:32:13
Element 4553 has an angle between adjacent edges of 141.535362 on face
5 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.850 TIME= 16:32:13
Element 4554 has an angle between adjacent edges of 38.4597531 on face
3 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.850 TIME= 16:32:13
Element 4554 has an angle between adjacent edges of 141.535362 on face
5 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.860 TIME= 16:32:13
Element 4555 has an angle between adjacent edges of 38.4597531 on face
3 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 278.860 TIME= 16:32:13
Element 4555 has an angle between adjacent edges of 141.535362 on face
5 which is outside the recommended range of 90 plus or minus 45
degrees.

Error messages discontinued after 200 messages were displayed.
More may exist. See (seism5.err) for suppressed messages.

*** NOTE *** CP= 285.740 TIME= 16:32:20
The model data was checked and warning messages were found.
Please review output or errors file (seism5.err) for these warning
messages.

1

***** ANSYS - ENGINEERING ANALYSIS SYSTEM REVISION 5.1 24 *****
38303 VERSION=HP 9000/7XX 16:32:20 MAY 31, 1996 CP= 285.740
FOR SUPPORT CALL ROBERT BAHNEY PHONE (702) 794-5337 FAX (702) 794-1844

21 PWR Tube Static Analysis With Backfill

SOLUTION OPTIONS

PROBLEM DIMENSIONALITY.3-D
DEGREES OF FREEDOM. UX UY UZ
ANALYSIS TYPEMODAL
EXTRACTION METHOD.SUBSPACE
NUMBER OF MODES TO EXTRACT. 1

LOAD STEP OPTIONS

LOAD STEP NUMBER. 1

***** CENTROID, MASS, AND MASS MOMENTS OF INERTIA *****

CALCULATIONS ASSUME ELEMENT MASS AT ELEMENT CENTROID

TOTAL MASS = 24789.

CENTROID	MOM. OF INERTIA ABOUT ORIGIN	MOM. OF INERTIA ABOUT CENTROID
XC = 0.44150	IXX = 0.1970E+06	IXX = 0.6490E+05
YC = 0.15716	IYY = 0.1965E+06	IYY = 0.6017E+05
ZC = 2.3032	IZZ = 0.1300E+05	IZZ = 7554.
	IXY = -1505.	IXY = 214.6
	IYZ = -8989.	IYZ = -16.94
	IZX = -0.2522E+05	IZX = -10.91

*** MASS SUMMARY BY ELEMENT TYPE ***

TYPE MASS
1 1824.11

2 982.613
3 649.245
4 354.547
5 2104.91
6 7186.21
7 11687.1

Range of element maximum matrix coefficients in global coordinates
Maximum= 1.047821976E+11 at element 2547.
Minimum= 480530912 at element 6464.

*** ELEMENT MATRIX FORMULATION TIMES

TYPE	NUMBER	ENAME	TOTAL CP	AVE CP
1	2820	SOLID45	16.460	0.006
2	1170	SOLID45	6.830	0.006
3	720	SOLID45	4.230	0.006
4	270	SOLID45	1.640	0.006
5	3048	SOLID45	17.820	0.006
6	3800	SOLID45	22.150	0.006
7	1936	SOLID45	11.260	0.006

Time at end of element matrix formulation CP= 388.45.

Estimated number of active DOF= 56662.
Maximum wavefront= 2121.

Time at end of matrix triangularization CP= 578.79.

SUBSPACE SIZE OF 5 VECTORS USED FOR CALCULATION OF FIRST 1 EIGENVECTORS.

MAXIMUM ITERATIONS	=	100
NUMBER OF EQUATIONS	=	56662
MAXIMUM WAVEFRONT	=	2121
ITERATIONS PER SHIFT	=	5
MAXIMUM MODES STORED	=	5
MAXIMUM EIGENVALUE	=	0.10000E+07
WORK SPACE (MByte)	=	17.997

Equation solver maximum pivot= 5.381411247E+11 at node 3291 UX.

Equation solver minimum pivot= 978272.64 at node 18432 UZ.

***** ITERATION 1 COMPLETE ***** CP= 10707.240 WALL= 20.8694

***** CURRENT EIGENVALUE CALCULATIONS *****

MODE	CURRENT VALUE	PREVIOUS VALUE	CONVERGENCE RATIO
1	0.84626522E-02	0.00000000E+00	0.28273E-02
2	186.03986	0.00000000E+00	0.10000E+01
3	285.73850	0.00000000E+00	0.10000E+01
4	480.29639	0.00000000E+00	0.10000E+01
5	587.76674	0.00000000E+00	0.10000E+01

ITERATIONS SINCE LAST SHIFT= 1
TOTAL NUMBER OF ITERATIONS= 1
NUMBER OF MODES CONVERGED= 0
NUMBER OF WORKING VECTORS= 5
CURRENT SHIFT POINT= -1.0000
CP TIME FOR TRIANGULARIZATION= 9815.230
CP TIME SINCE LAST SHIFT= 307.580

***** ITERATION 2 COMPLETE ***** CP= 11013.530 WALL= 21.1283

***** CURRENT EIGENVALUE CALCULATIONS *****

MODE	CURRENT VALUE	PREVIOUS VALUE	CONVERGENCE RATIO
1	0.30704499E-03	0.84626522E-02	0.28236E-02
2	117.99805	186.03986	0.14858E+01
3	133.02835	285.73850	0.36137E+01

4	171.51396	480.29639	0.68419E+01
5	232.68312	587.76674	0.53809E+01

ITERATIONS SINCE LAST SHIFT= 2
TOTAL NUMBER OF ITERATIONS= 2
NUMBER OF MODES CONVERGED= 0
NUMBER OF WORKING VECTORS= 5
CURRENT SHIFT POINT= -1.0000
CP TIME FOR TRIANGULARIZATION= 9815.230
CP TIME SINCE LAST SHIFT= 613.840

***** ITERATION 3 COMPLETE ***** CP= 11321.540 WALL= 21.3878

***** CURRENT EIGENVALUE CALCULATIONS *****
MODE CURRENT VALUE PREVIOUS VALUE CONVERGENCE RATIO
1 0.29825175E-03 0.30704499E-03 0.21012E-06

*** NOTE *** CP= 11321.540 TIME= 21:23:16
NEW SHIFT= 36.8857039.

*** NOTE *** CP= 21459.940 TIME= 02:03:45
STURM number= 1 should be 1.

1
***** ANSYS - ENGINEERING ANALYSIS SYSTEM REVISION 5.1 24 *****
38303 VERSION=HP 9000/7XX 02:03:47 JUN 01, 1996 CP= 21460.230
FOR SUPPORT CALL ROBERT BAHNEY PHONE (702) 794-5337 FAX (702) 794-1844

21 PWR Tube Static Analysis With Backfill

***** FREQUENCIES FROM SUBSPACE ITERATION *****

MODE FREQUENCY (HERTZ)

1 0.29825175E-03

*** PROBLEM STATISTICS
ACTUAL NO. OF ACTIVE DEGREES OF FREEDOM = 56662
R.M.S. WAVEFRONT SIZE = 1441.5

*** ANSYS BINARY FILE STATISTICS
BUFFER SIZE USED= 4096
71.250 MB WRITTEN ON ELEMENT MATRIX FILE: seism5.emat
47.250 MB WRITTEN ON ELEMENT SAVED DATA FILE: seism5.esav
35.000 MB WRITTEN ON ASSEMBLED MATRIX FILE: seism5.full
0.969 MB WRITTEN ON MODAL MATRIX FILE: seism5.mode

FINISH SOLUTION PROCESSING

***** ROUTINE COMPLETED ***** CP = 21472.270

PURGE ALL SOLUTION AND POST DATA
SAVE ALL MODEL DATA

ALL CURRENT ANSYS DATA WRITTEN TO FILE NAME= seism5.db
FOR POSSIBLE RESUME FROM THIS POINT

NUMBER OF WARNING MESSAGES ENCOUNTERED= 1678
NUMBER OF ERROR MESSAGES ENCOUNTERED= 0

*** PAGE FILE USED ***

NUMBER OF R/W OPERATIONS= 28821
MAXIMUM RECORD NUMBER = 684
RECORD SIZE (1*4 WORDS) = 16384
PAGE FILE SIZE (MB) = 42.750

ANSYS RUN COMPLETED

REV. 5.1 24

HP 9000/7XX

CP TIME (sec) = 21503.280
ELAPSED TIME (sec) = 35218.000

TIME = 02:08:35
DATE = 06/01/96

SECTION E-E
SCALE 0.062

All Dimensions Are in SI Units, Millimeters

Ø 1487.3
-B-

All Dimensions Are in SI Units, Millimeters

25 2 PLACES

SECTION A-A
SCALE 0060

All Dimensions Are in SI Units, Millimeters

All Dimensions Are in SI Units, Millimeters

Attachment XXXIX-4. Waste Package Tube Design (21-PWR) Inner Barrier Lid Preliminary Sketch.

All Dimensions Are in SI Units, Millimeters

All Dimensions Are in SI Units, Millimeters

All Dimensions Are in SI Units, Millimeters

All Dimensions Are in SI Units, Millimeters

Attachment XXXIX-9. Waste Package Tube Design (21-PWR) Corner Guide Preliminary Sketch.

All Dimensions Are in SI Units, Millimeters

Attachment XXXIX-10. Waste Package Tube Design (21-PWR) A-Guide Preliminary Sketch.

All Dimensions Are in SI Units, Millimeters

Inner Barrier Linearized Stresses at Location of Peak Stress

PRINT LINEARIZED STRESS THROUGH A SECTION DEFINED BY LPATH COMMAND. DSYS= 0
1

***** ANSYS - ENGINEERING ANALYSIS SYSTEM REVISION 5.1 24 *****
38303 VERSION=HP 9000/7XX '3:30:50 JUN 09, 1996 CP= 112.680
FOR SUPPORT CALL ROBERT BAHNEY PHONE (702) 794-5337 FAX (702) 794-1844

21 PWR Tube Seismic Analysis With Backfill

***** POST1 LINEARIZED STRESS LISTING *****
INSIDE NODE = 8632 OUTSIDE NODE = 8626

CALCULATED LOAD CASE= 0

THE FOLLOWING X,Y,Z STRESSES ARE IN GLOBAL COORDINATES.

** MEMBRANE **

	SX	SY	SZ	SXY	SYZ	SXZ
	0.9995E+08	0.1013E+09	0.2643E+09	0.1703E+08	0.4177E+08	0.1675E+08
	S1	S2	S3	SINT	SEQV	
	0.2767E+09	0.1074E+09	0.8150E+08	0.1952E+09	0.1836E+09	

** BENDING ** I=INSIDE C=CENTER O=OUTSIDE

	SX	SY	SZ	SXY	SYZ	SXZ
I	0.6828E+07	0.1556E+07	0.2991E+08	-0.4558E+07	-0.2046E+07	0.2879E+07
C	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
O	-0.6828E+07	-0.1556E+07	-0.2991E+08	0.4558E+07	0.2046E+07	-0.2879E+07
	S1	S2	S3	SINT	SEQV	
I	0.3051E+08	0.8870E+07	-0.1076E+07	0.3158E+08	0.2797E+08	
C	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	
O	0.1076E+07	-0.8870E+07	-0.3051E+08	0.3158E+08	0.2797E+08	

** MEMBRANE PLUS BENDING ** I=INSIDE C=CENTER O=OUTSIDE

	SX	SY	SZ	SXY	SYZ	SXZ
I	0.1068E+09	0.1029E+09	0.2942E+09	0.1247E+08	0.3972E+08	0.1963E+08
C	0.9995E+08	0.1013E+09	0.2643E+09	0.1703E+08	0.4177E+08	0.1675E+08
O	0.9313E+08	0.9979E+08	0.2344E+09	0.2159E+08	0.4382E+08	0.1387E+08
	S1	S2	S3	SINT	SEQV	
I	0.3045E+09	0.1093E+09	0.9011E+08	0.2144E+09	0.2055E+09	
C	0.2767E+09	0.1074E+09	0.8150E+08	0.1952E+09	0.1836E+09	
O	0.2498E+09	0.1055E+09	0.7200E+08	0.1778E+09	0.1637E+09	

** PEAK ** I=INSIDE C=CENTER O=OUTSIDE

	SX	SY	SZ	SXY	SYZ	SXZ
I	0.6212E+08	0.3524E+07	0.2316E+09	0.4220E+07	-0.3237E+06	0.7404E+07
C	-0.6211E+08	-0.3523E+07	-0.2316E+09	-0.4222E+07	0.3228E+06	-0.7403E+07
O	0.6211E+08	0.3523E+07	0.2316E+09	0.4224E+07	-0.3219E+06	0.7402E+07
	S1	S2	S3	SINT	SEQV	
I	0.2320E+09	0.6210E+08	0.3218E+07	0.2287E+09	0.2057E+09	
C	-0.3217E+07	-0.6210E+08	-0.2319E+09	0.2287E+09	0.2057E+09	
O	0.2319E+09	0.6210E+08	0.3216E+07	0.2287E+09	0.2057E+09	

** TOTAL ** I=INSIDE C=CENTER O=OUTSIDE

	SX	SY	SZ	SXY	SYZ	SXZ
I	0.1689E+09	0.1064E+09	0.5258E+09	0.1669E+08	0.3940E+08	0.2703E+08
C	0.3784E+08	0.9782E+08	0.3266E+08	0.1281E+08	0.4209E+08	0.9345E+07
O	0.1552E+09	0.1033E+09	0.4660E+09	0.2581E+08	0.4349E+08	0.2127E+08
	S1	S2	S3	SINT	SEQV	TEMP
I	0.5317E+09	0.1696E+09	0.9979E+08	0.4319E+09	0.4016E+09	0.0000E+00
C	0.1214E+09	0.3524E+08	0.1170E+08	0.1097E+09	0.1000E+09	
O	0.4730E+09	0.1618E+09	0.8979E+08	0.3832E+09	0.3527E+09	0.0000E+00

Basket Tubes and Guides Linearized Stresses at Location of Peak Stress

PRINT LINEARIZED STRESS THROUGH A SECTION DEFINED BY LPATH COMMAND. DSYS= 0

1

***** ANSYS - ENGINEERING ANALYSIS SYSTEM REVISION 5.1 24 *****
 38303 VERSION=HP 9000/7XX 3:30:52 JUN 09, 1996 CP= 113.770
 FOR SUPPORT CALL ROBERT BAHNEY PHONE (702) 794-5337 FAX (702) 794-1844

21 PWR Tube Seismic Analysis With Backfill

***** POST1 LINEARIZED STRESS LISTING *****
 INSIDE NODE = 4355 OUTSIDE NODE = 4293

CALCULATED LOAD CASE= 0

THE FOLLOWING X,Y,Z STRESSES ARE IN GLOBAL COORDINATES.

** MEMBRANE **

	SX	SY	SZ	SXY	SYZ	SXZ
I	0.7309E+08	0.6979E+08	0.2110E+09	0.1562E+08	0.5319E+08	0.1043E+08
C	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
O	0.1321E+07	0.2072E+07	0.6872E+06	0.4187E+07	-0.4477E+07	-0.1264E+07

	S1	S2	S3	SINT	SEQV
I	0.2302E+09	0.7694E+08	0.4673E+08	0.1834E+09	0.1704E+09
C	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
O	0.1321E+07	0.2072E+07	0.6872E+06	0.4187E+07	-0.4477E+07

** BENDING ** I=INSIDE C=CENTER O=OUTSIDE

	SX	SY	SZ	SXY	SYZ	SXZ
I	-0.1321E+07	-0.2072E+07	-0.6872E+06	-0.4187E+07	0.4477E+07	0.1264E+07
C	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
O	0.1321E+07	0.2072E+07	0.6872E+06	0.4187E+07	-0.4477E+07	-0.1264E+07

	S1	S2	S3	SINT	SEQV
I	0.3993E+07	0.2245E+06	-0.8299E+07	0.1229E+08	0.1091E+08
C	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
O	0.8299E+07	-0.2245E+06	-0.3993E+07	0.1229E+08	0.1091E+08

** MEMBRANE PLUS BENDING ** I=INSIDE C=CENTER O=OUTSIDE

	SX	SY	SZ	SXY	SYZ	SXZ
I	0.7177E+08	0.6772E+08	0.2103E+09	0.1143E+08	0.5767E+08	0.1169E+08
C	0.7309E+08	0.6979E+08	0.2110E+09	0.1562E+08	0.5319E+08	0.1043E+08
O	0.7441E+08	0.7186E+08	0.2117E+09	0.1981E+08	0.4871E+08	0.9162E+07

	S1	S2	S3	SINT	SEQV
I	0.2321E+09	0.7227E+08	0.4543E+08	0.1866E+09	0.1748E+09
C	0.2302E+09	0.7694E+08	0.4673E+08	0.1834E+09	0.1704E+09
O	0.2284E+09	0.8284E+08	0.4672E+08	0.1816E+09	0.1666E+09

** PEAK ** I=INSIDE C=CENTER O=OUTSIDE

	SX	SY	SZ	SXY	SYZ	SXZ
I	0.5765E+06	0.3036E+05	0.5409E+07	0.2793E+07	0.2165E+08	0.4107E+07
C	-0.5771E+06	-0.3126E+05	-0.5409E+07	-0.2795E+07	-0.2165E+08	-0.4107E+07
O	0.5777E+06	0.3216E+05	0.5409E+07	0.2796E+07	0.2165E+08	0.4106E+07

	S1	S2	S3	SINT	SEQV
I	0.2551E+08	-0.3769E+06	-0.1912E+08	0.4463E+08	0.3882E+08
C	0.1912E+08	0.3768E+06	-0.2551E+08	0.4463E+08	0.3881E+08
O	0.2551E+08	-0.3767E+06	-0.1911E+08	0.4462E+08	0.3881E+08

** TOTAL ** I=INSIDE C=CENTER O=OUTSIDE

	SX	SY	SZ	SXY	SYZ	SXZ
I	0.7235E+08	0.6775E+08	0.2157E+09	0.1423E+08	0.7932E+08	0.1580E+08
C	0.7251E+08	0.6976E+08	0.2056E+09	0.1282E+08	0.3154E+08	0.6320E+07
O	0.7499E+08	0.7190E+08	0.2171E+09	0.2260E+08	0.7036E+08	0.1327E+08

	S1	S2	S3	SINT	SEQV	TEMP
I	0.2524E+09	0.7127E+08	0.3208E+08	0.2204E+09	0.2036E+09	0.0000E+00
C	0.2131E+09	0.7941E+08	0.5533E+08	0.1578E+09	0.1472E+09	0.0000E+00
O	0.2481E+09	0.7946E+08	0.3641E+08	0.2117E+09	0.1938E+09	0.0000E+00

Criticality Control Plates Linearized Stresses at Location of Peak Stress

PRINT LINEARIZED STRESS THROUGH A SECTION DEFINED BY LPATH COMMAND. DSYS= 0

***** ANSYS - ENGINEERING ANALYSIS SYSTEM REVISION 5.1 24 *****
 38303 VERSION=HP 9000/7XX 13:30:54 JUN 09, 1996 CP= 114.860
 FOR SUPPORT CALL ROBERT BAHNEY PHONE (702) 794-5337 FAX (702) 794-1844

21 PWR Tube Seismic Analysis With Backfill

***** POST1 LINEARIZED STRESS LISTING *****
 INSIDE NODE = 3878 OUTSIDE NODE = 3830

CALCULATED LOAD CASE= 0

THE FOLLOWING X,Y,Z STRESSES ARE IN GLOBAL COORDINATES.

```

** MEMBRANE **
      SX      SY      SZ      $XY      SYZ      SXZ
0.2256E+07 0.2365E+08 0.1623E+07 0.2121E+07 0.3887E+07 0.1879E+06
      S1      S2      S3      $INT      SEQV
0.2452E+08 0.2080E+07 0.9309E+06 0.2359E+08 0.2303E+08

** BENDING ** I=INSIDE C=CENTER O=OUTSIDE
      SX      SY      SZ      $XY      SYZ      SXZ
I 0.1647E+06 0.1157E+07 0.2896E+06 0.1099E+06 -0.8958E+05 0.1066E+05
C 0.0000E+00 0.0000E+00 0.0000E+00 0.0000E+00 0.0000E+00 0.0000E+00
O -0.1647E+06 -0.1157E+07 -0.2896E+06 -0.1099E+06 0.8958E+05 -0.1066E+05
      S1      S2      S3      $INT      SEQV
I 0.1178E+07 0.2841E+06 0.1495E+06 0.1028E+07 0.9683E+06
C 0.0000E+00 0.0000E+00 0.0000E+00 0.0000E+00 0.0000E+00
O -0.1495E+06 -0.2841E+06 -0.1178E+07 0.1028E+07 0.9683E+06

** MEMBRANE PLUS BENDING ** I=INSIDE C=CENTER O=OUTSIDE
      SX      SY      SZ      $XY      SYZ      SXZ
I 0.2421E+07 0.2481E+08 0.1913E+07 0.2231E+07 0.3797E+07 0.1986E+06
C 0.2256E+07 0.2365E+08 0.1623E+07 0.2121E+07 0.3887E+07 0.1879E+06
O 0.2092E+07 0.2249E+08 0.1333E+07 0.2011E+07 0.3976E+07 0.1773E+06
      S1      S2      S3      $INT      SEQV
I 0.2563E+08 0.2233E+07 0.1272E+07 0.2436E+08 0.2390E+08
C 0.2452E+08 0.2080E+07 0.9309E+06 0.2359E+08 0.2303E+08
O 0.2340E+08 0.1928E+07 0.5850E+06 0.2282E+08 0.2218E+08

** PEAK ** I=INSIDE C=CENTER O=OUTSIDE
      SX      SY      SZ      $XY      SYZ      SXZ
I 0.1756E+05 0.4874E+05 0.4688E+05 753.0 -6755. -1030.
C -0.1749E+05 -0.4824E+05 -0.4675E+05 -705.3 6717. 1035.
O 0.1742E+05 0.4774E+05 0.4662E+05 657.5 -6678. -1040.
      S1      S2      S3      $INT      SEQV
I 0.5467E+05 0.4099E+05 0.1751E+05 0.3716E+05 0.3255E+05
C -0.1744E+05 -0.4074E+05 -0.5429E+05 0.3685E+05 0.3228E+05
O 0.5392E+05 0.4048E+05 0.1737E+05 0.3655E+05 0.3202E+05

** TOTAL ** I=INSIDE C=CENTER O=OUTSIDE
      SX      SY      SZ      $XY      SYZ      SXZ
I 0.2438E+07 0.2486E+08 0.1960E+07 0.2232E+07 0.3790E+07 0.1976E+06
C 0.2239E+07 0.2360E+08 0.1576E+07 0.2120E+07 0.3894E+07 0.1890E+06
O 0.2109E+07 0.2254E+08 0.1380E+07 0.2012E+07 0.3970E+07 0.1762E+06
      S1      S2      S3      $INT      SEQV      TEMP
I 0.2568E+08 0.2252E+07 0.1320E+07 0.2436E+08 0.2391E+08 0.0000E+00
C 0.2447E+08 0.2062E+07 0.8827E+06 0.2359E+08 0.2302E+08
O 0.2345E+08 0.1946E+07 0.6332E+06 0.2282E+08 0.2219E+08 0.0000E+00
  
```

Basket Tubes and Guides Linearized Stresses at Location of Peak Stress

PRINT LINEARIZED STRESS THROUGH A SECTION DEFINED BY LPATH COMMAND. DSYS= 0
1

***** ANSYS - ENGINEERING ANALYSIS SYSTEM REVISION 5.1 24 *****
38303 VERSION=HP 9000/7XX 13:30:52 JUN 09, 1996 CP= 113.770
FOR SUPPORT CALL ROBERT BAHNEY PHONE (702) 794-5337 FAX (702) 794-1844

21 PWR Tube Seismic Analysis With Backfill

***** POST1 LINEARIZED STRESS LISTING *****
INSIDE NODE = 4355 OUTSIDE NODE = 4293

CALCULATED LOAD CASE= 0

THE FOLLOWING X,Y,Z STRESSES ARE IN GLOBAL COORDINATES.

** MEMBRANE **

	SX	SY	SZ	SXY	SYZ	SXZ
I	0.7309E+08	0.6979E+08	0.2110E+09	0.1562E+08	0.5319E+08	0.1043E+08
C	0.7309E+08	0.6979E+08	0.2110E+09	0.1562E+08	0.5319E+08	0.1043E+08
O	0.7309E+08	0.6979E+08	0.2110E+09	0.1562E+08	0.5319E+08	0.1043E+08
	S1	S2	S3	SINT	SEQV	
I	0.2302E+09	0.7694E+08	0.4673E+08	0.1834E+09	0.1704E+09	
C	0.2302E+09	0.7694E+08	0.4673E+08	0.1834E+09	0.1704E+09	
O	0.2302E+09	0.7694E+08	0.4673E+08	0.1834E+09	0.1704E+09	

** BENDING ** I=INSIDE C=CENTER O=OUTSIDE

	SX	SY	SZ	SXY	SYZ	SXZ
I	-0.1321E+07	-0.2072E+07	-0.6872E+06	-0.4187E+07	0.4477E+07	0.1264E+07
C	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
O	0.1321E+07	0.2072E+07	0.6872E+06	0.4187E+07	-0.4477E+07	-0.1264E+07
	S1	S2	S3	SINT	SEQV	
I	0.3993E+07	0.2245E+06	-0.8299E+07	0.1229E+08	0.1091E+08	
C	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	
O	0.8299E+07	-0.2245E+06	-0.3993E+07	0.1229E+08	0.1091E+08	

** MEMBRANE PLUS BENDING ** I=INSIDE C=CENTER O=OUTSIDE

	SX	SY	SZ	SXY	SYZ	SXZ
I	0.7177E+08	0.6772E+08	0.2103E+09	0.1143E+08	0.5767E+08	0.1169E+08
C	0.7309E+08	0.6979E+08	0.2110E+09	0.1562E+08	0.5319E+08	0.1043E+08
O	0.7441E+08	0.7186E+08	0.2117E+09	0.1981E+08	0.4871E+08	0.9162E+07
	S1	S2	S3	SINT	SEQV	
I	0.2321E+09	0.7227E+08	0.4543E+08	0.1866E+09	0.1748E+09	
C	0.2302E+09	0.7694E+08	0.4673E+08	0.1834E+09	0.1704E+09	
O	0.2284E+09	0.8284E+08	0.4672E+08	0.1816E+09	0.1666E+09	

** PEAK ** I=INSIDE C=CENTER O=OUTSIDE

	SX	SY	SZ	SXY	SYZ	SXZ
I	0.5765E+06	0.3036E+05	0.5409E+07	0.2793E+07	0.2165E+08	0.4107E+07
C	-0.5771E+06	-0.3126E+05	-0.5409E+07	-0.2795E+07	-0.2165E+08	-0.4107E+07
O	0.5777E+06	0.3216E+05	0.5409E+07	0.2796E+07	0.2165E+08	0.4106E+07
	S1	S2	S3	SINT	SEQV	
I	0.2551E+08	-0.3769E+06	-0.1912E+08	0.4463E+08	0.3882E+08	
C	0.1912E+08	0.3768E+06	-0.2551E+08	0.4463E+08	0.3881E+08	
O	0.2551E+08	-0.3767E+06	-0.1911E+08	0.4462E+08	0.3881E+08	

** TOTAL ** I=INSIDE C=CENTER O=OUTSIDE

	SX	SY	SZ	SXY	SYZ	SXZ
I	0.7235E+08	0.6775E+08	0.2157E+09	0.1423E+08	0.7932E+08	0.1580E+08
C	0.7251E+08	0.6976E+08	0.2056E+09	0.1282E+08	0.3154E+08	0.6320E+07
O	0.7499E+08	0.7190E+08	0.2171E+09	0.2260E+08	0.7036E+08	0.1327E+08
	S1	S2	S3	SINT	SEQV	TEMP
I	0.2524E+09	0.7127E+08	0.3208E+08	0.2204E+09	0.2036E+09	0.0000E+00
C	0.2131E+09	0.7941E+08	0.5533E+08	0.1578E+09	0.1472E+09	
O	0.2481E+09	0.7946E+08	0.3641E+08	0.2117E+09	0.1938E+09	0.0000E+00

Criticality Control Plates Linearized Stresses at Location of Peak Stress

PRINT LINEARIZED STRESS THROUGH A SECTION DEFINED BY LPATH COMMAND. DSYS= 0

***** ANSYS - ENGINEERING ANALYSIS SYSTEM REVISION 5.1 24 *****
 38303 VERSION=HP 9000/7XX 13:30:54 JUN 09, 1996 CP= 114.860
 FOR SUPPORT CALL ROBERT BAHNEY PHONE (702) 794-5337 FAX (702) 794-1844

21 PWR Tube Seismic Analysis With Backfill

***** POST1 LINEARIZED STRESS LISTING *****
 INSIDE NODE = 3878 OUTSIDE NODE = 3830

CALCULATED LOAD CASE= 0

THE FOLLOWING X,Y,Z STRESSES ARE IN GLOBAL COORDINATES.

```

** MEMBRANE **
      SX      SY      SZ      SXY      SYZ      SXZ
0.2256E+07 0.2365E+08 0.1623E+07 0.2121E+07 0.3887E+07 0.1879E+06
      S1      S2      S3      SINT      SEQV
0.2452E+08 0.2080E+07 0.9309E+06 0.2359E+08 0.2303E+08

** BENDING ** I=INSIDE C=CENTER O=OUTSIDE
      SX      SY      SZ      SXY      SYZ      SXZ
I 0.1647E+06 0.1157E+07 0.2896E+06 0.1099E+06 -0.8958E+05 0.1066E+05
C 0.0000E+00 0.0000E+00 0.0000E+00 0.0000E+00 0.0000E+00 0.0000E+00
O -0.1647E+06 -0.1157E+07 -0.2896E+06 -0.1099E+06 0.8958E+05 -0.1066E+05
      S1      S2      S3      SINT      SEQV
I 0.1178E+07 0.2841E+06 0.1495E+06 0.1028E+07 0.9683E+06
C 0.0000E+00 0.0000E+00 0.0000E+00 0.0000E+00 0.0000E+00
O -0.1495E+06 -0.2841E+06 -0.1178E+07 0.1028E+07 0.9683E+06

** MEMBRANE PLUS BENDING ** I=INSIDE C=CENTER O=OUTSIDE
      SX      SY      SZ      SXY      SYZ      SXZ
I 0.2421E+07 0.2481E+08 0.1913E+07 0.2231E+07 0.3797E+07 0.1986E+06
C 0.2256E+07 0.2365E+08 0.1623E+07 0.2121E+07 0.3887E+07 0.1879E+06
O 0.2092E+07 0.2249E+08 0.1333E+07 0.2011E+07 0.3976E+07 0.1773E+06
      S1      S2      S3      SINT      SEQV
I 0.2563E+08 0.2233E+07 0.1272E+07 0.2436E+08 0.2390E+08
C 0.2452E+08 0.2080E+07 0.9309E+06 0.2359E+08 0.2303E+08
O 0.2340E+08 0.1928E+07 0.5850E+06 0.2282E+08 0.2218E+08

** PEAK ** I=INSIDE C=CENTER O=OUTSIDE
      SX      SY      SZ      SXY      SYZ      SXZ
I 0.1756E+05 0.4874E+05 0.4688E+05 753.0 -6755. -1030.
C -0.1749E+05 -0.4824E+05 -0.4675E+05 -705.3 6717. 1035.
O 0.1742E+05 0.4774E+05 0.4662E+05 657.5 -6678. -1040.
      S1      S2      S3      SINT      SEQV
I 0.5467E+05 0.4099E+05 0.1751E+05 0.3716E+05 0.3255E+05
C -0.1744E+05 -0.4074E+05 -0.5429E+05 0.3685E+05 0.3228E+05
O 0.5392E+05 0.4048E+05 0.1737E+05 0.3655E+05 0.3202E+05

** TOTAL ** I=INSIDE C=CENTER O=OUTSIDE
      SX      SY      SZ      SXY      SYZ      SXZ
I 0.2438E+07 0.2486E+08 0.1960E+07 0.2232E+07 0.3790E+07 0.1976E+06
C 0.2239E+07 0.2360E+08 0.1576E+07 0.2120E+07 0.3894E+07 0.1890E+06
O 0.2109E+07 0.2254E+08 0.1380E+07 0.2012E+07 0.3970E+07 0.1762E+06
      S1      S2      S3      SINT      SEQV      TEMP
I 0.2568E+08 0.2252E+07 0.1320E+07 0.2436E+08 0.2391E+08 0.0000E+00
C 0.2447E+08 0.2062E+07 0.8827E+06 0.2359E+08 0.2302E+08
O 0.2345E+08 0.1946E+07 0.6332E+06 0.2282E+08 0.2219E+08 0.0000E+00
  
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PRESS <CR> OR <ENTER> TO CONTINUE

***** ANSYS COMMAND LINE ARGUMENTS *****

INITIAL JOBNAME = seism4
MEMORY REQUESTED (MB) = 64.0
BATCH MODE REQUESTED = LIST
START-UP FILE MODE = READ

*** NOTE *** CP= 0.240 TIME= 20:53:34
There are no parameters and no abbreviations defined.

38303 VERSION=HP 9000/7XX REVISION= 5.1 24
FOR SUPPORT CALL ROBERT BAHNEY PHONE (702) 794-5337 FAX (702) 794-1844
CURRENT JOBNAME=seism4 20:53:34 JUN 08, 1996 CP= 0.250

```

1 /com,*****
2 /com,*****
3 /com,***** Seismic Analysis of 21 PWR Waste Package Under Degradation *****
4 /com,***** Degree of Degradation in Outer Barrier: 100% *****
5 /com,***** Degree of Degradation in Inner Barrier: 90% *****
6 /com,***** Degree of Degradation in Basket Assembly: Tubes 100% *****
7 /com,***** Guides 50% *****
8 /com,***** SS-B Plates 50% *****
9 /com,***** Backfill Present, Backfill Porosity: 25%, Rock Porosity: 10% *****
10 /com,***** Quarter Symmetry Mode. *****
11 /com,*****
12 /com,*****
13 /com,*****
14 /config,nvpag,512
15 /units,si
16 /prep7
17 /title, 21 PWR Tube Seismic Analysis With Backfill
18 /vcon,,0
19 /com, Define Parameters
20 ibir=0.71095 ! Inner Barrier Inner Radius (DIA = 1.4219 m)
21 obir=0.71295 ! Outer Barrier Inner Radius (DIA = 1.4619 m)
22 obsr=0.77095 ! Outer Barrier Skirt Radius (DIA = 1.5419 m)
23 obor=0.78095 ! Outer Barrier Outer Radius (DIA = 1.6619 m)
24 ts1=.0035 ! SS-B Plate Thickness
25 ts2=.005 ! CS Tube Thickness
26 ts3=.005 ! Corner Guide Thickness
27 ts4=.005 ! End Guide Thickness
28 egih=0.0855 ! End Guide Fin Inner Height(0.0809+0.005-2.5*tan10)
29 pie=3.1415926 ! Pi
30 ang1=30*pie/180 ! Angle on end of end guide
31 ang2=80*pie/180 ! Angle on end of end guide fin
32 ang3=58*pie/180 ! Angle on end of corner guide
33 tw=0.2285 ! Tube Inner Side Width
34 pos1=tw/2 ! Dimension to Keypoint Position 1
35 pos2=pos1+ts2 ! Dimension to Keypoint Position 2
36 pos3=pos2+ts1 ! Dimension to Keypoint Position 3
37 pos4=pos3+ts2 ! Dimension to Keypoint Position 4
38 pos5=pos4+tw ! Dimension to Keypoint Position 5
39 pos6=pos5+ts2 ! Dimension to Keypoint Position 6
40 pos7=pos6+ts1 ! Dimension to Keypoint Position 7
41 pos8=pos7+ts2 ! Dimension to Keypoint Position 8
42 pos9=pos8+tw ! Dimension to Keypoint Position 9
43 pos10=pos9+ts2 ! Dimension to Keypoint Position 10
44 pos11=pos10+ts4 ! Dimension to Keypoint Position 11
45 posg=pos6+ts3 ! Dimension to Keypoint on Corner Guide
46 posei=pos11+egih ! Dimension to Keypoint on End Guide Fin Inner
47 poseo=posei-(ts4/tan(ang2)) ! Dimension to Keypoint on End Guide Fin Outer
48 posen=pos2+ts1/2-ts4/2 ! Dimension to Keypoint on End Guide Near Side
49 posef=pos2+ts1/2+ts4/2 ! Dimension to Keypoint on End Guide Far Side
50 poseg=pos6-(ts4/tan(ang1)) ! Dimension to Keypoint on End Guide Side

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51 poscg=pos10-(ts3/tan(ang3)) ! Dimension to Keypoint on Corner Guide Side
52 bkht=4.575/2 ! Basket Height (Half Height)
53 ibht=bkht+0.01 ! inner barrier cavity height
54 !bgh=ibht-bkht ! Basket Gap Height
55 iblt=0.01 ! inner lid height
56 elev1=ibht+iblt ! Elevation of Top of Inner Barrier
57 ltlgh=0.030 ! Lid to Lid Gap Height
58 elev2=elev1+ltlgh ! Elevation of Bottom of Upper Outer Barrier Lid
59 oblt=0.06 ! outer lid height
60 elev3=elev2+oblt ! Elevation of Top of Upper Outer Barrier Lid
61 stht=0.225 ! skirt height
62 elev4=elev3+stht ! Elevation of Top of Waste Package
63 elev5=(iblt+oblt) ! Elevation of Bottom of Lower Outer Barrier Lid
64 elev6=elev5-stht ! Elevation of Bottom of Waste Package
65 /com, Line Divisions
66 shd=1 ! Skirt Height Divisions
67 obl=1 ! Outer Barrier Lid Divisions
68 gd=2 ! Gap Divisions
69 ibld=2 ! Inner Barrier Lid Divisions
70 bd=15 ! Basket Divisions
71 htwd=4 ! Half Tube Width Divisions
72 twd=4 ! Tube Width Divisions
73 thd=4 ! Tube Height Divisions
74 egfd=4 ! End Guide Fin Divisions
75 ptd=2 ! Plate Thickness Divisions
76 ttd=1 ! Tube Thickness Divisions
77 a1d=4 ! Arc 1 Divisions
78 a2d=4 ! Arc 2 Divisions
79 a3d=4 ! Arc 3 Divisions
80 a4d=4 ! Arc 4 Divisions
81 a5d=4 ! Arc 5 Divisions
82 a6d=4 ! Arc 6 Divisions
83 a7d=4 ! Arc 7 Divisions
84 a8d=4 ! Arc 8 Divisions
85 a9d=4 ! Arc 9 Divisions
86 ibtd=2 ! Inner Barrier Thickness Divisions
87 obtd=2 ! Outer Barrier Inner Thickness Divisions
88 std=2 ! Skirt Thickness Divisions
89 /com, Define Element Properties
90 et,1,solid45 ! Carbon Steel Tube
91 et,2,solid45 ! Stainless Steel - Boron Plate
92 et,3,solid45 ! Carbon Steel End Guide
93 et,4,solid45 ! Carbon Steel Corner Guide
94 et,5,solid45 ! Alloy 625 Inner Barrier
95 et,6,solid45 ! Alloy 625 Inner Barrier (Upper w/Backfill Weight)
96 !et,6,solid45 ! A 516 Carbon Steel Outer Barrier
97 !et,7,solid45 ! A 516 Carbon Steel Outer Barrier w/Backfill Weight
98 /com, ratio of static to dynamic coeff. of friction fact=1.298, Area Tol.=15%
99 /com, Room Temperature Properties of Materials
100 mp,ex,1,206e9 ! A516 Carbon Steel Tube
101 mp,ex,2,195e9 ! 316B6A Stainless Steel - Boron Plate (316L Properties)
102 mp,ex,3,206e9 ! A516 Carbon Steel End Guide
103 mp,ex,4,206e9 ! A516 Carbon Steel Corner Guide
104 mp,ex,5,208e9 ! Alloy 625 Inner Barrier
105 mp,ex,6,208e9 ! Alloy 625 Inner Barrier (Upper w/Backfill Weight)
106 !mp,ex,6,206e9 ! A516 Carbon Steel Outer Barrier
107 !mp,ex,7,206e9 ! A516 Carbon Steel Outer Barrier w/Backfill Weight
108 mp,nuxy,1,0.3 ! A516 Carbon Steel Tube
109 mp,nuxy,2,0.298 ! 316B6A Stainless Steel - Boron Plate (316 Properties)
110 mp,nuxy,3,0.3 ! A516 Carbon Steel End Guide
111 mp,nuxy,4,0.3 ! A516 Carbon Steel Corner Guide
112 mp,nuxy,5,0.278 ! Alloy 625 Inner Barrier
113 mp,nuxy,6,0.278 ! Alloy 625 Inner Barrier (Upper w/Backfill Weight)
114 !mp,nuxy,6,0.3 ! A516 Carbon Steel Outer Barrier
115 !mp,nuxy,7,0.3 ! A516 Carbon Steel Outer Barrier w/Backfill Weight
116 mp,dens,1,8131 ! A516 Carbon Steel Tube
117 mp,dens,2,100452.2 ! 316B6A Stainless Steel - Boron Plate (Adjusted to include tube, degraded plate, and SNF mas
118 mp,dens,3,21221.91 ! A516 Carbon Steel End Guide
119 mp,dens,4,21221.91 ! A516 Carbon Steel Corner Guide
120 mp,dens,5,8442 ! Alloy 625 Inner Barrier

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121 mp,dens,6,1420770 ! Alloy 625 Inner Barrier (Upper w/Backfill Weight)
122 !mp,dens,6,8131 ! A516 Carbon Steel Outer Barrier
123 !mp,mu,7,0.57 ! Coefficient of Friction (Steel on Steel Assumed)
124 !tb,biso,1
125 !tbdata,,260e6,1.078e9 ! A 516 Carbon Steel Tubes
126 !tb,biso,2
127 !tbdata,,172e6,0.7767e9 ! 316L Stainless Steel
128 !tb,biso,3
129 !tbdata,,260e6,1.078e9 ! A 516 Carbon Steel End Guide
130 !tb,biso,4
131 !tbdata,,260e6,1.078e9 ! A 516 Carbon Steel Corner Guide
132 !tb,biso,5
133 !tbdata,,379e6,1.271e9 ! Alloy 625
134 !tb,biso,6
135 !tbdata,,260e6,1.078e9 ! A 516 Carbon Steel Outer Barrier
136 !tb,biso,7
137 !tbdata,,260e6,1.078e9 ! A 516 Carbon Steel Outer Barrier w/Backfill Weight
138 /com
139 /com, Define keypoints in the basket assembly
140 csys,0
141 k,1,0,0
142 k,2,pos1,0
143 k,3,pos2,0
144 k,4,pos3,0
145 k,5,pos4,0
146 k,6,pos5,0
147 k,7,pos6,0
148 k,8,pos7,0
149 k,9,pos8,0
150 k,10,pos9,0
151 k,11,pos10,0
152 k,12,pos11,0
153 k,13,pos1,pos1
154 k,14,pos4,pos1
155 k,15,pos5,pos1
156 k,16,pos8,pos1
157 k,17,pos9,pos1
158 k,18,pos2,pos2
159 k,19,pos3,pos2
160 k,20,pos6,pos2
161 k,21,pos7,pos2
162 k,22,pos10,pos2
163 k,23,pos11,posei
164 !k,24,posei,posei
165 csys,1
166 k,24,ibir,(180/pie)*atan(posei/posei)
167 csys,0
168 k,25,pos3,pos3
169 k,26,pos6,pos3
170 k,27,pos7,pos3
171 k,28,pos10,pos3
172 k,29,pos11,posef
173 !k,30,poseo,posef
174 csys,1
175 k,30,ibir,(180/pie)*atan(posef/poseo)
176 csys,0
177 k,31,pos4,pos4
178 k,32,pos5,pos4
179 k,33,pos8,pos4
180 k,34,pos9,pos4
181 k,35,pos5,pos5
182 k,36,pos8,pos5
183 k,37,pos9,pos5
184 !k,38,pos11,poseg
185 csys,1
186 k,38,ibir,(180/pie)*atan(poseg/pose11)
187 csys,0
188 k,39,pos6,pos6
189 k,40,pos7,pos6
190 !k,41,pos10,pos6

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191 csys,1
192 k,41,ibir,(180/pie)*atan(pos6/pos10)
193 csys,0
194 k,42,posg,posg
195 !k,43,poseg,posg
196 csys,1
197 k,43,ibir,(180/pie)*atan(posg/poseg)
198 k,44,ibir,0
199 k,45,ibir,45
200 k,46,obir,0
201 k,47,obir,(180/pie)*atan(posef/posei)
202 k,48,obir,(180/pie)*atan(posef/poseo)
203 k,49,obir,(180/pie)*atan(poseg/pos11)
204 k,50,obir,(180/pie)*atan(pos6/pos10)
205 k,51,obir,(180/pie)*atan(posg/poseg)
206 k,52,obir,45
207 k,53,obsr,0
208 k,54,obsr,(180/pie)*atan(posef/posei)
209 k,55,obsr,(180/pie)*atan(posef/poseo)
210 k,56,obsr,(180/pie)*atan(poseg/pos11)
211 k,57,obsr,(180/pie)*atan(pos6/pos10)
212 k,58,obsr,(180/pie)*atan(posg/poseg)
213 k,59,obsr,45
214 k,60,obor,0
215 k,61,obor,(180/pie)*atan(posef/posei)
216 k,62,obor,(180/pie)*atan(posef/poseo)
217 k,63,obor,(180/pie)*atan(poseg/pos11)
218 k,64,obor,(180/pie)*atan(pos6/pos10)
219 k,65,obor,(180/pie)*atan(posg/poseg)
220 k,66,obor,45
221 local,11,0,0,0,0,45,0,0,
222 ksymm,y,all,,,0,0,0
223 nummrg,kp
224 csys,0
225 ksymm,y,all,,,0,0,0
226 nummrg,kp
227 kdel,2,12,1
228 k,1001,0,0,bkht
229 l,1,1001 ! Line 1 for VDRAG of Basket
230 lesize,all,,,bd,.2,0
231 k,2001,0,0,ibht
232 l,1001,2001 ! Line 2 for VDRAG of Basket to Inner Barrier Lid Gap
233 lesize,all,,,gd,1,0
234 k,3001,0,0,elev1
235 l,2001,3001 ! Line 3 for VDRAG of Inner Barrier Upper Lid
236 lesize,all,,,ibld,1,0
237 k,4001,0,0,elev2
238 l,3001,4001 ! Line 4 for VDRAG of Lid to Lid Gap
239 lesize,all,,,gd,1,0
240 k,5001,0,0,elev3
241 l,4001,5001 ! Line 5 for VDRAG of Outer Barrier Upper Lid
242 lesize,all,,,obld,1,0
243 k,6001,0,0,elev4
244 l,5001,6001 ! Line 6 for VDRAG of Upper Skirt
245 lesize,all,,,shd,1,0
246 k,7001,0,0,-iblt
247 l,1,7001 ! Line 7 for VDRAG of IB Lower Lid
248 lesize,all,,,ibld,1,0
249 k,8001,0,0,elev5
250 l,7001,8001 ! Line 8 for VDRAG of OB Lower Lid
251 lesize,all,,,obld,1,0
252 k,9001,0,0,elev6
253 l,8001,9001 ! Line 9 for VDRAG of Lower Skirt
254 lesize,all,,,shd,1,0
255 /com, line set 1 Tube Width for Half Tubes on Symmetry Plane
256 L, 197, 206 ! Line 10
257 L, 196, 205
258 L, 195, 201
259 L, 194, 200
260 L, 193, 204

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261 L, 192, 203
262 L, 191, 199
263 L, 190, 198
264 L, 189, 202
265 L, 188, 138
266 L, 187, 133 ! 20
267 L, 68, 13
268 L, 69, 18
269 L, 70, 85
270 L, 71, 80
271 L, 72, 81
272 L, 73, 86
273 L, 74, 87
274 L, 75, 82
275 L, 76, 83
276 L, 77, 88 ! 30
277 L, 78, 89
278 lesize,all,,,htwd,1,0
279 /com, line set 2 Tube Widths
280 L, 211, 218
281 L, 210, 220
282 L, 215, 217
283 L, 214, 216
284 L, 209, 219
285 L, 208, 159
286 L, 213, 155
287 L, 151, 152
288 L, 145, 146 ! 40
289 L, 139, 140
290 L, 134, 135
291 L, 14, 15
292 L, 19, 20
293 L, 25, 26
294 L, 31, 32
295 L, 98, 35
296 L, 92, 39
297 L, 93, 106
298 L, 99, 102 ! 50
299 L, 100, 103
300 L, 94, 107
301 L, 95, 104
302 lesize,all,,,twd,1,0
303 /com, line set 3 Tube Widths on Encl Column
304 L, 162, 163
305 L, 160, 161
306 L, 156, 157
307 L, 153, 154
308 L, 147, 148
309 L, 141, 142
310 L, 136, 137 ! 60
311 L, 16, 17
312 L, 21, 22
313 L, 27, 28
314 L, 33, 34
315 L, 36, 37
316 L, 40, 41
317 L, 42, 43
318 lesize,all,,,twd,1,0
319 /com, line set 4 Tube Heights
320 L, 201, 200
321 L, 205, 204
322 L, 210, 209 ! 70
323 L, 215, 214
324 L, 217, 216
325 L, 220, 219
326 L, 221, 162
327 L, 199, 198
328 L, 203, 202
329 L, 208, 145
330 L, 213, 151

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331	L,	155,	152	
332	L,	159,	146	! 80
333	L,	160,	147	
334	L,	156,	153	
335	L,	157,	154	
336	L,	161,	148	
337	L,	133,	13	
338	L,	138,	18	
339	L,	139,	19	
340	L,	134,	14	
341	L,	135,	15	
342	L,	140,	20	! 90
343	L,	141,	21	
344	L,	136,	16	
345	L,	137,	17	
346	L,	142,	22	
347	L,	143,	23	
348	L,	80,	81	
349	L,	85,	86	
350	L,	25,	92	
351	L,	31,	98	
352	L,	32,	35	! 100
353	L,	26,	39	
354	L,	27,	40	
355	L,	33,	36	
356	L,	34,	37	
357	L,	28,	41	
358	L,	29,	38	
359	L,	82,	83	
360	L,	87,	88	
361	L,	93,	94	
362	L,	99,	100	! 110
363	L,	102,	103	
364	L,	106,	107	
365	L,	42,	109	
366	L,	158,	149	
367	lesize,all,,,thd,1,0			
368	/com, line set 5 End Guide Fins			
369	L,	207,	206	
370	L,	212,	211	
371	L,	150,	149	
372	L,	144,	143	
373	L,	24,	23	
374	L,	30,	29	! 120
375	L,	96,	95	
376	L,	90,	89	
377	lesize,all,,,egfd,1,0			
378	/com, line set 6 SS-B Plate Thickness			
379	L,	197,	196	
380	L,	206,	205	
381	L,	211,	210	
382	L,	207,	212	
383	L,	206,	211	
384	L,	205,	210	
385	L,	218,	220	
386	L,	220,	221	! 130
387	L,	193,	192	
388	L,	204,	203	
389	L,	209,	208	
390	L,	204,	209	
391	L,	203,	208	
392	L,	219,	159	
393	L,	162,	160	
394	L,	163,	161	
395	L,	161,	158	
396	L,	219,	162	! 140
397	L,	159,	160	
398	L,	189,	188	
399	L,	202,	138	
400	L,	145,	139	

401	L,	202,	145	
402	L,	138,	139	
403	L,	146,	140	
404	L,	147,	141	
405	L,	146,	147	
406	L,	140,	141	! 150
407	L,	148,	142	
408	L,	149,	143	
409	L,	148,	149	
410	L,	142,	143	
411	L,	150,	144	
412	L,	69,	70	
413	L,	18,	85	
414	L,	19,	25	
415	L,	18,	19	
416	L,	85,	25	! 160
417	L,	20,	26	
418	L,	21,	27	
419	L,	20,	21	
420	L,	26,	27	
421	L,	22,	28	
422	L,	22,	23	
423	L,	28,	29	
424	L,	23,	29	
425	L,	24,	30	
426	L,	73,	74	! 170
427	L,	86,	87	
428	L,	92,	93	
429	L,	86,	92	
430	L,	87,	93	
431	L,	39,	106	
432	L,	40,	42	
433	L,	39,	40	
434	L,	106,	42	
435	L,	38,	41	
436	L,	41,	43	! 180
437	L,	77,	78	
438	L,	88,	89	
439	L,	94,	95	
440	L,	88,	94	
441	L,	89,	95	
442	L,	90,	96	
443	L,	109,	107	
444	L,	107,	104	
445	L,	224,	225	
446	L,	230,	231	! 190
447	L,	236,	237	
448	L,	226,	227	
449	L,	227,	228	
450	L,	232,	233	
451	L,	233,	234	
452	L,	238,	239	
453	L,	239,	240	
454	L,	171,	170	
455	L,	170,	169	
456	L,	178,	177	! 200
457	L,	177,	176	
458	L,	185,	184	
459	L,	184,	183	
460	L,	168,	167	
461	L,	175,	174	
462	L,	182,	181	
463	L,	47,	48	
464	L,	54,	55	
465	L,	61,	62	
466	L,	49,	50	! 210
467	L,	50,	51	
468	L,	56,	57	
469	L,	57,	58	
470	L,	63,	64	

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471 L,      64,      65
472 L,     117,     116
473 L,     116,     115
474 L,     124,     123
475 L,     123,     122
476 L,     131,     130 ! 220
477 L,     130,     129
478 L,     114,     113
479 L,     121,     120
480 L,     128,     127
481 lesize,all,,,ptd,1,0
482 /com, line set 7 tube thickness
483 L,      196,     195
484 L,      205,     201
485 L,      204,     200
486 L,      193,     194
487 L,      210,     215
488 L,      220,     217 ! 230
489 L,      219,     216
490 L,      209,     214
491 L,      192,     191
492 L,      203,     199
493 L,      202,     198
494 L,      189,     190
495 L,      208,     213
496 L,      159,     155
497 L,      146,     152
498 L,      145,     151 ! 240
499 L,      160,     156
500 L,      161,     157
501 L,      148,     154
502 L,      147,     153
503 L,      188,     187
504 L,      138,     133
505 L,       18,      13
506 L,       69,      68
507 L,      139,     134
508 L,      140,     135 ! 250
509 L,       20,      15
510 L,       19,      14
511 L,      141,     136
512 L,      142,     137
513 L,       22,      17
514 L,       21,      16
515 L,       70,      71
516 L,       85,      80
517 L,       86,      81
518 L,       73,      72 ! 260
519 L,       25,      31
520 L,       26,      32
521 L,       39,      35
522 L,       92,      98
523 L,       27,      33
524 L,       28,      34
525 L,       41,      37
526 L,       40,      36
527 L,       74,      75
528 L,       87,      82 ! 270
529 L,       88,      83
530 L,       77,      76
531 L,       93,      99
532 L,      106,     102
533 L,      107,     103
534 L,       94,     100
535 lesize,all,,,ttd,1,0
536 csys,1
537 /com, line set 8, arc 1 bottom
538 L,      222,     207
539 L,      223,     224
540 L,      229,     230

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541 L,      235,      236 ! 280
542 lesize,all,,,a1d,1,0
543 /com, line set 9, arc 2 side arcs
544 L,      212,      218
545 L,      225,      226
546 L,      231,      232
547 L,      237,      238
548 lesize,all,,,a2d,1,0
549 /com, line set 10, arc 3 side arcs
550 L,      221,      163
551 L,      228,      171
552 L,      234,      178
553 L,      240,      185
554 lesize,all,,,a3d,1,0
555 /com, line set 11, arc 4 side arcs
556 L,      158,      150
557 L,      169,      168 ! 290
558 L,      176,      175
559 L,      183,      182
560 lesize,all,,,a4d,1,0
561 /com, line set 12, arc 5 side arcs
562 L,      144,      24
563 L,      167,      47
564 L,      174,      54
565 L,      181,      61
566 lesize,all,,,a5d,1,0
567 /com, line set 13, arc 6 side arcs
568 L,      30,      38
569 L,      48,      49
570 L,      55,      56
571 L,      62,      63 ! 300
572 lesize,all,,,a6d,1,0
573 /com, line set 14, arc 7 side arcs
574 L,      43,      109
575 L,      51,      117
576 L,      58,      124
577 L,      65,      131
578 lesize,all,,,a7d,1,0
579 /com, line set 15, arc 8 side arcs
580 L,      104,      96
581 L,      115,      114
582 L,      122,      121
583 L,      129,      128
584 lesize,all,,,a8d,1,0
585 /com, line set 16, arc 9 top arcs
586 L,      90,      110
587 L,      113,      112 ! 310
588 L,      120,      119
589 L,      127,      126
590 lesize,all,,,a9d,1,0
591 csys,0
592 /com, line set 17 IB thickness
593 L,      222,      223
594 L,      207,      224
595 L,      212,      225
596 L,      218,      226
597 L,      220,      227
598 L,      221,      228
599 L,      163,      171
600 L,      161,      170 ! 320
601 L,      158,      169
602 L,      150,      168
603 L,      144,      167
604 L,      24,      47
605 L,      30,      48
606 L,      38,      49
607 L,      41,      50
608 L,      43,      51
609 L,      109,      117
610 L,      107,      116 ! 330

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611 L,      104,      115
612 L,      96,       114
613 L,      90,       113
614 L,     110,       112
615 lesize,all,,,ibtd,1,0
616 /com, line set 18 08 inner thickness
617 L,     223,       229
618 L,     224,       230
619 L,     225,       231
620 L,     226,       232
621 L,     227,       233
622 L,     228,       234 ! 340
623 L,     171,       178
624 L,     170,       177
625 L,     169,       176
626 L,     168,       175
627 L,     167,       174
628 L,      47,        54
629 L,      48,        55
630 L,      49,        56
631 L,      50,        57
632 L,      51,        58 ! 350
633 L,     117,       124
634 L,     116,       123
635 L,     115,       122
636 L,     114,       121
637 L,     113,       120
638 L,     112,       119
639 lesize,all,,,obtd,1,0
640 /com, line set 19 skirt thickness
641 L,     229,       235
642 L,     230,       236
643 L,     231,       237
644 L,     232,       238 ! 360
645 L,     233,       239
646 L,     234,       240
647 L,     178,       185
648 L,     177,       184
649 L,     176,       183
650 L,     175,       182
651 L,     174,       181
652 L,      54,        61
653 L,      55,        62
654 L,      56,        63 ! 370
655 L,      57,        64
656 L,      58,        65
657 L,     124,       131
658 L,     123,       130
659 L,     122,       129
660 L,     121,       128
661 L,     120,       127
662 L,     119,       126
663 lesize,all,,,std,1,0
664 /com, lines to fill in lids
665 /com, lines tube height
666 l,195,194          ! 379
667 l,191,190          ! 380
668 l,187,68           ! 381
669 l,71,72            ! 382
670 l,75,76           ! 383
671 lesize,all,,,thd,1,0
672 /com, end lines
673 l,222,197          ! 384
674 l,78,110           ! 385
675 lesize,all,,,egfd,1,0
676 /com, area set 1, tubes
677 a,195,196,205,201
678 a,200,201,205,204
679 a,193,194,200,204
680 a,191,192,203,199

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681 a,198,199,203,202
682 a,189,190,198,202
683 a,187,188,138,133
684 a,133,138,18,13
685 a,69,68,13,18
686 a,71,70,85,80
687 a,80,85,86,81
688 a,73,72,81,86
689 a,75,74,87,82
690 a,82,87,88,83
691 a,77,76,83,88
692 a,209,210,215,214
693 a,215,210,220,217
694 a,216,217,220,219
695 a,209,214,216,219
696 a,145,208,213,151
697 a,213,208,159,155
698 a,152,155,159,146
699 a,145,151,152,146
700 a,134,139,140,135
701 a,135,140,20,15
702 a,19,14,15,20
703 a,19,139,134,14
704 a,92,25,31,98
705 a,31,25,26,32
706 a,32,26,39,35
707 a,92,98,35,39
708 a,94,93,99,100
709 a,99,93,106,102
710 a,102,106,107,103
711 a,94,100,103,107
712 a,156,160,161,157
713 a,157,161,148,154
714 a,147,153,154,148
715 a,147,160,156,153
716 a,136,141,142,137
717 a,137,142,22,17
718 a,21,16,17,22
719 a,21,141,136,16
720 a,33,27,28,34
721 a,34,28,41,37
722 a,40,36,37,41
723 a,40,27,33,36
724 /com, area set 2, plates
725 a,204,205,210,209
726 a,192,193,204,203
727 a,203,204,209,208
728 a,208,209,219,159
729 a,202,203,208,145
730 a,146,159,160,147
731 a,188,189,202,138
732 a,138,202,145,139
733 a,139,145,146,140
734 a,140,146,147,141
735 a,141,147,148,142
736 a,18,138,139,19
737 a,20,140,141,21
738 a,70,69,18,85
739 a,85,18,19,25
740 a,25,19,20,26
741 a,26,20,21,27
742 a,27,21,22,28
743 a,86,85,25,92
744 a,39,26,27,40
745 a,74,73,86,87
746 a,87,86,92,93
747 a,93,92,39,106
748 a,88,87,93,94
749 /com, area set 3, end guides
750 a,196,197,206,205

751 a,205,206,211,210
752 a,206,207,212,211
753 a,210,211,218,220
754 a,148,161,158,149
755 a,142,148,149,143
756 a,143,149,150,144
757 a,22,142,143,23
758 a,28,22,23,29
759 a,29,23,24,30
760 a,41,28,29,38
761 a,95,94,107,104
762 a,89,88,94,95
763 a,90,89,95,96
764 a,78,77,88,89
765 /com, area set 4, corner guides
766 a,219,220,221,162
767 a,159,219,162,160
768 a,160,162,163,161
769 a,107,106,42,109
770 a,106,39,40,42
771 a,42,40,41,43
772 csys,1
773 /com, area set 5, inner barrier
774 a,222,223,224,207
775 a,207,224,225,212
776 a,212,225,226,218
777 a,218,226,227,220
778 a,220,227,228,221
779 a,221,228,171,163
780 a,163,171,170,161
781 a,161,170,169,158
782 a,158,169,168,150
783 a,150,168,167,144
784 a,144,167,47,24
785 a,24,47,48,30
786 a,30,48,49,38
787 a,38,49,50,41
788 a,41,50,51,43
789 a,43,51,117,109
790 a,109,117,116,107
791 a,107,116,115,104
792 a,104,115,114,96
793 a,90,96,114,113
794 a,90,113,112,110
795 /com, area set 6, outer barrier
796 !a,223,229,230,224
797 !a,224,230,231,225
798 !a,225,231,232,226
799 !a,226,232,233,227
800 !a,227,233,234,228
801 !a,228,234,178,171
802 !a,171,178,177,170
803 !a,170,177,176,169
804 !a,169,176,175,168
805 !a,168,175,174,167
806 !a,167,174,54,47
807 !a,47,54,55,48
808 !a,48,55,56,49
809 !a,49,56,57,50
810 !a,50,57,58,51
811 !a,51,58,124,117
812 !a,117,124,123,116
813 !a,116,123,122,115
814 !a,115,122,121,114
815 !a,114,121,120,113
816 !a,113,120,119,112
817 !a,229,235,236,230
818 !a,236,237,231,230
819 !a,231,237,238,232
820 !a,238,239,233,232

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821 !a,239,240,234,233
822 !a,240,185,178,234
823 !a,185,184,177,178
824 !a,184,183,176,177
825 !a,176,183,182,175
826 !a,175,182,181,174
827 !a,174,181,61,54
828 !a,54,61,62,55
829 !a,55,62,63,56
830 !a,56,63,64,57
831 !a,57,64,65,58
832 !a,58,65,131,124
833 !a,124,131,130,123
834 !a,123,130,129,122
835 !a,122,129,128,121
836 !a,121,128,127,120
837 !a,120,127,126,119
838 csys,0
839 vdrag,all,,,,,1 ! Drag Basket
840 asel,s,loc,z,bkht
841 csys,1
842 asel,u,loc,x,0,ibir-0.03
843 csys,0
844 vdrag,all,,,,,2 ! Drag Basket to Lid Gap
845 /com, copy areas from top of basket to bottom of lid
846 asel,s,loc,z,bkht-0.01
847 csys,1
848 asel,r,loc,x,0,ibir-0.03
849 csys,0
850 agen,2,all,,,,,0.01
851 nummrg,kp
852 /com, generate lines to fill in lid at top of WP
853 /com, lines tube height
854 L,414,421 ! 1121
855 L,422,429 ! 1124
856 L,430,437 ! 1125
857 L,438,445 ! 1131
858 L,446,453 ! 1138
859 lesize,all,,,thd,1,0
860 /com, end lines
861 L,370,518 ! 1141
862 L,539,413 ! 1151
863 lesize,all,,,egfd,1,0
864 al,832,1116,1120,1141
865 al,936,937,941,1121
866 al,946,947,951,1124
867 al,956,959,961,1125
868 al,966,969,971,1131
869 al,976,979,981,1138
870 al,932,1143,1147,1151
871 al,842,1122,1123
872 al,985,989,990,993
873 al,997,1001,1002,1005
874 al,1010,1013,1015,1018
875 al,1021,1025,1028,1029
876 al,1033,1037,1040,1041
877 al,922,1144,1148
878 al,857,1153,1156
879 al,1046,1049,1051,1054
880 al,1058,1061,1063,1066
881 al,1070,1073,1075,1078
882 al,907,1159,1163
883 al,872,1126,1130
884 al,882,1132,1133,1137
885 al,892,1139,1140
886 asel,s,loc,z,ibht+0.01
887 vdrag,all,,,,,3 ! Drag Inner Barrier Upper Lid
888 !asel,s,loc,z,elev1+0.015
889 !csys,1
890 !asel,r,loc,x,obir,obor

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891 !csys,0
892 !vdrag,all,,,,,4      ! Drag Lid to Lid Gap
893 !asel,s,loc,z,elev1+0.015
894 !asel,r,loc,z,elev1-0.015
895 !csys,1
896 !asel,r,loc,x,0,obir
897 !csys,0
898 !agen,2,all,,,,,ltlgh
899 !nummrg,kp
900 !asel,s,loc,z,elev2+0.015
901 !vdrag,all,,,,,5      ! Drag Outer Barrier Upper Lid
902 !asel,s,loc,z,elev3
903 !csys,1
904 !asel,r,loc,x,obsr,obor
905 !csys,0
906 !vdrag,all,,,,,6      ! Drag Upper Skirt
907 /com, lines at bottom lid used to be here
908 !al,10,115,277,384
909 !al,12,13,68,379
910 !al,16,17,75,380
911 !al,20,21,85,381
912 !al,24,25,96,382
913 !al,28,29,107,383
914 !al,31,122,309,385
915 !al,32,116,281
916 !al,34,35,71,72
917 !al,38,39,78,79
918 !al,42,43,88,89
919 !al,46,47,99,100
920 !al,50,51,110,111
921 !al,53,121,305
922 !al,54,74,285
923 !al,56,57,82,83
924 !al,60,61,92,93
925 !al,64,65,103,104
926 !al,67,113,301
927 !al,114,117,289
928 !al,95,118,119,293
929 !al,106,120,297
930 !asel,s,loc,z,0
931 !vdrag,all,,,,,7      ! Drag Inner Barrier Lower Lid
932 !csys,0
933 !asel,s,loc,z,-iblt
934 !vdrag,all,,,,,8      ! Drag Outer Barrier Lower Lid
935 !asel,s,loc,z,elev5
936 !csys,1
937 !asel,r,loc,x,obsr,obor
938 !csys,0
939 !vdrag,all,,,,,9      ! Drag Lower Skirt
940 /com
941 /com, Mesh Volumes
942 /com
943 /com, Mesh the CS Tubes
944 /com
945 !vsel,s,volu,,1,47
946 !type,1
947 !mat,1
948 !vmesh,all
949 /com, Mesh SS-B Plates
950 !vsel,s,volu,,48,71
951 type,2
952 mat,2
953 vmesh,all
954 /com, Mesh End Guides
955 !vsel,s,volu,,72,86
956 type,3
957 mat,3
958 vmesh,all
959 /com, Mesh Corner Guides
960 !vsel,s,volu,,87,92

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```

961 type,4
962 mat,4
963 vmesh,all
964 /com, Mesh Inner Barrier
965 vset,s,loc,z,0,elev1
966 csys,1
967 vset,r,loc,x,0,obir
968 vset,u,volu,,1,92
969 vset,u,loc,x,ibir-0.02,obir
970 vset,a,loc,y,-90,5
971 vset,u,volu,,1,92
972 vset,u,loc,x,obir,obor
973 vset,r,loc,z,-iblt,elev1
974 csys,0
975 type,5
976 mat,5
977 vmesh,all
978 /com, Mesh Upper Inner Barrier Adkling Backfill Mass
979 vset,inve
980 csys,1
981 vset,u,loc,x,obir,obor
982 vset,r,loc,z,0,elev1
983 vset,u,volu,,1,92
984 csys,0
985 type,6
986 mat,6
987 vmesh,all
988 /com, Mesh Lower Outer Barrier and Lids
989 !vset,inve
990 !vset,u,volu,,1,92
991 !csys,1
992 !vset,u,loc,x,obir,obor
993 !vset,a,loc,y,-90,5
994 !vset,u,volu,,1,92
995 !vset,u,type,,5
996 !type,6
997 !mat,6
998 !vmesh,all
999 /com, mesh upper outer barrier adkling backfill mass
1000 !vset,inve
1001 !vset,u,type,,1,5
1002 !type,7
1003 !mat,7
1004 !vmesh,all
1005 /com
1006 /com, Apply Symmetry Constraints
1007 csys,0
1008 nset,s,loc,x,0
1009 dsym,symm,x,0
1010 nset,s,loc,z,0
1011 dsym,symm,z,0
1012 /com, Apply Constraints at Support Locations
1013 /com, Span approximately half of basket height, width = 0.305 m
1014 csys,1
1015 nset,s,loc,z,(7*bkht/bd),(10*bkht/bd)+0.02
1016 nset,r,loc,x,obir-0.001,obir+0.001
1017 nset,r,loc,y,-70,-50
1018 csys,0
1019 d,all,uy,0
1020 allsel
1021 save
1022 fini
1023
1024 /sol
1025 antype,modal
1026 modopt,subsp,8
1027 outres,all,1
1028 save
1029 solve
1030 fini

```

```

1031
1032 /sol
1033 expand,on
1034 mxpand,8,,,yes
1035 solve
1036 fini
1037
1038 /sol
1039 antype,spectr
1040 spopt,sprs,,on
1041 sed,,1
1042 svtyp,2
1043 freq,0.1,100
1044 sv,,16.285,16.285
1045 mcomb,srss,1e-8
1046 outres,all,1
1047 save
1048 solve
1049 fini
1050 /exit
1051 /eof

```

RUN SETUP PROCEDURE FROM FILE= /ansys51/docu/start.ans

/INPUT FILE= /ansys51/docu/start.ans LINE= 0

ABBREVIATION= REplot /REplot

PARAMETER PI = 3.141593

```

*****
ANSYS STARTUP FILE start.ans
*****

```

```

ABBREVIATION= VEC      /show,,1,
ABBREVIATION= RAS      /show,,0,
ABBREVIATION= INP      /input,,inp,
ABBREVIATION= ESC      /exit,nosav,
ABBREVIATION= K1       /pnum,kp ,1,
ABBREVIATION= K0       /pnum,kp ,0,
ABBREVIATION= L1       /pnum,line,1,
ABBREVIATION= L0       /pnum,line,0,
ABBREVIATION= A1       /pnum,area,1,
ABBREVIATION= A0       /pnum,area,0,
ABBREVIATION= V1       /pnum,volu,1,
ABBREVIATION= V0       /pnum,volu,0,
ABBREVIATION= N1       /pnum,node,1,
ABBREVIATION= N0       /pnum,node,0,
ABBREVIATION= E1       /pnum,elem,1,
ABBREVIATION= E0       /pnum,elem,0,
ABBREVIATION= M1       /pnum,mat ,1,
ABBREVIATION= M0       /pnum,mat ,0,
ABBREVIATION= R1       /pnum,real,1,

```

ABBREVIATION= R0 /pnum,real,0,
 ABBREVIATION= T1 /pnum,type,1,
 ABBREVIATION= T0 /pnum,type,0,
 ABBREVIATION= C1 /number,1,
 ABBREVIATION= C0 /number,0,
 ABBREVIATION= PR1 /psf,pres,norm,1,
 ABBREVIATION= PR0 /psf,pres,norm,0,
 ABBREVIATION= U1 /pbc,u,1,
 ABBREVIATION= U0 /pbc,u,0,
 ABBREVIATION= X3D /show,3d,
 ABBREVIATION= X11 /show,x11,
 ABBREVIATION= X11C /show,x11c,
 ABBREVIATION= ON /menu,on,
 XYZ TRIAD DISPLAY SET TO OFF

VIEW CONE ANGLE FOR WINDOW 1 25.00

 END start.ans

To start ANSYS menu:

type: x3d for console
 x11 for X-term color
 x11c for X-term color contour

type: on

 ***** Seismic Analysis of 21 PWR Waste Package Under Degradation *****
 ***** Degree of Degradation in Outer Barrier: 100% *****
 ***** Degree of Degradation in Inner Barrier: 90% *****
 ***** Degree of Degradation in Basket Assembly: Tubes 100% *****
 ***** Guides 50% *****
 ***** SS-B Plates 50% *****
 ***** Backfill Present, Backfill Porosity: 25%, Rock Porosity: 10% *****
 ***** Quarter Symmetry Model *****

NUMBER OF DATA BASE PAGES IN MEMORY (NVPAGE)= 512

SI UNITS SPECIFIED FOR INTERNAL

LENGTH (L) = METER(M)
 MASS (M) = KILOGRAM(KG)
 TIME (t) = SECOND(SEC)
 TEMPERATURE (T) = KELVIN(K)
 TOFFSET = 0.0 KELVIN
 CHARGE (Q) = COULOMB
 CURRENT (i) = AMPERE (COULOMBS/SEC)
 FORCE (f) = NEWTON(N) (KG-M/SEC2)
 PRESSURE = PASCAL (NEWTON/M**2)
 ENERGY (W) = JOULE (N-M)

POWER (P) = WATT (N-M/SEC)
CAPACITANCE (C) = FARAD
INDUCTANCE (L) = HENRY
MAGNETIC FLUX = WEBER
RESISTANCE (R) = OHM
ELECTRIC POTENTIAL = VOLT

INPUT UNITS ARE ALSO SET TO SI

1

***** ANSYS - ENGINEERING ANALYSIS SYSTEM REVISION 5.1 24 *****
38303 VERSION=HP 9000/7XX 20:53:34 JUN 08, 1996 CP= 0.460
FOR SUPPORT CALL ROBERT BAHNEY PHONE (702) 794-5337 FAX (702) 794-1844

***** ANSYS ANALYSIS DEFINITION (PREP7) *****

TITLE=

21 PWR Tube Seismic Analysis With Backfill

VIEW CONE ANGLE FOR WINDOW 1 0.00
Define Parameters

PARAMETER IBIR = 0.7109500
PARAMETER OBIR = 0.7129500
PARAMETER OBSR = 0.7709500
PARAMETER OBOR = 0.7809500
PARAMETER TS1 = 0.3500000E-02
PARAMETER TS2 = 0.5000000E-02
PARAMETER TS3 = 0.5000000E-02
PARAMETER TS4 = 0.5000000E-02
PARAMETER EGIH = 0.8550000E-01
PARAMETER PIE = 3.141593
PARAMETER ANG1 = 0.5235988
PARAMETER ANG2 = 1.396263
PARAMETER ANG3 = 1.012291
PARAMETER TW = 0.2285000
PARAMETER POS1 = 0.1142500
PARAMETER POS2 = 0.1192500
PARAMETER POS3 = 0.1227500
PARAMETER POS4 = 0.1277500
PARAMETER POS5 = 0.3562500
PARAMETER POS6 = 0.3612500
PARAMETER POS7 = 0.3647500
PARAMETER POS8 = 0.3697500

PARAMETER POS9	=	0.5982500
PARAMETER POS10	=	0.6032500
PARAMETER POS11	=	0.6082500
PARAMETER POSG	=	0.3662500
PARAMETER POSEI	=	0.6937500
PARAMETER POSEO	=	0.6928684
PARAMETER POSEN	=	0.1185000
PARAMETER POSEF	=	0.1235000
PARAMETER POSEG	=	0.3525897
PARAMETER POSCG	=	0.6001257
PARAMETER BKHT	=	2.287500
PARAMETER IBHT	=	2.297500
PARAMETER IBLT	=	0.1000000E-01
PARAMETER ELEV1	=	2.307500
PARAMETER LTLGH	=	0.3000000E-01
PARAMETER ELEV2	=	2.337500
PARAMETER OBLT	=	0.6000000E-01
PARAMETER ELEV3	=	2.397500
PARAMETER STHT	=	0.2250000
PARAMETER ELEV4	=	2.622500
PARAMETER ELEV5	=	-0.7000000E-01
PARAMETER ELEV6	=	-0.2950000
Line Divisions		
PARAMETER SHD	=	1.000000
PARAMETER OBLD	=	1.000000
PARAMETER GD	=	2.000000
PARAMETER IBLD	=	2.000000
PARAMETER BD	=	15.00000
PARAMETER HTWD	=	4.000000
PARAMETER TWD	=	4.000000
PARAMETER THD	=	4.000000
PARAMETER EGFD	=	4.000000
PARAMETER PTD	=	2.000000
PARAMETER TTD	=	1.000000
PARAMETER A1D	=	4.000000
PARAMETER A2D	=	4.000000

PARAMETER A3D = 4.000000
 PARAMETER A4D = 4.000000
 PARAMETER A5D = 4.000000
 PARAMETER A6D = 4.000000
 PARAMETER A7D = 4.000000
 PARAMETER A8D = 4.000000
 PARAMETER A9D = 4.000000
 PARAMETER IBTD = 2.000000
 PARAMETER OBITD = 2.000000
 PARAMETER STD = 2.000000
 Define Element Properties

ELEMENT TYPE 1 IS SOLID45 3-D STRUCTURAL SOLID
 KEYOPT(1-12)= 0 0 0 0 0 0 0 0 0 0 0 0

CURRENT NODAL DOF SET IS UX UY UZ
 THREE-DIMENSIONAL MODEL

ELEMENT TYPE 2 IS SOLID45 3-D STRUCTURAL SOLID
 KEYOPT(1-12)= 0 0 0 0 0 0 0 0 0 0 0 0

CURRENT NODAL DOF SET IS UX UY UZ
 THREE-DIMENSIONAL MODEL

ELEMENT TYPE 3 IS SOLID45 3-D STRUCTURAL SOLID
 KEYOPT(1-12)= 0 0 0 0 0 0 0 0 0 0 0 0

CURRENT NODAL DOF SET IS UX UY UZ
 THREE-DIMENSIONAL MODEL

ELEMENT TYPE 4 IS SOLID45 3-D STRUCTURAL SOLID
 KEYOPT(1-12)= 0 0 0 0 0 0 0 0 0 0 0 0

CURRENT NODAL DOF SET IS UX UY UZ
 THREE-DIMENSIONAL MODEL

ELEMENT TYPE 5 IS SOLID45 3-D STRUCTURAL SOLID
 KEYOPT(1-12)= 0 0 0 0 0 0 0 0 0 0 0 0

CURRENT NODAL DOF SET IS UX UY UZ
 THREE-DIMENSIONAL MODEL

ELEMENT TYPE 6 IS SOLID45 3-D STRUCTURAL SOLID
 KEYOPT(1-12)= 0 0 0 0 0 0 0 0 0 0 0 0

CURRENT NODAL DOF SET IS UX UY UZ
 THREE-DIMENSIONAL MODEL

ratio of static to dynamic coeff. of friction fact=1.298, Area Tol.=15%
 Room Temperature Properties of Materials

MATERIAL 1 EX = 0.2060000E+12
 MATERIAL 2 EX = 0.1950000E+12
 MATERIAL 3 EX = 0.2060000E+12
 MATERIAL 4 EX = 0.2060000E+12
 MATERIAL 5 EX = 0.2080000E+12

MATERIAL	6	EX =	0.2080000E+12
MATERIAL	1	NUXY =	0.3000000
MATERIAL	2	NUXY =	0.2980000
MATERIAL	3	NUXY =	0.3000000
MATERIAL	4	NUXY =	0.3000000
MATERIAL	5	NUXY =	0.2780000
MATERIAL	6	NUXY =	0.2780000
MATERIAL	1	DENS =	8131.000
MATERIAL	2	DENS =	100452.2
MATERIAL	3	DENS =	21221.91
MATERIAL	4	DENS =	21221.91
MATERIAL	5	DENS =	8442.000
MATERIAL	6	DENS =	1420770.

Define keypoints in the basket assembly

ACTIVE COORDINATE SYSTEM SET TO 0 (CARTESIAN)

KEYPOINT	1	X,Y,Z=	0.000000E+00	0.000000E+00	0.000000E+00	IN CSYS=	0
KEYPOINT	2	X,Y,Z=	0.114250	0.000000E+00	0.000000E+00	IN CSYS=	0
KEYPOINT	3	X,Y,Z=	0.119250	0.000000E+00	0.000000E+00	IN CSYS=	0
KEYPOINT	4	X,Y,Z=	0.122750	0.000000E+00	0.000000E+00	IN CSYS=	0
KEYPOINT	5	X,Y,Z=	0.127750	0.000000E+00	0.000000E+00	IN CSYS=	0
KEYPOINT	6	X,Y,Z=	0.356250	0.000000E+00	0.000000E+00	IN CSYS=	0
KEYPOINT	7	X,Y,Z=	0.361250	0.000000E+00	0.000000E+00	IN CSYS=	0
KEYPOINT	8	X,Y,Z=	0.364750	0.000000E+00	0.000000E+00	IN CSYS=	0
KEYPOINT	9	X,Y,Z=	0.369750	0.000000E+00	0.000000E+00	IN CSYS=	0
KEYPOINT	10	X,Y,Z=	0.598250	0.000000E+00	0.000000E+00	IN CSYS=	0
KEYPOINT	11	X,Y,Z=	0.603250	0.000000E+00	0.000000E+00	IN CSYS=	0
KEYPOINT	12	X,Y,Z=	0.608250	0.000000E+00	0.000000E+00	IN CSYS=	0
KEYPOINT	13	X,Y,Z=	0.114250	0.114250	0.000000E+00	IN CSYS=	0
KEYPOINT	14	X,Y,Z=	0.127750	0.114250	0.000000E+00	IN CSYS=	0
KEYPOINT	15	X,Y,Z=	0.356250	0.114250	0.000000E+00	IN CSYS=	0
KEYPOINT	16	X,Y,Z=	0.369750	0.114250	0.000000E+00	IN CSYS=	0
KEYPOINT	17	X,Y,Z=	0.598250	0.114250	0.000000E+00	IN CSYS=	0
KEYPOINT	18	X,Y,Z=	0.119250	0.119250	0.000000E+00	IN CSYS=	0
KEYPOINT	19	X,Y,Z=	0.122750	0.119250	0.000000E+00	IN CSYS=	0
KEYPOINT	20	X,Y,Z=	0.361250	0.119250	0.000000E+00	IN CSYS=	0

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KEYPOINT    21  X,Y,Z=  0.364750    0.119250    0.000000E+00  IN CSYS=  0
KEYPOINT    22  X,Y,Z=  0.603250    0.119250    0.000000E+00  IN CSYS=  0
KEYPOINT    23  X,Y,Z=  0.608250    0.118500    0.000000E+00  IN CSYS=  0
ACTIVE COORDINATE SYSTEM SET TO      1  (CYLINDRICAL)
KEYPOINT    24  X,Y,Z=  0.710950      9.69319    0.000000E+00  IN CSYS=  1
                   0.700800    0.119704    0.000000E+00  IN CSYS=  0
ACTIVE COORDINATE SYSTEM SET TO      0  (CARTESIAN)
KEYPOINT    25  X,Y,Z=  0.122750    0.122750    0.000000E+00  IN CSYS=  0
KEYPOINT    26  X,Y,Z=  0.361250    0.122750    0.000000E+00  IN CSYS=  0
KEYPOINT    27  X,Y,Z=  0.364750    0.122750    0.000000E+00  IN CSYS=  0
KEYPOINT    28  X,Y,Z=  0.603250    0.122750    0.000000E+00  IN CSYS=  0
KEYPOINT    29  X,Y,Z=  0.608250    0.123500    0.000000E+00  IN CSYS=  0
ACTIVE COORDINATE SYSTEM SET TO      1  (CYLINDRICAL)
KEYPOINT    30  X,Y,Z=  0.710950     10.1065    0.000000E+00  IN CSYS=  1
                   0.699918    0.124757    0.000000E+00  IN CSYS=  0
ACTIVE COORDINATE SYSTEM SET TO      0  (CARTESIAN)
KEYPOINT    31  X,Y,Z=  0.127750    0.127750    0.000000E+00  IN CSYS=  0
KEYPOINT    32  X,Y,Z=  0.356250    0.127750    0.000000E+00  IN CSYS=  0
KEYPOINT    33  X,Y,Z=  0.369750    0.127750    0.000000E+00  IN CSYS=  0
KEYPOINT    34  X,Y,Z=  0.598250    0.127750    0.000000E+00  IN CSYS=  0
KEYPOINT    35  X,Y,Z=  0.356250    0.356250    0.000000E+00  IN CSYS=  0
KEYPOINT    36  X,Y,Z=  0.369750    0.356250    0.000000E+00  IN CSYS=  0
KEYPOINT    37  X,Y,Z=  0.598250    0.356250    0.000000E+00  IN CSYS=  0
ACTIVE COORDINATE SYSTEM SET TO      1  (CYLINDRICAL)
KEYPOINT    38  X,Y,Z=  0.710950     30.1000    0.000000E+00  IN CSYS=  1
                   0.615080    0.356549    0.000000E+00  IN CSYS=  0
ACTIVE COORDINATE SYSTEM SET TO      0  (CARTESIAN)
KEYPOINT    39  X,Y,Z=  0.361250    0.361250    0.000000E+00  IN CSYS=  0
KEYPOINT    40  X,Y,Z=  0.364750    0.361250    0.000000E+00  IN CSYS=  0
ACTIVE COORDINATE SYSTEM SET TO      1  (CYLINDRICAL)
KEYPOINT    41  X,Y,Z=  0.710950     30.9148    0.000000E+00  IN CSYS=  1
                   0.609947    0.365260    0.000000E+00  IN CSYS=  0
ACTIVE COORDINATE SYSTEM SET TO      0  (CARTESIAN)
KEYPOINT    42  X,Y,Z=  0.366250    0.366250    0.000000E+00  IN CSYS=  0
ACTIVE COORDINATE SYSTEM SET TO      1  (CYLINDRICAL)

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KEYPOINT	43	X,Y,Z=	0.710950	31.3953	0.000000E+00	IN CSYS= 1
			0.606863	0.370362	0.000000E+00	IN CSYS= 0
KEYPOINT	44	X,Y,Z=	0.710950	0.000000E+00	0.000000E+00	IN CSYS= 1
			0.710950	0.000000E+00	0.000000E+00	IN CSYS= 0
KEYPOINT	45	X,Y,Z=	0.710950	45.0000	0.000000E+00	IN CSYS= 1
			0.502718	0.502718	0.000000E+00	IN CSYS= 0
KEYPOINT	46	X,Y,Z=	0.712950	0.000000E+00	0.000000E+00	IN CSYS= 1
			0.712950	0.000000E+00	0.000000E+00	IN CSYS= 0
KEYPOINT	47	X,Y,Z=	0.712950	9.69319	0.000000E+00	IN CSYS= 1
			0.702772	0.120041	0.000000E+00	IN CSYS= 0
KEYPOINT	48	X,Y,Z=	0.712950	10.1065	0.000000E+00	IN CSYS= 1
			0.701887	0.125108	0.000000E+00	IN CSYS= 0
KEYPOINT	49	X,Y,Z=	0.712950	30.1000	0.000000E+00	IN CSYS= 1
			0.616810	0.357552	0.000000E+00	IN CSYS= 0
KEYPOINT	50	X,Y,Z=	0.712950	30.9148	0.000000E+00	IN CSYS= 1
			0.611662	0.366288	0.000000E+00	IN CSYS= 0
KEYPOINT	51	X,Y,Z=	0.712950	31.3953	0.000000E+00	IN CSYS= 1
			0.608570	0.371403	0.000000E+00	IN CSYS= 0
KEYPOINT	52	X,Y,Z=	0.712950	45.0000	0.000000E+00	IN CSYS= 1
			0.504132	0.504132	0.000000E+00	IN CSYS= 0
KEYPOINT	53	X,Y,Z=	0.770950	0.000000E+00	0.000000E+00	IN CSYS= 1
			0.770950	0.000000E+00	0.000000E+00	IN CSYS= 0
KEYPOINT	54	X,Y,Z=	0.770950	9.69319	0.000000E+00	IN CSYS= 1
			0.759944	0.129807	0.000000E+00	IN CSYS= 0
KEYPOINT	55	X,Y,Z=	0.770950	10.1065	0.000000E+00	IN CSYS= 1
			0.758987	0.135285	0.000000E+00	IN CSYS= 0
KEYPOINT	56	X,Y,Z=	0.770950	30.1000	0.000000E+00	IN CSYS= 1
			0.666989	0.386639	0.000000E+00	IN CSYS= 0
KEYPOINT	57	X,Y,Z=	0.770950	30.9148	0.000000E+00	IN CSYS= 1
			0.661423	0.396086	0.000000E+00	IN CSYS= 0
KEYPOINT	58	X,Y,Z=	0.770950	31.3953	0.000000E+00	IN CSYS= 1
			0.658078	0.401618	0.000000E+00	IN CSYS= 0
KEYPOINT	59	X,Y,Z=	0.770950	45.0000	0.000000E+00	IN CSYS= 1
			0.545144	0.545144	0.000000E+00	IN CSYS= 0
KEYPOINT	60	X,Y,Z=	0.780950	0.000000E+00	0.000000E+00	IN CSYS= 1

			0.780950	0.000000E+00	0.000000E+00	IN CSYS= 0
KEYPOINT	61	X,Y,Z=	0.780950	9.69319	0.000000E+00	IN CSYS= 1
			0.769801	0.131490	0.000000E+00	IN CSYS= 0
KEYPOINT	62	X,Y,Z=	0.780950	10.1065	0.000000E+00	IN CSYS= 1
			0.768832	0.137040	0.000000E+00	IN CSYS= 0
KEYPOINT	63	X,Y,Z=	0.780950	30.1000	0.000000E+00	IN CSYS= 1
			0.675640	0.391654	0.000000E+00	IN CSYS= 0
KEYPOINT	64	X,Y,Z=	0.780950	30.9148	0.000000E+00	IN CSYS= 1
			0.670002	0.401224	0.000000E+00	IN CSYS= 0
KEYPOINT	65	X,Y,Z=	0.780950	31.3953	0.000000E+00	IN CSYS= 1
			0.666614	0.406827	0.000000E+00	IN CSYS= 0
KEYPOINT	66	X,Y,Z=	0.780950	45.0000	0.000000E+00	IN CSYS= 1
			0.552215	0.552215	0.000000E+00	IN CSYS= 0

COORDINATE SYSTEM 11 DEFINITION. TYPE= 0 (CARTESIAN)
 XC,YC,ZC= 0.00000E+00 0.00000E+00 0.00000E+00
 ANGLES= 45.00 0.00 0.00 PARAMETERS= 1.000 1.000
 ORIENTATION= 0.71 0.71 0.00 -0.71 0.71 0.00 0.00 0.00 1.00

ACTIVE COORDINATE SYSTEM SET TO 11 (CARTESIAN)

SYMMETRY TRANSFORMATION OF KEYPOINTS USING COMPONENT Y
 SET IS ALL SELECTED KEYPOINTS

MERGE COINCIDENT KEYPOINTS WITHIN TOLERANCE OF 0.10000E-03

KEYPOINT	1	USED FOR KEYPOINT(S)	67
KEYPOINT	13	USED FOR KEYPOINT(S)	79
KEYPOINT	18	USED FOR KEYPOINT(S)	84
KEYPOINT	25	USED FOR KEYPOINT(S)	91
KEYPOINT	31	USED FOR KEYPOINT(S)	97
KEYPOINT	35	USED FOR KEYPOINT(S)	101
KEYPOINT	39	USED FOR KEYPOINT(S)	105
KEYPOINT	42	USED FOR KEYPOINT(S)	108
KEYPOINT	45	USED FOR KEYPOINT(S)	111
KEYPOINT	52	USED FOR KEYPOINT(S)	118
KEYPOINT	59	USED FOR KEYPOINT(S)	125
KEYPOINT	66	USED FOR KEYPOINT(S)	132

ACTIVE COORDINATE SYSTEM SET TO 0 (CARTESIAN)

SYMMETRY TRANSFORMATION OF KEYPOINTS USING COMPONENT Y
 SET IS ALL SELECTED KEYPOINTS

MERGE COINCIDENT KEYPOINTS WITHIN TOLERANCE OF 0.10000E-03

KEYPOINT	1	USED FOR KEYPOINT(S)	67
KEYPOINT	2	USED FOR KEYPOINT(S)	79
KEYPOINT	3	USED FOR KEYPOINT(S)	84
KEYPOINT	4	USED FOR KEYPOINT(S)	91
KEYPOINT	5	USED FOR KEYPOINT(S)	97
KEYPOINT	6	USED FOR KEYPOINT(S)	101
KEYPOINT	7	USED FOR KEYPOINT(S)	105
KEYPOINT	8	USED FOR KEYPOINT(S)	108
KEYPOINT	9	USED FOR KEYPOINT(S)	111
KEYPOINT	10	USED FOR KEYPOINT(S)	118
KEYPOINT	11	USED FOR KEYPOINT(S)	125
KEYPOINT	12	USED FOR KEYPOINT(S)	132
KEYPOINT	44	USED FOR KEYPOINT(S)	164
KEYPOINT	46	USED FOR KEYPOINT(S)	166

KEYPOINT 53 USED FOR KEYPOINT(S) 173
KEYPOINT 60 USED FOR KEYPOINT(S) 180

DELETE SELECTED KEYPOINTS FROM 2 TO 12 BY 1

KEYPOINT 1001 X,Y,Z= 0.000000E+00 0.000000E+00 2.28750 IN CSYS= 0

LINE CONNECTS KEYPOINTS 1 1001
LINE NO.= 1 KP1= 1 TAN1= 0.0000 0.0000 -1.0000
KP2= 1001 TAN2= 0.0000 0.0000 1.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
TO NDIV = 15, SPACING RATIO = 0.200

KEYPOINT 2001 X,Y,Z= 0.000000E+00 0.000000E+00 2.29750 IN CSYS= 0

LINE CONNECTS KEYPOINTS 1001 2001
LINE NO.= 2 KP1= 1001 TAN1= 0.0000 0.0000 -1.0000
KP2= 2001 TAN2= 0.0000 0.0000 1.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
TO NDIV = 2, SPACING RATIO = 1.000

KEYPOINT 3001 X,Y,Z= 0.000000E+00 0.000000E+00 2.30750 IN CSYS= 0

LINE CONNECTS KEYPOINTS 2001 3001
LINE NO.= 3 KP1= 2001 TAN1= 0.0000 0.0000 -1.0000
KP2= 3001 TAN2= 0.0000 0.0000 1.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
TO NDIV = 2, SPACING RATIO = 1.000

KEYPOINT 4001 X,Y,Z= 0.000000E+00 0.000000E+00 2.33750 IN CSYS= 0

LINE CONNECTS KEYPOINTS 3001 4001
LINE NO.= 4 KP1= 3001 TAN1= 0.0000 0.0000 -1.0000
KP2= 4001 TAN2= 0.0000 0.0000 1.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
TO NDIV = 2, SPACING RATIO = 1.000

KEYPOINT 5001 X,Y,Z= 0.000000E+00 0.000000E+00 2.39750 IN CSYS= 0

LINE CONNECTS KEYPOINTS 4001 5001
LINE NO.= 5 KP1= 4001 TAN1= 0.0000 0.0000 -1.0000
KP2= 5001 TAN2= 0.0000 0.0000 1.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
TO NDIV = 1, SPACING RATIO = 1.000

KEYPOINT 6001 X,Y,Z= 0.000000E+00 0.000000E+00 2.62250 IN CSYS= 0

LINE CONNECTS KEYPOINTS 5001 6001
LINE NO.= 6 KP1= 5001 TAN1= 0.0000 0.0000 -1.0000
KP2= 6001 TAN2= 0.0000 0.0000 1.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
TO NDIV = 1, SPACING RATIO = 1.000

KEYPOINT 7001 X,Y,Z= 0.000000E+00 0.000000E+00 -0.100000E-01 IN CSYS= 0

LINE CONNECTS KEYPOINTS 1 7001
LINE NO.= 7 KP1= 1 TAN1= 0.0000 0.0000 1.0000
KP2= 7001 TAN2= 0.0000 0.0000 -1.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
TO NDIV = 2, SPACING RATIO = 1.000

KEYPOINT 8001 X,Y,Z= 0.000000E+00 0.000000E+00 -0.700000E-01 IN CSYS= 0

LINE CONNECTS KEYPOINTS 7001 8001
 LINE NO.= 8 KP1= 7001 TAN1= 0.0000 0.0000 1.0000
 KP2= 8001 TAN2= 0.0000 0.0000 -1.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
 TO NDIV = 1, SPACING RATIO = 1.000

KEYPOINT 9001 X,Y,Z= 0.000000E+00 0.000000E+00 -0.295000 IN CSYS= 0

LINE CONNECTS KEYPOINTS 8001 9001
 LINE NO.= 9 KP1= 8001 TAN1= 0.0000 0.0000 1.0000
 KP2= 9001 TAN2= 0.0000 0.0000 -1.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
 TO NDIV = 1, SPACING RATIO = 1.000
 line set 1 Tube Width for Half Tubes on Symmetry Plane

LINE CONNECTS KEYPOINTS 197 206
 LINE NO.= 10 KP1= 197 TAN1= -1.0000 0.0000 0.0000
 KP2= 206 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 196 205
 LINE NO.= 11 KP1= 196 TAN1= -1.0000 0.0000 0.0000
 KP2= 205 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 195 201
 LINE NO.= 12 KP1= 195 TAN1= -1.0000 0.0000 0.0000
 KP2= 201 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 194 200
 LINE NO.= 13 KP1= 194 TAN1= -1.0000 0.0000 0.0000
 KP2= 200 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 193 204
 LINE NO.= 14 KP1= 193 TAN1= -1.0000 0.0000 0.0000
 KP2= 204 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 192 203
 LINE NO.= 15 KP1= 192 TAN1= -1.0000 0.0000 0.0000
 KP2= 203 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 191 199
 LINE NO.= 16 KP1= 191 TAN1= -1.0000 0.0000 0.0000
 KP2= 199 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 190 198
 LINE NO.= 17 KP1= 190 TAN1= -1.0000 0.0000 0.0000
 KP2= 198 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 189 202
 LINE NO.= 18 KP1= 189 TAN1= -1.0000 0.0000 0.0000
 KP2= 202 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 188 138
 LINE NO.= 19 KP1= 188 TAN1= -1.0000 0.0000 0.0000
 KP2= 138 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 187 133
 LINE NO.= 20 KP1= 187 TAN1= -1.0000 0.0000 0.0000
 KP2= 133 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 68 13
 LINE NO.= 21 KP1= 68 TAN1= -1.0000 0.0000 0.0000
 KP2= 13 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 69 18
 LINE NO.= 22 KP1= 69 TAN1= -1.0000 0.0000 0.0000
 KP2= 18 TAN2= 1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 70 85

LINE NO.=	23	KP1=	70	TAN1=	-1.0000	0.0000	0.0000
		KP2=	85	TAN2=	1.0000	0.0000	0.0000
LINE CONNECTS	KEYPOINTS	71	80				
LINE NO.=	24	KP1=	71	TAN1=	-1.0000	0.0000	0.0000
		KP2=	80	TAN2=	1.0000	0.0000	0.0000
LINE CONNECTS	KEYPOINTS	72	81				
LINE NO.=	25	KP1=	72	TAN1=	-1.0000	0.0000	0.0000
		KP2=	81	TAN2=	1.0000	0.0000	0.0000
LINE CONNECTS	KEYPOINTS	73	86				
LINE NO.=	26	KP1=	73	TAN1=	-1.0000	0.0000	0.0000
		KP2=	86	TAN2=	1.0000	0.0000	0.0000
LINE CONNECTS	KEYPOINTS	74	87				
LINE NO.=	27	KP1=	74	TAN1=	-1.0000	0.0000	0.0000
		KP2=	87	TAN2=	1.0000	0.0000	0.0000
LINE CONNECTS	KEYPOINTS	75	82				
LINE NO.=	28	KP1=	75	TAN1=	-1.0000	0.0000	0.0000
		KP2=	82	TAN2=	1.0000	0.0000	0.0000
LINE CONNECTS	KEYPOINTS	76	83				
LINE NO.=	29	KP1=	76	TAN1=	-1.0000	0.0000	0.0000
		KP2=	83	TAN2=	1.0000	0.0000	0.0000
LINE CONNECTS	KEYPOINTS	77	88				
LINE NO.=	30	KP1=	77	TAN1=	-1.0000	0.0000	0.0000
		KP2=	88	TAN2=	1.0000	0.0000	0.0000
LINE CONNECTS	KEYPOINTS	78	89				
LINE NO.=	31	KP1=	78	TAN1=	-1.0000	0.0000	0.0000
		KP2=	89	TAN2=	1.0000	0.0000	0.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
 TO NDIV = 4, SPACING RATIO = 1.000
 line set 2 Tube Widths

LINE CONNECTS	KEYPOINTS	211	218				
LINE NO.=	32	KP1=	211	TAN1=	-0.9996	0.0293	0.0000
		KP2=	218	TAN2=	0.9996	-0.0293	0.0000
LINE CONNECTS	KEYPOINTS	210	220				
LINE NO.=	33	KP1=	210	TAN1=	-0.9996	0.0276	0.0000
		KP2=	220	TAN2=	0.9996	-0.0276	0.0000
LINE CONNECTS	KEYPOINTS	215	217				
LINE NO.=	34	KP1=	215	TAN1=	-1.0000	0.0000	0.0000
		KP2=	217	TAN2=	1.0000	0.0000	0.0000
LINE CONNECTS	KEYPOINTS	214	216				
LINE NO.=	35	KP1=	214	TAN1=	-1.0000	0.0000	0.0000
		KP2=	216	TAN2=	1.0000	0.0000	0.0000
LINE CONNECTS	KEYPOINTS	209	219				
LINE NO.=	36	KP1=	209	TAN1=	-1.0000	0.0000	0.0000
		KP2=	219	TAN2=	1.0000	0.0000	0.0000
LINE CONNECTS	KEYPOINTS	208	159				
LINE NO.=	37	KP1=	208	TAN1=	-1.0000	0.0000	0.0000
		KP2=	159	TAN2=	1.0000	0.0000	0.0000
LINE CONNECTS	KEYPOINTS	213	155				
LINE NO.=	38	KP1=	213	TAN1=	-1.0000	0.0000	0.0000
		KP2=	155	TAN2=	1.0000	0.0000	0.0000
LINE CONNECTS	KEYPOINTS	151	152				
LINE NO.=	39	KP1=	151	TAN1=	-1.0000	0.0000	0.0000
		KP2=	152	TAN2=	1.0000	0.0000	0.0000

LINE CONNECTS KEYPOINTS	145	146				
LINE NO.= 40 KP1=	145	TAN1=	-1.0000	0.0000	0.0000	
KP2=	146	TAN2=	1.0000	0.0000	0.0000	

LINE CONNECTS KEYPOINTS	139	140				
LINE NO.= 41 KP1=	139	TAN1=	-1.0000	0.0000	0.0000	
KP2=	140	TAN2=	1.0000	0.0000	0.0000	

LINE CONNECTS KEYPOINTS	134	135				
LINE NO.= 42 KP1=	134	TAN1=	-1.0000	0.0000	0.0000	
KP2=	135	TAN2=	1.0000	0.0000	0.0000	

LINE CONNECTS KEYPOINTS	14	15				
LINE NO.= 43 KP1=	14	TAN1=	-1.0000	0.0000	0.0000	
KP2=	15	TAN2=	1.0000	0.0000	0.0000	

LINE CONNECTS KEYPOINTS	19	20				
LINE NO.= 44 KP1=	19	TAN1=	-1.0000	0.0000	0.0000	
KP2=	20	TAN2=	1.0000	0.0000	0.0000	

LINE CONNECTS KEYPOINTS	25	26				
LINE NO.= 45 KP1=	25	TAN1=	-1.0000	0.0000	0.0000	
KP2=	26	TAN2=	1.0000	0.0000	0.0000	

LINE CONNECTS KEYPOINTS	31	32				
LINE NO.= 46 KP1=	31	TAN1=	-1.0000	0.0000	0.0000	
KP2=	32	TAN2=	1.0000	0.0000	0.0000	

LINE CONNECTS KEYPOINTS	98	35				
LINE NO.= 47 KP1=	98	TAN1=	-1.0000	0.0000	0.0000	
KP2=	35	TAN2=	1.0000	0.0000	0.0000	

LINE CONNECTS KEYPOINTS	92	39				
LINE NO.= 48 KP1=	92	TAN1=	-1.0000	0.0000	0.0000	
KP2=	39	TAN2=	1.0000	0.0000	0.0000	

LINE CONNECTS KEYPOINTS	93	106				
LINE NO.= 49 KP1=	93	TAN1=	-1.0000	0.0000	0.0000	
KP2=	106	TAN2=	1.0000	0.0000	0.0000	

LINE CONNECTS KEYPOINTS	99	102				
LINE NO.= 50 KP1=	99	TAN1=	-1.0000	0.0000	0.0000	
KP2=	102	TAN2=	1.0000	0.0000	0.0000	

LINE CONNECTS KEYPOINTS	100	103				
LINE NO.= 51 KP1=	100	TAN1=	-1.0000	0.0000	0.0000	
KP2=	103	TAN2=	1.0000	0.0000	0.0000	

LINE CONNECTS KEYPOINTS	94	107				
LINE NO.= 52 KP1=	94	TAN1=	-0.9996	-0.0276	0.0000	
KP2=	107	TAN2=	0.9996	0.0276	0.0000	

LINE CONNECTS KEYPOINTS	95	104				
LINE NO.= 53 KP1=	95	TAN1=	-0.9996	-0.0293	0.0000	
KP2=	104	TAN2=	0.9996	0.0293	0.0000	

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
 TO NDIV = 4, SPACING RATIO = 1.000
 Line set 3 Tube Widths on End Column

LINE CONNECTS KEYPOINTS	162	163				
LINE NO.= 54 KP1=	162	TAN1=	-0.9999	0.0171	0.0000	
KP2=	163	TAN2=	0.9999	-0.0171	0.0000	

LINE CONNECTS KEYPOINTS	160	161				
LINE NO.= 55 KP1=	160	TAN1=	-0.9999	0.0164	0.0000	
KP2=	161	TAN2=	0.9999	-0.0164	0.0000	

LINE CONNECTS KEYPOINTS	156	157				
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LINE NO.=	56	KP1=	156	TAN1=	-1.0000	0.0000	0.0000
		KP2=	157	TAN2=	1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 153 154							
LINE NO.=	57	KP1=	153	TAN1=	-1.0000	0.0000	0.0000
		KP2=	154	TAN2=	1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 147 148							
LINE NO.=	58	KP1=	147	TAN1=	-1.0000	0.0000	0.0000
		KP2=	148	TAN2=	1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 141 142							
LINE NO.=	59	KP1=	141	TAN1=	-1.0000	0.0000	0.0000
		KP2=	142	TAN2=	1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 136 137							
LINE NO.=	60	KP1=	136	TAN1=	-1.0000	0.0000	0.0000
		KP2=	137	TAN2=	1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 16 17							
LINE NO.=	61	KP1=	16	TAN1=	-1.0000	0.0000	0.0000
		KP2=	17	TAN2=	1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 21 22							
LINE NO.=	62	KP1=	21	TAN1=	-1.0000	0.0000	0.0000
		KP2=	22	TAN2=	1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 27 28							
LINE NO.=	63	KP1=	27	TAN1=	-1.0000	0.0000	0.0000
		KP2=	28	TAN2=	1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 33 34							
LINE NO.=	64	KP1=	33	TAN1=	-1.0000	0.0000	0.0000
		KP2=	34	TAN2=	1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 36 37							
LINE NO.=	65	KP1=	36	TAN1=	-1.0000	0.0000	0.0000
		KP2=	37	TAN2=	1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 40 41							
LINE NO.=	66	KP1=	40	TAN1=	-0.9999	-0.0164	0.0000
		KP2=	41	TAN2=	0.9999	0.0164	0.0000
LINE CONNECTS KEYPOINTS 42 43							
LINE NO.=	67	KP1=	42	TAN1=	-0.9999	-0.0171	0.0000
		KP2=	43	TAN2=	0.9999	0.0171	0.0000
SET DIVISIONS ON ALL SELECTED UNMESHED LINES							
TO NDIV = 4, SPACING RATIO = 1.000							
Line set 4 Tube Heights							
LINE CONNECTS KEYPOINTS 201 200							
LINE NO.=	68	KP1=	201	TAN1=	0.0000	-1.0000	0.0000
		KP2=	200	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 205 204							
LINE NO.=	69	KP1=	205	TAN1=	0.0000	-1.0000	0.0000
		KP2=	204	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 210 209							
LINE NO.=	70	KP1=	210	TAN1=	0.0000	-1.0000	0.0000
		KP2=	209	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 215 214							
LINE NO.=	71	KP1=	215	TAN1=	0.0000	-1.0000	0.0000
		KP2=	214	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 217 216							
LINE NO.=	72	KP1=	217	TAN1=	0.0000	-1.0000	0.0000
		KP2=	216	TAN2=	0.0000	1.0000	0.0000

LINE CONNECTS KEYPOINTS	220	219			
LINE NO.= 73 KP1=	220	TAN1=	0.0164	-0.9999	0.0000
KP2=	219	TAN2=	-0.0164	0.9999	0.0000
LINE CONNECTS KEYPOINTS	221	162			
LINE NO.= 74 KP1=	221	TAN1=	0.0171	-0.9999	0.0000
KP2=	162	TAN2=	-0.0171	0.9999	0.0000
LINE CONNECTS KEYPOINTS	199	198			
LINE NO.= 75 KP1=	199	TAN1=	0.0000	-1.0000	0.0000
KP2=	198	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS	203	202			
LINE NO.= 76 KP1=	203	TAN1=	0.0000	-1.0000	0.0000
KP2=	202	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS	208	145			
LINE NO.= 77 KP1=	208	TAN1=	0.0000	-1.0000	0.0000
KP2=	145	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS	213	151			
LINE NO.= 78 KP1=	213	TAN1=	0.0000	-1.0000	0.0000
KP2=	151	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS	155	152			
LINE NO.= 79 KP1=	155	TAN1=	0.0000	-1.0000	0.0000
KP2=	152	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS	159	146			
LINE NO.= 80 KP1=	159	TAN1=	0.0000	-1.0000	0.0000
KP2=	146	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS	160	147			
LINE NO.= 81 KP1=	160	TAN1=	0.0000	-1.0000	0.0000
KP2=	147	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS	156	153			
LINE NO.= 82 KP1=	156	TAN1=	0.0000	-1.0000	0.0000
KP2=	153	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS	157	154			
LINE NO.= 83 KP1=	157	TAN1=	0.0000	-1.0000	0.0000
KP2=	154	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS	161	148			
LINE NO.= 84 KP1=	161	TAN1=	0.0276	-0.9996	0.0000
KP2=	148	TAN2=	-0.0276	0.9996	0.0000
LINE CONNECTS KEYPOINTS	133	13			
LINE NO.= 85 KP1=	133	TAN1=	0.0000	-1.0000	0.0000
KP2=	13	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS	138	18			
LINE NO.= 86 KP1=	138	TAN1=	0.0000	-1.0000	0.0000
KP2=	18	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS	139	19			
LINE NO.= 87 KP1=	139	TAN1=	0.0000	-1.0000	0.0000
KP2=	19	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS	134	14			
LINE NO.= 88 KP1=	134	TAN1=	0.0000	-1.0000	0.0000
KP2=	14	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS	135	15			
LINE NO.= 89 KP1=	135	TAN1=	0.0000	-1.0000	0.0000
KP2=	15	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS	140	20			

LINE NO.=	90	KP1=	140	TAN1=	0.0000	-1.0000	0.0000
		KP2=	20	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 141 21							
LINE NO.=	91	KP1=	141	TAN1=	0.0000	-1.0000	0.0000
		KP2=	21	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 136 16							
LINE NO.=	92	KP1=	136	TAN1=	0.0000	-1.0000	0.0000
		KP2=	16	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 137 17							
LINE NO.=	93	KP1=	137	TAN1=	0.0000	-1.0000	0.0000
		KP2=	17	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 142 22							
LINE NO.=	94	KP1=	142	TAN1=	0.0000	-1.0000	0.0000
		KP2=	22	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 143 23							
LINE NO.=	95	KP1=	143	TAN1=	0.0000	-1.0000	0.0000
		KP2=	23	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 80 81							
LINE NO.=	96	KP1=	80	TAN1=	0.0000	-1.0000	0.0000
		KP2=	81	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 85 86							
LINE NO.=	97	KP1=	85	TAN1=	0.0000	-1.0000	0.0000
		KP2=	86	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 25 92							
LINE NO.=	98	KP1=	25	TAN1=	0.0000	-1.0000	0.0000
		KP2=	92	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 31 98							
LINE NO.=	99	KP1=	31	TAN1=	0.0000	-1.0000	0.0000
		KP2=	98	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 32 35							
LINE NO.=	100	KP1=	32	TAN1=	0.0000	-1.0000	0.0000
		KP2=	35	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 26 39							
LINE NO.=	101	KP1=	26	TAN1=	0.0000	-1.0000	0.0000
		KP2=	39	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 27 40							
LINE NO.=	102	KP1=	27	TAN1=	0.0000	-1.0000	0.0000
		KP2=	40	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 33 36							
LINE NO.=	103	KP1=	33	TAN1=	0.0000	-1.0000	0.0000
		KP2=	36	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 34 37							
LINE NO.=	104	KP1=	34	TAN1=	0.0000	-1.0000	0.0000
		KP2=	37	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 28 41							
LINE NO.=	105	KP1=	28	TAN1=	-0.0276	-0.9996	0.0000
		KP2=	41	TAN2=	0.0276	0.9996	0.0000
LINE CONNECTS KEYPOINTS 29 38							
LINE NO.=	106	KP1=	29	TAN1=	-0.0293	-0.9996	0.0000
		KP2=	38	TAN2=	0.0293	0.9996	0.0000
LINE CONNECTS KEYPOINTS 82 83							
LINE NO.=	107	KP1=	82	TAN1=	0.0000	-1.0000	0.0000
		KP2=	83	TAN2=	0.0000	1.0000	0.0000

LINE CONNECTS KEYPOINTS 87 88
 LINE NO.= 108 KP1= 87 TAN1= 0.0000 -1.0000 0.0000
 KP2= 88 TAN2= 0.0000 1.0000 0.0000

LINE CONNECTS KEYPOINTS 93 94
 LINE NO.= 109 KP1= 93 TAN1= 0.0000 -1.0000 0.0000
 KP2= 94 TAN2= 0.0000 1.0000 0.0000

LINE CONNECTS KEYPOINTS 99 100
 LINE NO.= 110 KP1= 99 TAN1= 0.0000 -1.0000 0.0000
 KP2= 100 TAN2= 0.0000 1.0000 0.0000

LINE CONNECTS KEYPOINTS 102 103
 LINE NO.= 111 KP1= 102 TAN1= 0.0000 -1.0000 0.0000
 KP2= 103 TAN2= 0.0000 1.0000 0.0000

LINE CONNECTS KEYPOINTS 106 107
 LINE NO.= 112 KP1= 106 TAN1= -0.0164 -0.9999 0.0000
 KP2= 107 TAN2= 0.0164 0.9999 0.0000

LINE CONNECTS KEYPOINTS 42 109
 LINE NO.= 113 KP1= 42 TAN1= -0.0171 -0.9999 0.0000
 KP2= 109 TAN2= 0.0171 0.9999 0.0000

LINE CONNECTS KEYPOINTS 158 149
 LINE NO.= 114 KP1= 158 TAN1= 0.0293 -0.9996 0.0000
 KP2= 149 TAN2= -0.0293 0.9996 0.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
 TO NDIV = 4, SPACING RATIO = 1.000
 Line set 5 End Guide Fins

LINE CONNECTS KEYPOINTS 207 206
 LINE NO.= 115 KP1= 207 TAN1= 0.0130 -0.9999 0.0000
 KP2= 206 TAN2= -0.0130 0.9999 0.0000

LINE CONNECTS KEYPOINTS 212 211
 LINE NO.= 116 KP1= 212 TAN1= 0.0137 -0.9999 0.0000
 KP2= 211 TAN2= -0.0137 0.9999 0.0000

LINE CONNECTS KEYPOINTS 150 149
 LINE NO.= 117 KP1= 150 TAN1= 0.9999 -0.0137 0.0000
 KP2= 149 TAN2= -0.9999 0.0137 0.0000

LINE CONNECTS KEYPOINTS 144 143
 LINE NO.= 118 KP1= 144 TAN1= 0.9999 -0.0130 0.0000
 KP2= 143 TAN2= -0.9999 0.0130 0.0000

LINE CONNECTS KEYPOINTS 24 23
 LINE NO.= 119 KP1= 24 TAN1= 0.9999 0.0130 0.0000
 KP2= 23 TAN2= -0.9999 -0.0130 0.0000

LINE CONNECTS KEYPOINTS 30 29
 LINE NO.= 120 KP1= 30 TAN1= 0.9999 0.0137 0.0000
 KP2= 29 TAN2= -0.9999 -0.0137 0.0000

LINE CONNECTS KEYPOINTS 96 95
 LINE NO.= 121 KP1= 96 TAN1= 0.0137 0.9999 0.0000
 KP2= 95 TAN2= -0.0137 -0.9999 0.0000

LINE CONNECTS KEYPOINTS 90 89
 LINE NO.= 122 KP1= 90 TAN1= 0.0130 0.9999 0.0000
 KP2= 89 TAN2= -0.0130 -0.9999 0.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
 TO NDIV = 4, SPACING RATIO = 1.000
 Line set 6 SS-B Plate Thickness

LINE CONNECTS KEYPOINTS 197 196

LINE NO.= 123	KP1= 197	TAN1= 0.0000	-1.0000	0.0000
	KP2= 196	TAN2= 0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 206 205				
LINE NO.= 124	KP1= 206	TAN1= -0.1483	-0.9889	0.0000
	KP2= 205	TAN2= 0.1483	0.9889	0.0000
LINE CONNECTS KEYPOINTS 211 210				
LINE NO.= 125	KP1= 211	TAN1= 0.1483	-0.9889	0.0000
	KP2= 210	TAN2= -0.1483	0.9889	0.0000
LINE CONNECTS KEYPOINTS 207 212				
LINE NO.= 126	KP1= 207	TAN1= -0.9851	-0.1719	0.0000
	KP2= 212	TAN2= 0.9851	0.1719	0.0000
LINE CONNECTS KEYPOINTS 206 211				
LINE NO.= 127	KP1= 206	TAN1= -1.0000	0.0000	0.0000
	KP2= 211	TAN2= 1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 205 210				
LINE NO.= 128	KP1= 205	TAN1= -1.0000	0.0000	0.0000
	KP2= 210	TAN2= 1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 218 220				
LINE NO.= 129	KP1= 218	TAN1= -0.8616	-0.5076	0.0000
	KP2= 220	TAN2= 0.8616	0.5076	0.0000
LINE CONNECTS KEYPOINTS 220 221				
LINE NO.= 130	KP1= 220	TAN1= -0.8558	-0.5174	0.0000
	KP2= 221	TAN2= 0.8558	0.5174	0.0000
LINE CONNECTS KEYPOINTS 193 192				
LINE NO.= 131	KP1= 193	TAN1= 0.0000	-1.0000	0.0000
	KP2= 192	TAN2= 0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 204 203				
LINE NO.= 132	KP1= 204	TAN1= 0.0000	-1.0000	0.0000
	KP2= 203	TAN2= 0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 209 208				
LINE NO.= 133	KP1= 209	TAN1= 0.0000	-1.0000	0.0000
	KP2= 208	TAN2= 0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 204 209				
LINE NO.= 134	KP1= 204	TAN1= -1.0000	0.0000	0.0000
	KP2= 209	TAN2= 1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 203 208				
LINE NO.= 135	KP1= 203	TAN1= -1.0000	0.0000	0.0000
	KP2= 208	TAN2= 1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 219 159				
LINE NO.= 136	KP1= 219	TAN1= 0.0000	-1.0000	0.0000
	KP2= 159	TAN2= 0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 162 160				
LINE NO.= 137	KP1= 162	TAN1= 0.2873	-0.9578	0.0000
	KP2= 160	TAN2= -0.2873	0.9578	0.0000
LINE CONNECTS KEYPOINTS 163 161				
LINE NO.= 138	KP1= 163	TAN1= -0.5174	-0.8558	0.0000
	KP2= 161	TAN2= 0.5174	0.8558	0.0000
LINE CONNECTS KEYPOINTS 161 158				
LINE NO.= 139	KP1= 161	TAN1= -0.5076	-0.8616	0.0000
	KP2= 158	TAN2= 0.5076	0.8616	0.0000
LINE CONNECTS KEYPOINTS 219 162				
LINE NO.= 140	KP1= 219	TAN1= -0.9578	0.2873	0.0000
	KP2= 162	TAN2= 0.9578	-0.2873	0.0000

LINE CONNECTS KEYPOINTS	159	160			
LINE NO.= 141 KP1=	159	TAN1=	-1.0000	0.0000	0.0000
KP2= 160	TAN2=	1.0000	0.0000	0.0000	
LINE CONNECTS KEYPOINTS	189	188			
LINE NO.= 142 KP1=	189	TAN1=	0.0000	-1.0000	0.0000
KP2= 188	TAN2=	0.0000	1.0000	0.0000	
LINE CONNECTS KEYPOINTS	202	138			
LINE NO.= 143 KP1=	202	TAN1=	0.0000	-1.0000	0.0000
KP2= 138	TAN2=	0.0000	1.0000	0.0000	
LINE CONNECTS KEYPOINTS	145	139			
LINE NO.= 144 KP1=	145	TAN1=	0.0000	-1.0000	0.0000
KP2= 139	TAN2=	0.0000	1.0000	0.0000	
LINE CONNECTS KEYPOINTS	202	145			
LINE NO.= 145 KP1=	202	TAN1=	-1.0000	0.0000	0.0000
KP2= 145	TAN2=	1.0000	0.0000	0.0000	
LINE CONNECTS KEYPOINTS	138	139			
LINE NO.= 146 KP1=	138	TAN1=	-1.0000	0.0000	0.0000
KP2= 139	TAN2=	1.0000	0.0000	0.0000	
LINE CONNECTS KEYPOINTS	146	140			
LINE NO.= 147 KP1=	146	TAN1=	0.0000	-1.0000	0.0000
KP2= 140	TAN2=	0.0000	1.0000	0.0000	
LINE CONNECTS KEYPOINTS	147	141			
LINE NO.= 148 KP1=	147	TAN1=	0.0000	-1.0000	0.0000
KP2= 141	TAN2=	0.0000	1.0000	0.0000	
LINE CONNECTS KEYPOINTS	146	147			
LINE NO.= 149 KP1=	146	TAN1=	-1.0000	0.0000	0.0000
KP2= 147	TAN2=	1.0000	0.0000	0.0000	
LINE CONNECTS KEYPOINTS	140	141			
LINE NO.= 150 KP1=	140	TAN1=	-1.0000	0.0000	0.0000
KP2= 141	TAN2=	1.0000	0.0000	0.0000	
LINE CONNECTS KEYPOINTS	148	142			
LINE NO.= 151 KP1=	148	TAN1=	0.0000	-1.0000	0.0000
KP2= 142	TAN2=	0.0000	1.0000	0.0000	
LINE CONNECTS KEYPOINTS	149	143			
LINE NO.= 152 KP1=	149	TAN1=	0.0000	-1.0000	0.0000
KP2= 143	TAN2=	0.0000	1.0000	0.0000	
LINE CONNECTS KEYPOINTS	148	149			
LINE NO.= 153 KP1=	148	TAN1=	-0.9889	0.1483	0.0000
KP2= 149	TAN2=	0.9889	-0.1483	0.0000	
LINE CONNECTS KEYPOINTS	142	143			
LINE NO.= 154 KP1=	142	TAN1=	-0.9889	-0.1483	0.0000
KP2= 143	TAN2=	0.9889	0.1483	0.0000	
LINE CONNECTS KEYPOINTS	150	144			
LINE NO.= 155 KP1=	150	TAN1=	-0.1719	-0.9851	0.0000
KP2= 144	TAN2=	0.1719	0.9851	0.0000	
LINE CONNECTS KEYPOINTS	69	70			
LINE NO.= 156 KP1=	69	TAN1=	0.0000	-1.0000	0.0000
KP2= 70	TAN2=	0.0000	1.0000	0.0000	
LINE CONNECTS KEYPOINTS	18	85			
LINE NO.= 157 KP1=	18	TAN1=	0.0000	-1.0000	0.0000
KP2= 85	TAN2=	0.0000	1.0000	0.0000	
LINE CONNECTS KEYPOINTS	19	25			

LINE NO.= 158	KP1= 19	TAN1= 0.0000	-1.0000	0.0000
	KP2= 25	TAN2= 0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 18 19				
LINE NO.= 159	KP1= 18	TAN1= -1.0000	0.0000	0.0000
	KP2= 19	TAN2= 1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 85 25				
LINE NO.= 160	KP1= 85	TAN1= -1.0000	0.0000	0.0000
	KP2= 25	TAN2= 1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 20 26				
LINE NO.= 161	KP1= 20	TAN1= 0.0000	-1.0000	0.0000
	KP2= 26	TAN2= 0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 21 27				
LINE NO.= 162	KP1= 21	TAN1= 0.0000	-1.0000	0.0000
	KP2= 27	TAN2= 0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 20 21				
LINE NO.= 163	KP1= 20	TAN1= -1.0000	0.0000	0.0000
	KP2= 21	TAN2= 1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 26 27				
LINE NO.= 164	KP1= 26	TAN1= -1.0000	0.0000	0.0000
	KP2= 27	TAN2= 1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 22 28				
LINE NO.= 165	KP1= 22	TAN1= 0.0000	-1.0000	0.0000
	KP2= 28	TAN2= 0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 22 23				
LINE NO.= 166	KP1= 22	TAN1= -0.9889	0.1483	0.0000
	KP2= 23	TAN2= 0.9889	-0.1483	0.0000
LINE CONNECTS KEYPOINTS 28 29				
LINE NO.= 167	KP1= 28	TAN1= -0.9889	-0.1483	0.0000
	KP2= 29	TAN2= 0.9889	0.1483	0.0000
LINE CONNECTS KEYPOINTS 23 29				
LINE NO.= 168	KP1= 23	TAN1= 0.0000	-1.0000	0.0000
	KP2= 29	TAN2= 0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 24 30				
LINE NO.= 169	KP1= 24	TAN1= 0.1719	-0.9851	0.0000
	KP2= 30	TAN2= -0.1719	0.9851	0.0000
LINE CONNECTS KEYPOINTS 73 74				
LINE NO.= 170	KP1= 73	TAN1= 0.0000	-1.0000	0.0000
	KP2= 74	TAN2= 0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 86 87				
LINE NO.= 171	KP1= 86	TAN1= 0.0000	-1.0000	0.0000
	KP2= 87	TAN2= 0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 92 93				
LINE NO.= 172	KP1= 92	TAN1= 0.0000	-1.0000	0.0000
	KP2= 93	TAN2= 0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 86 92				
LINE NO.= 173	KP1= 86	TAN1= -1.0000	0.0000	0.0000
	KP2= 92	TAN2= 1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 87 93				
LINE NO.= 174	KP1= 87	TAN1= -1.0000	0.0000	0.0000
	KP2= 93	TAN2= 1.0000	0.0000	0.0000
LINE CONNECTS KEYPOINTS 39 106				
LINE NO.= 175	KP1= 39	TAN1= 0.0000	-1.0000	0.0000
	KP2= 106	TAN2= 0.0000	1.0000	0.0000

LINE CONNECTS KEYPOINTS	40	42				
LINE NO.= 176	KP1= 40	TAN1= -0.2873	-0.9578	0.0000		
	KP2= 42	TAN2= 0.2873	0.9578	0.0000		
LINE CONNECTS KEYPOINTS	39	40				
LINE NO.= 177	KP1= 39	TAN1= -1.0000	0.0000	0.0000		
	KP2= 40	TAN2= 1.0000	0.0000	0.0000		
LINE CONNECTS KEYPOINTS	106	42				
LINE NO.= 178	KP1= 106	TAN1= -0.9578	-0.2873	0.0000		
	KP2= 42	TAN2= 0.9578	0.2873	0.0000		
LINE CONNECTS KEYPOINTS	38	41				
LINE NO.= 179	KP1= 38	TAN1= 0.5076	-0.8616	0.0000		
	KP2= 41	TAN2= -0.5076	0.8616	0.0000		
LINE CONNECTS KEYPOINTS	41	43				
LINE NO.= 180	KP1= 41	TAN1= 0.5174	-0.8558	0.0000		
	KP2= 43	TAN2= -0.5174	0.8558	0.0000		
LINE CONNECTS KEYPOINTS	77	78				
LINE NO.= 181	KP1= 77	TAN1= 0.0000	-1.0000	0.0000		
	KP2= 78	TAN2= 0.0000	1.0000	0.0000		
LINE CONNECTS KEYPOINTS	88	89				
LINE NO.= 182	KP1= 88	TAN1= 0.1483	-0.9889	0.0000		
	KP2= 89	TAN2= -0.1483	0.9889	0.0000		
LINE CONNECTS KEYPOINTS	94	95				
LINE NO.= 183	KP1= 94	TAN1= -0.1483	-0.9889	0.0000		
	KP2= 95	TAN2= 0.1483	0.9889	0.0000		
LINE CONNECTS KEYPOINTS	88	94				
LINE NO.= 184	KP1= 88	TAN1= -1.0000	0.0000	0.0000		
	KP2= 94	TAN2= 1.0000	0.0000	0.0000		
LINE CONNECTS KEYPOINTS	89	95				
LINE NO.= 185	KP1= 89	TAN1= -1.0000	0.0000	0.0000		
	KP2= 95	TAN2= 1.0000	0.0000	0.0000		
LINE CONNECTS KEYPOINTS	90	96				
LINE NO.= 186	KP1= 90	TAN1= -0.9851	0.1719	0.0000		
	KP2= 96	TAN2= 0.9851	-0.1719	0.0000		
LINE CONNECTS KEYPOINTS	109	107				
LINE NO.= 187	KP1= 109	TAN1= 0.8558	-0.5174	0.0000		
	KP2= 107	TAN2= -0.8558	0.5174	0.0000		
LINE CONNECTS KEYPOINTS	107	104				
LINE NO.= 188	KP1= 107	TAN1= 0.8616	-0.5076	0.0000		
	KP2= 104	TAN2= -0.8616	0.5076	0.0000		
LINE CONNECTS KEYPOINTS	224	225				
LINE NO.= 189	KP1= 224	TAN1= -0.9851	-0.1719	0.0000		
	KP2= 225	TAN2= 0.9851	0.1719	0.0000		
LINE CONNECTS KEYPOINTS	230	231				
LINE NO.= 190	KP1= 230	TAN1= -0.9851	-0.1719	0.0000		
	KP2= 231	TAN2= 0.9851	0.1719	0.0000		
LINE CONNECTS KEYPOINTS	236	237				
LINE NO.= 191	KP1= 236	TAN1= -0.9851	-0.1719	0.0000		
	KP2= 237	TAN2= 0.9851	0.1719	0.0000		
LINE CONNECTS KEYPOINTS	226	227				
LINE NO.= 192	KP1= 226	TAN1= -0.8616	-0.5076	0.0000		
	KP2= 227	TAN2= 0.8616	0.5076	0.0000		
LINE CONNECTS KEYPOINTS	227	228				

LINE NO.= 193	KP1= 227	TAN1= -0.8558	-0.5174	0.0000
	KP2= 228	TAN2= 0.8558	0.5174	0.0000
LINE CONNECTS KEYPOINTS 232 233				
LINE NO.= 194	KP1= 232	TAN1= -0.8616	-0.5076	0.0000
	KP2= 233	TAN2= 0.8616	0.5076	0.0000
LINE CONNECTS KEYPOINTS 233 234				
LINE NO.= 195	KP1= 233	TAN1= -0.8558	-0.5174	0.0000
	KP2= 234	TAN2= 0.8558	0.5174	0.0000
LINE CONNECTS KEYPOINTS 238 239				
LINE NO.= 196	KP1= 238	TAN1= -0.8616	-0.5076	0.0000
	KP2= 239	TAN2= 0.8616	0.5076	0.0000
LINE CONNECTS KEYPOINTS 239 240				
LINE NO.= 197	KP1= 239	TAN1= -0.8558	-0.5174	0.0000
	KP2= 240	TAN2= 0.8558	0.5174	0.0000
LINE CONNECTS KEYPOINTS 171 170				
LINE NO.= 198	KP1= 171	TAN1= -0.5174	-0.8558	0.0000
	KP2= 170	TAN2= 0.5174	0.8558	0.0000
LINE CONNECTS KEYPOINTS 170 169				
LINE NO.= 199	KP1= 170	TAN1= -0.5076	-0.8616	0.0000
	KP2= 169	TAN2= 0.5076	0.8616	0.0000
LINE CONNECTS KEYPOINTS 178 177				
LINE NO.= 200	KP1= 178	TAN1= -0.5174	-0.8558	0.0000
	KP2= 177	TAN2= 0.5174	0.8558	0.0000
LINE CONNECTS KEYPOINTS 177 176				
LINE NO.= 201	KP1= 177	TAN1= -0.5076	-0.8616	0.0000
	KP2= 176	TAN2= 0.5076	0.8616	0.0000
LINE CONNECTS KEYPOINTS 185 184				
LINE NO.= 202	KP1= 185	TAN1= -0.5174	-0.8558	0.0000
	KP2= 184	TAN2= 0.5174	0.8558	0.0000
LINE CONNECTS KEYPOINTS 184 183				
LINE NO.= 203	KP1= 184	TAN1= -0.5076	-0.8616	0.0000
	KP2= 183	TAN2= 0.5076	0.8616	0.0000
LINE CONNECTS KEYPOINTS 168 167				
LINE NO.= 204	KP1= 168	TAN1= -0.1719	-0.9851	0.0000
	KP2= 167	TAN2= 0.1719	0.9851	0.0000
LINE CONNECTS KEYPOINTS 175 174				
LINE NO.= 205	KP1= 175	TAN1= -0.1719	-0.9851	0.0000
	KP2= 174	TAN2= 0.1719	0.9851	0.0000
LINE CONNECTS KEYPOINTS 182 181				
LINE NO.= 206	KP1= 182	TAN1= -0.1719	-0.9851	0.0000
	KP2= 181	TAN2= 0.1719	0.9851	0.0000
LINE CONNECTS KEYPOINTS 47 48				
LINE NO.= 207	KP1= 47	TAN1= 0.1719	-0.9851	0.0000
	KP2= 48	TAN2= -0.1719	0.9851	0.0000
LINE CONNECTS KEYPOINTS 54 55				
LINE NO.= 208	KP1= 54	TAN1= 0.1719	-0.9851	0.0000
	KP2= 55	TAN2= -0.1719	0.9851	0.0000
LINE CONNECTS KEYPOINTS 61 62				
LINE NO.= 209	KP1= 61	TAN1= 0.1719	-0.9851	0.0000
	KP2= 62	TAN2= -0.1719	0.9851	0.0000
LINE CONNECTS KEYPOINTS 49 50				
LINE NO.= 210	KP1= 49	TAN1= 0.5076	-0.8616	0.0000
	KP2= 50	TAN2= -0.5076	0.8616	0.0000

LINE CONNECTS KEYPOINTS 50 51
 LINE NO.= 211 KP1= 50 TAN1= 0.5174 -0.8558 0.0000
 KP2= 51 TAN2= -0.5174 0.8558 0.0000

LINE CONNECTS KEYPOINTS 56 57
 LINE NO.= 212 KP1= 56 TAN1= 0.5076 -0.8616 0.0000
 KP2= 57 TAN2= -0.5076 0.8616 0.0000

LINE CONNECTS KEYPOINTS 57 58
 LINE NO.= 213 KP1= 57 TAN1= 0.5174 -0.8558 0.0000
 KP2= 58 TAN2= -0.5174 0.8558 0.0000

LINE CONNECTS KEYPOINTS 63 64
 LINE NO.= 214 KP1= 63 TAN1= 0.5076 -0.8616 0.0000
 KP2= 64 TAN2= -0.5076 0.8616 0.0000

LINE CONNECTS KEYPOINTS 64 65
 LINE NO.= 215 KP1= 64 TAN1= 0.5174 -0.8558 0.0000
 KP2= 65 TAN2= -0.5174 0.8558 0.0000

LINE CONNECTS KEYPOINTS 117 116
 LINE NO.= 216 KP1= 117 TAN1= 0.8558 -0.5174 0.0000
 KP2= 116 TAN2= -0.8558 0.5174 0.0000

LINE CONNECTS KEYPOINTS 116 115
 LINE NO.= 217 KP1= 116 TAN1= 0.8616 -0.5076 0.0000
 KP2= 115 TAN2= -0.8616 0.5076 0.0000

LINE CONNECTS KEYPOINTS 124 123
 LINE NO.= 218 KP1= 124 TAN1= 0.8558 -0.5174 0.0000
 KP2= 123 TAN2= -0.8558 0.5174 0.0000

LINE CONNECTS KEYPOINTS 123 122
 LINE NO.= 219 KP1= 123 TAN1= 0.8616 -0.5076 0.0000
 KP2= 122 TAN2= -0.8616 0.5076 0.0000

LINE CONNECTS KEYPOINTS 131 130
 LINE NO.= 220 KP1= 131 TAN1= 0.8558 -0.5174 0.0000
 KP2= 130 TAN2= -0.8558 0.5174 0.0000

LINE CONNECTS KEYPOINTS 130 129
 LINE NO.= 221 KP1= 130 TAN1= 0.8616 -0.5076 0.0000
 KP2= 129 TAN2= -0.8616 0.5076 0.0000

LINE CONNECTS KEYPOINTS 114 113
 LINE NO.= 222 KP1= 114 TAN1= 0.9851 -0.1719 0.0000
 KP2= 113 TAN2= -0.9851 0.1719 0.0000

LINE CONNECTS KEYPOINTS 121 120
 LINE NO.= 223 KP1= 121 TAN1= 0.9851 -0.1719 0.0000
 KP2= 120 TAN2= -0.9851 0.1719 0.0000

LINE CONNECTS KEYPOINTS 128 127
 LINE NO.= 224 KP1= 128 TAN1= 0.9851 -0.1719 0.0000
 KP2= 127 TAN2= -0.9851 0.1719 0.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
 TO NDIV = 2, SPACING RATIO = 1.000
 Line set 7 tube thickness

LINE CONNECTS KEYPOINTS 196 195
 LINE NO.= 225 KP1= 196 TAN1= 0.0000 -1.0000 0.0000
 KP2= 195 TAN2= 0.0000 1.0000 0.0000

LINE CONNECTS KEYPOINTS 205 201
 LINE NO.= 226 KP1= 205 TAN1= 0.7071 -0.7071 0.0000
 KP2= 201 TAN2= -0.7071 0.7071 0.0000

LINE CONNECTS KEYPOINTS 204 200

LINE NO.= 227	KP1= 204	TAN1= 0.7071	0.7071	0.0000
	KP2= 200	TAN2= -0.7071	-0.7071	0.0000
LINE CONNECTS KEYPOINTS 193 194				
LINE NO.= 228	KP1= 193	TAN1= 0.0000	1.0000	0.0000
	KP2= 194	TAN2= 0.0000	-1.0000	0.0000
LINE CONNECTS KEYPOINTS 210 215				
LINE NO.= 229	KP1= 210	TAN1= -0.7071	-0.7071	0.0000
	KP2= 215	TAN2= 0.7071	0.7071	0.0000
LINE CONNECTS KEYPOINTS 220 217				
LINE NO.= 230	KP1= 220	TAN1= 0.6103	-0.7922	0.0000
	KP2= 217	TAN2= -0.6103	0.7922	0.0000
LINE CONNECTS KEYPOINTS 219 216				
LINE NO.= 231	KP1= 219	TAN1= 0.7071	0.7071	0.0000
	KP2= 216	TAN2= -0.7071	-0.7071	0.0000
LINE CONNECTS KEYPOINTS 209 214				
LINE NO.= 232	KP1= 209	TAN1= -0.7071	0.7071	0.0000
	KP2= 214	TAN2= 0.7071	-0.7071	0.0000
LINE CONNECTS KEYPOINTS 192 191				
LINE NO.= 233	KP1= 192	TAN1= 0.0000	-1.0000	0.0000
	KP2= 191	TAN2= 0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 203 199				
LINE NO.= 234	KP1= 203	TAN1= 0.7071	-0.7071	0.0000
	KP2= 199	TAN2= -0.7071	0.7071	0.0000
LINE CONNECTS KEYPOINTS 202 198				
LINE NO.= 235	KP1= 202	TAN1= 0.7071	0.7071	0.0000
	KP2= 198	TAN2= -0.7071	-0.7071	0.0000
LINE CONNECTS KEYPOINTS 189 190				
LINE NO.= 236	KP1= 189	TAN1= 0.0000	1.0000	0.0000
	KP2= 190	TAN2= 0.0000	-1.0000	0.0000
LINE CONNECTS KEYPOINTS 208 213				
LINE NO.= 237	KP1= 208	TAN1= -0.7071	-0.7071	0.0000
	KP2= 213	TAN2= 0.7071	0.7071	0.0000
LINE CONNECTS KEYPOINTS 159 155				
LINE NO.= 238	KP1= 159	TAN1= 0.7071	-0.7071	0.0000
	KP2= 155	TAN2= -0.7071	0.7071	0.0000
LINE CONNECTS KEYPOINTS 146 152				
LINE NO.= 239	KP1= 146	TAN1= 0.7071	0.7071	0.0000
	KP2= 152	TAN2= -0.7071	-0.7071	0.0000
LINE CONNECTS KEYPOINTS 145 151				
LINE NO.= 240	KP1= 145	TAN1= -0.7071	0.7071	0.0000
	KP2= 151	TAN2= 0.7071	-0.7071	0.0000
LINE CONNECTS KEYPOINTS 160 156				
LINE NO.= 241	KP1= 160	TAN1= -0.7071	-0.7071	0.0000
	KP2= 156	TAN2= 0.7071	0.7071	0.0000
LINE CONNECTS KEYPOINTS 161 157				
LINE NO.= 242	KP1= 161	TAN1= 0.7922	-0.6103	0.0000
	KP2= 157	TAN2= -0.7922	0.6103	0.0000
LINE CONNECTS KEYPOINTS 148 154				
LINE NO.= 243	KP1= 148	TAN1= 0.7071	0.7071	0.0000
	KP2= 154	TAN2= -0.7071	-0.7071	0.0000
LINE CONNECTS KEYPOINTS 147 153				
LINE NO.= 244	KP1= 147	TAN1= -0.7071	0.7071	0.0000
	KP2= 153	TAN2= 0.7071	-0.7071	0.0000

LINE CONNECTS KEYPOINTS	188	187				
LINE NO.= 245	KP1= 188	TAN1= 0.0000	-1.0000	0.0000		
	KP2= 187	TAN2= 0.0000	1.0000	0.0000		
LINE CONNECTS KEYPOINTS	138	133				
LINE NO.= 246	KP1= 138	TAN1= 0.7071	-0.7071	0.0000		
	KP2= 133	TAN2= -0.7071	0.7071	0.0000		
LINE CONNECTS KEYPOINTS	18	13				
LINE NO.= 247	KP1= 18	TAN1= 0.7071	0.7071	0.0000		
	KP2= 13	TAN2= -0.7071	-0.7071	0.0000		
LINE CONNECTS KEYPOINTS	69	68				
LINE NO.= 248	KP1= 69	TAN1= 0.0000	1.0000	0.0000		
	KP2= 68	TAN2= 0.0000	-1.0000	0.0000		
LINE CONNECTS KEYPOINTS	139	134				
LINE NO.= 249	KP1= 139	TAN1= -0.7071	-0.7071	0.0000		
	KP2= 134	TAN2= 0.7071	0.7071	0.0000		
LINE CONNECTS KEYPOINTS	140	135				
LINE NO.= 250	KP1= 140	TAN1= 0.7071	-0.7071	0.0000		
	KP2= 135	TAN2= -0.7071	0.7071	0.0000		
LINE CONNECTS KEYPOINTS	20	15				
LINE NO.= 251	KP1= 20	TAN1= 0.7071	0.7071	0.0000		
	KP2= 15	TAN2= -0.7071	-0.7071	0.0000		
LINE CONNECTS KEYPOINTS	19	14				
LINE NO.= 252	KP1= 19	TAN1= -0.7071	0.7071	0.0000		
	KP2= 14	TAN2= 0.7071	-0.7071	0.0000		
LINE CONNECTS KEYPOINTS	141	136				
LINE NO.= 253	KP1= 141	TAN1= -0.7071	-0.7071	0.0000		
	KP2= 136	TAN2= 0.7071	0.7071	0.0000		
LINE CONNECTS KEYPOINTS	142	137				
LINE NO.= 254	KP1= 142	TAN1= 0.7071	-0.7071	0.0000		
	KP2= 137	TAN2= -0.7071	0.7071	0.0000		
LINE CONNECTS KEYPOINTS	22	17				
LINE NO.= 255	KP1= 22	TAN1= 0.7071	0.7071	0.0000		
	KP2= 17	TAN2= -0.7071	-0.7071	0.0000		
LINE CONNECTS KEYPOINTS	21	16				
LINE NO.= 256	KP1= 21	TAN1= -0.7071	0.7071	0.0000		
	KP2= 16	TAN2= 0.7071	-0.7071	0.0000		
LINE CONNECTS KEYPOINTS	70	71				
LINE NO.= 257	KP1= 70	TAN1= 0.0000	-1.0000	0.0000		
	KP2= 71	TAN2= 0.0000	1.0000	0.0000		
LINE CONNECTS KEYPOINTS	85	80				
LINE NO.= 258	KP1= 85	TAN1= 0.7071	-0.7071	0.0000		
	KP2= 80	TAN2= -0.7071	0.7071	0.0000		
LINE CONNECTS KEYPOINTS	86	81				
LINE NO.= 259	KP1= 86	TAN1= 0.7071	0.7071	0.0000		
	KP2= 81	TAN2= -0.7071	-0.7071	0.0000		
LINE CONNECTS KEYPOINTS	73	72				
LINE NO.= 260	KP1= 73	TAN1= 0.0000	1.0000	0.0000		
	KP2= 72	TAN2= 0.0000	-1.0000	0.0000		
LINE CONNECTS KEYPOINTS	25	31				
LINE NO.= 261	KP1= 25	TAN1= -0.7071	-0.7071	0.0000		
	KP2= 31	TAN2= 0.7071	0.7071	0.0000		
LINE CONNECTS KEYPOINTS	26	32				

LINE NO.=	262	KP1=	26	TAN1=	0.7071	-0.7071	0.0000
		KP2=	32	TAN2=	-0.7071	0.7071	0.0000
LINE CONNECTS KEYPOINTS 39 35							
LINE NO.=	263	KP1=	39	TAN1=	0.7071	0.7071	0.0000
		KP2=	35	TAN2=	-0.7071	-0.7071	0.0000
LINE CONNECTS KEYPOINTS 92 98							
LINE NO.=	264	KP1=	92	TAN1=	-0.7071	0.7071	0.0000
		KP2=	98	TAN2=	0.7071	-0.7071	0.0000
LINE CONNECTS KEYPOINTS 27 33							
LINE NO.=	265	KP1=	27	TAN1=	-0.7071	-0.7071	0.0000
		KP2=	33	TAN2=	0.7071	0.7071	0.0000
LINE CONNECTS KEYPOINTS 28 34							
LINE NO.=	266	KP1=	28	TAN1=	0.7071	-0.7071	0.0000
		KP2=	34	TAN2=	-0.7071	0.7071	0.0000
LINE CONNECTS KEYPOINTS 41 37							
LINE NO.=	267	KP1=	41	TAN1=	0.7922	0.6103	0.0000
		KP2=	37	TAN2=	-0.7922	-0.6103	0.0000
LINE CONNECTS KEYPOINTS 40 36							
LINE NO.=	268	KP1=	40	TAN1=	-0.7071	0.7071	0.0000
		KP2=	36	TAN2=	0.7071	-0.7071	0.0000
LINE CONNECTS KEYPOINTS 74 75							
LINE NO.=	269	KP1=	74	TAN1=	0.0000	-1.0000	0.0000
		KP2=	75	TAN2=	0.0000	1.0000	0.0000
LINE CONNECTS KEYPOINTS 87 82							
LINE NO.=	270	KP1=	87	TAN1=	0.7071	-0.7071	0.0000
		KP2=	82	TAN2=	-0.7071	0.7071	0.0000
LINE CONNECTS KEYPOINTS 88 83							
LINE NO.=	271	KP1=	88	TAN1=	0.7071	0.7071	0.0000
		KP2=	83	TAN2=	-0.7071	-0.7071	0.0000
LINE CONNECTS KEYPOINTS 77 76							
LINE NO.=	272	KP1=	77	TAN1=	0.0000	1.0000	0.0000
		KP2=	76	TAN2=	0.0000	-1.0000	0.0000
LINE CONNECTS KEYPOINTS 93 99							
LINE NO.=	273	KP1=	93	TAN1=	-0.7071	-0.7071	0.0000
		KP2=	99	TAN2=	0.7071	0.7071	0.0000
LINE CONNECTS KEYPOINTS 106 102							
LINE NO.=	274	KP1=	106	TAN1=	0.7071	-0.7071	0.0000
		KP2=	102	TAN2=	-0.7071	0.7071	0.0000
LINE CONNECTS KEYPOINTS 107 103							
LINE NO.=	275	KP1=	107	TAN1=	0.6103	0.7922	0.0000
		KP2=	103	TAN2=	-0.6103	-0.7922	0.0000
LINE CONNECTS KEYPOINTS 94 100							
LINE NO.=	276	KP1=	94	TAN1=	-0.7071	0.7071	0.0000
		KP2=	100	TAN2=	0.7071	-0.7071	0.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
TO NDIV = 1, SPACING RATIO = 1.000

ACTIVE COORDINATE SYSTEM SET TO 1 (CYLINDRICAL)
line set 8, arc 1 bottom

LINE CONNECTS KEYPOINTS 222 207							
LINE NO.=	277	KP1=	222	TAN1=	-1.0000	0.0000	0.0000
		KP2=	207	TAN2=	0.9857	0.1684	0.0000

LINE CONNECTS KEYPOINTS 223 224

LINE NO.= 278 KP1= 223 TAN1= -1.0000 0.0000 0.0000
 KP2= 224 TAN2= 0.9857 0.1684 0.0000

LINE CONNECTS KEYPOINTS 229 230

LINE NO.= 279 KP1= 229 TAN1= -1.0000 0.0000 0.0000
 KP2= 230 TAN2= 0.9857 0.1684 0.0000

LINE CONNECTS KEYPOINTS 235 236

LINE NO.= 280 KP1= 235 TAN1= -1.0000 0.0000 0.0000
 KP2= 236 TAN2= 0.9857 0.1684 0.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
 TO NDIV = 4, SPACING RATIO = 1.000
 line set 9, arc 2 side arcs

LINE CONNECTS KEYPOINTS 212 218

LINE NO.= 281 KP1= 212 TAN1= -0.9845 -0.1755 0.0000
 KP2= 218 TAN2= 0.8652 0.5015 0.0000

LINE CONNECTS KEYPOINTS 225 226

LINE NO.= 282 KP1= 225 TAN1= -0.9845 -0.1755 0.0000
 KP2= 226 TAN2= 0.8652 0.5015 0.0000

LINE CONNECTS KEYPOINTS 231 232

LINE NO.= 283 KP1= 231 TAN1= -0.9845 -0.1755 0.0000
 KP2= 232 TAN2= 0.8652 0.5015 0.0000

LINE CONNECTS KEYPOINTS 237 238

LINE NO.= 284 KP1= 237 TAN1= -0.9845 -0.1755 0.0000
 KP2= 238 TAN2= 0.8652 0.5015 0.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
 TO NDIV = 4, SPACING RATIO = 1.000
 line set 10, arc 3 side arcs

LINE CONNECTS KEYPOINTS 221 163

LINE NO.= 285 KP1= 221 TAN1= -0.8536 -0.5209 0.0000
 KP2= 163 TAN2= 0.5209 0.8536 0.0000

LINE CONNECTS KEYPOINTS 228 171

LINE NO.= 286 KP1= 228 TAN1= -0.8536 -0.5209 0.0000
 KP2= 171 TAN2= 0.5209 0.8536 0.0000

LINE CONNECTS KEYPOINTS 234 178

LINE NO.= 287 KP1= 234 TAN1= -0.8536 -0.5209 0.0000
 KP2= 178 TAN2= 0.5209 0.8536 0.0000

LINE CONNECTS KEYPOINTS 240 185

LINE NO.= 288 KP1= 240 TAN1= -0.8536 -0.5209 0.0000
 KP2= 185 TAN2= 0.5209 0.8536 0.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
 TO NDIV = 4, SPACING RATIO = 1.000
 line set 11, arc 4 side arcs

LINE CONNECTS KEYPOINTS 158 150

LINE NO.= 289 KP1= 158 TAN1= -0.5015 -0.8652 0.0000
 KP2= 150 TAN2= 0.1755 0.9845 0.0000

LINE CONNECTS KEYPOINTS 169 168

LINE NO.= 290 KP1= 169 TAN1= -0.5015 -0.8652 0.0000
 KP2= 168 TAN2= 0.1755 0.9845 0.0000

LINE CONNECTS KEYPOINTS 176 175

LINE NO.= 291 KP1= 176 TAN1= -0.5015 -0.8652 0.0000
 KP2= 175 TAN2= 0.1755 0.9845 0.0000

LINE CONNECTS KEYPOINTS 183 182

LINE NO.= 292 KP1= 183 TAN1= -0.5015 -0.8652 0.0000
 KP2= 182 TAN2= 0.1755 0.9845 0.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
TO NDIV = 4, SPACING RATIO = 1.000
line set 12, arc 5 side arcs

LINE CONNECTS KEYPOINTS	144	24			
LINE NO.= 293 KP1=	144	TAN1=	-0.1684	-0.9857	0.0000
KP2=	24	TAN2=	-0.1684	0.9857	0.0000

LINE CONNECTS KEYPOINTS	167	47			
LINE NO.= 294 KP1=	167	TAN1=	-0.1684	-0.9857	0.0000
KP2=	47	TAN2=	-0.1684	0.9857	0.0000

LINE CONNECTS KEYPOINTS	174	54			
LINE NO.= 295 KP1=	174	TAN1=	-0.1684	-0.9857	0.0000
KP2=	54	TAN2=	-0.1684	0.9857	0.0000

LINE CONNECTS KEYPOINTS	181	61			
LINE NO.= 296 KP1=	181	TAN1=	-0.1684	-0.9857	0.0000
KP2=	61	TAN2=	-0.1684	0.9857	0.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
TO NDIV = 4, SPACING RATIO = 1.000
line set 13, arc 6 side arcs

LINE CONNECTS KEYPOINTS	30	38			
LINE NO.= 297 KP1=	30	TAN1=	0.1755	-0.9845	0.0000
KP2=	38	TAN2=	-0.5015	0.8652	0.0000

LINE CONNECTS KEYPOINTS	48	49			
LINE NO.= 298 KP1=	48	TAN1=	0.1755	-0.9845	0.0000
KP2=	49	TAN2=	-0.5015	0.8652	0.0000

LINE CONNECTS KEYPOINTS	55	56			
LINE NO.= 299 KP1=	55	TAN1=	0.1755	-0.9845	0.0000
KP2=	56	TAN2=	-0.5015	0.8652	0.0000

LINE CONNECTS KEYPOINTS	62	63			
LINE NO.= 300 KP1=	62	TAN1=	0.1755	-0.9845	0.0000
KP2=	63	TAN2=	-0.5015	0.8652	0.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
TO NDIV = 4, SPACING RATIO = 1.000
line set 14, arc 7 side arcs

LINE CONNECTS KEYPOINTS	43	109			
LINE NO.= 301 KP1=	43	TAN1=	0.5209	-0.8536	0.0000
KP2=	109	TAN2=	-0.8536	0.5209	0.0000

LINE CONNECTS KEYPOINTS	51	117			
LINE NO.= 302 KP1=	51	TAN1=	0.5209	-0.8536	0.0000
KP2=	117	TAN2=	-0.8536	0.5209	0.0000

LINE CONNECTS KEYPOINTS	58	124			
LINE NO.= 303 KP1=	58	TAN1=	0.5209	-0.8536	0.0000
KP2=	124	TAN2=	-0.8536	0.5209	0.0000

LINE CONNECTS KEYPOINTS	65	131			
LINE NO.= 304 KP1=	65	TAN1=	0.5209	-0.8536	0.0000
KP2=	131	TAN2=	-0.8536	0.5209	0.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
TO NDIV = 4, SPACING RATIO = 1.000
line set 15, arc 8 side arcs

LINE CONNECTS KEYPOINTS	104	96			
LINE NO.= 305 KP1=	104	TAN1=	0.8652	-0.5015	0.0000
KP2=	96	TAN2=	-0.9845	0.1755	0.0000

LINE CONNECTS KEYPOINTS	115	114			
-------------------------	-----	-----	--	--	--

LINE NO.= 306 KP1= 115 TAN1= 0.8652 -0.5015 0.0000
 KP2= 114 TAN2= -0.9845 0.1755 0.0000

LINE CONNECTS KEYPOINTS 122 121
 LINE NO.= 307 KP1= 122 TAN1= 0.8652 -0.5015 0.0000
 KP2= 121 TAN2= -0.9845 0.1755 0.0000

LINE CONNECTS KEYPOINTS 129 128
 LINE NO.= 308 KP1= 129 TAN1= 0.8652 -0.5015 0.0000
 KP2= 128 TAN2= -0.9845 0.1755 0.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
 TO NDIV = 4, SPACING RATIO = 1.000
 line set 16, arc 9 top arcs

LINE CONNECTS KEYPOINTS 90 110
 LINE NO.= 309 KP1= 90 TAN1= 0.9857 -0.1684 0.0000
 KP2= 110 TAN2= -1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 113 112
 LINE NO.= 310 KP1= 113 TAN1= 0.9857 -0.1684 0.0000
 KP2= 112 TAN2= -1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 120 119
 LINE NO.= 311 KP1= 120 TAN1= 0.9857 -0.1684 0.0000
 KP2= 119 TAN2= -1.0000 0.0000 0.0000

LINE CONNECTS KEYPOINTS 127 126
 LINE NO.= 312 KP1= 127 TAN1= 0.9857 -0.1684 0.0000
 KP2= 126 TAN2= -1.0000 0.0000 0.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
 TO NDIV = 4, SPACING RATIO = 1.000

ACTIVE COORDINATE SYSTEM SET TO 0 (CARTESIAN)
 line set 17 IB thickness

LINE CONNECTS KEYPOINTS 222 223
 LINE NO.= 313 KP1= 222 TAN1= 0.0000 1.0000 0.0000
 KP2= 223 TAN2= 0.0000 -1.0000 0.0000

LINE CONNECTS KEYPOINTS 207 224
 LINE NO.= 314 KP1= 207 TAN1= -0.1684 0.9857 0.0000
 KP2= 224 TAN2= 0.1684 -0.9857 0.0000

LINE CONNECTS KEYPOINTS 212 225
 LINE NO.= 315 KP1= 212 TAN1= -0.1755 0.9845 0.0000
 KP2= 225 TAN2= 0.1755 -0.9845 0.0000

LINE CONNECTS KEYPOINTS 218 226
 LINE NO.= 316 KP1= 218 TAN1= -0.5015 0.8652 0.0000
 KP2= 226 TAN2= 0.5015 -0.8652 0.0000

LINE CONNECTS KEYPOINTS 220 227
 LINE NO.= 317 KP1= 220 TAN1= -0.5138 0.8579 0.0000
 KP2= 227 TAN2= 0.5138 -0.8579 0.0000

LINE CONNECTS KEYPOINTS 221 228
 LINE NO.= 318 KP1= 221 TAN1= -0.5209 0.8536 0.0000
 KP2= 228 TAN2= 0.5209 -0.8536 0.0000

LINE CONNECTS KEYPOINTS 163 171
 LINE NO.= 319 KP1= 163 TAN1= -0.8536 0.5209 0.0000
 KP2= 171 TAN2= 0.8536 -0.5209 0.0000

LINE CONNECTS KEYPOINTS 161 170
 LINE NO.= 320 KP1= 161 TAN1= -0.8579 0.5138 0.0000
 KP2= 170 TAN2= 0.8579 -0.5138 0.0000

LINE CONNECTS KEYPOINTS 158 169

LINE NO. =	321	KP1 =	158	TAN1 =	-0.8652	0.5015	0.0000
		KP2 =	169	TAN2 =	0.8652	-0.5015	0.0000
LINE CONNECTS KEYPOINTS 150 168							
LINE NO. =	322	KP1 =	150	TAN1 =	-0.9845	0.1755	0.0000
		KP2 =	168	TAN2 =	0.9845	-0.1755	0.0000
LINE CONNECTS KEYPOINTS 144 167							
LINE NO. =	323	KP1 =	144	TAN1 =	-0.9857	0.1684	0.0000
		KP2 =	167	TAN2 =	0.9857	-0.1684	0.0000
LINE CONNECTS KEYPOINTS 24 47							
LINE NO. =	324	KP1 =	24	TAN1 =	-0.9857	-0.1684	0.0000
		KP2 =	47	TAN2 =	0.9857	0.1684	0.0000
LINE CONNECTS KEYPOINTS 30 48							
LINE NO. =	325	KP1 =	30	TAN1 =	-0.9845	-0.1755	0.0000
		KP2 =	48	TAN2 =	0.9845	0.1755	0.0000
LINE CONNECTS KEYPOINTS 38 49							
LINE NO. =	326	KP1 =	38	TAN1 =	-0.8652	-0.5015	0.0000
		KP2 =	49	TAN2 =	0.8652	0.5015	0.0000
LINE CONNECTS KEYPOINTS 41 50							
LINE NO. =	327	KP1 =	41	TAN1 =	-0.8579	-0.5138	0.0000
		KP2 =	50	TAN2 =	0.8579	0.5138	0.0000
LINE CONNECTS KEYPOINTS 43 51							
LINE NO. =	328	KP1 =	43	TAN1 =	-0.8536	-0.5209	0.0000
		KP2 =	51	TAN2 =	0.8536	0.5209	0.0000
LINE CONNECTS KEYPOINTS 109 117							
LINE NO. =	329	KP1 =	109	TAN1 =	-0.5209	-0.8536	0.0000
		KP2 =	117	TAN2 =	0.5209	0.8536	0.0000
LINE CONNECTS KEYPOINTS 107 116							
LINE NO. =	330	KP1 =	107	TAN1 =	-0.5138	-0.8579	0.0000
		KP2 =	116	TAN2 =	0.5138	0.8579	0.0000
LINE CONNECTS KEYPOINTS 104 115							
LINE NO. =	331	KP1 =	104	TAN1 =	-0.5015	-0.8652	0.0000
		KP2 =	115	TAN2 =	0.5015	0.8652	0.0000
LINE CONNECTS KEYPOINTS 96 114							
LINE NO. =	332	KP1 =	96	TAN1 =	-0.1755	-0.9845	0.0000
		KP2 =	114	TAN2 =	0.1755	0.9845	0.0000
LINE CONNECTS KEYPOINTS 90 113							
LINE NO. =	333	KP1 =	90	TAN1 =	-0.1684	-0.9857	0.0000
		KP2 =	113	TAN2 =	0.1684	0.9857	0.0000
LINE CONNECTS KEYPOINTS 110 112							
LINE NO. =	334	KP1 =	110	TAN1 =	0.0000	-1.0000	0.0000
		KP2 =	112	TAN2 =	0.0000	1.0000	0.0000
SET DIVISIONS ON ALL SELECTED UNMESHED LINES							
TO NDIV = 2, SPACING RATIO = 1.000							
line set 18 OB inner thickness							
LINE CONNECTS KEYPOINTS 223 229							
LINE NO. =	335	KP1 =	223	TAN1 =	0.0000	1.0000	0.0000
		KP2 =	229	TAN2 =	0.0000	-1.0000	0.0000
LINE CONNECTS KEYPOINTS 224 230							
LINE NO. =	336	KP1 =	224	TAN1 =	-0.1684	0.9857	0.0000
		KP2 =	230	TAN2 =	0.1684	-0.9857	0.0000
LINE CONNECTS KEYPOINTS 225 231							
LINE NO. =	337	KP1 =	225	TAN1 =	-0.1755	0.9845	0.0000
		KP2 =	231	TAN2 =	0.1755	-0.9845	0.0000

LINE CONNECTS KEYPOINTS	226	232			
LINE NO.= 338 KP1=	226	TAN1=	-0.5015	0.8652	0.0000
KP2=	232	TAN2=	0.5015	-0.8652	0.0000
LINE CONNECTS KEYPOINTS	227	233			
LINE NO.= 339 KP1=	227	TAN1=	-0.5138	0.8579	0.0000
KP2=	233	TAN2=	0.5138	-0.8579	0.0000
LINE CONNECTS KEYPOINTS	228	234			
LINE NO.= 340 KP1=	228	TAN1=	-0.5209	0.8536	0.0000
KP2=	234	TAN2=	0.5209	-0.8536	0.0000
LINE CONNECTS KEYPOINTS	171	178			
LINE NO.= 341 KP1=	171	TAN1=	-0.8536	0.5209	0.0000
KP2=	178	TAN2=	0.8536	-0.5209	0.0000
LINE CONNECTS KEYPOINTS	170	177			
LINE NO.= 342 KP1=	170	TAN1=	-0.8579	0.5138	0.0000
KP2=	177	TAN2=	0.8579	-0.5138	0.0000
LINE CONNECTS KEYPOINTS	169	176			
LINE NO.= 343 KP1=	169	TAN1=	-0.8652	0.5015	0.0000
KP2=	176	TAN2=	0.8652	-0.5015	0.0000
LINE CONNECTS KEYPOINTS	168	175			
LINE NO.= 344 KP1=	168	TAN1=	-0.9845	0.1755	0.0000
KP2=	175	TAN2=	0.9845	-0.1755	0.0000
LINE CONNECTS KEYPOINTS	167	174			
LINE NO.= 345 KP1=	167	TAN1=	-0.9857	0.1684	0.0000
KP2=	174	TAN2=	0.9857	-0.1684	0.0000
LINE CONNECTS KEYPOINTS	47	54			
LINE NO.= 346 KP1=	47	TAN1=	-0.9857	-0.1684	0.0000
KP2=	54	TAN2=	0.9857	0.1684	0.0000
LINE CONNECTS KEYPOINTS	48	55			
LINE NO.= 347 KP1=	48	TAN1=	-0.9845	-0.1755	0.0000
KP2=	55	TAN2=	0.9845	0.1755	0.0000
LINE CONNECTS KEYPOINTS	49	56			
LINE NO.= 348 KP1=	49	TAN1=	-0.8652	-0.5015	0.0000
KP2=	56	TAN2=	0.8652	0.5015	0.0000
LINE CONNECTS KEYPOINTS	50	57			
LINE NO.= 349 KP1=	50	TAN1=	-0.8579	-0.5138	0.0000
KP2=	57	TAN2=	0.8579	0.5138	0.0000
LINE CONNECTS KEYPOINTS	51	58			
LINE NO.= 350 KP1=	51	TAN1=	-0.8536	-0.5209	0.0000
KP2=	58	TAN2=	0.8536	0.5209	0.0000
LINE CONNECTS KEYPOINTS	117	124			
LINE NO.= 351 KP1=	117	TAN1=	-0.5209	-0.8536	0.0000
KP2=	124	TAN2=	0.5209	0.8536	0.0000
LINE CONNECTS KEYPOINTS	116	123			
LINE NO.= 352 KP1=	116	TAN1=	-0.5138	-0.8579	0.0000
KP2=	123	TAN2=	0.5138	0.8579	0.0000
LINE CONNECTS KEYPOINTS	115	122			
LINE NO.= 353 KP1=	115	TAN1=	-0.5015	-0.8652	0.0000
KP2=	122	TAN2=	0.5015	0.8652	0.0000
LINE CONNECTS KEYPOINTS	114	121			
LINE NO.= 354 KP1=	114	TAN1=	-0.1755	-0.9845	0.0000
KP2=	121	TAN2=	0.1755	0.9845	0.0000
LINE CONNECTS KEYPOINTS	113	120			

LINE NO.= 355 KP1= 113 TAN1= -0.1684 -0.9857 0.0000
 KP2= 120 TAN2= 0.1684 0.9857 0.0000

LINE CONNECTS KEYPOINTS 112 119
 LINE NO.= 356 KP1= 112 TAN1= 0.0000 -1.0000 0.0000
 KP2= 119 TAN2= 0.0000 1.0000 0.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
 TO NDIV = 2, SPACING RATIO = 1.000
 line set 19 skirt thickness

LINE CONNECTS KEYPOINTS 229 235
 LINE NO.= 357 KP1= 229 TAN1= 0.0000 1.0000 0.0000
 KP2= 235 TAN2= 0.0000 -1.0000 0.0000

LINE CONNECTS KEYPOINTS 230 236
 LINE NO.= 358 KP1= 230 TAN1= -0.1684 0.9857 0.0000
 KP2= 236 TAN2= 0.1684 -0.9857 0.0000

LINE CONNECTS KEYPOINTS 231 237
 LINE NO.= 359 KP1= 231 TAN1= -0.1755 0.9845 0.0000
 KP2= 237 TAN2= 0.1755 -0.9845 0.0000

LINE CONNECTS KEYPOINTS 232 238
 LINE NO.= 360 KP1= 232 TAN1= -0.5015 0.8652 0.0000
 KP2= 238 TAN2= 0.5015 -0.8652 0.0000

LINE CONNECTS KEYPOINTS 233 239
 LINE NO.= 361 KP1= 233 TAN1= -0.5138 0.8579 0.0000
 KP2= 239 TAN2= 0.5138 -0.8579 0.0000

LINE CONNECTS KEYPOINTS 234 240
 LINE NO.= 362 KP1= 234 TAN1= -0.5209 0.8536 0.0000
 KP2= 240 TAN2= 0.5209 -0.8536 0.0000

LINE CONNECTS KEYPOINTS 178 185
 LINE NO.= 363 KP1= 178 TAN1= -0.8536 0.5209 0.0000
 KP2= 185 TAN2= 0.8536 -0.5209 0.0000

LINE CONNECTS KEYPOINTS 177 184
 LINE NO.= 364 KP1= 177 TAN1= -0.8579 0.5138 0.0000
 KP2= 184 TAN2= 0.8579 -0.5138 0.0000

LINE CONNECTS KEYPOINTS 176 183
 LINE NO.= 365 KP1= 176 TAN1= -0.8652 0.5015 0.0000
 KP2= 183 TAN2= 0.8652 -0.5015 0.0000

LINE CONNECTS KEYPOINTS 175 182
 LINE NO.= 366 KP1= 175 TAN1= -0.9845 0.1755 0.0000
 KP2= 182 TAN2= 0.9845 -0.1755 0.0000

LINE CONNECTS KEYPOINTS 174 181
 LINE NO.= 367 KP1= 174 TAN1= -0.9857 0.1684 0.0000
 KP2= 181 TAN2= 0.9857 -0.1684 0.0000

LINE CONNECTS KEYPOINTS 54 61
 LINE NO.= 368 KP1= 54 TAN1= -0.9857 -0.1684 0.0000
 KP2= 61 TAN2= 0.9857 0.1684 0.0000

LINE CONNECTS KEYPOINTS 55 62
 LINE NO.= 369 KP1= 55 TAN1= -0.9845 -0.1755 0.0000
 KP2= 62 TAN2= 0.9845 0.1755 0.0000

LINE CONNECTS KEYPOINTS 56 63
 LINE NO.= 370 KP1= 56 TAN1= -0.8652 -0.5015 0.0000
 KP2= 63 TAN2= 0.8652 0.5015 0.0000

LINE CONNECTS KEYPOINTS 57 64
 LINE NO.= 371 KP1= 57 TAN1= -0.8579 -0.5138 0.0000
 KP2= 64 TAN2= 0.8579 0.5138 0.0000

```

LINE CONNECTS KEYPOINTS      58    65
LINE NO.=  372 KP1=    58 TAN1= -0.8536 -0.5209  0.0000
              KP2=    65 TAN2=  0.8536  0.5209  0.0000

LINE CONNECTS KEYPOINTS     124    131
LINE NO.=  373 KP1=   124 TAN1= -0.5209 -0.8536  0.0000
              KP2=   131 TAN2=  0.5209  0.8536  0.0000

LINE CONNECTS KEYPOINTS     123    130
LINE NO.=  374 KP1=   123 TAN1= -0.5138 -0.8579  0.0000
              KP2=   130 TAN2=  0.5138  0.8579  0.0000

LINE CONNECTS KEYPOINTS     122    129
LINE NO.=  375 KP1=   122 TAN1= -0.5015 -0.8652  0.0000
              KP2=   129 TAN2=  0.5015  0.8652  0.0000

LINE CONNECTS KEYPOINTS     121    128
LINE NO.=  376 KP1=   121 TAN1= -0.1755 -0.9845  0.0000
              KP2=   128 TAN2=  0.1755  0.9845  0.0000

LINE CONNECTS KEYPOINTS     120    127
LINE NO.=  377 KP1=   120 TAN1= -0.1684 -0.9857  0.0000
              KP2=   127 TAN2=  0.1684  0.9857  0.0000

LINE CONNECTS KEYPOINTS     119    126
LINE NO.=  378 KP1=   119 TAN1=  0.0000 -1.0000  0.0000
              KP2=   126 TAN2=  0.0000  1.0000  0.0000

```

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
 TO NDIV = 2, SPACING RATIO = 1.000
 lines to fill in lids
 lines tube height

```

LINE CONNECTS KEYPOINTS     195    194
LINE NO.=  379 KP1=   195 TAN1=  0.0000 -1.0000  0.0000
              KP2=   194 TAN2=  0.0000  1.0000  0.0000

LINE CONNECTS KEYPOINTS     191    190
LINE NO.=  380 KP1=   191 TAN1=  0.0000 -1.0000  0.0000
              KP2=   190 TAN2=  0.0000  1.0000  0.0000

LINE CONNECTS KEYPOINTS     187    68
LINE NO.=  381 KP1=   187 TAN1=  0.0000 -1.0000  0.0000
              KP2=    68 TAN2=  0.0000  1.0000  0.0000

LINE CONNECTS KEYPOINTS      71    72
LINE NO.=  382 KP1=    71 TAN1=  0.0000 -1.0000  0.0000
              KP2=    72 TAN2=  0.0000  1.0000  0.0000

LINE CONNECTS KEYPOINTS      75    76
LINE NO.=  383 KP1=    75 TAN1=  0.0000 -1.0000  0.0000
              KP2=    76 TAN2=  0.0000  1.0000  0.0000

```

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
 TO NDIV = 4, SPACING RATIO = 1.000
 end lines

```

LINE CONNECTS KEYPOINTS     222    197
LINE NO.=  384 KP1=   222 TAN1=  0.0000 -1.0000  0.0000
              KP2=   197 TAN2=  0.0000  1.0000  0.0000

LINE CONNECTS KEYPOINTS      78    110
LINE NO.=  385 KP1=    78 TAN1=  0.0000 -1.0000  0.0000
              KP2=   110 TAN2=  0.0000  1.0000  0.0000

```

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
 TO NDIV = 4, SPACING RATIO = 1.000
 area set 1, tubes

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 195 196 205 201

AREA NUMBER = 1

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 200 201 205 204

AREA NUMBER = 2

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 193 194 200 204

AREA NUMBER = 3

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 191 192 203 199

AREA NUMBER = 4

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 198 199 203 202

AREA NUMBER = 5

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 189 190 198 202

AREA NUMBER = 6

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 187 188 138 133

AREA NUMBER = 7

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 133 138 18 13

AREA NUMBER = 8

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 69 68 13 18

AREA NUMBER = 9

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 71 70 85 80

AREA NUMBER = 10

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 80 85 86 81

AREA NUMBER = 11

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 73 72 81 86

AREA NUMBER = 12

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 75 74 87 82

AREA NUMBER = 13

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 82 87 88 83

AREA NUMBER = 14

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 77 76 83 88

AREA NUMBER = 15

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 209 210 215 214

AREA NUMBER = 16

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 215 210 220 217

AREA NUMBER = 17

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 216 217 220 219

AREA NUMBER = 18

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 209 214 216 219

AREA NUMBER = 19

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 145 208 213 151

AREA NUMBER = 20

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 213 208 159 155

AREA NUMBER = 21

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 152 155 159 146

AREA NUMBER = 22

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 145 151 152 146

AREA NUMBER = 23

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 134 139 140 135

AREA NUMBER = 24

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 135 140 20 15

AREA NUMBER = 25

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 19 14 15 20

AREA NUMBER = 26

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 19 139 134 14

AREA NUMBER = 27

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 92 25 31 98

AREA NUMBER = 28

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 31 25 26 32

AREA NUMBER = 29

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 32 26 39 35

AREA NUMBER = 30

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 92 98 35 39

AREA NUMBER = 31

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 94 93 99 100

AREA NUMBER = 32

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 99 93 106 102

AREA NUMBER = 33

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 102 106 107 103

AREA NUMBER = 34

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 94 100 103 107

AREA NUMBER = 35

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 156 160 161 157

AREA NUMBER = 36

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 157 161 148 154

AREA NUMBER = 37

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 147 153 154 148

AREA NUMBER = 38

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 147 160 156 153

AREA NUMBER = 39

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 136 141 142 137

AREA NUMBER = 40

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 137 142 22 17

AREA NUMBER = 41

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 21 16 17 22

AREA NUMBER = 42

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 21 141 136 16

AREA NUMBER = 43

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 33 27 28 34

AREA NUMBER = 44

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 34 28 41 37

AREA NUMBER = 45

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 40 36 37 41

AREA NUMBER = 46

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 40 27 33 36

AREA NUMBER = 47

area set 2, plates

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 204 205 210 209

AREA NUMBER = 48

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 192 193 204 203

AREA NUMBER = 49

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 203 204 209 208

AREA NUMBER = 50

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 208 209 219 159

AREA NUMBER = 51

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 202 203 208 145

AREA NUMBER = 52

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 146 159 160 147

AREA NUMBER = 53

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 188 189 202 138

AREA NUMBER = 54

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 138 202 145 139

AREA NUMBER = 55

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 139 145 146 140

AREA NUMBER = 56

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 140 146 147 141

AREA NUMBER = 57

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 141 147 148 142

AREA NUMBER = 58

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 18 138 139 19

AREA NUMBER = 59

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 20 140 141 21

AREA NUMBER = 60

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 70 69 18 85

AREA NUMBER = 61

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 85 18 19 25

AREA NUMBER = 62

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 25 19 20 26

AREA NUMBER = 63

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 26 20 21 27

AREA NUMBER = 64

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 27 21 22 28

AREA NUMBER = 65

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 86 85 25 92

AREA NUMBER = 66

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 39 26 27 40

AREA NUMBER = 67

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 74 73 86 87

AREA NUMBER = 68

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 87 86 92 93

AREA NUMBER = 69

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 93 92 39 106

AREA NUMBER = 70

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 88 87 93 94

AREA NUMBER = 71
area set 3, end guides

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 196 197 206 205

AREA NUMBER = 72

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 205 206 211 210

AREA NUMBER = 73

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 206 207 212 211

AREA NUMBER = 74

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 210 211 218 220

AREA NUMBER = 75

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 148 161 158 149

AREA NUMBER = 76

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 142 148 149 143

AREA NUMBER = 77

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 143 149 150 144

AREA NUMBER = 78

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 22 142 143 23

AREA NUMBER = 79

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 28 22 23 29

AREA NUMBER = 80

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 29 23 24 30

AREA NUMBER = 81

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 41 28 29 38

AREA NUMBER = 82

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 95 94 107 104

AREA NUMBER = 83

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 89 88 94 95

AREA NUMBER = 84

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 90 89 95 96

AREA NUMBER = 85

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 78 77 88 39

AREA NUMBER = 86

area set 4, corner guides

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 219 220 221 152

AREA NUMBER = 87

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 159 219 162 150

AREA NUMBER = 88

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 160 162 163 151

AREA NUMBER = 89

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 107 106 42 109

AREA NUMBER = 90

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 106 39 40 42

AREA NUMBER = 91

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 42 40 41 43

AREA NUMBER = 92

ACTIVE COORDINATE SYSTEM SET TO 1 (CYLINDRICAL)

area set 5, inner barrier

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 222 223 224 207

AREA NUMBER = 93

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 207 224 225 212

AREA NUMBER = 94

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 212 225 226 218

AREA NUMBER = 95

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 218 226 227 220

AREA NUMBER = 96

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 220 227 228 221

AREA NUMBER = 97

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 221 228 171 163

AREA NUMBER = 98

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 163 171 170 161

AREA NUMBER = 99

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 161 170 169 158

AREA NUMBER = 100

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 158 169 168 150

AREA NUMBER = 101

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 150 168 167 144

AREA NUMBER = 102

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 144 167 47 24

AREA NUMBER = 103

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 24 47 48 30

AREA NUMBER = 104

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 30 48 49 38

AREA NUMBER = 105

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 38 49 50 41

AREA NUMBER = 106

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 41 50 51 43

AREA NUMBER = 107

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 43 51 117 109

AREA NUMBER = 108

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 109 117 116 107

AREA NUMBER = 109

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 107 116 115 104

AREA NUMBER = 110

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 104 115 114 96

AREA NUMBER = 111

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 90 96 114 113

AREA NUMBER = 112

DEFINE AREA BY LIST OF KEYPOINTS

KEYPOINT LIST = 90 113 112 110

AREA NUMBER = 113

area set 6, outer barrier

ACTIVE COORDINATE SYSTEM SET TO 0 (CARTESIAN)

DRAG ALL SELECTED AREAS

ALONG LINES

1,

*** WARNING *** CP= 4.990 TIME= 20:53:46
Area 1 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 4.990 TIME= 20:53:46
Area 2 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 4.990 TIME= 20:53:46
Area 3 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.000 TIME= 20:53:46
Area 4 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.000 TIME= 20:53:46
Area 5 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.000 TIME= 20:53:46
Area 6 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.000 TIME= 20:53:46
Area 7 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.000 TIME= 20:53:46
Area 8 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.000 TIME= 20:53:46
Area 9 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.000 TIME= 20:53:46
Area 10 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.000 TIME= 20:53:46
Area 11 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.000 TIME= 20:53:46
Area 12 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.000 TIME= 20:53:46
Area 13 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.000 TIME= 20:53:46
Area 14 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.000 TIME= 20:53:46
Area 15 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.010 TIME= 20:53:46
Area 16 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.010 TIME= 20:53:46
Area 17 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.010 TIME= 20:53:46

Area 18 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.010 TIME= 20:53:46
Area 19 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.010 TIME= 20:53:46
Area 20 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.010 TIME= 20:53:46
Area 21 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.010 TIME= 20:53:46
Area 22 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.010 TIME= 20:53:46
Area 23 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.010 TIME= 20:53:46
Area 24 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.010 TIME= 20:53:46
Area 25 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.010 TIME= 20:53:46
Area 26 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.010 TIME= 20:53:46
Area 27 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.020 TIME= 20:53:46
Area 28 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.020 TIME= 20:53:46
Area 29 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.020 TIME= 20:53:46
Area 30 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.020 TIME= 20:53:46
Area 31 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.020 TIME= 20:53:46
Area 32 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.020 TIME= 20:53:46
Area 33 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.020 TIME= 20:53:46
Area 34 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.020 TIME= 20:53:46
Area 35 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.020 TIME= 20:53:46
Area 36 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.020 TIME= 20:53:46
Area 37 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.020 TIME= 20:53:46
Area 38 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.030 TIME= 20:53:46
Area 39 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.030 TIME= 20:53:46
Area 40 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.030 TIME= 20:53:46
Area 41 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.030 TIME= 20:53:46
Area 42 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.030 TIME= 20:53:46
Area 43 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.030 TIME= 20:53:46
Area 44 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.030 TIME= 20:53:46
Area 45 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.030 TIME= 20:53:46
Area 46 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.030 TIME= 20:53:46
Area 47 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.030 TIME= 20:53:46
Area 48 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.030 TIME= 20:53:46
Area 49 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.030 TIME= 20:53:46
Area 50 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.040 TIME= 20:53:46
Area 51 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.040 TIME= 20:53:46
Area 52 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.040 TIME= 20:53:46
Area 53 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.040 TIME= 20:53:46
Area 54 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.040 TIME= 20:53:46
Area 55 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.040 TIME= 20:53:46
Area 56 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.040 TIME= 20:53:46
Area 57 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.040 TIME= 20:53:46
Area 58 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.040 TIME= 20:53:46
Area 59 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.040 TIME= 20:53:46
Area 60 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.040 TIME= 20:53:46
Area 61 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.040 TIME= 20:53:46
Area 62 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.050 TIME= 20:53:46
Area 63 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.050 TIME= 20:53:46
Area 64 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.050 TIME= 20:53:46
Area 65 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.050 TIME= 20:53:46
Area 66 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.050 TIME= 20:53:46
Area 67 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.050 TIME= 20:53:46
Area 68 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.050 TIME= 20:53:46
Area 69 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.050 TIME= 20:53:46
Area 70 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.050 TIME= 20:53:46
Area 71 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.050 TIME= 20:53:46
Area 72 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.050 TIME= 20:53:46
Area 73 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.050 TIME= 20:53:46
Area 74 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.060 TIME= 20:53:46
Area 75 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.060 TIME= 20:53:46
Area 76 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.060 TIME= 20:53:46
Area 77 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.060 TIME= 20:53:46
Area 78 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.060 TIME= 20:53:46
Area 79 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.060 TIME= 20:53:46
Area 80 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.060 TIME= 20:53:46
Area 81 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.060 TIME= 20:53:46
Area 82 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.060 TIME= 20:53:46
Area 83 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.060 TIME= 20:53:46
Area 84 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.060 TIME= 20:53:46
Area 85 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.060 TIME= 20:53:46
Area 86 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.070 TIME= 20:53:46
Area 87 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.070 TIME= 20:53:46

Area 88 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.070 TIME= 20:53:46
Area 89 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.070 TIME= 20:53:46
Area 90 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.070 TIME= 20:53:46
Area 91 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.070 TIME= 20:53:46
Area 92 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.070 TIME= 20:53:46
Area 93 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.070 TIME= 20:53:46
Area 94 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.070 TIME= 20:53:46
Area 95 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.070 TIME= 20:53:46
Area 96 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.070 TIME= 20:53:46
Area 97 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.080 TIME= 20:53:46
Area 98 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.080 TIME= 20:53:46
Area 99 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.080 TIME= 20:53:46
Area 100 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.080 TIME= 20:53:46
Area 101 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.080 TIME= 20:53:46
Area 102 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.080 TIME= 20:53:46
Area 103 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.080 TIME= 20:53:46
Area 104 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.080 TIME= 20:53:46
Area 105 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.080 TIME= 20:53:46
Area 106 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.080 TIME= 20:53:46
Area 107 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.080 TIME= 20:53:46
Area 108 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.090 TIME= 20:53:46
Area 109 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.090 TIME= 20:53:46
Area 110 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.090 TIME= 20:53:46
Area 111 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.090 TIME= 20:53:46
Area 112 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 5.090 TIME= 20:53:46
Area 113 is not meshed. Volume will be generated without elements.

SELECT FOR ITEM=LOC COMPONENT=Z BETWEEN 2.2875 AND 2.2875
KABS= 0. TOLERANCE= 0.114375E-01

113 AREAS (OF 509 DEFINED) SELECTED BY ASEL COMMAND.

ACTIVE COORDINATE SYSTEM SET TO 1 (CYLINDRICAL)

UNSELECT FOR ITEM=LOC COMPONENT=X BETWEEN 0.00000E+00 AND 0.68095
KABS= 0. TOLERANCE= 0.000000E+00

21 AREAS (OF 509 DEFINED) SELECTED BY ASEL COMMAND.

ACTIVE COORDINATE SYSTEM SET TO 0 (CARTESIAN)

DRAG ALL SELECTED AREAS
ALONG LINES
2,

*** WARNING *** CP= 11.380 TIME= 20:54:01
Area 441 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 11.380 TIME= 20:54:01
Area 444 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 11.380 TIME= 20:54:01
Area 448 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 11.380 TIME= 20:54:01
Area 451 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 11.380 TIME= 20:54:01
Area 454 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 11.380 TIME= 20:54:01
Area 458 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 11.380 TIME= 20:54:01
Area 461 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 11.380 TIME= 20:54:01
Area 464 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 11.380 TIME= 20:54:01
Area 468 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 11.390 TIME= 20:54:01
Area 471 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 11.390 TIME= 20:54:01
Area 475 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 11.390 TIME= 20:54:01
Area 478 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 11.390 TIME= 20:54:01
Area 482 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 11.390 TIME= 20:54:01
Area 485 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 11.390 TIME= 20:54:01
Area 488 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 11.390 TIME= 20:54:01
Area 492 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 11.390 TIME= 20:54:01
Area 495 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 11.390 TIME= 20:54:01
Area 498 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 11.390 TIME= 20:54:01
Area 502 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 11.390 TIME= 20:54:01
Area 505 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 11.390 TIME= 20:54:01
Area 509 is not meshed. Volume will be generated without elements.
copy areas from top of basket to bottom of lid

SELECT FOR ITEM=LOC COMPONENT=Z BETWEEN 2.2775 AND 2.2775
KABS= 0. TOLERANCE= 0.113875E-01

113 AREAS (OF 594 DEFINED) SELECTED BY ASEL COMMAND.

ACTIVE COORDINATE SYSTEM SET TO 1 (CYLINDRICAL)

RESELECT FOR ITEM=LOC COMPONENT=X BETWEEN 0.00000E+00 AND 0.68095
KABS= 0. TOLERANCE= 0.000000E+00

92 AREAS (OF 594 DEFINED) SELECTED BY ASEL COMMAND.

ACTIVE COORDINATE SYSTEM SET TO 0 (CARTESIAN)

GENERATE 2 TOTAL SETS OF AREAS
SET IS ALL SELECTED AREAS
DX,DY,DZ= 0.000E+00 0.000E+00 0.100E-01 CSYS= 0

MERGE COINCIDENT KEYPOINTS WITHIN TOLERANCE OF 0.10000E-03

KEYPOINT 373 USED FOR KEYPOINT(S) 521
KEYPOINT 375 USED FOR KEYPOINT(S) 522
KEYPOINT 377 USED FOR KEYPOINT(S) 523
KEYPOINT 379 USED FOR KEYPOINT(S) 458
KEYPOINT 381 USED FOR KEYPOINT(S) 540
KEYPOINT 383 USED FOR KEYPOINT(S) 542
KEYPOINT 385 USED FOR KEYPOINT(S) 496
KEYPOINT 387 USED FOR KEYPOINT(S) 524
KEYPOINT 389 USED FOR KEYPOINT(S) 527
KEYPOINT 391 USED FOR KEYPOINT(S) 528
KEYPOINT 393 USED FOR KEYPOINT(S) 531
KEYPOINT 395 USED FOR KEYPOINT(S) 532
KEYPOINT 397 USED FOR KEYPOINT(S) 533
KEYPOINT 399 USED FOR KEYPOINT(S) 514
KEYPOINT 401 USED FOR KEYPOINT(S) 545
KEYPOINT 403 USED FOR KEYPOINT(S) 544
KEYPOINT 405 USED FOR KEYPOINT(S) 492
KEYPOINT 407 USED FOR KEYPOINT(S) 535
KEYPOINT 409 USED FOR KEYPOINT(S) 538
KEYPOINT 410 USED FOR KEYPOINT(S) 537

LINE 837 USED FOR LINE(S) 1121
LINE 847 USED FOR LINE(S) 1124
LINE 852 USED FOR LINE(S) 1152
LINE 862 USED FOR LINE(S) 1157
LINE 867 USED FOR LINE(S) 1125
LINE 877 USED FOR LINE(S) 1131
LINE 887 USED FOR LINE(S) 1138
LINE 897 USED FOR LINE(S) 1141
LINE 902 USED FOR LINE(S) 1162
LINE 912 USED FOR LINE(S) 1160
LINE 917 USED FOR LINE(S) 1143
LINE 923 USED FOR LINE(S) 1149

generate lines to fill in lid at top of WP
lines tube height

LINE CONNECTS KEYPOINTS 414 421
LINE NO.= 1121 KP1= 414 TAN1= 0.0000 -1.0000 0.0000
KP2= 421 TAN2= 0.0000 1.0000 0.0000

LINE CONNECTS KEYPOINTS 422 429
LINE NO.= 1124 KP1= 422 TAN1= 0.0000 -1.0000 0.0000
KP2= 429 TAN2= 0.0000 1.0000 0.0000

LINE CONNECTS KEYPOINTS 430 437
LINE NO.= 1125 KP1= 430 TAN1= 0.0000 -1.0000 0.0000
KP2= 437 TAN2= 0.0000 1.0000 0.0000

LINE CONNECTS KEYPOINTS 438 445
LINE NO.= 1131 KP1= 438 TAN1= 0.0000 -1.0000 0.0000
KP2= 445 TAN2= 0.0000 1.0000 0.0000

LINE CONNECTS KEYPOINTS 446 453
LINE NO.= 1138 KP1= 446 TAN1= 0.0000 -1.0000 0.0000
KP2= 453 TAN2= 0.0000 1.0000 0.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
TO NDIV = 4, SPACING RATIO = 1.000
end lines

LINE CONNECTS KEYPOINTS 370 518
LINE NO.= 1141 KP1= 370 TAN1= 0.0000 -1.0000 0.0000
KP2= 518 TAN2= 0.0000 1.0000 0.0000

LINE CONNECTS KEYPOINTS 539 413
LINE NO.= 1143 KP1= 539 TAN1= 0.0000 -1.0000 0.0000
KP2= 413 TAN2= 0.0000 1.0000 0.0000

SET DIVISIONS ON ALL SELECTED UNMESHED LINES
TO NDIV = 4, SPACING RATIO = 1.000

DEFINE AREA BY LIST OF LINES
LINE LIST = 832 1116 1120 1141
(TRAVERSED IN SAME DIRECTION AS LINE 832)

AREA NUMBER = 687

DEFINE AREA BY LIST OF LINES
LINE LIST = 936 937 941 1121
(TRAVERSED IN SAME DIRECTION AS LINE 936)

AREA NUMBER = 688

DEFINE AREA BY LIST OF LINES
LINE LIST = 946 947 951 1124
(TRAVERSED IN SAME DIRECTION AS LINE 946)

AREA NUMBER = 689

DEFINE AREA BY LIST OF LINES
LINE LIST = 956 959 961 1125
(TRAVERSED IN SAME DIRECTION AS LINE 956)

AREA NUMBER = 690

DEFINE AREA BY LIST OF LINES
LINE LIST = 966 969 971 1131
(TRAVERSED IN SAME DIRECTION AS LINE 966)

AREA NUMBER = 691

DEFINE AREA BY LIST OF LINES
LINE LIST = 976 979 981 1138

```
(TRAVERSED IN SAME DIRECTION AS LINE: 976)

AREA NUMBER = 692

DEFINE AREA BY LIST OF LINES
LINE LIST = 932 1143 1147 1151
(TRAVERSED IN SAME DIRECTION AS LINE: 932)

AREA NUMBER = 693

DEFINE AREA BY LIST OF LINES
LINE LIST = 842 1122 1123
(TRAVERSED IN SAME DIRECTION AS LINE: 842)

AREA NUMBER = 694

DEFINE AREA BY LIST OF LINES
LINE LIST = 985 989 990 993
(TRAVERSED IN SAME DIRECTION AS LINE: 985)

AREA NUMBER = 695

DEFINE AREA BY LIST OF LINES
LINE LIST = 997 1001 1002 1005
(TRAVERSED IN SAME DIRECTION AS LINE: 997)

AREA NUMBER = 696

DEFINE AREA BY LIST OF LINES
LINE LIST = 1010 1013 1015 1018
(TRAVERSED IN SAME DIRECTION AS LINE: 1010)

AREA NUMBER = 697

DEFINE AREA BY LIST OF LINES
LINE LIST = 1021 1025 1028 1029
(TRAVERSED IN SAME DIRECTION AS LINE: 1021)

AREA NUMBER = 698

DEFINE AREA BY LIST OF LINES
LINE LIST = 1033 1037 1040 1041
(TRAVERSED IN SAME DIRECTION AS LINE: 1033)

AREA NUMBER = 699

DEFINE AREA BY LIST OF LINES
LINE LIST = 922 1144 1148
(TRAVERSED IN SAME DIRECTION AS LINE: 922)

AREA NUMBER = 700

DEFINE AREA BY LIST OF LINES
LINE LIST = 857 1153 1156
(TRAVERSED IN SAME DIRECTION AS LINE: 857)

AREA NUMBER = 701

DEFINE AREA BY LIST OF LINES
LINE LIST = 1046 1049 1051 1054
(TRAVERSED IN SAME DIRECTION AS LINE: 1046)

AREA NUMBER = 702

DEFINE AREA BY LIST OF LINES
LINE LIST = 1058 1061 1063 1066
(TRAVERSED IN SAME DIRECTION AS LINE: 1058)

AREA NUMBER = 703
```

DEFINE AREA BY LIST OF LINES

LINE LIST = 1070 1073 1075 1078
(TRAVERSED IN SAME DIRECTION AS LINE: 1070)

AREA NUMBER = 704

DEFINE AREA BY LIST OF LINES

LINE LIST = 907 1159 1163
(TRAVERSED IN SAME DIRECTION AS LINE: 907)

AREA NUMBER = 705

DEFINE AREA BY LIST OF LINES

LINE LIST = 872 1126 1130
(TRAVERSED IN SAME DIRECTION AS LINE: 872)

AREA NUMBER = 706

DEFINE AREA BY LIST OF LINES

LINE LIST = 882 1132 1133 1137
(TRAVERSED IN SAME DIRECTION AS LINE: 882)

AREA NUMBER = 707

DEFINE AREA BY LIST OF LINES

LINE LIST = 892 1139 1140
(TRAVERSED IN SAME DIRECTION AS LINE: 892)

AREA NUMBER = 708

SELECT FOR ITEM=LOC COMPONENT=Z BETWEEN 2.3075 AND 2.3075
KABS= 0. TOLERANCE= 0.115375E-01

135 AREAS (OF 708 DEFINED) SELECTED BY ASEL COMMAND.

DRAG ALL SELECTED AREAS

ALONG LINES

3,

*** WARNING *** CP= 15.230 TIME= 20:54:10
Area 514 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.230 TIME= 20:54:10
Area 518 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.230 TIME= 20:54:10
Area 522 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.230 TIME= 20:54:10
Area 526 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.230 TIME= 20:54:10
Area 530 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.230 TIME= 20:54:10
Area 534 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.240 TIME= 20:54:11
Area 538 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.240 TIME= 20:54:11
Area 542 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.240 TIME= 20:54:11
Area 546 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.240 TIME= 20:54:11
Area 550 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.240 TIME= 20:54:11

Area 554 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.240 TIME= 20:54:11
Area 558 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.240 TIME= 20:54:11
Area 562 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.240 TIME= 20:54:11
Area 566 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.240 TIME= 20:54:11
Area 570 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.240 TIME= 20:54:11
Area 574 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.240 TIME= 20:54:11
Area 578 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.240 TIME= 20:54:11
Area 582 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.250 TIME= 20:54:11
Area 586 is not meshed. Volume will be generated without elements.

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Area 595 is not meshed. Volume will be generated without elements.

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*** WARNING *** CP= 15.250 TIME= 20:54:11
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*** WARNING *** CP= 15.250 TIME= 20:54:11
Area 598 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.250 TIME= 20:54:11
Area 599 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.250 TIME= 20:54:11
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*** WARNING *** CP= 15.250 TIME= 20:54:11
Area 601 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.260 TIME= 20:54:11
Area 602 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.260 TIME= 20:54:11
Area 603 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.260 TIME= 20:54:11
Area 604 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.260 TIME= 20:54:11
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Area 613 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.270 TIME= 20:54:11
Area 614 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.270 TIME= 20:54:11
Area 615 is not meshed. Volume will be generated without elements.

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Area 616 is not meshed. Volume will be generated without elements.

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Area 618 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.270 TIME= 20:54:11
Area 619 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.270 TIME= 20:54:11
Area 620 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.270 TIME= 20:54:11
Area 621 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.270 TIME= 20:54:11
Area 622 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.270 TIME= 20:54:11
Area 623 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.270 TIME= 20:54:11
Area 624 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.280 TIME= 20:54:11
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*** WARNING *** CP= 15.280 TIME= 20:54:11
Area 629 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.280 TIME= 20:54:11
Area 630 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.280 TIME= 20:54:11
Area 631 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.280 TIME= 20:54:11
Area 632 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.280 TIME= 20:54:11
Area 633 is not meshed. Volume will be generated without elements.

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*** WARNING *** CP= 15.280 TIME= 20:54:11
Area 636 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.290 TIME= 20:54:11
Area 637 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.290 TIME= 20:54:11
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*** WARNING *** CP= 15.290 TIME= 20:54:11
Area 639 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.290 TIME= 20:54:11
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*** WARNING *** CP= 15.290 TIME= 20:54:11
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*** WARNING *** CP= 15.290 TIME= 20:54:11
Area 642 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.290 TIME= 20:54:11
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*** WARNING *** CP= 15.290 TIME= 20:54:11
Area 646 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.290 TIME= 20:54:11
Area 647 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.300 TIME= 20:54:11
Area 648 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.300 TIME= 20:54:11
Area 649 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.300 TIME= 20:54:11
Area 650 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.300 TIME= 20:54:11
Area 651 is not meshed. Volume will be generated without elements.

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Area 653 is not meshed. Volume will be generated without elements.

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Area 654 is not meshed. Volume will be generated without elements.

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*** WARNING *** CP= 15.300 TIME= 20:54:11
Area 659 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.310 TIME= 20:54:11
Area 660 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.310 TIME= 20:54:11
Area 661 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.310 TIME= 20:54:11
Area 662 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.310 TIME= 20:54:11
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*** WARNING *** CP= 15.310 TIME= 20:54:11
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*** WARNING *** CP= 15.310 TIME= 20:54:11
Area 667 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.310 TIME= 20:54:11
Area 668 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.310 TIME= 20:54:11
Area 669 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.310 TIME= 20:54:11
Area 670 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.320 TIME= 20:54:11
Area 671 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.320 TIME= 20:54:11
Area 672 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.320 TIME= 20:54:11
Area 673 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.320 TIME= 20:54:11
Area 674 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.320 TIME= 20:54:11
Area 675 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.320 TIME= 20:54:11
Area 676 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.320 TIME= 20:54:11
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*** WARNING *** CP= 15.320 TIME= 20:54:11
Area 678 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.320 TIME= 20:54:11
Area 679 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.320 TIME= 20:54:11
Area 680 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.320 TIME= 20:54:11
Area 681 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.320 TIME= 20:54:11
Area 682 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.330 TIME= 20:54:11
Area 683 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.330 TIME= 20:54:11
Area 684 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.330 TIME= 20:54:11
Area 685 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.330 TIME= 20:54:11
Area 686 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.330 TIME= 20:54:11
Area 687 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.330 TIME= 20:54:11
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*** WARNING *** CP= 15.330 TIME= 20:54:11
Area 689 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.330 TIME= 20:54:11
Area 690 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.330 TIME= 20:54:11
Area 691 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.330 TIME= 20:54:11
Area 692 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.330 TIME= 20:54:11
Area 693 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.340 TIME= 20:54:11
Area 694 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.340 TIME= 20:54:11
Area 695 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.340 TIME= 20:54:11
Area 696 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.340 TIME= 20:54:11
Area 697 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.340 TIME= 20:54:11
Area 698 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.340 TIME= 20:54:11
Area 699 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.340 TIME= 20:54:11
Area 700 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.340 TIME= 20:54:11
Area 701 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.340 TIME= 20:54:11
Area 702 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.340 TIME= 20:54:11
Area 703 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.340 TIME= 20:54:11
Area 704 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.340 TIME= 20:54:11
Area 705 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.350 TIME= 20:54:11
Area 706 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.350 TIME= 20:54:11
Area 707 is not meshed. Volume will be generated without elements.

*** WARNING *** CP= 15.350 TIME= 20:54:11
Area 708 is not meshed. Volume will be generated without elements.
lines at bottom lid used to be here

Mesh Volumes

Mesh the CS Tubes

Mesh SS-B Plates

SELECT FOR ITEM=VOLUME COMPONENT=
IN RANGE 48 TO 71 STEP 1

24 VOLUMES (OF 269 DEFINED) SELECTED BY VSEL COMMAND.

ELEMENT TYPE SET TO 2

MATERIAL NUMBER SET TO 2

GENERATE NODES AND ELEMENTS IN ALL SELECTED VOLUMES

*** WARNING *** CP= 23.740 TIME= 20:54:32
Meshing of volume 49 produced 24 elements with excessive aspect ratio.
Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 49 WITH EXCESSIVE ASPECT RATIO ***

121	122	123	136	137	138	151	152
153	166	167	168	181	182	183	196
197	198	211	212	213	226	227	228

*** WARNING *** CP= 23.960 TIME= 20:54:32
Meshing of volume 50 produced 60 elements with excessive aspect ratio.
Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 50 WITH EXCESSIVE ASPECT RATIO ***

241	242	243	244	245	246	247	248
249	250	251	252	253	254	255	256
257	258	259	260	261	262	263	264
265	266	267	268	269	270	271	272
273	274	275	276	277	278	279	280
281	282	283	284	285	286	287	288
289	290	291	292	293	294	295	296
297	298	299	300				

*** WARNING *** CP= 25.290 TIME= 20:54:35
Meshing of volume 54 produced 24 elements with excessive aspect ratio.
Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 54 WITH EXCESSIVE ASPECT RATIO ***

661	662	663	676	677	678	691	692
693	706	707	708	721	722	723	736
737	738	751	752	753	766	767	768

*** WARNING *** CP= 25.510 TIME= 20:54:36
 Meshing of volume 55 produced 60 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 55 WITH EXCESSIVE ASPECT RATIO ***

781	782	783	784	785	786	787	788
789	790	791	792	793	794	795	796
797	798	799	800	801	802	803	804
805	806	807	808	809	810	811	812
813	814	815	816	817	818	819	820
821	822	823	824	825	826	827	828
829	830	831	832	833	834	835	836
837	838	839	840				

*** WARNING *** CP= 26.050 TIME= 20:54:37
 Meshing of volume 57 produced 60 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 57 WITH EXCESSIVE ASPECT RATIO ***

961	962	963	964	965	966	967	968
969	970	971	972	973	974	975	976
977	978	979	980	981	982	983	984
985	986	987	988	989	990	991	992
993	994	995	996	997	998	999	1000
1001	1002	1003	1004	1005	1006	1007	1008
1009	1010	1011	1012	1013	1014	1015	1016
1017	1018	1019	1020				

*** WARNING *** CP= 27.380 TIME= 20:54:40
 Meshing of volume 61 produced 24 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 61 WITH EXCESSIVE ASPECT RATIO ***

1381	1382	1383	1396	1397	1398	1411	1412
1413	1426	1427	1428	1441	1442	1443	1456
1457	1458	1471	1472	1473	1486	1487	1488

*** WARNING *** CP= 27.600 TIME= 20:54:41
 Meshing of volume 62 produced 60 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 62 WITH EXCESSIVE ASPECT RATIO ***

1501	1502	1503	1504	1505	1506	1507	1508
1509	1510	1511	1512	1513	1514	1515	1516
1517	1518	1519	1520	1521	1522	1523	1524
1525	1526	1527	1528	1529	1530	1531	1532
1533	1534	1535	1536	1537	1538	1539	1540
1541	1542	1543	1544	1545	1546	1547	1548
1549	1550	1551	1552	1553	1554	1555	1556
1557	1558	1559	1560				

*** WARNING *** CP= 28.130 TIME= 20:54:43
 Meshing of volume 64 produced 60 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 64 WITH EXCESSIVE ASPECT RATIO ***

1681	1682	1683	1684	1685	1686	1687	1688
1689	1690	1691	1692	1693	1694	1695	1696
1697	1698	1699	1700	1701	1702	1703	1704

1705	1706	1707	1708	1709	1710	1711	1712
1713	1714	1715	1716	1717	1718	1719	1720
1721	1722	1723	1724	1725	1726	1727	1728
1729	1730	1731	1732	1733	1734	1735	1736
1737	1738	1739	1740				

*** WARNING *** CP= 29.530 TIME= 20:54:45
 Meshing of volume 68 produced 24 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 68 WITH EXCESSIVE ASPECT RATIO ***

2101	2102	2103	2116	2117	2118	2131	2132
2133	2146	2147	2148	2161	2162	2163	2176
2177	2178	2191	2192	2193	2206	2207	2208

*** WARNING *** CP= 29.770 TIME= 20:54:46
 Meshing of volume 69 produced 60 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 69 WITH EXCESSIVE ASPECT RATIO ***

2221	2222	2223	2224	2225	2226	2227	2228
2229	2230	2231	2232	2233	2234	2235	2236
2237	2238	2239	2240	2241	2242	2243	2244
2245	2246	2247	2248	2249	2250	2251	2252
2253	2254	2255	2256	2257	2258	2259	2260
2261	2262	2263	2264	2265	2266	2267	2268
2269	2270	2271	2272	2273	2274	2275	2276
2277	2278	2279	2280				

NUMBER OF VOLUMES MESHED = 24
 MAXIMUM NODE NUMBER = 4000
 MAXIMUM ELEMENT NUMBER = 2520
 Mesh End Guides

SELECT FOR ITEM=VOLUME COMPONENT=
 IN RANGE 72 TO 86 STEP 1

15 VOLUMES (OF 269 DEFINED) SELECTED BY VSEL COMMAND.

ELEMENT TYPE SET TO 3

MATERIAL NUMBER SET TO 3

GENERATE NODES AND ELEMENTS IN ALL SELECTED VOLUMES

*** WARNING *** CP= 31.120 TIME= 20:54:51
 Meshing of volume 72 produced 8 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 72 WITH EXCESSIVE ASPECT RATIO ***

2521	2536	2551	2566	2581	2596	2611	2626
------	------	------	------	------	------	------	------

*** WARNING *** CP= 31.330 TIME= 20:54:51
 Meshing of volume 73 produced 52 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 73 WITH EXCESSIVE ASPECT RATIO ***

2641	2642	2643	2644	2645	2646	2647	2648
2649	2650	2651	2652	2653	2654	2655	2656
2657	2658	2659	2660	2661	2662	2663	2664
2665	2666	2671	2672	2673	2674	2675	2676
2677	2678	2679	2680	2681	2682	2683	2684
2685	2686	2687	2688	2689	2690	2691	2692
2693	2694	2695	2696				

*** WARNING *** (P= 31.670 TIME= 20:54:52
 Meshing of volume 74 produced 24 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 74 WITH EXCESSIVE ASPECT RATIO ***

2701	2702	2703	2716	2717	2718	2731	2732
2733	2746	2747	2748	2761	2762	2763	2776
2777	2778	2791	2792	2793	2806	2807	2808

*** WARNING *** (P= 31.770 TIME= 20:54:52
 Volume 75 area 75 has a corner angle of 32 degrees. This is not
 recommended for hexahedral elements.

*** WARNING *** (P= 31.780 TIME= 20:54:52
 Volume 75 area 380 has a corner angle of 32 degrees. This is not
 recommended for hexahedral elements.

*** WARNING *** (P= 32.020 TIME= 20:54:53
 Meshing of volume 75 produced 60 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 75 WITH EXCESSIVE DISTORTION ***

2881	2882	2883	2884	2885	2886	2887	2888
2889	2890	2891	2892	2893	2894	2895	2896
2897	2898	2899	2900	2901	2902	2903	2904
2905	2906	2907	2908	2909	2910	2911	2912
2913	2914	2915	2916	2917	2918	2919	2920
2921	2922	2923	2924	2925	2926	2927	2928
2929	2930	2931	2932	2933	2934	2935	2936
2937	2938	2939	2940				

*** WARNING *** (P= 32.140 TIME= 20:54:53
 Volume 76 area 76 has a corner angle of 32 degrees. This is not
 recommended for hexahedral elements.

*** WARNING *** (P= 32.150 TIME= 20:54:53
 Volume 76 area 384 has a corner angle of 32 degrees. This is not
 recommended for hexahedral elements.

*** WARNING *** (P= 32.390 TIME= 20:54:53
 Meshing of volume 76 produced 60 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 76 WITH EXCESSIVE DISTORTION ***

2941	2942	2945	2946	2949	2950	2953	2954
2957	2958	2961	2962	2965	2966	2969	2970
2973	2974	2977	2978	2981	2982	2985	2986
2989	2990	2993	2994	2997	2998	3001	3002
3005	3006	3009	3010	3013	3014	3017	3018
3021	3022	3025	3026	3029	3030	3033	3034
3037	3038	3041	3042	3045	3046	3049	3050
3053	3054	3057	3058				

*** WARNING *** (P= 32.630 TIME= 20:54:54
 Meshing of volume 77 produced 52 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 77 WITH EXCESSIVE ASPECT RATIO ***

3061	3062	3063	3064	3065	3066	3067	3068
3069	3070	3071	3072	3073	3074	3075	3076
3077	3078	3079	3080	3081	3082	3083	3084
3085	3086	3091	3092	3093	3094	3095	3096
3097	3098	3099	3100	3101	3102	3103	3104
3105	3106	3107	3108	3109	3110	3111	3112
3113	3114	3115	3116				

*** WARNING *** (P= 32.990 TIME= 20:54:55
 Meshing of volume 78 produced 24 elements with excessive aspect ratio.

Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 73 WITH EXCESSIVE ASPECT RATIO ***

3121	3122	3123	3124	3125	3126	3151	3152
3153	3154	3155	3156	3181	3182	3183	3184
3185	3186	3211	3212	3213	3214	3215	3216

*** WARNING *** CP= 33.620 TIME= 20:54:57
 Meshing of volume 80 produced 52 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 80 WITH EXCESSIVE ASPECT RATIO ***

3361	3362	3363	3364	3365	3366	3367	3368
3369	3370	3371	3372	3373	3374	3375	3376
3377	3378	3379	3380	3381	3382	3383	3384
3385	3386	3391	3392	3393	3394	3395	3396
3397	3398	3399	3400	3401	3402	3403	3404
3405	3406	3407	3408	3409	3410	3411	3412
3413	3414	3415	3416				

*** WARNING *** CP= 33.960 TIME= 20:54:57
 Meshing of volume 81 produced 24 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 81 WITH EXCESSIVE ASPECT RATIO ***

3421	3422	3423	3424	3425	3426	3451	3452
3453	3454	3455	3456	3481	3482	3483	3484
3485	3486	3511	3512	3513	3514	3515	3516

*** WARNING *** CP= 34.080 TIME= 20:54:57
 Volume 82 area 82 has a corner angle of 32 degrees. This is not recommended for hexahedral elements.

*** WARNING *** CP= 34.090 TIME= 20:54:57
 Volume 82 area 404 has a corner angle of 32 degrees. This is not recommended for hexahedral elements.

*** WARNING *** CP= 34.320 TIME= 20:54:58
 Meshing of volume 82 produced 60 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 82 WITH EXCESSIVE DISTORTION ***

3543	3544	3547	3548	3551	3552	3555	3556
3559	3560	3563	3564	3567	3568	3571	3572
3575	3576	3579	3580	3583	3584	3587	3588
3591	3592	3595	3596	3599	3600	3603	3604
3607	3608	3611	3612	3615	3616	3619	3620
3623	3624	3627	3628	3631	3632	3635	3636
3639	3640	3643	3644	3647	3648	3651	3652
3655	3656	3659	3660				

*** WARNING *** CP= 34.450 TIME= 20:54:58
 Volume 83 area 83 has a corner angle of 32 degrees. This is not recommended for hexahedral elements.

*** WARNING *** CP= 34.470 TIME= 20:54:58
 Volume 83 area 408 has a corner angle of 32 degrees. This is not recommended for hexahedral elements.

*** WARNING *** CP= 34.710 TIME= 20:54:58
 Meshing of volume 83 produced 60 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 83 WITH EXCESSIVE DISTORTION ***

3721	3722	3723	3724	3725	3726	3727	3728
3729	3730	3731	3732	3733	3734	3735	3736
3737	3738	3739	3740	3741	3742	3743	3744
3745	3746	3747	3748	3749	3750	3751	3752

3753	3754	3755	3756	3757	3758	3759	3760
3761	3762	3763	3764	3765	3766	3767	3768
3769	3770	3771	3772	3773	3774	3775	3776
3777	3778	3779	3780				

*** WARNING *** CP= 34.930 TIME= 20:54:59
 Meshing of volume 84 produced 52 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 84 WITH EXCESSIVE ASPECT RATIO ***

3781	3782	3783	3784	3785	3786	3787	3788
3789	3790	3791	3792	3793	3796	3797	3798
3799	3800	3801	3802	3803	3804	3805	3806
3807	3808	3811	3812	3813	3814	3815	3816
3817	3818	3819	3820	3821	3822	3823	3826
3827	3828	3829	3830	3831	3832	3833	3834
3835	3836	3837	3838				

*** WARNING *** CP= 35.260 TIME= 20:54:59
 Meshing of volume 85 produced 24 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 85 WITH EXCESSIVE ASPECT RATIO ***

3841	3842	3843	3856	3857	3858	3871	3872
3873	3886	3887	3888	3901	3902	3903	3916
3917	3918	3931	3932	3933	3946	3947	3948

*** WARNING *** CP= 35.600 TIME= 20:55:00
 Meshing of volume 86 produced 8 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 86 WITH EXCESSIVE ASPECT RATIO ***

3961	3976	3991	4006	4021	4036	4051	4066
------	------	------	------	------	------	------	------

NUMBER OF VOLUMES MESHED = 15
 MAXIMUM NODE NUMBER = 6448
 MAXIMUM ELEMENT NUMBER = 4080
 Mesh Corner Guides

SELECT FOR ITEM=VOLU COMPONENT=
 IN RANGE 87 TO 92 STEP 1

6 VOLUMES (OF 269 DEFINED) SELECTED BY VSEL COMMAND.

ELEMENT TYPE SET TO 4

MATERIAL NUMBER SET TO 4

GENERATE NODES AND ELEMENTS IN ALL SELECTED VOLUMES

*** WARNING *** CP= 36.360 TIME= 20:55:01
 Meshing of volume 88 produced 55 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 88 WITH EXCESSIVE ASPECT RATIO ***

4201	4202	4203	4204	4205	4206	4207	4208
4209	4210	4211	4212	4213	4214	4215	4216
4217	4218	4219	4220	4221	4222	4223	4224
4225	4226	4227	4228	4231	4232	4233	4234
4235	4236	4237	4238	4239	4240	4241	4242
4243	4244	4245	4246	4247	4248	4249	4250
4251	4252	4253	4254	4255	4256	4258	

*** WARNING *** CP= 37.330 TIME= 20:55:02
 Meshing of volume 91 produced 55 elements with excessive aspect ratio.

Changing the element divisions on this volume may help.

```
*** LIST OF ELEMENTS IN VOLUME 91 WITH EXCESSIVE ASPECT RATIO ***
4501 4502 4503 4504 4505 4506 4507 4508
4509 4510 4511 4512 4513 4514 4515 4516
4517 4518 4519 4520 4521 4522 4523 4524
4525 4526 4527 4528 4531 4532 4533 4534
4535 4536 4537 4538 4539 4540 4541 4542
4543 4544 4545 4546 4547 4548 4549 4550
4551 4552 4553 4554 4555 4556 4557
```

```
NUMBER OF VOLUMES MESHED = 6
MAXIMUM NODE NUMBER = 7280
MAXIMUM ELEMENT NUMBER = 4680
Mesh Inner Barrier
```

```
SELECT FOR ITEM=LOC COMPONENT=Z BETWEEN 0.00000E+00 AND 2.3075
KABS= 0. TOLERANCE= 0.000000E+00
```

269 VOLUMES (OF 269 DEFINED) SELECTED BY VSEL COMMAND.

ACTIVE COORDINATE SYSTEM SET TO 1 (CYLINDRICAL)

```
RESELECT FOR ITEM=LOC COMPONENT=X BETWEEN 0.00000E+00 AND 0.71295
KABS= 0. TOLERANCE= 0.000000E+00
```

269 VOLUMES (OF 269 DEFINED) SELECTED BY VSEL COMMAND.

```
UNSELECT FOR ITEM=VOLU COMPONENT=
IN RANGE 1 TO 92 STEP 1
```

177 VOLUMES (OF 269 DEFINED) SELECTED BY VSEL COMMAND.

```
UNSELECT FOR ITEM=LOC COMPONENT=X BETWEEN 0.69095 AND 0.71295
KABS= 0. TOLERANCE= 0.000000E+00
```

114 VOLUMES (OF 269 DEFINED) SELECTED BY VSEL COMMAND.

```
ALSO SELECT FOR ITEM=LOC COMPONENT=Y BETWEEN -90.000 AND 5.0000
KABS= 0. TOLERANCE= 0.000000E+00
```

197 VOLUMES (OF 269 DEFINED) SELECTED BY VSEL COMMAND.

```
UNSELECT FOR ITEM=VOLU COMPONENT=
IN RANGE 1 TO 92 STEP 1
```

147 VOLUMES (OF 269 DEFINED) SELECTED BY VSEL COMMAND.

```
UNSELECT FOR ITEM=LOC COMPONENT=X BETWEEN 0.71295 AND 0.78095
KABS= 0. TOLERANCE= 0.000000E+00
```

147 VOLUMES (OF 269 DEFINED) SELECTED BY VSEL COMMAND.

```
RESELECT FOR ITEM=LOC COMPONENT=Z BETWEEN -0.10000E-01 AND 2.3075
KABS= 0. TOLERANCE= 0.000000E+00
```

147 VOLUMES (OF 269 DEFINED) SELECTED BY VSEL COMMAND.

ACTIVE COORDINATE SYSTEM SET TO 0 (CARTESIAN)

ELEMENT TYPE SET TO 5

MATERIAL NUMBER SET TO 5

GENERATE NODES AND ELEMENTS IN ALL SELECTED VOLUMES

```
*** WARNING *** CP= 41.570 TIME= 20:55:12
Meshing of volume 93 produced 48 elements with excessive aspect ratio.
Changing the element divisions on this volume may help.
```

*** LIST OF ELEMENTS IN VOLUME 93 WITH EXCESSIVE ASPECT RATIO ***

4681	4682	4683	4684	4685	4686	4696	4697
4698	4699	4700	4701	4711	4712	4713	4714
4715	4716	4726	4727	4728	4729	4730	4731
4741	4742	4743	4744	4745	4746	4756	4757
4758	4759	4760	4761	4771	4772	4773	4774
4775	4776	4786	4787	4788	4789	4790	4791

*** WARNING *** CP= 41.800 TIME= 20:55:12
 Meshing of volume 94 produced 60 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 94 WITH EXCESSIVE ASPECT RATIO ***

4801	4802	4803	4804	4805	4806	4807	4808
4809	4810	4811	4812	4813	4814	4815	4816
4817	4818	4819	4820	4821	4822	4823	4824
4825	4826	4827	4828	4829	4830	4831	4832
4833	4834	4835	4836	4837	4838	4839	4840
4841	4842	4843	4844	4845	4846	4847	4848
4849	4850	4851	4852	4853	4854	4855	4856
4857	4858	4859	4860				

*** WARNING *** CP= 42.230 TIME= 20:55:13
 Meshing of volume 95 produced 24 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 95 WITH EXCESSIVE ASPECT RATIO ***

4861	4862	4863	4864	4865	4866	4891	4892
4893	4894	4895	4896	4921	4922	4923	4924
4925	4926	4951	4952	4953	4954	4955	4956

*** WARNING *** CP= 42.440 TIME= 20:55:14
 Meshing of volume 96 produced 52 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 96 WITH EXCESSIVE ASPECT RATIO ***

4981	4982	4983	4984	4985	4986	4987	4988
4989	4990	4991	4992	4993	4994	4995	4996
4997	4998	4999	5000	5001	5002	5003	5004
5005	5006	5011	5012	5013	5014	5015	5016
5017	5018	5019	5020	5021	5022	5023	5024
5025	5026	5027	5028	5029	5030	5031	5032
5033	5034	5035	5036				

*** WARNING *** CP= 42.660 TIME= 20:55:14
 Meshing of volume 97 produced 60 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 97 WITH EXCESSIVE ASPECT RATIO ***

5041	5042	5043	5044	5045	5046	5047	5048
5049	5050	5051	5052	5053	5054	5055	5056
5057	5058	5059	5060	5061	5062	5063	5064
5065	5066	5067	5068	5069	5070	5071	5072
5073	5074	5075	5076	5077	5078	5079	5080
5081	5082	5083	5084	5085	5086	5087	5088
5089	5090	5091	5092	5093	5094	5095	5096
5097	5098	5099	5100				

*** WARNING *** CP= 43.100 TIME= 20:55:15
 Meshing of volume 98 produced 8 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 98 WITH EXCESSIVE ASPECT RATIO ***

5101	5102	5131	5132	5161	5162	5191	5192
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*** WARNING *** CP= 43.310 TIME= 20:55:16
 Meshing of volume 99 produced 60 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 99 WITH EXCESSIVE ASPECT RATIO ***

5221	5222	5223	5224	5225	5226	5227	5228
5229	5230	5231	5232	5233	5234	5235	5236
5237	5238	5239	5240	5241	5242	5243	5244
5245	5246	5247	5248	5249	5250	5251	5252
5253	5254	5255	5256	5257	5258	5259	5260
5261	5262	5263	5264	5265	5266	5267	5268
5269	5270	5271	5272	5273	5274	5275	5276
5277	5278	5279	5280				

*** WARNING *** CP= 43.520 TIME= 20:55:16
 Meshing of volume 100 produced 52 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 100 WITH EXCESSIVE ASPECT RATIO ***

5281	5282	5283	5284	5285	5286	5287	5288
5289	5290	5291	5292	5293	5294	5295	5296
5297	5298	5299	5300	5301	5302	5303	5304
5305	5306	5311	5312	5313	5314	5315	5316
5317	5318	5319	5320	5321	5322	5323	5324
5325	5326	5327	5328	5329	5330	5331	5332
5333	5334	5335	5336				

*** WARNING *** CP= 43.960 TIME= 20:55:17
 Meshing of volume 101 produced 24 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 101 WITH EXCESSIVE ASPECT RATIO ***

5341	5342	5343	5344	5345	5346	5371	5372
5373	5374	5375	5376	5401	5402	5403	5404
5405	5406	5431	5432	5433	5434	5435	5436

*** WARNING *** CP= 44.170 TIME= 20:55:18
 Meshing of volume 102 produced 60 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 102 WITH EXCESSIVE ASPECT RATIO ***

5461	5462	5463	5464	5465	5466	5467	5468
5469	5470	5471	5472	5473	5474	5475	5476
5477	5478	5479	5480	5481	5482	5483	5484
5485	5486	5487	5488	5489	5490	5491	5492
5493	5494	5495	5496	5497	5498	5499	5500
5501	5502	5503	5504	5505	5506	5507	5508
5509	5510	5511	5512	5513	5514	5515	5516
5517	5518	5519	5520				

*** WARNING *** CP= 44.620 TIME= 20:55:19
 Meshing of volume 103 produced 24 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 103 WITH EXCESSIVE ASPECT RATIO ***

5521	5522	5523	5524	5525	5526	5551	5552
5553	5554	5555	5556	5581	5582	5583	5584
5585	5586	5611	5612	5613	5614	5615	5616

*** WARNING *** CP= 45.260 TIME= 20:55:22
 Meshing of volume 119 produced 16 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 119 WITH EXCESSIVE ASPECT RATIO ***

5697	5698	5699	5700	5701	5702	5703	5704
5705	5706	5707	5708	5709	5710	5711	5712

*** WARNING *** CP= 46.390 TIME= 20:55:24
 Meshing of volume 140 produced 16 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 140 WITH EXCESSIVE ASPECT RATIO ***

5825	5826	5827	5828	5829	5830	5831	5832
5833	5834	5835	5836	5837	5838	5839	5840

*** WARNING *** CP= 48.280 TIME= 20:55:29
 Volume 173 area 612 has a corner angle of 37 degrees. This is not
 recommended for hexahedral elements.

*** WARNING *** CP= 48.280 TIME= 20:55:29
 Volume 173 area 871 has a corner angle of 37 degrees. This is not
 recommended for hexahedral elements.

*** WARNING *** CP= 48.310 TIME= 20:55:29
 Meshing of volume 173 produced 2 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 173 WITH EXCESSIVE DISTORTION ***

6039	6040
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*** WARNING *** CP= 49.520 TIME= 20:55:32
 Volume 189 area 628 has a corner angle of 37 degrees. This is not
 recommended for hexahedral elements.

*** WARNING *** CP= 49.530 TIME= 20:55:32
 Volume 189 area 935 has a corner angle of 37 degrees. This is not
 recommended for hexahedral elements.

*** WARNING *** CP= 49.560 TIME= 20:55:32
 Meshing of volume 189 produced 2 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 189 WITH EXCESSIVE DISTORTION ***

6167	6168
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*** WARNING *** CP= 49.690 TIME= 20:55:33
 Volume 191 area 630 has a corner angle of 37 degrees. This is not
 recommended for hexahedral elements.

*** WARNING *** CP= 49.690 TIME= 20:55:33
 Volume 191 area 943 has a corner angle of 37 degrees. This is not
 recommended for hexahedral elements.

*** WARNING *** CP= 49.720 TIME= 20:55:33
 Meshing of volume 191 produced 2 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 191 WITH EXCESSIVE DISTORTION ***

6183	6184
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*** WARNING *** CP= 50.470 TIME= 20:55:35
 Volume 201 area 640 has a corner angle of 37 degrees. This is not
 recommended for hexahedral elements.

*** WARNING *** CP= 50.480 TIME= 20:55:35
 Volume 201 area 983 has a corner angle of 37 degrees. This is not
 recommended for hexahedral elements.

*** WARNING *** CP= 50.500 TIME= 20:55:35
 Meshing of volume 201 produced 2 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 201 WITH EXCESSIVE DISTORTION ***
6263 6264

*** WARNING *** CP= 52.900 TIME= 20:55:40
Volume 230 area 669 has a corner angle of 32 degrees. This is not
recommended for hexahedral elements.

*** WARNING *** CP= 52.910 TIME= 20:55:40
Volume 230 area 1058 has a corner angle of 32 degrees. This is not
recommended for hexahedral elements.

*** WARNING *** CP= 52.960 TIME= 20:55:40
Meshing of volume 230 produced 8 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 230 WITH EXCESSIVE DISTORTION ***
6657 6658 6659 6660 6661 6662 6663 6664

*** WARNING *** CP= 53.000 TIME= 20:55:40
Volume 231 area 670 has a corner angle of 32 degrees. This is not
recommended for hexahedral elements.

*** WARNING *** CP= 53.010 TIME= 20:55:40
Volume 231 area 1061 has a corner angle of 32 degrees. This is not
recommended for hexahedral elements.

*** WARNING *** CP= 53.050 TIME= 20:55:40
Meshing of volume 231 produced 8 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 231 WITH EXCESSIVE DISTORTION ***
6665 6666 6669 6670 6673 6674 6677 6678

*** WARNING *** CP= 53.550 TIME= 20:55:41
Volume 237 area 676 has a corner angle of 32 degrees. This is not
recommended for hexahedral elements.

*** WARNING *** CP= 53.560 TIME= 20:55:41
Volume 237 area 1078 has a corner angle of 32 degrees. This is not
recommended for hexahedral elements.

*** WARNING *** CP= 53.620 TIME= 20:55:41
Meshing of volume 237 produced 8 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 237 WITH EXCESSIVE DISTORTION ***
6747 6748 6751 6752 6755 6756 6759 6760

*** WARNING *** CP= 53.670 TIME= 20:55:41
Volume 238 area 677 has a corner angle of 32 degrees. This is not
recommended for hexahedral elements.

*** WARNING *** CP= 53.690 TIME= 20:55:41
Volume 238 area 1081 has a corner angle of 32 degrees. This is not
recommended for hexahedral elements.

*** WARNING *** CP= 53.740 TIME= 20:55:41
Meshing of volume 238 produced 8 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 238 WITH EXCESSIVE DISTORTION ***
6769 6770 6771 6772 6773 6774 6775 6776

*** WARNING *** CP= 55.650 TIME= 20:55:47
Volume 255 area 694 has a corner angle of 32 degrees. This is not
recommended for hexahedral elements.

*** WARNING *** CP= 55.670 TIME= 20:55:47
Volume 255 area 1119 has a corner angle of 32 degrees. This is not

recommended for hexahedral elements.

*** WARNING *** CP= 55.730 TIME= 20:55:47
Meshing of volume 255 produced 14 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 255 WITH EXCESSIVE DISTORTION ***
7121 7122 7123 7124 7125 7126 7127 7128
7130 7132 7134 7136 7138 7142

*** WARNING *** CP= 56.440 TIME= 20:55:49
Volume 261 area 700 has a corner angle of 32 degrees. This is not recommended for hexahedral elements.

*** WARNING *** CP= 56.450 TIME= 20:55:49
Volume 261 area 1125 has a corner angle of 32 degrees. This is not recommended for hexahedral elements.

*** WARNING *** CP= 56.520 TIME= 20:55:49
Meshing of volume 261 produced 14 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 261 WITH EXCESSIVE DISTORTION ***
7306 7310 7313 7314 7317 7318 7321 7322
7323 7324 7325 7326 7327 7328

*** WARNING *** CP= 56.610 TIME= 20:55:49
Meshing of volume 262 produced 2 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 262 WITH EXCESSIVE DISTORTION ***
7338 7342

*** WARNING *** CP= 57.210 TIME= 20:55:50
Meshing of volume 266 produced 2 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 266 WITH EXCESSIVE DISTORTION ***
7458 7462

*** WARNING *** CP= 57.240 TIME= 20:55:50
Volume 267 area 706 has a corner angle of 32 degrees. This is not recommended for hexahedral elements.

*** WARNING *** CP= 57.270 TIME= 20:55:50
Volume 267 area 1131 has a corner angle of 32 degrees. This is not recommended for hexahedral elements.

*** WARNING *** CP= 57.330 TIME= 20:55:50
Meshing of volume 267 produced 14 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 267 WITH EXCESSIVE DISTORTION ***
7474 7478 7481 7482 7485 7486 7489 7490
7491 7492 7493 7494 7495 7496

*** WARNING *** CP= 57.520 TIME= 20:55:53
Volume 269 area 708 has a corner angle of 32 degrees. This is not recommended for hexahedral elements.

*** WARNING *** CP= 57.540 TIME= 20:55:53
Volume 269 area 1133 has a corner angle of 32 degrees. This is not recommended for hexahedral elements.

*** WARNING *** CP= 57.600 TIME= 20:55:53
Meshing of volume 269 produced 14 elements with excessive distortion.

*** LIST OF ELEMENTS IN VOLUME 269 WITH EXCESSIVE DISTORTION ***
7529 7530 7531 7532 7533 7534 7535 7536
7538 7540 7542 7544 7546 7550

NUMBER OF VOLUMES MESHED = 147
 MAXIMUM NODE NUMBER = 11541
 MAXIMUM ELEMENT NUMBER = 7552
 Mesh Upper Inner Barrier Adding Backfill Mass

INVERT FOR ITEM=VOLU COMPONENT=
 IN RANGE 1 TO 269 STEP 1

122 VOLUMES (OF 269 DEFINED) SELECTED BY VSEL COMMAND.

ACTIVE COORDINATE SYSTEM SET TO 1 (CYLINDRICAL)

UNSELECT FOR ITEM=LOC COMPONENT=X BETWEEN 0.71295 AND 0.78095
 KABS= 0. TOLERANCE= 0.000000E+00

122 VOLUMES (OF 269 DEFINED) SELECTED BY VSEL COMMAND.

RESELECT FOR ITEM=LOC COMPONENT=Z BETWEEN 0.00000E+00 AND 2.3075
 KABS= 0. TOLERANCE= 0.000000E+00

122 VOLUMES (OF 269 DEFINED) SELECTED BY VSEL COMMAND.

UNSELECT FOR ITEM=VOLU COMPONENT=
 IN RANGE 1 TO 92 STEP 1

30 VOLUMES (OF 269 DEFINED) SELECTED BY VSEL COMMAND.

ACTIVE COORDINATE SYSTEM SET TO 0 (CARTESIAN)

ELEMENT TYPE SET TO 6

MATERIAL NUMBER SET TO 6

GENERATE NODES AND ELEMENTS IN ALL SELECTED VOLUMES

*** WARNING *** CP= 58.440 TIME= 20:55:55
 Meshing of volume 104 produced 60 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 104 WITH EXCESSIVE ASPECT RATIO ***

7553	7554	7555	7556	7557	7558	7559	7560
7561	7562	7563	7564	7565	7566	7567	7568
7569	7570	7571	7572	7573	7574	7575	7576
7577	7578	7579	7580	7581	7582	7583	7584
7585	7586	7587	7588	7589	7590	7591	7592
7593	7594	7595	7596	7597	7598	7599	7600
7601	7602	7603	7604	7605	7606	7607	7608
7609	7610	7611	7612				

*** WARNING *** CP= 58.880 TIME= 20:55:56
 Meshing of volume 105 produced 24 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 105 WITH EXCESSIVE ASPECT RATIO ***

7613	7614	7615	7616	7617	7618	7643	7644
7645	7646	7647	7648	7673	7674	7675	7676
7677	7678	7703	7704	7705	7706	7707	7708

*** WARNING *** CP= 59.110 TIME= 20:55:56
 Meshing of volume 106 produced 52 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 106 WITH EXCESSIVE ASPECT RATIO ***

7733	7734	7735	7736	7737	7738	7739	7740
7741	7742	7743	7744	7745	7746	7747	7748
7749	7750	7751	7752	7753	7754	7755	7756

7757	7758	7763	7764	7765	7766	7767	7768
7769	7770	7771	7772	7773	7774	7775	7776
7777	7778	7779	7780	7781	7782	7783	7784
7785	7786	7787	7788				

*** WARNING *** CP= 59.320 TIME= 20:55:57
 Meshing of volume 107 produced 60 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 107 WITH EXCESSIVE ASPECT RATIO ***

7793	7794	7795	7796	7797	7798	7799	7800
7801	7802	7803	7804	7805	7806	7807	7808
7809	7810	7811	7812	7813	7814	7815	7816
7817	7818	7819	7820	7821	7822	7823	7824
7825	7826	7827	7828	7829	7830	7831	7832
7833	7834	7835	7836	7837	7838	7839	7840
7841	7842	7843	7844	7845	7846	7847	7848
7849	7850	7851	7852				

*** WARNING *** CP= 59.760 TIME= 20:55:58
 Meshing of volume 108 produced 8 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 108 WITH EXCESSIVE ASPECT RATIO ***

7853	7854	7883	7884	7913	7914	7943	7944
------	------	------	------	------	------	------	------

*** WARNING *** CP= 59.990 TIME= 20:55:58
 Meshing of volume 109 produced 60 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 109 WITH EXCESSIVE ASPECT RATIO ***

7973	7974	7975	7976	7977	7978	7979	7980
7981	7982	7983	7984	7985	7986	7987	7988
7989	7990	7991	7992	7993	7994	7995	7996
7997	7998	7999	8000	8001	8002	8003	8004
8005	8006	8007	8008	8009	8010	8011	8012
8013	8014	8015	8016	8017	8018	8019	8020
8021	8022	8023	8024	8025	8026	8027	8028
8029	8030	8031	8032				

*** WARNING *** CP= 60.200 TIME= 20:55:59
 Meshing of volume 110 produced 52 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 110 WITH EXCESSIVE ASPECT RATIO ***

8033	8034	8035	8036	8037	8038	8039	8040
8041	8042	8043	8044	8045	8046	8047	8048
8049	8050	8051	8052	8053	8054	8055	8056
8057	8058	8063	8064	8065	8066	8067	8068
8069	8070	8071	8072	8073	8074	8075	8076
8077	8078	8079	8080	8081	8082	8083	8084
8085	8086	8087	8088				

*** WARNING *** CP= 60.630 TIME= 20:56:00
 Meshing of volume 111 produced 24 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

*** LIST OF ELEMENTS IN VOLUME 111 WITH EXCESSIVE ASPECT RATIO ***

8093	8094	8095	8096	8097	8098	8123	8124
8125	8126	8127	8128	8153	8154	8155	8156
8157	8158	8183	8184	8185	8186	8187	8188

*** WARNING *** CP= 60.850 TIME= 20:56:01
 Meshing of volume 112 produced 60 elements with excessive aspect ratio.

Changing the element divisions on this volume may help.

```
*** LIST OF ELEMENTS IN VOLUME 112 WITH EXCESSIVE ASPECT RATIO ***
8213 8214 8215 8216 8217 8218 8219 8220
8221 8222 8223 8224 8225 8226 8227 8228
8229 8230 8231 8232 8233 8234 8235 8236
8237 8238 8239 8240 8241 8242 8243 8244
8245 8246 8247 8248 8249 8250 8251 8252
8253 8254 8255 8256 8257 8258 8259 8260
8261 8262 8263 8264 8265 8266 8267 8268
8269 8270 8271 8272
```

*** WARNING *** CP= 61.230 TIME= 20:56:02
 Meshing of volume 113 produced 48 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

```
*** LIST OF ELEMENTS IN VOLUME 113 WITH EXCESSIVE ASPECT RATIO ***
8273 8274 8275 8276 8277 8278 8279 8280
8281 8282 8283 8284 8303 8304 8305 8306
8307 8308 8309 8310 8311 8312 8313 8314
8333 8334 8335 8336 8337 8338 8339 8340
8341 8342 8343 8344 8363 8364 8365 8366
8367 8368 8369 8370 8371 8372 8373 8374
```

*** WARNING *** CP= 61.730 TIME= 20:56:03
 Meshing of volume 129 produced 16 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

```
*** LIST OF ELEMENTS IN VOLUME 129 WITH EXCESSIVE ASPECT RATIO ***
8433 8434 8435 8436 8437 8438 8439 8440
8441 8442 8443 8444 8445 8446 8447 8448
```

*** WARNING *** CP= 62.630 TIME= 20:56:06
 Meshing of volume 150 produced 16 elements with excessive aspect ratio.
 Changing the element divisions on this volume may help.

```
*** LIST OF ELEMENTS IN VOLUME 150 WITH EXCESSIVE ASPECT RATIO ***
8545 8546 8547 8548 8549 8550 8551 8552
8553 8554 8555 8556 8557 8558 8559 8560
```

NUMBER OF VOLUMES MESHED = 30
 MAXIMUM NODE NUMBER = 12897
 MAXIMUM ELEMENT NUMBER = 8616
 Mesh Lower Outer Barrier and Lids
 mesh upper outer barrier adding backfill mass

Apply Symmetry Constraints

ACTIVE COORDINATE SYSTEM SET TO 0 (CARTESIAN)

SELECT FOR ITEM=LOC COMPONENT=X BETWEEN 0.00000E+00 AND 0.00000E+00
 KABS= 0. TOLERANCE= 0.100000E-05

555 NODES (OF 12897 DEFINED) SELECTED BY NSEL COMMAND.

SYMMETRY CONSTRAINTS FOR COORDINATE SYSTEM 0 IN DIRECTION X
 ON SURFACE DEFINED BY ALL SELECTED NODES

*** NOTE *** CP= 63.420 TIME= 20:56:08
 Nodes on symmetry surfaces are rotated into coordinate system 0.

TOTAL SPECIFIED CONSTRAINTS= 555

SELECT FOR ITEM=LOC COMPONENT=Z BETWEEN 0.00000E+00 AND 0.00000E+00
 KABS= 0. TOLERANCE= 0.100000E-05

606 NODES (OF 12897 DEFINED) SELECTED BY NSEL COMMAND.

SYMMETRY CONSTRAINTS FOR COORDINATE SYSTEM 0 IN DIRECTION Z
ON SURFACE DEFINED BY ALL SELECTED NODES

*** NOTE *** CP= 63.830 TIME= 20:56:09
Nodes on symmetry surfaces are rotated into coordinate system 0.

TOTAL SPECIFIED CONSTRAINTS= 1161
Apply Constraints at Support Locations
Span approximately half of basket height, width = 0.305 m

ACTIVE COORDINATE SYSTEM SET TO 1 (CYLINDRICAL)

SELECT FOR ITEM=LOC COMPONENT=Z BETWEEN 1.0675 AND 1.5450
KABS= 0. TOLERANCE= 0.000000E+00

1818 NODES (OF 12897 DEFINED) SELECTED BY NSEL COMMAND.

RESELECT FOR ITEM=LOC COMPONENT=X BETWEEN 0.71195 AND 0.71395
KABS= 0. TOLERANCE= 0.000000E+00

246 NODES (OF 12897 DEFINED) SELECTED BY NSEL COMMAND.

RESELECT FOR ITEM=LOC COMPONENT=Y BETWEEN -70.000 AND -50.000
KABS= 0. TOLERANCE= 0.000000E+00

30 NODES (OF 12897 DEFINED) SELECTED BY NSEL COMMAND.

ACTIVE COORDINATE SYSTEM SET TO 0 (CARTESIAN)

SPECIFIED CONSTRAINT UY FOR SELECTED NODES 1 TO 12897 BY 1
REAL= 0.000000000E+00 IMAG= 0.000000000E+00

SELECT ALL ENTITIES OF TYPE= ALL AND BELOW

ALL SELECT FOR ITEM=VOLU COMPONENT=
IN RANGE 1 TO 269 STEP 1

269 VOLUMES (OF 269 DEFINED) SELECTED BY VSEL COMMAND.

ALL SELECT FOR ITEM=AREA COMPONENT=
IN RANGE 1 TO 1133 STEP 1

1133 AREAS (OF 1133 DEFINED) SELECTED BY ASEL COMMAND.

ALL SELECT FOR ITEM=LINE COMPONENT=
IN RANGE 1 TO 1604 STEP 1

1604 LINES (OF 1604 DEFINED) SELECTED BY LSEL COMMAND.

ALL SELECT FOR ITEM=KP COMPONENT=
IN RANGE 1 TO 9001 STEP 1

690 KEYPOINTS (OF 690 DEFINED) SELECTED BY KSEL COMMAND.

ALL SELECT FOR ITEM=ELEM COMPONENT=
IN RANGE 1 TO 8616 STEP 1

8616 ELEMENTS (OF 8616 DEFINED) SELECTED BY ESEL COMMAND.

ALL SELECT FOR ITEM=NODE COMPONENT=
IN RANGE 1 TO 12897 STEP 1

12897 NODES (OF 12897 DEFINED) SELECTED BY NSEL COMMAND.

ALL CURRENT ANSYS DATA WRITTEN TO FILE NAME= seism4.db
FOR POSSIBLE RESUME FROM THIS POINT

***** ROUTINE COMPLETED ***** CP = 72.550

***** ANSYS SOLUTION ROUTINE *****

PERFORM A MODAL ANALYSIS
THIS WILL BE A NEW ANALYSIS

USE SUBSPACE ITERATION METHOD
EXTRACT 8 MODES
NORMALIZE THE MODE SHAPES TO THE MASS MATRIX

WRITE ALL ITEMS TO THE DATABASE WITH A FREQUENCY OF 1
FOR ALL APPLICABLE ENTITIES

ALL CURRENT ANSYS DATA WRITTEN TO FILE NAME= seism4.db
FOR POSSIBLE RESUME FROM THIS POINT

***** ANSYS SOLVE COMMAND *****

*** WARNING *** CP= 83.760 TIME= 20:56:57
Element 2881 has an angle between adjacent edges of 40.4145358 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 83.770 TIME= 20:56:57
Element 2881 has an angle between adjacent edges of 139.536079 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 83.770 TIME= 20:56:57
Element 2882 has an angle between adjacent edges of 40.3670746 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 83.770 TIME= 20:56:57
Element 2882 has an angle between adjacent edges of 139.585464 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 83.770 TIME= 20:56:57
Element 2883 has an angle between adjacent edges of 40.4145358 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 83.770 TIME= 20:56:57
Element 2883 has an angle between adjacent edges of 139.536079 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 83.770 TIME= 20:56:57
Element 2884 has an angle between adjacent edges of 40.3670746 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 83.780 TIME= 20:56:57
Element 2884 has an angle between adjacent edges of 139.585464 on face
4 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 83.780 TIME= 20:56:57
Element 2885 has an angle between adjacent edges of 40.4145358 on face
2 which is outside the recommended range of 90 plus or minus 45
degrees.

*** WARNING *** CP= 83.780 TIME= 20:56:57
Element 2885 has an angle between adjacent edges of 139.536079 on face

4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 83.780 TIME= 20:56:57
Element 2886 has an angle between adjacent edges of 40.3670746 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 83.780 TIME= 20:56:57
Element 2886 has an angle between adjacent edges of 139.585464 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 83.790 TIME= 20:56:57
Element 2887 has an angle between adjacent edges of 40.4145358 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 83.790 TIME= 20:56:57
Element 2887 has an angle between adjacent edges of 139.536079 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 83.790 TIME= 20:56:57
Element 2888 has an angle between adjacent edges of 40.3670746 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 83.790 TIME= 20:56:57
Element 2888 has an angle between adjacent edges of 139.585464 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 83.790 TIME= 20:56:57
Element 2889 has an angle between adjacent edges of 40.4145358 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 83.800 TIME= 20:56:57
Element 2889 has an angle between adjacent edges of 139.536079 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 83.800 TIME= 20:56:57
Element 2890 has an angle between adjacent edges of 40.3670746 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 83.800 TIME= 20:56:57
Element 2890 has an angle between adjacent edges of 139.585464 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 83.800 TIME= 20:56:57
Element 2891 has an angle between adjacent edges of 40.4145358 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 83.800 TIME= 20:56:57
Element 2891 has an angle between adjacent edges of 139.536079 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 83.810 TIME= 20:56:57
Element 2892 has an angle between adjacent edges of 40.3670746 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 83.810 TIME= 20:56:57
Element 2892 has an angle between adjacent edges of 139.585464 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 83.810 TIME= 20:56:57
Element 2893 has an angle between adjacent edges of 40.4145358 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 83.810 TIME= 20:56:57
Element 2893 has an angle between adjacent edges of 139.536079 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 83.810 TIME= 20:56:57
Element 2894 has an angle between adjacent edges of 40.3670746 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 83.820 TIME= 20:56:57
Element 2894 has an angle between adjacent edges of 139.585464 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 83.820 TIME= 20:56:57
Element 2895 has an angle between adjacent edges of 40.4145358 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 83.820 TIME= 20:56:57
Element 2895 has an angle between adjacent edges of 139.536079 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 83.820 TIME= 20:56:57
Element 2896 has an angle between adjacent edges of 40.3670746 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 83.820 TIME= 20:56:57
Element 2896 has an angle between adjacent edges of 139.585464 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 83.830 TIME= 20:56:57
Element 2897 has an angle between adjacent edges of 40.4145358 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 83.830 TIME= 20:56:57
Element 2897 has an angle between adjacent edges of 139.536079 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 83.830 TIME= 20:56:57
Element 2898 has an angle between adjacent edges of 40.3670746 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 83.830 TIME= 20:56:57
Element 2898 has an angle between adjacent edges of 139.585464 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 83.830 TIME= 20:56:57
Element 2899 has an angle between adjacent edges of 40.4145358 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 83.830 TIME= 20:56:57
Element 2899 has an angle between adjacent edges of 139.536079 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 83.830 TIME= 20:56:57
Element 2900 has an angle between adjacent edges of 40.3670746 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 83.830 TIME= 20:56:57
Element 2900 has an angle between adjacent edges of 139.585464 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 83.830 TIME= 20:56:57
Element 2901 has an angle between adjacent edges of 40.4145358 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 83.830 TIME= 20:56:57
Element 2901 has an angle between adjacent edges of 139.536079 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 83.840 TIME= 20:56:57
Element 2902 has an angle between adjacent edges of 40.3670746 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 83.840 TIME= 20:56:57
Element 2902 has an angle between adjacent edges of 139.585464 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 83.840 TIME= 20:56:57
Element 2903 has an angle between adjacent edges of 40.4145358 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 83.840 TIME= 20:56:57
Element 2903 has an angle between adjacent edges of 139.536079 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 83.840 TIME= 20:56:57
Element 2904 has an angle between adjacent edges of 40.3670746 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 83.840 TIME= 20:56:57
Element 2904 has an angle between adjacent edges of 139.585464 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 83.840 TIME= 20:56:57
Element 2905 has an angle between adjacent edges of 40.4145358 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 83.840 TIME= 20:56:57
Element 2905 has an angle between adjacent edges of 139.536079 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 83.840 TIME= 20:56:57
Element 2906 has an angle between adjacent edges of 40.3670746 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 83.850 TIME= 20:56:57
Element 2906 has an angle between adjacent edges of 139.585464 on face

4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 83.850 TIME= 20:56:57
Element 2907 has an angle between adjacent edges of 40.4145358 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 83.850 TIME= 20:56:57
Element 2907 has an angle between adjacent edges of 139.536079 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 83.850 TIME= 20:56:57
Element 2908 has an angle between adjacent edges of 40.3670746 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 83.860 TIME= 20:56:57
Element 2908 has an angle between adjacent edges of 139.585464 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 83.860 TIME= 20:56:57
Element 2909 has an angle between adjacent edges of 40.4145358 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 83.860 TIME= 20:56:57
Element 2909 has an angle between adjacent edges of 139.536079 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 83.860 TIME= 20:56:57
Element 2910 has an angle between adjacent edges of 40.3670746 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 83.860 TIME= 20:56:57
Element 2910 has an angle between adjacent edges of 139.585464 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 83.860 TIME= 20:56:57
Element 2911 has an angle between adjacent edges of 32.1366194 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 83.870 TIME= 20:56:57
Element 2911 has an angle between adjacent edges of 147.813995 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 83.870 TIME= 20:56:57
Element 2912 has an angle between adjacent edges of 32.0891582 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 83.870 TIME= 20:56:57
Element 2912 has an angle between adjacent edges of 147.863381 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 83.870 TIME= 20:56:57
Element 2913 has an angle between adjacent edges of 32.1366194 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 83.870 TIME= 20:56:57
Element 2913 has an angle between adjacent edges of 147.813995 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 83.880 TIME= 20:56:57
Element 2914 has an angle between adjacent edges of 32.0891582 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 83.880 TIME= 20:56:57
Element 2914 has an angle between adjacent edges of 147.863381 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 83.880 TIME= 20:56:57
Element 2915 has an angle between adjacent edges of 32.1366194 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 83.880 TIME= 20:56:57
Element 2915 has an angle between adjacent edges of 147.813995 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 83.880 TIME= 20:56:57
Element 2916 has an angle between adjacent edges of 32.0891582 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 83.890 TIME= 20:56:57
Element 2916 has an angle between adjacent edges of 147.863381 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 83.890 TIME= 20:56:57
Element 2917 has an angle between adjacent edges of 32.1366194 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 83.890 TIME= 20:56:57
Element 2917 has an angle between adjacent edges of 147.813995 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 83.890 TIME= 20:56:57
Element 2918 has an angle between adjacent edges of 32.0891582 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 83.890 TIME= 20:56:57
Element 2918 has an angle between adjacent edges of 147.863381 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 83.900 TIME= 20:56:57
Element 2919 has an angle between adjacent edges of 32.1366194 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 83.900 TIME= 20:56:57
Element 2919 has an angle between adjacent edges of 147.813995 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 83.900 TIME= 20:56:57
Element 2920 has an angle between adjacent edges of 32.0891582 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 83.900 TIME= 20:56:57
Element 2920 has an angle between adjacent edges of 147.863381 on face

4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 83.900 TIME= 20:56:57
Element 2921 has an angle between adjacent edges of 32.1366194 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 83.900 TIME= 20:56:57
Element 2921 has an angle between adjacent edges of 147.813995 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 83.910 TIME= 20:56:57
Element 2922 has an angle between adjacent edges of 32.0891582 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 83.910 TIME= 20:56:57
Element 2922 has an angle between adjacent edges of 147.863381 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 83.910 TIME= 20:56:57
Element 2923 has an angle between adjacent edges of 32.1366194 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 83.910 TIME= 20:56:57
Element 2923 has an angle between adjacent edges of 147.813995 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 83.910 TIME= 20:56:57
Element 2924 has an angle between adjacent edges of 32.0891582 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 83.920 TIME= 20:56:57
Element 2924 has an angle between adjacent edges of 147.863381 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 83.920 TIME= 20:56:57
Element 2925 has an angle between adjacent edges of 32.1366194 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 83.920 TIME= 20:56:57
Element 2925 has an angle between adjacent edges of 147.813995 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 83.920 TIME= 20:56:57
Element 2926 has an angle between adjacent edges of 32.0891582 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 83.920 TIME= 20:56:57
Element 2926 has an angle between adjacent edges of 147.863381 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 83.930 TIME= 20:56:57
Element 2927 has an angle between adjacent edges of 32.1366194 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 83.930 TIME= 20:56:57
Element 2927 has an angle between adjacent edges of 147.813995 on face

4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 83.930 TIME= 20:56:57
Element 2928 has an angle between adjacent edges of 32.0891582 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 83.930 TIME= 20:56:57
Element 2928 has an angle between adjacent edges of 147.863381 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 83.930 TIME= 20:56:57
Element 2929 has an angle between adjacent edges of 32.1366194 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 83.930 TIME= 20:56:57
Element 2929 has an angle between adjacent edges of 147.813995 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 83.940 TIME= 20:56:57
Element 2930 has an angle between adjacent edges of 32.0891582 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 83.940 TIME= 20:56:57
Element 2930 has an angle between adjacent edges of 147.863381 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 83.940 TIME= 20:56:57
Element 2931 has an angle between adjacent edges of 32.1366194 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 83.940 TIME= 20:56:57
Element 2931 has an angle between adjacent edges of 147.813995 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 83.940 TIME= 20:56:57
Element 2932 has an angle between adjacent edges of 32.0891582 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 83.940 TIME= 20:56:57
Element 2932 has an angle between adjacent edges of 147.863381 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 83.950 TIME= 20:56:57
Element 2933 has an angle between adjacent edges of 32.1366194 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 83.950 TIME= 20:56:57
Element 2933 has an angle between adjacent edges of 147.813995 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 83.950 TIME= 20:56:57
Element 2934 has an angle between adjacent edges of 32.0891582 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 83.950 TIME= 20:56:57
Element 2934 has an angle between adjacent edges of 147.863381 on face

4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 83.950 TIME= 20:56:57
Element 2935 has an angle between adjacent edges of 32.1366194 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 83.960 TIME= 20:56:57
Element 2935 has an angle between adjacent edges of 147.813995 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 83.960 TIME= 20:56:57
Element 2936 has an angle between adjacent edges of 32.0891582 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 83.960 TIME= 20:56:57
Element 2936 has an angle between adjacent edges of 147.863381 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 83.960 TIME= 20:56:57
Element 2937 has an angle between adjacent edges of 32.1366194 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 83.960 TIME= 20:56:57
Element 2937 has an angle between adjacent edges of 147.813995 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 83.970 TIME= 20:56:57
Element 2938 has an angle between adjacent edges of 32.0891582 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 83.970 TIME= 20:56:57
Element 2938 has an angle between adjacent edges of 147.863381 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 83.970 TIME= 20:56:57
Element 2939 has an angle between adjacent edges of 32.1366194 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 83.970 TIME= 20:56:57
Element 2939 has an angle between adjacent edges of 147.813995 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 83.970 TIME= 20:56:57
Element 2940 has an angle between adjacent edges of 32.0891582 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 83.970 TIME= 20:56:57
Element 2940 has an angle between adjacent edges of 147.863381 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 83.980 TIME= 20:56:57
Element 2941 has an angle between adjacent edges of 40.4145358 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 83.980 TIME= 20:56:57
Element 2941 has an angle between adjacent edges of 147.863381 on face

4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 83.980 TIME= 20:56:57
Element 2942 has an angle between adjacent edges of 139.585464 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 83.980 TIME= 20:56:57
Element 2942 has an angle between adjacent edges of 139.585464 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 83.980 TIME= 20:56:57
Element 2945 has an angle between adjacent edges of 40.4145358 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 83.990 TIME= 20:56:57
Element 2945 has an angle between adjacent edges of 147.863381 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 83.990 TIME= 20:56:57
Element 2946 has an angle between adjacent edges of 139.585464 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 83.990 TIME= 20:56:57
Element 2946 has an angle between adjacent edges of 139.585464 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 83.990 TIME= 20:56:57
Element 2949 has an angle between adjacent edges of 40.4145358 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 83.990 TIME= 20:56:57
Element 2949 has an angle between adjacent edges of 147.863381 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 84.000 TIME= 20:56:57
Element 2950 has an angle between adjacent edges of 139.585464 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 84.000 TIME= 20:56:57
Element 2950 has an angle between adjacent edges of 139.585464 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 84.000 TIME= 20:56:57
Element 2953 has an angle between adjacent edges of 40.4145358 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 84.000 TIME= 20:56:57
Element 2953 has an angle between adjacent edges of 147.863381 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 84.000 TIME= 20:56:57
Element 2954 has an angle between adjacent edges of 139.585464 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 84.000 TIME= 20:56:57
Element 2954 has an angle between adjacent edges of 139.585464 on face

4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 84.010 TIME= 20:56:57
Element 2957 has an angle between adjacent edges of 40.4145358 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 84.010 TIME= 20:56:57
Element 2957 has an angle between adjacent edges of 147.863381 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 84.010 TIME= 20:56:57
Element 2958 has an angle between adjacent edges of 139.585464 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 84.010 TIME= 20:56:57
Element 2958 has an angle between adjacent edges of 139.585464 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 84.020 TIME= 20:56:57
Element 2961 has an angle between adjacent edges of 40.4145358 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 84.020 TIME= 20:56:57
Element 2961 has an angle between adjacent edges of 147.863381 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 84.020 TIME= 20:56:57
Element 2962 has an angle between adjacent edges of 139.585464 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 84.020 TIME= 20:56:57
Element 2962 has an angle between adjacent edges of 139.585464 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 84.020 TIME= 20:56:57
Element 2965 has an angle between adjacent edges of 40.4145358 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 84.030 TIME= 20:56:57
Element 2965 has an angle between adjacent edges of 147.863381 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 84.030 TIME= 20:56:57
Element 2966 has an angle between adjacent edges of 139.585464 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 84.030 TIME= 20:56:57
Element 2966 has an angle between adjacent edges of 139.585464 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 84.030 TIME= 20:56:57
Element 2969 has an angle between adjacent edges of 40.4145358 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 84.030 TIME= 20:56:57
Element 2969 has an angle between adjacent edges of 147.863381 on face

4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 84.030 TIME= 20:56:57
Element 2970 has an angle between adjacent edges of 139.585464 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 84.040 TIME= 20:56:57
Element 2970 has an angle between adjacent edges of 139.585464 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 84.040 TIME= 20:56:57
Element 2973 has an angle between adjacent edges of 40.4145358 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 84.040 TIME= 20:56:57
Element 2973 has an angle between adjacent edges of 147.863381 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 84.040 TIME= 20:56:57
Element 2974 has an angle between adjacent edges of 139.585464 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 84.040 TIME= 20:56:57
Element 2974 has an angle between adjacent edges of 139.585464 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 84.050 TIME= 20:56:57
Element 2977 has an angle between adjacent edges of 40.4145358 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 84.050 TIME= 20:56:57
Element 2977 has an angle between adjacent edges of 147.863381 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 84.050 TIME= 20:56:57
Element 2978 has an angle between adjacent edges of 139.585464 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 84.060 TIME= 20:56:57
Element 2978 has an angle between adjacent edges of 139.585464 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 84.060 TIME= 20:56:57
Element 2981 has an angle between adjacent edges of 40.4145358 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 84.060 TIME= 20:56:57
Element 2981 has an angle between adjacent edges of 147.863381 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 84.060 TIME= 20:56:57
Element 2982 has an angle between adjacent edges of 139.585464 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 84.060 TIME= 20:56:57
Element 2982 has an angle between adjacent edges of 139.585464 on face

4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 84.070 TIME= 20:56:57
Element 2985 has an angle between adjacent edges of 40.4145358 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 84.070 TIME= 20:56:57
Element 2985 has an angle between adjacent edges of 147.863381 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 84.070 TIME= 20:56:57
Element 2986 has an angle between adjacent edges of 139.585464 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 84.070 TIME= 20:56:57
Element 2986 has an angle between adjacent edges of 139.585464 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 84.080 TIME= 20:56:57
Element 2989 has an angle between adjacent edges of 40.4145358 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 84.080 TIME= 20:56:57
Element 2989 has an angle between adjacent edges of 147.863381 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 84.080 TIME= 20:56:57
Element 2990 has an angle between adjacent edges of 139.585464 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 84.080 TIME= 20:56:57
Element 2990 has an angle between adjacent edges of 139.585464 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 84.080 TIME= 20:56:57
Element 2993 has an angle between adjacent edges of 40.4145358 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 84.080 TIME= 20:56:57
Element 2993 has an angle between adjacent edges of 147.863381 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 84.080 TIME= 20:56:57
Element 2994 has an angle between adjacent edges of 139.585464 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 84.080 TIME= 20:56:57
Element 2994 has an angle between adjacent edges of 139.585464 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 84.080 TIME= 20:56:57
Element 2997 has an angle between adjacent edges of 40.4145358 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 84.080 TIME= 20:56:57
Element 2997 has an angle between adjacent edges of 147.863381 on face

4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 84.090 TIME= 20:56:57
Element 2998 has an angle between adjacent edges of 139.585464 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 84.090 TIME= 20:56:57
Element 2998 has an angle between adjacent edges of 139.585464 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 84.090 TIME= 20:56:57
Element 3001 has an angle between adjacent edges of 40.4639215 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 84.090 TIME= 20:56:57
Element 3001 has an angle between adjacent edges of 147.813995 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 84.090 TIME= 20:56:57
Element 3002 has an angle between adjacent edges of 139.536079 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 84.100 TIME= 20:56:57
Element 3002 has an angle between adjacent edges of 139.536079 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 84.100 TIME= 20:56:57
Element 3005 has an angle between adjacent edges of 40.4639215 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 84.100 TIME= 20:56:57
Element 3005 has an angle between adjacent edges of 147.813995 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 84.100 TIME= 20:56:57
Element 3006 has an angle between adjacent edges of 139.536079 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 84.100 TIME= 20:56:57
Element 3006 has an angle between adjacent edges of 139.536079 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 84.110 TIME= 20:56:57
Element 3009 has an angle between adjacent edges of 40.4639215 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 84.110 TIME= 20:56:57
Element 3009 has an angle between adjacent edges of 147.813995 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 84.110 TIME= 20:56:57
Element 3010 has an angle between adjacent edges of 139.536079 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 84.110 TIME= 20:56:57
Element 3010 has an angle between adjacent edges of 139.536079 on face

4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 84.120 TIME= 20:56:57
Element 3013 has an angle between adjacent edges of 40.4639215 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 84.120 TIME= 20:56:57
Element 3013 has an angle between adjacent edges of 147.813995 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 84.120 TIME= 20:56:57
Element 3014 has an angle between adjacent edges of 139.536079 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 84.120 TIME= 20:56:57
Element 3014 has an angle between adjacent edges of 139.536079 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 84.120 TIME= 20:56:57
Element 3017 has an angle between adjacent edges of 40.4639215 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 84.130 TIME= 20:56:57
Element 3017 has an angle between adjacent edges of 147.813995 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 84.130 TIME= 20:56:57
Element 3018 has an angle between adjacent edges of 139.536079 on face 2 which is outside the recommended range of 90 plus or minus 45 degrees.

*** WARNING *** CP= 84.130 TIME= 20:56:57
Element 3018 has an angle between adjacent edges of 139.536079 on face 4 which is outside the recommended range of 90 plus or minus 45 degrees.

Error messages discontinued after 200 messages were displayed.
More may exist. See (seism4.err) for suppressed messages.

*** NOTE *** CP= 88.280 TIME= 20:57:01
The model data was checked and warning messages were found.
Please review output or errors file (seism4.err) for these warning messages.

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***** ANSYS - ENGINEERING ANALYSIS SYSTEM REVISION 5.1 24 *****
38303 VERSION=HP 9000/7XX 20:57:01 JUN 08, 1996 CP= 88.280
FOR SUPPORT CALL ROBERT BAHNEY PHONE (702) 794-5337 FAX (702) 794-1844

21 PWR Tube Seismic Analysis With Backfill

SOLUTION OPTIONS

PROBLEM DIMENSIONALITY.3-D
DEGREES OF FREEDOM.UX UY UZ
ANALYSIS TYPEMODAL
EXTRACTION METHOD.SUBSPACE
NUMBER OF MODES TO EXTRACT.8

LOAD STEP OPTIONS

LOAD STEP NUMBER. 1

***** CENTROID, MASS, AND MASS MOMENTS OF INERTIA *****

CALCULATIONS ASSUME ELEMENT MASS AT ELEMENT CENTROID

TOTAL MASS = 10424.

CENTROID	MOM. OF INERTIA ABOUT ORIGIN	MOM. OF INERTIA ABOUT CENTROID
XC = 0.36477	IXX = 0.2083E+05	IXX = 5846.
YC = 0.31176	IYY = 0.2044E+05	IYY = 5082.
ZC = 1.1575	IZZ = 4089.	IZZ = 1689.
	IXY = -1140.	IXY = 45.56
	IYZ = -3749.	IYZ = 12.20
	IZX = -4400.	IZX = 1.117

*** MASS SUMMARY BY ELEMENT TYPE ***

TYPE	MASS
2	3085.89
3	448.703
4	240.549
5	115.124
6	6533.39

Range of element maximum matrix coefficients in global coordinates
 Maximum= 5.450155848E+11 at element 5101.
 Minimum= 180090805 at element 6499.

*** ELEMENT MATRIX FORMULATION TIMES

TYPE	NUMBER	ENAME	TOTAL CP	AVE CP
2	2520	SOLID45	15.020	0.006
3	1560	SOLID45	9.370	0.006
4	600	SOLID45	3.620	0.006
5	2872	SOLID45	17.210	0.006
6	1064	SOLID45	6.470	0.006

Time at end of element matrix formulation CP= 149.9.

Estimated number of active DOF= 37500.
 Maximum wavefront= 1397.

Time at end of matrix triangularization CP= 233.84.

SUBSPACE SIZE OF 12 VECTORS USED FOR CALCULATION OF FIRST 8 EIGENVECTORS.

MAXIMUM ITERATIONS	=	100
NUMBER OF EQUATIONS	=	37500
MAXIMUM WAVEFRONT	=	1397
ITERATIONS PER SHIFT	=	5
MAXIMUM MODES STORED	=	12
MAXIMUM EIGENVALUE	=	0.10000E+07
WORK SPACE (MBYTE)	=	8.0875

Equation solver maximum pivot= 1.429251269E+12 at node 8454 UX.

Equation solver minimum pivot= 1534600.89 at node 462 UY.

***** ITERATION 1 COMPLETE ***** CP= 2989.770 WALL= 22.9325

***** CURRENT EIGENVALUE CALCULATIONS *****

MODE	CURRENT VALUE	PREVIOUS VALUE	CONVERGENCE RATIO
------	---------------	----------------	-------------------

1	24.072895	0.00000000E+00	0.10000E+01
2	30.534219	0.00000000E+00	0.10000E+01
3	32.760549	0.00000000E+00	0.10000E+01
4	40.345539	0.00000000E+00	0.10000E+01
5	47.959622	0.00000000E+00	0.10000E+01
6	51.498381	0.00000000E+00	0.10000E+01
7	53.895946	0.00000000E+00	0.10000E+01
8	63.760140	0.00000000E+00	0.10000E+01
9	67.432934	0.00000000E+00	0.10000E+01
10	71.863444	0.00000000E+00	0.10000E+01
11	82.152024	0.00000000E+00	0.10000E+01
12	86.795120	0.00000000E+00	0.10000E+01

ITERATIONS SINCE LAST SHIFT= 1
 TOTAL NUMBER OF ITERATIONS= 1
 NUMBER OF MODES CONVERGED= 0
 NUMBER OF WORKING VECTORS= 12
 CURRENT SHIFT POINT= -1.0000
 CP TIME FOR TRIANGULARIZATION= 2582.260
 CP TIME SINCE LAST SHIFT= 169.580

***** ITERATION 2 COMPLETE ***** CP= 3156.170 WALL= 23.0781

***** CURRENT EIGENVALUE CALCULATIONS *****

MODE	CURRENT VALUE	PREVIOUS VALUE	CONVERGENCE RATIO
1	19.041244	24.072895	0.59833E+00
2	25.509375	30.534219	0.43276E+00
3	28.831393	32.760549	0.29113E+00
4	31.418651	40.345539	0.64898E+00
5	35.106770	47.959622	0.86625E+00
6	37.983349	51.498381	0.83823E+00
7	38.983652	53.895946	0.91138E+00
8	43.896969	63.760140	0.11097E+01
9	45.305866	67.432934	0.12153E+01
10	50.226301	71.863444	0.10472E+01
11	52.179581	82.152024	0.14788E+01
12	61.620075	86.795120	0.98402E+00

ITERATIONS SINCE LAST SHIFT= 2
 TOTAL NUMBER OF ITERATIONS= 2
 NUMBER OF MODES CONVERGED= 0
 NUMBER OF WORKING VECTORS= 12
 CURRENT SHIFT POINT= -1.0000
 CP TIME FOR TRIANGULARIZATION= 2582.260
 CP TIME SINCE LAST SHIFT= 335.980

***** ITERATION 3 COMPLETE ***** CP= 3324.220 WALL= 23.2233

***** CURRENT EIGENVALUE CALCULATIONS *****

MODE	CURRENT VALUE	PREVIOUS VALUE	CONVERGENCE RATIO
1	19.016423	19.041244	0.26122E-02
2	25.251633	25.509375	0.20518E-01
3	28.590891	28.831393	0.16894E-01
4	30.655267	31.418651	0.50425E-01
5	31.217594	35.106770	0.26469E+00
6	34.043363	37.983349	0.24486E+00
7	36.188598	38.983652	0.16044E+00
8	42.657493	43.896969	0.58957E-01
9	43.755305	45.305866	0.72130E-01
10	47.882079	50.226301	0.10031E+00
11	50.068697	52.179581	0.86097E-01
12	57.518681	61.620075	0.14770E+00

ITERATIONS SINCE LAST SHIFT= 3
 TOTAL NUMBER OF ITERATIONS= 3
 NUMBER OF MODES CONVERGED= 0

NUMBER OF WORKING VECTORS= 12
 CURRENT SHIFT POINT= -1.0000
 CP TIME FOR TRIANGULARIZATION= 2582.260
 CP TIME SINCE LAST SHIFT= 504.030

***** ITERATION 4 COMPLETE ***** CP= 3491.720 WALL= 23.3686

***** CURRENT EIGENVALUE CALCULATIONS *****

MODE	CURRENT VALUE	PREVIOUS VALUE	CONVERGENCE RATIO
1	19.016201	19.016423	0.23333E-04
2	25.240709	25.251633	0.86575E-03
3	28.568283	28.590891	0.15833E-02
4	30.025355	30.655267	0.42399E-01
5	31.193599	31.217594	0.15391E-02
6	33.860679	34.043363	0.10819E-01
7	35.930079	36.188598	0.14442E-01
8	42.357246	42.657493	0.14227E-01
9	43.508304	43.755305	0.11386E-01
10	47.436191	47.882079	0.18888E-01
11	49.467876	50.068697	0.24439E-01
12	55.471950	57.518681	0.75155E-01

ITERATIONS SINCE LAST SHIFT= 4
 TOTAL NUMBER OF ITERATIONS= 4
 NUMBER OF MODES CONVERGED= 0
 NUMBER OF WORKING VECTORS= 12
 CURRENT SHIFT POINT= -1.0000
 CP TIME FOR TRIANGULARIZATION= 2582.260
 CP TIME SINCE LAST SHIFT= 671.530

***** ITERATION 5 COMPLETE ***** CP= 3659.050 WALL= 23.5147

***** CURRENT EIGENVALUE CALCULATIONS *****

MODE	CURRENT VALUE	PREVIOUS VALUE	CONVERGENCE RATIO
1	19.016199	19.016201	0.25232E-06
2	25.240208	25.240709	0.39695E-04
3	28.566446	28.568283	0.12867E-03
4	29.973321	30.025355	0.34750E-02
5	31.192263	31.193599	0.85672E-04
6	33.831481	33.860679	0.17268E-02
7	35.886019	35.930079	0.24571E-02
8	42.259295	42.357246	0.46410E-02
9	43.453812	43.508304	0.25096E-02
10	47.286594	47.436191	0.63373E-02
11	49.207133	49.467876	0.10626E-01
12	53.868806	55.471950	0.60406E-01

ITERATIONS SINCE LAST SHIFT= 5
 TOTAL NUMBER OF ITERATIONS= 5
 NUMBER OF MODES CONVERGED= 1
 NUMBER OF WORKING VECTORS= 12
 CURRENT SHIFT POINT= -1.0000
 CP TIME FOR TRIANGULARIZATION= 2582.260
 CP TIME SINCE LAST SHIFT= 838.870

*** NOTE *** CP= 3659.060 TIME= 23:30:53
 NEW SHIFT= 24.9658865.

*** NOTE *** CP= 6238.620 TIME= 01:19:35
 STURM number= 1 should be 1.

***** ITERATION 6 COMPLETE ***** CP= 6392.400 WALL= 25.4578

***** PREVIOUS CONVERGED EIGENVALUES *****

1 19.0161986

```

***** CURRENT EIGENVALUE CALCULATIONS *****
MODE  CURRENT VALUE  PREVIOUS VALUE  CONVERGENCE RATIO
2     25.240183      25.240208      0.20265E-05
3     28.566299      28.566446      0.10237E-04
4     29.968136      29.973321      0.34608E-03
5     31.192135      31.192263      0.82310E-05
6     33.826207      33.831481      0.31183E-03
7     35.876875      35.886019      0.50983E-03
8     42.218784      42.259295      0.19200E-02
9     43.435659      43.453812      0.83606E-03
10    47.213617      47.286594      0.30938E-02
11    49.028357      49.207133      0.73061E-02
12    52.024483      53.868806      0.72159E-01

```

```

ITERATIONS SINCE LAST SHIFT= 1
TOTAL NUMBER OF ITERATIONS= 6
NUMBER OF MODES CONVERGED= 2
NUMBER OF WORKING VECTORS= 12
CURRENT SHIFT POINT= 24.966
CP TIME FOR TRIANGULARIZATION= 2579.920
CP TIME SINCE LAST SHIFT= 153.420

```

***** ITERATION 7 COMPLETE ***** CP= 6540.210 WALL= 25.5847

***** PREVIOUS CONVERGED EIGENVALUES *****
1 19.0161986 2 25.2401825

```

***** CURRENT EIGENVALUE CALCULATIONS *****
MODE  CURRENT VALUE  PREVIOUS VALUE  CONVERGENCE RATIO
3     28.566298      28.566299      0.66749E-07
4     29.968059      29.968136      0.51720E-05
5     31.192132      31.192135      0.16674E-06
6     33.825918      33.826207      0.17082E-04
7     35.876156      35.876875      0.40084E-04
8     42.209078      42.218784      0.45995E-03
9     43.431271      43.435659      0.20206E-03
10    47.185751      47.213617      0.11815E-02
11    48.916173      49.028357      0.45921E-02
12    50.545233      52.024483      0.59388E-01

```

```

ITERATIONS SINCE LAST SHIFT= 2
TOTAL NUMBER OF ITERATIONS= 7
NUMBER OF MODES CONVERGED= 5
NUMBER OF WORKING VECTORS= 12
CURRENT SHIFT POINT= 24.966
CP TIME FOR TRIANGULARIZATION= 2579.920
CP TIME SINCE LAST SHIFT= 301.230

```

***** ITERATION 8 COMPLETE ***** CP= 6665.060 WALL= 25.7050

***** PREVIOUS CONVERGED EIGENVALUES *****
1 19.0161986 2 25.2401825 3 28.5662985
4 29.9680587 5 31.1921319

```

***** CURRENT EIGENVALUE CALCULATIONS *****
MODE  CURRENT VALUE  PREVIOUS VALUE  CONVERGENCE RATIO
6     33.825903      33.825918      0.90184E-06
7     35.876100      35.876156      0.31182E-05
8     42.206747      42.209078      0.11045E-03
9     43.430102      43.431271      0.53846E-04
10    47.173637      47.185751      0.51364E-03
11    48.809217      48.916173      0.43874E-02
12    49.600584      50.545233      0.38453E-01

```


ITERATIONS SINCE LAST SHIFT= 3
 TOTAL NUMBER OF ITERATIONS= 8
 NUMBER OF MODES CONVERGED= 7
 NUMBER OF WORKING VECTORS= 12
 CURRENT SHIFT POINT= 24.966
 CP TIME FOR TRIANGULARIZATION= 2579.920
 CP TIME SINCE LAST SHIFT= 426.080

***** ITERATION 9 COMPLETE ***** CP= 6780.120 WALL= 25.8161

***** PREVIOUS CONVERGED EIGENVALUES *****

1	19.0161986	2	25.2401825	3	28.5662985
4	29.9680587	5	31.1921319	6	33.8259027
7	35.8761000				

***** CURRENT EIGENVALUE CALCULATIONS *****

MODE	CURRENT VALUE	PREVIOUS VALUE	CONVERGENCE RATIO
8	42.206188	42.206747	0.26481E-04
9	43.429785	43.430102	0.14590E-04
10	47.167800	47.173637	0.24752E-03
11	48.646995	48.809217	0.66805E-02
12	49.163104	49.600584	0.17876E-01

ITERATIONS SINCE LAST SHIFT= 4
 TOTAL NUMBER OF ITERATIONS= 9
 NUMBER OF MODES CONVERGED= 7
 NUMBER OF WORKING VECTORS= 12
 CURRENT SHIFT POINT= 24.966
 CP TIME FOR TRIANGULARIZATION= 2579.920
 CP TIME SINCE LAST SHIFT= 541.140

***** ITERATION 10 COMPLETE ***** CP= 6895.790 WALL= 25.9253

***** PREVIOUS CONVERGED EIGENVALUES *****

1	19.0161986	2	25.2401825	3	28.5662985
4	29.9680587	5	31.1921319	6	33.8259027
7	35.8761000				

***** CURRENT EIGENVALUE CALCULATIONS *****

MODE	CURRENT VALUE	PREVIOUS VALUE	CONVERGENCE RATIO
8	42.206055	42.206188	0.63024E-05

*** NOTE *** CP= 6895.790 TIME= 01:55:31
 NEW SHIFT= 42.3300117.

*** NOTE *** CP= 9476.990 TIME= 03:44:32
 STURM number= 8 should be 8.

***** ANSYS - ENGINEERING ANALYSIS SYSTEM REVISION 5.1 24 *****
 38303 VERSION=HP 9000/7XX 03:44:35 JUN 09, 1996 CP= 9477.430
 FOR SUPPORT CALL ROBERT BAHNEY PHONE (702) 794-5337 FAX (702) 794-1844

21 PWR Tube Seismic Analysis With Backfill

***** FREQUENCIES FROM SUBSPACE ITERATION *****

MODE FREQUENCY (HERTZ)

1	19.016199
2	25.240183
3	28.566298
4	29.968059
5	31.192132

6 33.825903
7 35.876100
8 42.206055

*** PROBLEM STATISTICS

ACTUAL NO. OF ACTIVE DEGREES OF FREEDOM = 37500
R.M.S. WAVEFRONT SIZE = 902.2

*** ANSYS BINARY FILE STATISTICS

BUFFER SIZE USED= 4096
44.625 MB WRITTEN ON ELEMENT MATRIX FILE: seism4.emat
29.703 MB WRITTEN ON ELEMENT SAVED DATA FILE: seism4.esav
21.094 MB WRITTEN ON ASSEMBLED MATRIX FILE: seism4.full
2.719 MB WRITTEN ON MODAL MATRIX FILE: seism4.mode

FINISH SOLUTION PROCESSING

***** ROUTINE COMPLETED ***** CP = 9485.070

***** ANSYS SOLUTION ROUTINE *****

PERFORM AN EXPANSION PASS

NUMBER OF MODES TO EXPAND= 8
CALCULATE ELEMENT RESULTS AND MODAL DOF SOLUTION

***** ANSYS SOLVE COMMAND *****

1

***** ANSYS - ENGINEERING ANALYSIS SYSTEM REVISION 5.1 24 *****
38303 VERSION=HP 9000/7XX 03:45:14 JUN 09, 1996 CP= 9485.080
FOR SUPPORT CALL ROBERT BAHNEY PHONE (702) 794-5337 FAX (702) 794-1844

21 PWR Tube Seismic Analysis With Backfill

SOLUTION OPTIONS

PROBLEM DIMENSIONALITY.3-D
DEGREES OF FREEDOM.UX UY UZ
ANALYSIS TYPEMODAL
EXTRACTION METHOD.SUBSPACE
EXPANSION PASSON
NUMBER OF MODES TO EXPAND8
ELEMENT RESULTS CALCULATIONON

LOAD STEP OPTIONS

LOAD STEP NUMBER.1
PRINT OUTPUT CONTROLSNO PRINTOUT
DATABASE OUTPUT CONTROLS
ITEM FREQUENCY COMPONENT
ALL ALL

*** NOTE *** CP= 9513.530 TIME= 03:46:42
Page file used.

*** ELEMENT RESULT CALCULATION TIMES

TYPE	NUMBER	ENAME	TOTAL CP	AVE CP
2	2520	SOLID45	8.940	0.004
3	1560	SOLID45	5.760	0.004

4	600	SOLID45	2.110	0.004
5	2872	SOLID45	10.770	0.004
6	1064	SOLID45	4.150	0.004

*** NODAL LOAD CALCULATION TIMES

TYPE	NUMBER	ENAME	TOTAL CP	AVE CP
2	2520	SOLID45	0.920	0.000
3	1560	SOLID45	0.500	0.000
4	600	SOLID45	0.250	0.000
5	2872	SOLID45	0.920	0.000
6	1064	SOLID45	0.350	0.000

*** ANSYS BINARY FILE STATISTICS
 BUFFER SIZE USED= 4096
 106.109 MB WRITTEN ON RESULTS FILE: seism4.rst

FINISH SOLUTION PROCESSING

***** ROUTINE COMPLETED ***** CP = 9777.150

***** ANSYS SOLUTION ROUTINE *****

PERFORM A SPECTRUM ANALYSIS
 THIS WILL BE A NEW ANALYSIS

*** NOTE *** CP= 9777.160 TIME= 04:00:18
 Some analysis options have been reset to their defaults. Please verify
 current settings or respecify as required.

USE SINGLE POINT EXCITATION RESPONSE SPECTRUM
 USE ALL MODES FROM THE MODAL ANALYSIS
 INCLUDE STRESS RESPONSES IN THE CALCULATIONS

SEISMIC EXCITATION DIRECTION = 0.00000E+00 1.0000 0.00000E+00

SPECTRUM TYPE KEY= 2 FACTOR= 1.00000

FREQ= 0.100 100. 0.000E+00 0.000E+00 0.000E+00 0.000E+00 0.000E+00 0.000E+00 0.000E+00
 NUMBER OF FREQUENCIES IN TABLE = 2

DAMPING=	0.00000E+00	SV=	16.285	16.285	0.00000E+00
			0.00000E+00	0.00000E+00	0.00000E+00
			0.00000E+00	0.00000E+00	0.00000E+00

COMBINE MODES USING THE SRSS METHOD
 WHOSE SIGNIFICANCE LEVEL EXCEEDS THE THRESHOLD OF 0.10000E-07

WRITE ALL ITEMS TO THE DATABASE WITH A FREQUENCY OF 1
 FOR ALL APPLICABLE ENTITIES

ALL CURRENT ANSYS DATA WRITTEN TO FILE NAME= seism4.db
 FOR POSSIBLE RESUME FROM THIS POINT

***** ANSYS SOLVE COMMAND *****

1

***** ANSYS - ENGINEERING ANALYSIS SYSTEM REVISION 5.1 24 *****
 38303 VERSION=HP 9000/7XX 04:01:03 JUN 09, 1996 CP= 9790.870
 FOR SUPPORT CALL ROBERT BAHNEY PHONE (702) 794-5337 FAX (702) 794-1844

21 PWR Tube Seismic Analysis With Backfill

SOLUTION OPTIONS

PROBLEM DIMENSIONALITY.3-D
 DEGREES OF FREEDOM. UX UY UZ
 ANALYSIS TYPESPECTRUM
 SPECTRUM TYPE.SINGLE POINT
 NUMBER OF MODES TO BE USED. 8
 ELEMENT RESULTS CALCULATIONON

LOAD STEP OPTIONS

LOAD STEP NUMBER. 1
 SPECTRUM LOADING TYPEACCELERATION
 EXCITATION DIRECTION. 0.00000E+00 1.0000 0.00000E+00
 MODE COMBINATION TYPESRSS
 SIGNIFICANCE LEVEL FOR COMBINATIONS. 0.10000E-07
 PRINT OUTPUT CONTROLSNO PRINTOUT
 DATABASE OUTPUT CONTROLS
 ITEM FREQUENCY COMPONENT
 ALL ALL

1

***** ANSYS - ENGINEERING ANALYSIS SYSTEM REVISION 5.1 24 *****
 38303 VERSION=HP 9000/7XX 04:01:20 JUN 09, 1996 CP= 9795.190
 FOR SUPPORT CALL ROBERT BAHNEY PHONE (702) 794-5337 FAX (702) 794-1844

21 PWR Tube Seismic Analysis With Backfill

SIGNIFICANCE FACTOR FOR COMBINING MODES = 0.10000E-07

SIGNIFICANT MODE COEFFICIENTS (INCLUDING DAMPING)

MODE	FREQUENCY	DAMPING	SV	MODE COEF.
1	19.02	0.0000	16.285	0.1346E-02
2	25.24	0.0000	16.285	0.2067E-02
3	28.57	0.0000	16.285	0.3172E-01
4	29.97	0.0000	16.285	0.8336E-03
5	31.19	0.0000	16.285	0.1284E-02
6	33.83	0.0000	16.285	-0.1408E-02
7	35.88	0.0000	16.285	-0.1330E-01
8	42.21	0.0000	16.285	-0.4546E-03

MODAL COMBINATION COEFFICIENTS

MODE= 1	FREQUENCY=	19.016	COUPLING COEF.=	1.000
MODE= 2	FREQUENCY=	25.240	COUPLING COEF.=	1.000
MODE= 3	FREQUENCY=	28.566	COUPLING COEF.=	1.000
MODE= 4	FREQUENCY=	29.968	COUPLING COEF.=	1.000
MODE= 5	FREQUENCY=	31.192	COUPLING COEF.=	1.000
MODE= 6	FREQUENCY=	33.826	COUPLING COEF.=	1.000
MODE= 7	FREQUENCY=	35.876	COUPLING COEF.=	1.000
MODE= 8	FREQUENCY=	42.206	COUPLING COEF.=	1.000

SRSS COMBINATION INSTRUCTIONS WRITTEN ON FILE seism4.mcom

*** PROBLEM STATISTICS

ACTUAL NO. OF ACTIVE DEGREES OF FREEDOM = 37500
 R.M.S. WAVEFRONT SIZE = 902.2

*** ANSYS BINARY FILE STATISTICS

BUFFER SIZE USED= 4096

FINISH SOLUTION PROCESSING

***** ROUTINE COMPLETED ***** CP = 9795.190

PURGE ALL SOLUTION AND POST DATA
SAVE ALL MODEL DATA

ALL CURRENT ANSYS DATA WRITTEN TO FILE NAME= seism4.db
FOR POSSIBLE RESUME FROM THIS POINT

NUMBER OF WARNING MESSAGES ENCOUNTERED= 1042
NUMBER OF ERROR MESSAGES ENCOUNTERED= 0

*** PAGE FILE USED ***
NUMBER OF R/W OPERATIONS= 790
MAXIMUM RECORD NUMBER = 599
RECORD SIZE (I*4 WORDS) = 16384
PAGE FILE SIZE (MB) = 37.438

```
*-----*
|                                     |
|               ANSYS RUN COMPLETED               |
|-----|
|               REV. 5.1  24               HP 9000/7XX               |
|               CP TIME      (sec) =      9804.310      TIME = 04:01:47      |
|               ELAPSED TIME (sec) =     25694.000      DATE  = 06/09/96      |
|-----|
*-----*
```

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PRESS <CR> OR <ENTER> TO CONTINUE

***** ANSYS COMMAND LINE ARGUMENTS *****

INITIAL JOBNAME = postf4
MEMORY REQUESTED (MB) = 64.0
BATCH MODE REQUESTED = LIST
START-UP FILE MODE = READ

*** NOTE *** CP= 0.180 TIME= 13:11:55

There are no parameters and no abbreviations defined.

38303 VERSION=HP 9000/7XX REVISION= 5.1 24
FOR SUPPORT CALL ROBERT BAHNEY PHONE (702) 794-5337 FAX (702) 794-1844
CURRENT JOBNAME=postf4 13:11:55 JUN 09, 1996 CP= 0.180

```
1 resume,seism4,db
2 /filnam,seism4
3 /post1
4 set,1,5
5 /input,,mcom
6 /out,seism4,res
7 /com, 100% Degradation of Outer Barrier, Backfill Present, Supports in From Ends
8 /com, 90% Degradation of Inner Barrier
9 /com,
10 /com,
11 /com, MAXIMUM STRESS INTENSITY IN THE OUTER BARRIER
12 /com,
13 /com, No Outer Barrier
14 !esel,s,type,,6,7
15 !nsle
16 !esln
17 !set,1,5
18 !nsort,s,int,0,0,1
19 !prns,s,prin
20
21 /com,
22 /com,
23 /com, MAXIMUM STRESS INTENSITY IN THE INNER BARRIER
24 /com,
25 /com,
26 esel,s,type,,5,6
27 nsle
28 esln
29 nsort,s,int,0,0,1
30 prns,s,prin
31
32 /com,
33 /com,
34 /com, MAXIMUM STRESS INTENSITY IN BASKET TUBES, CORNER GUIDES, AND END GUIDES
35 /com,
36 /com,
37 esel,s,type,,1
38 esel,a,type,,3,4
39 nsle
40 esln
41 nsort,s,int,0,0,1
42 prns,s,prin
43
44 /com,
45 /com,
46 /com, MAXIMUM STRESS INTENSITY IN CRITICALITY CONTROL PLATES
47 /com,
48 /com,
49 esel,s,type,,2
50 nsle
```

```

51 esln
52 nsort,s,int,0,0,1
53 prns,s,prin
54
55 /out
56 fini
57 /exit,nosave
58 /eof

```

RUN SETUP PROCEDURE FROM FILE= /ansys51/docu/start.ans

/INPUT FILE= /ansys51/docu/start.ans LIVE= 0

ABBREVIATION= REplot /REplot

PARAMETER PI = 3.141593

```

*****
ANSYS STARTUP FILE start.ans
*****

```

```

ABBREVIATION= VEC      /show,,1,
ABBREVIATION= RAS      /show,,0,
ABBREVIATION= INP      /input,,inp,
ABBREVIATION= ESC      /exit,nosav,
ABBREVIATION= K1       /pnum,kp ,1,
ABBREVIATION= K0       /pnum,kp ,0,
ABBREVIATION= L1       /pnum,line,1,
ABBREVIATION= L0       /pnum,line,0,
ABBREVIATION= A1       /pnum,area,1,
ABBREVIATION= A0       /pnum,area,0,
ABBREVIATION= V1       /pnum,volu,1,
ABBREVIATION= V0       /pnum,volu,0,
ABBREVIATION= N1       /pnum,node,1,
ABBREVIATION= N0       /pnum,node,0,
ABBREVIATION= E1       /pnum,elem,1,
ABBREVIATION= E0       /pnum,elem,0,
ABBREVIATION= M1       /pnum,mat ,1,
ABBREVIATION= M0       /pnum,mat ,0,
ABBREVIATION= R1       /pnum,real,1,
ABBREVIATION= R0       /pnum,real,0,
ABBREVIATION= T1       /pnum,type,1,
ABBREVIATION= T0       /pnum,type,0,
ABBREVIATION= C1       /number,1,
ABBREVIATION= C0       /number,0,
ABBREVIATION= PR1      /psf,pres,norm,1,

```


ABBREVIATION= PRO- /psf,pres,norm,0,

ABBREVIATION= U1 /pbc,u,1,

ABBREVIATION= U0 /pbc,u,0,

ABBREVIATION= X3D /show,3d,

ABBREVIATION= X11 /show,x11,

ABBREVIATION= X11C /show,x11c,

ABBREVIATION= ON /menu,on,

XYZ TRIAD DISPLAY SET TO OFF

VIEW CONE ANGLE FOR WINDOW 1 25.00

END start.ans

To start ANSYS menu:

type: x3d for console
x11 for X-term color
x11c for X-term color contour

type: on

RESUME ANSYS DATA FROM FILE NAME=seism4.db

*** ANSYS GLOBAL STATUS ***

TITLE = 21 PWR Tube Seismic Analysis With Backfill

ANALYSIS TYPE = SPECTRUM

NUMBER OF ELEMENT TYPES = 6

8616 ELEMENTS CURRENTLY SELECTED. MAX ELEMENT NUMBER = 8616

12897 NODES CURRENTLY SELECTED. MAX NODE NUMBER = 12897

690 KEYPOINTS CURRENTLY SELECTED. MAX KEYPOINT NUMBER = 9001

1604 LINES CURRENTLY SELECTED. MAX LINE NUMBER = 1604

1133 AREAS CURRENTLY SELECTED. MAX AREA NUMBER = 1133

269 VOLUMES CURRENTLY SELECTED. MAX VOL. NUMBER = 269

MAXIMUM LINEAR PROPERTY NUMBER = 6

ACTIVE COORDINATE SYSTEM = 0 (CARTESIAN)

NUMBER OF SPECIFIED CONSTRAINTS = 1191

INITIAL JOBNAME = postf4

CURRENT JOBNAME = postf4

CURRENT JOBNAME REDEFINED AS seism4

1

***** ANSYS - ENGINEERING ANALYSIS SYSTEM REVISION 5.1 24 *****

38303 VERSION=HP 9000/7XX 13:12:08 JUN 09, 1996 CP= 5.870

FOR SUPPORT CALL ROBERT BAHNEY PHONE (702) 794-5337 FAX (702) 794-1844

21 PWR Tube Seismic Analysis With Backfill

***** ANSYS RESULTS INTERPRETATION (POST1) *****

USE LOAD STEP 1 SUBSTEP 5 FOR LOAD CASE 0

*** NOTE *** CP= 7.530 TIME= 13:12:12

Page file used.

SET COMMAND GOT LOAD STEP= 1 SUBSTEP= 5 CUMULATIVE ITERATION= 5
TIME/FREQUENCY= 31.192

TITLE= 21 PWR Tube Seismic Analysis With Backfill

/INPUT FILE= seism4.mcom LINE= 0
ANSYS REVISION 5.1 24 04:01:20 06/09/1996
seism4.mcom

CURRENT LOAD SET IN DATABASE IS ERASED

LOAD CASE 1 IS LOAD STEP 1 SUBSTEP 1 COMPLEX= 0
FILE= seism4.rst
21 PWR Tube Seismic Analysis With Backfill

LOAD CASE 1 FACTOR SET TO 0.13463E-02

COPY LOAD CASE 1 FROM FILE TO DATABASE

SQUARE THE CURRENT LOAD SET IN DATABASE

*** NOTE *** CP= 33.910 TIME= 13:13:40
Load case combination data may not be correct unless viewed in the
solution phase coordinate system (RSYS=SOLU).

LOAD CASE 1 IS LOAD STEP 1 SUBSTEP 2 COMPLEX= 0
FILE= seism4.rst
21 PWR Tube Seismic Analysis With Backfill

LOAD CASE 1 FACTOR SET TO 0.20674E-02

LCOPER OPERATION ADD USING LOAD CASE= 1 FACTOR= 0.20674E-02 ABS= 0
MULTIPLIED BY LOAD CASE= 1 FACTOR= 0.20674E-02 ABS= 0

LOAD CASE 1 IS LOAD STEP 1 SUBSTEP 3 COMPLEX= 0
FILE= seism4.rst
21 PWR Tube Seismic Analysis With Backfill

LOAD CASE 1 FACTOR SET TO 0.31717E-01

LCOPER OPERATION ADD USING LOAD CASE= 1 FACTOR= 0.31717E-01 ABS= 0
MULTIPLIED BY LOAD CASE= 1 FACTOR= 0.31717E-01 ABS= 0

LOAD CASE 1 IS LOAD STEP 1 SUBSTEP 4 COMPLEX= 0
FILE= seism4.rst
21 PWR Tube Seismic Analysis With Backfill

LOAD CASE 1 FACTOR SET TO 0.83357E-03

LCOPER OPERATION ADD USING LOAD CASE= 1 FACTOR= 0.83357E-03 ABS= 0
MULTIPLIED BY LOAD CASE= 1 FACTOR= 0.83357E-03 ABS= 0

LOAD CASE 1 IS LOAD STEP 1 SUBSTEP 5 COMPLEX= 0
FILE= seism4.rst
21 PWR Tube Seismic Analysis With Backfill

LOAD CASE 1 FACTOR SET TO 0.12844E-02

LCOPER OPERATION ADD USING LOAD CASE= 1 FACTOR= 0.12844E-02 ABS= 0
MULTIPLIED BY LOAD CASE= 1 FACTOR= 0.12844E-02 ABS= 0

LOAD CASE 1 IS LOAD STEP 1 SUBSTEP 6 COMPLEX= 0
FILE= seism4.rst
21 PWR Tube Seismic Analysis With Backfill

LOAD CASE 1 FACTOR SET TO 0.14084E-02

LCOPER OPERATION ADD USING LOAD CASE= 1 FACTOR=-0.14084E-02 ABS= 0
MULTIPLIED BY LOAD CASE= 1 FACTOR=-0.14084E-02 ABS= 0

LOAD CASE 1 IS LOAD STEP 1 SUBSTEP 7 COMPLEX= 0
FILE= seism4.rst
21 PWR Tube Seismic Analysis With Backfill

LOAD CASE 1 FACTOR SET TO-0.13298E-01

LCOPER OPERATION ADD USING LOAD CASE= 1 FACTOR=-0.13298E-01 ABS= 0
MULTIPLIED BY LOAD CASE= 1 FACTOR=-0.13298E-01 ABS= 0

LOAD CASE 1 IS LOAD STEP 1 SUBSTEP 8 COMPLEX= 0
FILE= seism4.rst
21 PWR Tube Seismic Analysis With Backfill

LOAD CASE 1 FACTOR SET TO-0.45459E-03

LCOPER OPERATION ADD USING LOAD CASE= 1 FACTOR=-0.45459E-03 ABS= 0
MULTIPLIED BY LOAD CASE= 1 FACTOR=-0.45459E-03 ABS= 0

TAKE SQRT OF CURRENT LOAD SET IN DATABASE

/OUTPUT FILE= seism4.res

EXIT THE ANSYS POST1 DATABASE PROCESSOR

***** ROUTINE COMPLETED ***** CP = 120.490

EXIT ANSYS WITHOUT SAVING DATABASE

NUMBER OF WARNING MESSAGES ENCOUNTERED= 0
NUMBER OF ERROR MESSAGES ENCOUNTERED= 0

*** PAGE FILE USED ***
NUMBER OF R/W OPERATIONS= 15583
MAXIMUM RECORD NUMBER = 554
RECORD SIZE (1*4 WORDS) = 16384
PAGE FILE SIZE (MB) = 34.625

```
*-----*
|                                     |
|               ANSYS RUN COMPLETED |
|-----|
| REV. 5.1  24                      | HP 9000/7XX
| CP TIME    (sec) = 120.520          | TIME = 13:19:51
| ELAPSED TIME (sec) = 478.000        | DATE  = 06/09/96
|-----|
*-----*
```

W E L C O M E T O T H E A N S Y S P R O G R A M

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AFTER YOU HAVE READ AND UNDERSTAND THE PREVIOUS DISCLAIMER,
PRESS <CR> OR <ENTER> TO CONTINUE

***** ANSYS COMMAND LINE ARGUMENTS *****

INITIAL JOBNAME = postlin4
MEMORY REQUESTED (MB) = 64.0
BATCH MODE REQUESTED = LIST
START-UP FILE MODE = READ

*** NOTE *** CP= 0.210 TIME= 13:23:36
There are no parameters and no abbreviations defined.

38303 VERSION=HP 9000/7XX REVISION= 5.1 24
FOR SUPPORT CALL ROBERT BAHNEY PHONE (702) 794-5337 FAX (702) 794-1844
CURRENT JOBNAME=postlin4 13:23:36 JUN 09, 1996 CP= 0.220

```
1 resume,seism4,db
2 /filnam,seism4
3 /post1
4 set,1,5
5 /input,,mcom
6 /com, Outer Barrier Stress Distribution
7 !sel,s,node,,13294
8 !sel,a,node,,13367
9 !sel,a,node,,12430
10 !sel,a,node,,12503
11 !sel,a,node,,7840
12 !esln
13 !lpath,7840,13294
14 !/out,obstress
15 /com, Outer Barrier Linearized Stresses at Location of Peak Stress
16 !prsect
17 !/out
18 !/show,obdist,grph
19 !plsect,s,int
20 !/show,term
21 /com, Inner Barrier Stress Distribution
22 nsel,s,node,,8632
23 nsel,a,node,,8634
24 nsel,a,node,,8626
25 esln
26 lpath,8632,8626
27 /out,ibstress
28 /com, Inner Barrier Linearized Stresses at Location of Peak Stress
29 prsect
30 /out
31 /show,ibdist,grph
32 plsect,s,int
33 /show,term
34 /com, Basket Stress Distribution
35 nsel,s,node,,4355
36 nsel,a,node,,4370
37 nsel,a,node,,4293
38 esln
39 lpath,4355,4293
40 /out,bktstress
41 /com, Basket Tubes and Guides Linearized Stresses at Location of Peak Stress
42 prsect
43 /out
44 /show,bktdist,grph
45 plsect,s,int
46 /show,term
47 /com, Criticality Control Plate Stress Distribution
48 nsel,s,node,,3878
49 nsel,a,node,,3956
50 nsel,a,node,,3830
```

```

51 esln
52 lpath,3878,3830
53 /out,pltstress
54 /com,Criticality Control Plates .linearized Stresses at Location of Peak Stress
55 prsect
56 /out
57 /show,pltdist,grph
58 plsect,s,int
59 /show,term
60 fini
61 /exit,nosave

```

RUN SETUP PROCEDURE FROM FILE= /ansys51/docu/start.ans

/INPUT FILE= /ansys51/docu/start.ans LINE= 0

ABBREVIATION= REplot /REplot

PARAMETER P1 = 3.141593

 ANSYS STARTUP FILE start.ans

```

ABBREVIATION= VEC      /show,,1,
ABBREVIATION= RAS      /show,,0,
ABBREVIATION= INP      /input,,inp,
ABBREVIATION= ESC      /exit,nosav,
ABBREVIATION= K1       /pnum,kp ,1,
ABBREVIATION= K0       /pnum,kp ,0,
ABBREVIATION= L1       /pnum,line,1,
ABBREVIATION= L0       /pnum,line,0,
ABBREVIATION= A1       /pnum,area,1,
ABBREVIATION= A0       /pnum,area,0,
ABBREVIATION= V1       /pnum,volu,1,
ABBREVIATION= V0       /pnum,volu,0,
ABBREVIATION= N1       /pnum,node,1,
ABBREVIATION= N0       /pnum,node,0,
ABBREVIATION= E1       /pnum,elem,1,
ABBREVIATION= E0       /pnum,elem,0,
ABBREVIATION= M1       /pnum,mat ,1,
ABBREVIATION= M0       /pnum,mat ,0,
ABBREVIATION= R1       /pnum,real,1,
ABBREVIATION= R0       /pnum,real,0,
ABBREVIATION= T1       /pnum,type,1,
ABBREVIATION= T0       /pnum,type,0,
ABBREVIATION= C1       /number,1,
ABBREVIATION= C0       /number,0,

```

ABBREVIATION= PR1 /psf,pres,norm,1,
ABBREVIATION= PRO /psf,pres,norm,0,
ABBREVIATION= U1 /pbc,u,1,
ABBREVIATION= U0 /pbc,u,0,
ABBREVIATION= X3D /show,3d,
ABBREVIATION= X11 /show,x11,
ABBREVIATION= X11C /show,x11c,
ABBREVIATION= ON /menu,on,
XYZ TRIAD DISPLAY SET TO OFF

VIEW CONE ANGLE FOR WINDOW 1 25.00

END start.ans

To start ANSYS menu:

type: x3d for console
x11 for X-term color
x11c for X-term color contour

type: on

RESUME ANSYS DATA FROM FILE NAME=seism4.db

*** ANSYS GLOBAL STATUS ***

TITLE = 21 PWR Tube Seismic Analysis With Backfill
ANALYSIS TYPE = SPECTRUM
NUMBER OF ELEMENT TYPES = 6
8616 ELEMENTS CURRENTLY SELECTED. MAX ELEMENT NUMBER = 8616
12897 NODES CURRENTLY SELECTED. MAX NODE NUMBER = 12897
690 KEYPOINTS CURRENTLY SELECTED. MAX KEYPOINT NUMBER = 9001
1604 LINES CURRENTLY SELECTED. MAX LINE NUMBER = 1604
1133 AREAS CURRENTLY SELECTED. MAX AREA NUMBER = 1133
269 VOLUMES CURRENTLY SELECTED. MAX VOL. NUMBER = 269
MAXIMUM LINEAR PROPERTY NUMBER = 6
ACTIVE COORDINATE SYSTEM = 0 (CARTESIAN)
NUMBER OF SPECIFIED CONSTRAINTS = 1191

INITIAL JOBNAME = postlin4
CURRENT JOBNAME = postlin4

CURRENT JOBNAME REDEFINED AS seism4

1

***** ANSYS - ENGINEERING ANALYSIS SYSTEM REVISION 5.1 24 *****
38303 VERSION=HP 9000/7XX 13:23:50 JUN 09, 1996 CP= 5.960
FOR SUPPORT CALL ROBERT BAHNEY PHONE (702) 794-5337 FAX (702) 794-1844

21 PWR Tube Seismic Analysis With Backfill

***** ANSYS RESULTS INTERPRETATION (POST1) *****

USE LOAD STEP 1 SUBSTEP 5 FOR LOAD CASE 0

*** NOTE *** CP= 7.700 TIME= 13:23:53
Page file used.

SET COMMAND GOT LOAD STEP= 1 SUBSTEP= 5 CUMULATIVE ITERATION= 5
TIME/FREQUENCY= 31.192
TITLE= 21 PWR Tube Seismic Analysis With Backfill

/INPUT FILE= seism4.mcom LINE= 0
ANSYS REVISION 5.1 24 04:01:20 06/09/1996
seism4.mcom

CURRENT LOAD SET IN DATABASE IS ERASED

LOAD CASE 1 IS LOAD STEP 1 SUBSTEP 1 COMPLEX= 0
FILE= seism4.rst
21 PWR Tube Seismic Analysis With Backfill

LOAD CASE 1 FACTOR SET TO 0.13463E-02

COPY LOAD CASE 1 FROM FILE TO DATABASE

SQUARE THE CURRENT LOAD SET IN DATABASE

*** NOTE *** CP= 34.890 TIME= 13:25:26
Load case combination data may not be correct unless viewed in the
solution phase coordinate system (RSYS=SOLU).

LOAD CASE 1 IS LOAD STEP 1 SUBSTEP 2 COMPLEX= 0
FILE= seism4.rst
21 PWR Tube Seismic Analysis With Backfill

LOAD CASE 1 FACTOR SET TO 0.20674E-02

LCOPER OPERATION ADD USING LOAD CASE= 1 FACTOR= 0.20674E-02 ABS= 0
MULTIPLIED BY LOAD CASE= 1 FACTOR= 0.20674E-02 ABS= 0

LOAD CASE 1 IS LOAD STEP 1 SUBSTEP 3 COMPLEX= 0
FILE= seism4.rst
21 PWR Tube Seismic Analysis With Backfill

LOAD CASE 1 FACTOR SET TO 0.31717E-01

LCOPER OPERATION ADD USING LOAD CASE= 1 FACTOR= 0.31717E-01 ABS= 0
MULTIPLIED BY LOAD CASE= 1 FACTOR= 0.31717E-01 ABS= 0

LOAD CASE 1 IS LOAD STEP 1 SUBSTEP 4 COMPLEX= 0
FILE= seism4.rst
21 PWR Tube Seismic Analysis With Backfill

LOAD CASE 1 FACTOR SET TO 0.83357E-03

LCOPER OPERATION ADD USING LOAD CASE= 1 FACTOR= 0.83357E-03 ABS= 0
MULTIPLIED BY LOAD CASE= 1 FACTOR= 0.83357E-03 ABS= 0

LOAD CASE 1 IS LOAD STEP 1 SUBSTEP 5 COMPLEX= 0
FILE= seism4.rst
21 PWR Tube Seismic Analysis With Backfill

LOAD CASE 1 FACTOR SET TO 0.12844E-02

LCOPER OPERATION ADD USING LOAD CASE= 1 FACTOR= 0.12844E-02 ABS= 0
MULTIPLIED BY LOAD CASE= 1 FACTOR= 0.12844E-02 ABS= 0

LOAD CASE 1 IS LOAD STEP 1 SUBSTEP 6 COMPLEX= 0
FILE= seism4.rst
21 PWR Tube Seismic Analysis With Backfill

LOAD CASE 1 FACTOR SET TO-0.14084E-02

LCOPER OPERATION ADD USING LOAD CASE= 1 FACTOR=-0.14084E-02 ABS= 0
MULTIPLIED BY LOAD CASE= 1 FACTOR=-0.14084E-02 ABS= 0

LOAD CASE 1 IS LOAD STEP 1 SUBSTEP 7 COMPLEX= 0

FILE= seism4.rst

21 PWR Tube Seismic Analysis With Backfill

LOAD CASE 1 FACTOR SET TO-0.13298E-01

LCOPER OPERATION ADD USING LOAD CASE= 1 FACTOR=-0.13298E-01 ABS= 0
MULTIPLIED BY LOAD CASE= 1 FACTOR=-0.13298E-01 ABS= 0

LOAD CASE 1 IS LOAD STEP 1 SUBSTEP 8 COMPLEX= 0

FILE= seism4.rst

21 PWR Tube Seismic Analysis With Backfill

LOAD CASE 1 FACTOR SET TO-0.45459E-03

LCOPER OPERATION ADD USING LOAD CASE= 1 FACTOR=-0.45459E-03 ABS= 0
MULTIPLIED BY LOAD CASE= 1 FACTOR=-0.45459E-03 ABS= 0

TAKE SQRT OF CURRENT LOAD SET IN DATABASE

Outer Barrier Stress Distribution

Outer Barrier Linearized Stresses at Location of Peak Stress

Inner Barrier Stress Distribution

SELECT FOR ITEM=NODE COMPONENT=
IN RANGE 8632 TO 8632 STEP 1

1 NODES (OF 12897 DEFINED) SELECTED BY NSEL COMMAND.

ALSO SELECT FOR ITEM=NODE COMPONENT=
IN RANGE 8634 TO 8634 STEP 1

2 NODES (OF 12897 DEFINED) SELECTED BY NSEL COMMAND.

ALSO SELECT FOR ITEM=NODE COMPONENT=
IN RANGE 8626 TO 8626 STEP 1

3 NODES (OF 12897 DEFINED) SELECTED BY NSEL COMMAND.

SELECT ALL ELEMENTS HAVING ANY NODE IN NODAL SET.

8 ELEMENTS (OF 8616 DEFINED) SELECTED FROM
3 SELECTED NODES BY ESLN COMMAND.

DEFINE A PATH FOR SUBSEQUENT CALCULATIONS THROUGH NODES:
8632 8626

/OUTPUT FILE= ibstress

/SHOW SWITCH PLOTS TO FILE ibdist.grph - RASTER MODE.

DISPLAY LINEARIZED STRESS USING NODES DEFINED BY LPATH COMMAND.
ITEM=S COMP=INT RHO= 0.00000E+00

CUMULATIVE DISPLAY NUMBER 1 WRITTEN TO FILE ibdist.grph - RASTER MODE.

DISPLAY TITLE=

21 PWR Tube Seismic Analysis With Backfill

Basket Stress Distribution

SELECT FOR ITEM=NODE COMPONENT=
IN RANGE 4355 TO 4355 STEP 1

1 NODES (OF 12897 DEFINED) SELECTED BY NSEL COMMAND.

```
ALSO SELECT FOR ITEM=NODE COMPONENT=
IN RANGE 4370 TO 4370 STEP 1

2 NODES (OF 12897 DEFINED) SELECTED BY NSEL COMMAND.

ALSO SELECT FOR ITEM=NODE COMPONENT=
IN RANGE 4293 TO 4293 STEP 1

3 NODES (OF 12897 DEFINED) SELECTED BY NSEL COMMAND.

SELECT ALL ELEMENTS HAVING ANY NODE IN NODAL SET.

10 ELEMENTS (OF 8616 DEFINED) SELECTED FROM
3 SELECTED NODES BY ESLN COMMAND.

DEFINE A PATH FOR SUBSEQUENT CALCULATIONS THROUGH NODES:
4355 4293

/OUTPUT FILE= bktstres

/SHOW SWITCH PLOTS TO FILE bktdist.grph - RASTER MODE.

DISPLAY LINEARIZED STRESS USING NODES DEFINED BY LPATH COMMAND.
ITEM=S COMP=INT RHO= 0.00000E+00

CUMULATIVE DISPLAY NUMBER 1 WRITTEN TO FILE bktdist.grph - RASTER MODE.
DISPLAY TITLE=
21 PWR Tube Seismic Analysis With Backfill
Criticality Control Plate Stress Distribution

SELECT FOR ITEM=NODE COMPONENT=
IN RANGE 3878 TO 3878 STEP 1

1 NODES (OF 12897 DEFINED) SELECTED BY NSEL COMMAND.

ALSO SELECT FOR ITEM=NODE COMPONENT=
IN RANGE 3956 TO 3956 STEP 1

2 NODES (OF 12897 DEFINED) SELECTED BY NSEL COMMAND.

ALSO SELECT FOR ITEM=NODE COMPONENT=
IN RANGE 3830 TO 3830 STEP 1

3 NODES (OF 12897 DEFINED) SELECTED BY NSEL COMMAND.

SELECT ALL ELEMENTS HAVING ANY NODE IN NODAL SET.

4 ELEMENTS (OF 8616 DEFINED) SELECTED FROM
3 SELECTED NODES BY ESLN COMMAND.

DEFINE A PATH FOR SUBSEQUENT CALCULATIONS THROUGH NODES:
3878 3830

/OUTPUT FILE= pltstres

/SHOW SWITCH PLOTS TO FILE pltdist.grph - RASTER MODE.

DISPLAY LINEARIZED STRESS USING NODES DEFINED BY LPATH COMMAND.
ITEM=S COMP=INT RHO= 0.00000E+00

CUMULATIVE DISPLAY NUMBER 1 WRITTEN TO FILE pltdist.grph - RASTER MODE.
DISPLAY TITLE=
21 PWR Tube Seismic Analysis With Backfill

EXIT THE ANSYS POST1 DATABASE PROCESSOR

***** ROUTINE COMPLETED ***** CP = 114.920
```

EXIT ANSYS WITHOUT SAVING DATABASE

NUMBER OF WARNING MESSAGES ENCOUNTERED= 0
NUMBER OF ERROR MESSAGES ENCOUNTERED= 0

*** PAGE FILE USED ***
NUMBER OF R/W OPERATIONS= 14517
MAXIMUM RECORD NUMBER = 529
RECORD SIZE (1*4 WORDS) = 16384
PAGE FILE SIZE (MB) = 33.063

```
*-----*
|                                     |
|               ANSYS RUN COMPLETED               |
|-----|
|               REV. 5.1  24               HP 9000/7XX               |
|               CP TIME   (sec) =    114.950   TIME = 13:30:55       |
|               ELAPSED TIME (sec) =    440.000   DATE = 06/09/96       |
|-----|
*-----*
```

```
/COM,ANSYS REVISION 5.1      24    04:01:20    06/09/1996
/COM, seism4.mcom
LCOPER,ZERO
LCDEFI,1, 1, 1
LCFACT,1, 0.134627E-02
LCASE,1
LCOPER,SQUARE
LCDEFI,1, 1, 2
LCFACT,1, 0.206741E-02
LCOPER,ADD,1,MULT,1
LCDEFI,1, 1, 3
LCFACT,1, 0.317170E-01
LCOPER,ADD,1,MULT,1
LCDEFI,1, 1, 4
LCFACT,1, 0.833568E-03
LCOPER,ADD,1,MULT,1
LCDEFI,1, 1, 5
LCFACT,1, 0.128438E-02
LCOPER,ADD,1,MULT,1
LCDEFI,1, 1, 6
LCFACT,1, -0.140839E-02
LCOPER,ADD,1,MULT,1
LCDEFI,1, 1, 7
LCFACT,1, -0.132977E-01
LCOPER,ADD,1,MULT,1
LCDEFI,1, 1, 8
LCFACT,1, -0.454585E-03
LCOPER,ADD,1,MULT,1
LCOPER,SQRT
```

100% Degradation of Outer Barrier, Backfill Present, Supports in From Ends
90% Degradation of Inner Barrier

MAXIMUM STRESS INTENSITY IN THE OUTER BARRIER

No Outer Barrier

MAXIMUM STRESS INTENSITY IN THE INNER BARRIER

SELECT FOR ITEM=TYPE COMPONENT=
IN RANGE 5 TO 6 STEP 1

3936 ELEMENTS (OF 8616 DEFINED) SELECTED BY ESEL COMMAND.

SELECT ALL NODES HAVING ANY ELEMENT IN ELEMENT SET.

6129 NODES (OF 12897 DEFINED) SELECTED FROM
3936 SELECTED ELEMENTS BY NSLE COMMAND.

SELECT ALL ELEMENTS HAVING ANY NODE IN NODAL SET.

4296 ELEMENTS (OF 8616 DEFINED) SELECTED FROM
6129 SELECTED NODES BY ESLN COMMAND.

SORT ON ITEM=S COMPONENT=INT ORDER= 0 KABS= 0 NMAX= 1

SORT COMPLETED FOR 1 VALUES.

PRINT S NODAL SOLUTION PER NODE

1

***** ANSYS - ENGINEERING ANALYSIS SYSTEM REVISION 5.1 24 *****
38303 VERSION=HP 9000/7XX 13:19:26 JUN 09, 1996 CP= 113.940
FOR SUPPORT CALL ROBERT BAHNEY PHONE (702) 794-5337 FAX (702) 794-1844

21 PWR Tube Seismic Analysis With Backfill

***** POST1 NODAL STRESS LISTING *****

CALCULATED LOAD CASE= 0

NODE	S1	S2	S3	SINT	SEQV
8632	0.53173E+09	0.16963E+09	0.99791E+08	0.43194E+09	0.40160E+09

MINIMUM VALUES

NODE	8632	8632	8632	8632	8632
VALUE	0.53173E+09	0.16963E+09	0.99791E+08	0.43194E+09	0.40160E+09

MAXIMUM VALUES

NODE	8632	8632	8632	8632	8632
VALUE	0.53173E+09	0.16963E+09	0.99791E+08	0.43194E+09	0.40160E+09

MAXIMUM STRESS INTENSITY IN BASKET TUBES, CORNER GUIDES, AND END GUIDES

SELECT FOR ITEM=TYPE COMPONENT=
IN RANGE 1 TO 1 STEP 1

0 ELEMENTS (OF 8616 DEFINED) SELECTED BY ESEL COMMAND.

ALSO SELECT FOR ITEM=TYPE COMPONENT=
IN RANGE 3 TO 4 STEP 1

2160 ELEMENTS (OF 8616 DEFINED) SELECTED BY ESEL COMMAND.

SELECT ALL NODES HAVING ANY ELEMENT IN ELEMENT SET.

3632 NODES (OF 12897 DEFINED) SELECTED FROM
2160 SELECTED ELEMENTS BY NSLE COMMAND.

SELECT ALL ELEMENTS HAVING ANY NODE IN NODAL SET.

3040 ELEMENTS (OF 8616 DEFINED) SELECTED FROM
3632 SELECTED NODES BY ESLN COMMAND.

SORT ON ITEM=S COMPONENT=INT ORDER= 0 KABS= 0 NMAX= 1

SORT COMPLETED FOR 1 VALUES.

PRINT S NODAL SOLUTION PER NODE

1

***** ANSYS - ENGINEERING ANALYSIS SYSTEM REVISION 5.1 24 *****
38303 VERSION=HP 9000/7XX 13:19:41 JUN 09, 1996 CP= 117.420
FOR SUPPORT CALL ROBERT BAHNEY PHONE (702) 794-5337 FAX (702) 794-1844

21 PWR Tube Seismic Analysis With Backfill

***** POST1 NODAL STRESS LISTING *****

CALCULATED LOAD CASE= 0

NODE	S1	S2	S3	SINT	SEQV
4355	0.25244E+09	0.71271E+08	0.32077E+08	0.22036E+09	0.20361E+09

MINIMUM VALUES

NODE	4355	4355	4355	4355	4355
VALUE	0.25244E+09	0.71271E+08	0.32077E+08	0.22036E+09	0.20361E+09

MAXIMUM VALUES

NODE	4355	4355	4355	4355	4355
VALUE	0.25244E+09	0.71271E+08	0.32077E+08	0.22036E+09	0.20361E+09

MAXIMUM STRESS INTENSITY IN CRITICALITY CONTROL PLATES

SELECT FOR ITEM=TYPE COMPONENT=
IN RANGE 2 TO 2 STEP 1

2520 ELEMENTS (OF 8616 DEFINED) SELECTED BY ESEL COMMAND.

SELECT ALL NODES HAVING ANY ELEMENT IN ELEMENT SET.

4000 NODES (OF 12897 DEFINED) SELECTED FROM
2520 SELECTED ELEMENTS BY NSLE COMMAND.

SELECT ALL ELEMENTS HAVING ANY NODE IN NODAL SET.

2910 ELEMENTS (OF 8616 DEFINED) SELECTED FROM
4000 SELECTED NODES BY ESLN COMMAND.

SORT ON ITEM=S COMPONENT=INT ORDER= 0 KABS= 0 NMAX= 1

SORT COMPLETED FOR 1 VALUES.

PRINT S NODAL SOLUTION PER NODE

1

***** ANSYS - ENGINEERING ANALYSIS SYSTEM REVISION 5.1 24 *****
38303 VERSION=HP 9000/7XX 13:19:50 JUN 09, 1996 CP= 120.450

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21 PWR Tube Seismic Analysis With Backfill

***** POST1 NODAL STRESS LISTING *****

CALCULATED LOAD CASE= 0

NODE	S1	S2	S3	SINT	SEQV
3878	0.25681E+08	0.22518E+07	0.13202E-07	0.24361E+08	0.23909E+08

MINIMUM VALUES

NODE	3878	3878	3878	3878	3878
VALUE	0.25681E+08	0.22518E+07	0.13202E-07	0.24361E+08	0.23909E+08

MAXIMUM VALUES

NODE	3878	3878	3878	3878	3878
VALUE	0.25681E+08	0.22518E+07	0.13202E-07	0.24361E+08	0.23909E+08