

February 11, 2000
G-9000-JIM-00-006

Document Control Desk
United States Nuclear Regulatory Commission
Washington, D.C. 20555

- Reference: a) Boeing Letter G-1151-RSO-92-365 dated August 31, 1992; R. S. Orr to the NRC Operations Center
- b) NRC Letter Docket No. 99901227 dated August 12, 1992; L. J. Norrholm to R. S. Orr; Subject: Response to 10 CFR 21 Inquiry

Dear Sir or Madam:

In accordance with the reference correspondence and 10 CFR 21, Boeing is sending the NRC the attached error notice(s) received from our former software suppliers. Because of unknown current addresses, the following former customers were not notified:

Reactor Controls, Inc.

Echo Energy Consultants, Inc.

Nuclear Applications and Systems Analysis Company (Japan)

Nuclear Power Services

Error notices have been sent to our other former customers.

Very truly yours,



John I. Maughan
Nuclear Administrator
Phone: (425) 865-4785
FAX: (425) 865-2957
Mail Code: 7A-43
e-mail: john.i.maughan@boeing.com

Enclosure(s): ANSYS Program Report Form Dated January 25, 2000

JE20

1 1



January 25, 2000

Dear Class3 Error Recipient:

Enclosed you will find ANSYS Class3 Error Reports 1999-36 through 1999-47 and ANSYS QA Notices QA1999-04 and QA1999-05. Included also are three revised Class3 Error Reports, 1998-15 R1, 1999-32 R1 and 1999-47 R1.

QA Notice

- ANSYS QA Notice QA1999-04 was issued to alert users that solution control is turned off in a single field thermal analysis if the first load step is a linear steady-state step.
- ANSYS QA Notice QA1999-05 has been issued to clarify the use of Element COMB165.

Revised Reports

- ANSYS Class3 Error Report 1999-32 R1 has been issued to add the updating of the attributes MAT, TYPE, or REAL of keypoints to those lines described in the original Class3 Error Report.
- ANSYS Class3 Error Report 1998-15 R1 has been issued because the correction made in Release 5.5 was not complete.
- ANSYS Class3 Error Report 1999-47 R1 has been issued to more specifically describe the error and its scope.

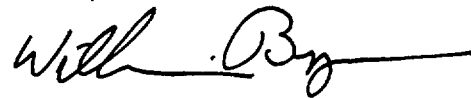
ANSYS Class3 Error Mailings are delivered by mail to the ANSYS Support Coordinator listed on your ANSYS license agreement semi-annually. Please notify your ANSYS Channel Partner of any personnel or address changes that should be incorporated into our records for your ANSYS agreement in order to avoid any interruptions in receiving your Class3 Error Report mailings.

Class3 Errors and QA Notices are posted on ANSYS's Internet HomePage. The address is <http://www.ansys.com>. They are located in the ANSYS Zones sections of the HomePage under "Customer". The username to enter this area is "customer" and the password is "werfea1" (We are FEA 1). Users desiring access to Class3 errors on a more timely basis can be added to our email distribution list. To register for email notification of reports, simply send an email request including your email, address, company, name/address and ANSYS agreement number to bonny.podolek@ansys.com. If you are a current subscriber to email distribution, please keep us informed of any changes in your email address by emailing bonny.podolek@ansys.com. After two failed transmissions, your name will be removed from the email distribution list.

For your convenience, also enclosed you will find ANSYS Class3 Error Summary Reports sorted both by error number and keyword for Release 5.5.3 and Release 5.6 of the ANSYS program.

Sincerely,

ANSYS, Inc.



William J. Bryan
Corporate Quality Manager

attachments



ANSYS, Inc.
Southpointe
275 Technology Drive
Canonsburg, PA 15317

January 20, 2000

Dear Valued Customer:

In order that we may provide better products, ANSYS, Inc. is soliciting customer supplied simulation input files for the ANSYS family of products. Selected input files will be incorporated into our test suite of problems to help us debug our new products. If you are interested in providing such input, please contact me at 724-514-2883, or at william.bryan@ansys.com, or fax 724-514-1991; or contact John Fortna at 724-514-2923, email at john.fortna@ansys.com or fax 724-514-3114.

As an additional service, ANSYS, Inc. can provide testing of your ANSYS simulation during our product development process. This service will help assure upward compatibility of your simulation with the latest ANSYS, Inc. products when they are released. For more information please contact me at the numbers above.

Yours very truly,

William J. Bryan
Quality Assurance Manager



ANSYS CLASS3 ERROR REPORT

ERROR NO: 1999-36

KEYWORDS: ANSYS/LSDYNA POST26 EDREAD SPCFORC REACTIONS

DESCRIPTION OF ERROR:

If rotational constraints (D command with label = ROTX, ROTY or ROTZ) are applied to one or more nodes connected to solid elements (which do not have rotational DOFs) in an explicit dynamics (LS-Dyna) analysis, then reaction forces that are stored in POST26 with EDREAD,,SPCFORC are incorrect.

TYPICAL GUI PATH(S):

TimeHist Postpro>Read LSDYNA Data>SPCFORC File

FIRST INCORRECT VERSION(S):*

Release 5.5

CORRECTED IN:*

Release 5.6

SUGGESTED USER ACTION FOR RUNNING ON UNCORRECTED VERSION:

Use care to apply only translational DOF constraints to explicit solid elements; use D,,UX,,,,UY,UZ rather than D,,ALL when applying constraints to explicit solid elements.

COMMENTS:

Rotation constraints can be inadvertently applied to nodes on solid elements by applying constraints to all degrees of freedom (D,,ALL) when rotational DOFs exist in the active DOF set.

AUTHOR/CORRECTOR: Ahmed Salem **DATE:** July 28, 1999
Ahmed Salem

REVIEWED BY QA: William J. Bryan **DATE:** July 28, 1999
William J. Bryan

APPROVAL: Mark C. Imgrund **DATE:** July 28, 1999
Mark C. Imgrund

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ANSYS CLASS3 ERROR REPORT

ERROR NO: 1999-37

KEYWORDS: CONTACT CONTA171 CONTA172 CONTA173 CONTA174 KEYOPT(9)=1

DESCRIPTION OF ERROR:

Initial penetration is not correctly ignored for CONTA171, CONTA172, CONTA173, CONTA174 with KEYOPT(9)=1. The solution becomes worse when the number of sub-steps increase and the smaller contact stiffness is used.

FIRST INCORRECT VERSION(S):*

Release 5.4


CORRECTED IN:*

Release 5.5

SUGGESTED USER ACTION FOR RUNNING ON UNCORRECTED VERSION:

Set KEYOPT(9)=3 and real constant CNOF=0.d0, as an alternative method of ignoring initial penetration.

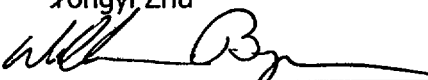
AUTHOR/CORRECTOR:



Yongyi Zhu

DATE: September 10, 1999


REVIEWED BY QA:



William J. Bryan

DATE: September 10, 1999

APPROVAL:



Mark C. Inggrund

DATE: September 10, 1999

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ANSYS CLASS3 ERROR REPORT

ERROR NO: 1999-38

KEYWORDS: VMESH QUADRATIC TETRAHEDRA COARSE MESH

DESCRIPTION OF ERROR:

If you use the default volume mesher with quadratic tetrahedra and coarse mesh settings, you may produce some elements with negative Jacobians that are not caught by element shape checking.

TYPICAL GUI PATH(S):

Main Menu>Preprocessor>Mesh>Free

FIRST INCORRECT VERSION(S):*

Release 5.4

CORRECTED IN:*

Release 5.6

SUGGESTED USER ACTION FOR RUNNING ON UNCORRECTED VERSION:

Use the VIMP (Volume tet improvement) command with boundary modification ON to correct poor or inverted elements after a VMESH.

To test if poor or inverted quadratic elements were generated by the VMESH command, use the /EFACET,2 command to turn on display of the midnodes to visually inspect elements.

To test quality of elements after VMESH, force the program to recheck the elements by temporarily changing the element type. For example, if SOLID92 is in use, use the ET command to change the SOLID92 elements to SOLID87. ANSYS will automatically check all elements again. Changing the element type back to SOLID92 will again check the elements.

NOTE: The CHECK,ESEL,WARN command, which would normally be used to check element quality, will not work in the situation. In this case, because all elements have already been flagged as being checked by the VMESH command, only the (possibly erroneous) warnings already indicated by VMESH will be displayed.

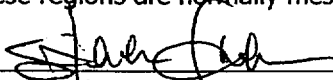
COMMENTS:

Possible effected element types (when used as tetrahedra): SOLID92, SOLID95, SOLID147, SOLID148, HYPER158, VISCO89, SOLID87, SOLID90, SOLID122, SOLID123, SOLID98.

A coarse mesh is generally characterized by large element sizes with respect to the local feature size. Large smart sizing settings (SMRT) or manual ESIZE or LESIZE settings can cause this condition.

Because this error occurs with coarse mesh settings, the likelihood of it causing result inaccuracies in critical areas of the model is small, as these regions are normally meshed with finer settings.

AUTHOR/CORRECTOR:


Steven J. Owen

DATE: September 9, 1999

REVIEWED BY QA:


William J. Bryan

DATE: September 9, 1999

APPROVAL:


Mark C. Inggrund

DATE: September 9, 1999

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ANSYS CLASS3 ERROR REPORT

ERROR NO: 1999-39

KEYWORDS: MODAL BLOCK LANCZOS MASS21 CONSTRAINT EQUATIONS

DESCRIPTION OF ERROR:

The Lagrange Multiplier-based Block Lanczos Eigensolution (MODOPT,LANB,n,,,,,L where L = 1 or 2) is incorrect when any degree of freedom belonging to a MASS21 element has zero mass (R command) and is part of a Constraint Equation (CE command).

TYPICAL GUI PATH(S):

Solution>New Analysis>Modal Analysis
Analysis Option>Block Lanczos>Lagrange

FIRST INCORRECT VERSION(S):*

Release 5.4

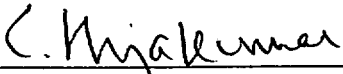
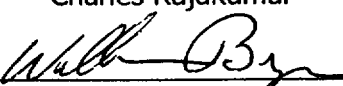
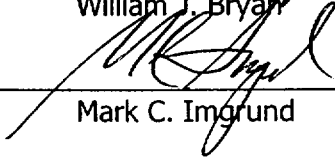
CORRECTED IN:*

Release 5.6

SUGGESTED USER ACTION FOR RUNNING ON UNCORRECTED VERSION:

Add a small non-zero mass to the MASS21 element in place of zero mass.

COMMENTS:

AUTHOR/CORRECTOR:	 _____ Charles Rajakumar	DATE: October 4, 1999
REVIEWED BY QA:	 _____ William J. Bryan	DATE: October 4, 1999
APPROVAL:	 _____ Mark C. Imgrund	DATE: October 4, 1999

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ANSYS CLASS3 ERROR REPORT

ERROR NO: 1999-40

KEYWORDS: *THERMAL* *FLUID116* *EQSLV,ITER* *UNSYMMETRIC*

DESCRIPTION OF ERROR:

The results of a thermal analysis are incorrect if the automatic iterative solver option (EQSLV,ITER) is used when the matrix is unsymmetric due to the presence of thermal-fluid pipe elements (FLUID116 or FLUID66).

TYPICAL GUI PATH(S):

Main Menu>Preprocessor>Loads>Analysis Options
Main Menu>Preprocessor>Loads>Fast Solution Option
Main Menu>Solution>Analysis Options
Main Menu>Solution>Fast Solution Option

FIRST INCORRECT VERSION(S):*

Release 5.4

CORRECTED IN:*

Release 5.6

SUGGESTED USER ACTION FOR RUNNING ON UNCORRECTED VERSION:

Directly specify the use of the JCG solver (EQSLV,JCG).

COMMENTS:

FLUID66 is undocumented at 5.6.

AUTHOR/CORRECTOR:



Yong-Cheng Liu

DATE: October 4, 1999

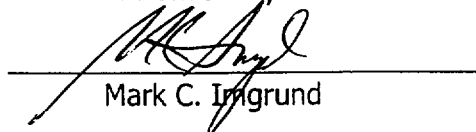
REVIEWED BY QA:



William J. Bryan

DATE: October 4, 1999

APPROVAL:



Mark C. Imgrund

DATE: October 4, 1999

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ANSYS CLASS3 ERROR REPORT

ERROR NO: 1999-41

KEYWORDS: *MAGNETICS* *SOLID96* *LMATRIX*

DESCRIPTION OF ERROR:

The LMATRIX command macro returns incorrect inductance values for nonlinear problems using either the RSP,DSP, or GSP scalar potential formulations with the SOLID96 element type.

TYPICAL GUI PATH(S):

Main Menu>Solution>Electromagnet>Induct Matrix

FIRST INCORRECT VERSION(S):*

Release 5.5

CORRECTED IN:*

Release 5.6


SUGGESTED USER ACTION FOR RUNNING ON UNCORRECTED VERSION:

Recast the problem using the Edge Formulation available in SOLID117.

COMMENTS:

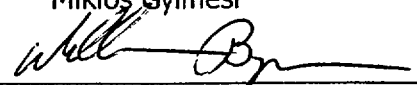
Additional convergence guidelines should be considered when solving nonlinear problems with or without inductance computations (LMATRIX). The computed inductance value depends on the tangent permeability tensor. When the operating solution is near the elbow of the BH curve, the tangent permeability changes rapidly. The accuracy of the operation solution depends on the applied convergence tolerance. Because of the rapid change in this region, the computed inductance value may vary with the convergence tolerance. For this reason a tighter tolerance, 1.0e-4 or 1.0e-5 may be required as opposed to the default 1.0e-3 value when issuing the MAGSOLV command macro to obtain the operating point solution.

AUTHOR/CORRECTOR:


Miklos Gyimesi

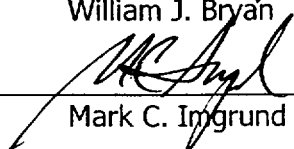
DATE: October 4, 1999

REVIEWED BY QA:


William J. Bryan

DATE: October 4, 1999

APPROVAL:


Mark C. Imgrund

DATE: October 4, 1999

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ANSYS CLASS3 ERROR REPORT

ERROR NO: 1999-42

KEYWORDS: CONTACT PCG SOLVER PILOT NODE ROTATION DOF

DESCRIPTION OF ERROR:

When a rotation or moment is applied on a pilot node (TARGE169 or TARGE170 elements) through multiple load steps, and the model is solved using the PCG solver, the rotation or moment value is re-ramped from zero in the subsequent load steps.

This could cause inaccurate results in path-dependent systems (i.e., models having plasticity, friction, or other nonconservative, energy-dissipation features).

TYPICAL GUI PATH(S):

FIRST INCORRECT VERSION(S):*

Release 5.4

CORRECTED IN:*

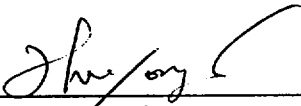
Release 5.6

SUGGESTED USER ACTION FOR RUNNING ON UNCORRECTED VERSION:

Use the sparse (EQSLV,SPARSE) or frontal (EQSLV,FRONT) solver.

COMMENTS:

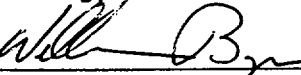
AUTHOR/CORRECTOR:



Yongyi Zhu

DATE: October 4, 1999

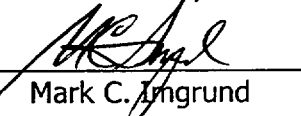
REVIEWED BY QA:



William J. Bryan

DATE: October 4, 1999

APPROVAL:



Mark C. Imgrund

DATE: October 4, 1999

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ANSYS CLASS3 ERROR REPORT

ERROR NO: 1999-43

KEYWORDS: SOLID45 SOLID92 SOLID95 PCG SOLUTION CONSTRAINT EQUATION

DESCRIPTION OF ERROR:

In a linear analysis where all of the following conditions are met:

1. the model is composed of SOLID45, SOLID95, and/or SOLID92 element types only with no other element types used in the model,
2. the PCG solver (PowerSolver, EQSLV,PCG) is used,
3. if constraint equations (CE) with non-zero constants are used,

then the solutions of the second loadstep or later are incorrect. The degree of error depends on the magnitude of the non-zero constraint constant compared to that of the overall displacements. The larger the value of the constant, the larger the error that can be introduced.

TYPICAL GUI PATH(S):

Main Menu>Preprocessor>Loads>Analysis Options
Main Menu>Preprocessor>Loads>Fast Solution Option
Main Menu>Solution>Analysis Options
Main Menu>Solution>Fast Solution Option

FIRST INCORRECT VERSION(S):*

Release 5.3

CORRECTED IN:*

Release 5.6

SUGGESTED USER ACTION FOR RUNNING ON UNCORRECTED VERSION:

Solve each load step as a separate solution, i.e.:

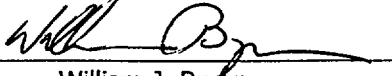
```
/SOLUTION
... (boundary conditions for load step 1)
SOLVE
FINISH
/SOLUTION
... (boundary conditions for load step 2)
SOLVE
FINISH
```

AUTHOR/CORRECTOR: _____


Yong-Cheng Liu

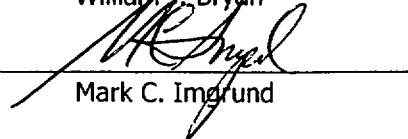
DATE: November 1, 1999

REVIEWED BY QA: _____


William J. Bryan

DATE: November 1, 1999

APPROVAL: _____


Mark C. Imgrund

DATE: November 1, 1999

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ANSYS CLASS3 ERROR REPORT

ERROR NO: 1999-44

KEYWORDS: *DOCUMENTATION NUMCMP NUMMRG MATERIAL PIPE17*

DESCRIPTION OF ERROR:

The NUMCMP and NUMMRG documentation fails to note that material property numbers that are supplied in the real constant sets for PIPE17, the Elastic Pipe Tee element, are not updated during a merge or compress operation (NUMCMP,MAT; NUMCMP,ALL; NUMMRG,MAT; or NUMMRG,ALL). However, any material property number that is not supplied in the real constant set uses the element material property (MAT) number, which is correctly updated during a NUMMRG or NUMCMP operation.

TYPICAL GUI PATH(S):

FIRST INCORRECT VERSION(S):*

Rev 4.4

CORRECTED IN:*

Release 5.6 Commands Manual

SUGGESTED USER ACTION FOR RUNNING ON UNCORRECTED VERSION:

Any compress or merge of material numbers should be performed before creating real constant sets for PIPE17, or,

All PIPE17 real constant sets should be closely examined and updated appropriately after any compress and merge operation.

COMMENTS:

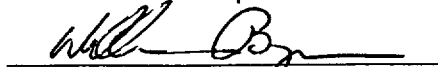
Previous Class3 Error Report 95-05 involved a similar error for SOLID46, SOLID65, SHELL91, and SHELL99.

AUTHOR/CORRECTOR:


James Pasquerell

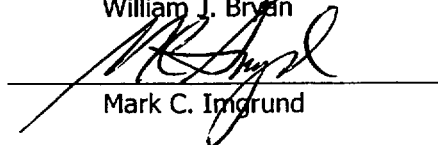
DATE: November 1, 1999

REVIEWED BY QA:


William J. Bryan

DATE: November 1, 1999

APPROVAL:


Mark C. Imgrund

DATE: November 1, 1999

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ANSYS CLASS3 ERROR REPORT

ERROR NO: 1999-45

KEYWORDS: SOLID70 KEYOPT(8) THERMAL MASS TRANSPORT

DESCRIPTION OF ERROR:

In a thermal mass transport analysis, the Peclet number is incorrectly calculated under the following conditions;

The SOLID70 element type is used and the KEYOPT(8) option is set to 1. (Mass transport option)

TYPICAL GUI PATH(S):

FIRST INCORRECT VERSION(S):*

Release 5.4

CORRECTED IN:*

Release 5.6

SUGGESTED USER ACTION FOR RUNNING ON UNCORRECTED VERSION:

COMMENTS:

The erroneous calculation can lead to wrong checks on the value of Peclet Number. This could terminate the run with an error message erroneously stating that an incorrect value has been specified, or fail to trap cases with incorrect values of Peclet Number potentially leading to unstable or erroneous results.

AUTHOR/CORRECTOR:


Achuth Rao

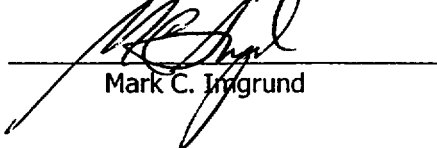
DATE: November 2, 1999

REVIEWED BY QA:


William J. Bryan

DATE: November 2, 1999

APPROVAL:


Mark C. Inggrund

DATE: November 2, 1999

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ANSYS CLASS3 ERROR REPORT

ERROR NO: 1999-46

KEYWORDS: *MAGNETICS* *BIOT SAVART* *SOURC36*

DESCRIPTION OF ERROR:

The Biot Savart computation (BIOT command, also automatically performed in SOLVE) with the SOURC36 element type provides incorrect results at a node if

- the current source is a coil (real constant (1)=1) and
- the node in the coil coordinate system is exactly at a 45, 135, 225 or 315 degree azimuthal angle.

TYPICAL GUI PATH(S):

Main Menu>Solution>Magnetics>Biot-Savart
Main Menu>Preprocessor>Loads>Magnetics>Biot-Savart

FIRST INCORRECT VERSION(S):*
Rev. 5.1

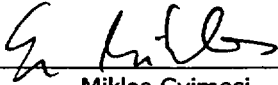
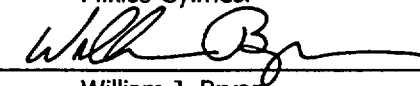
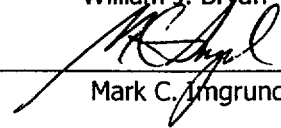
CORRECTED IN:*
Release 5.6

SUGGESTED USER ACTION FOR RUNNING ON UNCORRECTED VERSION:

1. Shift the location of the affected nodes by at least 0.25 degrees
- or 2. Break down the coil to four arcs of 90 degrees.

COMMENTS:

In general, the point-wise inaccurate solutions for the subset of nodes at these specific angular locations should have a minimal effect on the overall problem accuracy.

AUTHOR/CORRECTOR:	 _____ Miklos Gyimesi	DATE: November 2, 1999
REVIEWED BY QA:	 _____ William J. Bryant	DATE: November 2, 1999
APPROVAL:	 _____ Mark C. Imgrund	DATE: November 2, 1999

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ANSYS CLASS3 ERROR REPORT

ERROR NO: 1999-47

KEYWORDS: *HARMONIC* *MODE SUPERPOSITION* *DAMPING*

DESCRIPTION OF ERROR:

Harmonic analysis using the modal superposition method (ANTYPE,HARMIC & HROPT,MSUP) produces incorrect results when any of the following damping coefficients are used.

- Alpha or beta damping (ALPHAD, BETAD)
- Constant damping ratio (DMPRAT)
- Modal damping ratio (MDAMP)

TYPICAL GUI PATH(S):

Main Menu>Solution>Time/Frequenc>Damping
Main Menu>Preprocessor>Loads>Time/Frequenc>Damping

FIRST INCORRECT VERSION(S):*

Rev. 5.0

CORRECTED IN:*

Release 5.6.1

SUGGESTED USER ACTION FOR RUNNING ON UNCORRECTED VERSION:

Use the full harmonic analysis for ALPHAD and/or BETAD damping.

COMMENTS:

AUTHOR/CORRECTOR:



DATE: November 22, 1999

Young-Hun Lim

REVIEWED BY QA:



DATE: November 22, 1999

William J. Bryan

APPROVAL:



DATE: November 22, 1999

Mark C. Imgrund

*Unless noted otherwise, this report applies to all ANSYS family products that contain the described feature in the indicated Release(s). See the reverse side for details regarding product applicability.

Unless noted otherwise, this report also applies to all releases after the first incorrect one and prior to the corrected release. All releases after "corrected in" are corrected. Manual corrections are included in on-line documentation as appropriate. Please see the reverse side of this sheet for additional information on ANSYS release identifiers.

ANSYS QA NOTICE

QA Notice No. QA1999-04

KEYWORDS: *SOLUTION CONTROL* *THERMAL*

DESCRIPTION:

In a single field thermal analysis, if the first loadstep is a linear steady-state step, solution control (SOLCONTROL command) will be turned OFF. However, for the subsequent loadsteps or subsequent analyses in the same run, solution control incorrectly remains OFF even if it becomes transient (TIMINT,ON). Because SOLCONTROL is OFF, the solution is different from the default solution.

AFFECTED VERSIONS:

Release 5.5 - Release 5.6

COMMENTS:

With SOLCONTROL,OFF for the subsequent loadstep, the transient solution is not incorrect. The solution history is merely different and may produce a final solution that is more or less accurate than the default (SOLCONTROL,ON) depending on the particular analysis.

AUTHOR:



Yong-Cheng Liu

DATE: October 6, 1999

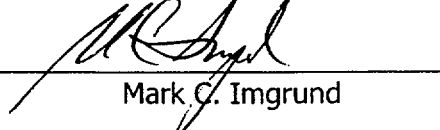
REVIEWED BY QA:



William J. Bryan

DATE: October 6, 1999

APPROVAL:



Mark C. Imgrund

DATE: October 6, 1999

ANSYS CLASS3 ERROR REPORT

ERROR NO: 1998-15 R1

KEYWORDS:

LS-DYNA

STRESSES

DESCRIPTION OF ERROR:

Strains from LS-Dyna are tensorial values rather than engineering values. In computing equivalent strains ANSYS assumes that the strains are engineering strains (i.e. shear strains are multiplied by a factor of 2). As a consequence, the value of the equivalent strains EQV and shear strains are incorrect except for the top layer of the shell element in Release 5.5.

TYPICAL GUI PATH(S):

/POST1>SET>Set_Number>LIST ELEMENT DATA>STRAIN

FIRST INCORRECT VERSION(S):*

Release 5.3

CORRECTED IN:*

Release 5.6

SUGGESTED USER ACTION FOR RUNNING ON UNCORRECTED VERSION:

Convert the tensorial shear strains into engineering strains when needed (multiply by 2) before using the results in any calculations.

Note: At Release 5.5 shear strains were correct for TOP layer of the shell element in POST1. Other integration point shear strains should be multiplied by 2.

COMMENTS:

AUTHOR/CORRECTOR:

Ahmed Salem
Ahmed Salem

DATE: November 22, 1999

REVIEWED BY QA:

William J. Bryan
William J. Bryan

DATE: November 22, 1999

APPROVAL:

Mark C. Imgrund (for me)
Mark C. Imgrund

DATE: November 22, 1999

*Unless noted otherwise, this report applies to all ANSYS family products that contain the described feature in the indicated Release(s). See the reverse side for details regarding product applicability.

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ANSYS CLASS3 ERROR REPORT

ERROR NO: 1999-32 R1

KEYWORDS: NUMOFF NUMMRG LINE MESHING KEYPOINT MESHING

DESCRIPTION OF ERROR:

1. Attributes MAT, TYPE, or REAL of lines are not updated during the number offset (NUMOFF,MAT; NUMOFF,TYPE; or NUMOFF,REAL) or number merge (NUMMRG,MAT; NUMMRG,TYPE; NUMMRG,REAL; or NUMMRG,ALL) operations. This could result in incorrect attributes being assigned to line elements during subsequent meshing.
2. Attributes MAT, TYPE, or REAL of keypoints are not updated during the number offset (NUMOFF,MAT; NUMOFF,TYPE; or NUMOFF,REAL) or number merge (NUMMRG,MAT; NUMMRG,TYPE; NUMMRG,REAL; or NUMMRG,ALL) operations. Attribute ESYS of keypoints is not updated during the number offset (NUMOFF,CS) operation. This could result in incorrect attributes being assigned to point elements during subsequent meshing.

TYPICAL GUI PATH(S):

Preprocessor>Numbering Ctrl>Add Num Offset

FIRST INCORRECT VERSION(S):*

Rev. 5.0

CORRECTED IN:*

Release 5.6


SUGGESTED USER ACTION FOR RUNNING ON UNCORRECTED VERSION:

Inspect and correct line and keypoint attributes after NUMOFF or NUMMRG.

COMMENTS:

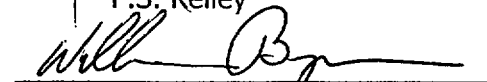
NUMOFF commands are automatically written to the .CDB file by CDWRITE, and become important whenever two or more models are combined via CDREAD.

AUTHOR/CORRECTOR:


F.S. Kelley (STEVE OWEN)

DATE: September 10, 1999

REVIEWED BY QA:


William J. Bryan

DATE: September 10, 1999

APPROVAL:


Mark C. Imgrund

DATE: September 10, 1999

*Unless noted otherwise, this report applies to all ANSYS family products, which contain the described feature in the indicated Release(s). See the reverse side for details regarding product applicability.

Unless noted otherwise, this report also applies to all releases after the first incorrect one and prior to the corrected release. All releases after "corrected in" are corrected. Manual corrections are included in on-line documentation as appropriate. Please see the reverse side of this sheet for additional information on ANSYS release identifiers.

ANSYS CLASS3 ERROR REPORT

ERROR NO: 1999-47 R1

KEYWORDS: HARMONIC MODE SUPERPOSITION ALPHA DAMPING BETA DAMPING

DESCRIPTION OF ERROR:

Harmonic analysis using the modal superposition method (ANTYPE,HARMIC with HROPT,MSUP) produces incorrect results when Rayleigh damping is used (ALPHAD and BETAD commands).

TYPICAL GUI PATH(S):

Main Menu>Solution>Time/Frequenc>Damping
Main Menu>Preprocessor>Loads>Time/Frequenc>Damping

FIRST INCORRECT VERSION(S):*

Rev. 5.0

CORRECTED IN:*

Release 5.6.1

SUGGESTED USER ACTION FOR RUNNING ON UNCORRECTED VERSION:

Use the full harmonic analysis for ALPHAD or BETA damping. Alternatively, use only constant damping (DMPRAT command) or modal damping (MDAMP command) with mode superposition method.

COMMENTS:

In the incorrect version, the modal damping ratio (Equation 15.11-22 of the Theory Manual) is incorrectly calculated using the excitation frequency rather than the natural frequency, ω_j , of each mode. The damping is therefore not constant across all excitation frequencies.

For a given excitation frequency Ω , the damping ratio used for each mode is:

$$\xi_j = (\alpha/2\Omega) + (\beta\Omega/2) \text{ in place of the correct expression } \xi_j = (\alpha/2\omega_j) + (\beta\omega_j/2)$$

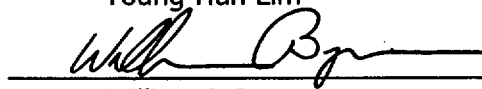
AUTHOR/CORRECTOR:



Young-Hun Lim

DATE: January 25, 2000

REVIEWED BY QA:



William J. Bryan

DATE: January 25, 2000

APPROVAL:



Mark C. Inggrund

DATE: January 25, 2000

*Unless noted otherwise, this report applies to all ANSYS family products that contain the described feature in the indicated Release(s). See the reverse side for details regarding product applicability.

Unless noted otherwise, this report also applies to all releases after the first incorrect one and prior to the corrected release. All releases after "corrected in" are corrected. Manual corrections are included in on-line documentation as appropriate. Please see the reverse side of this sheet for additional information on ANSYS release identifiers.

ANSYS Release Identifier Description

ANSYS release identifiers consist of a major release level, a minor release level, and an interim release identifier (in some cases). An example of how this is constructed is shown below:

```
5.5.1
^ ^ ^
| | |
| | --- interim release identifier
major release level -- -- minor release level
```

Major release level changes indicate that new features have been added to the program and that some level of program architecture change and/or file structure may have occurred. Minor release level changes also indicate that new features have been added to the program, but files are upwardly compatible. Interim releases are primarily for changes that are needed to support the functionality of other products being released. Error fixes are included in minor, major and interim releases.

For example, a Class3 Error Report with 5.4 for FIRST INCORRECT VERSION and 5.5.2 for CORRECTED IN would apply to all 5.4 releases, the 5.5 release and the 5.5.1 release.

An identifier that is indicated under "corrected in" does not guarantee that a general distribution of that release of ANSYS will occur. It does indicate that the correction is known and implemented in that or any subsequent release.

Equivalent Product Identifiers

The ANSYS family of component products occasionally undergoes name changes between releases and/or changes in the functionality of derived products (such as ANSYS-PC/LINEAR). To minimize the potential for confusion in these areas, unless otherwise noted on the front side of the Class3 Error Report, the error report applies to all ANSYS family products (including standalone component products) that contain the described feature(s) in the designated release(s).

ANSYS 5.5.3 CLASS3 ERROR SUMMARY BY REPORT NUMBER

<u>ERROR NO.</u>	<u>KEYWORD #1</u>	<u>KEYWORD #2</u>	<u>KEYWORD #3</u>	<u>KEYWORD #4</u>	<u>KEYWORD #5</u>	<u>KEYWORD #6</u>	<u>RELEASE CORRECTED</u>
1998-15 R1	LS-DYNA	STRESSES					Release 5.6
1999-06	BUCKLING	BEAM4	PRESSURE LOAD	THERMAL LOAD			Release 5.6
1999-07	PREP7	SHAPE CHECK ELEME	CDREAD	EBLOCK	EGEN	ENGEN	Release 5.6
1999-09	MODAL ANALYSIS	REDUCED METHOD	MODOPT, REDU				Release 5.6
1999-17	MODAL CYCLIC SYM	CYCGEN	CYCSOL				Release 5.6
1999-18	PLASTICITY	MULTILINEAR ISO H	TB, MISO				Release 5.6
1999-19	LINEAR ANALYSIS	LOAD STEP	CONSTRAINT EQUATI	SPARSE SOLVER	F	CE	Release 5.6
1999-20	MODAL ANALYSIS	ROTATED NODES	PARTICIPATION FAC	SPECTRUM ANALYSIS	SPOPT, SPRS		Release 5.6
1999-21	SOLID BC	SFADEL					Release 5.6
1999-22	TARGE170						Release 5.6
1999-24	MODAL CYCLIC SYM						Release 5.6
1999-25	ESYS	SOLID185	PLANE182				Release 5.6
1999-26	PHASE ANGLE	HARMONIC	REAL	IMAGINARY	PHASE ANGLE		Release 5.6
1999-27	POST1	PRRFOR	RSYS=0	ROTATED NODES			Release 5.6
1999-28	DOCUMENTATION	'GET	CENTRX, Y, Z				5.6 User's Manual
1999-29	POST1	SPOINT	FSUM	NFORCE	NLGEOM	RSYS	Release 5.6
1999-30	LS-DYNA	ESYS	DOCUMENTATION				5.6 Commands Manual
1999-31	BEAM44	STIFFNESS RELEASE	LARGE DEFLECTIONS				Release 5.6
1999-32 R1	NUMOFF	NUMMRG	LINE MESHING	KEYPOINT MESHING			Release 5.6
1999-33	LINEAR ANALYSIS	CONSTRAINT EQUATI	SPARSE SOLVER	EQSLV, sparse			Release 5.6
1999-34	BUCKLING	REDUCED	MODE SHAPES				Release 5.6
1999-35	GRAPHICS	PLNS	PLES	/ESHAPE	BEAM3	BEAM4	Release 5.6
1999-36	ANSYS/LS-DYNA	POST26	EDREAD	SPCFORC	REACTIONS		Release 5.6
1999-38	VMESH	QUADRATIC TETRAHE	COARSE MESH				Release 5.6
1999-39	MODAL	BLOCK LANCZOS	MASS21	CONSTRAINT EQUATI			Release 5.6
1999-40	THERMAL	FLUID116	EQSLV, ITER	UNSYMMETRIC			Release 5.6
1999-41	MAGNETICS	SOLID96	LMATRIX				Release 5.6
1999-42	CONTACT	PCG SOLVER	PILOT NODE	ROTATION DOF			Release 5.6
1999-43	SOLID45	SOLID92	SOLID95	PCG SOLUTION	CONSTRAINT EQUATI		Release 5.6
1999-44	DOCUMENTATION	NUMCMP	NUMMRG	MATERIAL	PIPE17		5.6 Commands Manual
1999-45	SOLID70	KEYOPT(8)	THERMAL	MASS TRANSPORT			Release 5.6
1999-47	HARMONIC	MODE SUPERPOSITIO	ALPHA DAMPING	BETA DAMPING			Release 5.6.1

Summary Report by Keyword

KEYWORD	REPORT NUMBER	COMPLETE KEYWORD LIST				RELEASE CORRECTED	
PHASE ANGLE	1999-26	PHASE ANGLE	HARMONIC	REAL	IMAGINARY	PHASE ANGLE	Release 5.6
PILOT NODE	1999-42	CONTACT	PCG SOLVER	PILOT NODE	ROTATION DOF		Release 5.6
PIPE17	1999-44	DOCUMENTATION	NUMCMP	NUMBRG	MATERIAL	PIPE17	5.6 Commands Manual
PLANE182	1999-25	ESYS	SOLID185	PLANE182			Release 5.6
PLASTICITY	1999-18	PLASTICITY	MULTILINEAR ISO H	TB,MISO			Release 5.6
PLES	1999-35	GRAPHICS	PLNS	PLES	/ESHAPE	BEAM3	Release 5.6
PLNS	1999-35	GRAPHICS	PLNS	PLES	/ESHAPE	BEAM3	Release 5.6
POST1	1999-29	POST1	SPPOINT	FSUM	NFORCE	NLGEOM	Release 5.6
POST1	1999-27	POST1	PRRFOR	RSYS=0	ROTATED NODES		Release 5.6
POST26	1999-36	ANSYS/LS-DYNA	POST26	EDREAD	SPCFORC	REACTIONS	Release 5.6
PREP7	1999-07	PREP7	SHAPE CHECK ELEME	CDREAD	EBLOCK	EGEN	Release 5.6
PRESSURE LOAD	1999-06	BUCKLING	BEAM4	PRESSURE LOAD	THERMAL LOAD		Release 5.6
PRRFOR	1999-27	POST1	PRRFOR	RSYS=0	ROTATED NODES		Release 5.6
QUADRATIC TETRAHE	1999-38	VMESH	QUADRATIC TETRAHE	COARSE MESH			Release 5.6
REACTIONS	1999-36	ANSYS/LS-DYNA	POST26	EDREAD	SPCFORC	REACTIONS	Release 5.6
REAL	1999-26	PHASE ANGLE	HARMONIC	REAL	IMAGINARY	PHASE ANGLE	Release 5.6
REDUCED	1999-34	BUCKLING	REDUCED	MODE SHAPES			Release 5.6
REDUCED METHOD	1999-09	MODAL ANALYSIS	REDUCED METHOD	MODOPT,REDU			Release 5.6
ROTATED NODES	1999-20	MODAL ANALYSIS	ROTATED NODES	PARTICIPATION FAC	SPECTRUM ANALYSIS	SPOPT,SPRS	Release 5.6
ROTATED NODES	1999-27	POST1	PRRFOR	RSYS=0	ROTATED NODES		Release 5.6
ROTATION DOF	1999-42	CONTACT	PCG SOLVER	PILOT NODE	NFORCE	NLGEOM	Release 5.6
RSYS	1999-29	POST1	SPOINT	FSUM	ROTATED NODES	RSYS	Release 5.6
RSYS=0	1999-27	POST1	PRRFOR	RSYS=0			Release 5.6
SFADEL	1999-21	SOLID BC	SFADEL	CDREAD	EBLOCK	EGEN	Release 5.6
SHAPE CHECK ELEME	1999-07	PREP7	SHAPE CHECK ELEME			ENGEN	Release 5.6
SOLID BC	1999-21	SOLID BC	SFADEL				Release 5.6
SOLID185	1999-25	ESYS	SOLID185	PLANE182			Release 5.6
SOLID45	1999-43	SOLID45	SOLID92	SOLID95	PCG SOLUTION	CONSTRAINT EQUATI	Release 5.6
SOLID70	1999-45	SOLID70	KEYOPT(8)	THERMAL	MASS TRANSPORT		Release 5.6
SOLID92	1999-43	SOLID45	SOLID92	SOLID95	PCG SOLUTION	CONSTRAINT EQUATI	Release 5.6
SOLID95	1999-43	SOLID45	SOLID92	SOLID95	PCG SOLUTION	CONSTRAINT EQUATI	Release 5.6
SOLID96	1999-41	MAGNETICS	SOLID96	LMATRIX			Release 5.6
SPARSE SOLVER	1999-33	LINEAR ANALYSIS	CONSTRAINT EQUATI	SPARSE SOLVER	EQSLV,sparse		Release 5.6
SPARSE SOLVER	1999-19	LINEAR ANALYSIS	LOAD STEP	CONSTRAINT EQUATI	SPARSE SOLVER	F	Release 5.6
SPCFORC	1999-36	ANSYS/LS-DYNA	POST26	EDREAD	SPCFORC	REACTIONS	Release 5.6
SPECTRUM ANALYSIS	1999-20	MODAL ANALYSIS	ROTATED NODES	PARTICIPATION FAC	SPECTRUM ANALYSIS	SPOPT,SPRS	Release 5.6
SPOINT	1999-29	POST1	SPOINT	FSUM	NFORCE	NLGEOM	Release 5.6
SPOPT,SPRS	1999-20	MODAL ANALYSIS	ROTATED NODES	PARTICIPATION FAC	SPECTRUM ANALYSIS	SPOPT,SPRS	Release 5.6
STIFFNESS RELEASE	1999-31	BEAM44	STIFFNESS RELEASE	LARGE DEFLECTIONS			Release 5.6
STRESSES	1998-15 R1	LS-DYNA	STRESSES				Release 5.6
TARGE170	1999-22	TARGE170					Release 5.6
TB,MISO	1999-18	PLASTICITY	MULTILINEAR ISO H	TB,MISO			Release 5.6
THERMAL	1999-40	THERMAL	FLUID116	EQSLV,ITER	UNSYMMETRIC		Release 5.6
THERMAL	1999-45	SOLID70	KEYOPT(8)	THERMAL	MASS TRANSPORT		Release 5.6
THERMAL LOAD	1999-06	BUCKLING	BEAM4	PRESSURE LOAD	THERMAL LOAD		Release 5.6
UNSYMMETRIC	1999-40	THERMAL	FLUID116	EQSLV,ITER	UNSYMMETRIC		Release 5.6
VMESH	1999-38	VMESH	QUADRATIC TETRAHE	COARSE MESH			Release 5.6

ANSYS 5.5.3 CLASS3 ERROR SUMMARY BY KEYWORD

Summary Report by Keyword

KEYWORD	ERROR REPORT NUMBER	COMPLETE KEYWORD LIST	RELEASE CORRECTED
*GET	1999-28	DOCUMENTATION	5.6 User's Manual
/ESHAPE	1999-35	GRAPHICS	Release 5.6
ALPHA DAMPING	1999-47	HARMONIC	Release 5.6.1
ANSYS/LS-DYNA	1999-36	ANSYS/LS-DYNA	Release 5.6
BEAM3	1999-35	GRAPHICS	Release 5.6
BEAM4	1999-06	BUCKLING	Release 5.6
BEAM4	1999-35	GRAPHICS	Release 5.6
BEAM44	1999-31	BEAM44	Release 5.6
BETA DAMPING	1999-47	HARMONIC	Release 5.6.1
BLOCK LANCZOS	1999-39	MODAL	Release 5.6
BUCKLING	1999-34	BUCKLING	Release 5.6
BUCKLING	1999-06	BUCKLING	Release 5.6
CDREAD	1999-07	PREP7	Release 5.6
CE	1999-19	LINEAR ANALYSIS	Release 5.6
CENTRX, Y, Z	1999-28	DOCUMENTATION	5.6 User's Manual
COARSE MESH	1999-38	VMESH	Release 5.6
CONSTRAINT EQUATI	1999-43	SOLID45	Release 5.6
CONSTRAINT EQUATI	1999-19	LINEAR ANALYSIS	Release 5.6
CONSTRAINT EQUATI	1999-39	MODAL	Release 5.6
CONSTRAINT EQUATI	1999-33	LINEAR ANALYSIS	Release 5.6
CONTACT	1999-42	CONTACT	Release 5.6
CYCGEN	1999-17	MODAL CYCLIC SYM	Release 5.6
CYCSOL	1999-17	MODAL CYCLIC SYM	Release 5.6
DOCUMENTATION	1999-28	DOCUMENTATION	5.6 User's Manual
DOCUMENTATION	1999-44	DOCUMENTATION	5.6 Commands Manual
DOCUMENTATION	1999-30	LS-DYNA	5.6 Commands Manual
EBLOCK	1999-07	PREP7	Release 5.6
EDREAD	1999-36	ANSYS/LS-DYNA	Release 5.6
EGEN	1999-07	PREP7	Release 5.6
ENGEN	1999-07	PREP7	Release 5.6
EQSLV, ITER	1999-40	THERMAL	Release 5.6
EQSLV, sparse	1999-33	LINEAR ANALYSIS	Release 5.6
ESYS	1999-25	ESYS	Release 5.6
ESYS	1999-30	LS-DYNA	5.6 Commands Manual
F	1999-19	LINEAR ANALYSIS	Release 5.6
FLUID116	1999-40	THERMAL	Release 5.6
FSUM	1999-29	POST1	Release 5.6
GRAPHICS	1999-35	GRAPHICS	Release 5.6
HARMONIC	1999-47	HARMONIC	Release 5.6.1
HARMONIC	1999-26	PHASE ANGLE	Release 5.6
IMAGINARY	1999-26	PHASE ANGLE	Release 5.6
KEYOPT(8)	1999-45	SOLID70	Release 5.6
KEYPOINT MESHING	1999-32 R1	NUMOFF	Release 5.6
LARGE DEFLECTIONS	1999-31	BEAM44	Release 5.6
LINE MESHING	1999-32 R1	NUMOFF	Release 5.6
LINEAR ANALYSIS	1999-19	LINEAR ANALYSIS	Release 5.6
LINEAR ANALYSIS	1999-33	LINEAR ANALYSIS	Release 5.6
LMATRIX	1999-41	MAGNETICS	Release 5.6
LOAD STEP	1999-19	LINEAR ANALYSIS	Release 5.6
LS-DYNA	1999-30	LS-DYNA	5.6 Commands Manual
LS-DYNA	1998-15 R1	LS-DYNA	Release 5.6
MAGNETICS	1999-41	MAGNETICS	Release 5.6
MASS TRANSPORT	1999-45	SOLID70	Release 5.6
MASS21	1999-39	MODAL	Release 5.6
MATERIAL	1999-44	DOCUMENTATION	5.6 Commands Manual
MODAL	1999-39	MODAL	Release 5.6
MODAL ANALYSIS	1999-20	MODAL ANALYSIS	Release 5.6
MODAL ANALYSIS	1999-09	MODAL ANALYSIS	Release 5.6
MODAL CYCLIC SYM	1999-17	MODAL CYCLIC SYM	Release 5.6
MODAL CYCLIC SYM	1999-24	MODAL CYCLIC SYM	Release 5.6
MODE SHAPES	1999-34	BUCKLING	Release 5.6
MODE SUPERPOSITIO	1999-47	HARMONIC	Release 5.6.1
MODOPT, REDU	1999-09	MODAL ANALYSIS	Release 5.6
MULTILINEAR ISO H	1999-18	PLASTICITY	Release 5.6
NFORCE	1999-29	POST1	Release 5.6
NLGEOM	1999-29	POST1	Release 5.6
NUMMCP	1999-44	DOCUMENTATION	5.6 Commands Manual
NUMMRG	1999-32 R1	NUMOFF	Release 5.6
NUMMRG	1999-44	DOCUMENTATION	5.6 Commands Manual
NUMOFF	1999-32 R1	NUMOFF	Release 5.6
PARTICIPATION FAC	1999-20	MODAL ANALYSIS	Release 5.6
PCG SOLUTION	1999-43	SOLID45	Release 5.6
PCG SOLVER	1999-42	CONTACT	Release 5.6
PHASE ANGLE	1999-26	PHASE ANGLE	Release 5.6
*GET		CENTRX, Y, Z	
PLNS		PLES	
MODE SUPERPOSITIO		ALPHA DAMPING	/ESHAPE
POST26		EDREAD	BETA DAMPING
PLES		PLES	REACTIONS
BEAM4		PRESSURE LOAD	BEAM3
PLES		PLES	BEAM4
LARGE DEFLECTIONS		ALPHA DAMPING	BEAM3
MODE SUPERPOSITIO		ALPHA DAMPING	BEAM4
BLOCK LANCZOS		MODAL	
REDUCED		REDUCED	
BEAM4		BEAM4	
SHAPE CHECK ELEME		SHAPE CHECK ELEME	
LOAD STEP		LOAD STEP	
*GET		*GET	
QUADRATIC TETRAHE		QUADRATIC TETRAHE	
SOLID92		SOLID92	
LOAD STEP		LOAD STEP	
BLOCK LANCZOS		BLOCK LANCZOS	
CONSTRAINT EQUATI		CONSTRAINT EQUATI	
PCG SOLVER		PCG SOLVER	
CYCSOL		CYCSOL	
CYCSOL		CYCSOL	
DOCUMENTATION		DOCUMENTATION	
CENTRX, Y, Z		CENTRX, Y, Z	
NUMMCP		NUMMCP	
DOCUMENTATION		DOCUMENTATION	
ESYS		ESYS	
SHAPE CHECK ELEME		SHAPE CHECK ELEME	
POST26		POST26	
SHAPE CHECK ELEME		SHAPE CHECK ELEME	
SHAPE CHECK ELEME		SHAPE CHECK ELEME	
FLUID116		FLUID116	
CONSTRAINT EQUATI		CONSTRAINT EQUATI	
SOLID185		SOLID185	
ESYS		ESYS	
DOCUMENTATION		DOCUMENTATION	
CONSTRAINT EQUATI		CONSTRAINT EQUATI	
EQSLV, ITER		EQSLV, ITER	
SPARSE SOLVER		SPARSE SOLVER	
EQSLV, sparse		EQSLV, sparse	
SPARSE SOLVER		SPARSE SOLVER	
UNSYMMETRIC		UNSYMMETRIC	
F		F	
NLGEOM		NLGEOM	
BEAM3		BEAM3	
ALPHA DAMPING		ALPHA DAMPING	
IMAGINARY		IMAGINARY	
PHASE ANGLE		PHASE ANGLE	
IMAGINARY		IMAGINARY	
PHASE ANGLE		PHASE ANGLE	
MASS TRANSPORT		MASS TRANSPORT	
KEYPOINT MESHING		KEYPOINT MESHING	
LARGE DEFLECTIONS		LARGE DEFLECTIONS	
LINE MESHING		LINE MESHING	
KEYPOINT MESHING		KEYPOINT MESHING	
SPARSE SOLVER		SPARSE SOLVER	
EQSLV, sparse		EQSLV, sparse	
EQSLV, sparse		EQSLV, sparse	
SPARSE SOLVER		SPARSE SOLVER	
DOCUMENTATION		DOCUMENTATION	
LMATRIX		LMATRIX	
THERMAL		THERMAL	
MASS TRANSPORT		MASS TRANSPORT	
CONSTRAINT EQUATI		CONSTRAINT EQUATI	
MATERIAL		MATERIAL	
PIPE17		PIPE17	
CONSTRAINT EQUATI		CONSTRAINT EQUATI	
SPECTRUM ANALYSIS		SPECTRUM ANALYSIS	
SPOPT, SPRS		SPOPT, SPRS	
MODE SHAPES		MODE SHAPES	
ALPHA DAMPING		ALPHA DAMPING	
BETA DAMPING		BETA DAMPING	
MODOPT, REDU		MODOPT, REDU	
TB, MISO		TB, MISO	
NFORCE		NFORCE	
NLGEOM		NLGEOM	
RSYS		RSYS	
NUMMRG		NUMMRG	
PIPE17		PIPE17	
KEYPOINT MESHING		KEYPOINT MESHING	
MATERIAL		MATERIAL	
KEYPOINT MESHING		KEYPOINT MESHING	
SPECTRUM ANALYSIS		SPECTRUM ANALYSIS	
SPOPT, SPRS		SPOPT, SPRS	
PCG SOLUTION		PCG SOLUTION	
CONSTRAINT EQUATI		CONSTRAINT EQUATI	
ROTATION DOF		ROTATION DOF	
IMAGINARY		IMAGINARY	
PHASE ANGLE		PHASE ANGLE	

ANSYS 5.6 CLASS3 ERROR SUMMARY BY KEYWORD

Summary Report by Keyword

KEYWORD	ERROR REPORT NUMBER	COMPLETE KEYWORD LIST			RELEASE CORRECTED	
ALPHA DAMPING	1999-47	HARMONIC	MODE SUPERPOSITIO	ALPHA DAMPING	BETA DAMPING	Release 5.6.1
BETA DAMPING	1999-47	HARMONIC	MODE SUPERPOSITIO	ALPHA DAMPING	BETA DAMPING	Release 5.6.1
HARMONIC	1999-47	HARMONIC	MODE SUPERPOSITIO	ALPHA DAMPING	BETA DAMPING	Release 5.6.1
MODE SUPERPOSITIO	1999-47	HARMONIC	MODE SUPERPOSITIO	ALPHA DAMPING	BETA DAMPING	Release 5.6.1

ANSYS 5.6 CLASS3 ERROR SUMMARY BY REPORT NUMBER

ERROR
NO.

KEYWORD
#1

KEYWORD
#2

KEYWORD
#3

KEYWORD
#4

KEYWORD
#5

KEYWORD
#6

RELEASE
CORRECTED

1999-47

HARMONIC

MODE SUPERPOSITIO

ALPHA DAMPING

BETA DAMPING

Release 5.6.1