

## ANSYS Class3 Error Report

**ERROR NO:**

2012-02

**Keywords:**

MODAL ANALYSIS

LINEAR PERTURBATION

PCG LANCZOS

MSAVE

**Description of Error:**

When the following conditions are met, ANSYS Mechanical APDL may incorrectly determine the frequencies and mode shapes in a modal analysis:

1. A linear perturbation modal analysis [PERTURB,MODAL] is performed using the PCG Lanczos eigensolver [MODOPT,LANPCG].
2. The PCG solver [EQSLV,PCG] is chosen in the base analysis for the linear perturbation procedure.
3. The memory-saving option for the PCG solver is on [MSAVE,ON] in both the base analysis and the linear perturbation modal analysis. See below for cases when this condition is set automatically.

**Typical GUI Path(s):**

Main Menu>Solution>Analysis Type>Restart

**Other Comments:**

The memory-saving option [MSAVE] for the PCG solver is turned on by default for static or transient analyses [ANTYPE,STATIC or ANTYPE,TRANS] when small strains are assumed [NLGEOM,OFF] for any SOLID92/95/186/187 element that meet the specific MSAVE requirements (i.e., default element coordinate system, uniform temperatures, etc.). Therefore, condition (3) may occur automatically. For further information on the MSAVE requirements, please refer to the MSAVE command documentation in the ANSYS Commands Reference.

**First Incorrect Version:**

Release 13.0

**Corrected In:**

Release 14.5

**Suggested User Action For Running on Uncorrected Version:**

Choose one of the following to avoid this situation:

1. Choose a different mode extraction method, such as the Block Lanczos eigensolver [MODOPT,LANB].
2. Explicitly turn the memory-saving option for the PCG solver off [MSAVE,OFF] in the linear perturbation modal analysis. This should be done between the first and second SOLVE commands in the linear perturbation analysis procedure.

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