

NEi Nastran

NEi Aeroelasticity (Advanced Aeroelastic Analysis)

Overview

The NEi Aeroelasticity (ZAERO) by ZONA Technologies Inc. software system is a powerful engineering tool that integrates all essential disciplines required for advanced aeroelastic design and analysis. A Unified Aerodynamic Influence Coefficient Matrix scheme allows for flutter, static aeroelastic and aeroservoelastic analyses to be performed in subsonic, transonic, supersonic, and hypersonic Mach numbers. A high fidelity geometry package provides for easy modeling of complex aircraft configurations that can include fuselage, stores, engine inlets, etc. Built-in spline methods establish accurate interfacing between structural FEM and aerodynamic models. Structural modal results are directly imported from other commercial FEM codes. Versatile graphic output capability allows for viewing of all facets of the aeroelastic analysis and design process using commercially available graphic software.

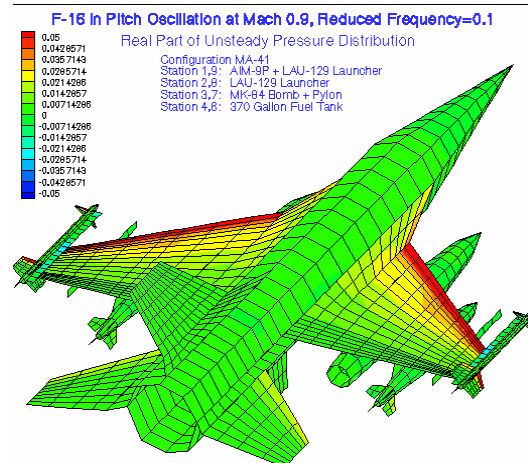
Solution Types:

- Flutter
- Static Aeroelastic
- Aeroservoelastic
- Flutter with Nonlinearity

Capabilities:

Solution Features:

- Dynamic memory and database management system ensures program modularity and allows for virtually unlimited problem size
- Executive control allows for massive flutter/ASE/trim inputs and solution outputs
- Matched/non-matched point flutter solutions with true aerodynamic damping (includes a unique flutter mode tracking capability and flutter sensitivity analysis)
- Steady/unsteady aerodynamics at subsonic, transonic, supersonic and hypersonic Mach numbers with no change to aerodynamic model



Loads and Boundary Conditions:

- Static aeroelastic/trim analysis for flight loads at symmetric, antisymmetric and asymmetric maneuver conditions
- Dynamic loads
- Flutter
- Ejection
- Maneuver
- Gust
- State-space aeroservoelasticity for stability analysis and gust loads

Performance and Control Features:

- Uses the most current advances in finite element technology
- Extensive error checking at all stages of execution
- Bulk data input is very similar to Nastran cutting down learning time
- Modal data importer automatically imports FEM modal data output directly from Nastran.
- Open architecture design allows the user direct access to all data entities (a completely programmable environment)
- Unified AIC matrices can be stored for repetitive structural design and analysis

Modeling Features

- High fidelity geometry module allows for realistic modeling of aircraft configurations, including the fuselage, stores, nacelles, etc.

Output Features:

- 3D spline provides accurate displacements and force transferal between structural FEM and aerodynamic models
- Graphic output of aerodynamic model, unsteady pressures, interpolated structural modes, flutter mode animation, and more

Accurate and proven answers with NEi Nastran:

- Over 20 years of use by industry
- Comprehensive verification program and documentation set
- Over 3000 test problems verified for each release
- Extensive built-in diagnostics verify accuracy of each analysis

Unparalleled support:

- Leader in outstanding customer support
- Onsite and offsite training courses taught by experienced professional engineers
- Phone and email support staffed by a team of FEA specialists
- Optional consulting services available

NEi Software, Inc. is aggressively focused on commitment to the customer. Detailed documentation, customized on-site training, and comprehensive technical support ensures that you will see immediate return on your investment.

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NEi Nastran *for Windows*
From NEi Software, Inc.