The MacNeal-Schwendler Corporation

MSC/NASTRAN for Windows

What's New in

Enhancements

- Geometry Enhancements
- STEP CAD Interface
- Improved Semi-Automatic Hex Meshing
- Attributes (Properties, Materials, etc.) Associated with Geometry
- General Beam Section Calculator
- Mesh Connection: Zip, Unzip, Link

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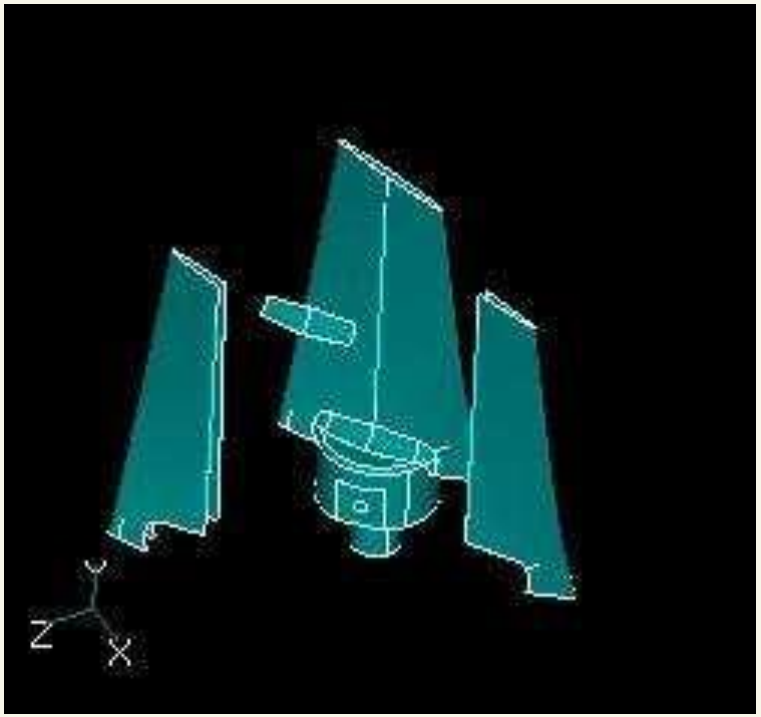
MSC/NASTRAN for Windows

Enhancements

- MSC/NASTRAN Version 70
- Response Spectrum Analysis
- MSC/NASTRAN OP2 Binary Results File
- Floating Network License
- Free Body Diagrams and Grid Point Force Balances
- Graphics Enhancements
- Scripting Language
- Polygon and Freehand Selection

Geometry Modeling

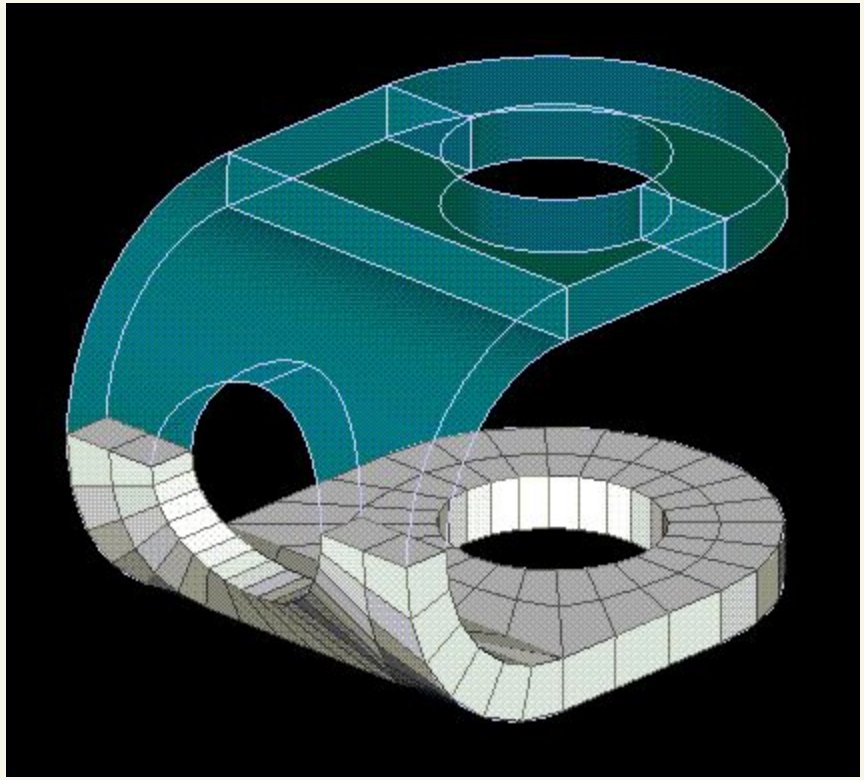
- **Imported Geometry Manipulation**
  - **Use of Surfaces on Solid**
    - **copy, extrude etc.**



Semi-Automatic Hex Meshing

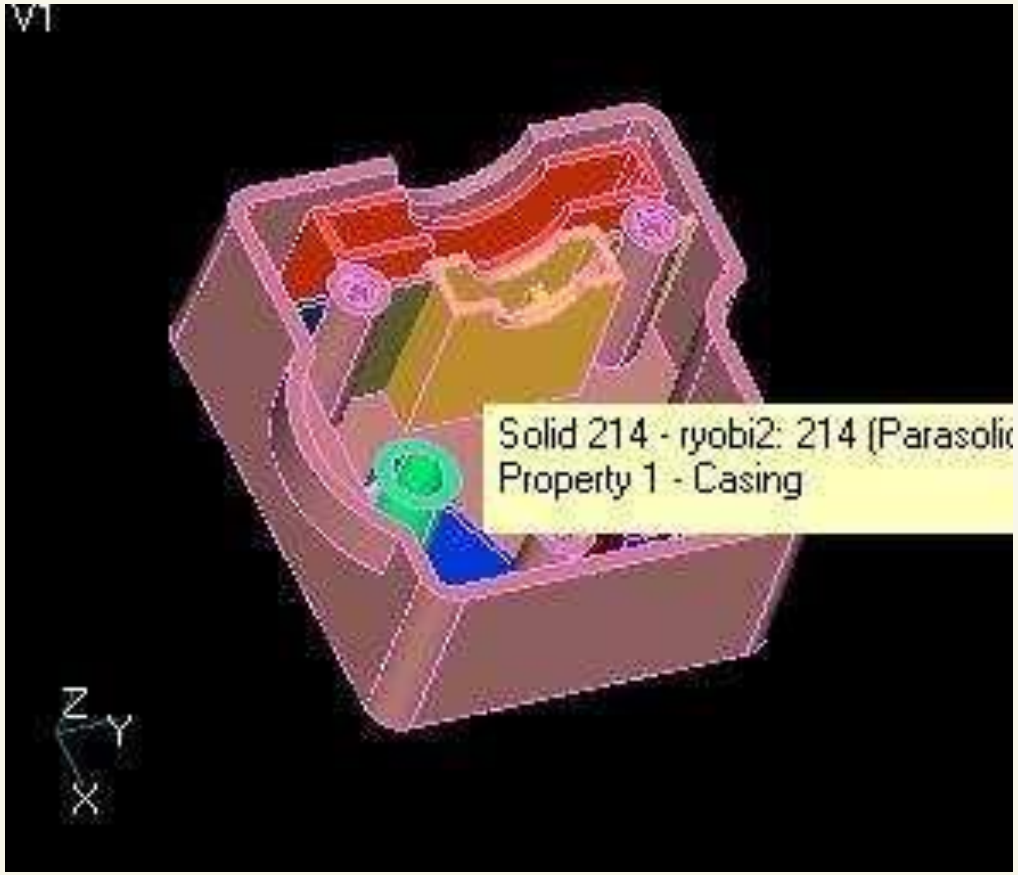
- More Approaches and Control on Mapped Surface Meshing

Semi-Automatic Hex Meshing



Geometry Assigned Attributes

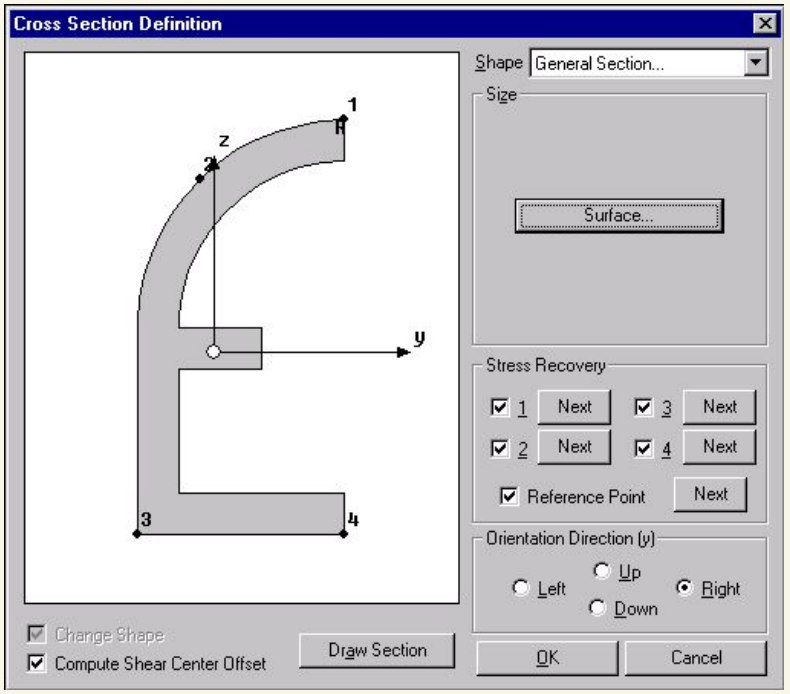
- **Assign Materials and Properties to Solids**



General Beam Section Calculator

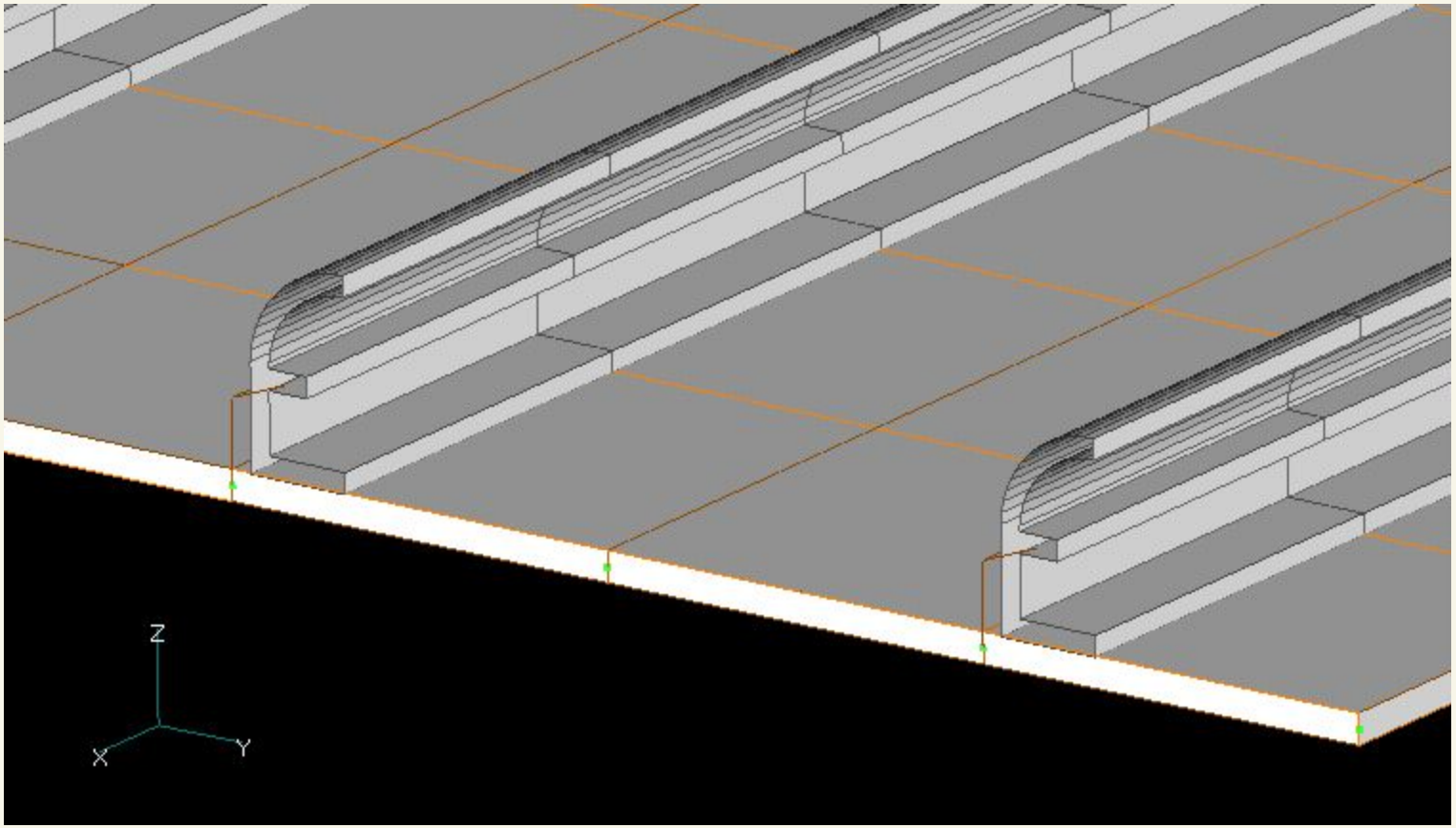
- Uses any Surface as Cross-Section
- May have Internal Loops

Tools | *Section Properties*
(new option)
Calculates all Properties, Including Torsional and Warping Constants



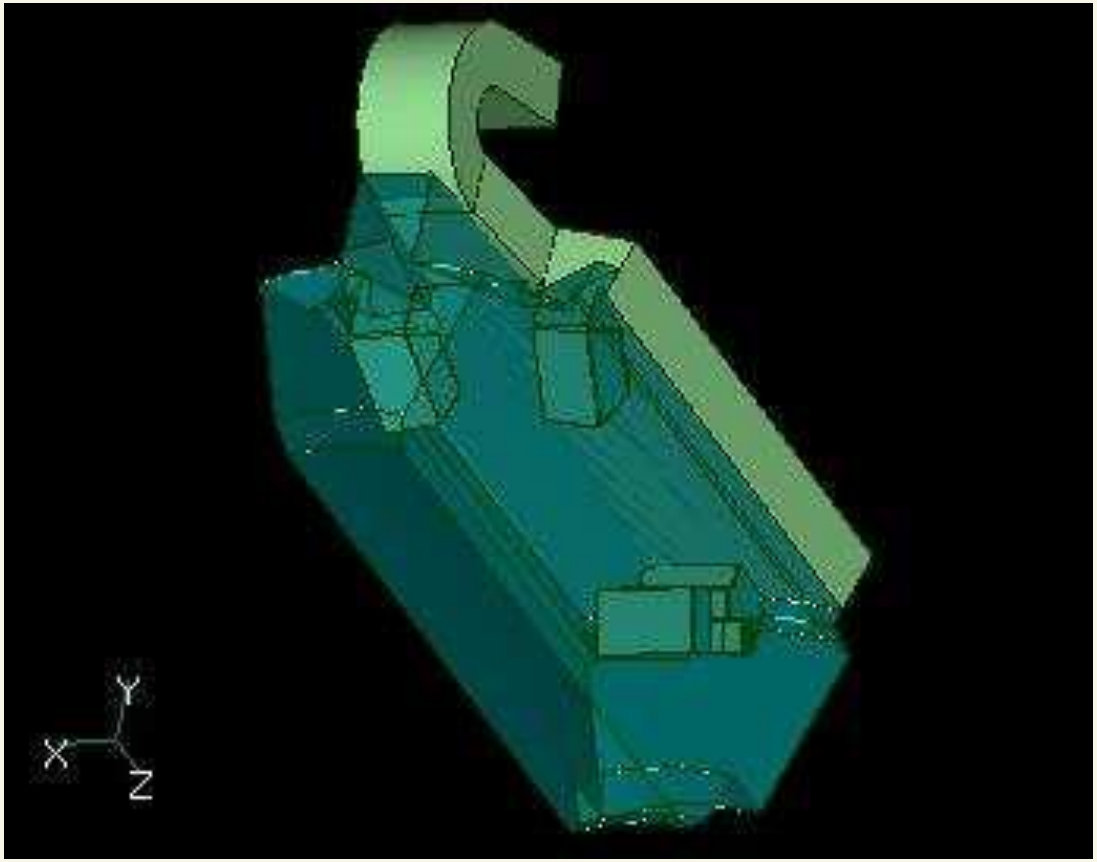
General Beam Section Calculator

- Display of Actual Beam Cross-Sections



Graphics Enhancements

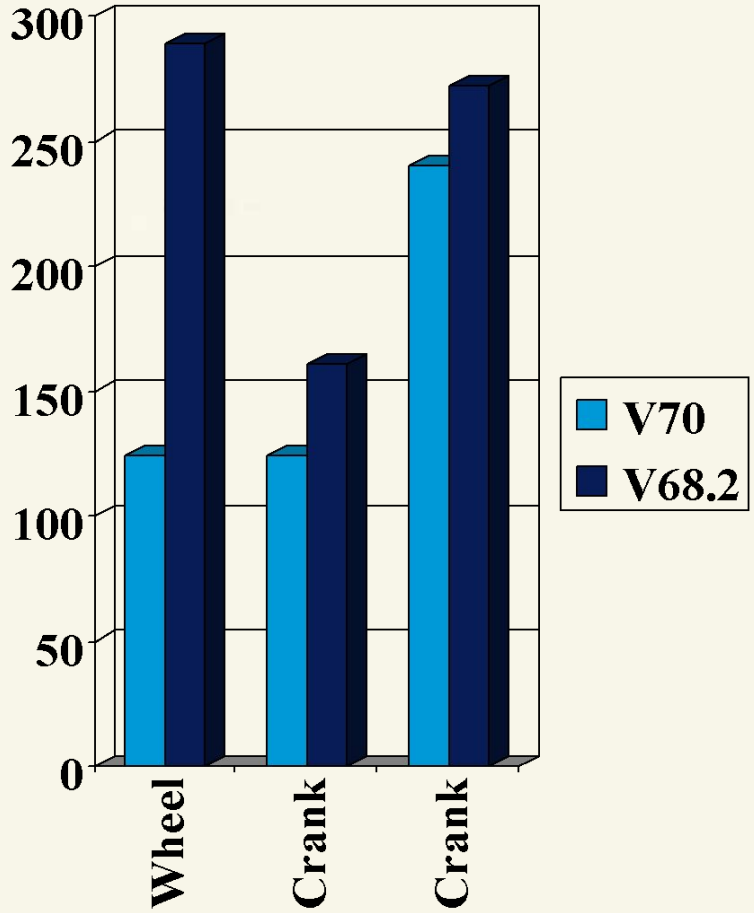
- **Transparent Solids/Materials/Elements**



Solver Enhancements

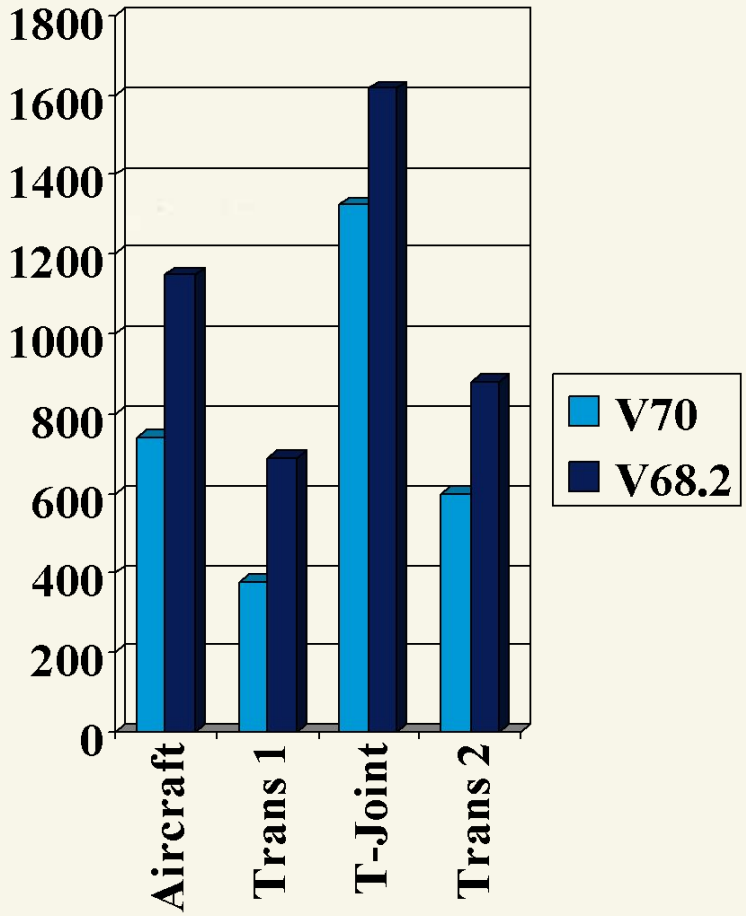
- Kernels Tuned
- New Compiler
  - 5-10% Performance improvement
- Reduced Memory Requirement
  - less CPU time for jobs that spill
- Iterative Solver
  - less disk usage
- Frequency Response Enhancements

MSC/NASTRAN V70 Vs. V68



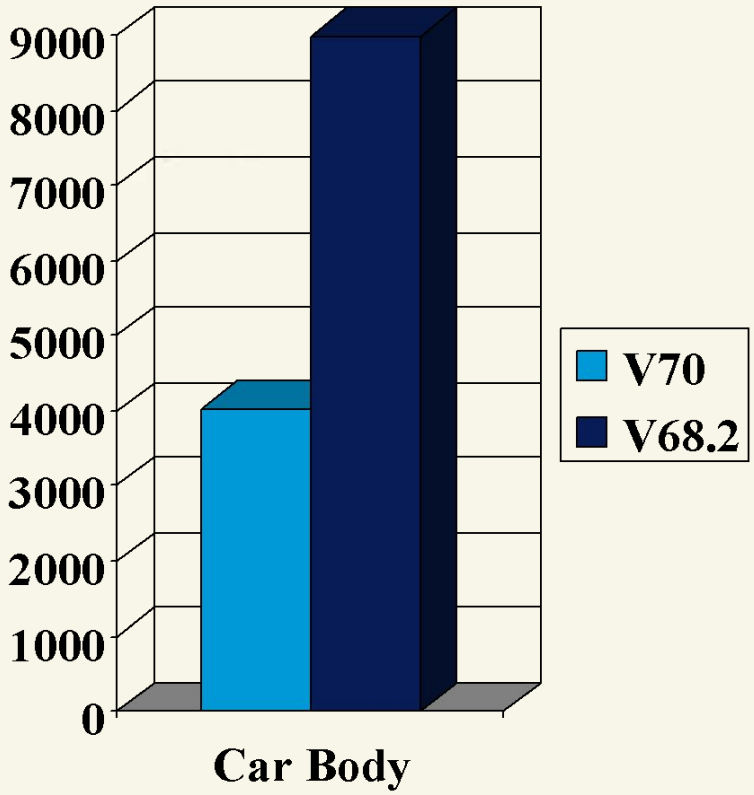
- Wheel
  - Statics, 32,184 dof
- Crank Shaft
  - Statics, 30,934 dof
- Crank Shaft
  - Modes, 30,934 dof

MSC/NASTRAN V70 Vs. V68



- Aircraft Part
  - Buckling, 66,000 dof
- Transmission Part 1
  - Modes, 99,191 dof
- T-Joint
  - Statics, 134,333 dof
- Transmission Part 2
  - Statics, 139,649 dof

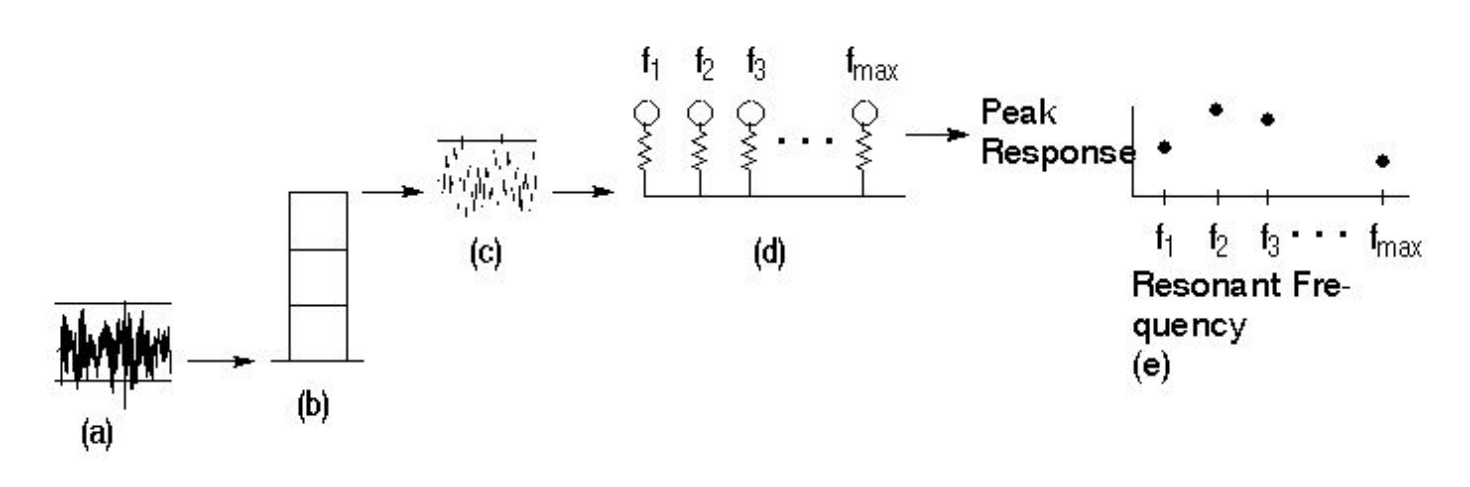
MSC/NASTRAN V70 Vs. V68



- Car Body
  - Modes, 331,468 dof

Response Spectrum Analysis

- New Analysis Type
- Continues from Response Spectra Generation

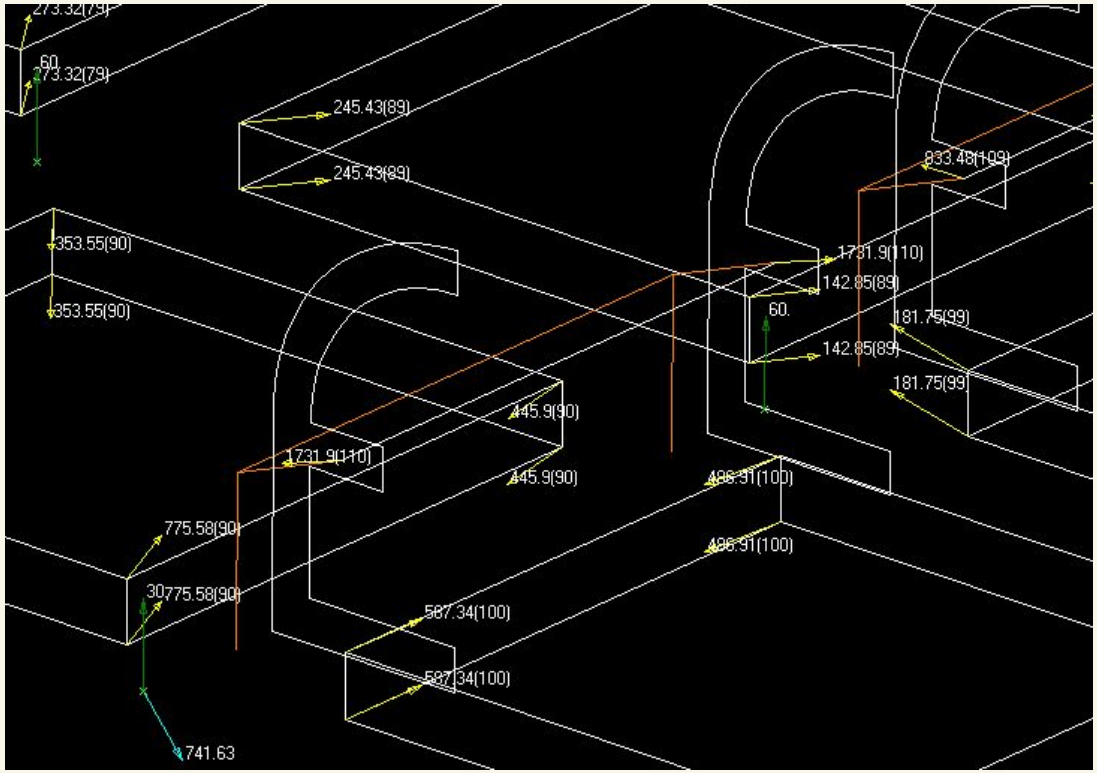


OUTPUT2 Binary Results

- The Binary “OP2” File now Supported
- Compliments the ASCII Output File (F06)
- Over 8X Faster for Large Results Files

Grid Point Force Balance

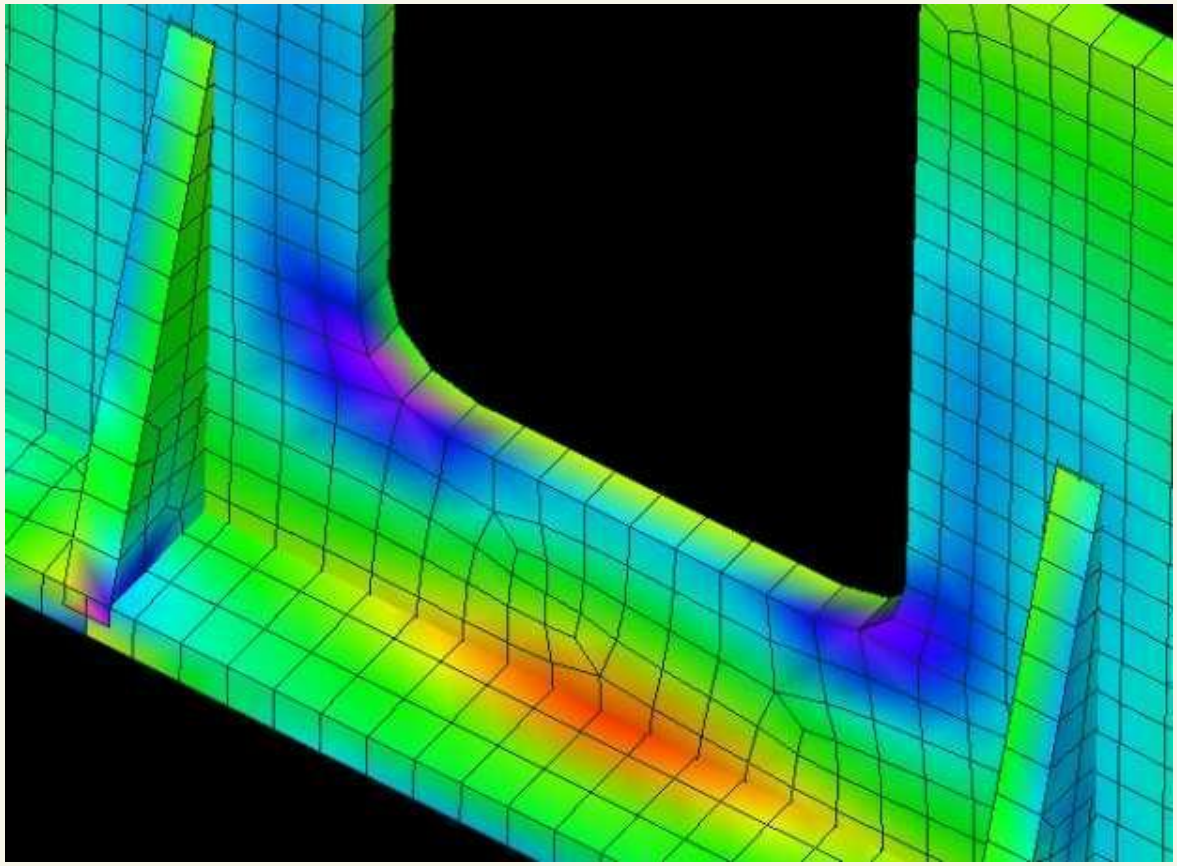
- Grid Point Force Balances
- Free Body Diagrams



Results Viewing Enhancements

- **Simultaneous Display of Top and Bottom Surfaces**

Display Shells as Solids

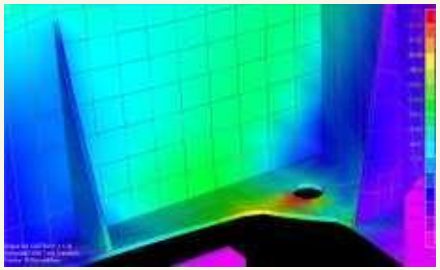


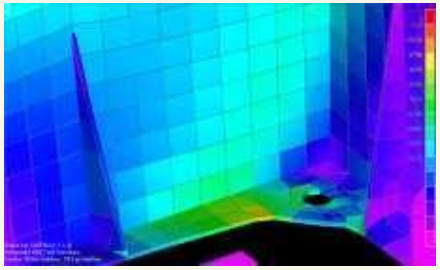
Scripting Language

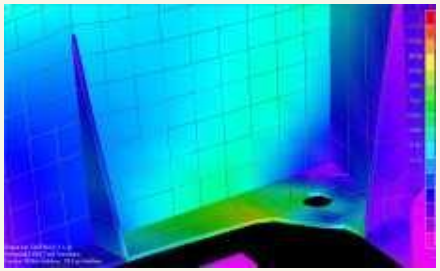
- **New Script Editor**
  - Supports vb form files
  - Integrated graphical dialog box designer
- **Customize Menu Commands**
  - Build your own menus to run scripts and program files
- **Extended Functionality**
  - Over 100 new MSC/N4W functions implemented

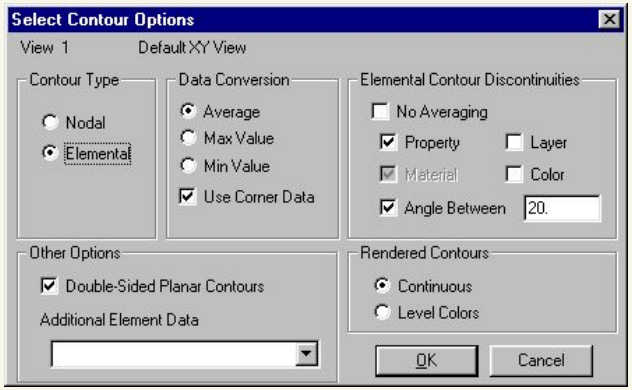
Smart Results Averaging

- Option on Post Data
- Elemental Data now Provides
  - "No averaging"
  - Double-sided on shells
  - "Smart averaging", e.g., by property, layer, color or angle



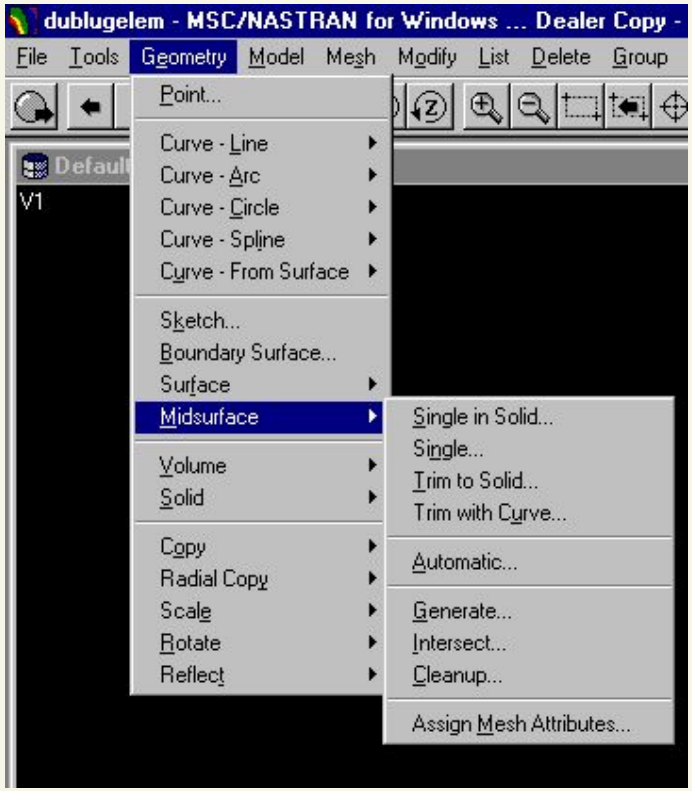


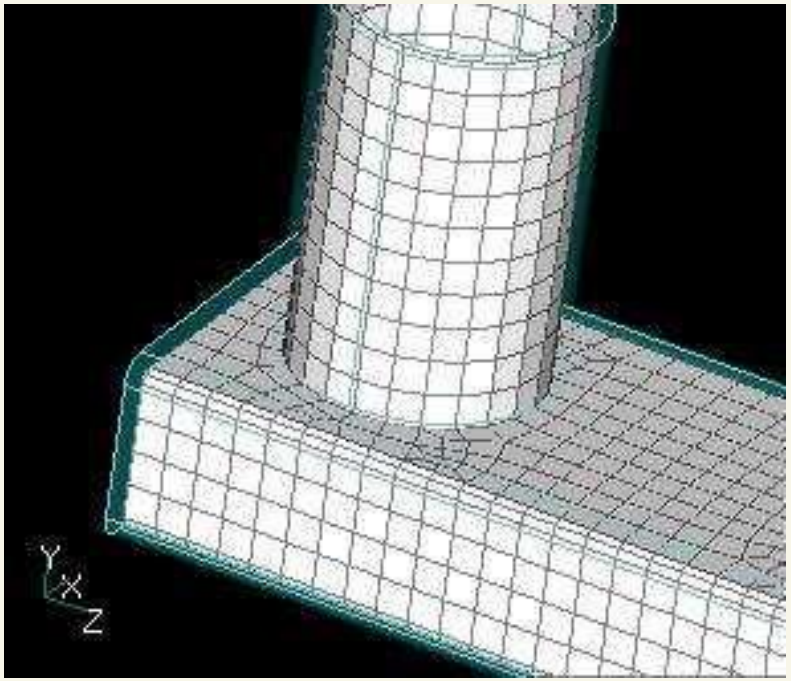




Mid Plane Extraction

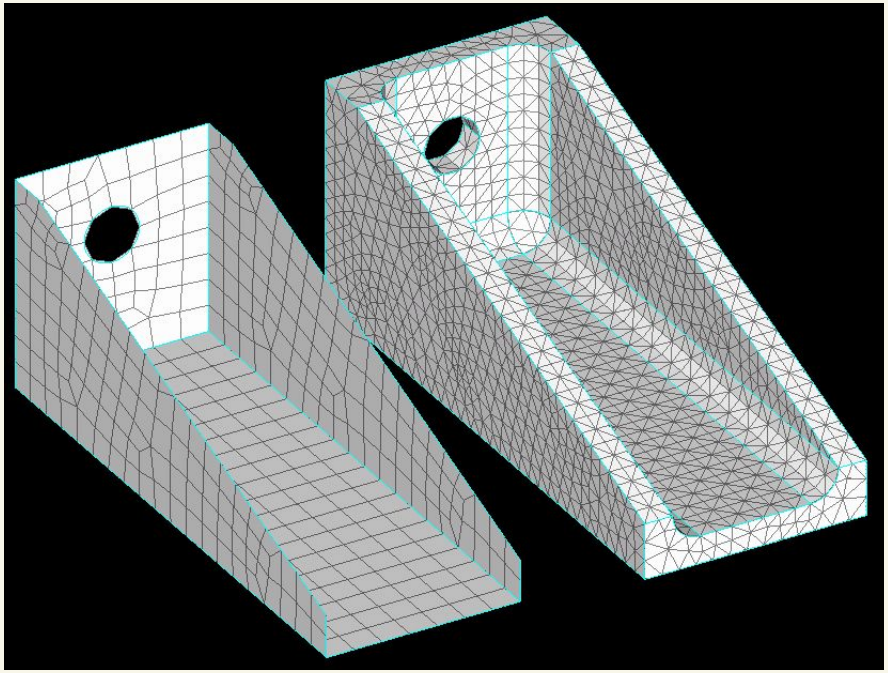
- **Semi Automatic and Manual Tools to Create Surface Mid Plane Models**





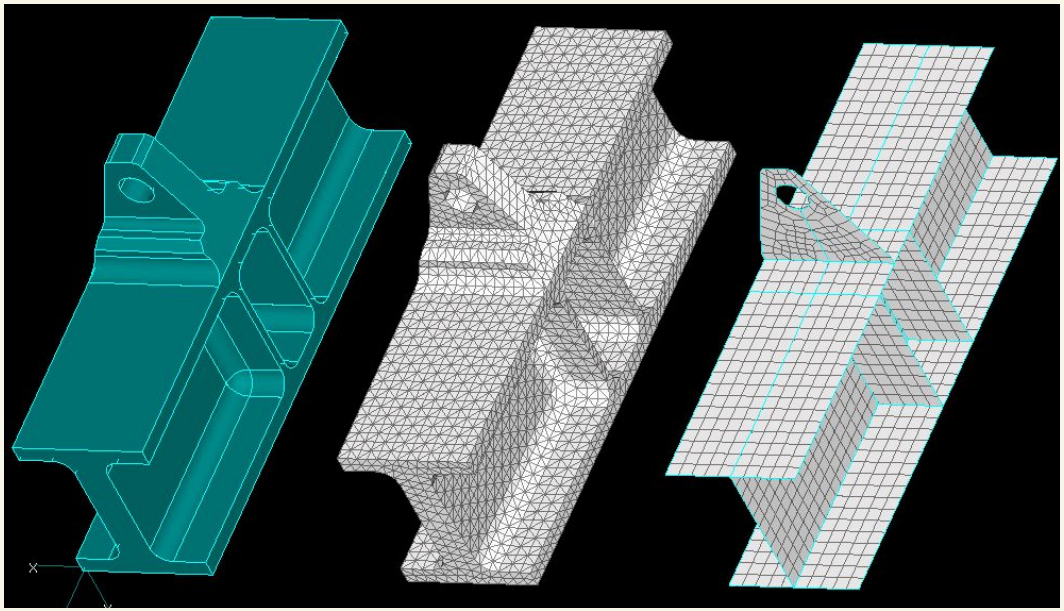
Creating Mid Plane Models

- **Simple Case**
  - **Fully automatic mid planes**
  - **14000 nodes, 6600 tetra, vs.**
  - **450 nodes, 425 parabolic shells (DOF 16:1)**



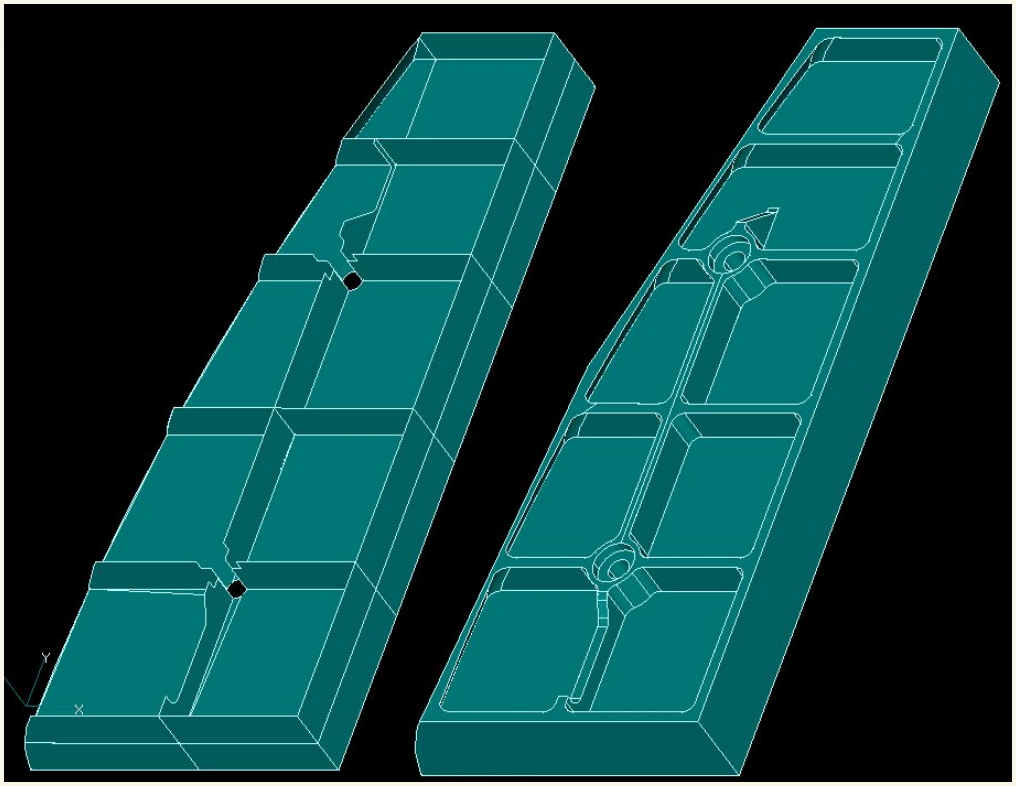
Creating Mid Plane Models

- **Moderate Case**
  - **All but 2 surfaces automatic**
  - **35000 nodes, 19000 tetra, vs.**
  - **2100 nodes, 2200 parabolic shells (DOF 8:1)**



Creating Mid Plane Models

- Real CAD Geometry
  - "Automatic" created about 80% of needed surfaces
  - Manual tools complete surface model in ~15 minutes



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For More Information:-

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