
What's New in



MSC/NASTRAN
for Windows

Version 4

Enhancements

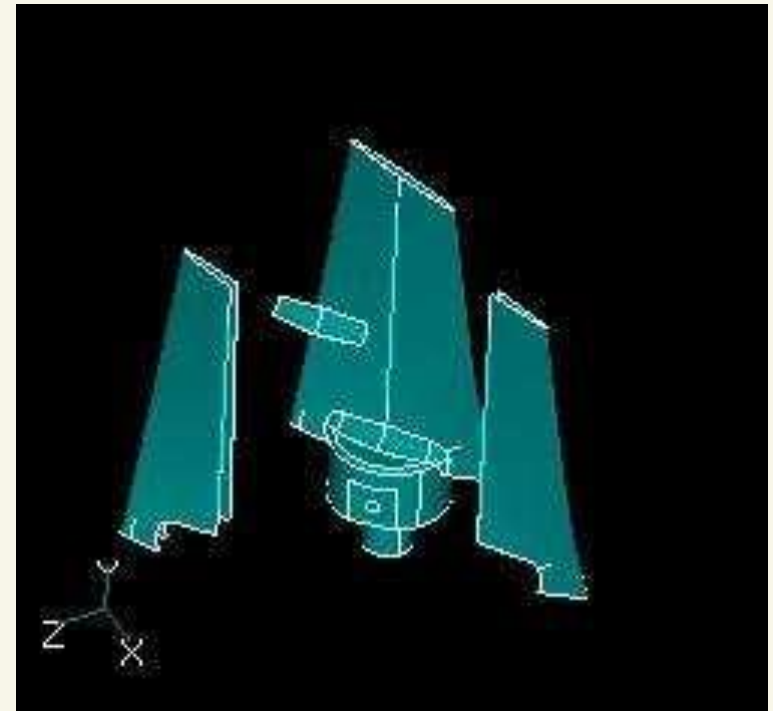
- **Geometry Enhancements**
- **STEP CAD Interface**
- **Improved Semi-Automatic Hex Meshing**
- **Attributes (Properties, Materials, etc.)
Associated with Geometry**
- **General Beam Section Calculator**
- **Mesh Connection: Zip, Unzip, Link**

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

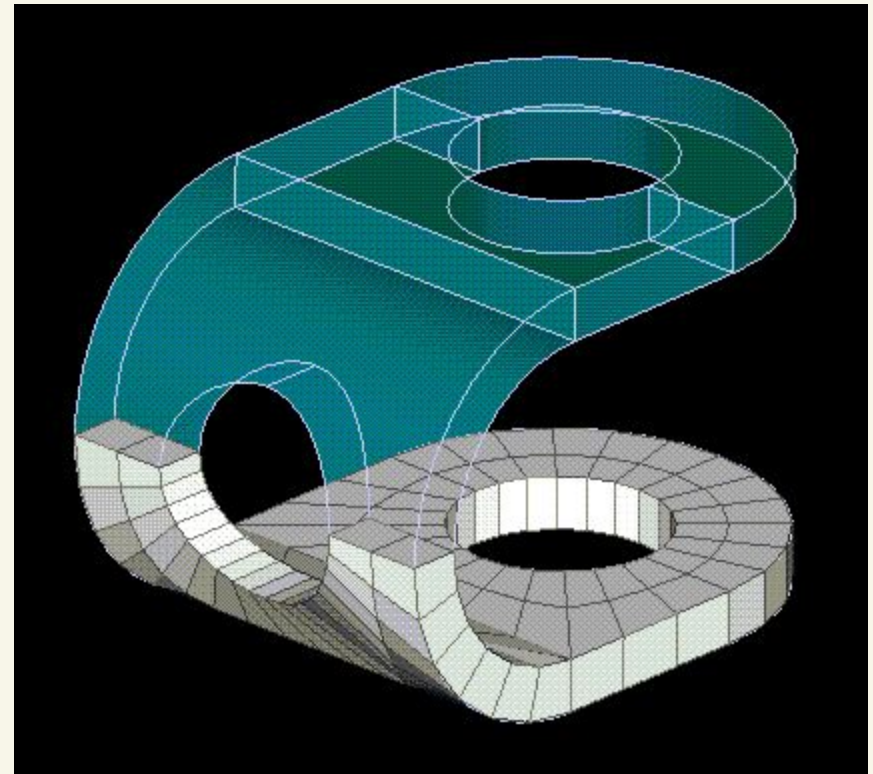
- **Imported Geometry Manipulation**
 - **Use of Surfaces on Solid**
 - copy, extrude etc.



Semi-Automatic Hex Meshing

- **More Approaches and Control on Mapped Surface Meshing**

**Semi-Automatic
Hex Meshing**



Geometry Assigned Attributes

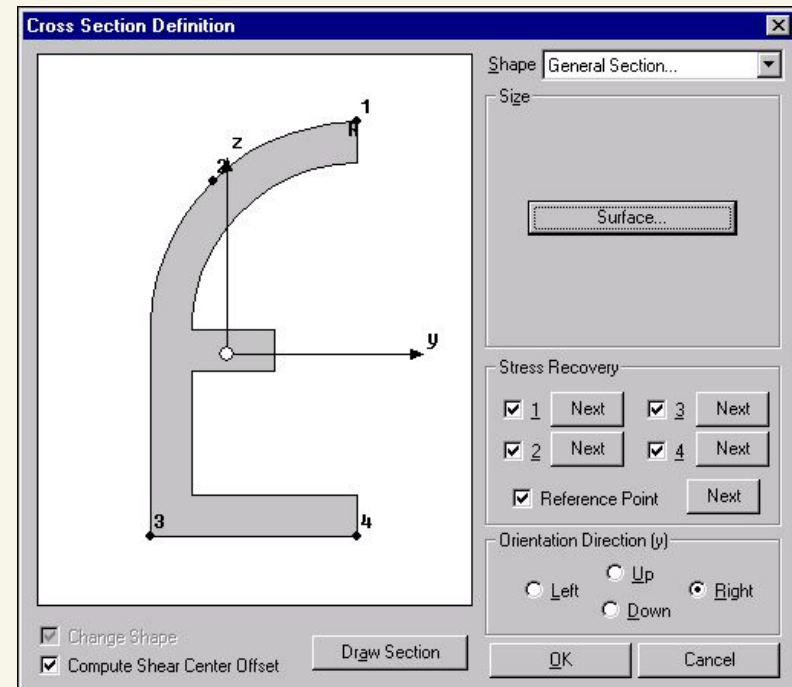
- Assign Materials and Properties to Solids



General Beam Section Calculator

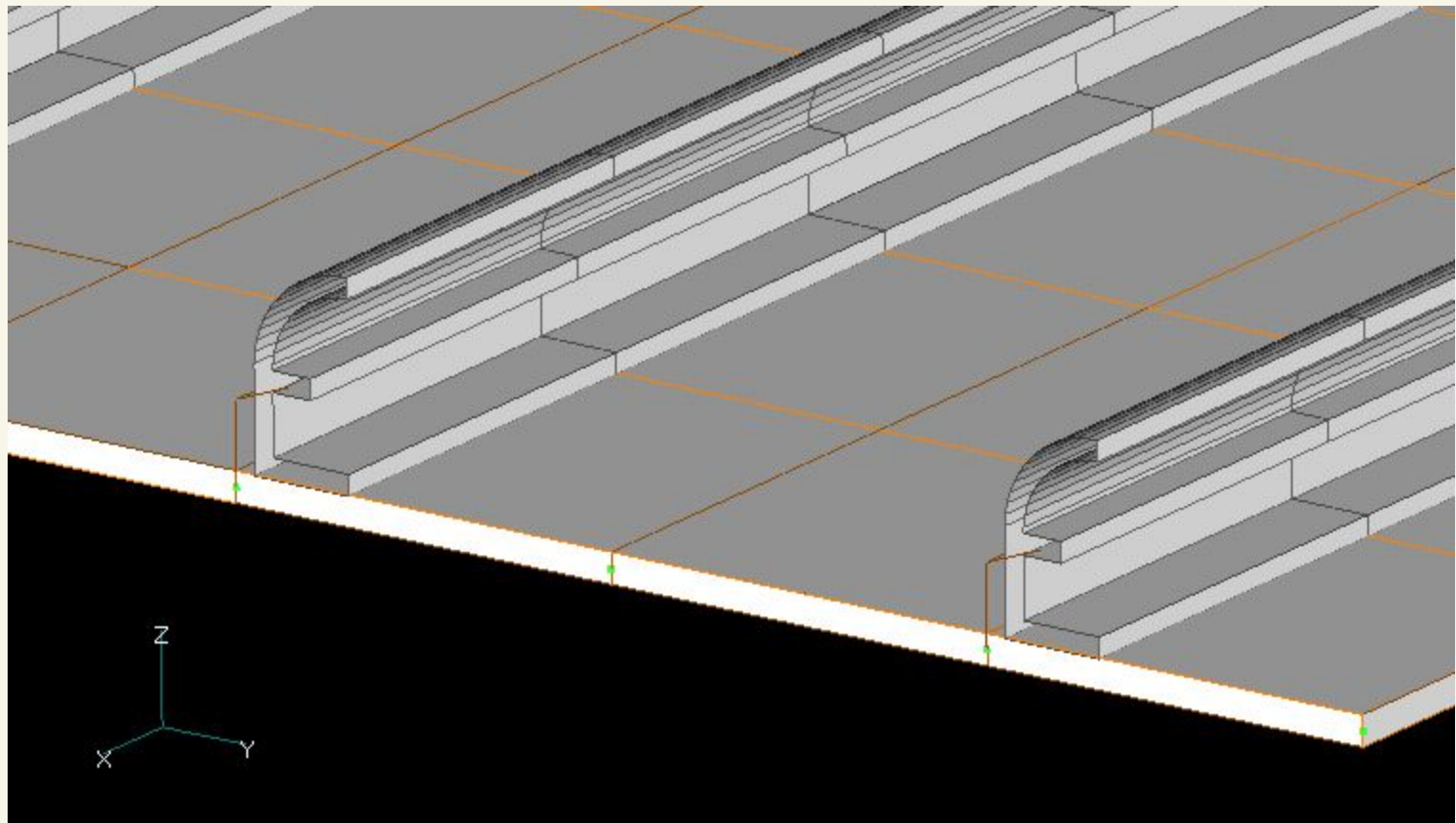
- Uses any Surface as Cross-Section
- May have Internal Loops

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



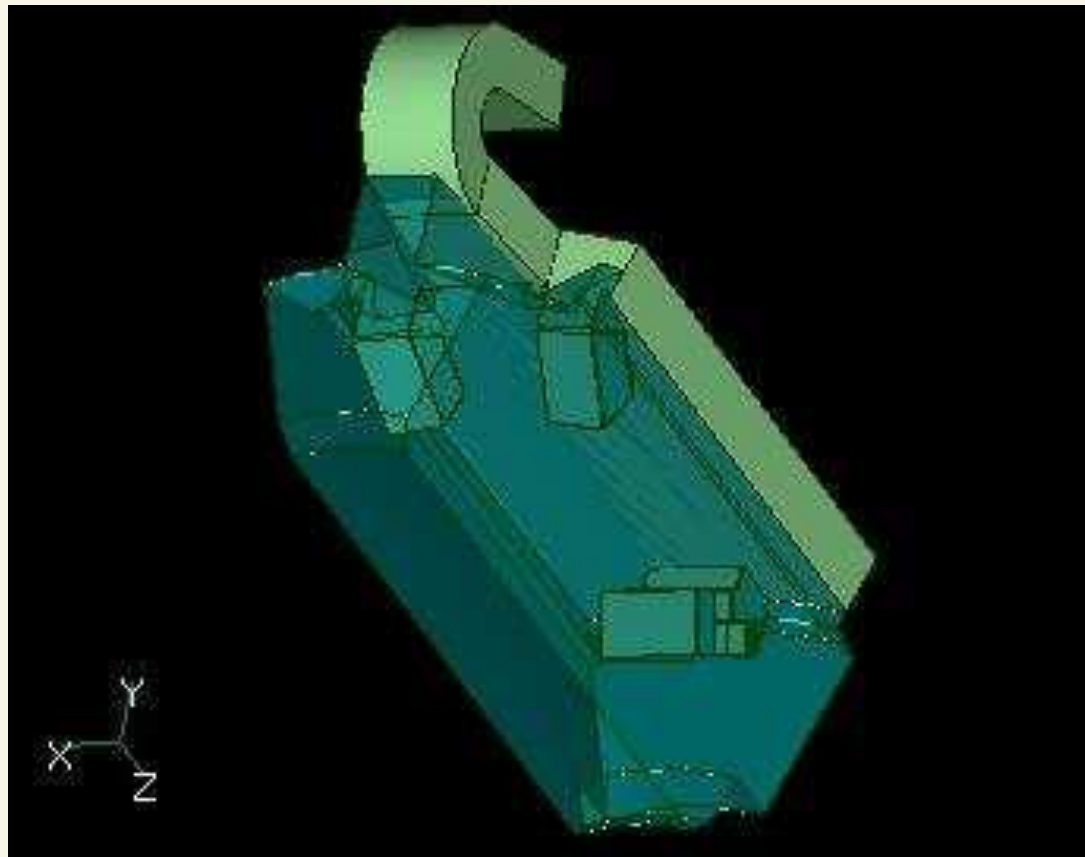
General Beam Section Calculator

- Display of Actual Beam Cross-Sections



Graphics Enhancements

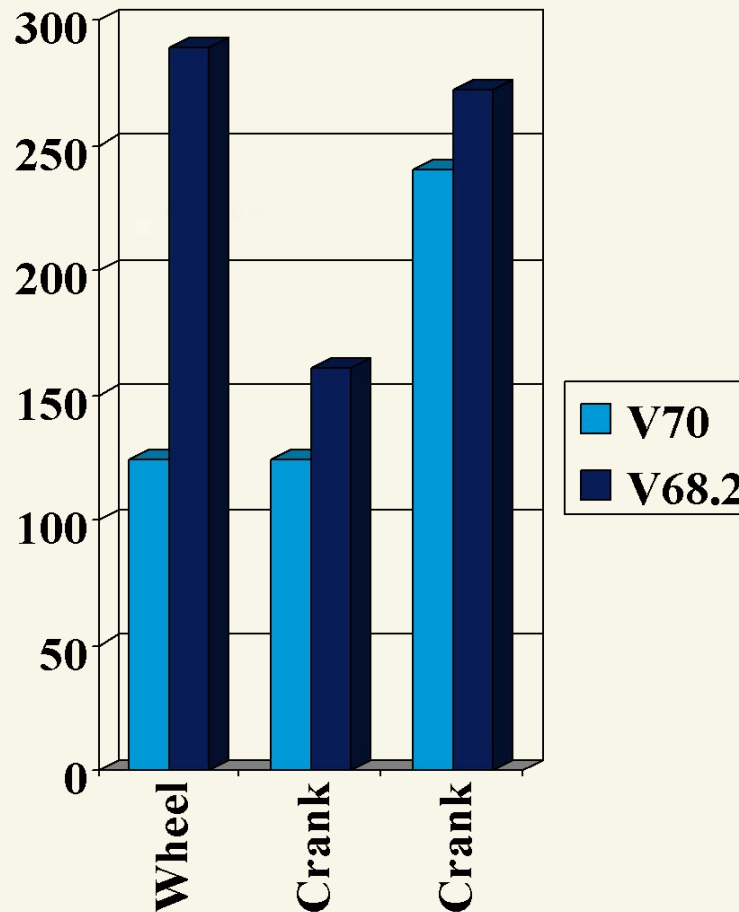
- **Transparent Solids/Materials/Elements**



Solver Enhancements

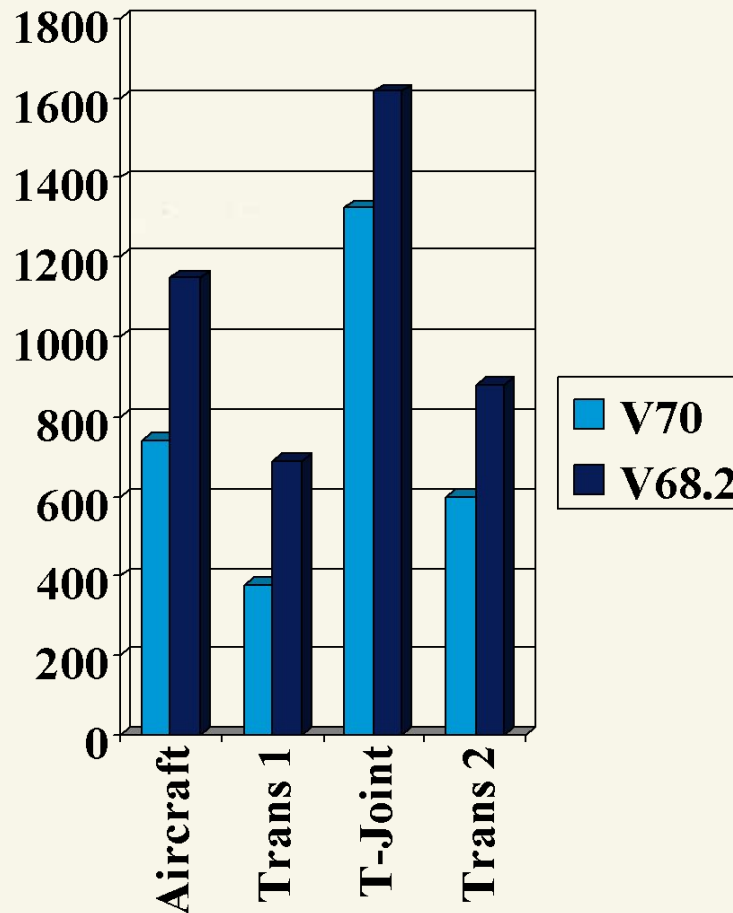
- **Kernels Tuned**
- **New Compiler**
 - 5-10% Performance improvement
- **Reduced Memory Requirement**
 - less CPU time for jobs that spill
- **Iterative Solver**
 - less disk usage
- **Frequency Response Enhancements**

MSC/NASTRAN V70 Vs. V68



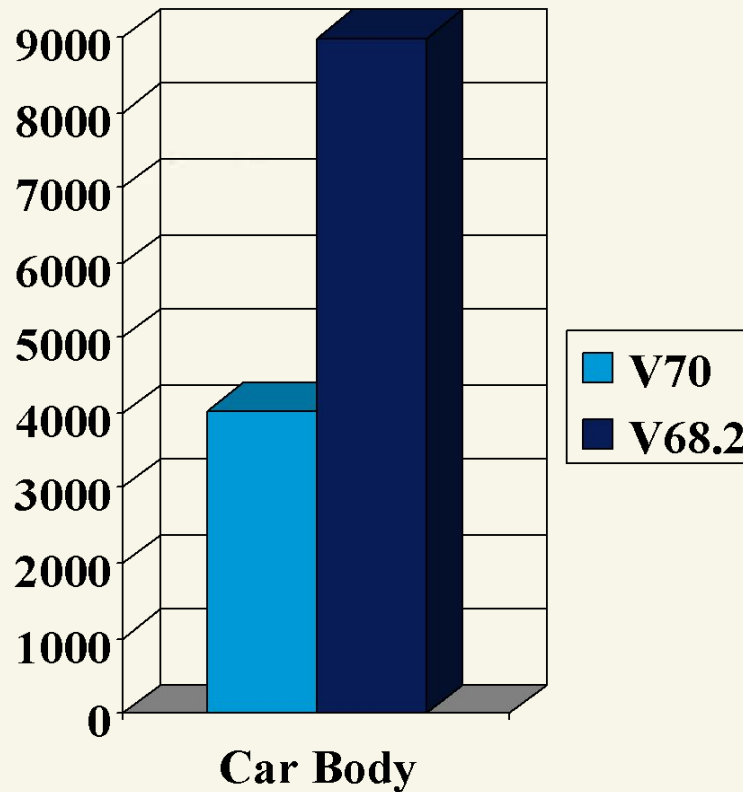
- **Wheel**
 - Statics, 32,184 dof
- **Crank Shaft**
 - Statics, 30,934 dof
- **Crank Shaft**
 - Modes, 30,934 dof

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

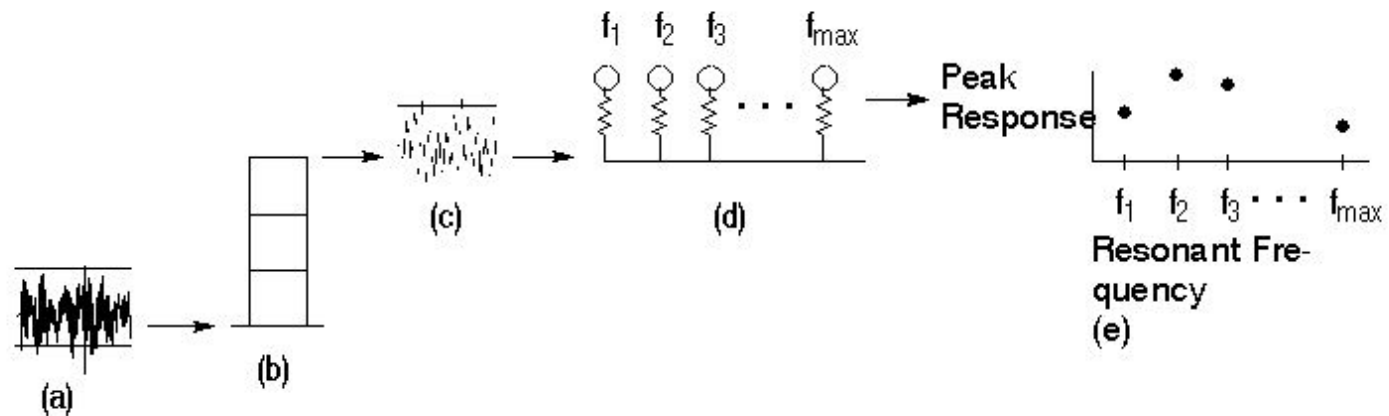
MSC/NASTRAN V70 Vs. V68



- Car Body
 - Modes, 331,468 dof

Response Spectrum Analysis

- New Analysis Type
- Continues from Response Spectra Generation

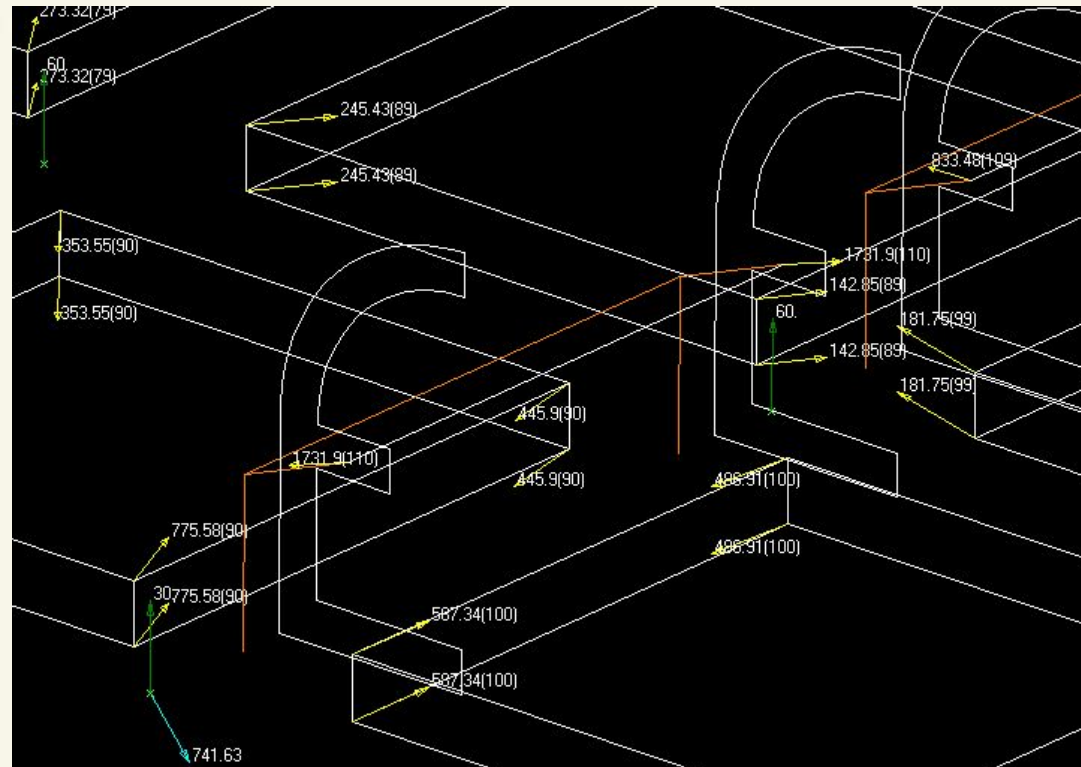


OUTPUT2 Binary Results

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

Grid Point Force Balance

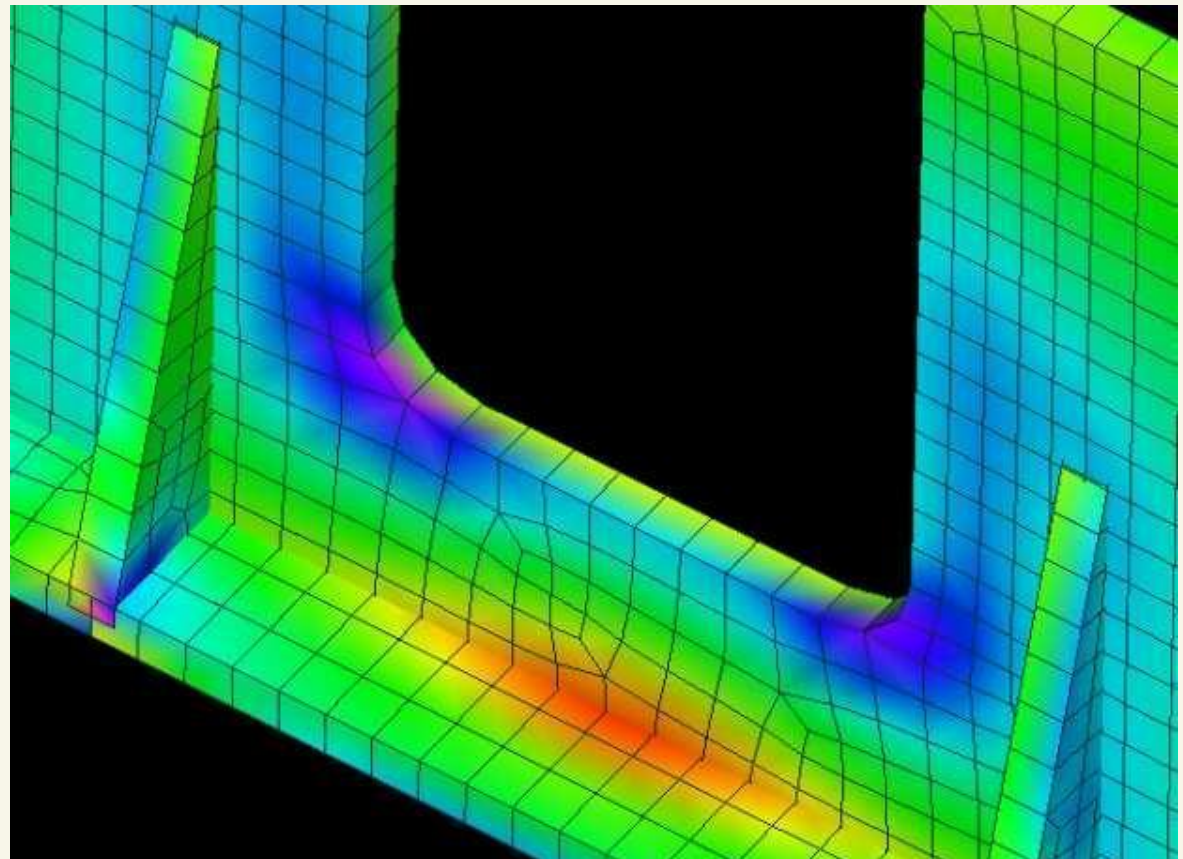
- Grid Point Force Balances
- Free Body Diagrams



Results Viewing Enhancements

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

**Display
Shells as
Solids**

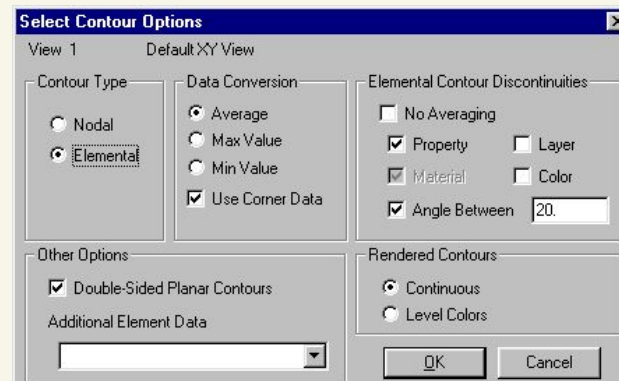
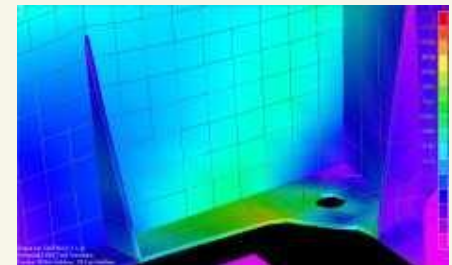
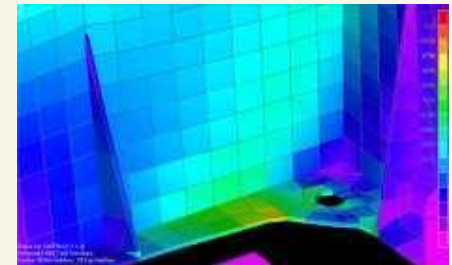
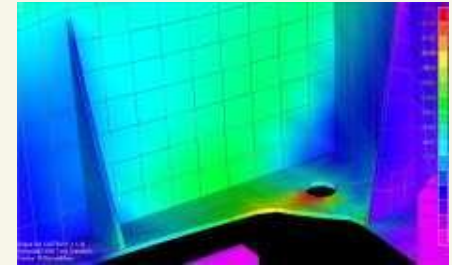


Scripting Language

- **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

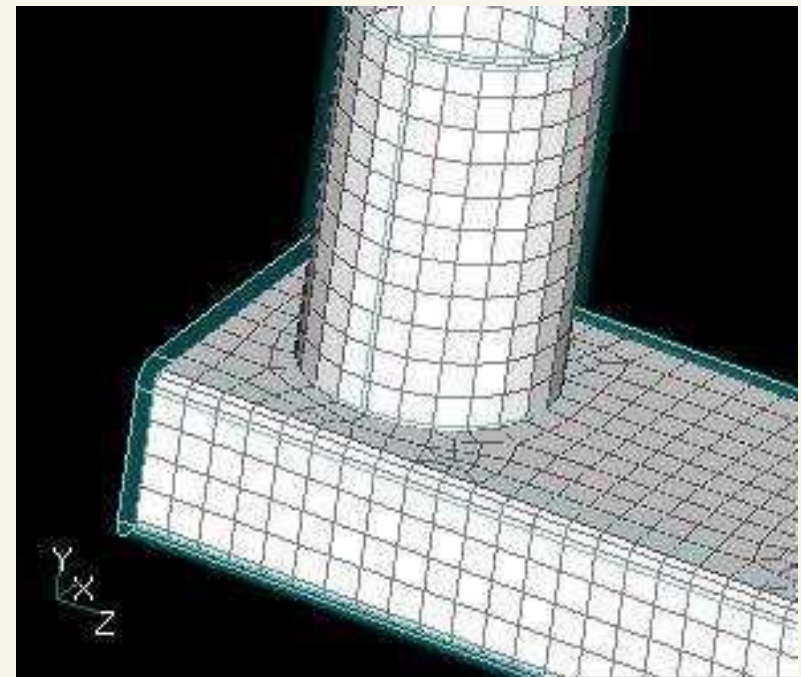
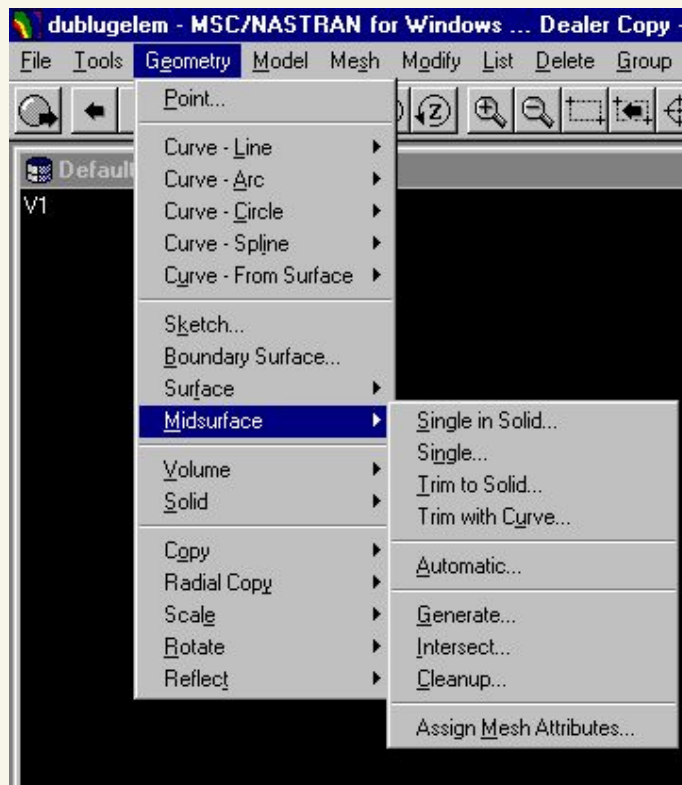
Smart Results Averaging

- 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

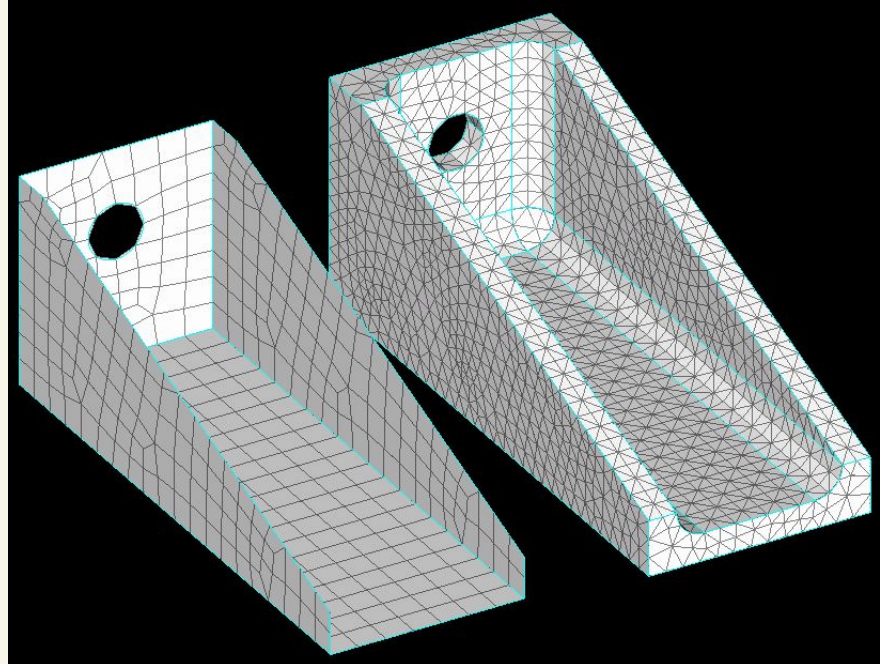
- Semi Automatic and Manual Tools to Create Surface Mid Plane Models



Creating Mid Plane Models

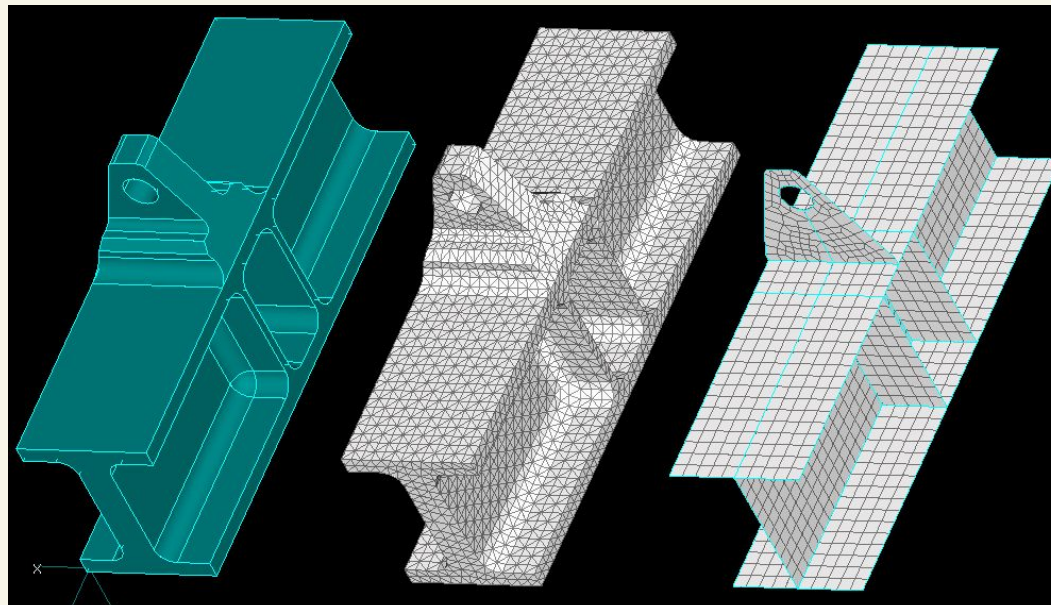
- **Simple Case**

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



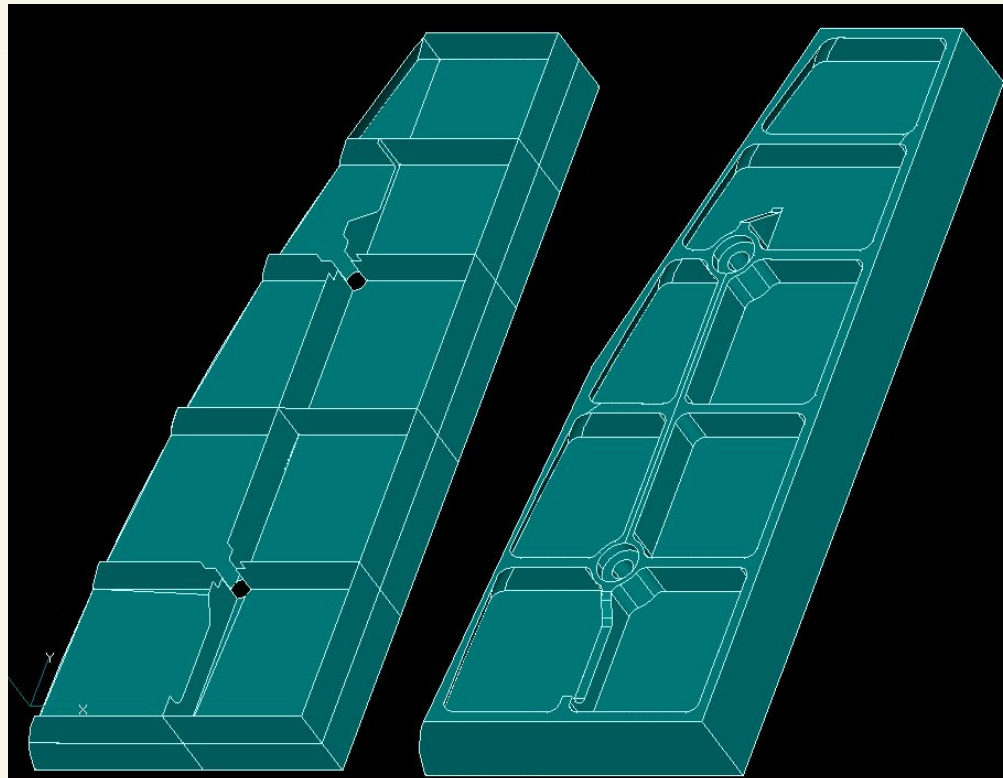
Creating Mid Plane Models

- **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



For More Information:-

- **Phone**

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- **Web Site**

<http://www.macsch.com/>

- **E-Mail**

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