

collaboration

innovation

global solutions



PTC

Shaping Innovation

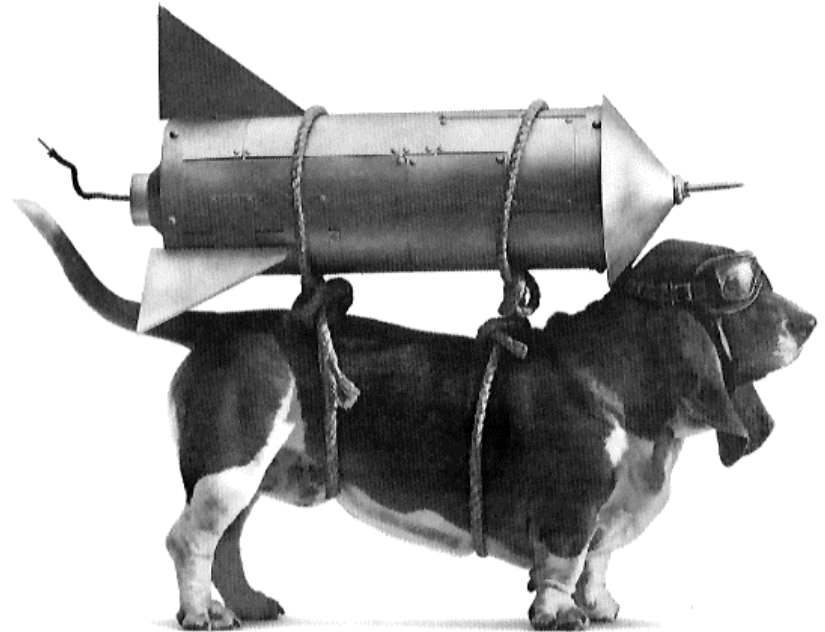
Pro/ENGINEER Tips & Tricks

Terry Amundson

Mark Fischer

August 13, 2002

- **Introductions**
- **Goals for Today**
- **General ProE Tips**
- **Drawing Tips**
- **Questions**



- **A Bunch of Things You Probably Knew**
- **Some Things You Didn't Know**
- **Maybe One Thing That Works Great That You Didn't Know**

- **Middle Mouse Button to Accept**
- **Right Mouse Button for Pop-up Redefine/Info/Etc.**
- **Use Fast Hidden Line Removal**
- **Renaming Features**
- **Display Datums While Spinning**
- **Component Display States**
- **Explode States**
- **Assembly – move component using CTRL-ALT**
- **Drag & Drop Files – from File Explorer**

- **Right Mouse Features from Model Tree**
- **Drag and Drop Re-Order**
- **Drag and Drop Insert Mode**
- **Right Mouse in Model Tree**
- **Custom Model Tree Setups**
- **Rename/Modify Features in Model Tree**

Tips & Tricks – Drawings (Clarity)



- **Z-Clipping (also decreases repaint time)**
- **Member Display**
- **Relating Draft Items to a View**
- **Quilt Hidden Line Removal**
- **Fonts**
- **Use @o to attach leader to multi-line text**

- **Right Mouse Modify**
- **Align Views / Unalign Projected Views**
- **Copy from other Drawing**
- **Template Drawings**
- **Word Wrap (2001)**

- **General Tips:**
 - Turn off datum displays
 - Work in wireframe
 - Set *auto_regen_views* to *no*
- **No View Open (*open_simplified_rep_by_default=yes*)**
- **Erase/Resume Views**
- **Snapshot of View**
- **Merge Drawings**

BOM Graph



Commonspace Browser

Commonspace Object Edit View Report Intralink Help

BOM Graph for 753600.asm/main/1/3

Commonspace Object Edit View Report Intralink Help

Attributes

Zoom X Gap Y Gap Configuration latest

753_Actuator

- Root Folder
 - Design
 - 753_Actuator
 - 985_Chassis
 - Library
 - Manufacturing
 - Standards
 - forms

The BOM graph shows a hierarchical structure of components. The root node is 753600.asm/main/1/3, which is highlighted in yellow. It branches into several child nodes, each with a quantity of 1: 753602.prt/main/1/2, 753603.prt/main/1/2, 753604.prt/main/1/2, 753650.asm/main/1/1 (highlighted in red), 753680.asm/main/1/1, seal_245.prt/main/1/0, or_165.prt/main/1/0, and or_175.prt/main/1/0. The 753650.asm/main/1/1 node further branches into 753651.prt/main/1/2 and sb-007379.prt/main/1/1. The graph is displayed in a window with a toolbar and zoom controls.

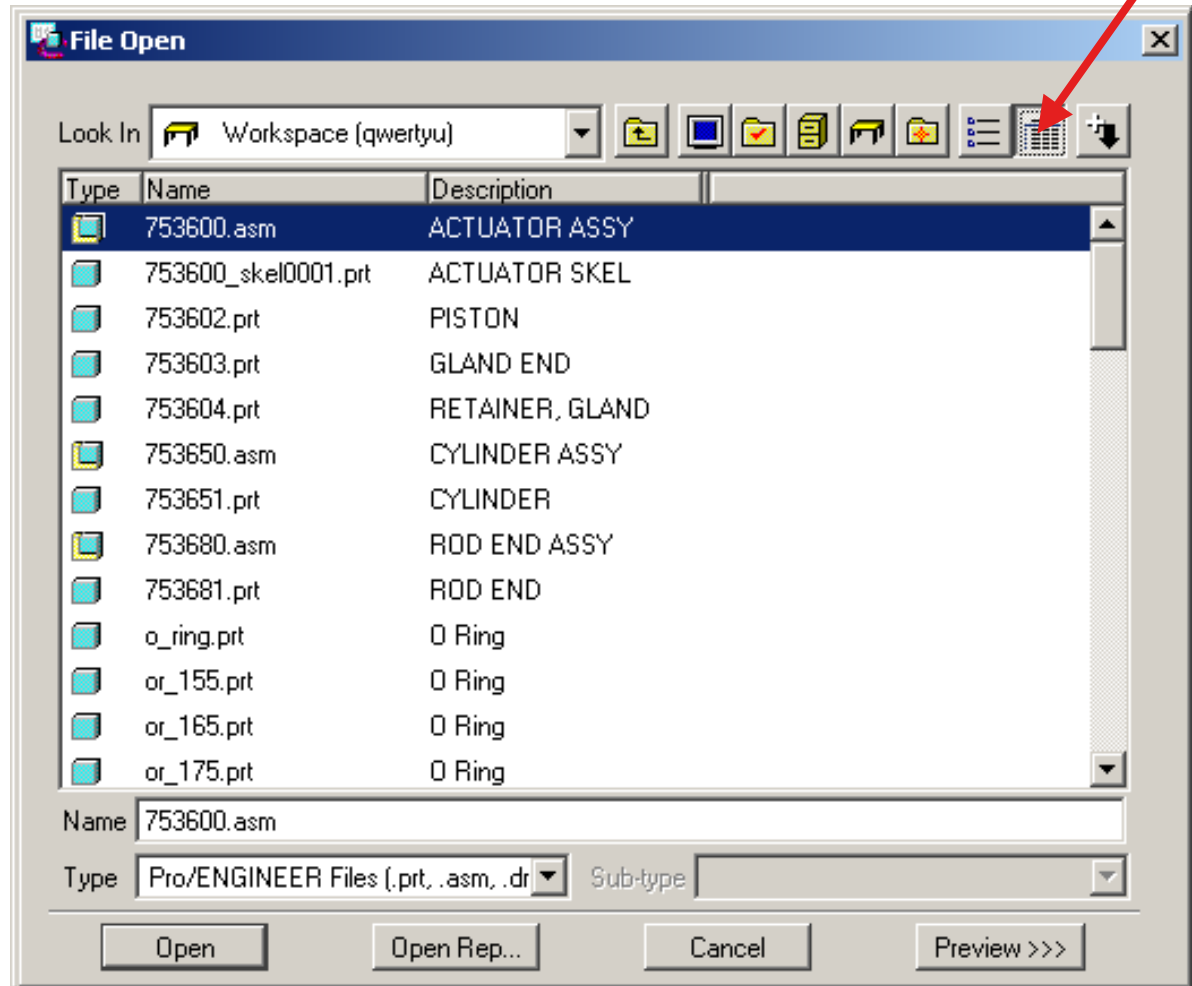
ProeMember

Commonspace Bill Of Materials Graph

Rows: 1/13

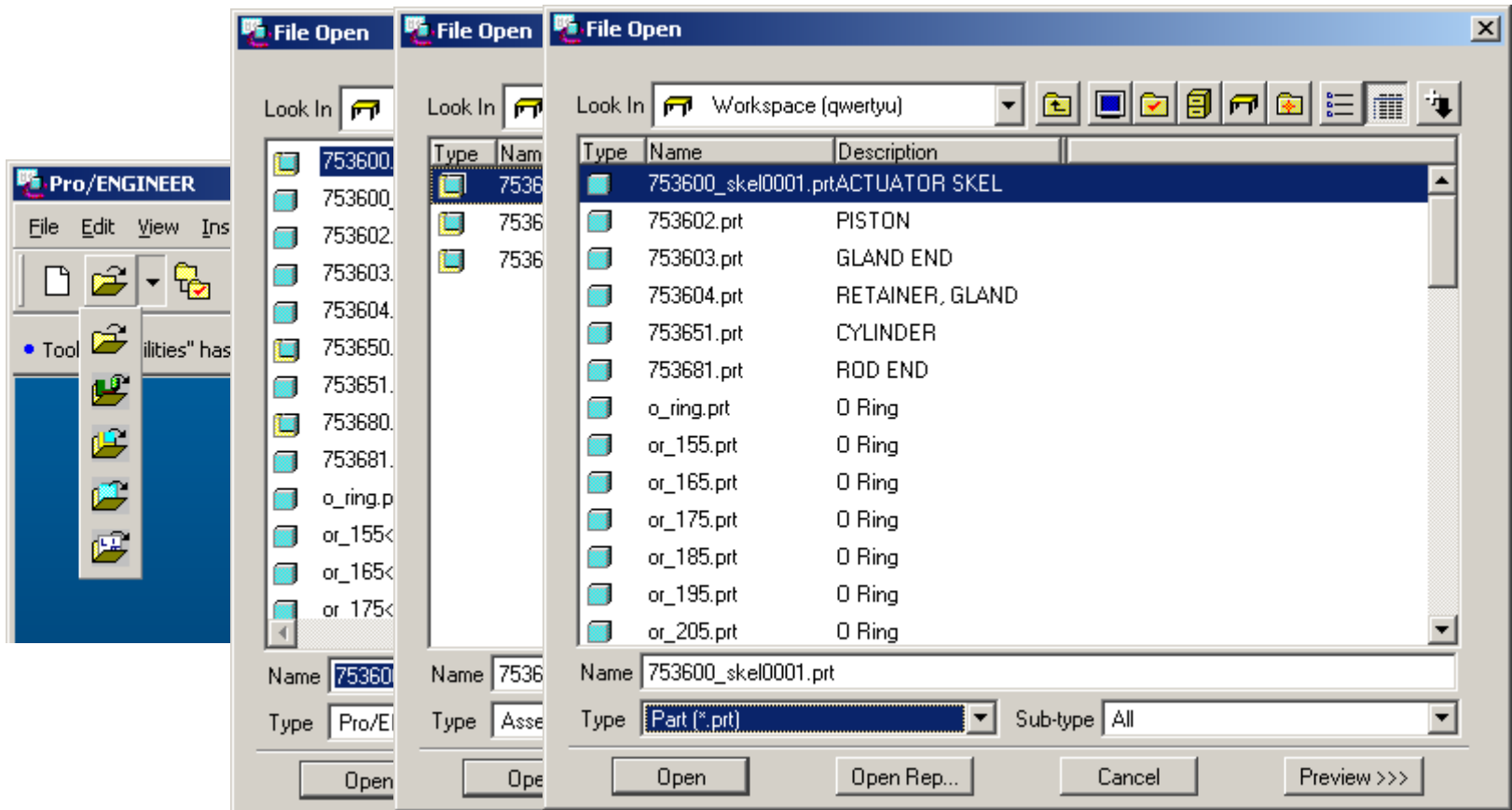
File Open

**Create a Table Display in your workspace with 2 columns:
Model Name, Description**

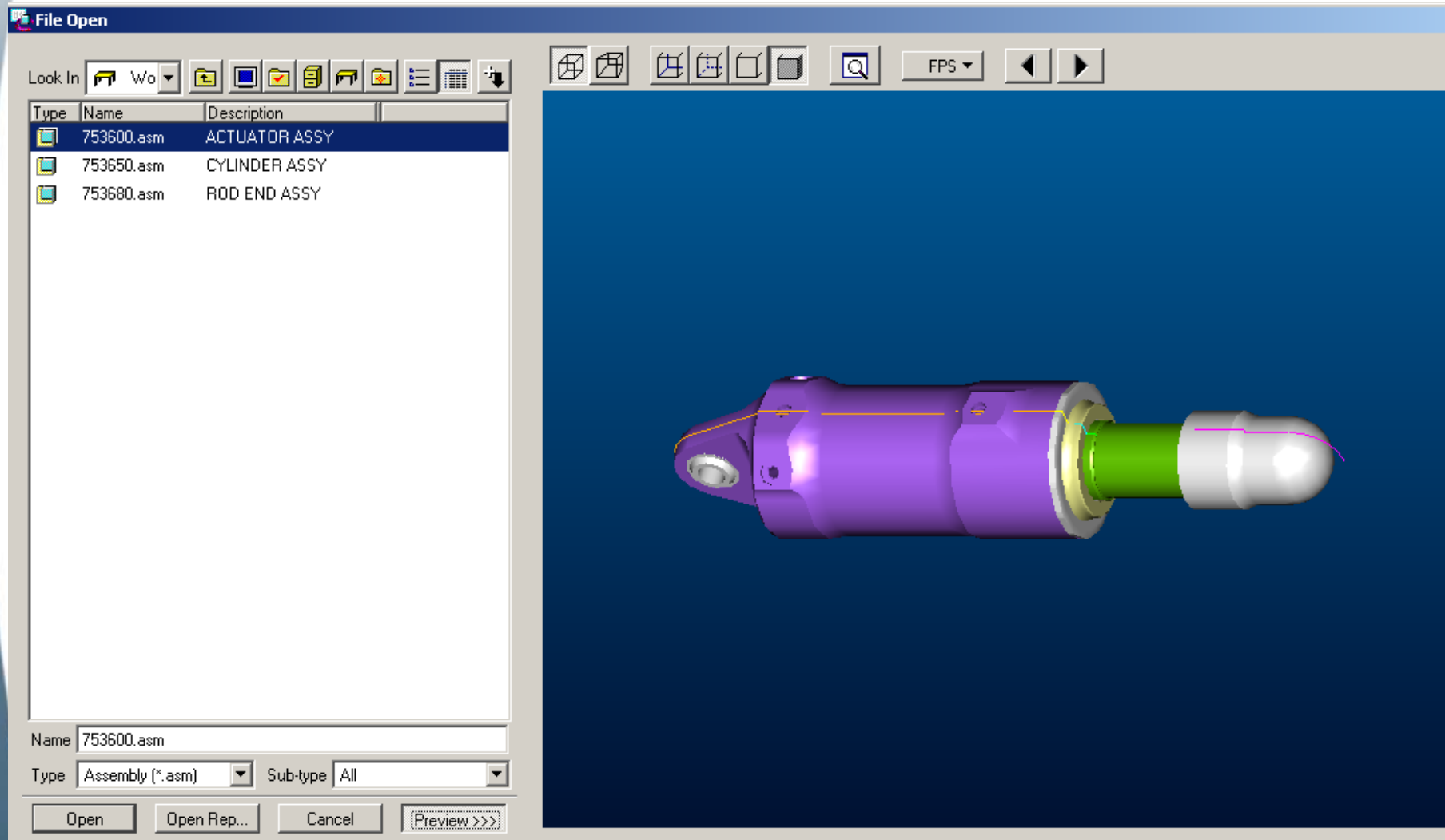


File Open

Create “Fly Outs” to sort for commonly used objects: Parts, Assemblies, Drawings



File Open

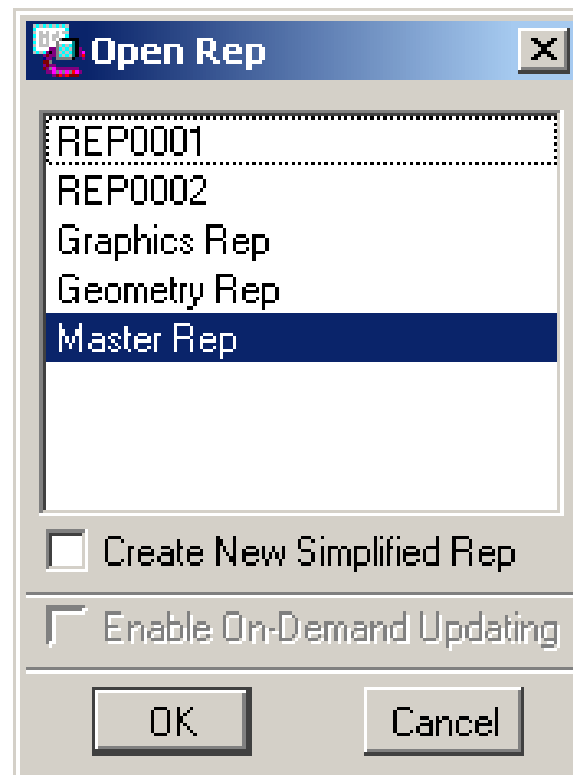


Open Rep

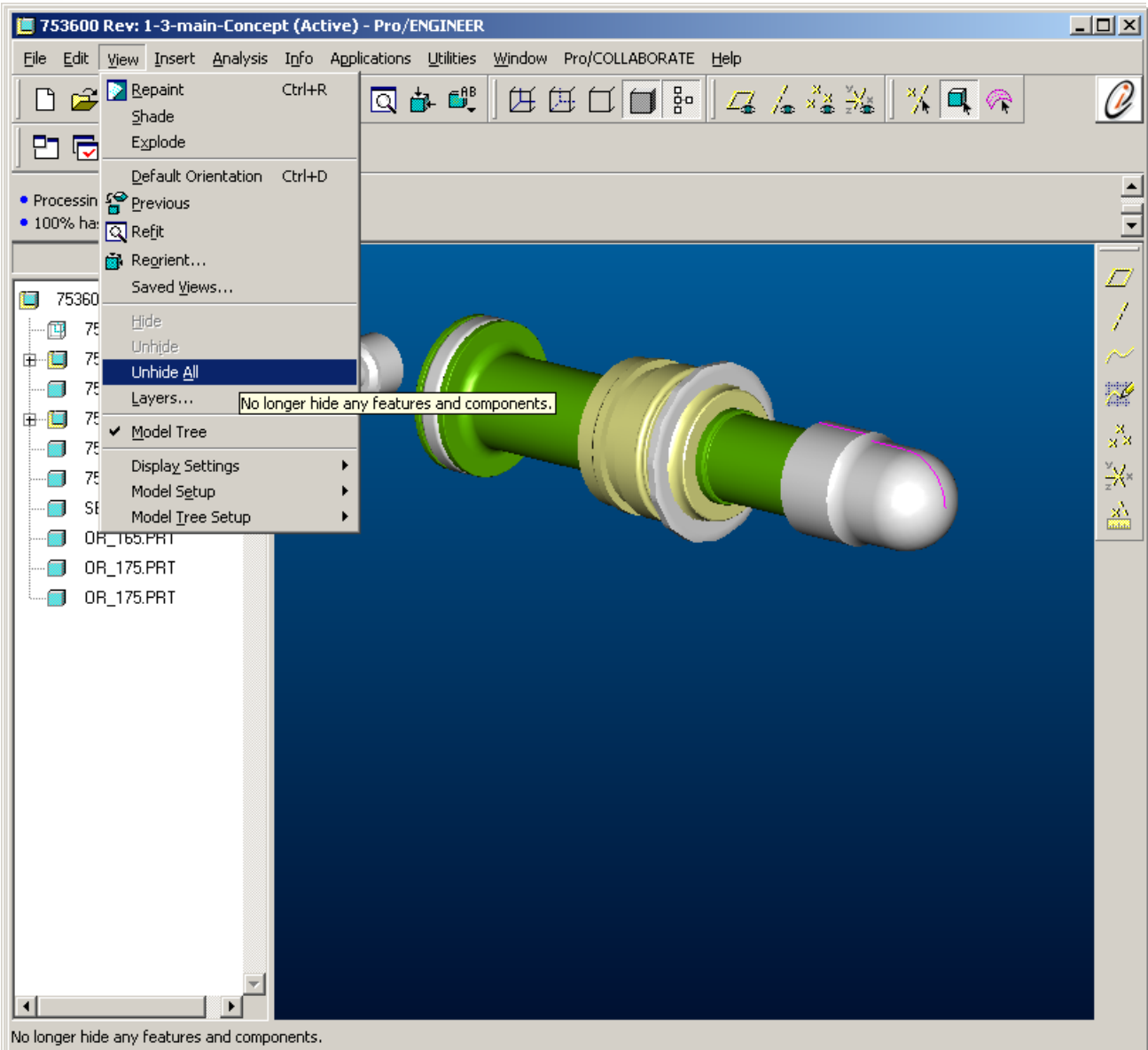
Set config.pro option so that Open Rep dialog box comes up by default

Open_simplified_rep_by_default

YES



Hide / Un Hide

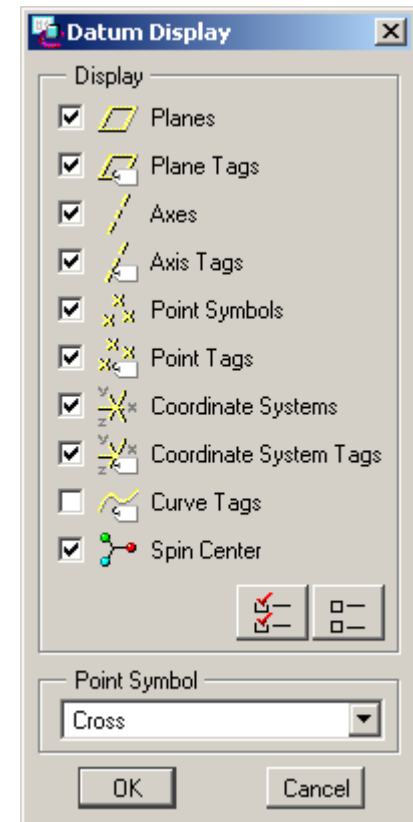
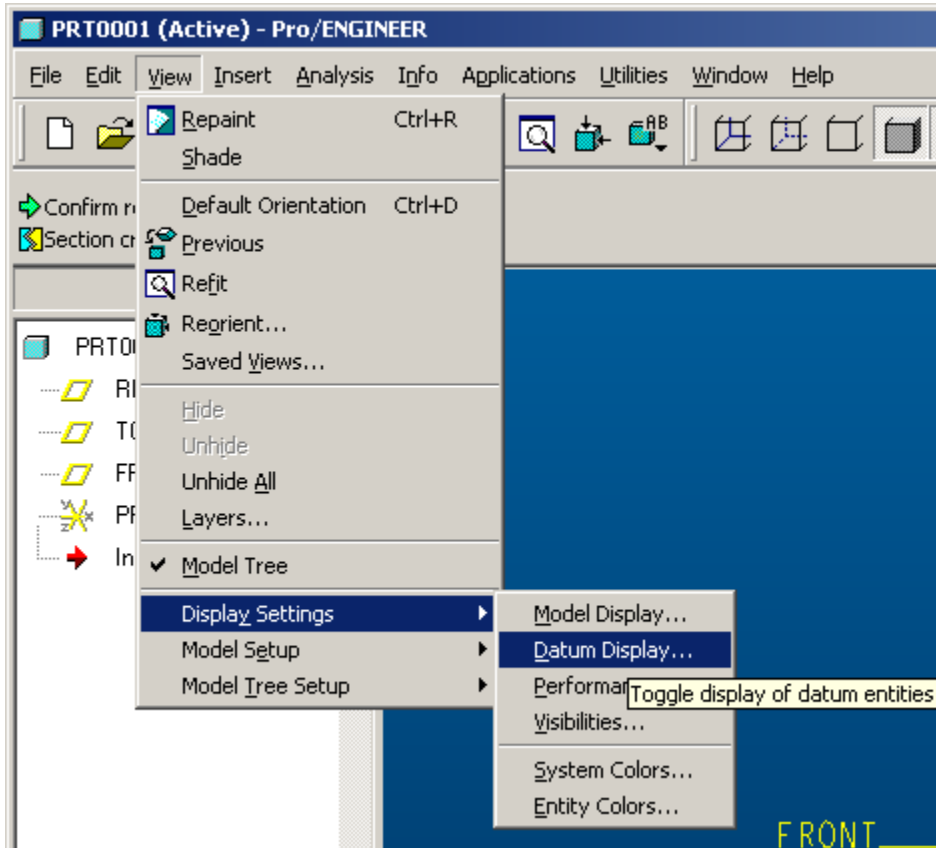


es

Datum Tag Display


You have the ability to turn off labels for:

Datum Planes, Coordinate Systems, Axis, Points



Intent Manager (Sketcher)

Improved Intent Manager - Microsoft Internet Explorer provided by PTC



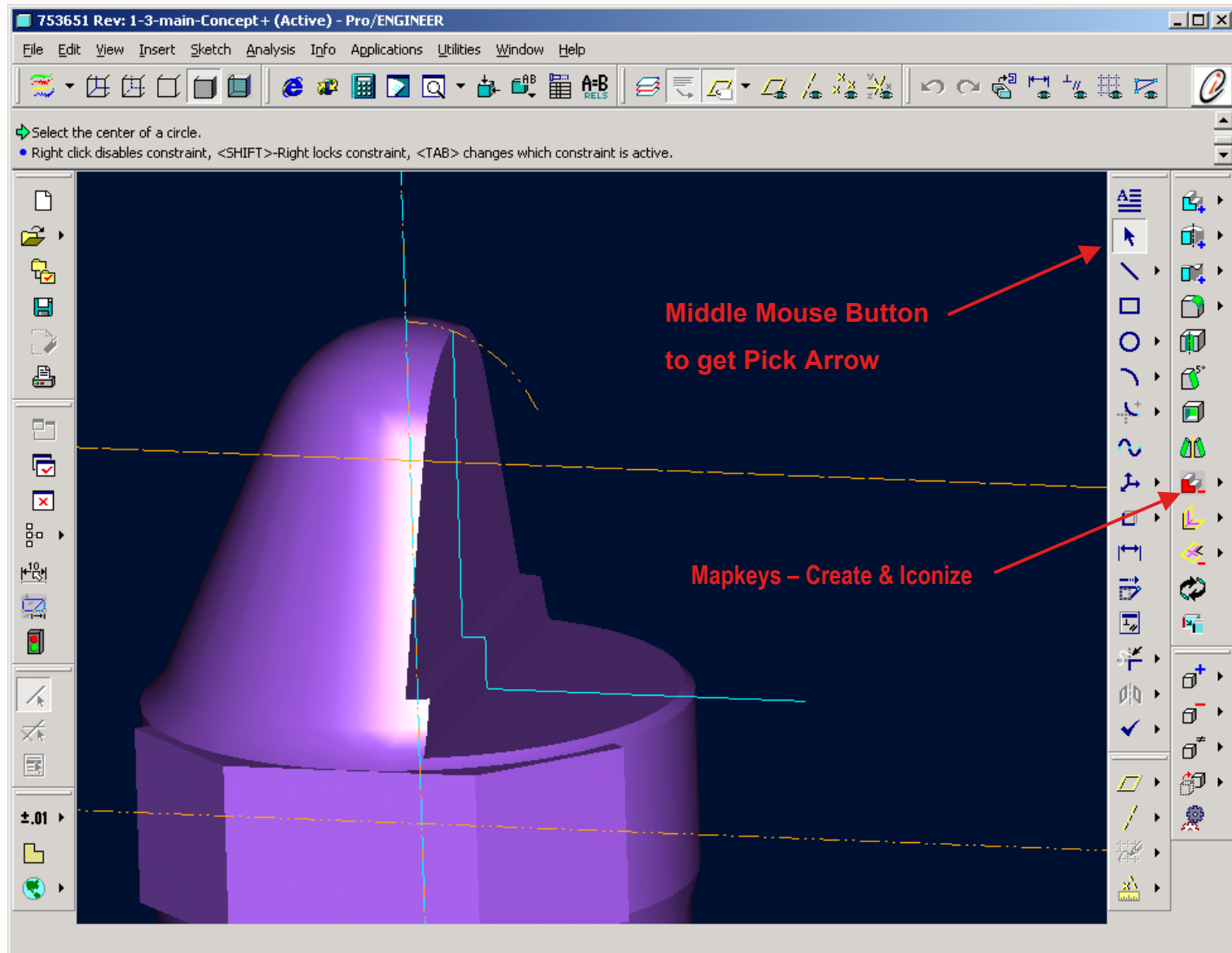
User Interface

Selection Methods

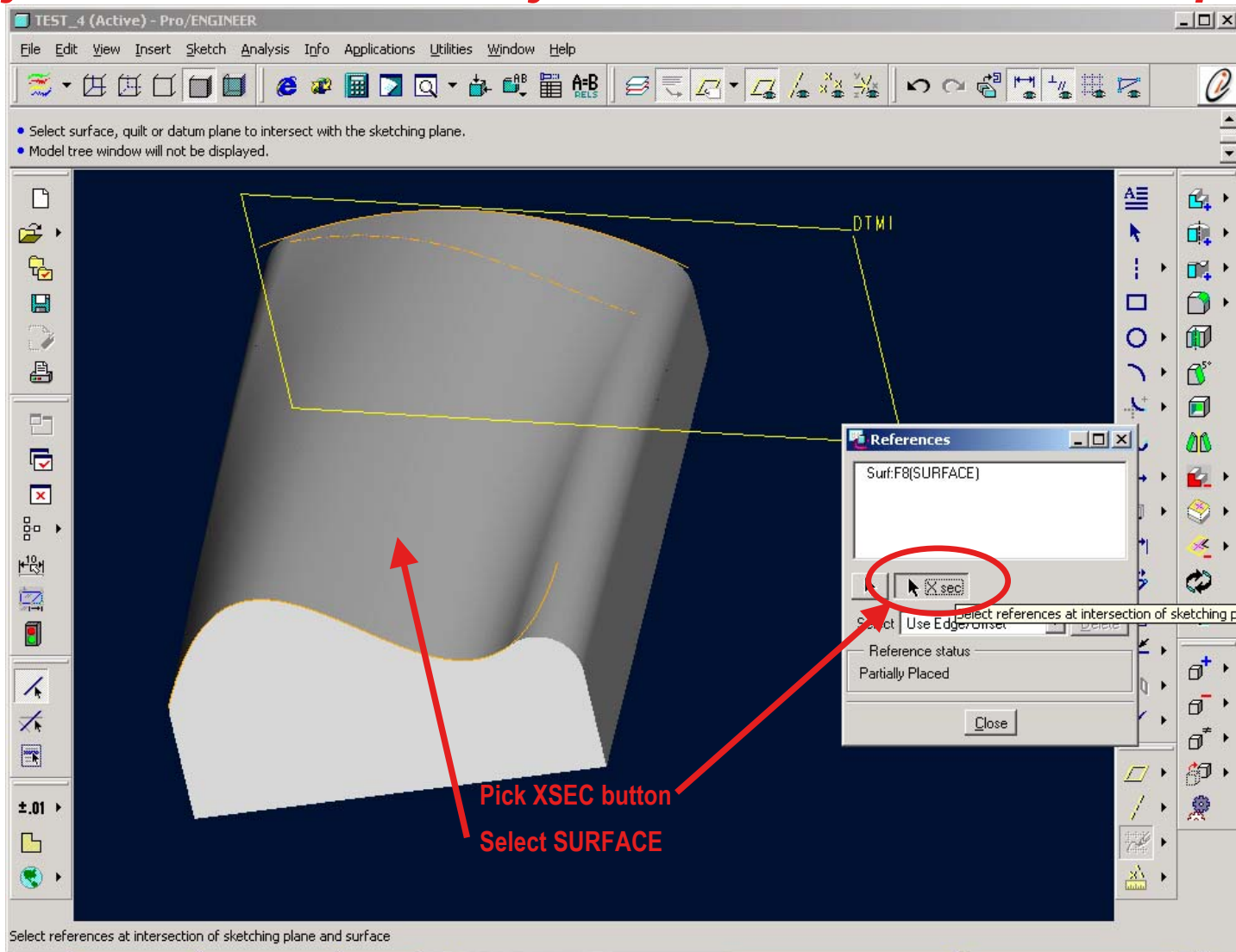
New Functionality

Close

Tips & Tricks – Sketcher



Ability to reference an entity that intersects the sketch plane



PRT0001 (Active) - Pro/ENGINEER

File Edit View Datum Sketch Analysis Info Applications Utilities Mapkeys Window Help

Intent Manager

References...

Line
Centerline
Rectangle
Circle
Arc
Fillet
Spline
Coord Sys
Point
Axis Point
Text...
Edge
Dimension
Constrain...
Relation...
Feature Tools
Done
Quit

Center / Point
Concentric
Ellipse

3 Point / Tangent End
Concentric
Center/Ends
Conic

Circular
Elliptical

Use
Offset

Normal
Reference
Baseline
Explain

Move
Line
Rectangle
Circle
3 Point / Tangent End
Centerline
Fillet
Dimension
Undo

Sketcher Preferences

This menu appears when you have nothing selected and click the Right Mouse Button

Select Item (hold SHIFT to gather more)

Rectangle

Spline

Create Dimension

Modify (dimensions, splines & text)

Sketcher Constraints

Create Datum Plane
Create Datum Axis
Create Datum Curve
Create Datum Points
Create Datum Csys
Create Analysis Feature

Asynchronous Datum Creation Toolbar
(Used Anytime out of Sketcher Mode)

Undo
Redo
Select
Modify...
Delete
Copy
Mirror
Move
Scale_Rotate
Trim
Toggle Construction
Toggle Lock
Convert to
Replace
Line Style...
End...

One-by-One
Chain
All Geom
All Ctrl+Alt+A

Delete Segment
Corner
Divide

Strong Ctrl+T
Reference
Perimeter
Spline
Tapered

Delete
Modify...
Move
Toggle Construction

Line
Rectangle
Circle
3 Point / Tangent End
Centerline
Fillet
Dimension
Undo

100% has been completed.
Select a perpendicular surface, an edge, or vertex relative to which the section will be dimensioned and constrained.
Hidden lines will not be displayed.

Sketcher Tools Toolbar

Line
Centerline
Circle
Concentric Circle
Ellipse

Arc Tool tangent & 3-point
Concentric Arc
Arc Center & Ends
Conic Arc

Fillet
Elliptical Fillet

Reference Csys
Create Point

Use Edge
Offset Edge

Dynamic Trim
Trim
Divide

Mirror
Scale & Rotate
Copy

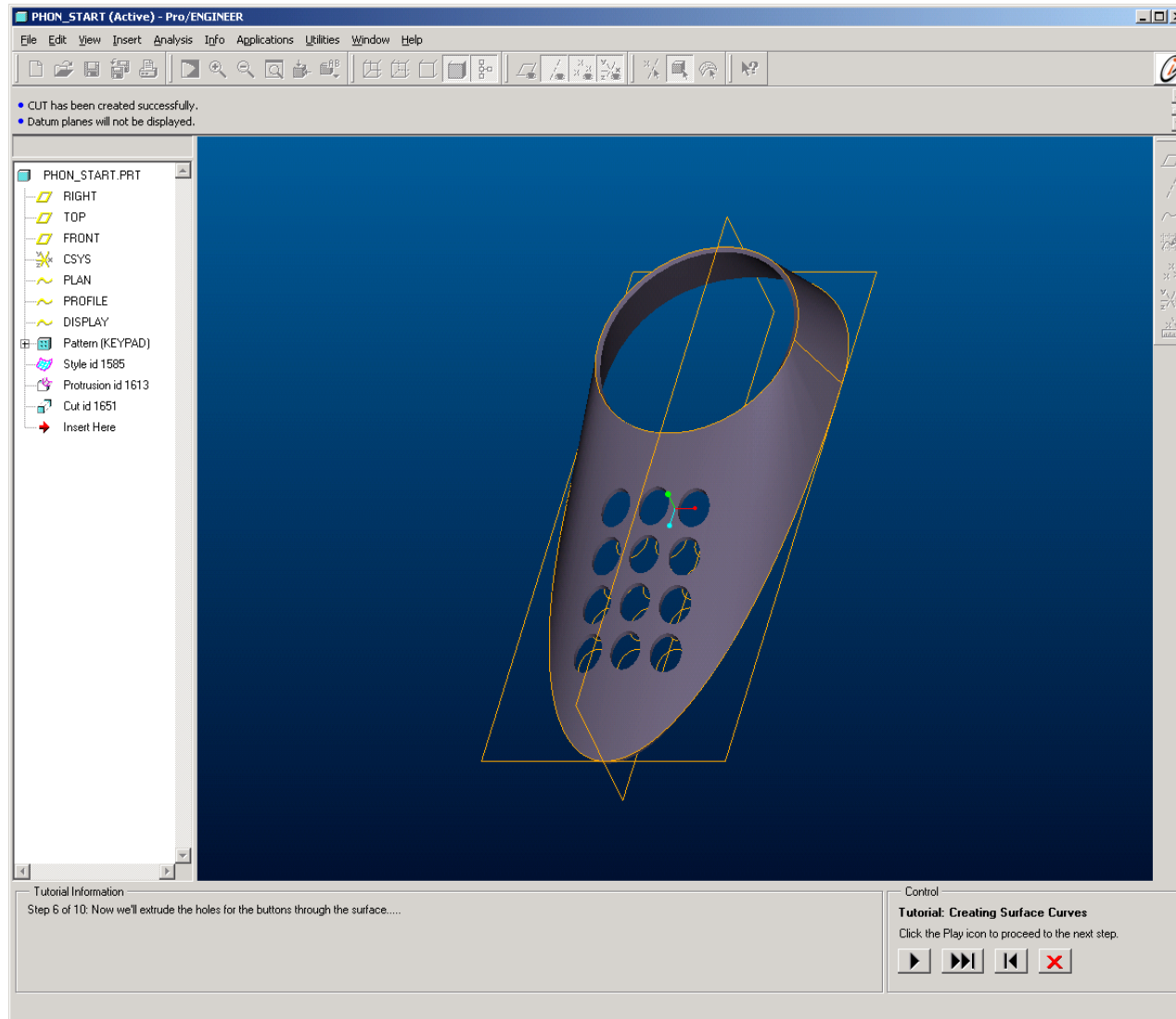
Complete Section
Quit Section

Sketcher Toolbar

Undo Redo
Toggle Vertices
Reorient to Sketch View
Toggle Dims
Toggle Constraints
Toggle Grid

ISDX Tutorial

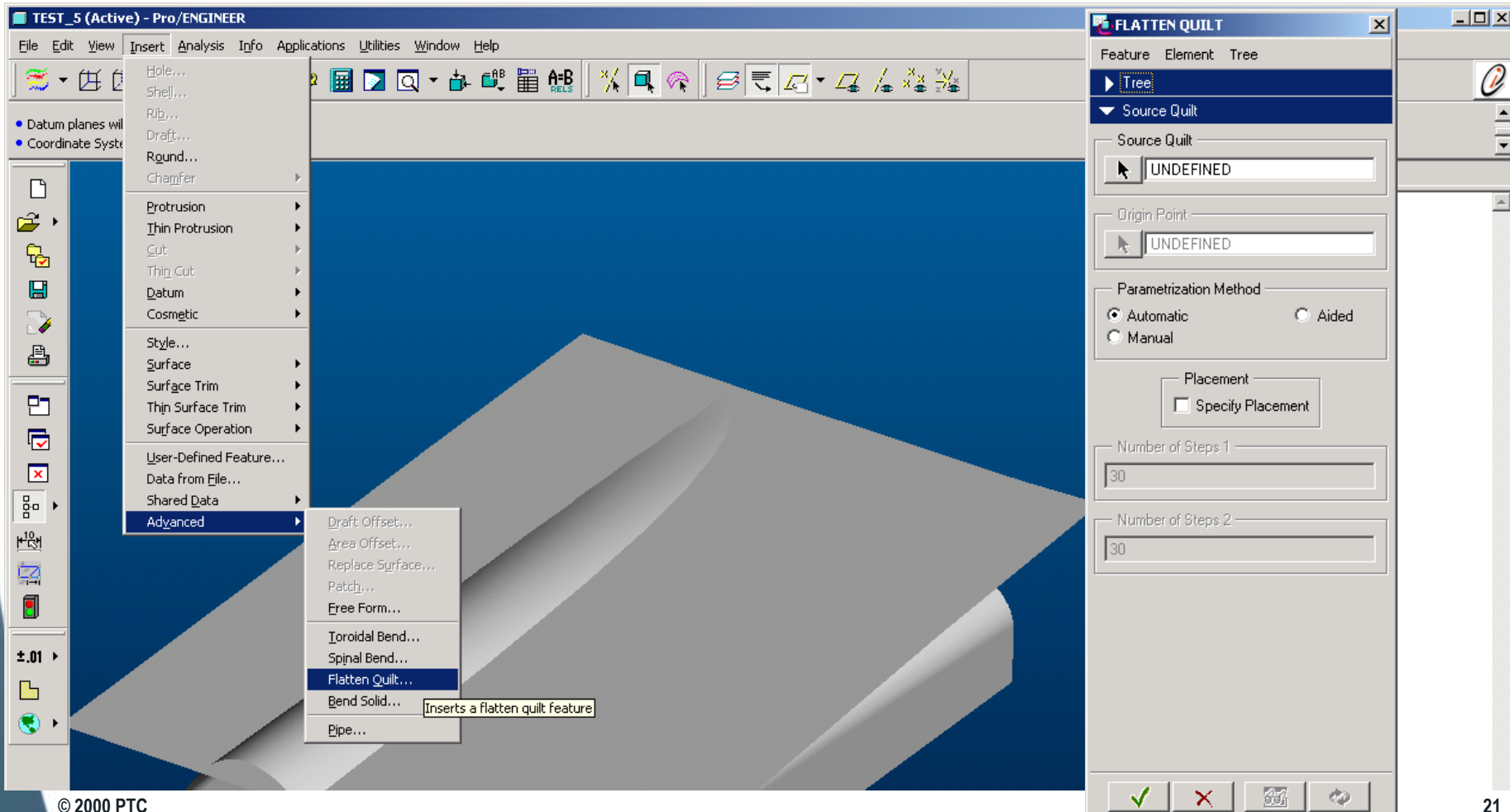
D:\Pro/E Loadpoint\apps\tutorials



Flatten Quilt

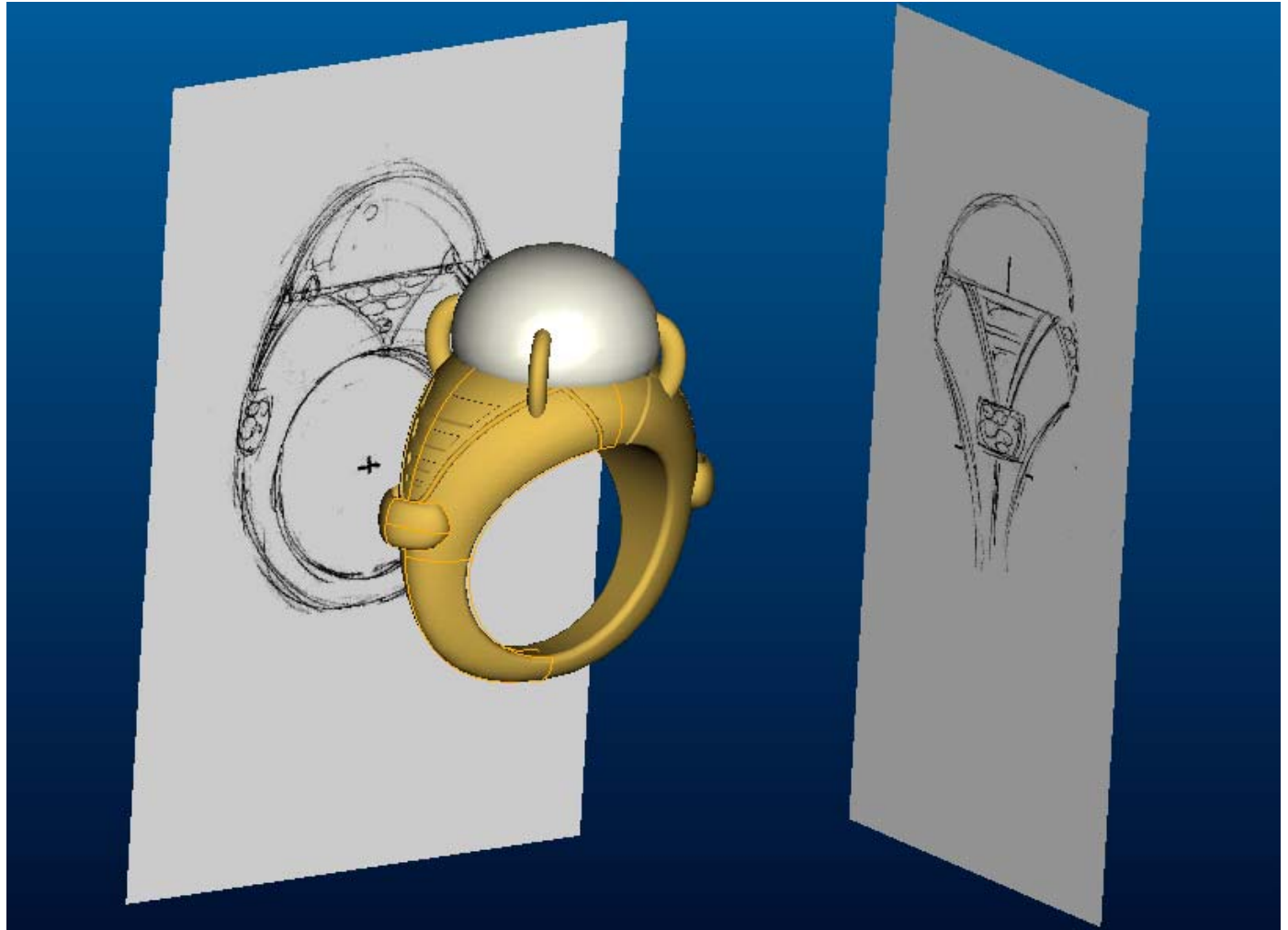
Create flat pattern of Any* Part

***NOTE: All surfaces must be tangent**



“Trace Sketch”

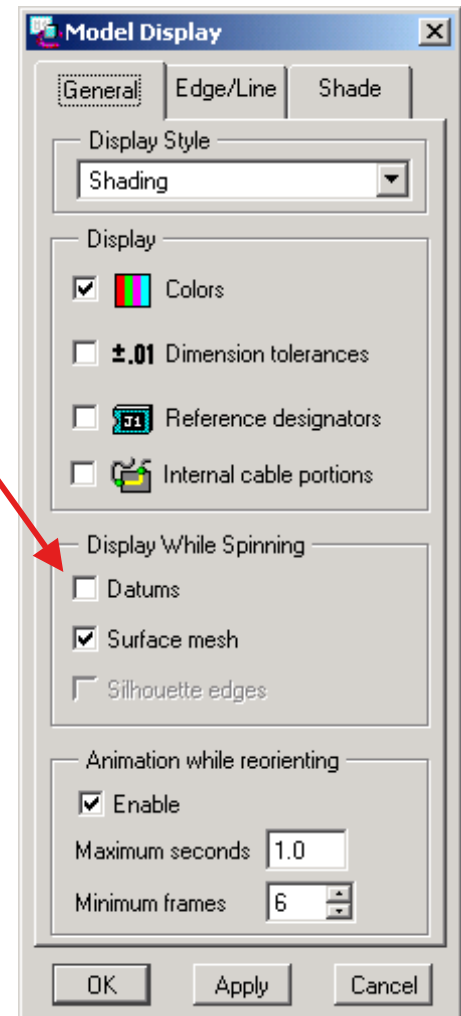
“Scan” sketches, apply to Surface
Can be used as a sketching aid



Performance Options

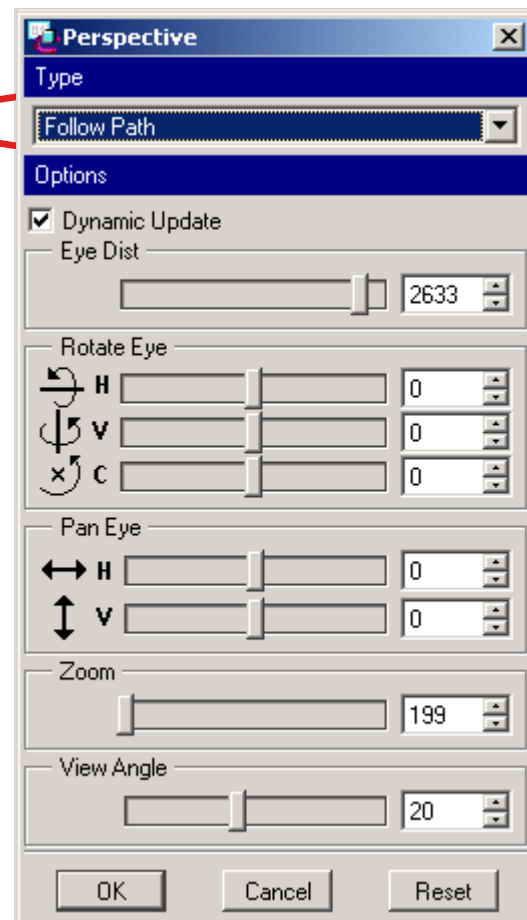
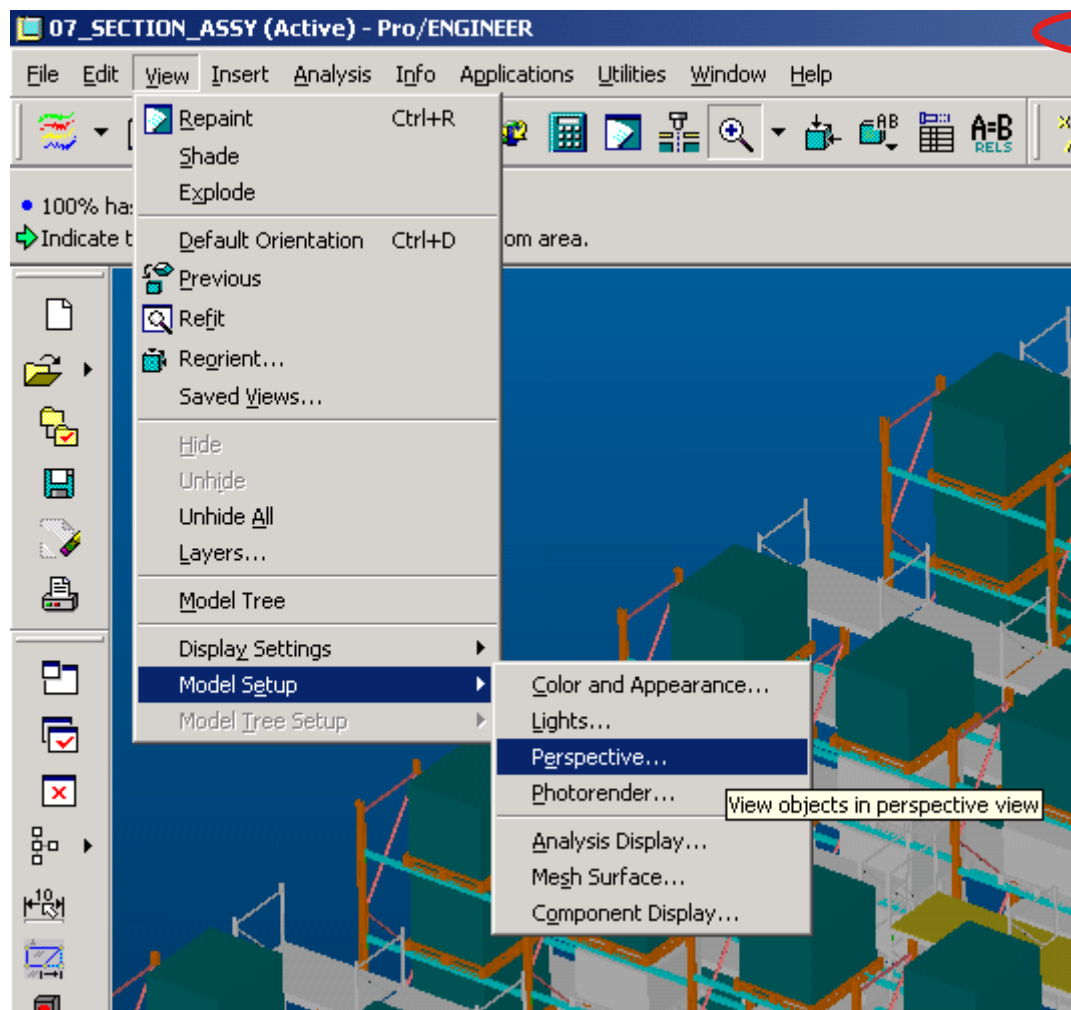
**Turn off display of datums
For BEST performance while
SPINNING and FLY THROUGH
Of LARGE Assemblies**

**(Blanking Datums with LAYERS or turning
Off DISPLAY of DATUMS with icon is NOT
The same!)**

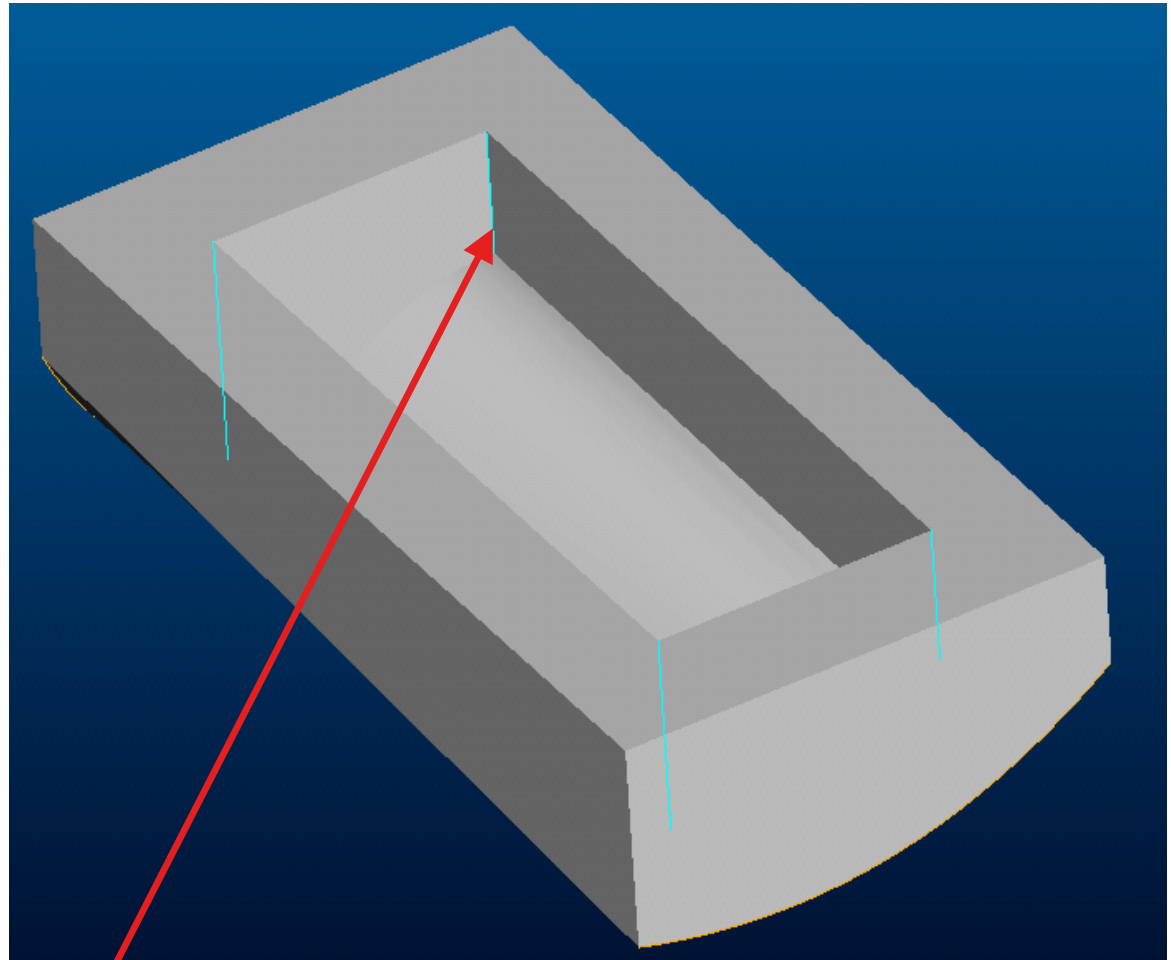
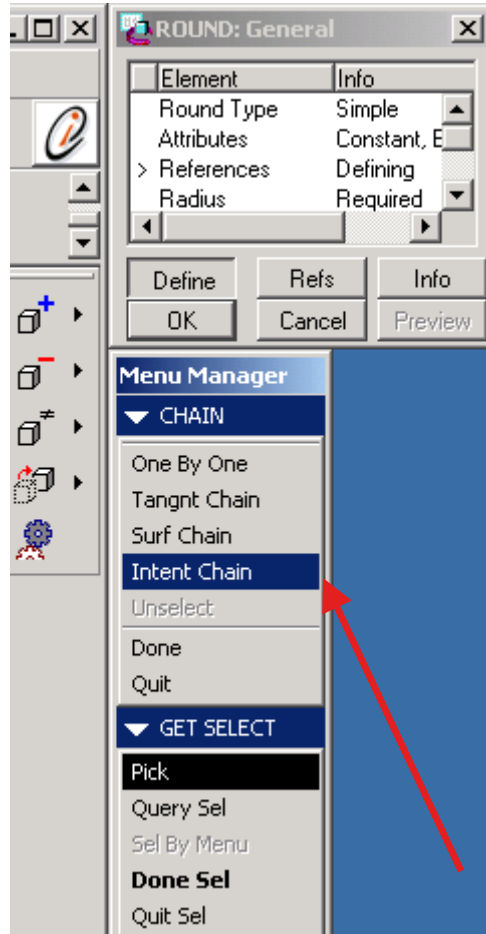


Performance Options

Fly Through – from inside Pro/E



Intent Rounds



Pick in 1 Location

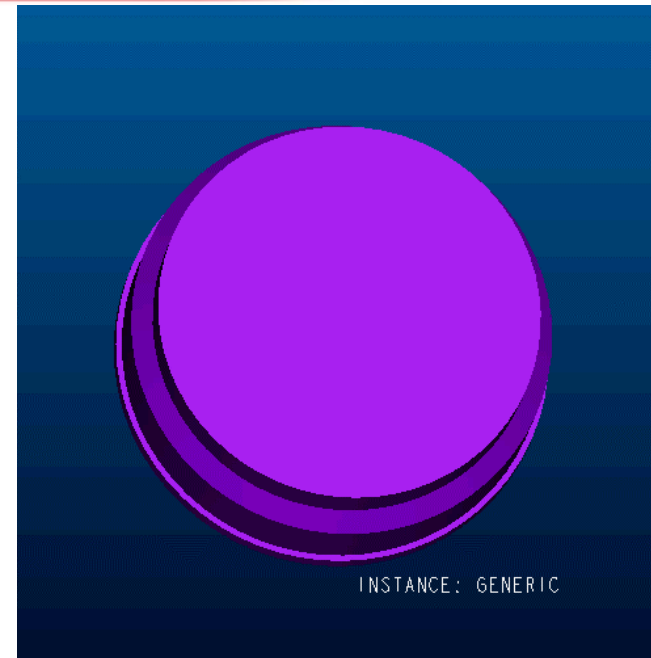
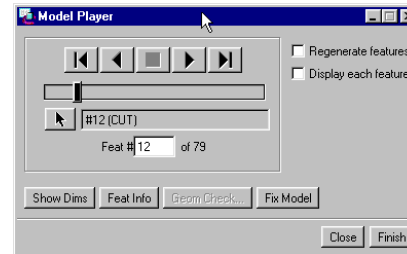
All 4 Edges are selected!

Increased understanding of the design

Design Insight

- *Model Player*

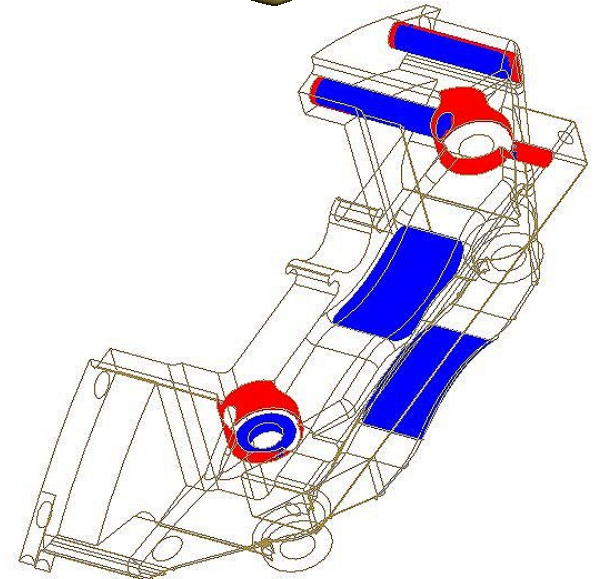
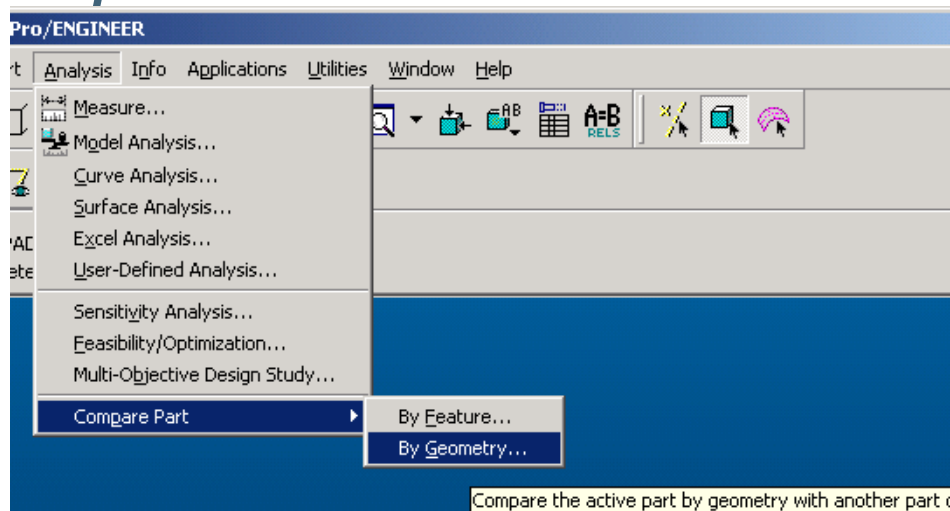
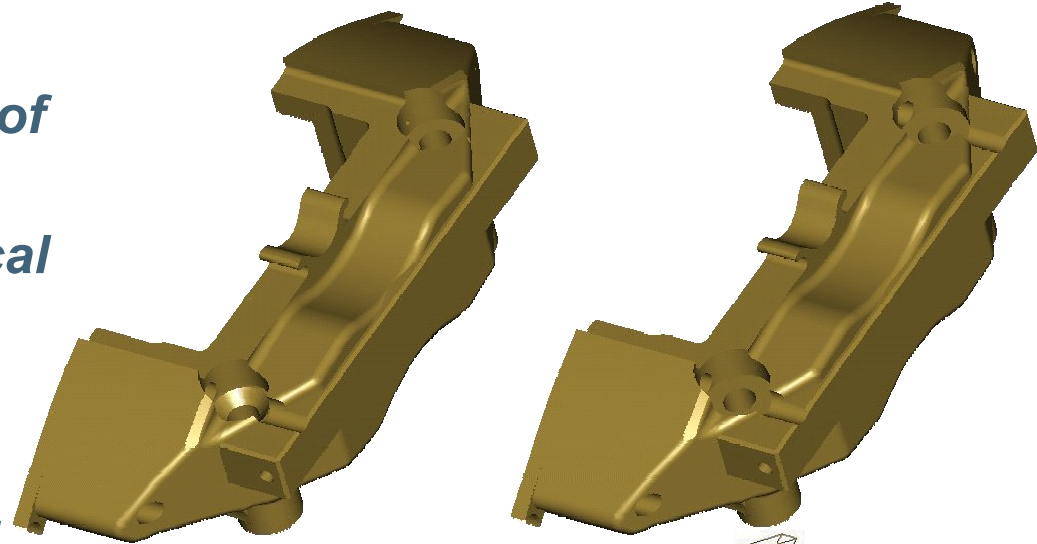
- VCR-like controls over the regeneration of the model
- Clear understanding of how the model was constructed



Compare Part

Shape Comparison

- *View different versions of same model*
- *Comprehensive graphical display of feature and geometric differences*
- *Compliments Shape Indexing and offers text report of feature differences*



Optimization Features

- **Capture critical design requirements persistently within the model itself**
- **Ensure that these requirements are ALWAYS met, even as the design changes**



Ensure container holds exactly 5 liters.

Maintain balanced crankshaft.

Minimize design's mass.

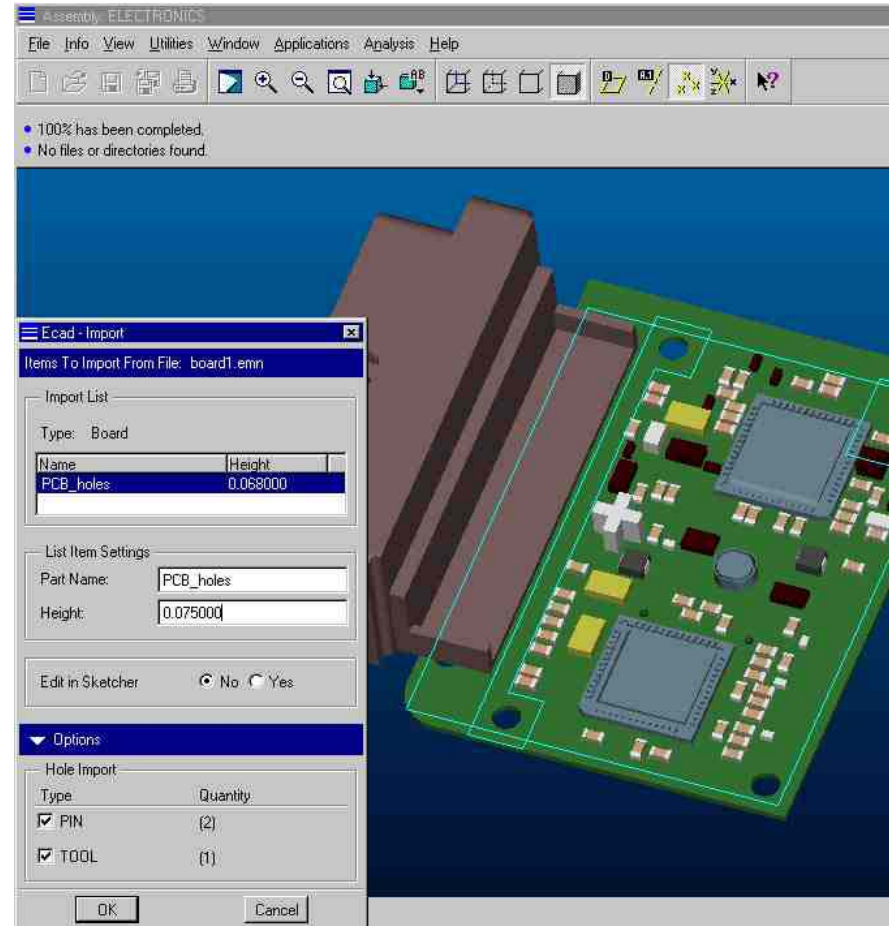
Maximize critical clearance.

Import/Export of board & components

2001 Features

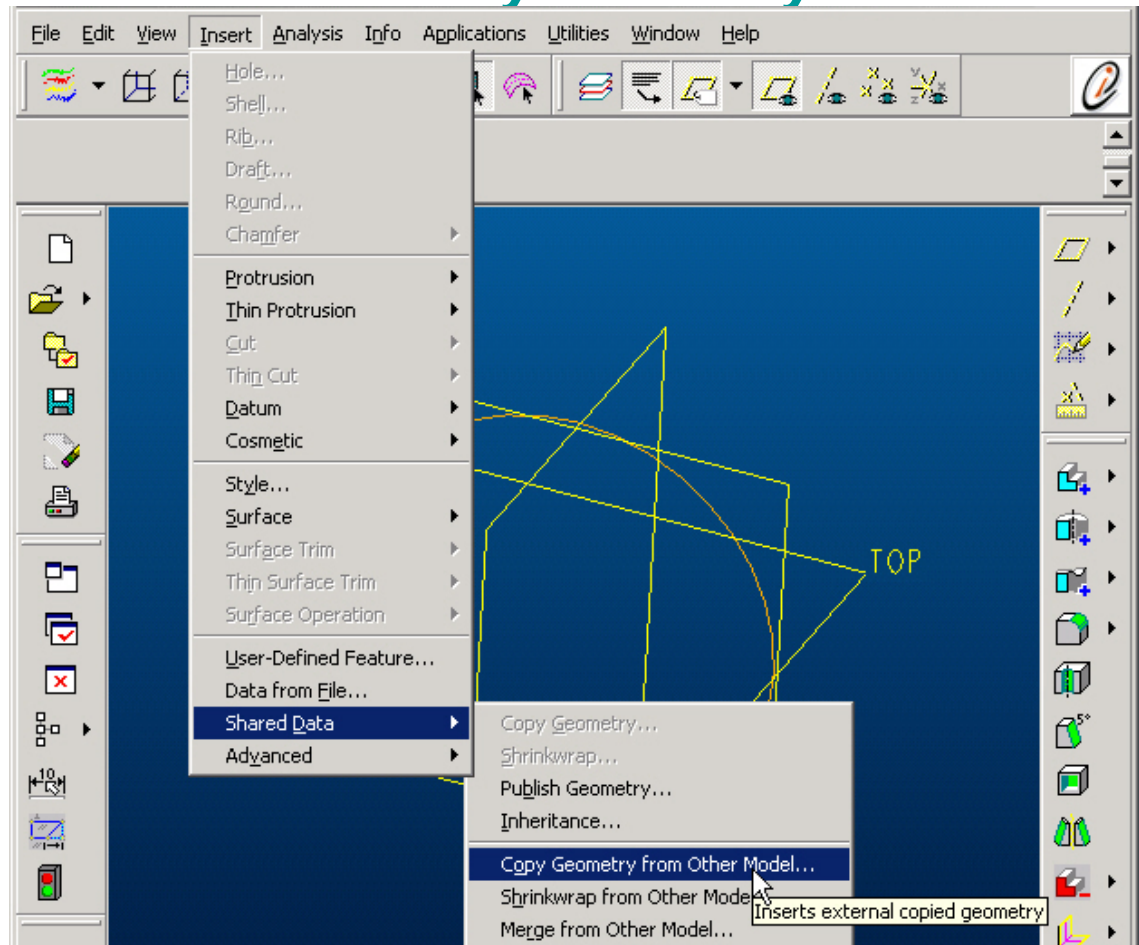
- Geometry
- Attributes
- ECAD Areas

- Direct Interfaces
 - Allegro
 - Boardstation
 - Visula
- Industry standard interfaces
 - IDF2.0
 - IDF3.0
- Investigation of modifications on re-import
 - Board geometry
 - Component placement



External Copy Geom

- ◆ **A great way to create Castings & Machined Parts**
- ◆ **Use External Copy Geoms – not Copy Geoms in Assembly**
-NO dependence on Assembly hierarchy



Sheet metal Hints

Create all sheet metal parts with “Absolute Accuracy” (.001)

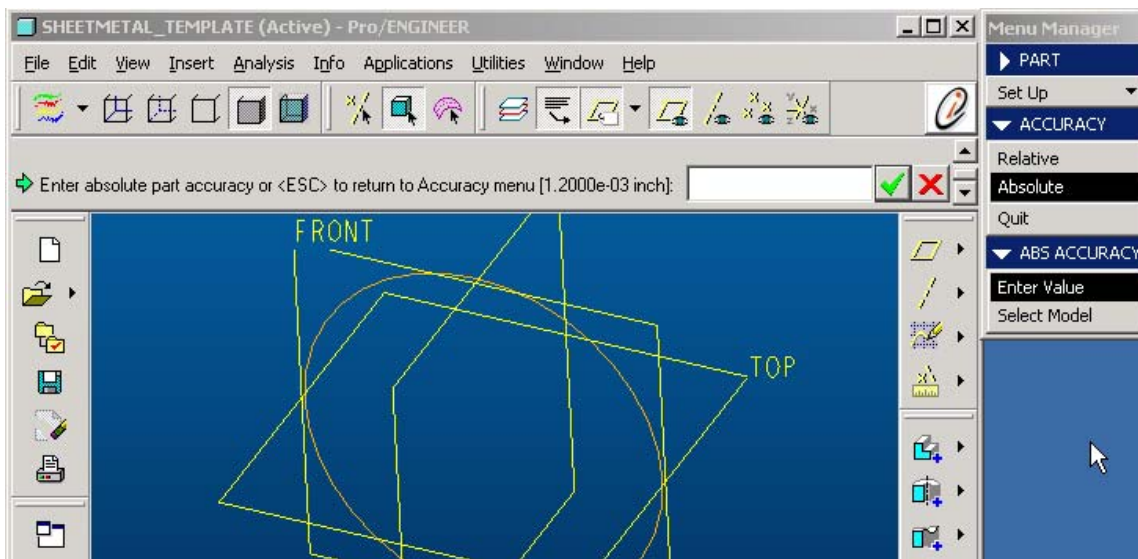
Create all “Form Tools” at same “Absolute Accuracy”

Config.pro options:

enable_absolute_accuracy* *yes

accuracy_lower_bound* *0.0000100

HINT: you may have to sketch a small datum curve in your “Template Part” in order to set the “Accuracy” low enough!



The Company

- Specialists in Compression Molding for custom and production molding of high performance carbon fiber and glass reinforced composites.
- Provides complete design thru manufacturing capabilities

Needs for collaboration

- A majority of molded products are jointly designed with the customer to reduce component & associated tooling costs.
- Early inclusion of the tool makers to streamline cost and schedule.

Benefits

- *“Since we started using **Pro/Collaborate**, we have reduced the time to create a customer product”*
- *“Our customers are very pleased with the ability to collaborate with us on new projects”*



Manufactured By CCS Composites, LLC



Manufactured By CCS Composites, LLC

<http://www.ptc-mss.com>

Links to:

- ***Tips & Techniques***
- ***Tutorials***
- ***FAQ***
- ***Customer Support***
- ***User Groups***
- ***Documentation***
- ***Training***
- ***And Much Much MORE!***