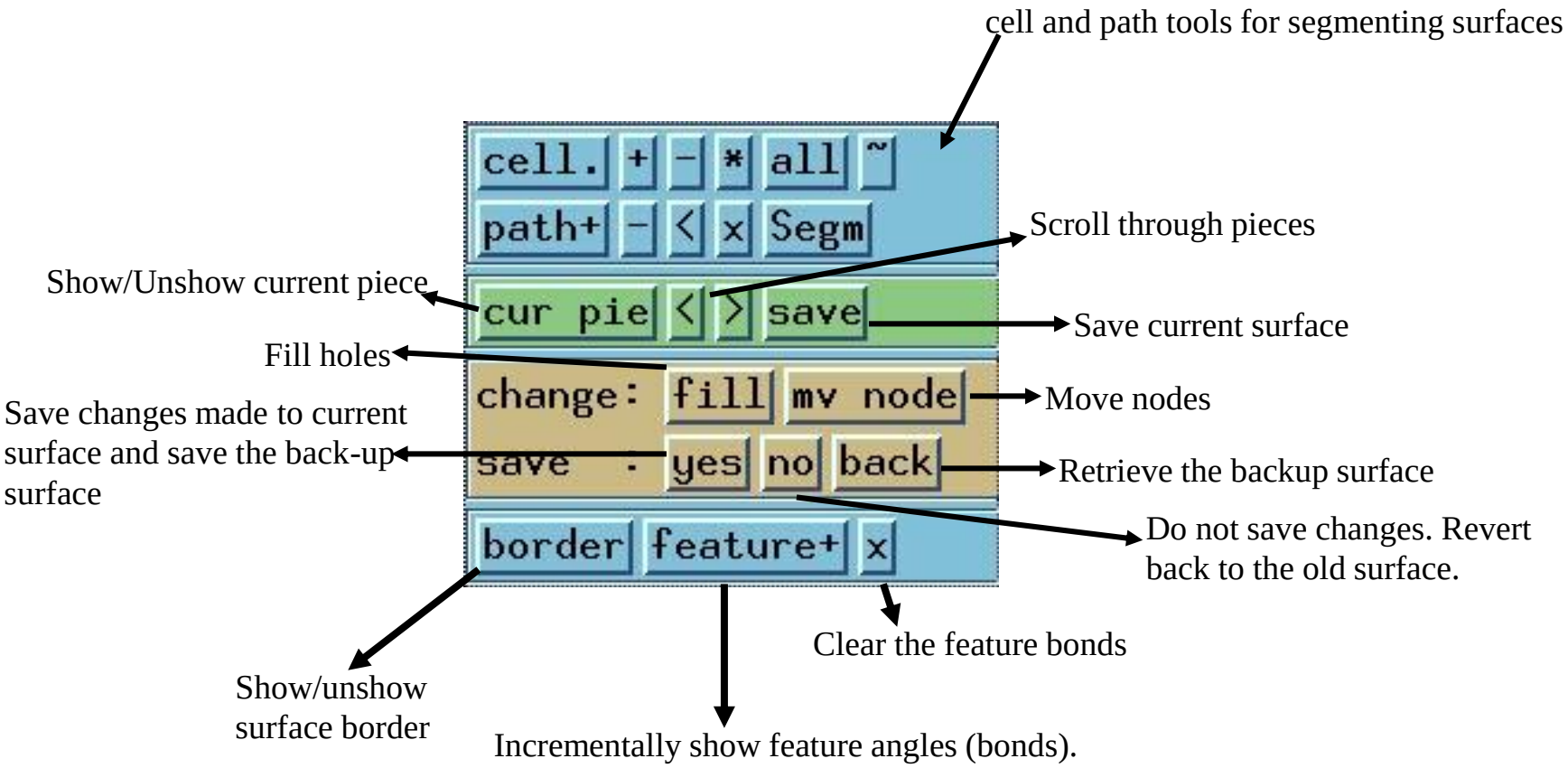
MiniCAD

- The MiniCAD panel provides tools for simple surface work on faceted surfaces.
- The functions of MiniCAD are
    - Inspecting surfaces
    - Surface repair
    - Segmenting surfaces

MiniCAD Command Panel



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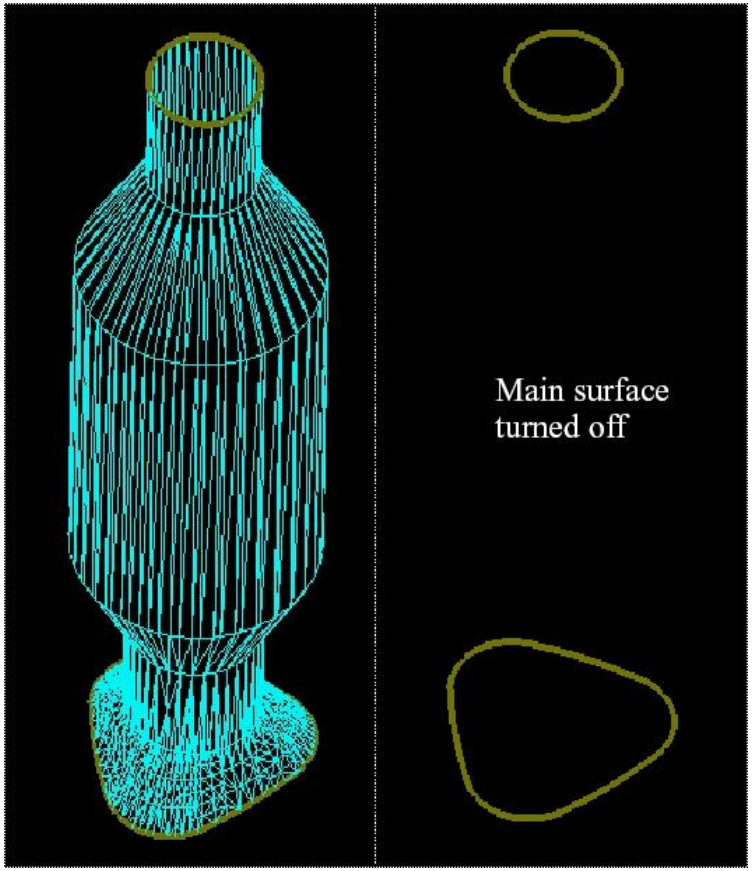
Inspecting Surfaces

- **border** – Check for surface border and holes
- **Feature** – check for any unusual links or bad elements in the surfaces

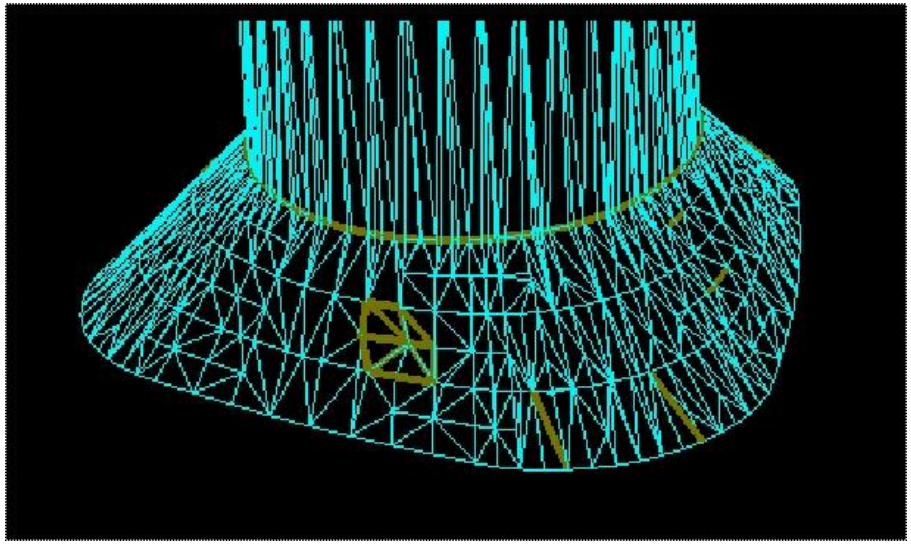
- feature+ - incrementally show feature bonds

Contd…



Border bonds

Feature bonds and borders are shown in brown colour



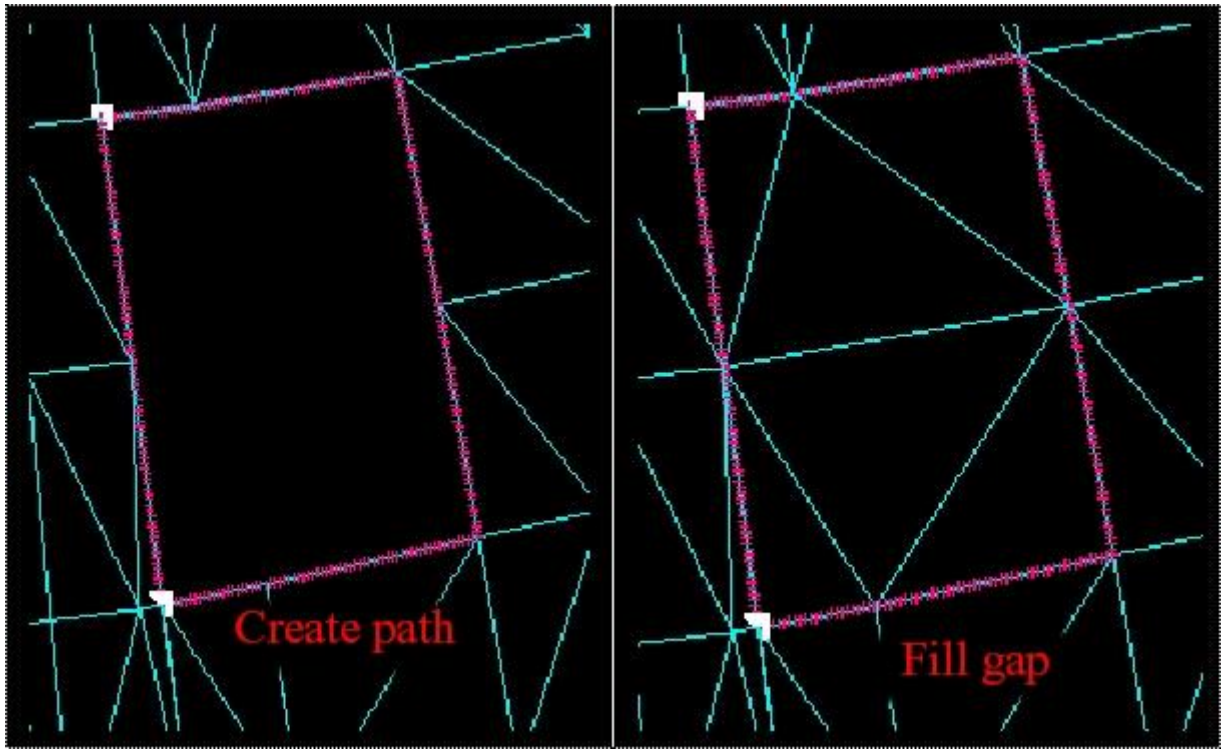
Feature bonds

Surface Repair

- **mv node** – Move nodes (parallel or perpendicular to cut-plane) to remove kinks or repair bad elements
- **fill** – fill a hole (usually a small polygon) with triangles. Does not add new points

- The **yes-no-back** system : Example – "*a_surface.tria"*
- Make changes to "a_surface.tria".
  - Press **yes**. Changes will be saved to "a_surface.tria" and the surface before changes will be saved to a backup file ("a_surface.tria.~1")
  - Press **no**. "a_surface.tria" will be reloaded. Changes will be lost.
  - Press **back**. The backup file will be loaded in as the current surface.

Contd…



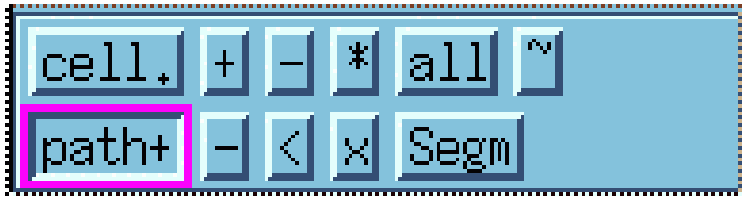
Using **fill**

Segmenting Surfaces

- Segmenting surfaces is an important first step

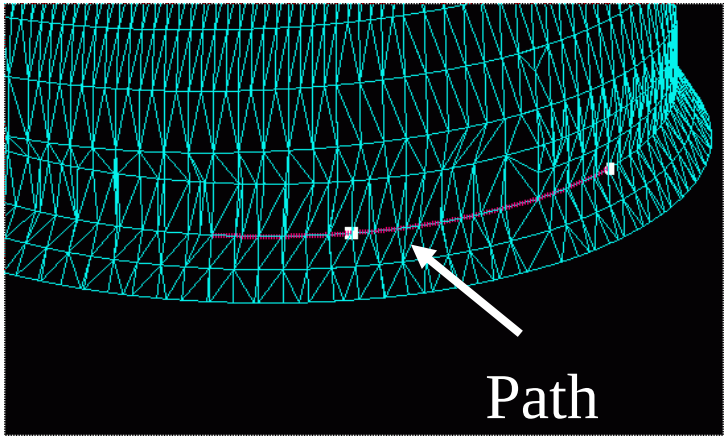
  Step 1: Import the surface

  Step 2: Click on the path button

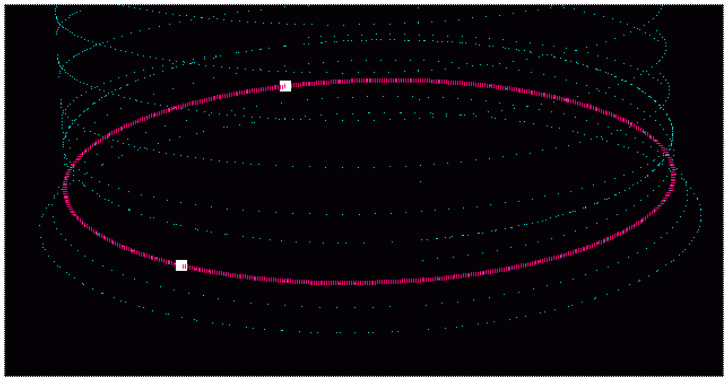


Contd…

Step 3: Click on the triangle vertexes and a path will be drawn

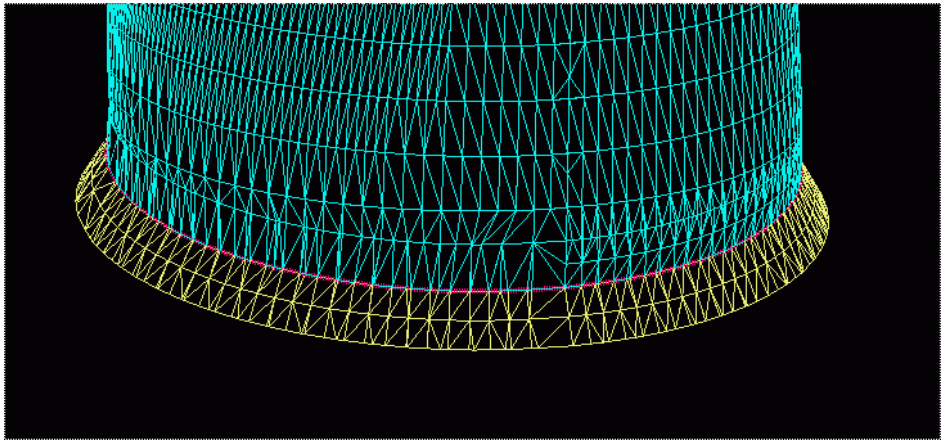


Step 4: Make sure that the path is closed



Contd…

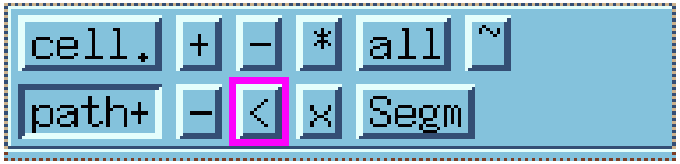
- Click on the Segm button and the surface will be segmented

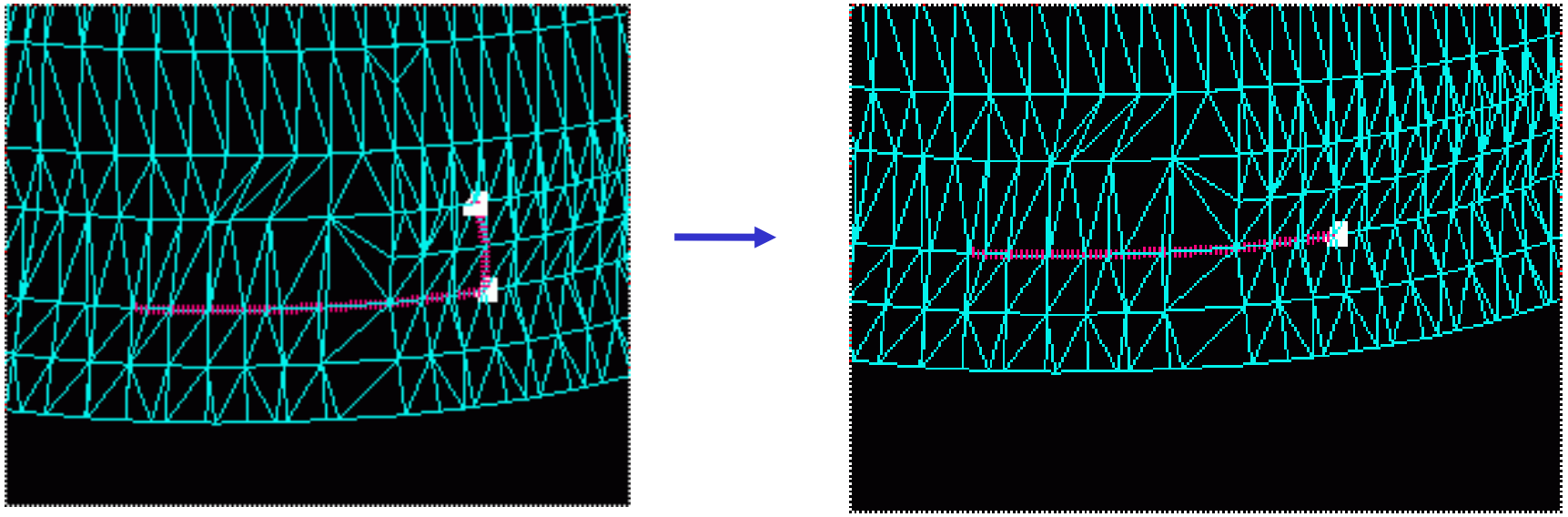


Backing up Segment Path

- At times you may make a mistake in the path direction
- GridPro will allow you to back up **once** by using the **(<)** button

Example





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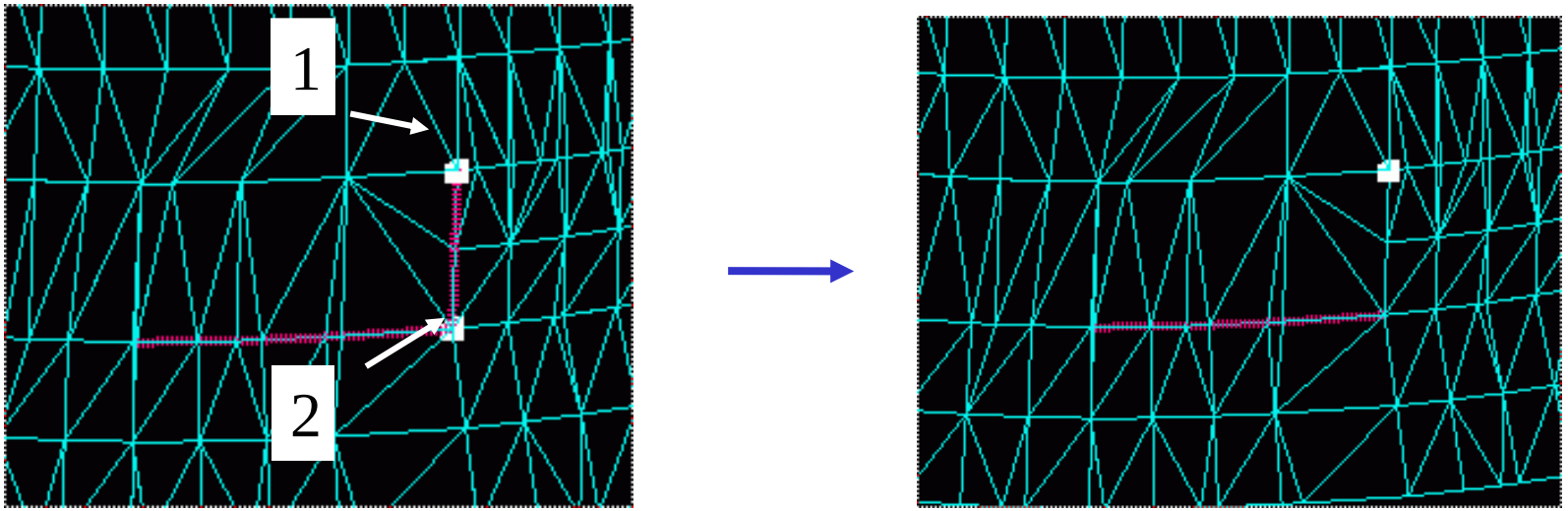
Contd…

- The path can be deleted by clicking on the **(x)** button
- The path can be scrolled back using the **(-)** button and retracing the path



Pick on points 1 and 2

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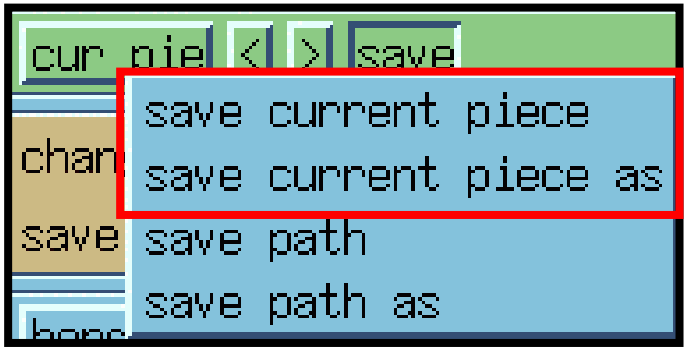
Saving Surfaces

- Once the surfaces have been segmented they must be saved

  Step 1: Click on the save and a menu will appear with save options



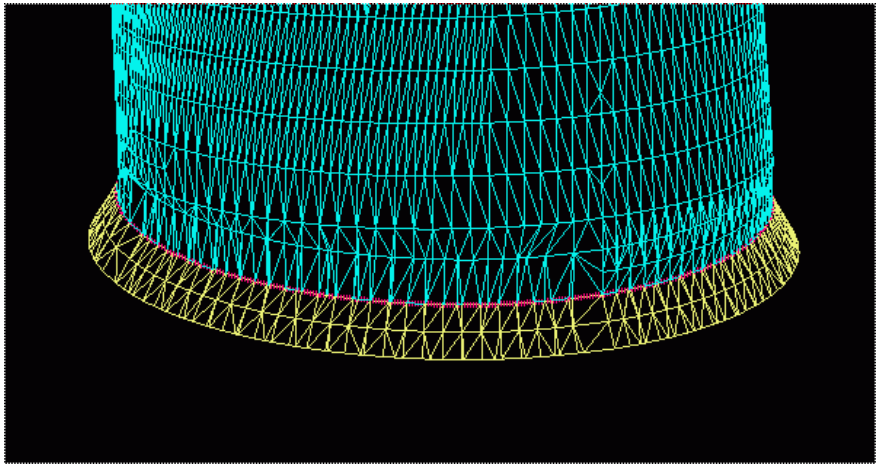
save current piece: will save surface using a default name **_surf.1**, **_surf.2**, etc.

save current piece as: allows the user to choose surface name

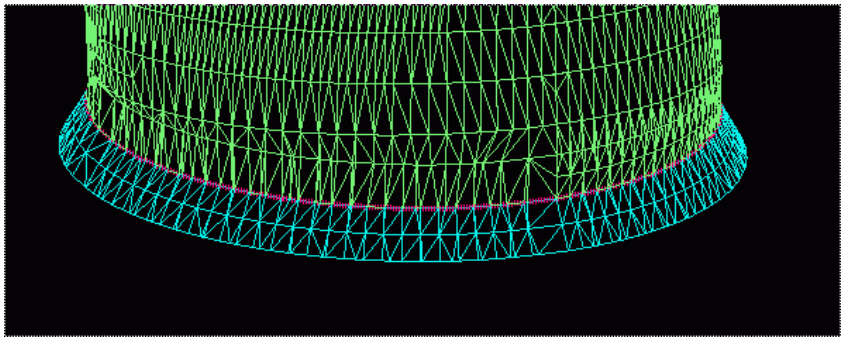
Choosing Surface to Save

- The segmented surfaces must be saved separately

Step 1: Save current surface



Step 2: Scroll to next piece and save

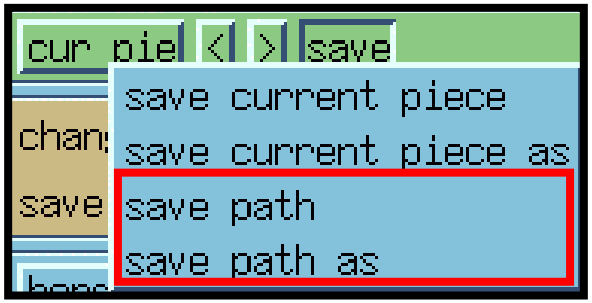


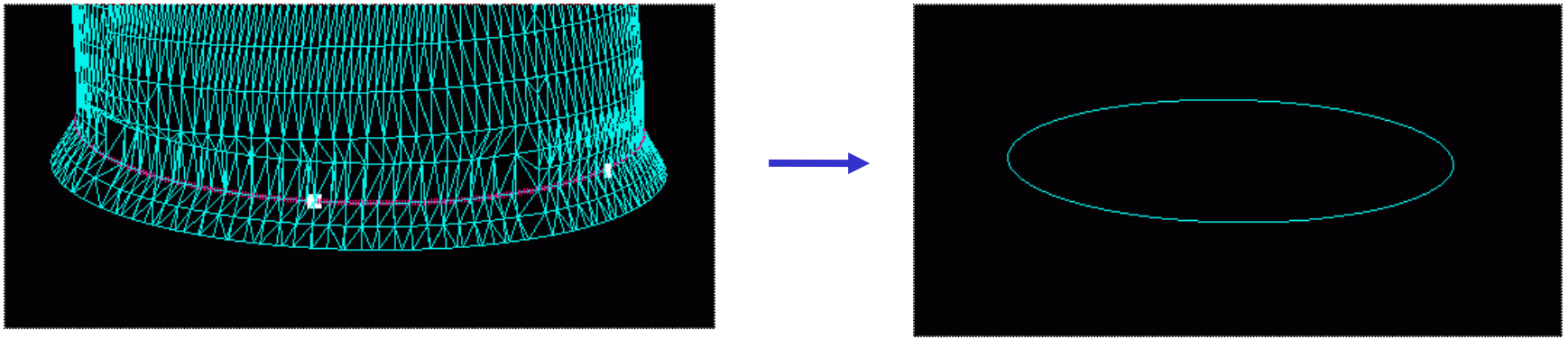
Saving Segment Path

- The segment path can also be saved

Step 1: Create segment path

Step 2: Save path under the default name _path.tmp or specify path name, path is saved as a digitized curve





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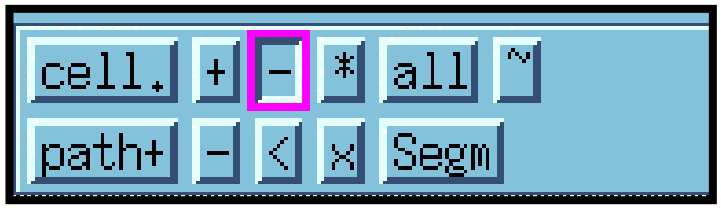
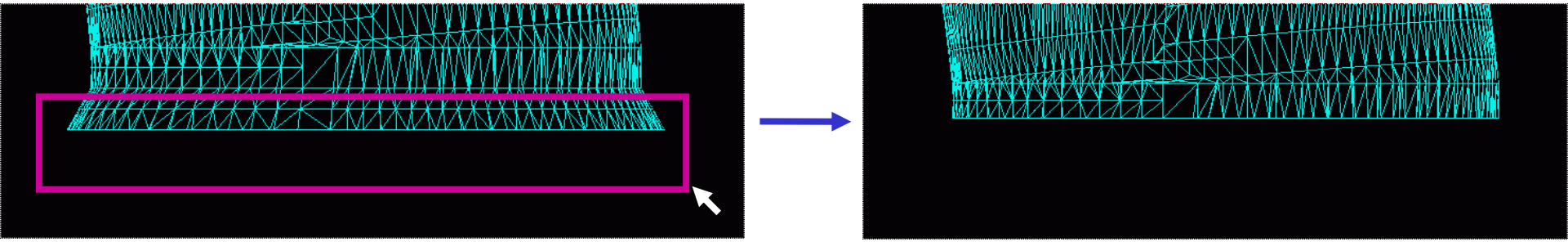
Deleting Cells

- Large quantities of triangles can be removed using the delete cell function

Step 1: Click on the minus button in the delete cells sub-command panel



Step 2: Hold down right mouse button and draw a rectangle around portion of triangles you want removed



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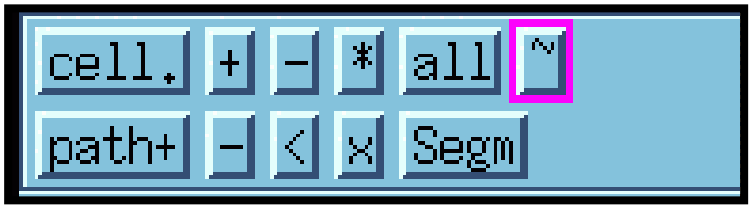
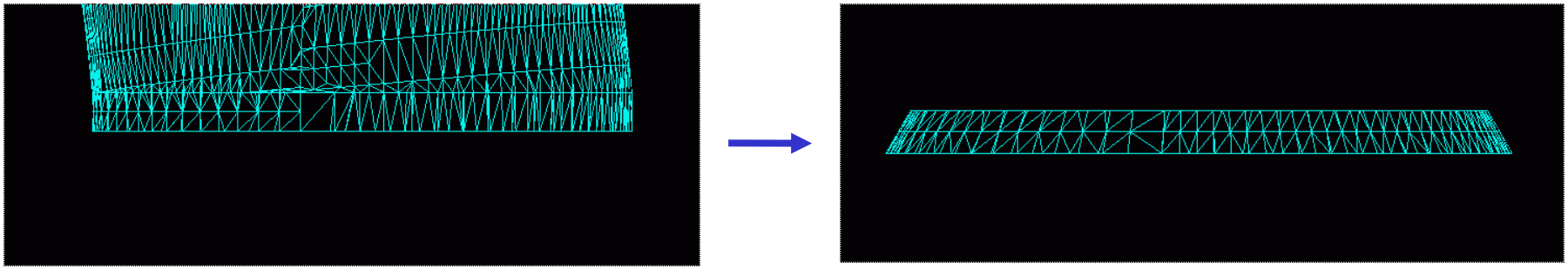
Reversing

- The deleted cells can be reversed
- Click on on the (~) in the delete cells sub-command panel

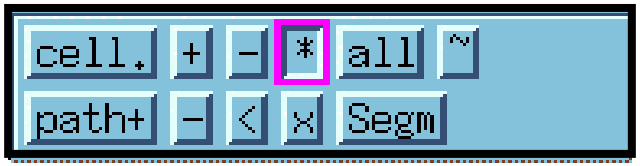




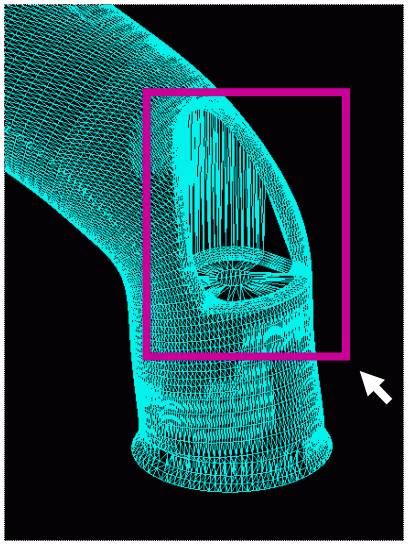
Choosing Triangles using Intersection

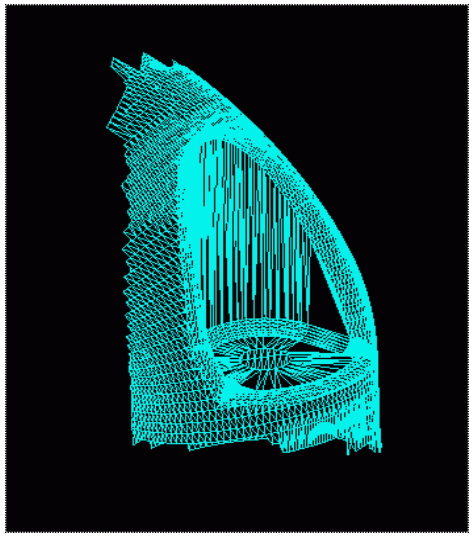
- Triangles can be selected by using the intersection function

Step 1: Click on (*) button



Step 2: Draw a rectangle around the triangles while holding down right mouse button





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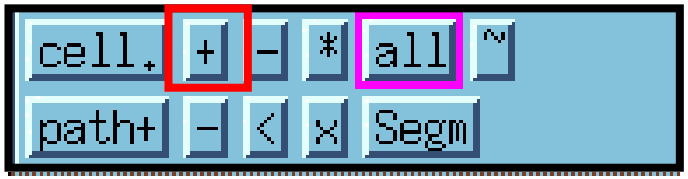
Returning to Original Surface

- Two ways to return to original surface

  1. Click on **all** in the sub-command panel

  2. Click on **(+)** and hold down right mouse button and drag a box around triangles of interest



- **Triangles will always remain in data base and displayed in GUI until the surface is saved**