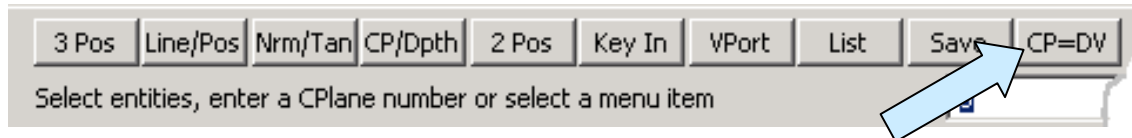


Displaying the Construction Plane Axes on the Part

Traditional CADKEY users have gotten used to looking up to the top, right corner of the viewport to see the current Construction Plane (Cplane) status. No visible Axes indicates that the current Construction Plane is set equal to the Display View.

This is represented by the CP=DV Option that is displayed on the Conversation Bar as one of the Options when you click on the CONSTRUCTION PLANE Icon.

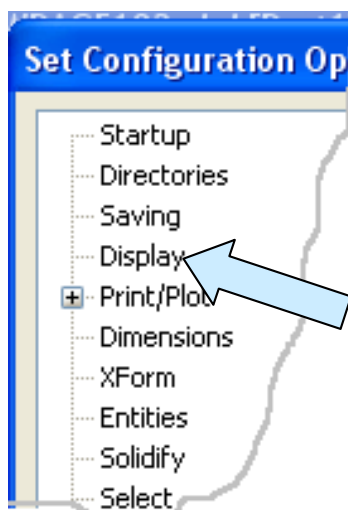
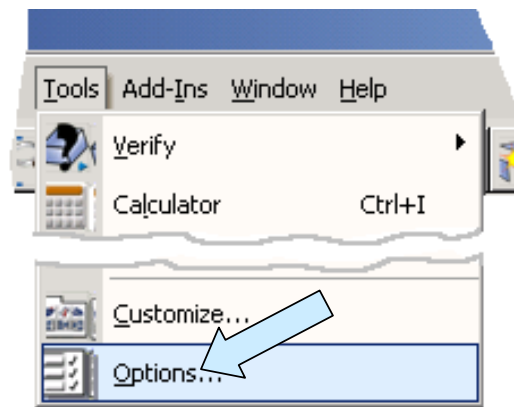


While these axes immediately indicate the current Cplane status, it is also sometimes important to clarify the location of the Cplane.

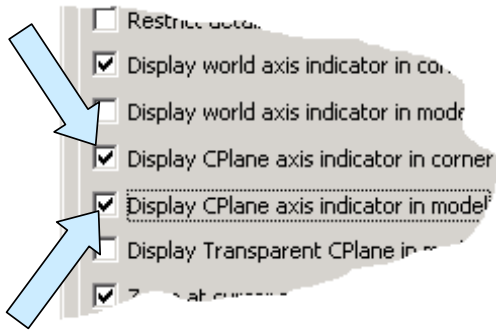
For example, on our current part, there are four different Construction Planes that correspond to different horizontal faces on the part. (The top of the left leg, top of the cylindrical boss, top of the right leg, and bottom of the part.)

You can quickly configure KEYCREATOR so that a Construction Plane Axis appears directly on the part at the specific location of the plane.

To do this, click on the TOOLS Pulldown Menu. Then, click on OPTIONS.

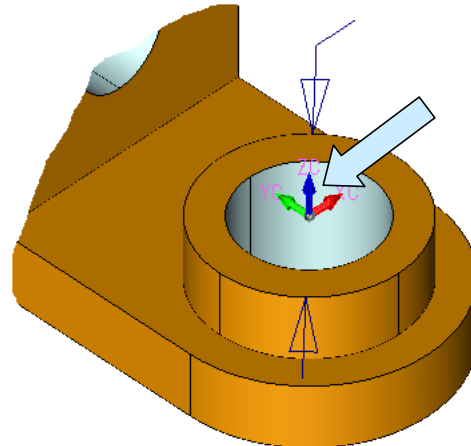


Next, click on the Display Option at the left side of the Options Dialog Box.



You will see a check in front of the Display CPlane Axis in Corner of Viewports as part of the Default Settings.

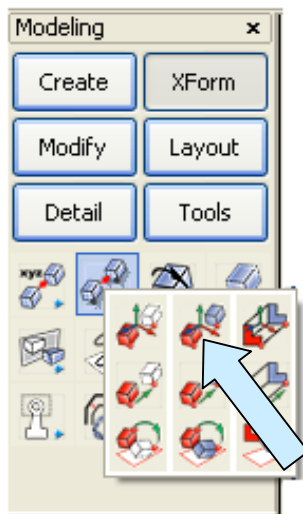
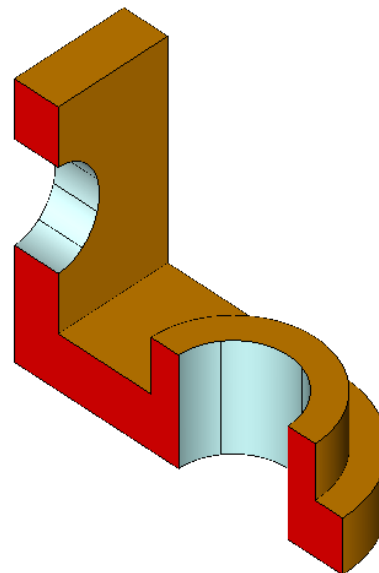
If you would like to display the Construction Plane Axis also on the model, click to place a check in front of this Option. Then, click on the OK Button.



The Construction Plane Axis will now be displayed on the Model.

Making a Solid Section of a Part

Let's create a three-dimensional section view of our part. I've illustrated the desired goal to the right.



We'll start by making a copy of the part.

Click on the XFORM OLD-NEW COPY Icon. Next, move the cursor over the part and click on it when it highlights. Then, click on the ACCEPT Button.

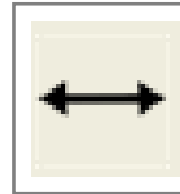
Type 1 for the Number of Copies.

Using the Cursor Option, click on the part near the center.
Then, click on the SKIP Button.

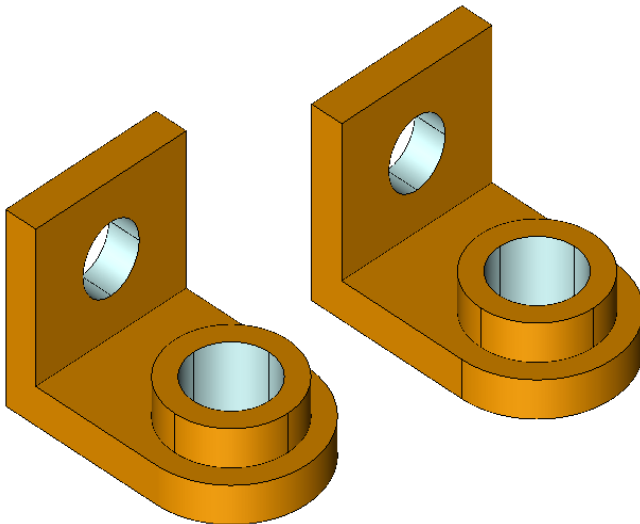


Now, using the Cursor Option, click to the right of the part to place a second copy on the screen.

If you don't like the final position, you can click on the UNDO Icon and try again.



Or, you can click on the GENERIC MOVE Icon and move the copy to a new location.

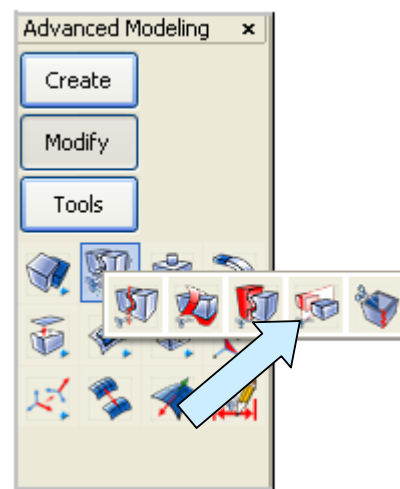


Your screen should now look like this:

Now, click on the SPLIT A BODY Icon.

A small Dialog Box appears.

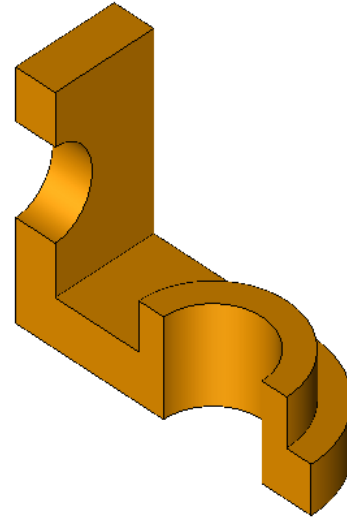
Click on the Trim Option and the Prompt For Side to Keep. Then, click on the OK Button.



Move the cursor over the copy of the original part and click on it when it highlights.
Next, click on the 3Pos Option on the Conversation Bar. Using the CtrMid Option, click on the top, left edge of the vertical leg.

Next, click on the top, circular edge of the boss and then on the bottom, circular edge at the right end of the part. A double-headed vector appears on the part. Click on the vector that faces toward the rear.

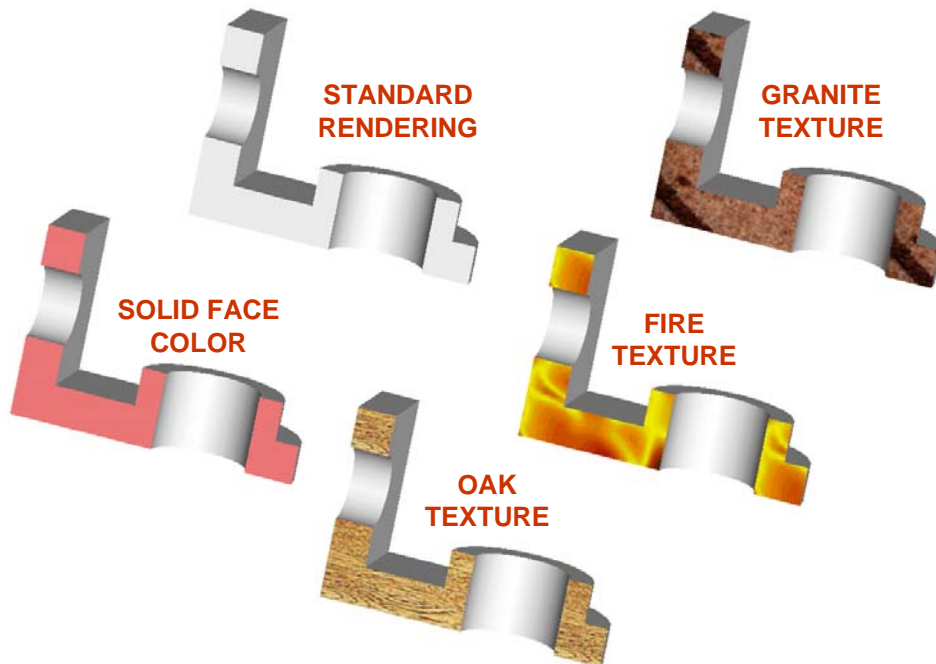
You will now have a three-dimensional section of the part like the one illustrated to the right.

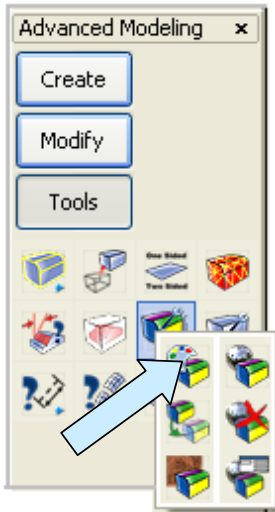


Using Face Color or Texture to Highlight a Solid Section

KEYCREATOR provides you with several powerful tools that give you additional flexibility when you want to communicate design information. A typical example occurs when working with a three-dimensional section like the one that we just created.

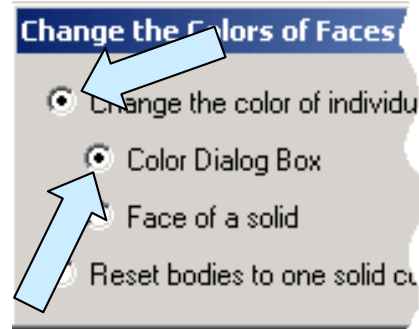
Creating a contrast on the section plane surfaces greatly enhances the visual communication of the part shape. Adding a texture that looks like cross-hatching is sometimes even more dramatic.



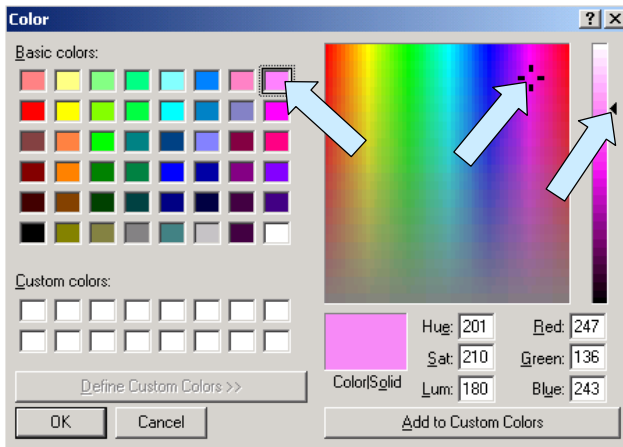


Click on the CHANGE FACE COLOR Icon.

A small Dialog Box appears. Just accept the defaults and click on the OK Button.



The Color Dialog Box appears.



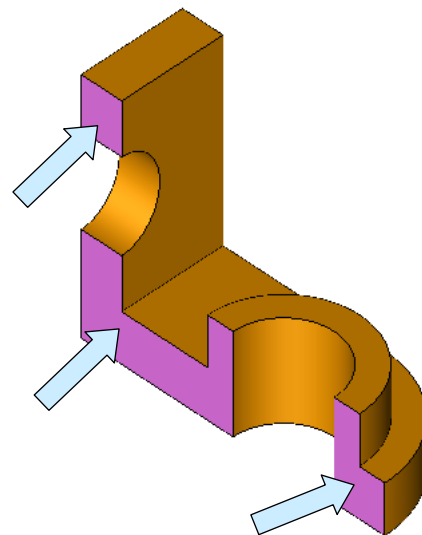
Click on a color well to select the color that you want to use. You can drag the marker in the large color spectrum field to change the color.

You can also drag the marker in the slider on the right to make the color lighter or darker. Click on the OK Button when you have the color that you want.

Click on the three faces indicated by arrows in the illustration to the right.

Then, click on the ACCEPT Button. The faces now change to the selected color.

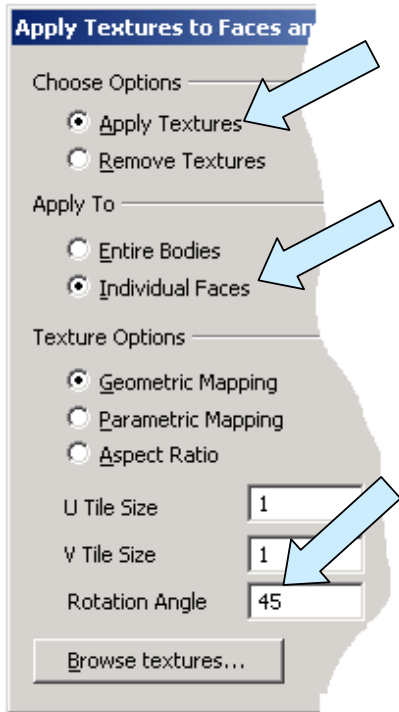
Sometimes just using a contrasting color is sufficient to make the section profile stand out. (Hint: Another great use for the FACE COLOR Tool is highlighting holes in parts. On a part rendered in a deep color, consider changing the color of the cylindrical hole faces to a light beige. On a smooth rendering, it looks like a light is shining within the hole!)





Click on the UNDO Icon.

Next, click on the TEXTURE Icon.



Click on the Apply Textures Option.
Click on the Individual Faces Option.

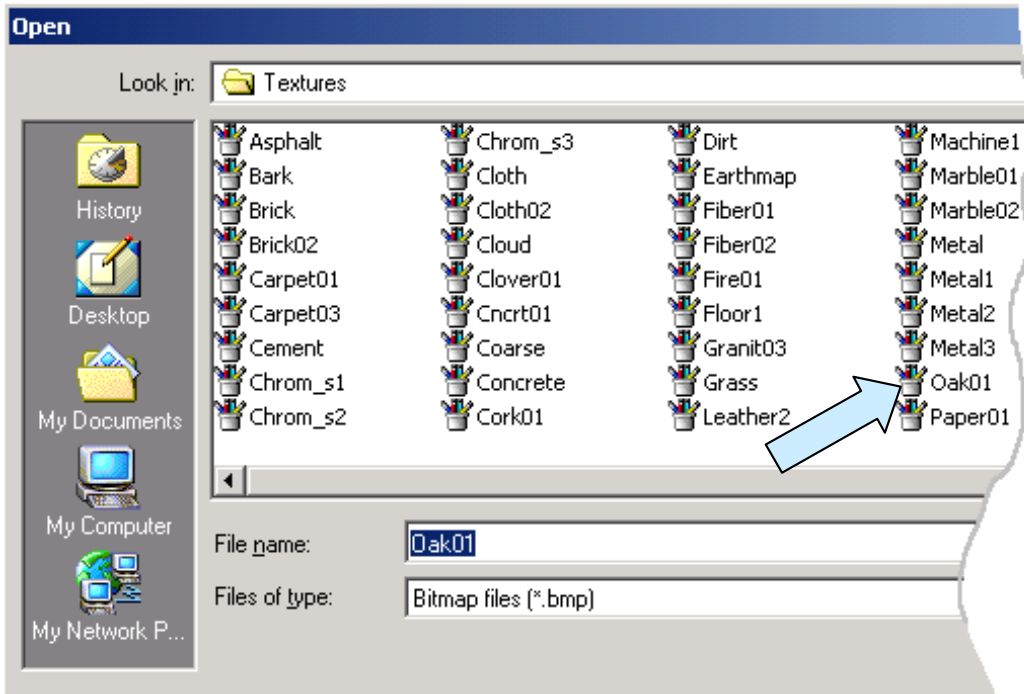
We'll use the default Geometric Mapping.
Use the default 1 value for the U and V tile sizes.

Hint: In most cases, you'll want to experiment with different numbers for the U and V tile sizes to get optimum results. The last thing that you want is to get an obvious tile pattern on the finished part.

Change the Rotation Angle to 45 degrees. Then, click on the Browse Textures Button.



A large Dialog Box appears with the available texture maps.
Click on the Oak01 File. Then, click on the OPEN Button.



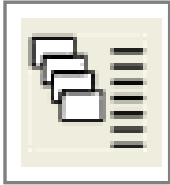
You are returned to the original Dialog Box. Click on the OK Button.

Click on the same three faces that you selected when you used the FACE COLOR Tool.
Notice that the texture is applied to these faces. You can experiment with different textures to find one that you like. You'll notice that the same Dialog Box allows you to remove textures as well. I've illustrated three texture mapping variations below.



Using Levels to Manage Three-Dimensional Sections

Now during this exercise, I had you create a copy of the part to the side of the original part. We then used the SPLIT BODY Function to create the three-dimensional section.



Let's take a moment to look at a handy way to manage both the actual part and the solid sectioned part in a normal design project.

Click on the TOGGLE SPLITTER to display the Level List on the left side of the screen.

Next, click on the MOVE ENTITIES Icon.

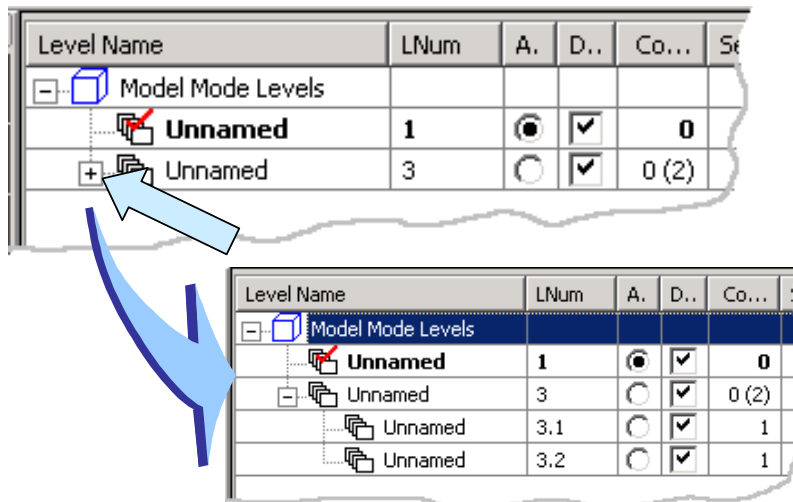
If you don't have this Icon on your Toolbar, click on the VIEW Pulldown Menu and then on the LEVEL Option. You'll find it in the bottom third of the list of options.



When you click on the MOVE ENTITIES Icon, you are prompted to select a method for moving entities or levels. Click on the SELECT Option.

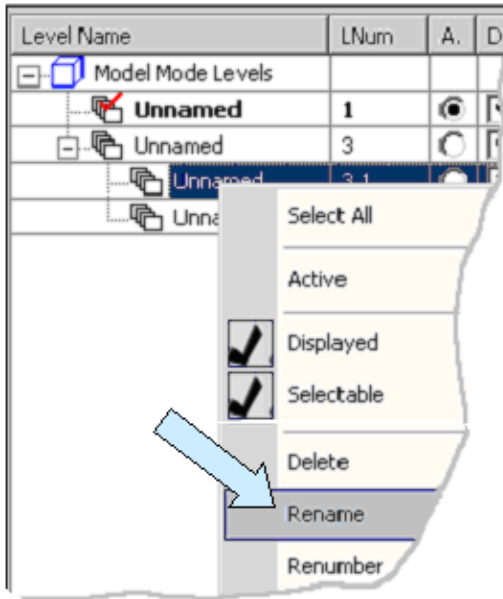
Now, click on the original complete part on your screen and then click on the ACCEPT Button. Type 3.1 for the level number.

Next, click again on the SELECT Option. This time, click on the sectioned part and then click on the ACCEPT Button. Type 3.2 for the level number.



Notice that a level 3 is entered in the level list with a "+" sign in front of it.

Click on the "+" sign to expand the levels.



Now, **RIGHT MOUSE CLICK** on the level 3.1 row and then click on the **RENAME** Option in the menu that appears.

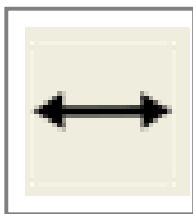
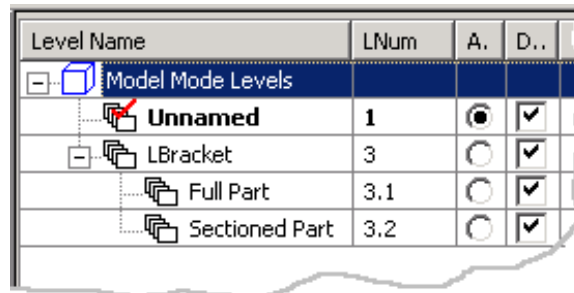
Type "Full Part" for the name.

Also rename level 3.2.
Type "Sectioned Part."

Rename level 3 and here type the actual descriptive part name such as "Lbracket."

Notice that there are no entities on this level. We call this a "Container Level." Think of it as a hanging folder in your file cabinet that can hold various pieces of paper (levels) that have actual information.

Your level list should now look like this:



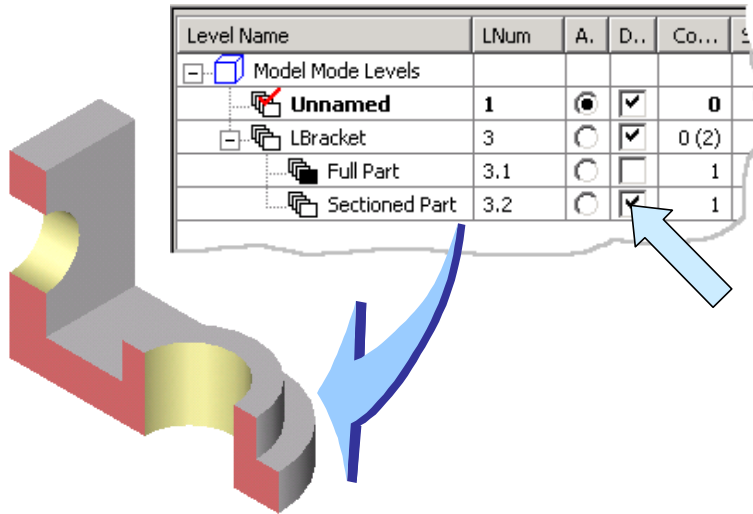
Now, click on the **GENERIC MOVE** Icon.

Click on the sectioned part. Now, using the EndEnt Option, click on the top, rear, left corner of the part.

Then move the cursor and the part follows.

Using the EndEnt Option, click on the top, rear, left corner of the full part.

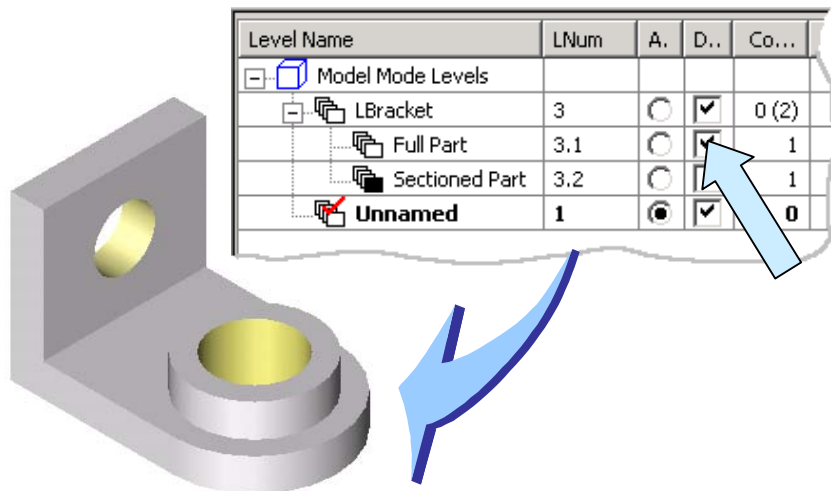
The two parts will now be located in the same space.



Now, whenever you want to see the section view, just turn on the level 3.2 display and shut off the level 3.1 display.

When you want to see the full part, reverse the process, turning off level 3.2 and turning on level 3.1 in the level list.

Save your file. Let's call it "Page200."

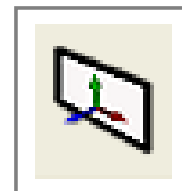


Displaying a Transparent Construction Plane on the Model

There are times when you may want to use a new feature in KEYCREATOR called "Transparent Cplane."

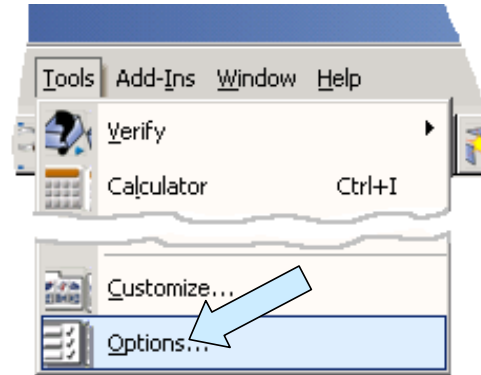
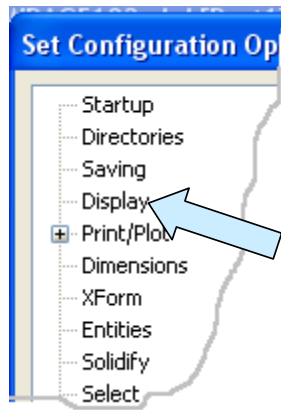
Let's use the current part to illustrate the feature.

First, click on the CONSTRUCTION PLANE Icon.



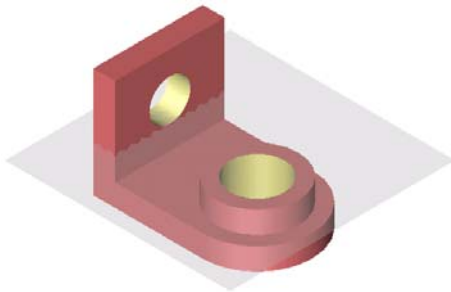
Move the cursor over the top, "washer-shaped" face of the boss and click on this face when it highlights.

Now, click on the TOOLS Pulldown Menu and then on OPTIONS.



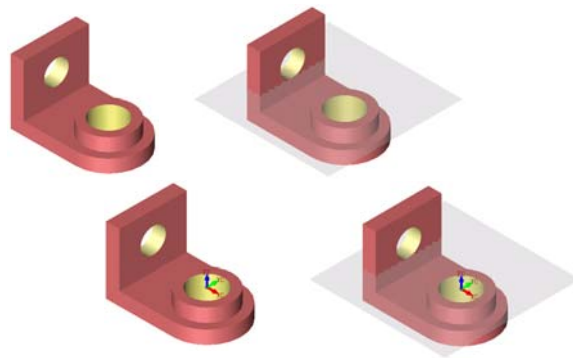
Click on the DISPLAY Option on the left side of the Dialog Box.

Now, click to place a check in the box in front of the Display Transparent Cplane in Model Option.



A transparent construction plane is displayed on the model.

To remove the transparent Cplane from the display, click on the TOOLS Pulldown Menu and then on OPTIONS. Then, click on the DISPLAY Tab and click to remove the check from the Display Transparent Cplane in Model Option.

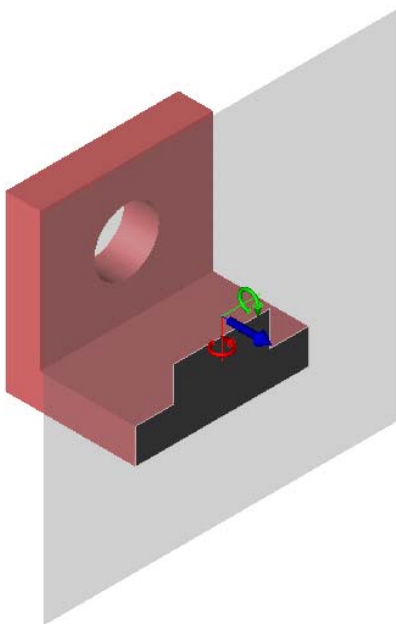
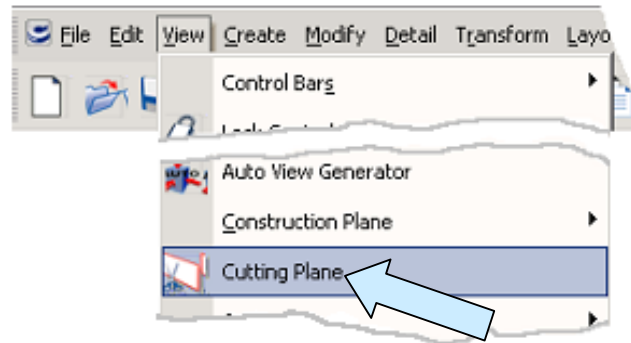


Remember that you now have the option to show no Cplane in the model, the Cplane Axes in the model, a transparent Cplane in the model, or both a transparent Cplane and Cplane Axes in the model.

Using the Cutting Plane Tool

In the previous pages we created a solid section of the part using the SPLIT A BODY Tool. Let's look at another powerful tool that you can use to quickly display solid sections of a part.

Click on the VIEW Pulldown Menu. Then, click on the CUTTING PLANE Option.



Notice that the Conversation Bar prompts you with three choices to define the plane.

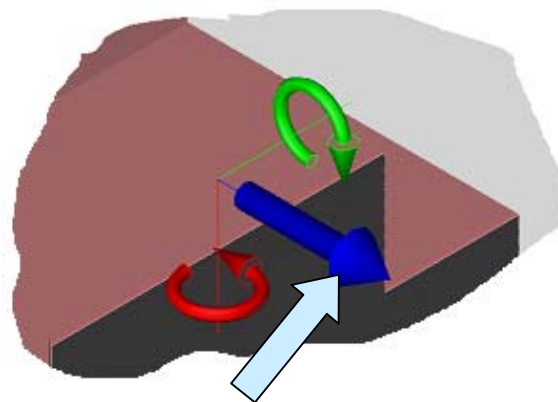
These are based on the World Axes in the lower, left corner of the viewport.

For this example, let's select the YZ Option.

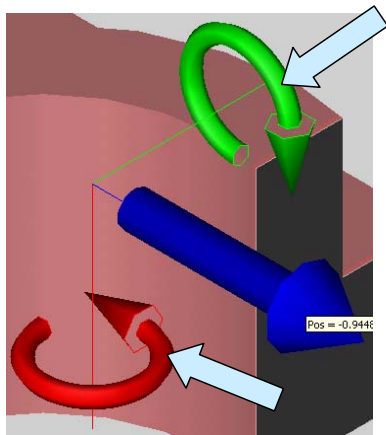
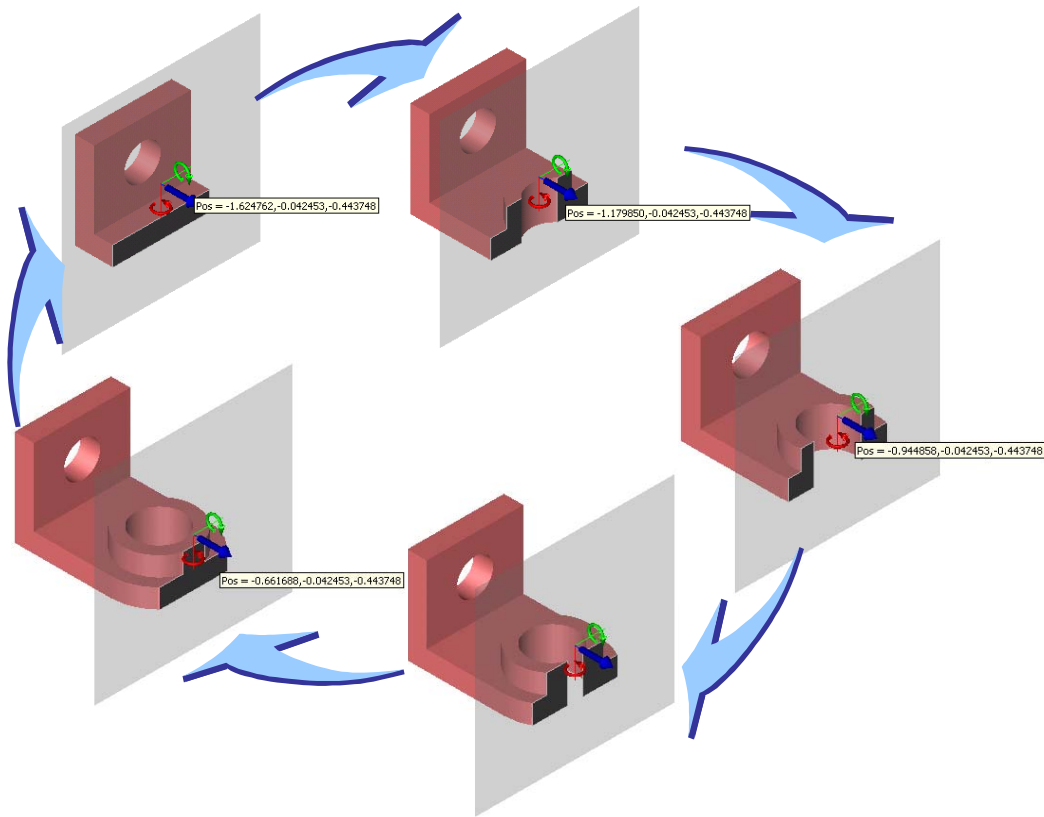
A cutting plane appears on the part and the part is neatly trimmed back to the plane.

You can reposition the cutting plane by positioning the cursor over the blue arrow on the screen.

Depress the LEFT MOUSE BUTTON and drag to set a new position.

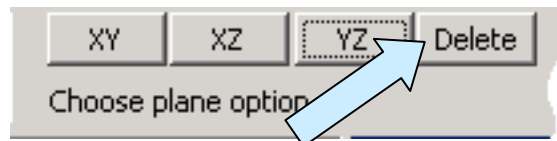


There are an infinite number of sections that you can display.



You can also reorient the cutting plane using the GREEN or RED Rotation Arrows.

If you click on the TRIM Option, you permanently trim the part to the current section view. (Obviously, you don't want to do this unless you are working on a copy of the part!)



To revert to a full part, simply click on the DELETE Option on the Conversation Bar.

Before we move on to our next exercise, save the part. Call it "Page203."