### KeyCreator Lesson KC8501

### **KeyCreator Compare Toolbar and Introduction**

The KeyCreator Comparison Tools provide you with a powerful way to find discrepancies between different CAD models of the same part or assembly. In this lesson, we introduce you to the basic logic of this application and review the key functions on the Compare Toolbar.



Comparison is done using two separate files. One file will contain a model of the part that is considered to be the "standard" or "officially correct" representation of the part. The second file also represents the part and made be used by a supplier or other member of the collaborative design team.

In an ideal situation both models should be absolutely identical. In real life situations, however, there may be major or minor discrepancies between the two models that can create problems. Typical differences are:

**Difference in dimension values.** For example a hole in one model is 0.250 diameter and in the second model it is 0.252 diameter.

**Missing key features.** For example, a hole may appear in one model and be missing from the second model.

**Missing cosmetic features.** One model may have sharp edges and the other may have minor cosmetic blends.

**Different face representation.** A complex surface might be represented mathematically by a Nurbs surface in one model and an analytical surface in the other.

**Difference in Draft Angle.** For molded or cast parts, the two models might have different draft on draw surfaces or the draft may be missing entirely on one of the models. (While this is actually a variation in dimension value, since the angular dimension of the drafted surface with respect to the parting line plane is the variable in question, it is unique enough to be considered as a separate example.)

**Missing assembly component.** A component might exist in one assembly file and be missing in the second assembly file.

### The Compare Toolbar

Starting with KeyCreator version 10.5, the basic comparison tools are available within the KeyCreator Interface.

The toolbar is illustrated to the right. In a moment, we'll walk through a basic example of how to use the Comparison Suite tools to evaluate two design files.



### **Creating a Test Part**

In later lessons you'll use pairs of files provided to you that represent more complex models to get a real feel for the power of the KeyCompare application. For our initial work, we'll quickly create two almost identical parts to use in our introduction to the process flow.

Start with a new file in View 1. (The Top View.) Click on the CREATE ROUNDED RECTANGLE Icon.

Type 0.25 for the corner Radius. Click on the MidCtr Anchor Option. Type 2.5 for the Width and 1 for the Height. Using the KeyIn Option, hit the ENTER Key three times to place the rectangle at the origin of the file.





Create a second rounded rectangle with 0.25 radiused corners that is 1 inch wide by 2.5 inches high and place that also at the origin.

Your screen should look like this:

Now, click on the CREATE CIRCLE BY DIAMETER Icon. Type 0.25 for the Diameter.

Using the CtrMid option, create a circle centered on each corner fillet. (Eight circles total.)



Now, switch to the Isometric View. (View 7.)



Your screen should look like this:



Click on the EXTRUDE Icon. A Dialog Box appears. Type 0.375 for the length and hit the ENTER Key.

Select all of the geometry on the screen and hit the ENTER key.





Click on the CONSTANT RADIUS BLEND Icon. Type 0.125 for the Radius. Create a blend at every interior corner on the part. (Four blends.)

Your completed part should look like this: Save this part. Let's call it "TestWas."





Now, click on the OFFSET FACES Icon. Type 0.01 for the value and hit the ENTER Key.



Now, select the two holes indicated by arrows in the illustration to the right and hit the ENTER Key.

Click on the SAVEAS Icon. Call this part "TestIs."

#### **Evaluating the Parts**

Now, we'll use the simple parts we just created to walk through the basic process flow used when evaluating parts. Whether your parts are simple like these or extremely complex, you'll use the same basic approach to getting your results.

Let's start by clicking on the CONFIGURATION OPTIONS Icon. (Note: You can also click on the TOOLS Pulldown menu and then on OPTIONS.)





The Set Configuration Options Dialog Box appears.

Click on the Analyze Options Entry on the left hand side.



Place checks only on the items shown in the illustration to the left.

Click on the VALIDATE PARTS Icon.



A Dialog Box appears.

Click on the browse button to the right of the IS Filename Field and select the "TestIs" file that you just saved.

Then, use the browse button to the right of the WASFilename Field and select the "TestWas" file that you just saved. Click on the OK Button.

File Selection
Select From Currently Loaded
IS Filename
C:\KeyCreator10.5\CKD\TestIs.ckd
WAS Filename
C:\KeyCreator10.5\CKD\Was.ckd
Options File
....

Notice that both files appear on the screen in a side by side layout.





If you click on the TOGGLE DIFFERENCE RESULTS Icon so that it is active, a list of differences appears in a separate pane at the right side of the screen.

Difference Results Window	<b></b>
Difference	Value
🖃 🚞 RootFolder	2
🛓 👷 Solid Face. 184	
🗄 😡 Solid Face. 189	

### Working with the Split Screen

Your right pane should look like this:

Notice that only one of the two model windows is active. Click in the window with the TestIs Part. Then, click on the DYNAMIC ROTATION Icon.



You can also zoom in on the part if you want.

Then, click in the window with the TestWas part.

Your two windows might now look something like this:

Click on the SYNCHRONIZE VIEWS Icon.



Testls.ckd [Part1] \* IS TestWas.ckd [Part1] \* WAS

The TestIs file instantly adjusts so it has the same orientation and magnification as the TestWas file.

Remember: The current inactive window updates to match the current active window.

Move your cursor into the right pane and click on the first face entry. Notice that the corresponding faces in the two files highlight. The "IS" face is green and the "WAS" face is red based on the settings in your configuration.

If you click on the second face entry, you will see the other modified hole and its counterpart highlight. (Note: If you click on the Root Folder, all of the differences will highlight.)



GREEN AND THE "WAS" FACE IS HIGHLIGHTED IN IN RED BASED ON THE SETTINGS IN THE CONFIGURATION DIALOG BOX

Difference Results V		
Difference		
🖃 💼 RootFolde	erence Results Window	- <b>X</b>
Solid	ference	Value
Solici	🗀 RootFolder	2
	🖻 👷 Solid Face.184	
	IS ID(s)	184
	WAS I	184
	Differen	Geomel
	IS Posi	(-1.108
	• WAS P	(-1.118
	Difference	0.01
	🗄 🥺 Solid Face, 189	

If you click on the "+" sign in front of the first entry, the entry will expand.

You can now see the detail information for the pair of faces and the difference of 0.01 inches is indicated.

### Using the Zoom To Function.

Move the cursor over the first entry in the right pane and Right Mouse Click.

Then, click on the Zoom To Option in the menu that appears.





Both model windows rebuild with the views zoomed in on the corresponding holes.

### **Returning to a Full View**

Switch to the Isometric View (View 7.) in the TestIs window and Autoscale the display.













The model in the TestWas window updates to match one in the TestIs window.