

New & Improved Features in TurboCAD v16



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What's New and Improved in TurboCAD 16

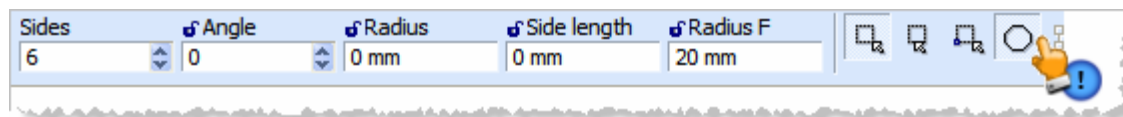
The following are a few New and Improved features which have been incorporated into TurboCAD v16 and which are relevant to students of this TurboCAD 2D Training Guide.

For New and Improved 3D features, please refer to the TurboCAD 3D Training Guide.

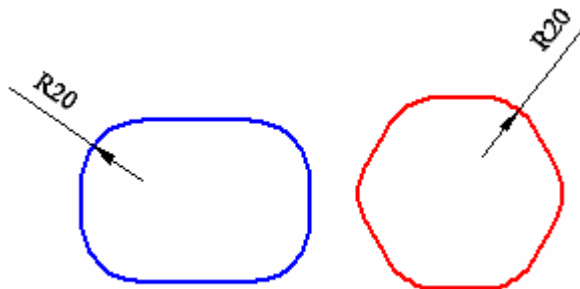


New Features in TurboCAD v16

Filleted Corners

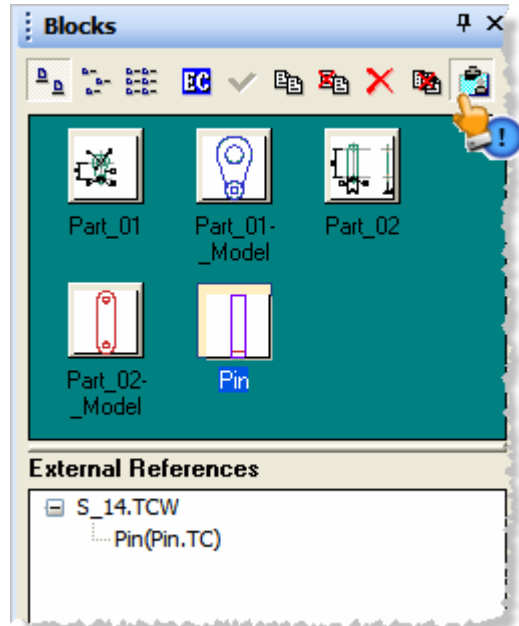


- Draws a closed polygonal shape such as a Rectangle, Polygon or Irregular Polygon with the vertices blended to a specified radius.
- ▶ Select a closed polygonal tool such as a Rectangle, Polygon or Irregular Polygon.
- ▶ Select the **Fillet Corner** option, shown by the pointer above. Apply a radius in the **Radius F** field, shown above, then left click in the graphics editor to start the polygonal shape.
- ▶ Drag the cursor to the opposing corner or input the appropriate length/width or sides/angle measurements.



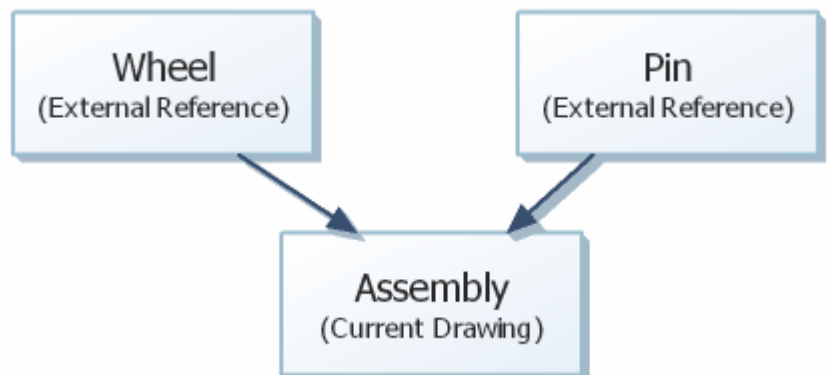
X-Ref Manager

Available in TurboCAD Deluxe & Professional only



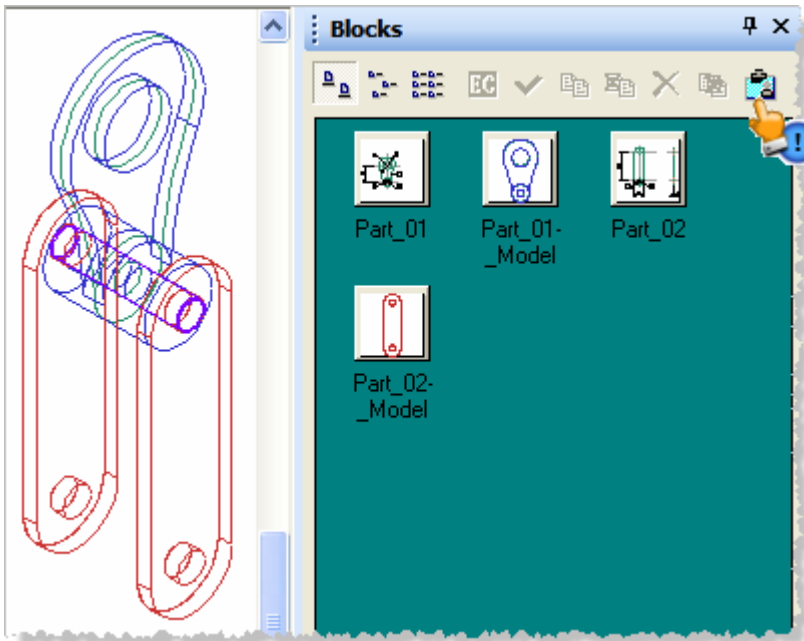
- Any drawing object which is inserted into the current drawing space from an external source is referred to as an External Reference.
- The externally referenced drawing is treated as a Block within the current drawing space and the X-Ref Manager controls and displays externally referenced objects in the Blocks Palette.
- When inserting an externally referenced drawing into the current drawing space, all objects such as layers, linestyles and dimensions etc within the source drawing will be incorporated into the current drawing space.
- The externally referenced object can be removed from the Blocks Palette at any stage using the **Detach** option. This will remove both the external object from the blocks palette and any corresponding insertion in the graphics editor.
- Changes made to the source drawing are updated in the destination (current) drawing using the **Reload** option.

- This example is suitable for either 2D or 3D users of TurboCAD.
- In this example, a current drawing called Assembly is used. Two other drawings containing 2 separate parts called Wheel and Pin will be used as externally referenced drawings.
- Open the Assembly drawing and make sure the Blocks Palette is displayed in the Graphics Editor. Use View > Blocks or CTRL SHIFT B to do this.



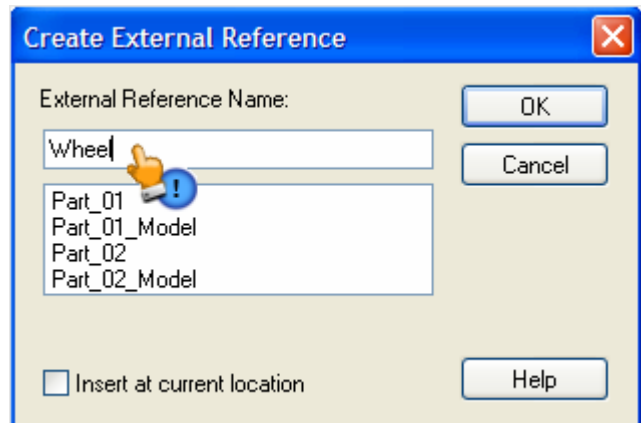
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- ▶ The result should be similar to the illustration below.



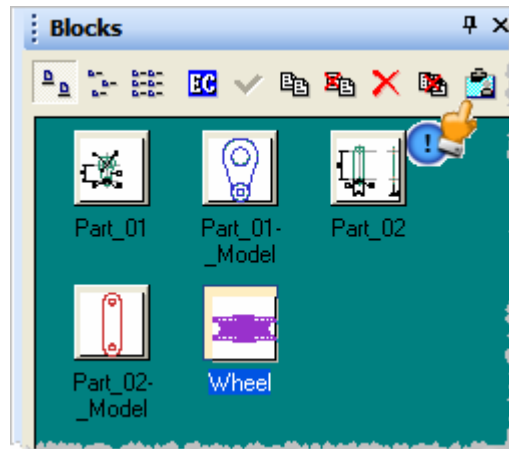
Loading an Externally Referenced Object

- ▶ Activate Options > Auto Naming > Block > Prompt for Name to create specific names for the externally referenced objects.
- ▶ From the Format menu, select Create External Reference and source the Wheel drawing. This drawing is found in the Drawings folder of your TurboCAD 2D Training Guide folder. Select Open.
- ▶ Input the name 'Wheel' as the External Reference Name, shown right. Click OK.

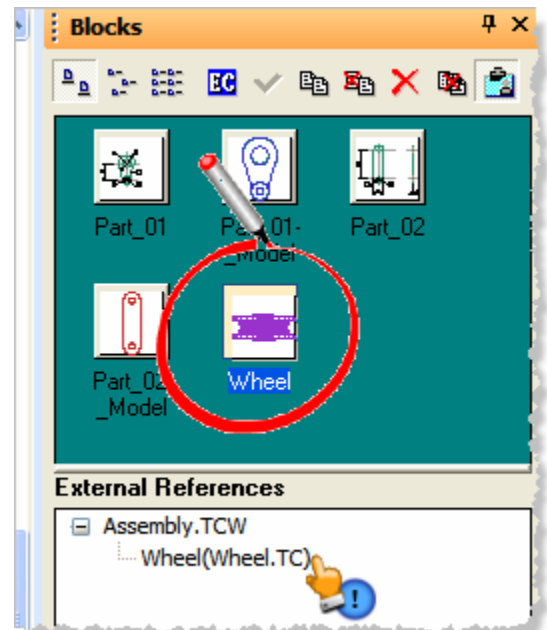
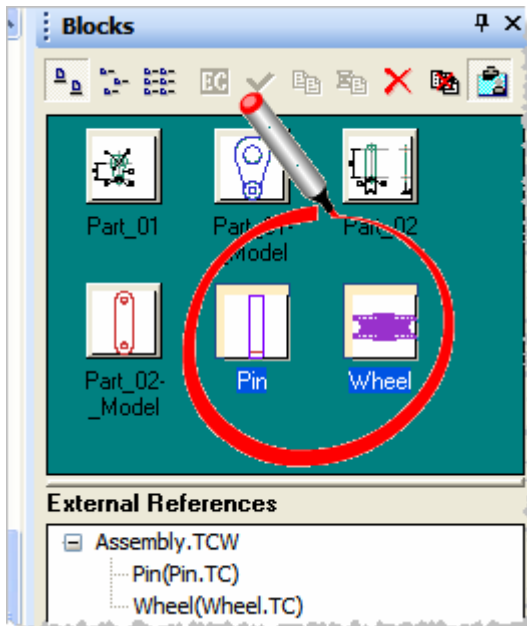


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- ▶ The Wheel object will be inserted into the Blocks Palette, shown below. Click onto the **External Reference** icon, shown by the pointer below.



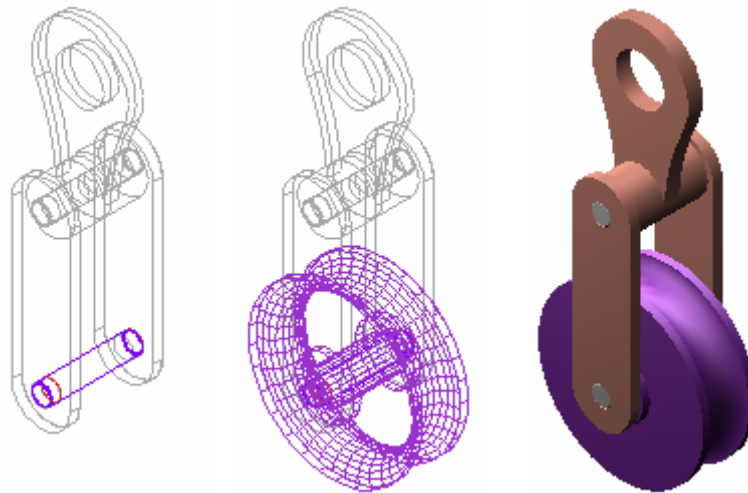
- ▶ The Wheel object will be referenced in the External Reference Palette, shown right. Repeat this exercise, this time externally referencing the drawing called Pin so that the results are similar to the illustration below.



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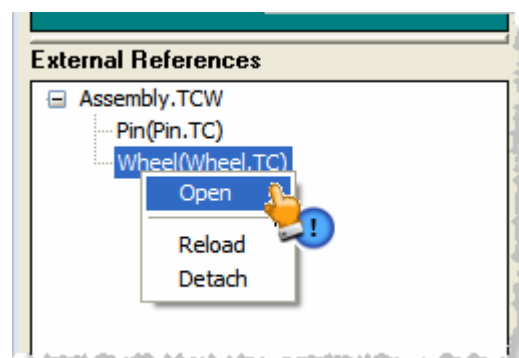
Inserting the X-Ref as a Block

- ▶ The Pin or Wheel items are now Blocks and can be inserted into the current drawing space, similar to the illustrations below. Please note, positional accuracy is not required for this task.
- ▶ Although the inserted items are now treated as Blocks within the graphics editor, they cannot be Exploded. Modifications to externally referenced items must be done by modifying the source object using the instructions below.



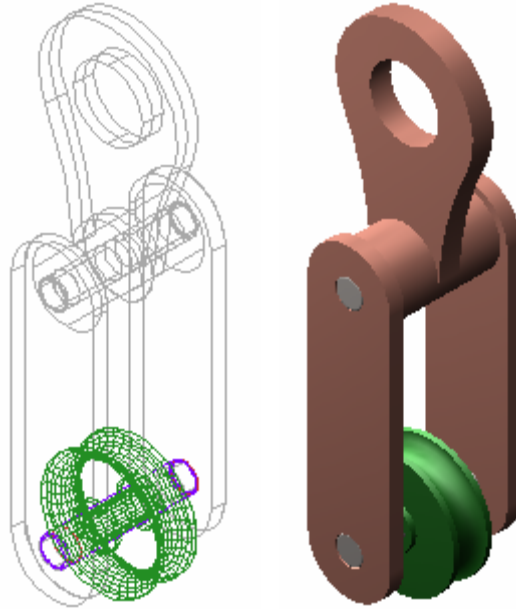
Modifying and Reloading an Externally Referenced Object

- ▶ An externally referenced drawing can be modified by right clicking the item name in the External Reference Palette, and selecting the Open item, shown right.
- ▶ The Wheel drawing can be opened and modified. In this example, the color of the of the wheel will be changed and it will be resized to half its current size.
- ▶ Do this by selecting the wheel and changing the color in the Properties toolbar. TAB to the ScaleX, ScaleY and ScaleZ fields and input .5 in each. Save the drawing to its original (Wheel) name.
- ▶ Use the Window menu to return to the Assembly drawing, right click onto the Wheel item in the External Reference Panel, right click and select the Reload option.



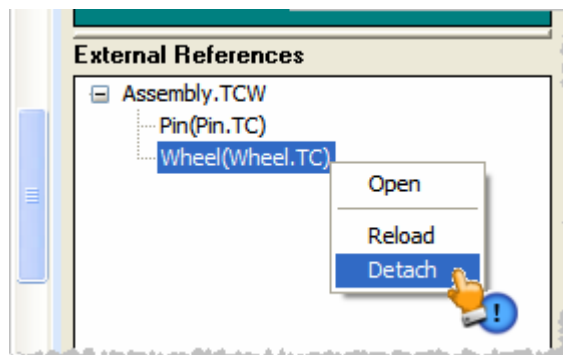
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- ▶ The result should be similar to the illustration below.



Detaching an External Reference

- ▶ An inserted External Reference item can be deleted from the graphics editor and will remain as an available Block in the Blocks Palette.
- ▶ Externally referenced objects are removed from both the graphics editor and the Blocks palette using the Detach option.
- ▶ This action cannot be undone and the X-Ref items should again be formatted if they are to be used in the current drawing.

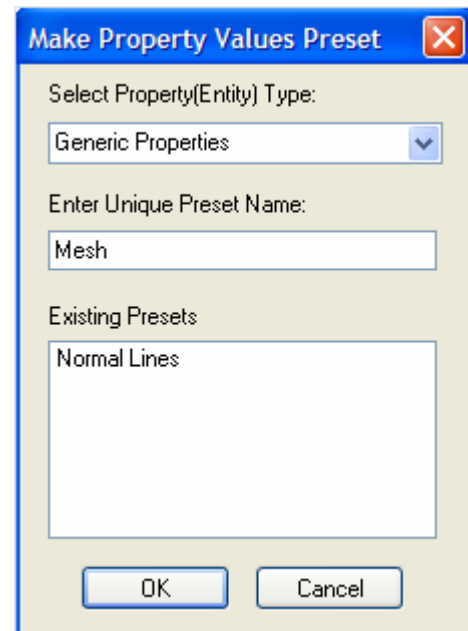
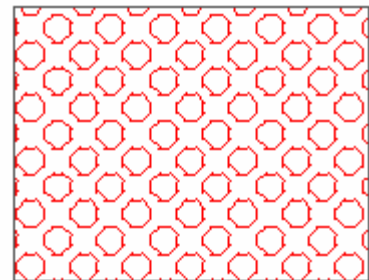


Format Painter

- This tool is used to harvest the properties of one object (source) and apply all or selected properties to another (destination).
- The Properties of the selected object automatically appear in the Format Painter palette and the Selection Info Palette.
- The improved features of the Format Painter tool allow properties of an object to be harvested from an object and saved as a specific style.
- The Format Painter tool is discussed and demonstrated in Session 2.

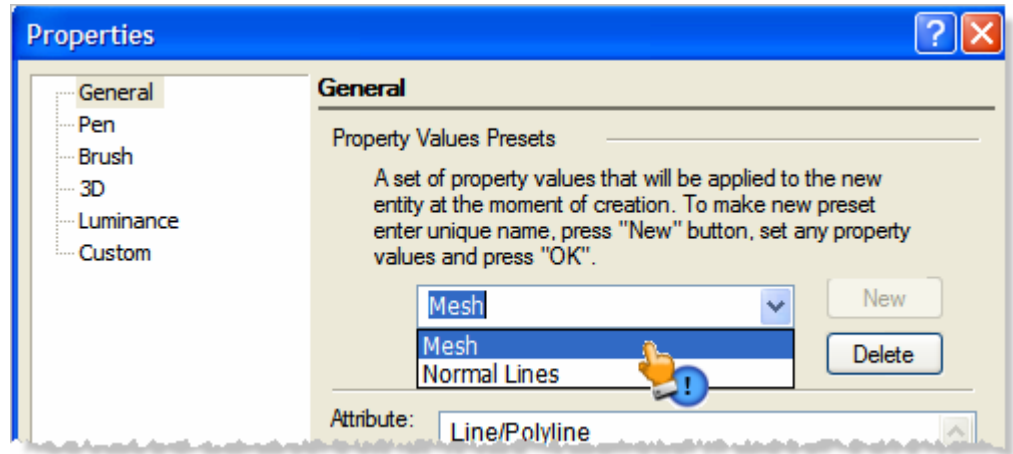
Using the Format Painter tool to create a new Style

- ▶ The Format Painter tool, previously used to apply the properties of the selected (source) object onto a destination object can now be used to harvest the properties of a selected object, such as linestyle, hatch pattern, text etc, and save this as a specific Style.
- ▶ This style will be stored in the Style Manager and can be automatically applied to subsequent objects.
- ▶ In this example, the style of the brush fill pattern illustrated right, will be harvested by the Format Painter tool and stored as a unique pattern. This pattern will then be preset for subsequent use.
- ▶ Select the Format Painter tool and left click into a pre-drawn fill pattern similar to that shown above right. The brush fill pattern can be any size, style or color for this example.
- ▶ When the pattern is selected, right click and select **Make Property Values Preset** from the local menu.
- ▶ From the Select Property (Entity) Type menu, browse to the Generic Properties option.
- ▶ Input a suitable name in the **Enter Unique Preset Name** field. In this example, the name **Mesh** was used, shown right. Click OK.

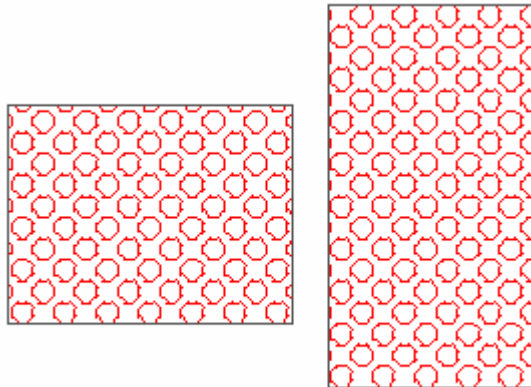


Applying Preset Properties harvested by the Format Painter Tool

- ▶ From the Tools Palette, open the Line tool in the Sketch Menu and right click onto the Rectangle tool. In the General page, select the newly created Mesh property. Click OK.



- ▶ Left click onto the Rectangle tool and draw a similar rectangle alongside the original. As can be observed below, the property values of the Mesh have been preserved and can be applied to the new drawing object.

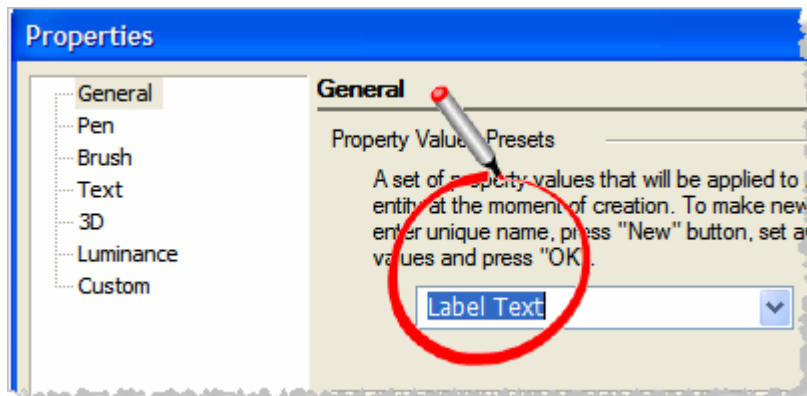
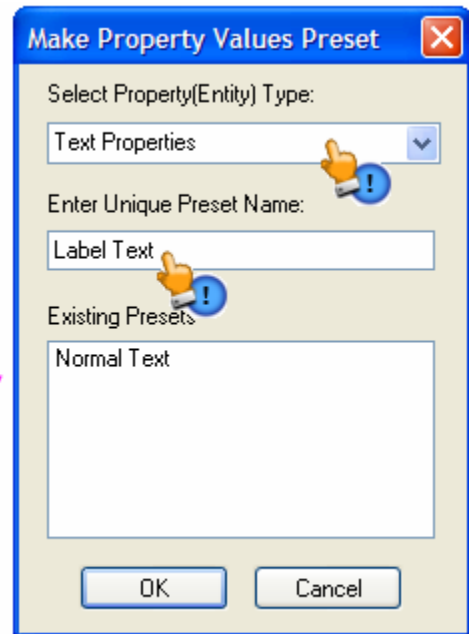


- ▶ Styles can be removed by right clicking onto the feature for which they were created, eg: Line, Hatch or Text tools and selecting Delete, shown above.

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- ▶ The **Format Painter** tool can be used to harvest most properties from an object and save it as a specific Style. In the example right, a specific text font, size and color was harvested and preset as a standard called 'Label Text', shown below left. This specific text property can now be preset when required by right clicking onto the **Text** tool and selecting the unique preset name, shown below right.

City BluePrint



New & Improved Features in TurboCAD v16

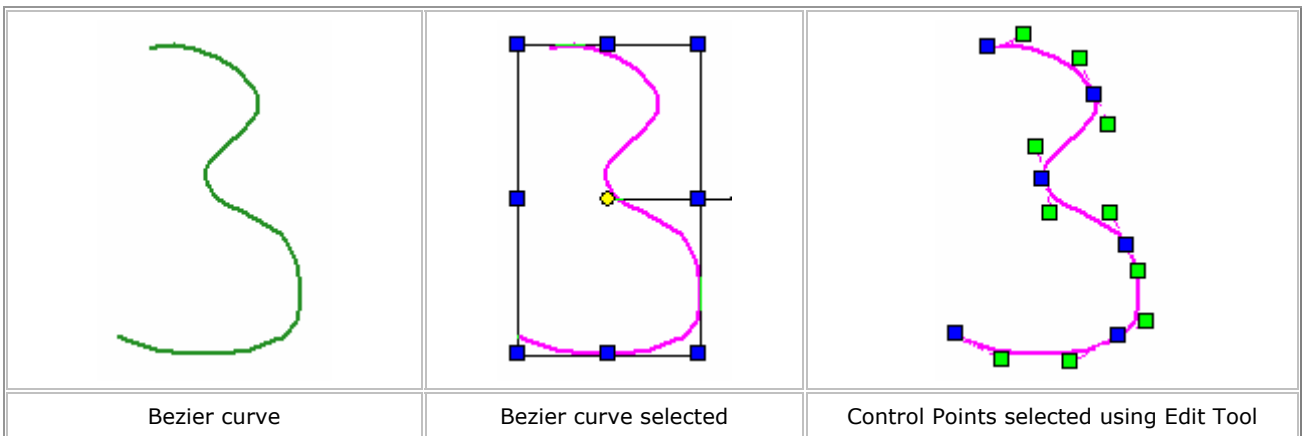


Improved Features in TurboCAD v16

Bezier Curves

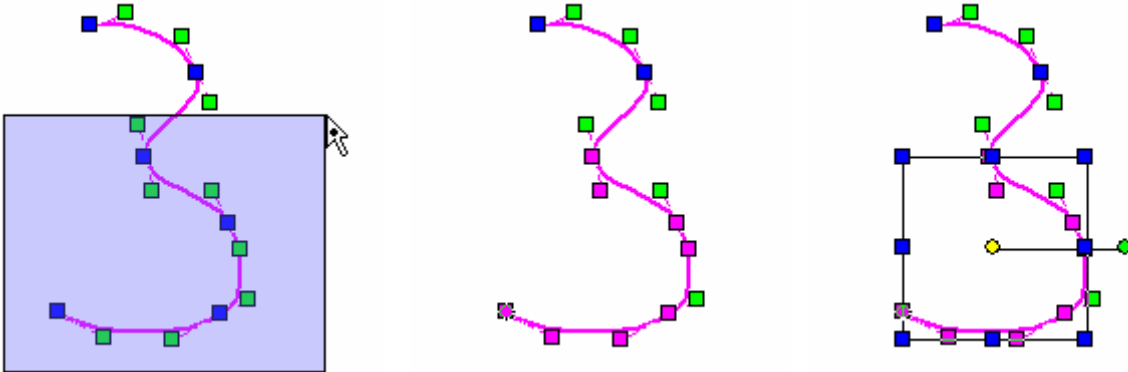


- A Bezier curve is a freehand curve which consists of multiple segments and control points.
- The curvature of the blend is bisected by control points and the Edit tool is used to access these points by applying **nodes** and **handles**.
- Multiple nodes can be selected and equal or non-equal curvatures can be applied to the control points.
- A Bezier curve can be converted to a Spline using the Selection Info Palette or the Properties Sheet.
- The improved features of the **Selector Mode** now allow greater control over the control points.

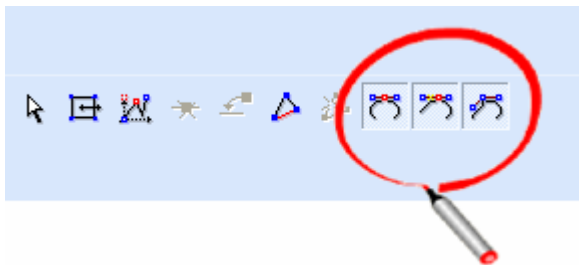
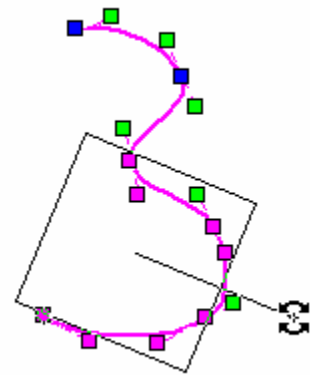


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- ▶ Multiple control points can be controlled using a rectangular selection method, shown below left. The illustration below middle shows the control points selected when the Selector Mode is deactivated. The illustration below right shows the Selector Mode activated, similar to the Selector Shell feature when 2D objects are selected.

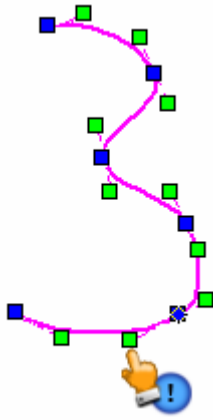


- ▶ This option is activated by selecting the Bezier curve with the Edit Tool then using right click > Selector Mode.
- ▶ When the Selector Mode is activated, shown above right, the handles of the Selector Shell allow normal functionality such as **Move, Copy, Rotate** and **Edit Reference Point**, shown right.

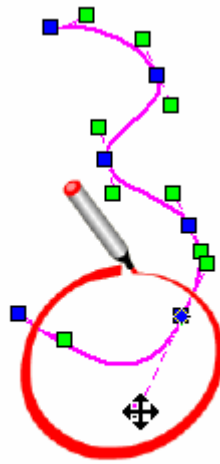


- ▶ In addition to using the improved Selector Mode to allow greater control over the nodes of the curve, features such as **Equal Curvature at Point, Non Equal Curvature at Point** etc, shown above are available.
- ▶ Observe how these improved features affect the curvature of the control points in the following illustrations.

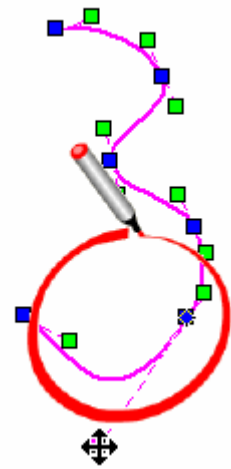
Curvature at Point



This node manipulated



Equal Curvature at Point
activated



Unequal Curvature at Point
activated

