Tutorial: Modeling a rim with form•Z 3.8

For this tutorial the wheel rim shown above will be constructed using v. 3.8 features. The process consists of two parts: making the wheel and rounding some of its edges.

Making the wheel

• Working in the Right projection view, with the scale set to 1/16" and the grid squares set at 1'-0" increments, select the 2D Surface modifier and with the Vector Line and Spline tools, draw the 2D profile shapes for the outer and inner rims, as shown to the right. Note that one is drawn on top of the other and try to draw your shapes as close to those we show as possible.

• In the Layers palette, rename “Layer 1” to “outer rim.” Create a new layer, name it “inner rim” and place your second profile on it. Then ghost this layer to be able to work with the shape on the other.

• In the Revolved Object dialog, select Smooth for Model Type and Construct As Smooth Revolve under Smooth Options. Make sure Revolution Angle is set to 360º.

• Set view to ZX, z=30º x=60º and with the Revolve tool active, click on the outer rim profile shape and then on the Y axis. The result should be as shown.

Rounding

In what follows, we shall make use of all three rounding tools. Note that the rounding values we have used here are proportional to the size of our model. If the size of your model is different than ours, you may need to experiment with rounding values relative to that size.

• From the Stitch Round tool invoke the Stitch Rounding Options dialog; in it select Use Radius and enter 0'-0 1/8" in its field.

• Set topological level to Segment and, with the Pick Tool, preselect the lower inside segment of the spoke hole, shown red to the right. Then, with the Stitch Round tool, click anywhere in the window. The result should be as shown. Repeat this rounding operation for the other four holes.

• From the Plain Rounding tool, invoke its dialog and in it select Use Radius and enter 0'-0 3/4" in its field.

• Set topological level to Outline and preselect the outline of the spoke hole shown in red. Then, with the Plain Round tool, click on the window. The result should be as shown. Repeat the operation for the other four holes.

• With the Controlled Round tool click on the wheel model. When its preview dialog is invoked, select the outlines of the five lug nut holes, as shown. Select Circular under Edge Rounding, in the Use Radius field enter 0'-0 1/4", and click OK. The results should be as shown at the beginning of this Tutorial.