



# CO<sub>2</sub> Rail Car Front Tire




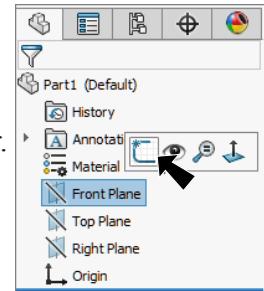
## A. Sketch Construction Lines.

Step 1. Click File Menu > New, click **Part Metric** and OK.

Step 2. Click **Front Plane**  in the Feature Manager and click **Sketch**  on the context toolbar, **Fig. 1**.

Step 3. Click **Centerline**  in the **Line flyout**  on the Sketch toolbar.

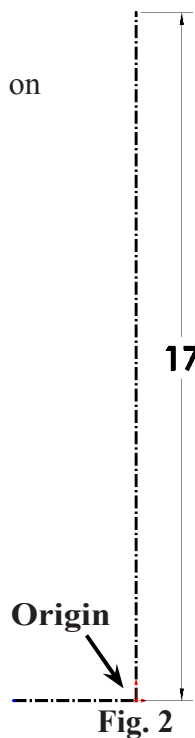
Step 4. Starting at the Origin  draw a vertical centerline up from the Origin and a horizontal centerline out to left from Origin, **Fig. 2**.



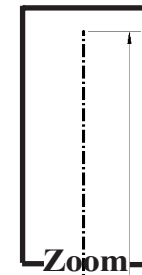
**Fig. 1**

Step 5. Click **Smart Dimension**  (S) on the Sketch toolbar.

Step 6. Dimension the vertical centerline 17, **Fig. 2**.



**Fig. 2**



**Fig. 3**



## B. Save as "FRONT TIRE".

Step 1. Click File Menu > Save As.

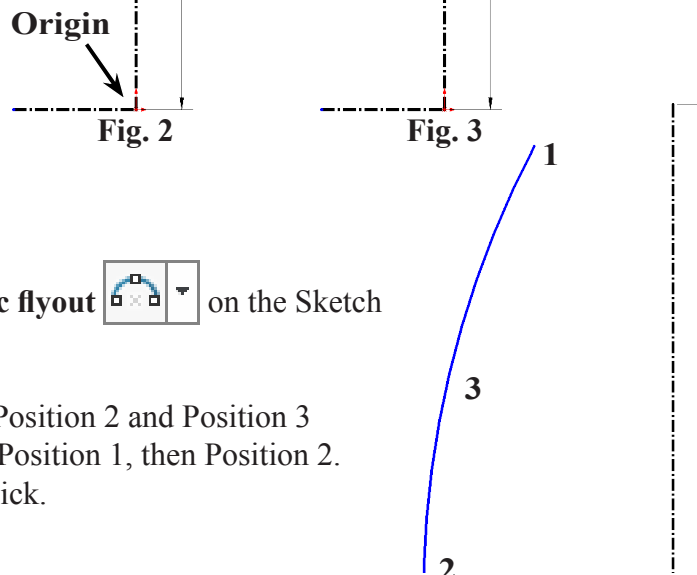
Step 2. Key-in **FRONT TIRE** for the filename and press ENTER.

## C. 3 Point Arc.

Step 1. Zoom in at **top of vertical centerline**, **Fig. 3**. To zoom, place the cursor over top of centerline and spin the wheel on mouse back. While spinning the wheel keep cursor on top of line.

Step 2. Click **3 Point Arc**  (S) in the **Arc flyout**  on the Sketch toolbar.

Step 3. Draw an arc between the Position 1, Position 2 and Position 3 in **Fig. 4**. To draw the arc, first click Position 1, then Position 2. Swing the arc out to Position 3 and click.



**Fig. 4**

Step 4. Click **Smart Dimension**  (S) on the Sketch toolbar.

Step 5. Add dimension. Dimension the arc radius 7 last, **Fig. 5**.

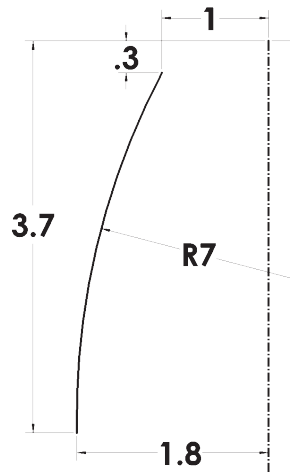


Fig. 5

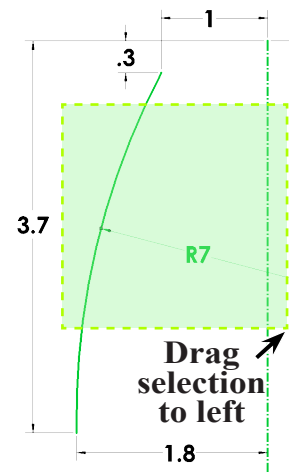


Fig. 6

### D. Mirror Sketch.

Step 1. **Right click drawing and click Select** from menu to unselect Smart Dimension.

Step 2. **Drag a “trend to left - more liberal” selection across arc and vertical centerline, Fig. 6.**

Step 3. Click **Mirror Entities**  on the Sketch toolbar, **Fig. 7**.

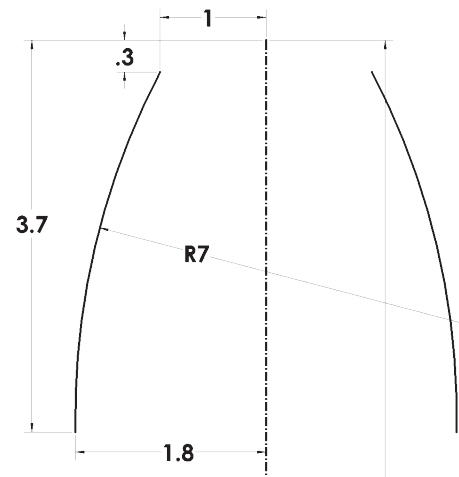



Fig. 7

### E. 3 Point Arcs.

Step 1. Click **3 Point Arc**  (S) in the **Arc flyout**  on the Sketch toolbar.

Step 2. Sketch an arc between the top endpoints of arc and a second arc across bottom endpoints of arc, **Fig. 8**.

Step 3. **Right click drawing and click Select** from menu to unselect Arc Tool.

Step 4. **Ctrl click top arc and top endpoint of vertical centerline** to select both. Release Ctrl key and click **Make Coincident**  on the context toolbar, **Fig. 9**.

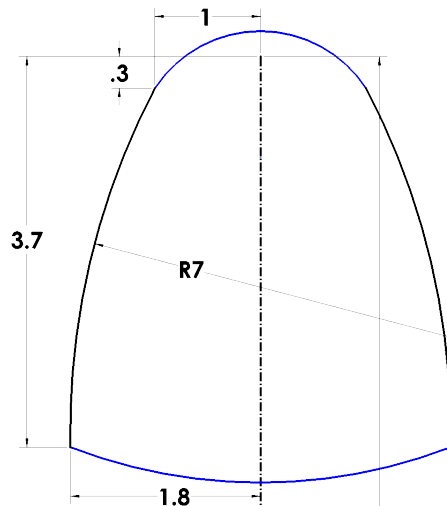


Fig. 8

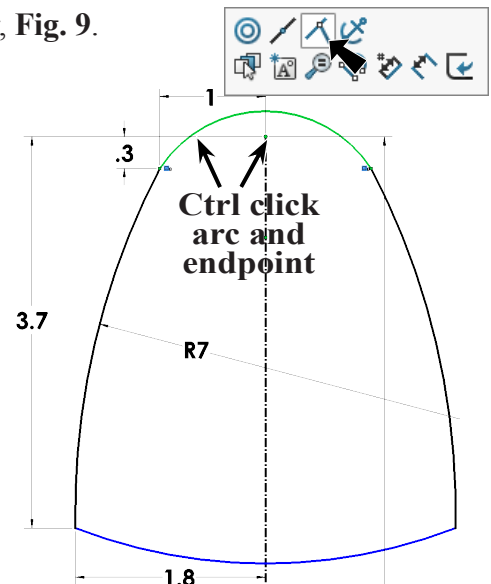
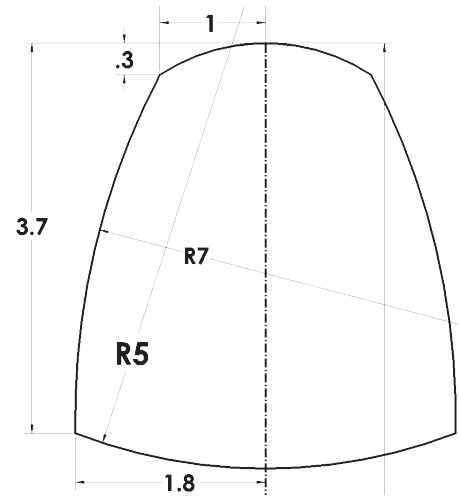


Fig. 9

Step 5. Click **Smart Dimension**  (S) on the Sketch toolbar.

Step 6. Dimension bottom arc **5**, **Fig. 10**.





**Fig. 10**

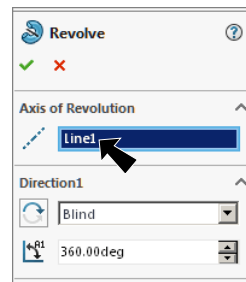
## F. Revolved Boss/Base.

Step 1. Click **Features**  on the Command Manager toolbar.

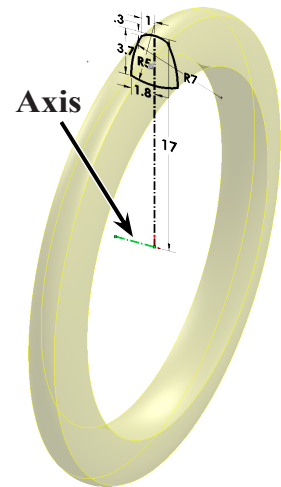
Step 2. Click **Revolved Boss/Base**  on the Features toolbar.

Step 3. In the Revolve Property Manger:

under Axis of Revolution   
 click **bottom construction line**, **Fig. 12**  
 Your bottom line of sketch does not have to show in Property Manager as Line1.  
 Click OK .



**Fig. 11**




**Fig. 12**

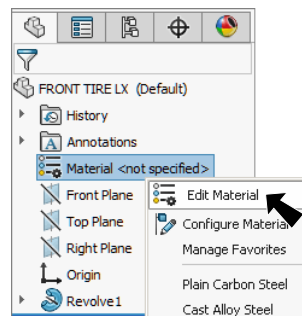
Step 4. Click **Zoom to Fit**  (F) on the View toolbar.

Step 5. Save. Use **Ctrl-S**.

## G. Material Rubber.

Step 1. **Right click Material**  in the Feature Manager and click **Edit Material**, **Fig. 13**.

Step 2. **Expand Rubber** in the material tree and select **EPDM 60 Durometer**. Click **Apply** and **Close**.



**Fig. 13**

Step 3. Save. Use **Ctrl-S**.



**Fig. 14**