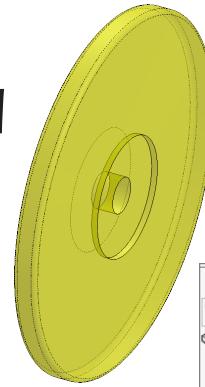




CO2 Rail Car E Front Wheel




A. Sketch.

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

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

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

Step 4. Draw a centerline up from the Origin , **Fig. 2**.

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

Step 6. Dimension centerline **15**, **Fig. 2**.

Step 7. Click **Line**  (L) on the Sketch toolbar.

Step 8. Draw **4 lines**, **Fig. 3**.

Step 9. Click **Smart Dimension**  (S) on the Sketch toolbar.

Step 10. Add dimensions, **Fig. 4**. First, dimension the vertical line **5** and across the width **1**. Dimension the angle **181° degrees** between the vertical line and angled line. To Smart dimension the angle, click both lines, then move the cursor outside the angle and click. Key-in **181** for the dimension and press ENTER.

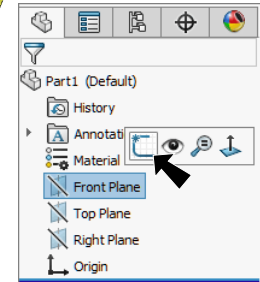


Fig. 1



Fig. 2

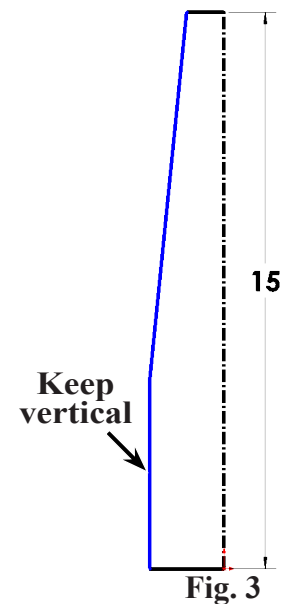


Fig. 3

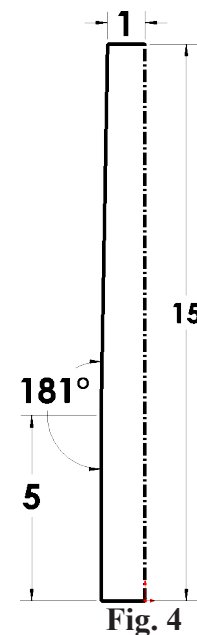


Fig. 4

B. Save as "FRONT WHEEL".

Step 1. Click File Menu > Save As.

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

C. Mirror Sketch.

Step 1. **Drag selection around the sketch** to select all entities, **Fig. 5**. To drag selection, click above and to left of sketch and drag down and to right to select all.

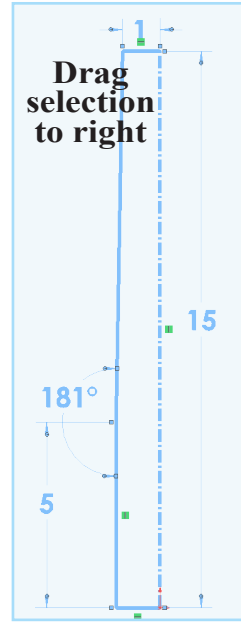


Fig. 5

Step 2. Click **Mirror Entities**  on the Sketch toolbar, **Fig. 6**.

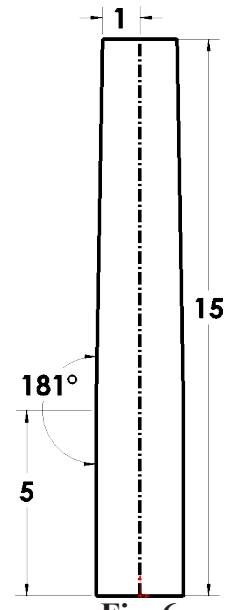



Fig. 6

Step 3. Click **Features**  on the Command Manager toolbar.

Step 4. Click **Revolved Boss/Base**  on the Features toolbar.

Step 5. In the Revolve Property Manger set:

for Axis of Revolution 
click **bottom line of sketch**, **Fig. 8**
click OK .

Step 6. Click Zoom to Fit  (F) on the View toolbar.

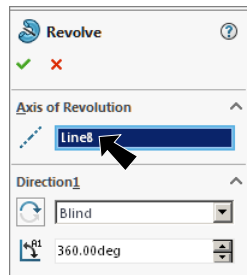


Fig. 7

Step 7. Save. Use **Ctrl-S**.

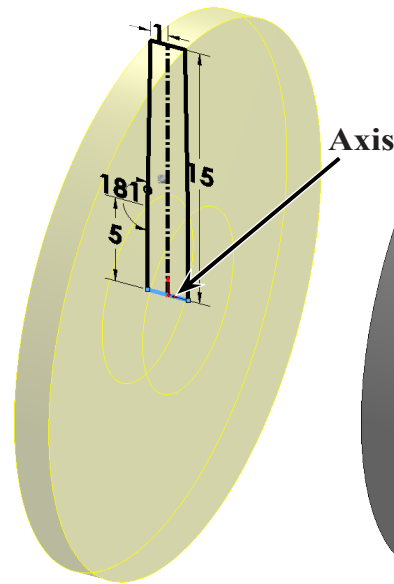


Fig. 8

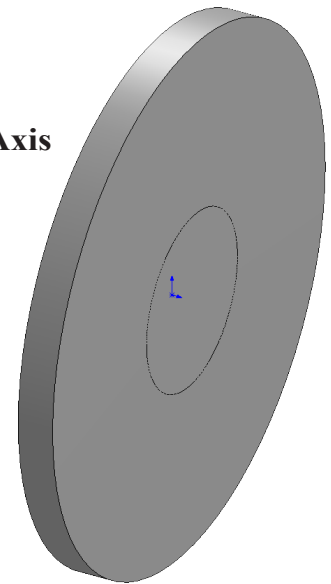






Fig. 9

D. Axle Hole Wizard.

Step 1. Click **Hole Wizard**  on the Features toolbar.

Step 2. In the Hole Wizard Property Manager set:
under Hole Type, **Fig. 10**

- click **Counterbore** 
- under Standard:
- select **ANSI Metric**
- under Type:
- Hex Bolt ANSI B18.2.3.5M**
- under Size:
- select **M5**
- check **Show custom sizing**
- Through Hole Diameter**  **3**
- Counterbore Diameter**  **10**
- Counterbore Depth**  **.5**
- under End Condition
- set **Through All**.

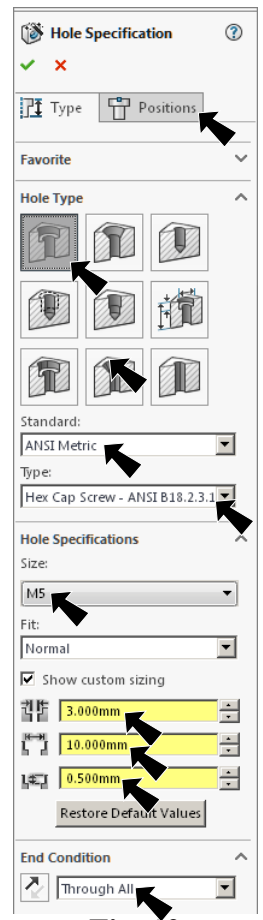





Fig. 10

Click **Positions** tab  at the top of the Property Manager.

Step 3. Click the **vertical side face of wheel** one time as face for holes, **Fig. 11**.

Step 4. Click the Origin . Use the coincident relation icon  to locate the Origin, **Fig. 11**.

Step 5. Click OK  in the Hole Wizard Property Manager.

Step 6. Save. Use **Ctrl-S**.

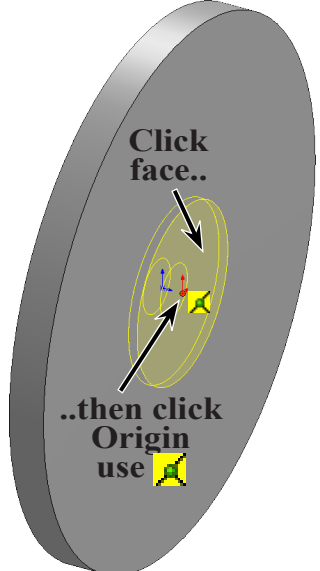


Fig. 11

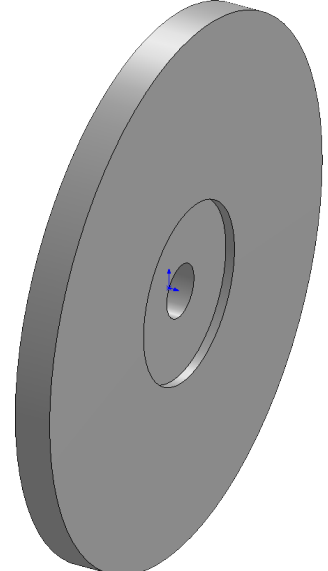


Fig. 12

E. Fillet Face.

Step 1. Click **Fillet**  on the Features toolbar.

Step 2. In the Fillet Property Manager set:
select **FilletXpert**, Fig. 16

Radius  .4

click **outside cylindrical face** of wheel,
Fig. 14

click OK .

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

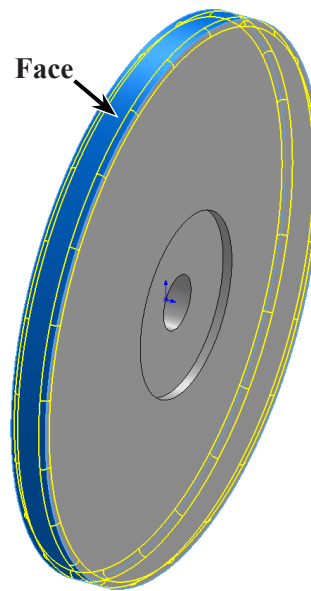


Fig. 14

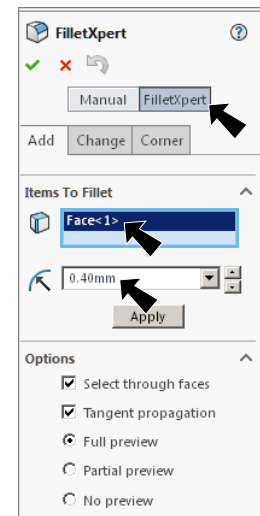
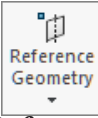


Fig. 13

F. Mate Reference.

Step 1. Click a **cylindrical face** to select it, Fig. 15.

Step 2. Click **Reference Geometry**  on the Features toolbar and **Mate Reference** from the menu.

Step 3. In the Mate Reference Property Manager click OK , Fig. 16.

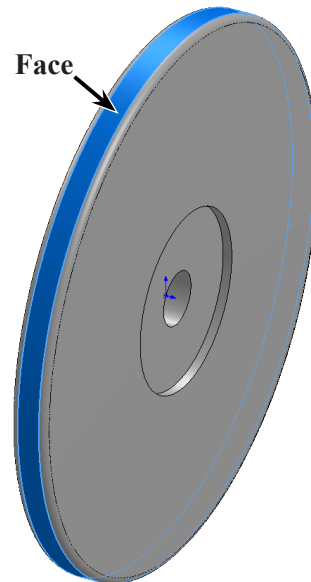


Fig. 15

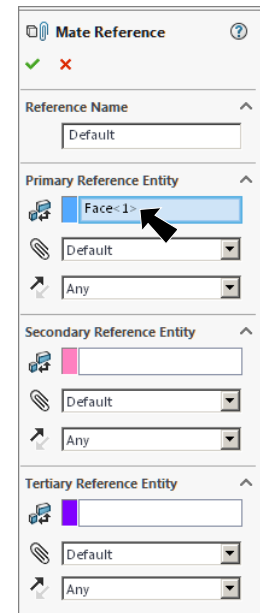


Fig. 16

G. Material POM Acetal Copolymer.

Step 1. **Right click Material**  in the Feature Manager and click **Edit Material**, Fig. 17.

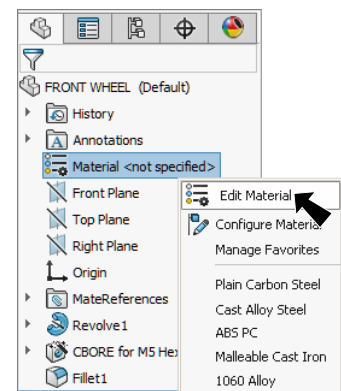


Fig. 17

Step 2. **Expand Plastics** in the material tree and select **POM Acetal Copolymer**, **Fig. 18**. Click **Apply** and **Close**.

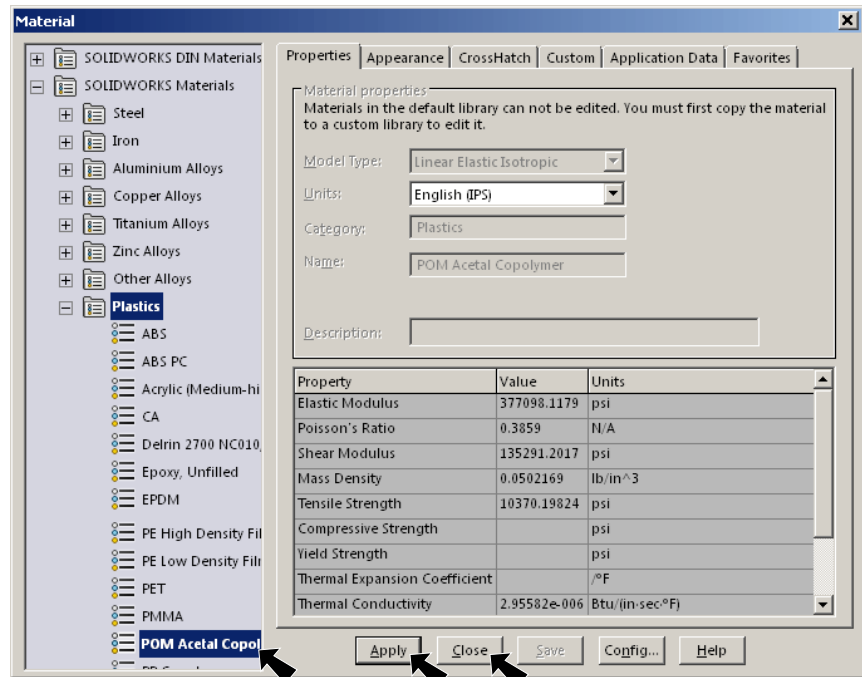


Fig. 18

H. Appearance.

Step 1. Click the Wheel to select the part, click **Appearances Call-out** on the context toolbar and click **FRONT W...**, **Fig. 19**.

Step 2. In the Appearances Task pane, expand **Plastic**, click **Clear Plastic** and in the lower pane select **polypropylene plastic**, **Fig. 20**.

Step 3. In the Appearances Property Manager under **Color**, **Fig. 21** click the **3rd yellow swatch** click **OK**.

Step 4. Save. Use **Ctrl-S**.

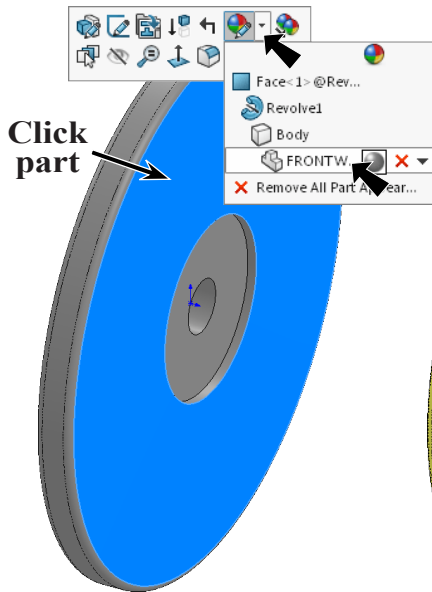


Fig. 19

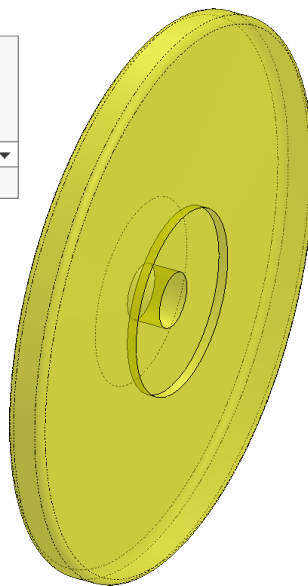


Fig. 22

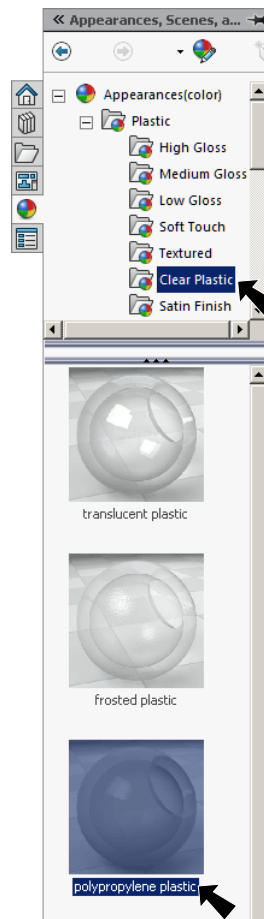


Fig. 20

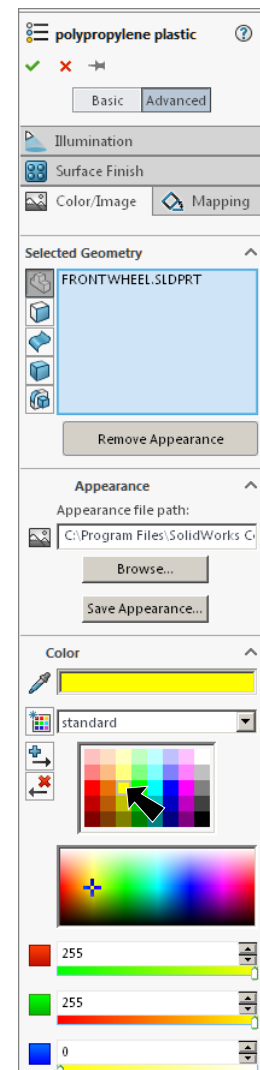


Fig. 21