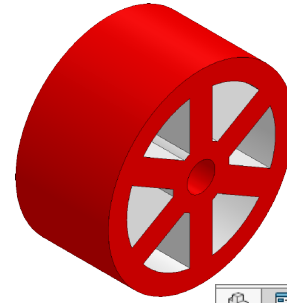




Simple Machines Wheel



A. Wheel.

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


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

Step 3. Click **Circle**  (S) on the Sketch toolbar.

Step 4. Sketch **two circles** starting at the Origin , **Fig. 2**.

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

Step 6. Dimension circle diameters, **Fig. 3**.

Step 7. Click **Features**  on the Command Manager toolbar.

Step 8. Click **Extruded Boss/Base**  on the Features toolbar.

Step 9. In the Property Manager set:
under Direction 1, **Fig. 4**

Depth  **.5**
click OK .

B. Save as "WHEEL".

Step 1. Click File Menu > Save As.

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

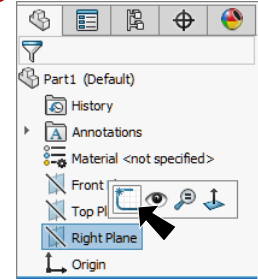


Fig. 1

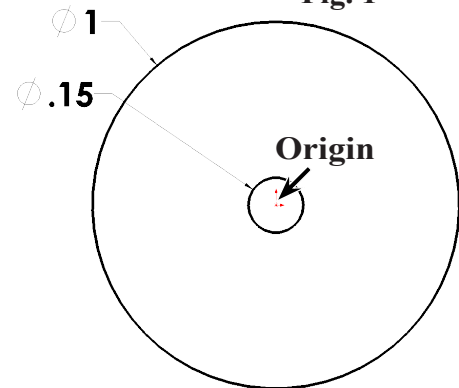


Fig. 2

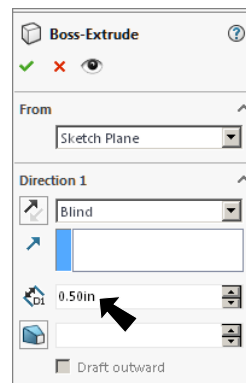


Fig. 3

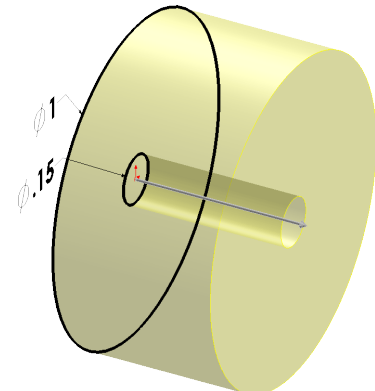



Fig. 4

C. Spokes.

Step 1. Click the **side face** and click **Sketch**  on the context toolbar, **Fig. 5**.



Step 2. Click **Normal To**  on the Standard Views toolbar. (**Ctrl-8**)

Step 3. Click **Circle**  (**S**) on the Sketch toolbar.

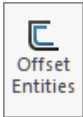
Step 4. Sketch **two circles** starting at the Origin , **Fig. 6**.

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

Step 6. Dimension circle diameters, **Fig. 6**.

Step 7. Click **Centerline**  in the **Line flyout**  on the Sketch toolbar.

Step 8. Sketch a vertical centerline from the Origin  **up to edge of Wheel**, **Fig. 7**.

Step 9. Click **Offset Entities**  on the Sketch toolbar.

Step 10. In the Offset Entities Property Manager set:
under Parameters, **Fig. 8**

Distance  **.06**
check **Bi-directional**
click **centerline**, **Fig. 9**.

The yellow offset should be on both sides of centerline.

Click **OK** .

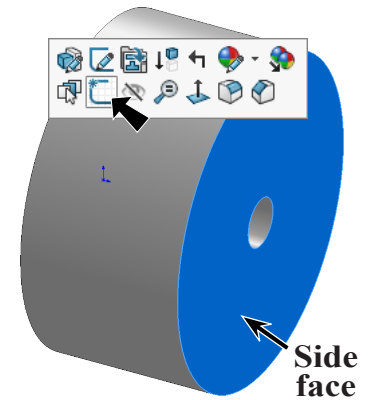


Fig. 5

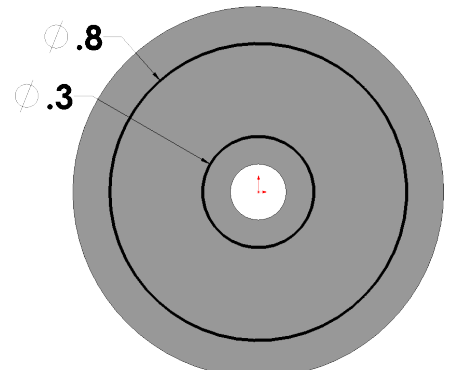


Fig. 6

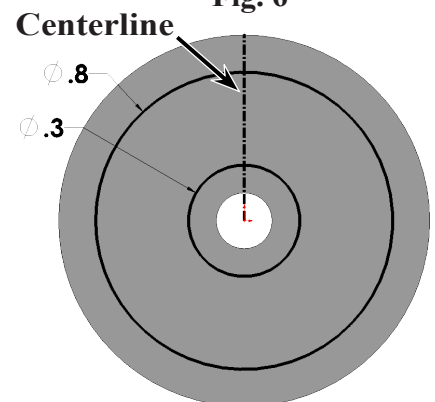


Fig. 7

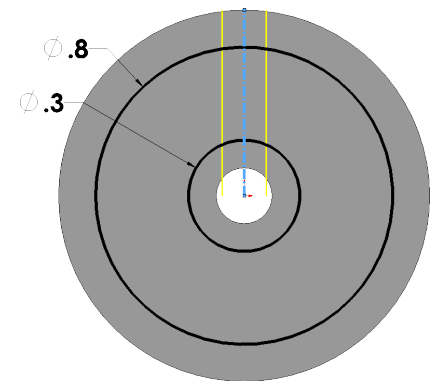


Fig. 9

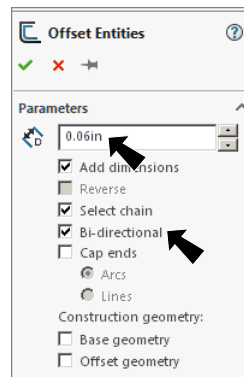



Fig. 8

Step 11. Click **Circular Sketch Pattern**  **Circular Sketch Pattern** in the **Linear Sketch Pattern** flyout on the Sketch toolbar.

Step 12. In the Circular Sketch Pattern Property Manager set:

under Entities to Pattern, **Fig. 10**
 click in Select Entities box
 click **both offset lines**, **Fig. 11**

under Parameters
 click in the Pattern Axis box
 click the **Origin (Point 1)**
 check **Equal spacing**

Number of Instances  **6**

click OK .

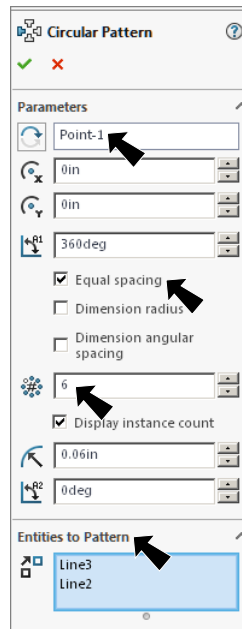


Fig. 10

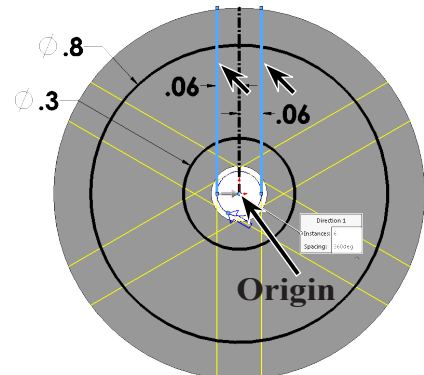


Fig. 11

D. Extruded Cut Spokes.

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

Step 2. Click **Extruded Cut**  on the Features toolbar.

Step 3. In the Cut-Extrude Property Manager set:

under Direction 1, **Fig. 12**
 End Condition **Through All**
 under Selected Contours
 click **each wedge shaped contour between spokes**,
Fig. 13

click OK .

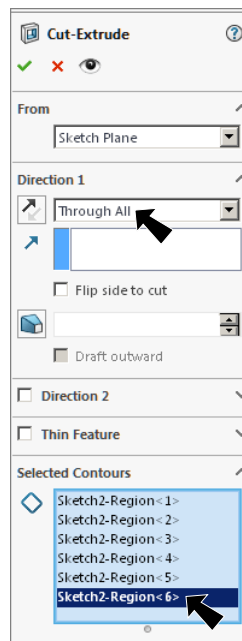


Fig. 12

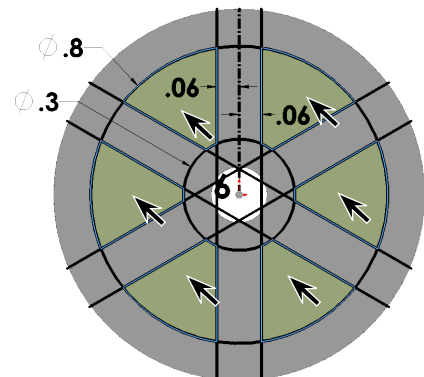


Fig. 13

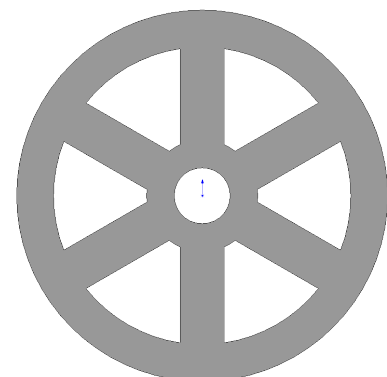
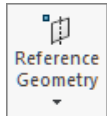


Fig. 14

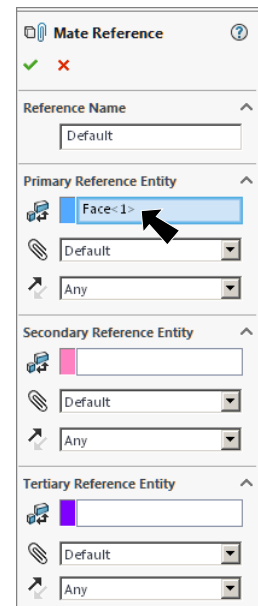
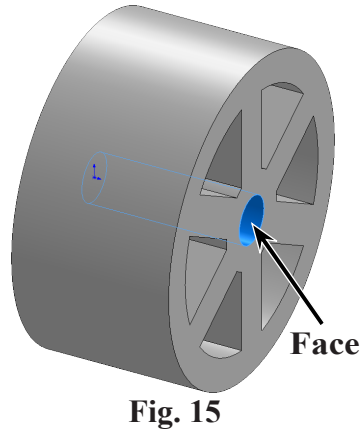
E. Mate Reference.

Step 1. Click **Trimetric**  on the Standard Views toolbar.


Step 2. Click the **inside cylindrical face of axle hole** to select it, **Fig. 15**.

Step 3. Click **Reference Geometry**  on the Features toolbar and **Mate Reference** from the menu.

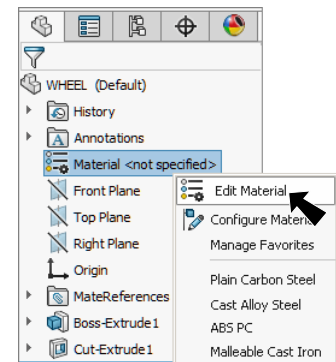
Step 4. In the Mate Reference Property Manager click OK , **Fig. 16**.



F. Material POM Acetal Copolymer.

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

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



G. Appearance.

Step 1. Click the part to select the part, click **Appearance Callout**



on the context toolbar and click **WHEEL** , Fig. 18.

Click part 

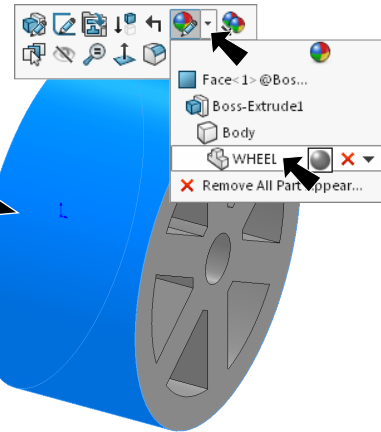



Fig. 18

Step 2. In the Appearances Property Manager

under Color, Fig. 19

click **red swatch**

click **Keep Visible**  and OK .

The Push Pin  on allows selection of another appearance.

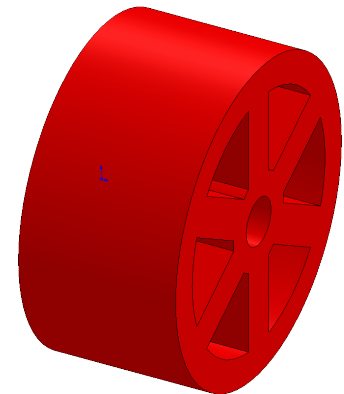


Fig. 20

Step 3. In the Appearances Property Manager, under Selected Geometry

click **Select Features** , Fig. 21

click **Extruded-cut between spokes**, Fig. 22

under Color:

click **white swatch**, Fig. 21.

click OK  and Cancel .

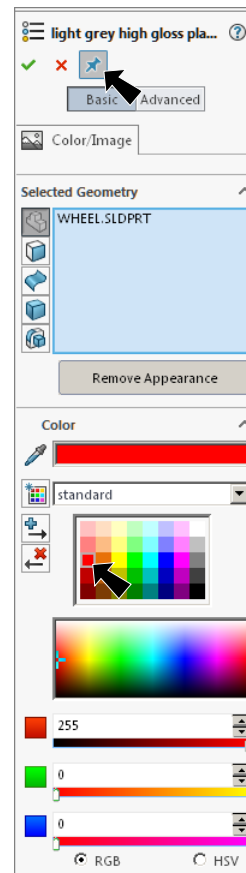


Fig. 19

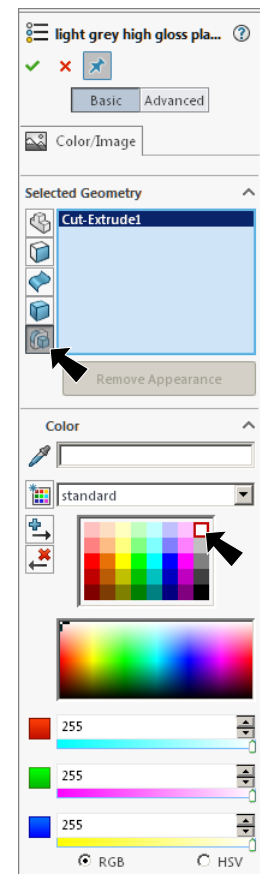


Fig. 21

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

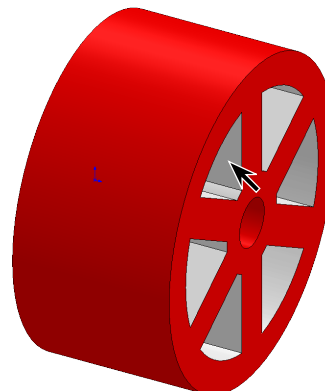


Fig. 22