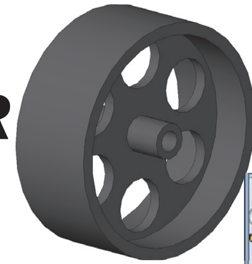
Chapter 6

CO2 Shell Car
Wheel GT-R



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 Content toolbar, **Fig. 1**.

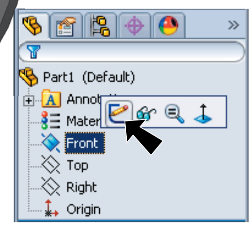


Fig. 1

Step 3. Click **Line** (L) on the Sketch toolbar.

Step 4. Starting at the Origin, draw lines shown in **Fig. 2**.

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

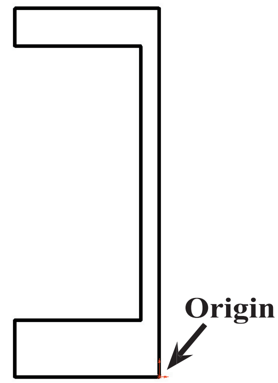


Fig. 2

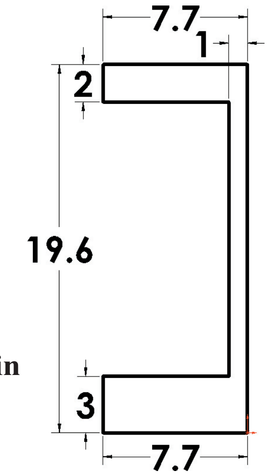


Fig. 3

Step 6. Dimension as shown in **Fig. 3**. Start dimensioning from smallest to largest dimension. Start with 1 and 2 then, work out to largest, do 19.6 last.

Step 7. Click **right vertical line** and click **Construction Geometry** on the Content menu, **Fig. 4**.

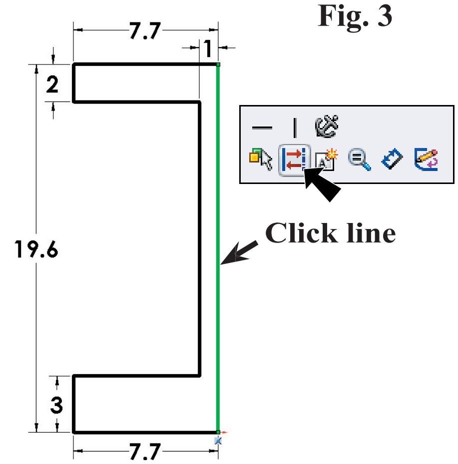


Fig. 4

Step 8. **Drag selection around the sketch** to select all entities (lines and dimensions), **Fig. 5**. To drag selection, click above and to left of sketch and drag down and to right to drag around all.

Step 9. Click **Mirror Entities** on the Sketch toolbar, **Fig. 6**.

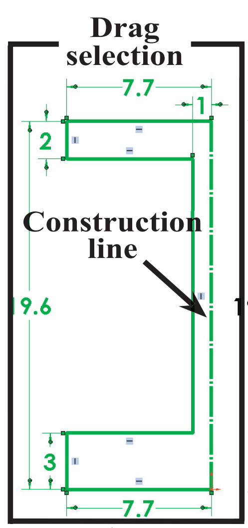


Fig. 5

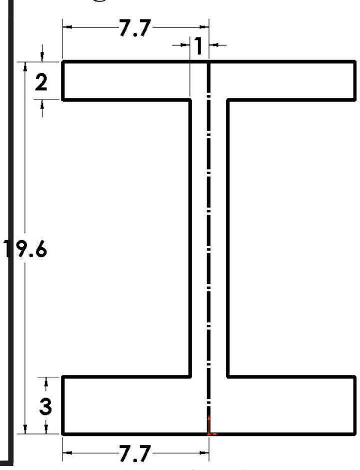


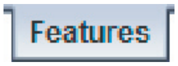
Fig. 6

B. Save as "WHEEL GT-R".

Step 1. Click File Menu > Save As.

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

C. Revolve.

Step 1. Click **Features** 

on the Command Manager toolbar.

Step 2. Click **Revolved Boss/Base** 

on the Features toolbar.

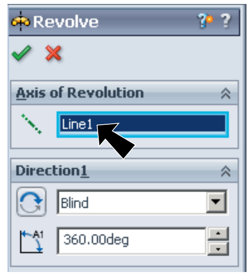


Fig. 7

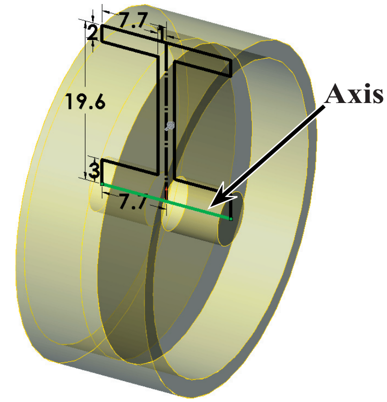


Fig. 8

Step 3. For **Axis** , **Fig. 7**, click the **bottom line of the sketch**, **Fig. 8**. Click OK .

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

D. Hole for Axle.

Step 1. Click the **side face of hub** and click **Sketch**  on the Content menu, **Fig. 9**.

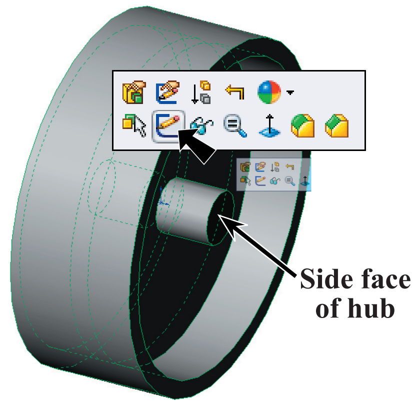
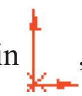


Fig. 9

Step 2. Click **Normal To**  on the Standard Views toolbar.

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

Step 4. Draw a circle for the hole starting at the Origin , **Fig. 10**.

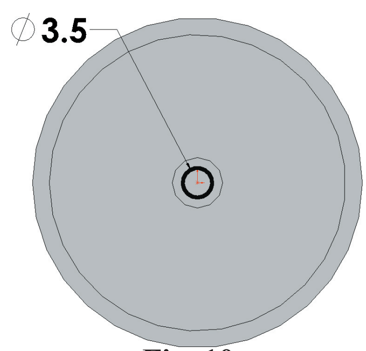
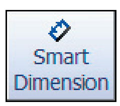
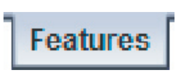


Fig. 10

Step 5. Click **Smart Dimension** 

(**S**) on the Sketch toolbar.

Step 6. Dimension the axle hole **3.5** as shown in **Fig. 10**.

Step 7. Click **Features** 

on the Command Manager toolbar.

Step 8. Click **Extruded Cut** 

on the Features toolbar.

Step 9. Click **Isometric**  on the Standard Views toolbar.

Step 10. Set **End Condition** to **Through All** in the Property Manager and click OK , **Fig. 11 and Fig. 12**.

Step 11. Save. Use **Ctrl-S**.

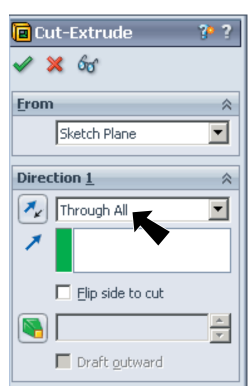


Fig. 11

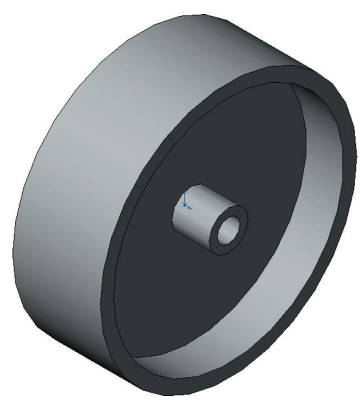


Fig. 12

E. Hole in Rim.

Step 1. Click the **side face of wheel** and click **Sketch** on the Content menu, **Fig. 13**.

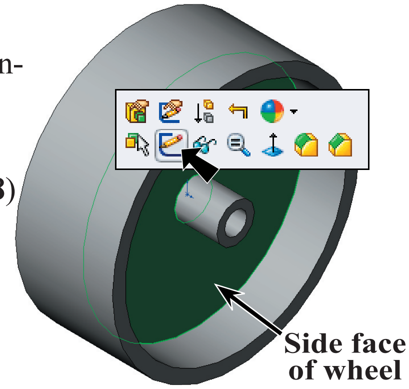


Fig. 13

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

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

Step 4. Draw a circle for the hole directly **above** the Origin, **Fig. 14**. Use the inferencing line, the dotted line that appears when you draw the circle.

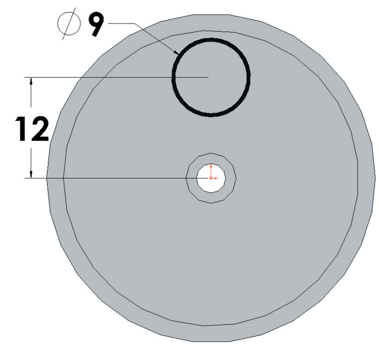


Fig. 14

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

Step 6. Dimension as shown in **Fig. 14**.

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

Step 8. Click **Extruded Cut** on the Features toolbar.

Step 9. Click **Dimetric** on the Standard Views toolbar.

Step 10. Set **End Condition** to **Through All** in the Property Manager and click OK, **Fig. 15** and **Fig. 16**.

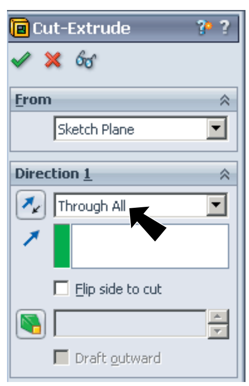


Fig. 15

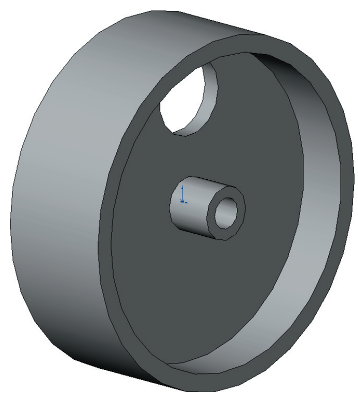


Fig. 16

F. Circular Pattern for Hole.

Step 1. Click View Menu > Temporary Axes. (**Alt V X**)

Step 2. Click **Cut-Extrude2** in the Feature Manager (left panel) to select the hole in the wheel, **Fig. 17**.

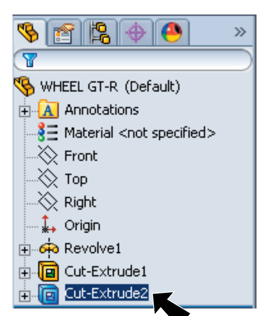


Fig. 17

Step 3. Click **Circular Pattern** in the **Linear Pattern flyout** on the Features toolbar. Be sure to click the **flyout arrow** to select Circular Pattern.

Step 4. In the Circular Pattern Property Manager set:
under Parameters

click in the **Pattern Axes**  box**, Fig. 19**
click **Temporary Axis** drawing, **Fig. 18**

Number of Instances  to **6**, **Fig. 19**
Check Equal spacing

under **Options**
Check Geometry pattern

click OK  in the Property Manager.

Step 5. Turn **off** Temporary Axes. Use View Menu > Temporary Axes. (**Alt V X**)

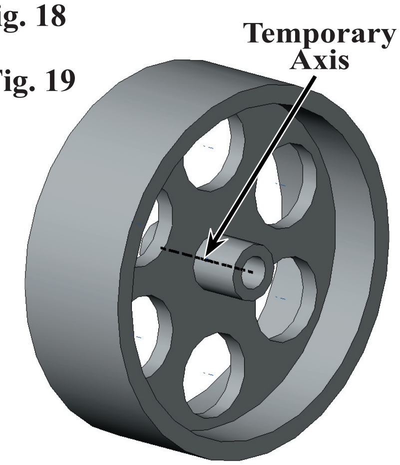


Fig. 18

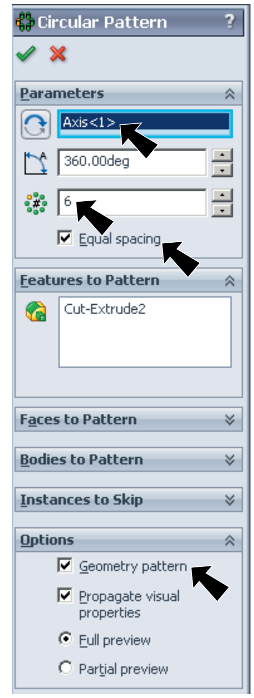
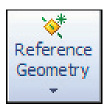


Fig. 19

G. Mate Reference.

Step 1. Click the **inside cylindrical face of axle hole** to select it, **Fig. 20**.

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. 21**.

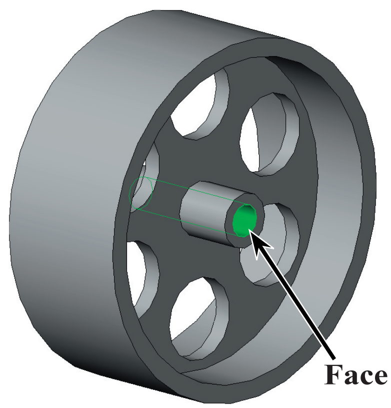


Fig. 20

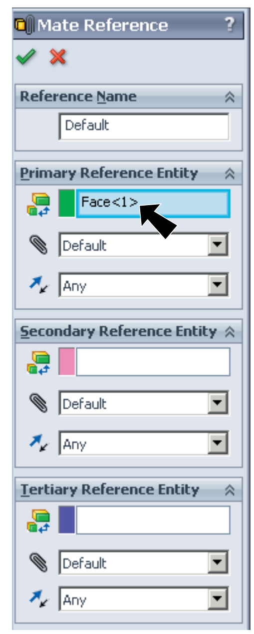


Fig. 21

H. Material POM Acetal Copolymer.

Step 1. **Right click Material** in the Feature Manager and click **Edit Material**, **Fig. 22**.

Step 2. **Expand Plastics** in the material tree and select **POM Acetal Copolymer**, **Fig. 23**. Click **Apply** and **Close**.

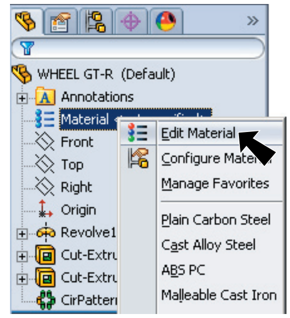


Fig. 22

I. Appearance Dark Gray.

Step 1. Click the part, click **Appearance Callout** on the Content menu and click **WHEEL GT-R**, **Fig. 24**.

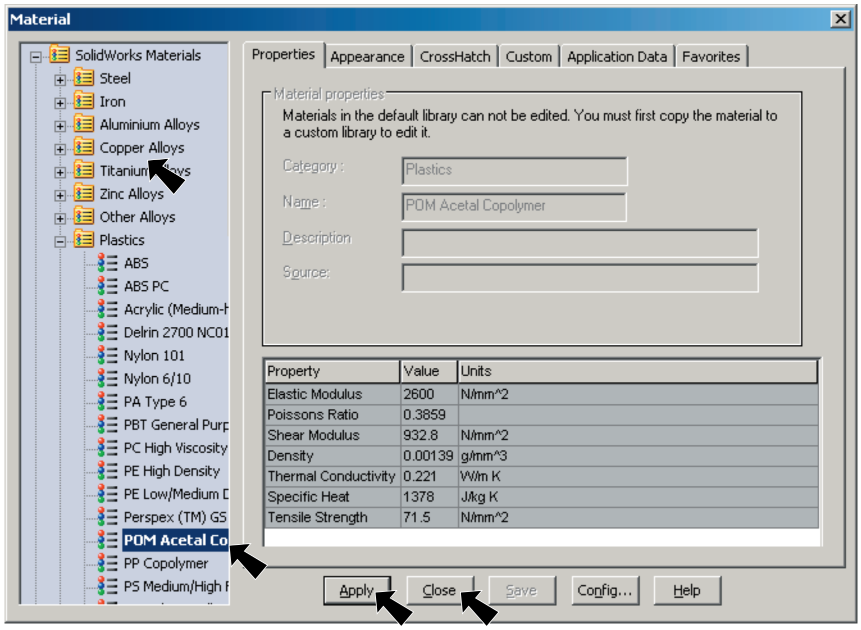
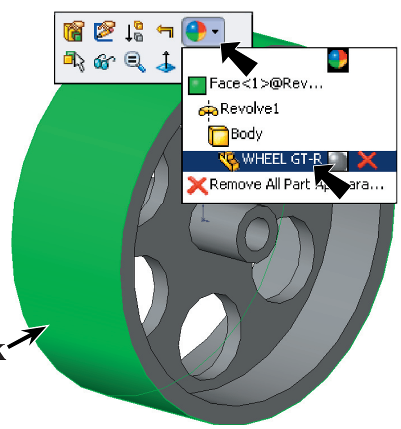


Fig. 23

Step 2. In the Appearances Task Pane, expand **Plastic** and click **High Gloss**, **Fig. 25**.

Step 3. In the lower pane click **dark gray high gloss plastic**, **Fig. 25** and click OK in the Property Manager.

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



Click part

Fig. 24

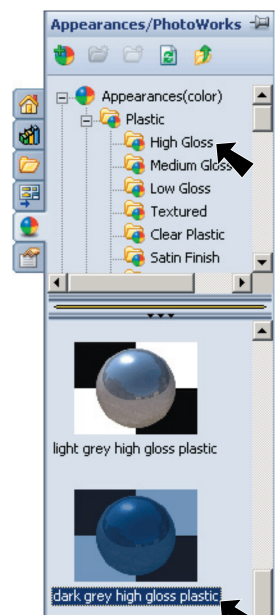


Fig. 25