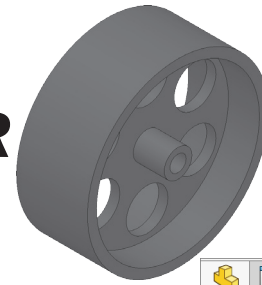




Chapter 4

CO2 Shell Car Wheel GT-R



A. Sketch.

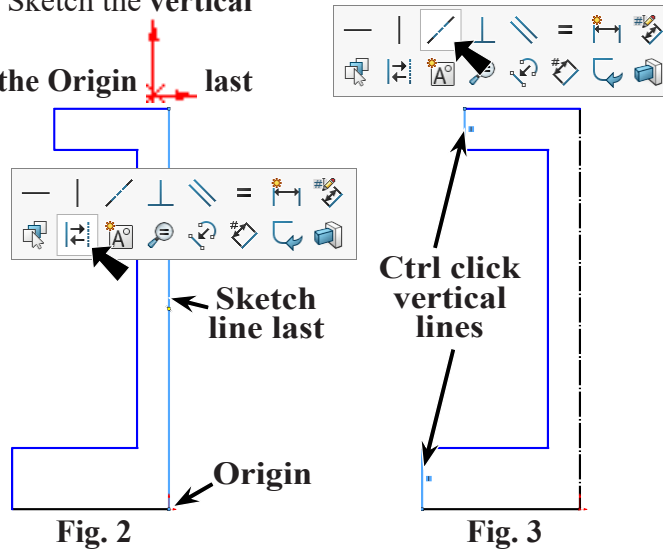
Step 1. Click File Menu > New, click **Part Metric** and OK.

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

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

Step 4. Sketch lines, **Fig. 2**. Sketch the **vertical**

centerline up from the Origin  **last** and before moving cursor ways from line select **Construction Geometry**  on context toolbar.



Ctrl click vertical lines

Step 5. **Ctrl click both short vertical lines** to select both. Release Ctrl key and click **Make Collinear**  on the context toolbar, **Fig. 3**.

Fig. 2

Fig. 3

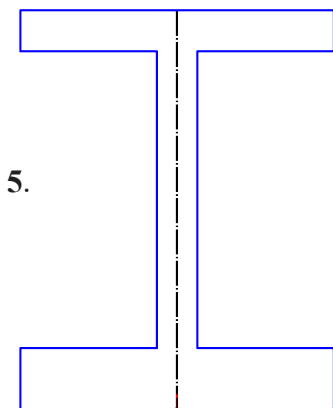
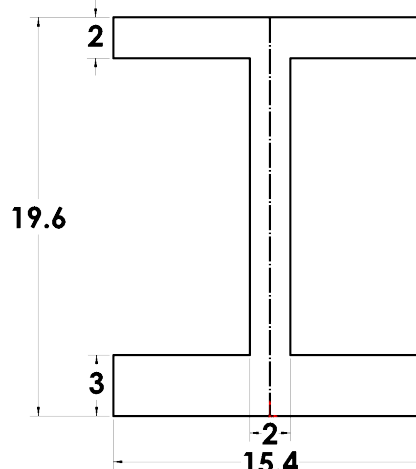
Fig. 4

Step 6. **Drag selection around the sketch** to select all lines, **Fig. 4**.

Step 7. Click **Mirror Entities**  **Mirror Entities** on the Sketch toolbar, **Fig. 5**.

Step 8. Click **Smart Dimension**  (S) on the Sketch toolbar.

Step 9. Add dimensions, **Fig. 6**.

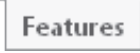


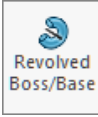
B. Save as "WHEEL GT-R".

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.

Step 3. In the Revolve Property Manger:

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

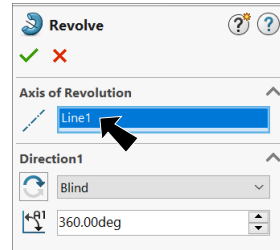


Fig. 7

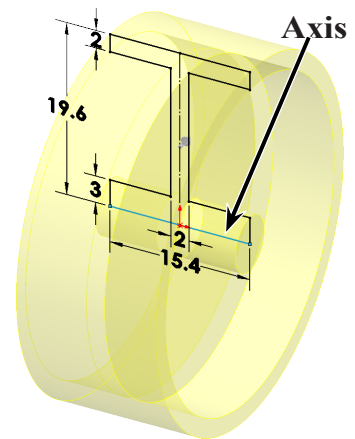


Fig. 8

D. Hole for Axle.

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

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

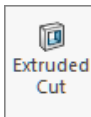
Step 3. Click **Circle**  (S) on the Sketch toolbar.

Step 4. Sketch a circle for the hole at Origin , Fig. 10.

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

Step 6. Dimension axle hole **diameter 3.5**, Fig. 10.

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

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

Step 9. In the Cut-Extrude Property Manager:
under Direction 1, Fig. 11
End Condition **Through All**
click OK .

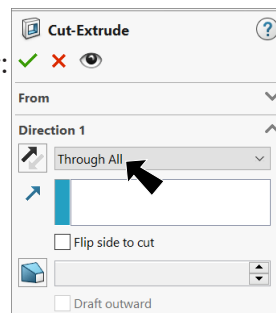


Fig. 11

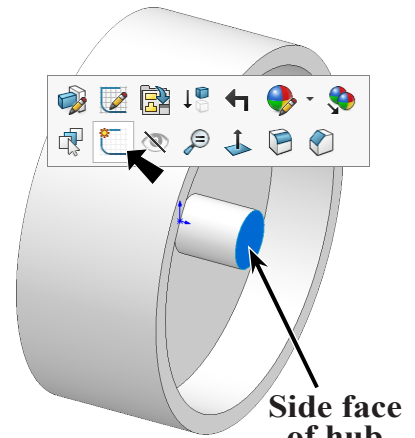


Fig. 9

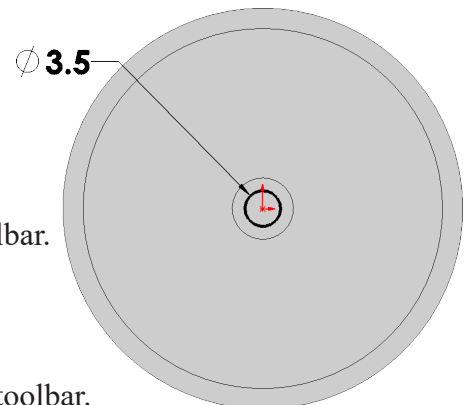


Fig. 10

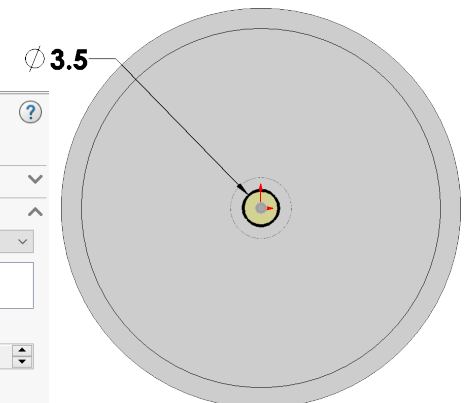


Fig. 12

E. Hole in Rim.

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

Step 2. Click **Circle**  (S) on the Sketch toolbar.

Side face of wheel 

Step 3. Sketch a circle for the hole above the Origin , **Fig. 14**.

Step 4. **Unselect Circle tool**. To unselect, **right click graphics area** and click **Select**  from menu.

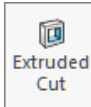
Step 5. **Ctrl click centerpoint of circle and Origin**  to select both. Release Ctrl key and click **Make Vertical**  on the context toolbar, **Fig. 15**.

Ctrl click centerpoint and Origin 

Step 6. Click **Smart Dimension**  (S) on the Sketch toolbar.

Step 7. Add dimensions, **Fig. 16**.

Step 8. Click **Features**  on the Command Manager toolbar.

Step 9. Click **Extruded Cut**  on the Features toolbar.

Step 10. In the Cut-Extrude Property Manager set:
under Direction 1, **Fig. 17**
End Condition **Through All**
click OK .

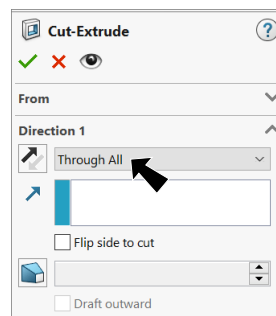


Fig. 17

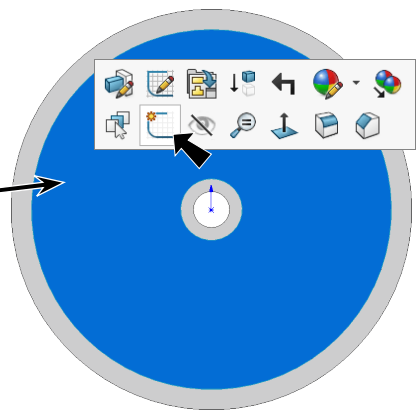


Fig. 13

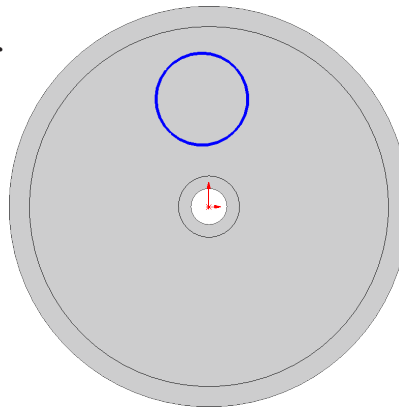


Fig. 14

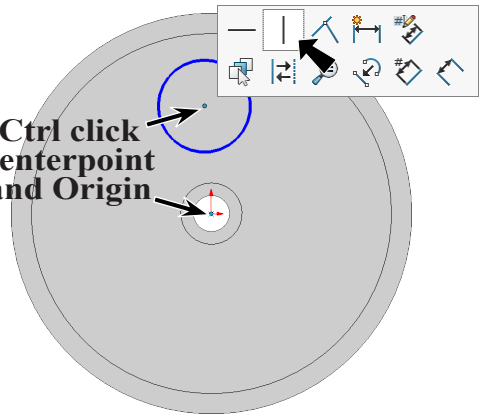


Fig. 15

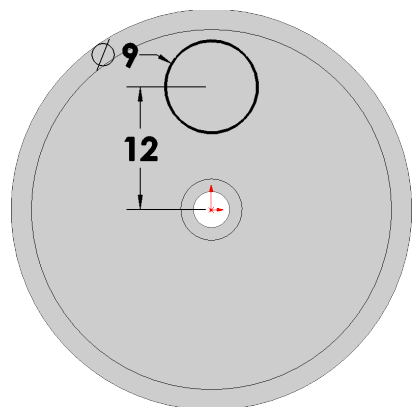


Fig. 16

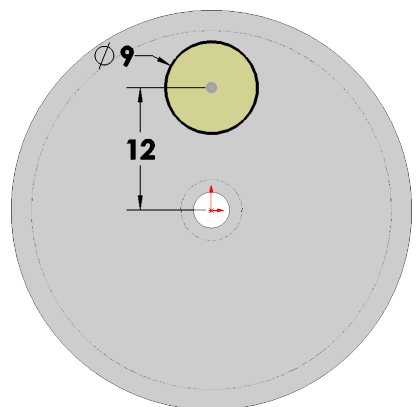
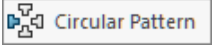


Fig. 18

F. Circular Pattern for Hole.

Step 1. Click **Isometric**  on the Standard Views toolbar. (Ctrl-7)

Step 2. Click **Circular Pattern**  in the **Linear Pattern** flyout  on the Features toolbar.

Step 3. In the Circular Pattern Property Manager set:
 under Features and Faces, **Fig. 19**
 click **Cut-Extrude2** in graphics area, **Fig. 20**
 under Direction 1
 click in **Pattern Axes** box
 click **cylindrical face of hub**, **Fig. 20**
 Number of Instances  6
 check **Equal spacing**
 click OK  . **Cut-Extrude2**

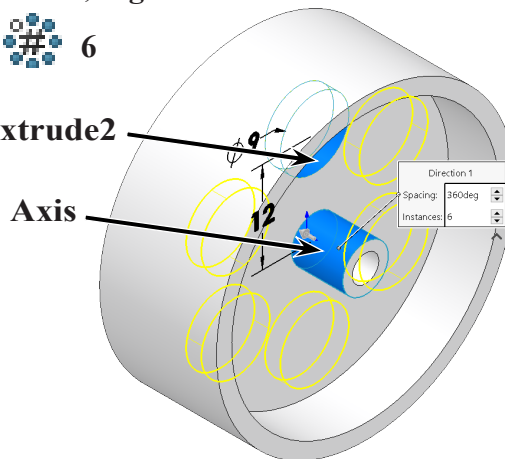


Fig. 20

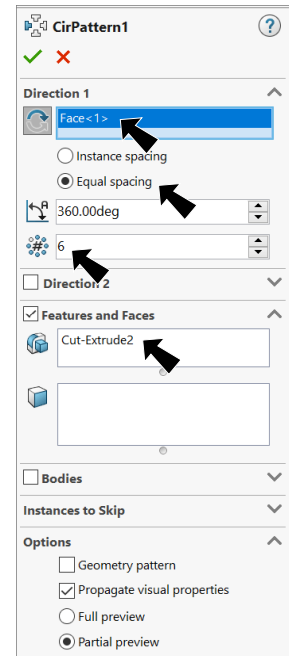
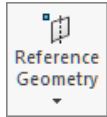


Fig. 19

G. Mate Reference.

Step 1. Click the **cylindrical face of axle hole** to select it, **Fig. 21**.

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

Step 3. In the Mate Reference Property Manager click OK  , **Fig. 22**.

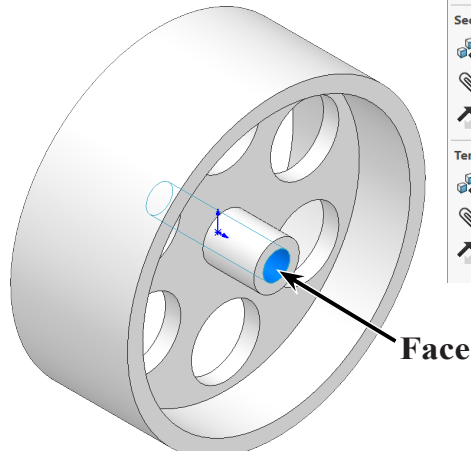


Fig. 21

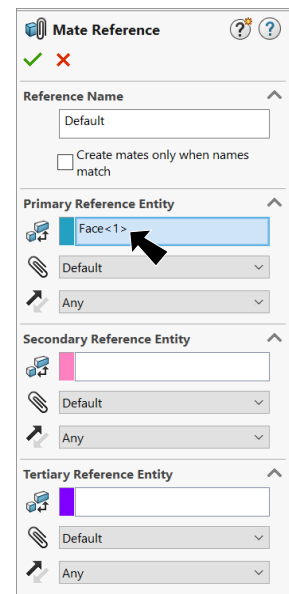


Fig. 22

H. Material POM Acetal Copolymer.

Step 1. Right click **Material** in the Feature Manager and click **Edit Material**, Fig. 23.

Step 2. Expand **Plastics** in the material tree and select **POM Acetal Copolymer**, Fig. 24. Click **Apply** and **Close**.

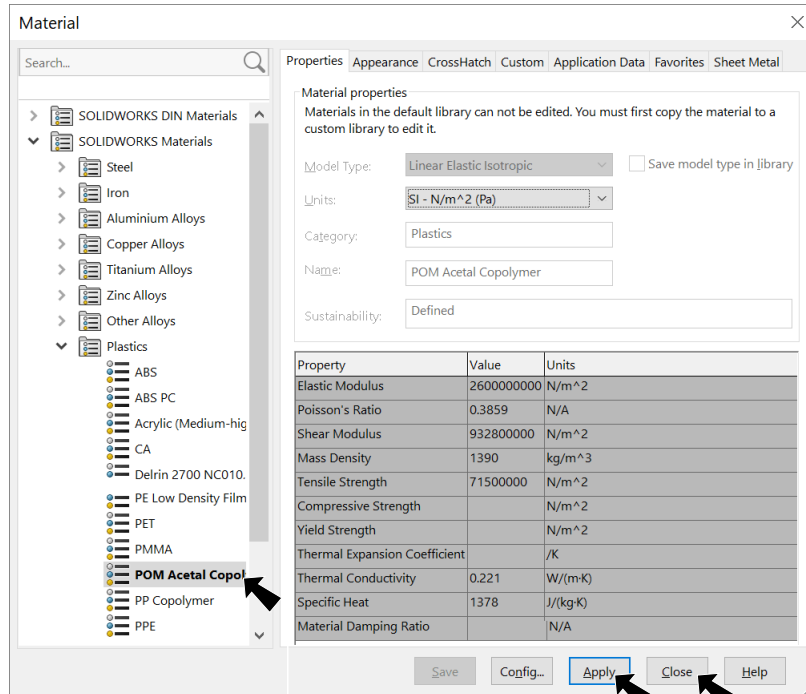


Fig. 24

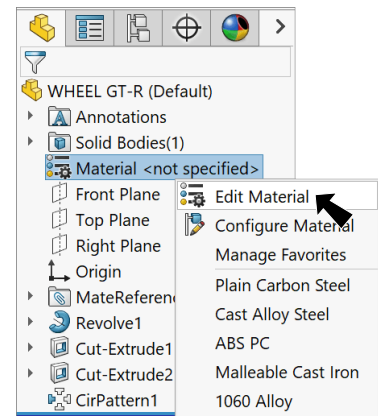


Fig. 23

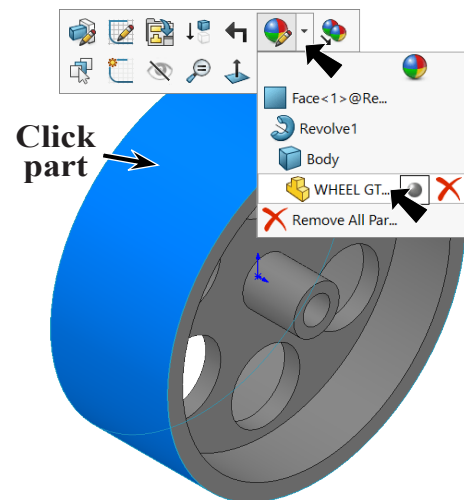


Fig. 25

I. Appearance Dark Gray.

Step 1. Click the part, click **Appearance Callout** on the context toolbar and click **WHEEL GT-R**, Fig. 25.

Step 2. In the Appearances Task Pane expand **Plastic**, click **High Gloss** and in the lower pane click **dark grey high gloss plastic**, Fig. 26.

Step 3. Click OK in the Property Manager.

Step 4. Save (Ctrl-S).

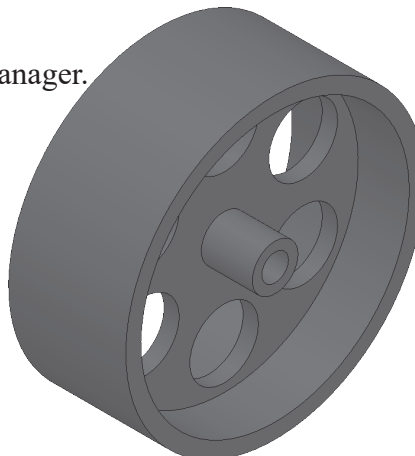


Fig. 27

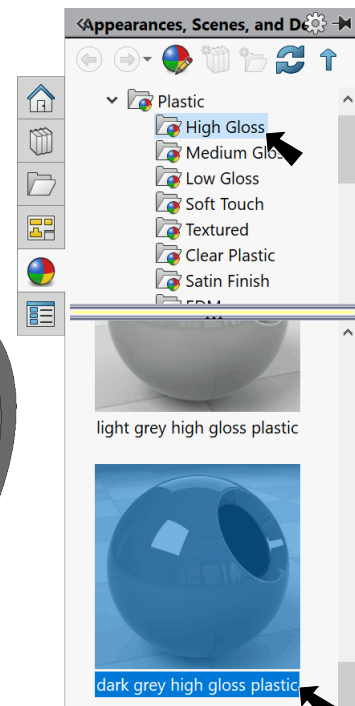


Fig. 25