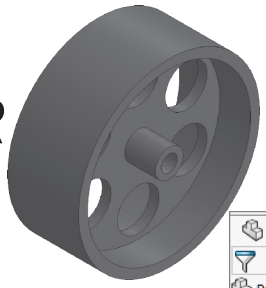
CO2 Shell Car
Wheel GT-R



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**.

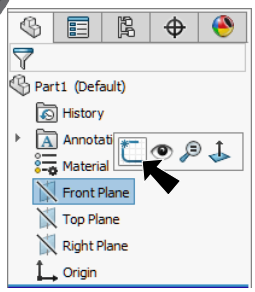


Fig. 1

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.

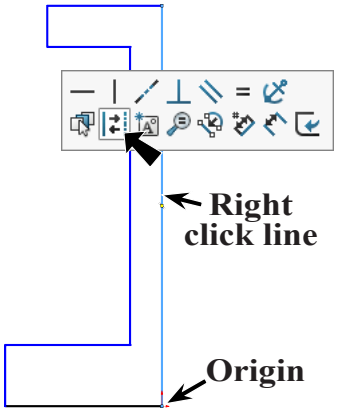


Fig. 2

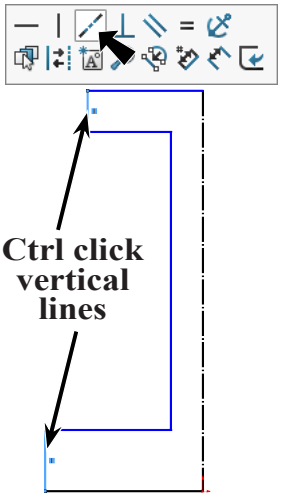


Fig. 3

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

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

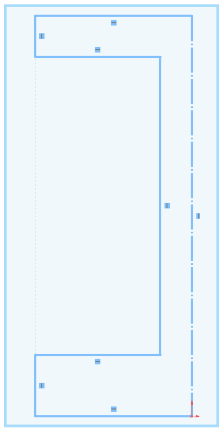


Fig. 4

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

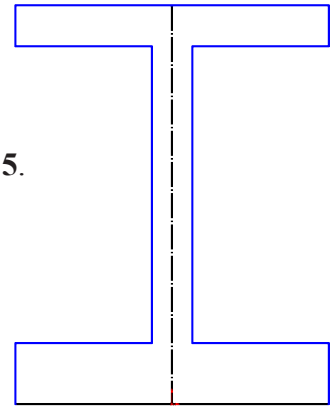


Fig. 5

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

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

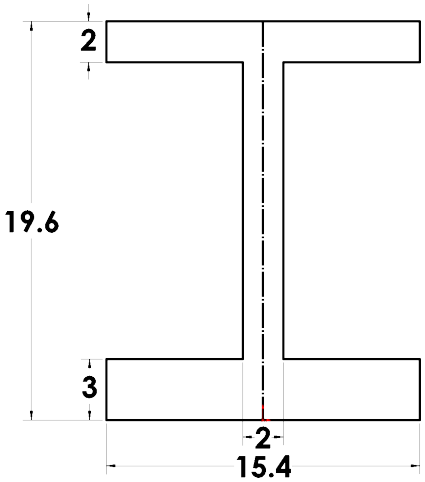


Fig. 6

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.

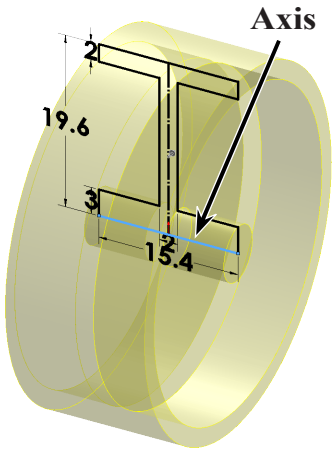


Fig. 8

C. Revolve.

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

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

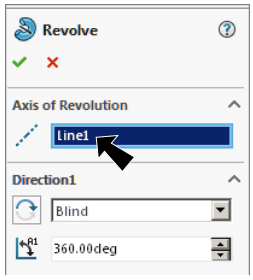


Fig. 6

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. Draw 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** Features on the Command Manager toolbar.

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

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

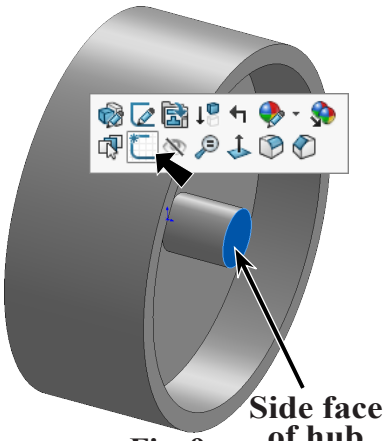


Fig. 9

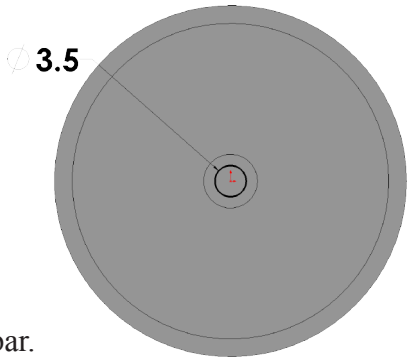


Fig. 10

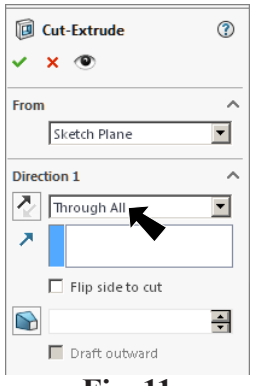


Fig. 11

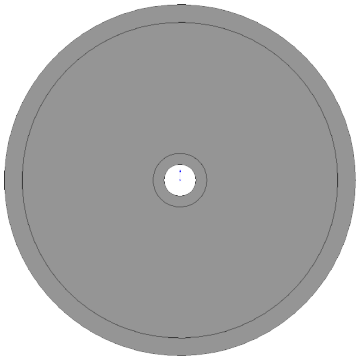


Fig. 12

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.

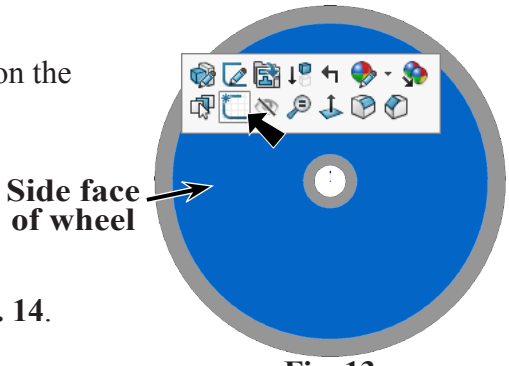


Fig. 13

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

Step 4. **Right click graphics area and click Select** from menu to unselect Circle tool.

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**.

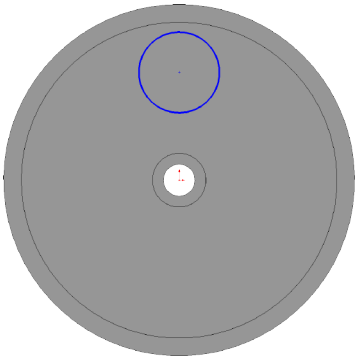


Fig. 14

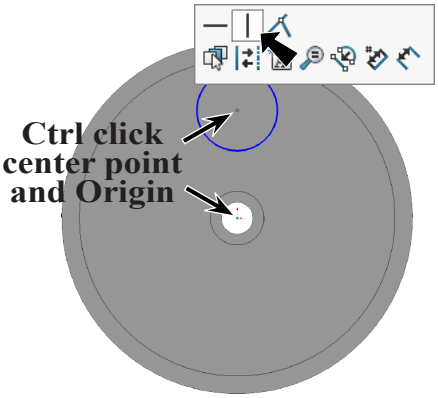


Fig. 15

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

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

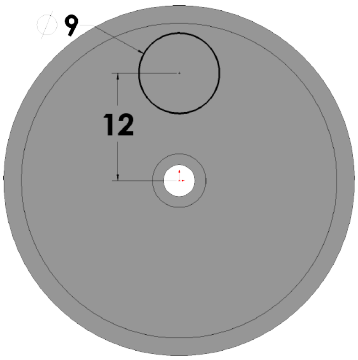


Fig. 16

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 .

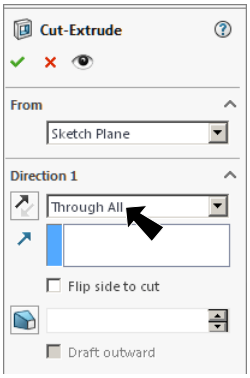


Fig. 17

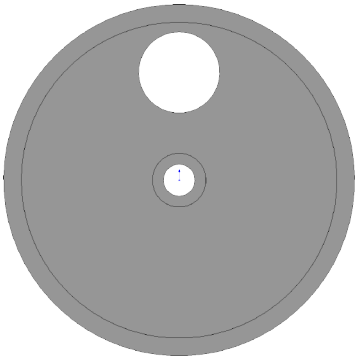


Fig. 18

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 Parameters
click in **Pattern Axes** box
click **cylindrical face of hub**, **Fig. 20**
Number of Instances **6**
check **Equal spacing**

under Options
check **Geometry pattern**
click OK .

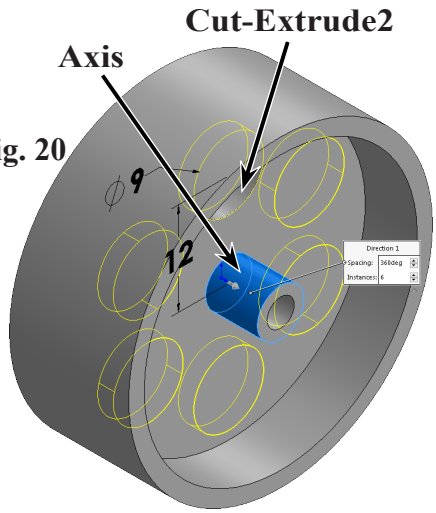


Fig. 20

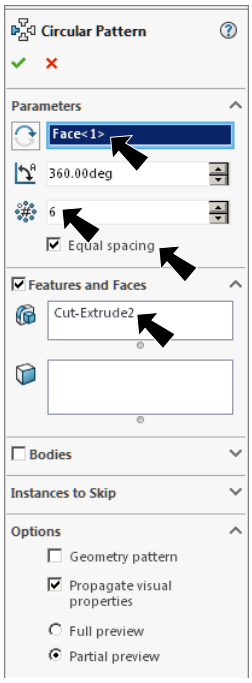


Fig. 19

G. Mate Reference.

Step 1. Click the **inside 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**.

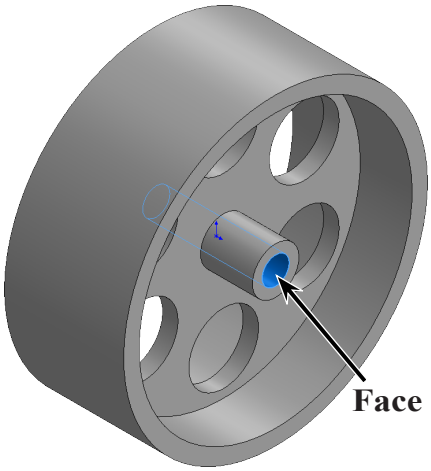


Fig. 21

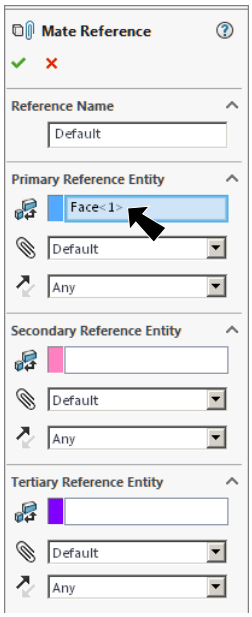


Fig. 22

H. Material POM Acetal Copolymer.

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

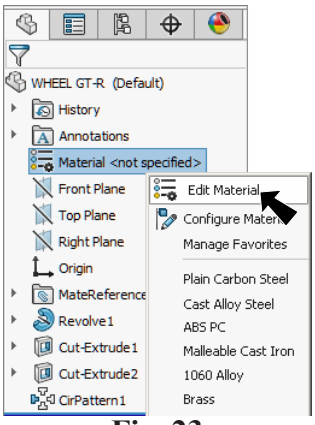


Fig. 23

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

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 gray high gloss plastic**, **Fig. 26.**

Step 3. Click OK in the Property Manager.

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

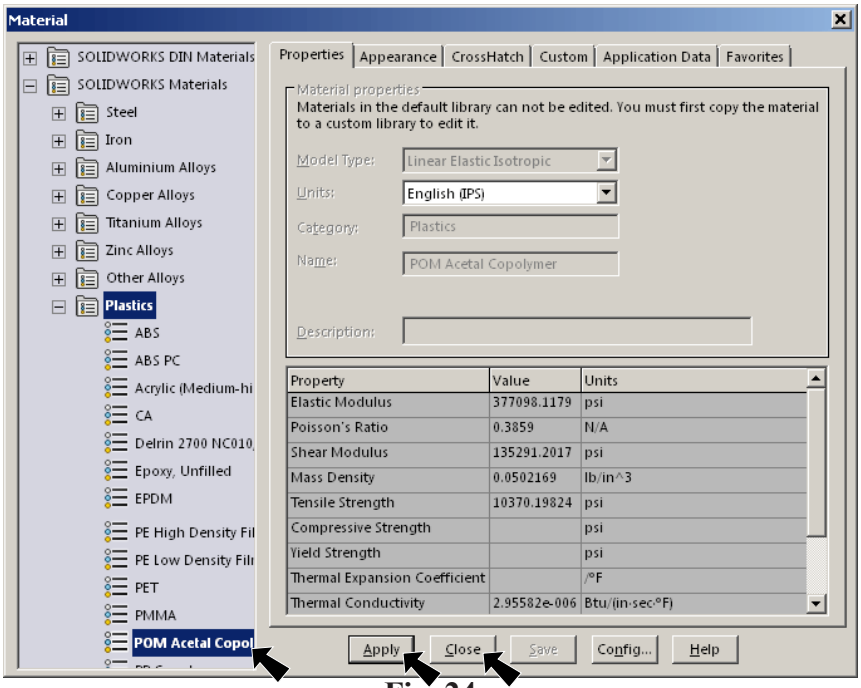


Fig. 24

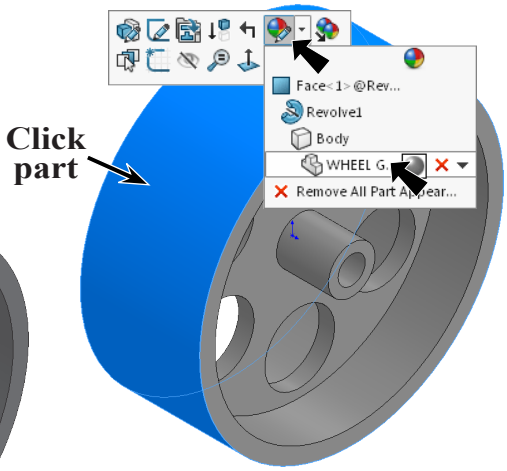


Fig. 25

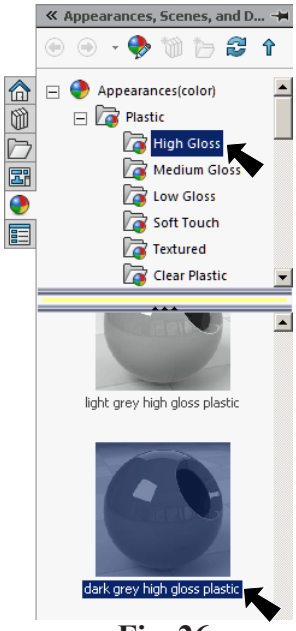


Fig. 26

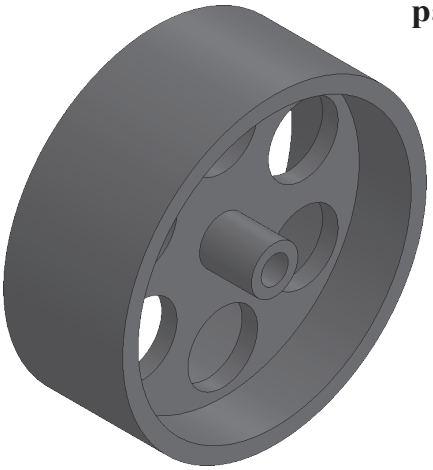


Fig. 27