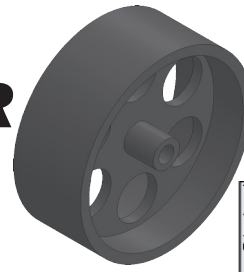




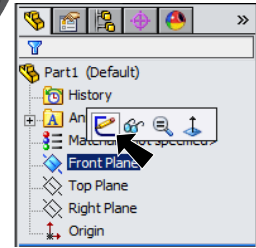
# CO2 Shell Car Wheel GT-R




## 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 Context toolbar, **Fig. 1**.



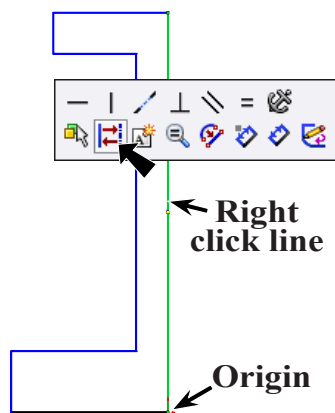
**Fig. 1**

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

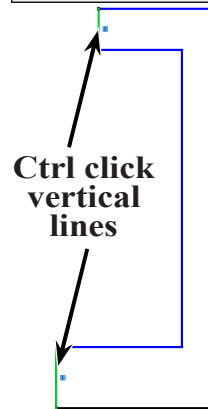
Step 4. Sketch lines, **Fig. 2**. Sketch the vertical centerline up from

the Origin  last and before moving cursor ways from line select **Construction**

**Geometry**  on Context toolbar.

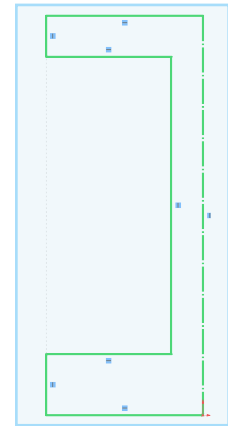


**Fig. 2**




**Fig. 3**

**Drag selection**




**Fig. 4**

Step 5. **Ctrl click both short vertical lines**

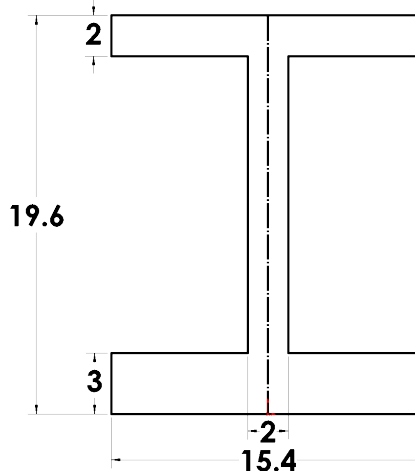
to select both. Release Ctrl key and click **Make Collinear**  on the Context toolbar, **Fig. 3**.

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

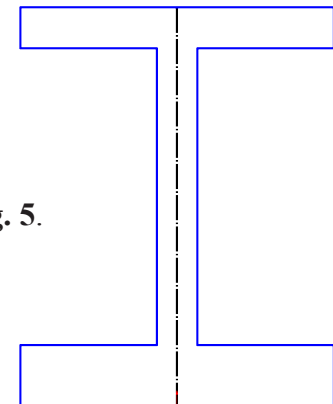
Step 7. Click **Mirror Entities**  **Mirror Entities** on the Sketch toolbar, **Fig. 5**.

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

Step 9. Add dimensions, **Fig. 6**. Dimension **double distance** the 2 and 15.5 last. To double distance dimension, click centerline and outside vertical line, move the cursor below and click. Key-in 15.4 in the Modify box and press ENTER. Double distance 2 dimension.



**Fig. 6**



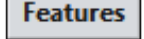
**Fig. 5**

## 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 .

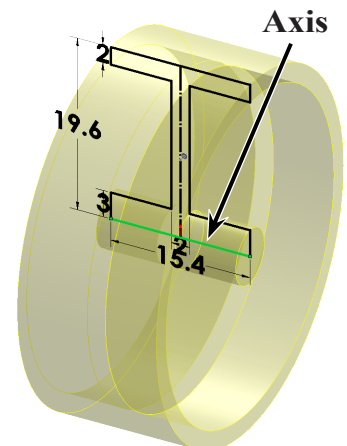


Fig. 8

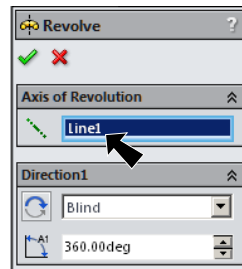




Fig. 7

## D. Hole for Axle.

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

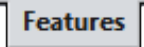
Step 2. Click **Normal To**  on the Standard Views toolbar. (**Ctrl-8**)

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**  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 .

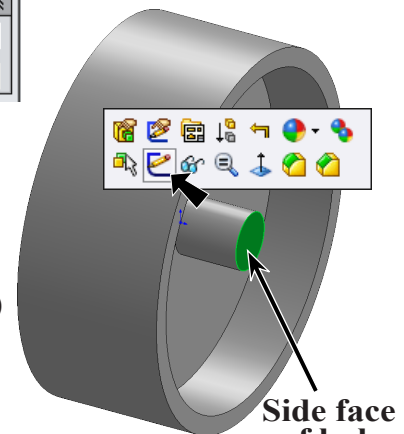


Fig. 9

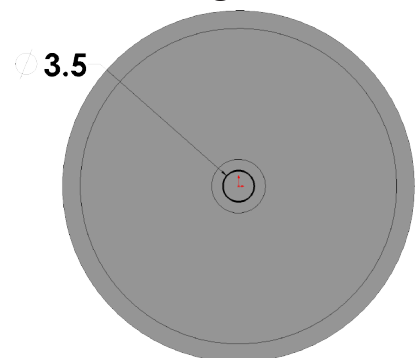


Fig. 10

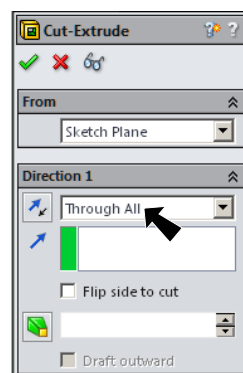


Fig. 11

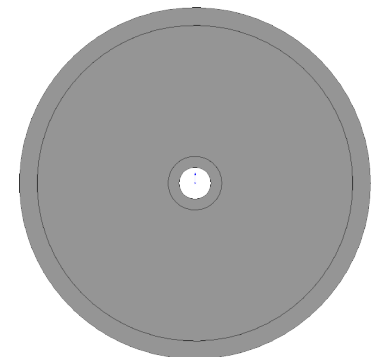





Fig. 12

## E. Hole in Rim.

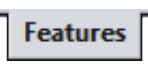
Step 1. Click the **side face of wheel** and click **Sketch**  on the Context toolbar, **Fig. 13**.


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


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

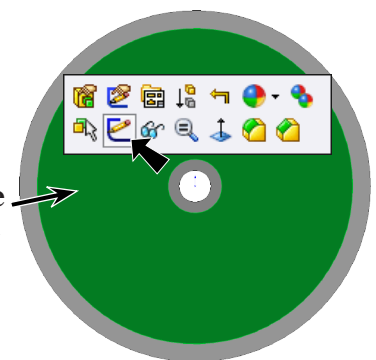
Step 4. Click **Smart Dimension**  (S) on the Sketch toolbar.

Step 5. Add dimensions, **Fig. 14**.

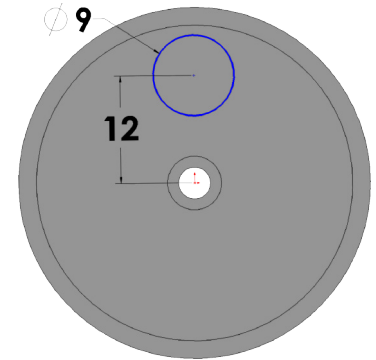
Step 6. Click **Features**  on the Command Manager toolbar.

Step 7. Click **Extruded Cut**  on the Features toolbar.

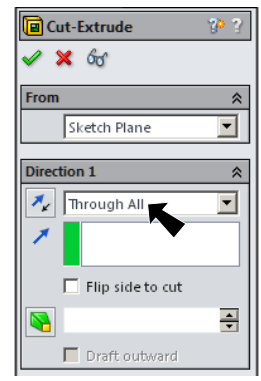
Step 8. In the Cut-Extrude Property Manager set:  
 under Direction 1, **Fig. 15**  
 End Condition **Through All**  
 click OK .



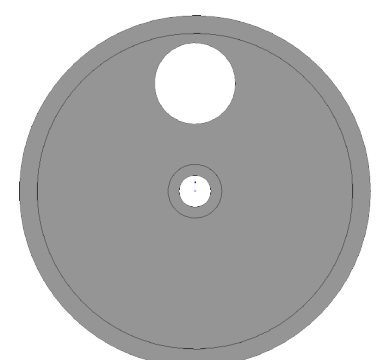
**Fig. 13**



**Fig. 14**






**Fig. 15**



**Fig. 16**

## F. Circular Pattern for Hole.

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

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

Step 3. In the Circular Pattern Property Manager set:  
 under Features and Faces, **Fig. 17**  
 click **Cut-Extrude2** in graphics area, **Fig. 18**

under Parameters

click in **Pattern Axes**  box  
 click **cylindrical face of hub**, **Fig. 18**

**Number of Instances**  **6**  
 check **Equal spacing**

under Options

check **Geometry pattern**

click OK .

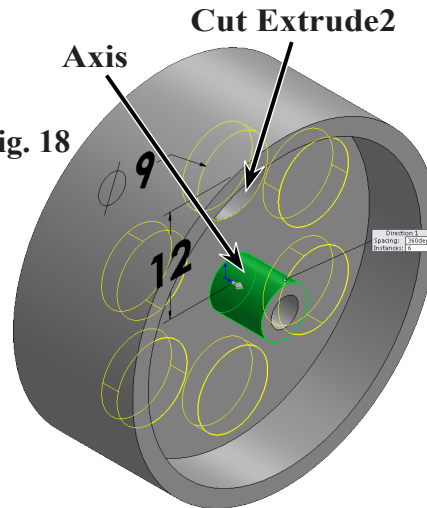


Fig. 18

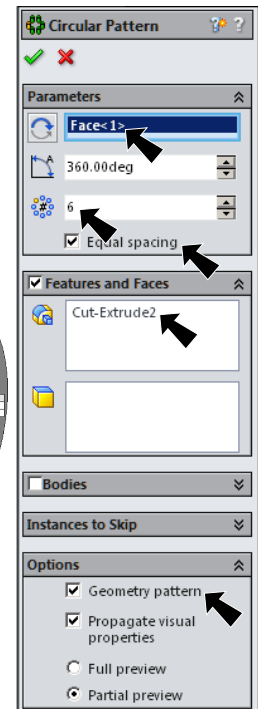
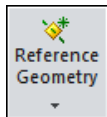



Fig. 17

## G. Mate Reference.

Step 1. Click the **inside cylindrical face of axle hole** to select it, **Fig. 19**.

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. 20**.

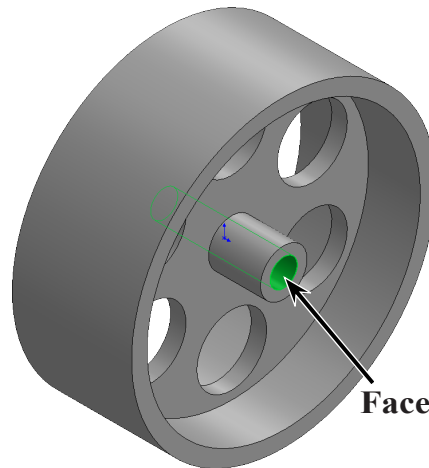


Fig. 19

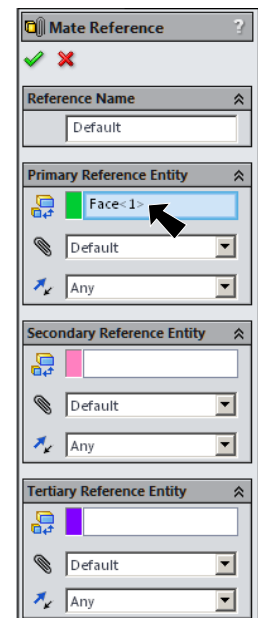



Fig. 20

## H. Material POM Acetal Copolymer.

Step 1. Right click Material  in the Feature Manager and click Edit Material, Fig. 21.

Step 2. Expand Plastics in the material tree and select POM Acetal Copolymer, Fig. 22. Click Apply and Close.

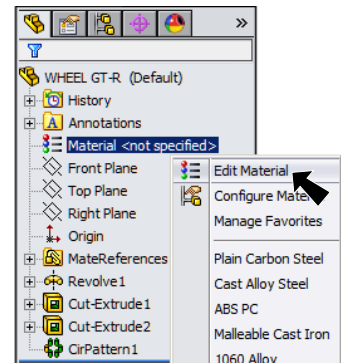



Fig. 21

## I. Appearance Dark Gray.

Step 1. Click the part, click Appearance Callout  on the Con-

text toolbar and click WHEEL GT-R ,

Step 2. In the Appearances Task Pane, expand Plastic and click High Gloss, Fig. 24.

Step 3. In the lower pane click dark grey high gloss plastic, Fig. 24 and click OK  in the Property Manager.

Step 4. Save. Use Ctrl-S.

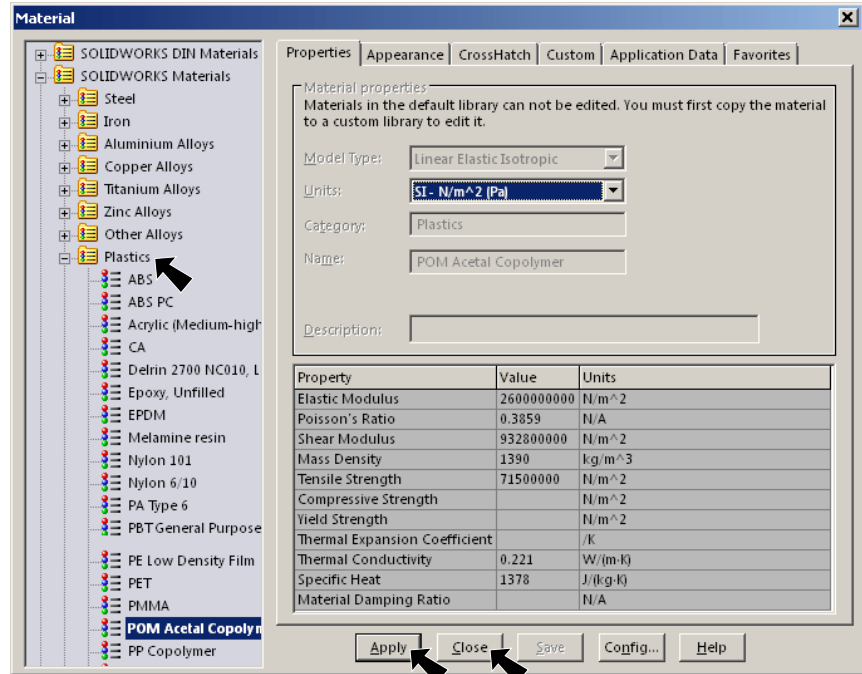


Fig. 22

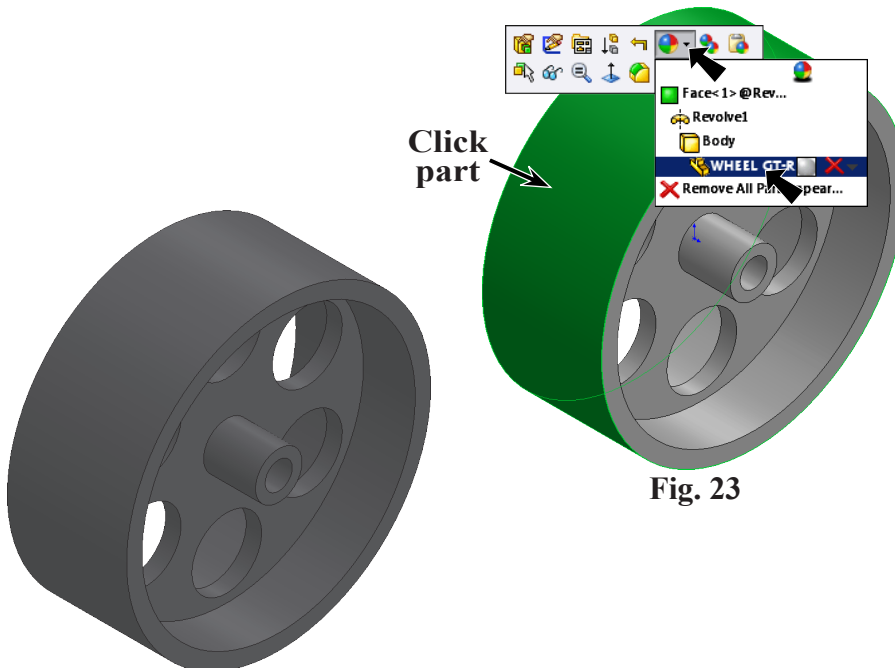


Fig. 25

Fig. 23

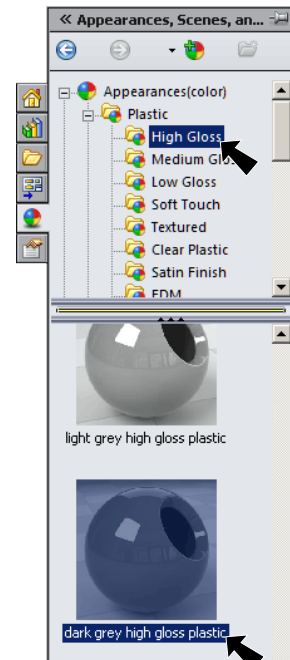


Fig. 24