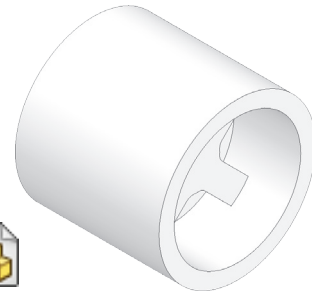




E's Small Car Rim



A. Extrude1.

Step 1. Click **New**  on the Standard toolbar, click **Part Metric**  and OK.

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

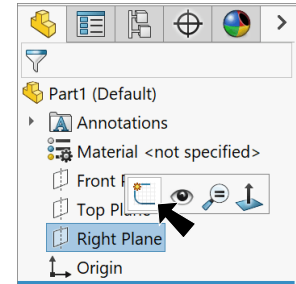


Fig. 1

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

Step 4. Sketch circle at **Origin** , **Fig. 2**.

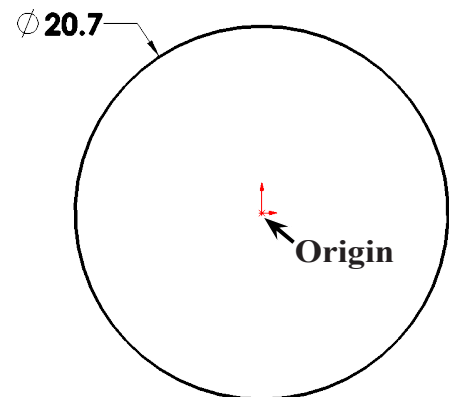





Fig. 2

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

Step 6. Dimension **diameter 20.7**, **Fig. 2**.

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. 3**
 End Condition **Mid Plane**
Depth  **19**
 click **OK** .

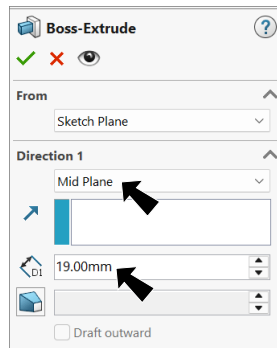


Fig. 3

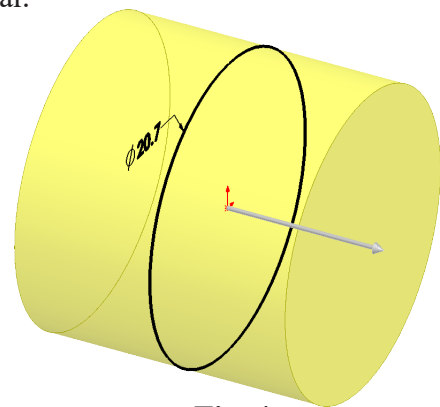



Fig. 4

B. Save as "RIM".

Step 1. Click File Menu > Save As.

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

C. Extruded Cut1 Sketch2 Cut Spoke.

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

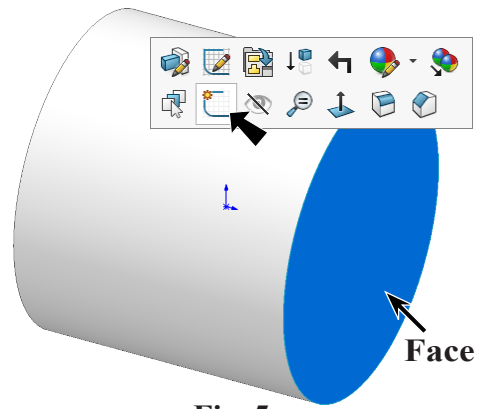
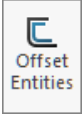




Fig. 5

Step 2. With face still selected, click **Offset Entities**  on the Sketch toolbar.

Step 3. In the Offset Entities Property Manager set:

under Parameters, **Fig. 6**
Distance  **2**
 check **Reverse**
 face preselected, **Fig. 7**
 click OK .

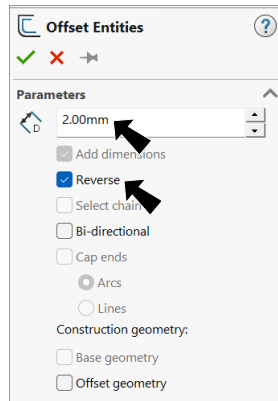


Fig. 6

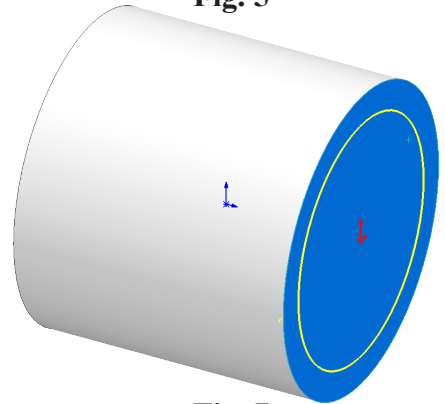
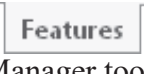
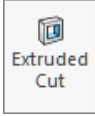


Fig. 7

Step 4. Click **Features**  on the Command Manager toolbar.

Step 5. Click **Extruded Cut**  on the Features toolbar.

Step 6. In the Cut-Extrude Property Manager set:

under Direction 1, **Fig. 8**
Depth  **5.5**
 click OK .

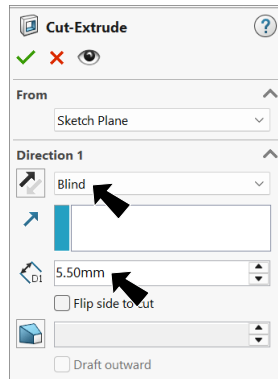


Fig. 8

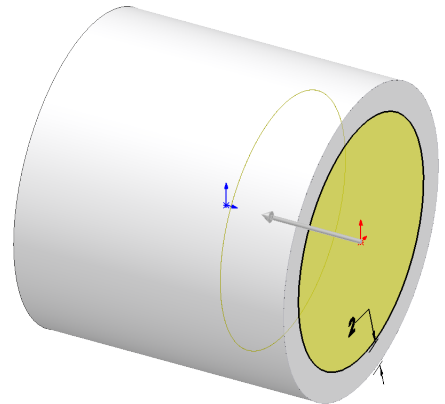


Fig. 9

Step 7. Save  (**Ctrl-S**).

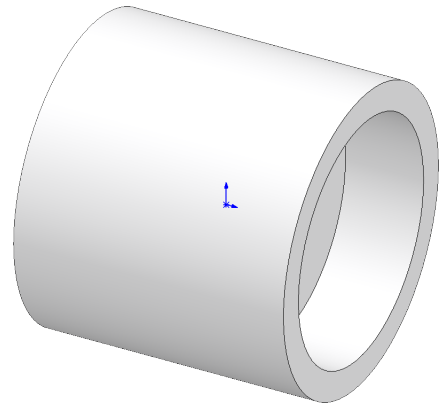


Fig. 10

D. Extruded Cut2 Sketch3 Cut Spoke.

Step 1. Click **Right**  on the Standard Views toolbar. (Ctrl-4)

Step 2. Click **inside face** and click **Sketch**  on the context toolbar, **Fig. 11**.

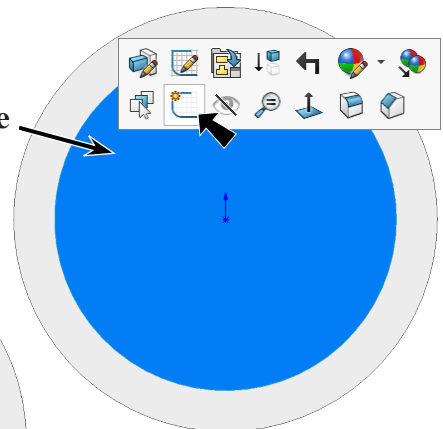
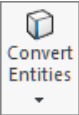


Fig. 11

Step 3. With the face still selected, click **Convert Entities**

 on the Sketch toolbar, **Fig. 12**.

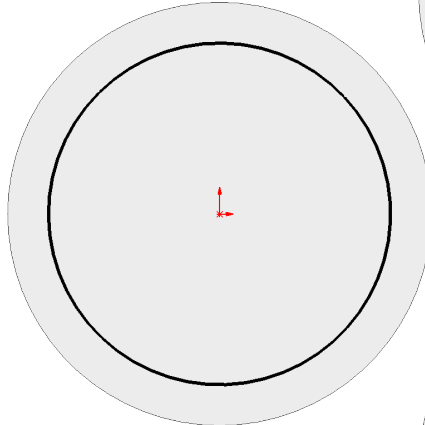


Fig. 12

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

Step 5. Sketch **circle at Origin** , **Fig. 13**.

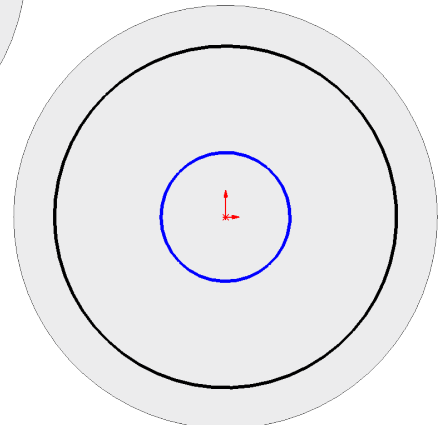





Fig. 13

Step 6. Click **Centerline**  in the **Line flyout**  on the Sketch toolbar.

Step 7. Sketch a **vertical centerline from the Origin**

 **up to converted circle and centerline at angle**, **Fig. 14**.

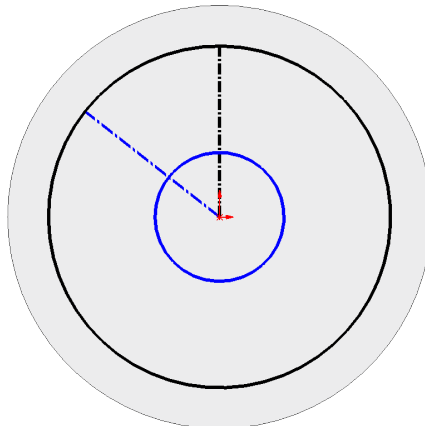



Fig. 14

Step 8. Click **Smart Dimension**

 (S) on the Sketch toolbar.

Step 9. Add dimensions, **Fig. 15**.

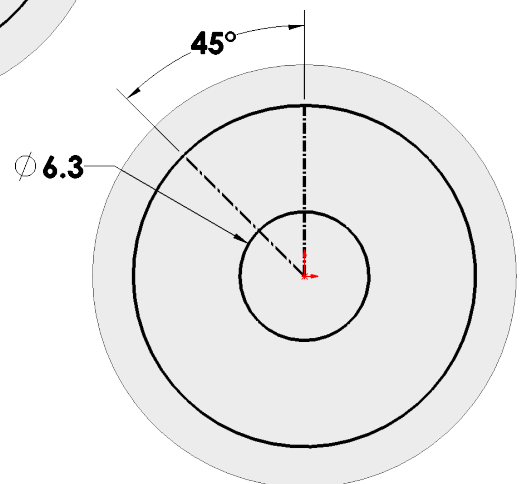
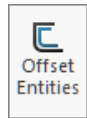
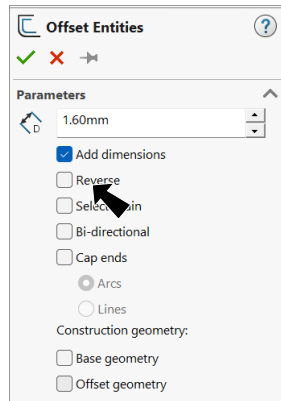


Fig. 15

Step 10. Click **Offset Entities** on the Sketch toolbar.



Step 11. In the Offset Entities Property Manager set:
under Parameters, Fig. 16



Distance 1.6
click **angled centerline**,
Fig. 17

click **OK**.

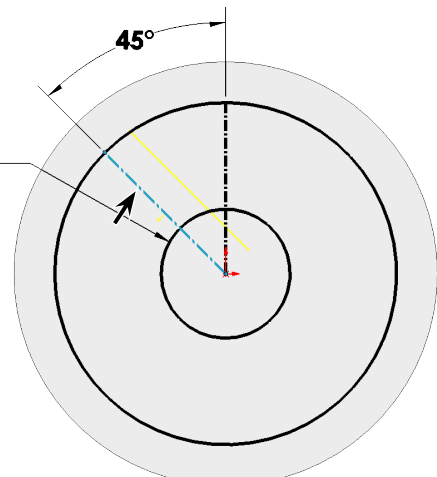
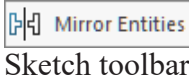


Fig. 17

Step 12. **Ctrl drag a selection to left to select spoke geometry**,
Fig. 18.

Step 13. Click **Mirror Entities** on the Sketch toolbar, **Fig. 19.**



Step 14. Rotate view to **view extrude**,
Fig. 21. Use **Down Arrow** key once.

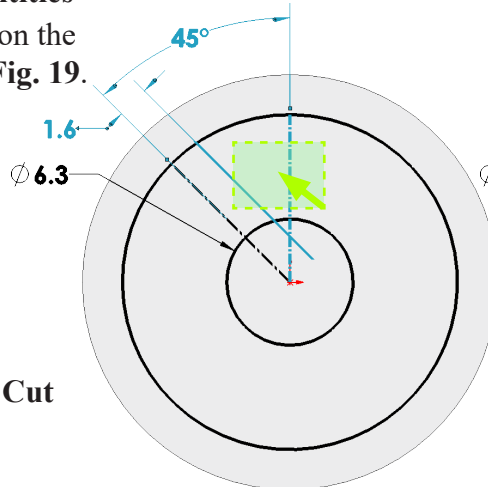


Fig. 18

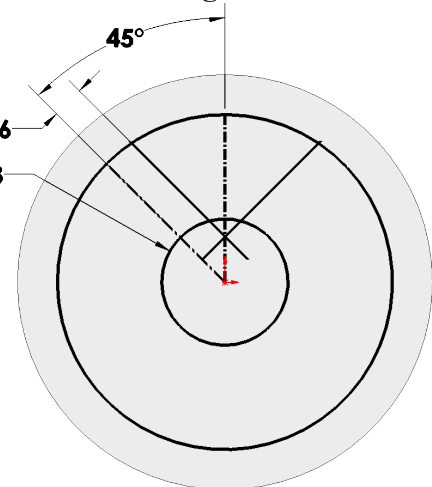
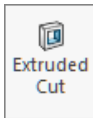


Fig. 19

Step 15. Click **Extruded Cut**



on the Features toolbar.

Step 16. In the Cut-Extrude Property Manager set:
under Direction 1, **Fig. 20**

Depth 3.3
under **Selected Contours**
click **contour**, **Fig. 21**
click **OK**.

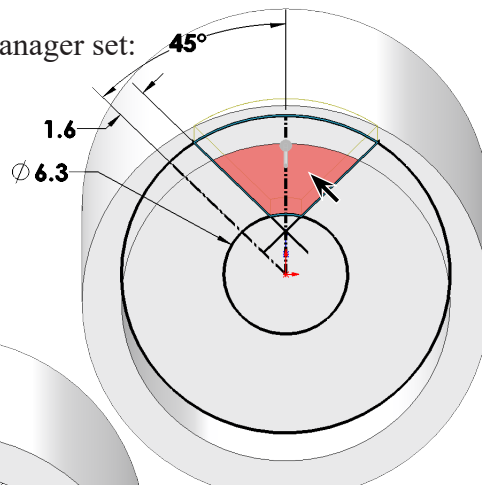


Fig. 21

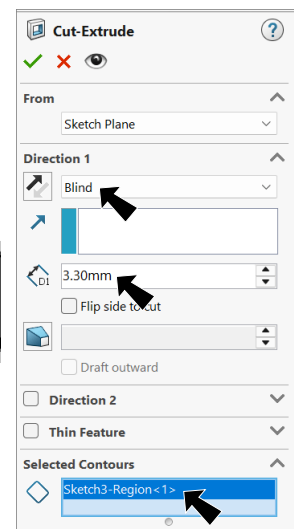


Fig. 20

Step 17. Save **(Ctrl-S)**.

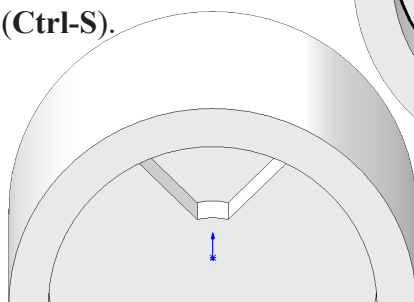




Fig. 22

E. Fillet1.

Step 1. Click **Fillet**  on the Features toolbar.

Step 2. In the Fillet Property Manager set:
select **FilletXpert**, **Fig. 23**

Radius  **1.2**
click the **bottom edges of spoke cut**, **Fig. 24**
click **OK**  .

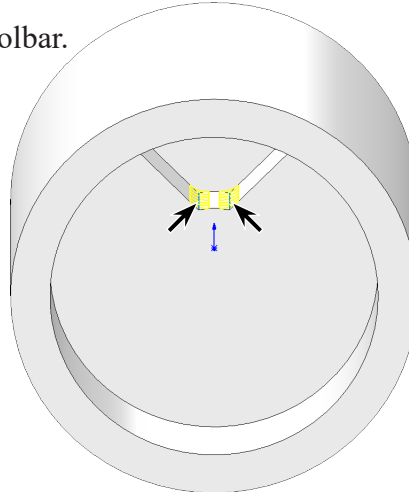


Fig. 24

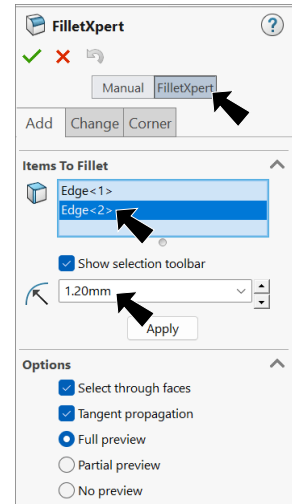


Fig. 23

F. Circular Pattern.

Step 1. Click **Circular Pattern**  in the **Linear Pattern**

flyout  on the Features toolbar.

Step 2. In the Circular Pattern Property Manager set:
under Features and Faces, **Fig. 25**

click **Cut-Extrude2** and **Fillet1** in graphics area, **Fig. 26**
under Direction 1

click in Pattern Axis  box
click a **cylindrical face**
select **Equal spacing**

Number of Instances  **4**

click **OK**  .

Step 3. Save  (**Ctrl-S**) **1.6**

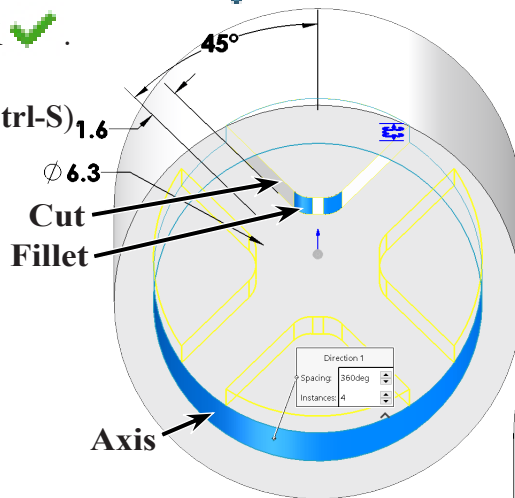


Fig. 26

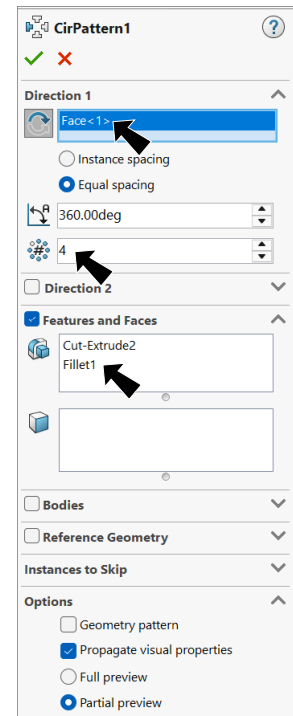


Fig. 25

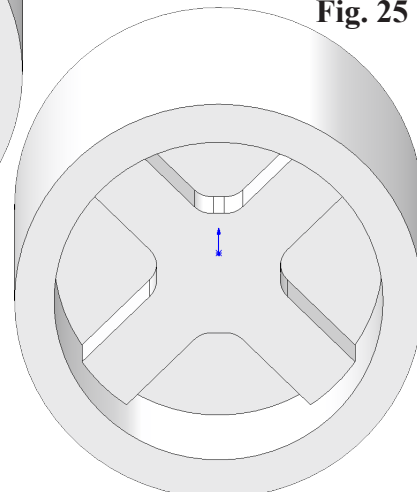


Fig. 27


G. Extruded Cut2 Axle Hole.


Step 1. Click **Left**  on the Standard Views toolbar. (Ctrl-3)


Step 2. Click **rear face** and click **Sketch**  on the context toolbar, **Fig. 28**.


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


Step 4. Sketch circle at Origin , **Fig. 29**.

Step 5. Click **Line**  (L) on the Sketch toolbar.

Step 6. Sketch **two horizontal lines across circle** , **Fig. 30**. Double click to terminate chain.

Step 7. **Unselect Line tool.** To unselect, right click graphics area and click **Select**  from menu.

Step 8. **Drag selection to left to select both lines** and click **Make Equal**  on the context toolbar, **Fig. 31**.

Step 9. Click **Smart Dimension**  (S) on the Sketch toolbar.

Step 10. Add dimensions, **Fig. 32**.

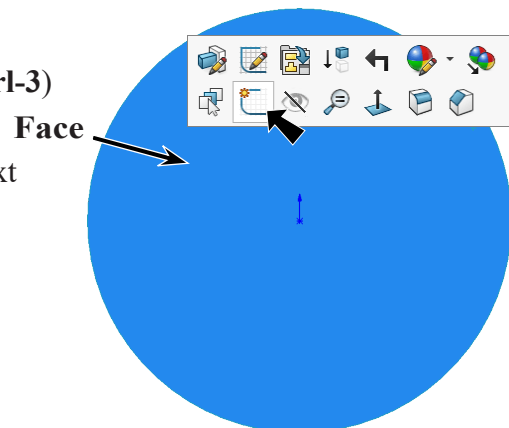


Fig. 28

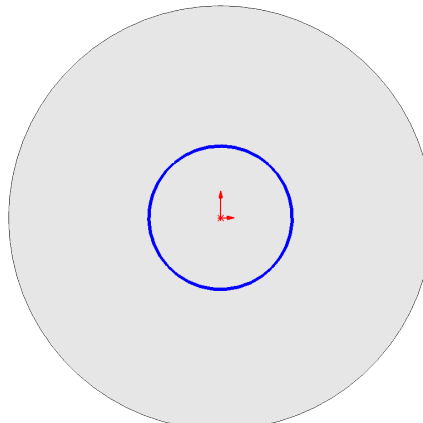


Fig. 29

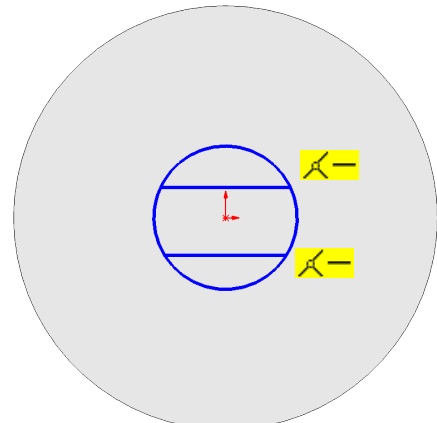


Fig. 30

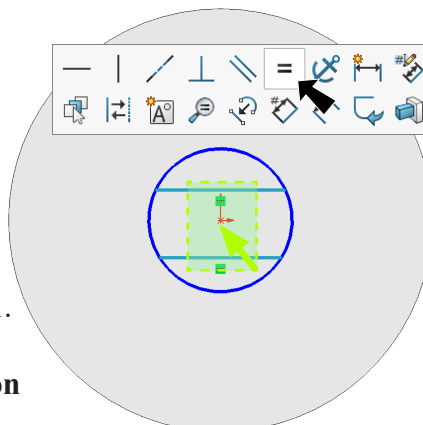


Fig. 31

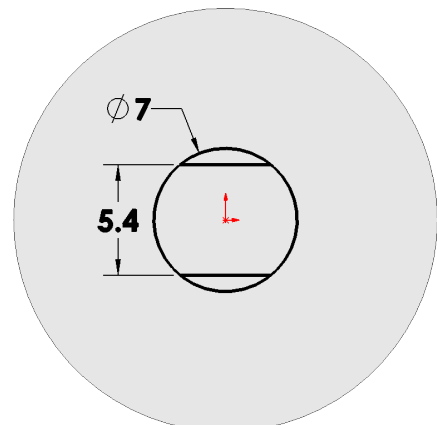


Fig. 32

Step 11. Rotate view to **view depth of cut**, **Fig. 34**. Use **Left Arrow key**  **once**.

Step 12. Click **Features**  on the Command Manager toolbar.

Step 13. Click **Extruded Cut**  on the Features toolbar.

Step 14. In the Cut-Extrude Property Manager set:

under Direction 1, **Fig. 33**

End Condition **Blind**

Depth  **9.7**

under Selected Contours
click **contour**, **Fig. 34**

click **OK** .

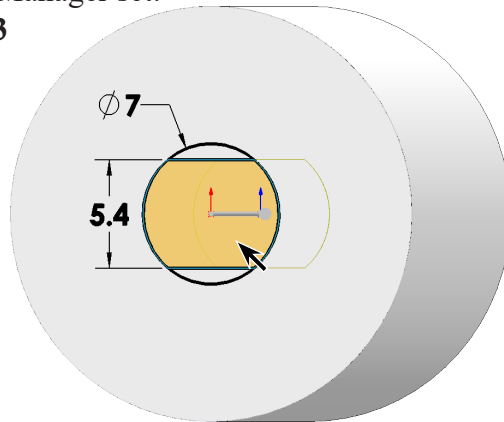


Fig. 34

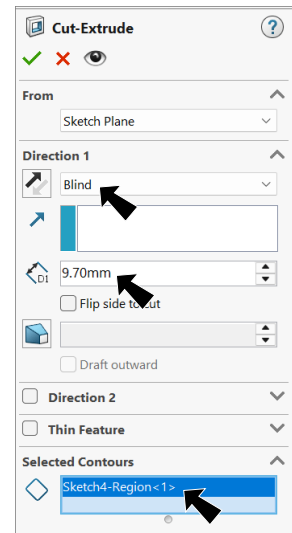


Fig. 33

Step 15. Save  (**Ctrl-S**).

H. Chamfer1 Bottom of Axle Hole.

Step 1. Click **Chamfer**  on the Features toolbar.

Step 2. In the Chamfer Property Manager set:

under Chamfer Type, **Fig. 35**

select **Angle Distance** 

click **edge at bottom of hole**, **Fig. 36**

under Chamfer Parameters

Distance  **2.9**

Angle  **45°**

click **OK** .

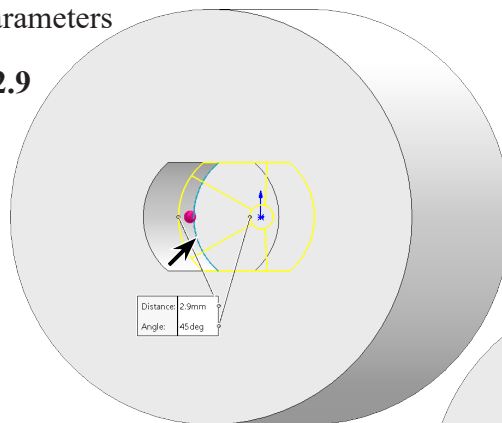


Fig. 36

Step 4. Save  (**Ctrl-S**).

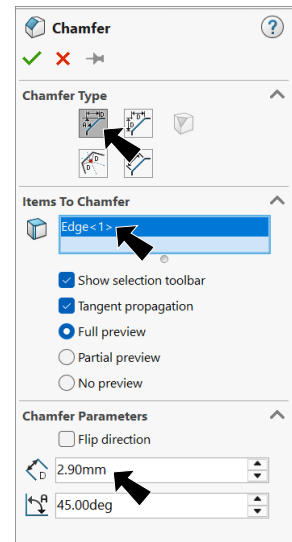


Fig. 35

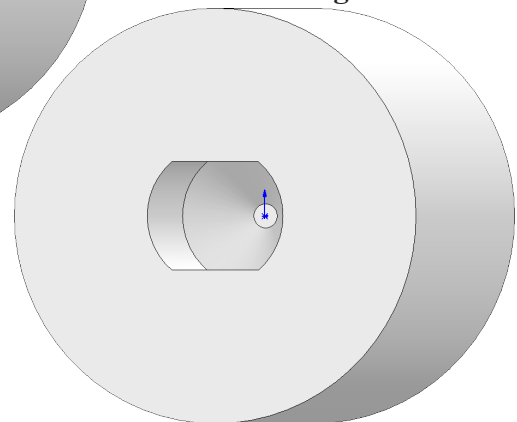



Fig. 37

I. Appearance: White Plastic.

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

Step 2. Click part, click **Appearance Callout**  on the context toolbar and click **RIM** , Fig. 38.

Step 3. In the Appearances Task pane, expand **Plastic**, click **Medium Gloss** and in the lower pane select **white medium gloss plastic**, Fig. 39.

Step 4. Click OK  in the Property Manager.

Step 5. Save  (Ctrl-S).

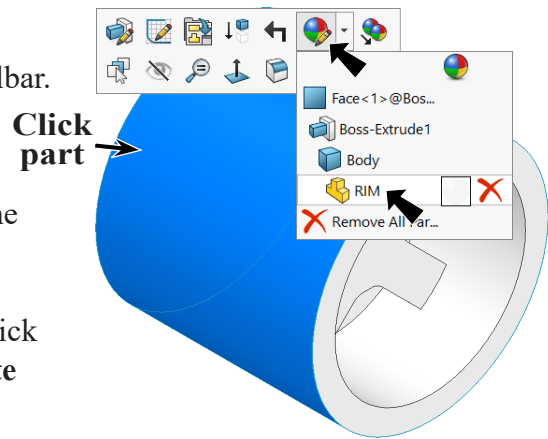


Fig. 38



Fig. 41

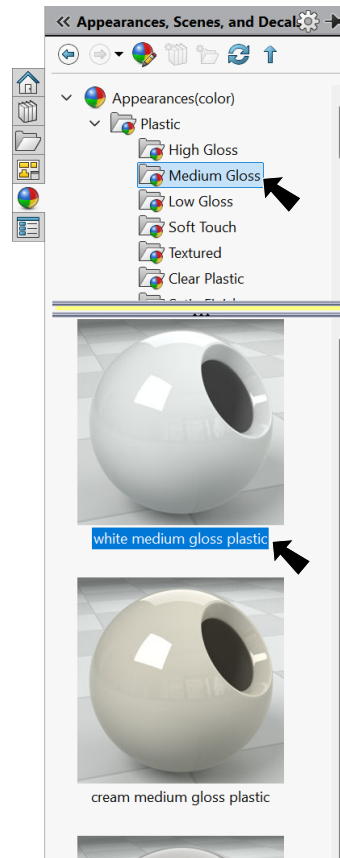


Fig. 39

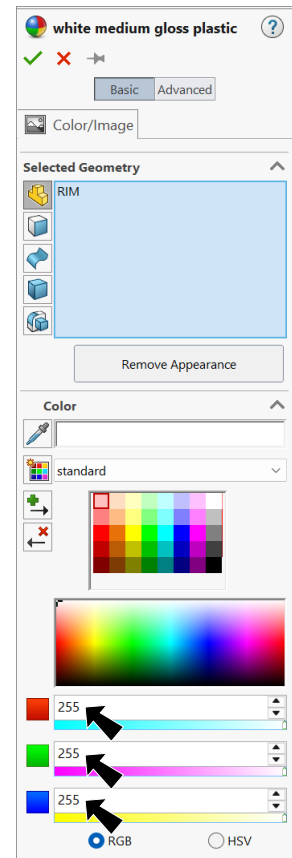


Fig. 40