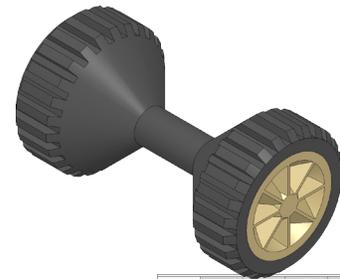


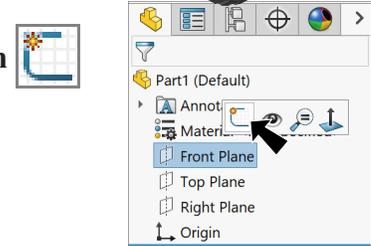
The Landmaster Wheel



A. Revolve.

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. Starting from the **Origin**  sketch the 6 lines, **Fig. 2**.

Step 5. Click **Centerline**  in the **Line flyout**  on the Sketch toolbar.

Step 6. Sketch a **short horizontal centerline** out from the **Origin** , **Fig. 3**.

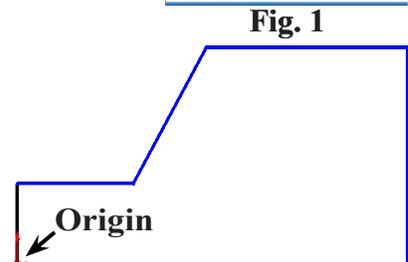


Fig. 2

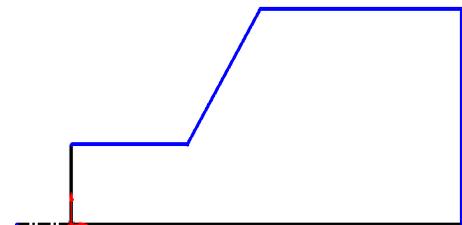


Fig. 3

Step 7. Click **Smart Dimension**  (S) on the Sketch toolbar.

Step 8. Add dimensions, **Fig. 4**. **Double distance the diameters.** To double distance dimension, click centerline and then top horizontal line, move the cursor below centerline and click. Key-in the diameter in the Modify box and press ENTER.

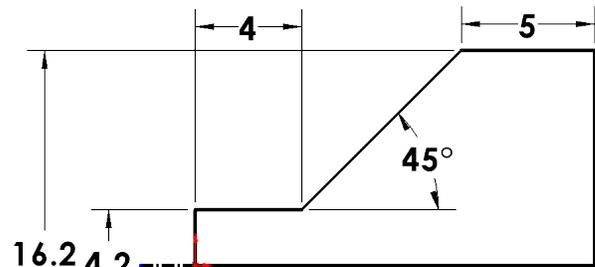


Fig. 4

Step 9. Click **Features**  on the Command Manager toolbar.

Step 10. Click **Revolved Boss/Base**  on the Features toolbar.

Step 11. In the Revolve Property Manger set:
 under Axis of Revolution 
 construction line auto-selected
 click OK .

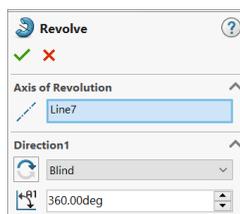


Fig. 5

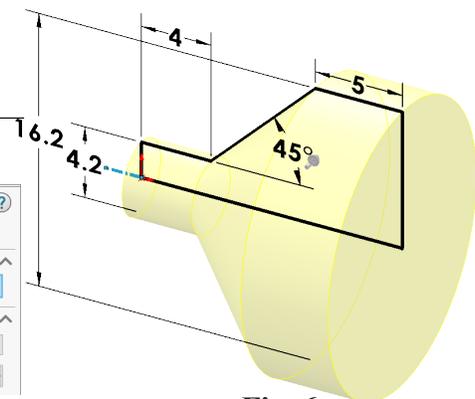


Fig. 6

B. Save as "WHEEL".

Step 1. Click File Menu > Save As.

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

C. Chamfer.

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

Step 2. In the Chamfer Property Manager set:
under Chamfer Type, **Fig. 7**

select **Angle Distance** 
click **outside circular edge**, **Fig. 8**
under Chamfer Parameters

Distance  .9

Angle  45°

select **Full preview**

click OK .

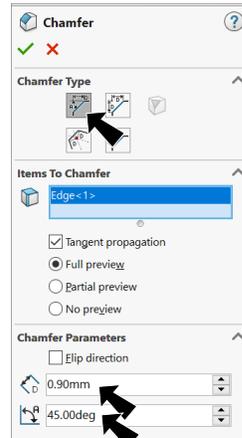


Fig. 7

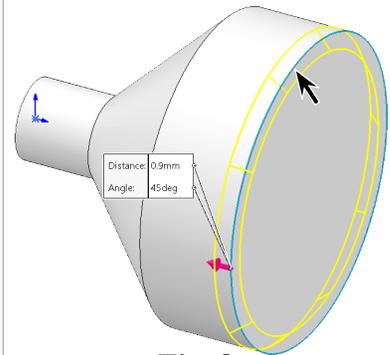


Fig. 8

D. Cut-Extrude1 Tread.

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

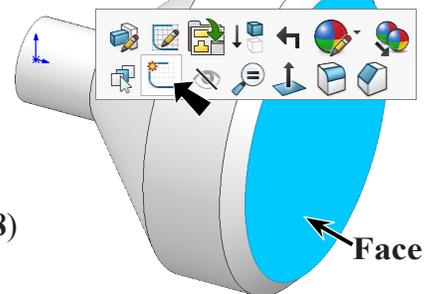
Step 2. Click **Normal To**  on the Standard Views toolbar. (**Ctrl-8**)

Step 3. Click **Centerline**  in the **Line flyout**  on the Sketch toolbar. **Fig. 9**

Step 4. Sketch a **vertical centerline from the Origin**  **up to outer edge**, **Fig. 10**.

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

Step 6. Sketch three lines. Start at top endpoint of centerline with a horizontal line, and a line down at a angle, then a **line back to the centerline**, **Fig. 11**.



Face

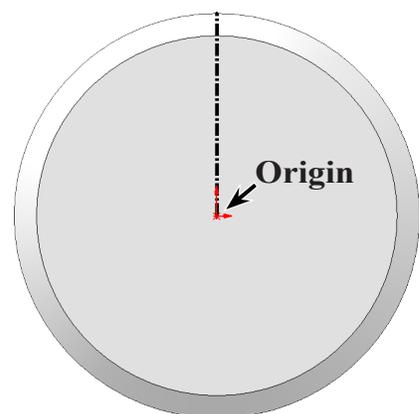


Fig. 10

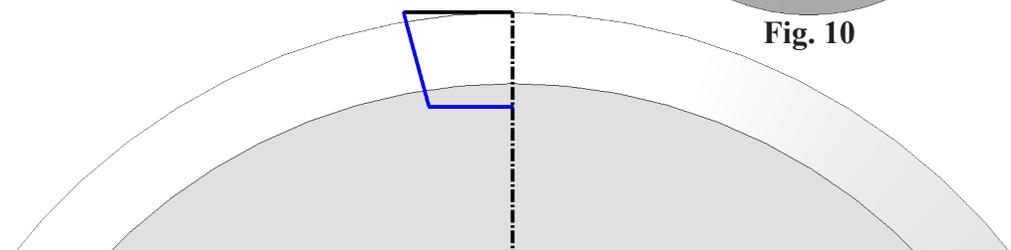


Fig. 11

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

Step 8. Drag a selection to left to select all geometry, **Fig. 12.**

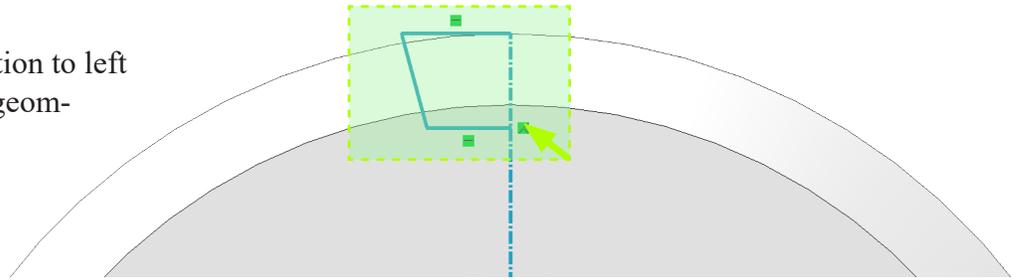


Fig. 12

Step 9. Click **Mirror Entities**



on the Sketch toolbar.

Step 10. Click **Smart Dimension**



(S) on the Sketch toolbar.

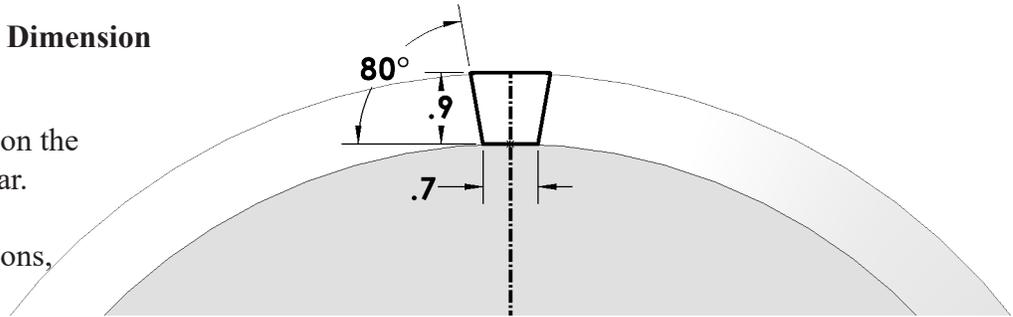


Fig. 13

Step 11. Add dimensions, **Fig. 13.**

Step 12. Click **Isometric**  on the Standard Views toolbar. (Ctrl-7)

Step 13. Click **Features**  on the Command Manager toolbar.

Step 14. Click **Extruded Cut**  on the Features toolbar.

Step 15. In the Cut-Extrude Property Manager set:

under Direction 1, **Fig. 14**
End Condition **Through All**
click OK .

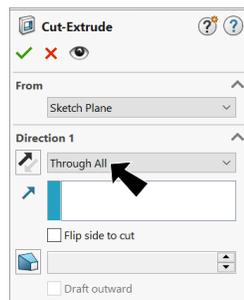


Fig. 14

Step 16. Save  (Ctrl-S).

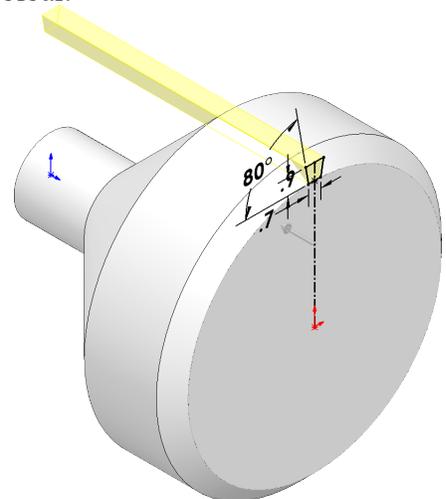


Fig. 15

E. Circular Pattern 1.

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. 16**
 click **Cut-Extrude1** in graphics area, **Fig. 17**
 under Direction 1
 click in Pattern Axis box
 click a **cylindrical face**
 select **Equal spacing**
Number of Instances  **25**
 click OK  .

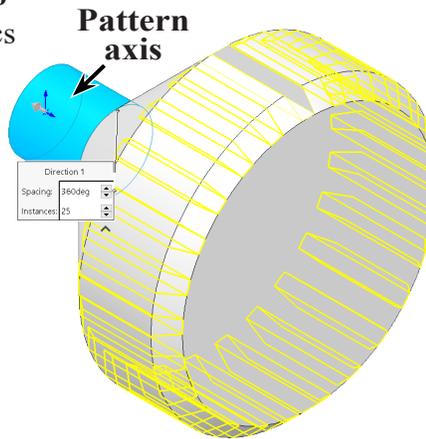


Fig. 17

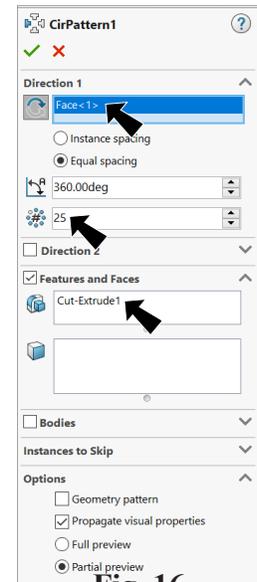


Fig. 16

Step 3. Save  (Ctrl-S).

F. Cut-Extrude2 Rim.

Step 1. Click the **side face of revolve** and click **Sketch**  on the context toolbar, **Fig. 18**.

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

Step 3. Sketch two circles at **Origin** , **Fig. 19**.

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

Step 5. Dimension diameters **2.5** and **9.7**, **Fig. 19**.

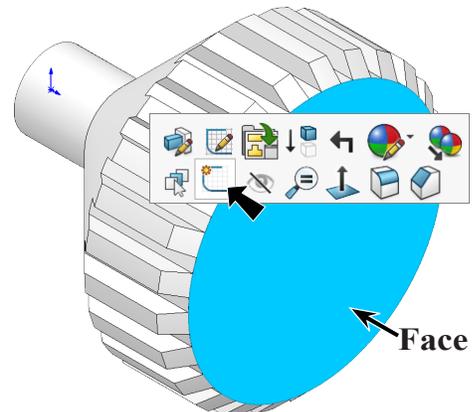


Fig. 18

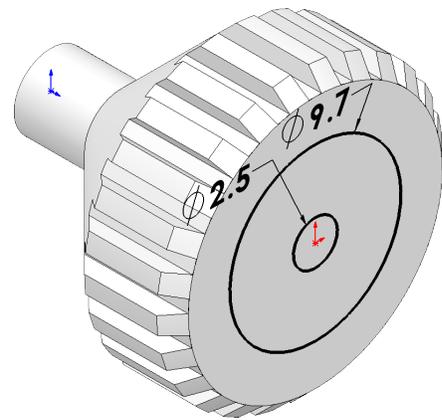


Fig. 19

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

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

Step 8. In the Cut-Extrude Property Manager set:

under Direction 1, **Fig. 20**

End Condition **Blind**

Depth  **1.3**

click **Draft**  **45°**

click **OK** .

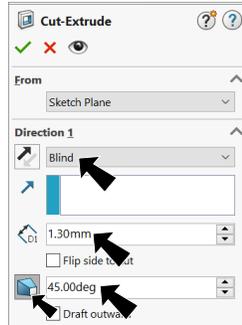


Fig. 20

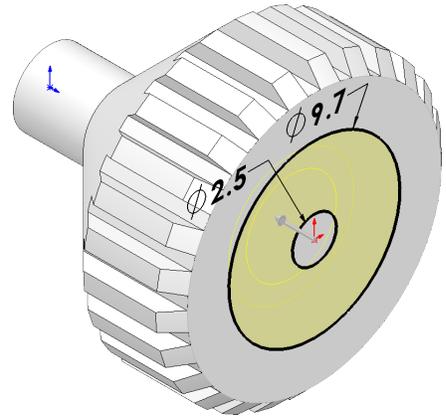


Fig. 21

G. Boss-Extrude1 Spoke.

Step 1. Click the **side face of revolve** and click **Sketch**  on the context toolbar, **Fig. 22**.

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

Step 3. Click **Centerline**  in the **Line flyout**  on the Sketch toolbar.

Step 4. Sketch a **vertical centerline from the Origin**  up to **outer edge of Cut2**, **Fig. 23**.

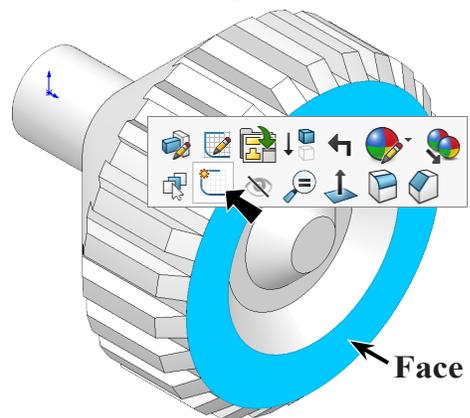


Fig. 22

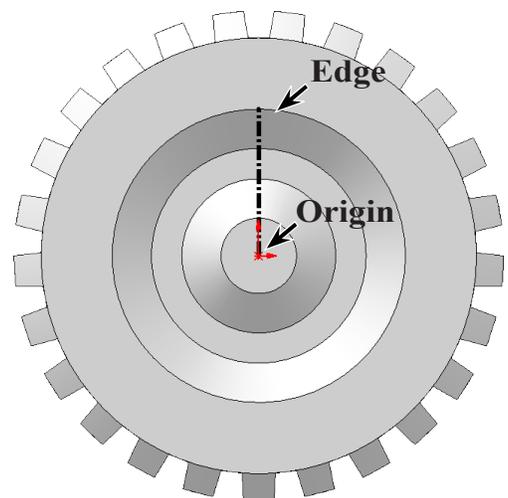


Fig. 23

Step 5. Click **Offset Entities**  on the Sketch toolbar.

Step 6. In the Offset Entities Property Manager set:
under Parameters, **Fig. 24**

Distance  **.15**
click **centerline**, **Fig. 25**
check **Bi-directional**
check **Cap ends Lines**
click **OK** .

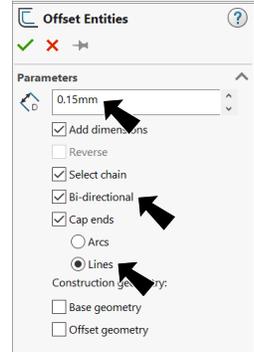


Fig. 24

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

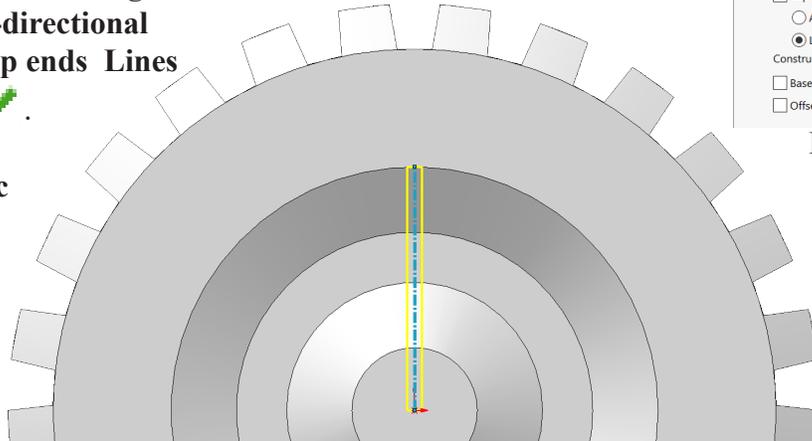
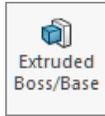


Fig. 25

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

Step 9. Click **Extruded Boss/Base**  on the Features toolbar.

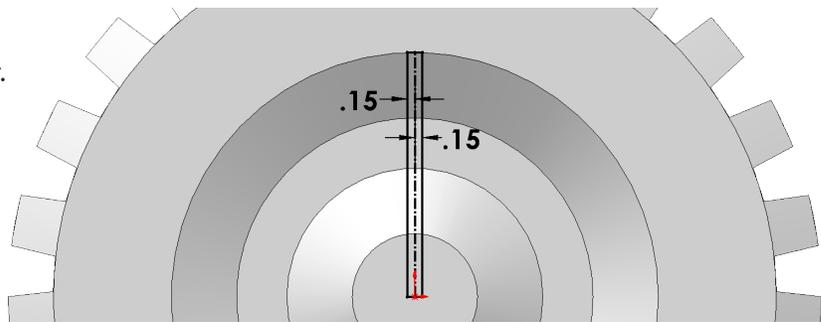


Fig. 26

Step 10. In the Boss-Extrude Property Manager set:
under Direction 1, **Fig. 27**

Reverse Direction 
End Condition **Up To Next**
click **Draft**  **45°**
check **Draft outward**
click **OK** .

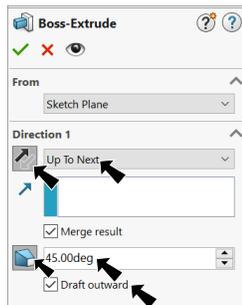


Fig. 27

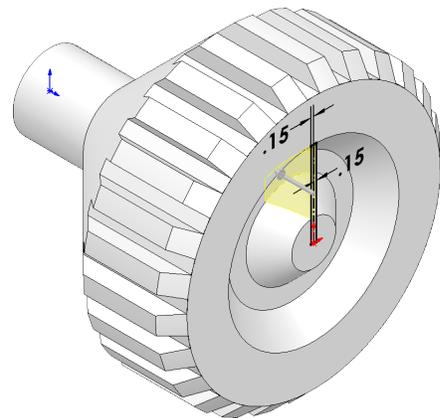
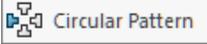


Fig. 28

H. Circular Pattern2.

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. 29**
 click **Boss-Extrude1** in graphics area, **Fig. 30**
 under Direction 1
 click in Pattern Axis box
 click a **cylindrical face**
 select **Equal spacing**
Number of Instances  **8**
 click OK .

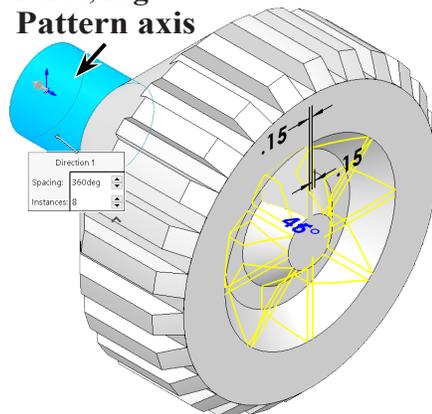


Fig. 30

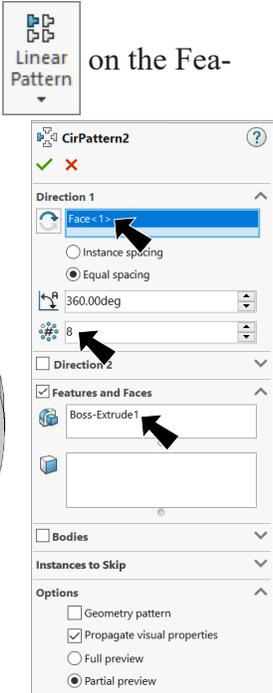


Fig. 29

Step 3. Save  (Ctrl-S).

I. Split1 Sketch5 Tire.

Step 1. Click the **side face of revolve** and click **Sketch**  on the context toolbar, **Fig. 31**.

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

Step 3. Sketch circle at **Origin** , **Fig. 32**.

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

Step 5. Dimension **diameter 11.6**, **Fig. 32**.

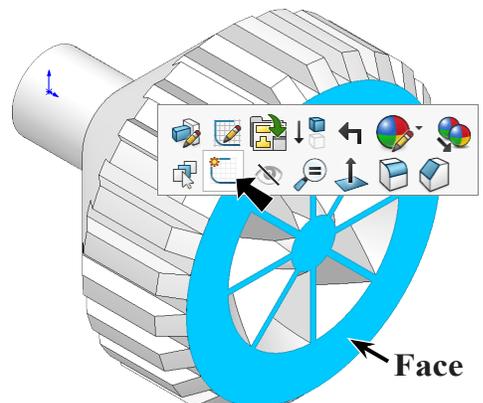


Fig. 31

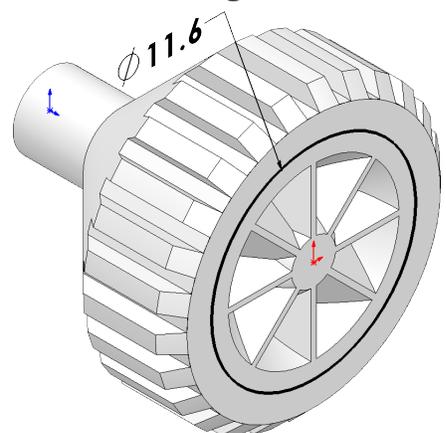


Fig. 32

Step 6. Click Insert Menu > Features > Split.

Step 7. In the Split Property Manager:
 under Trim Tools, **Fig. 33**
Sketch5 was preselected
 click **Cut Part**  button
 under Resulting Bodies
 click **Select All** 
 uncheck **Consume cut bodies**
 click OK .

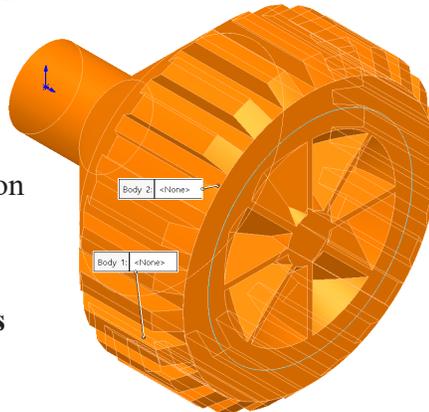


Fig. 34

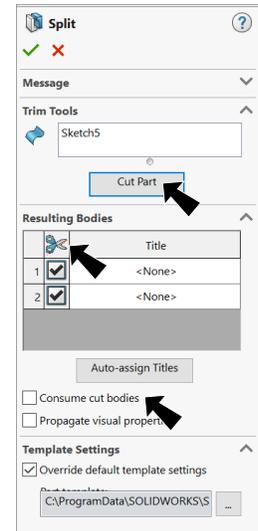


Fig. 33

J. Split2 Sketch6 Tire.

Step 1. **Hide Sketch5.** To hide, click **Sketch4** in the Feature Manager and **Hide**  on the context toolbar, **Fig. 35.**

Step 2. Click **Front Plane**  in the Feature Manager and click **Sketch**  on the context toolbar, **Fig. 36.**

Step 3. Click **Normal To**  on the Standard Views toolbar. (**Ctrl-8**)

Step 4. Click **Line**  (L) on the Sketch toolbar.

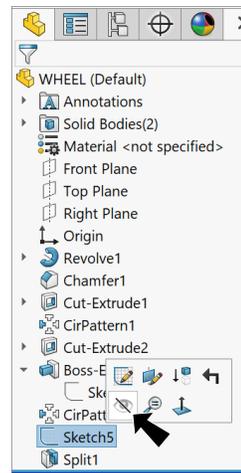


Fig. 35

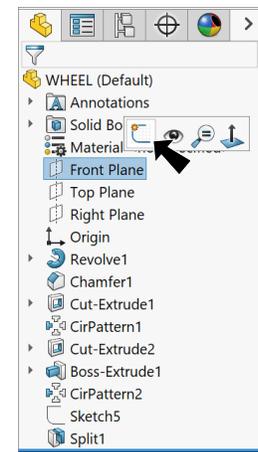


Fig. 36

Step 5. Stretch a vertical line to right of **Origin** , **Fig. 37.**

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

Step 7. Add **13.2** dimension, **Fig. 37.**

Step 8. Click Insert Menu > Features > Split.

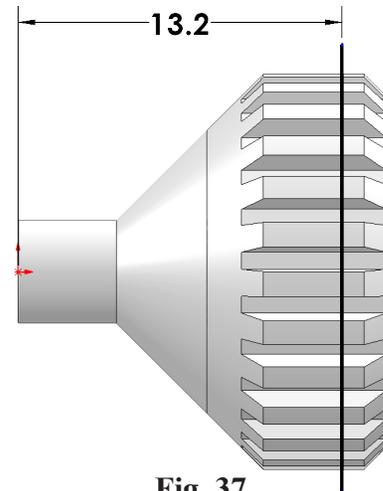


Fig. 37

- Step 9. In the Split Property Manager:
 under Trim Tools, **Fig. 38**
Sketch6 was preselected
 click **Cut Part**  button
 under Resulting Bodies
 click **Select All** 
 uncheck **Consume cut bodies**
 click OK .

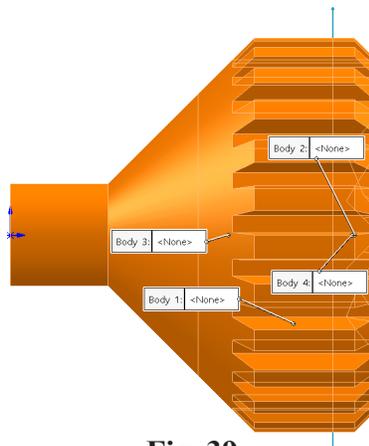


Fig. 39

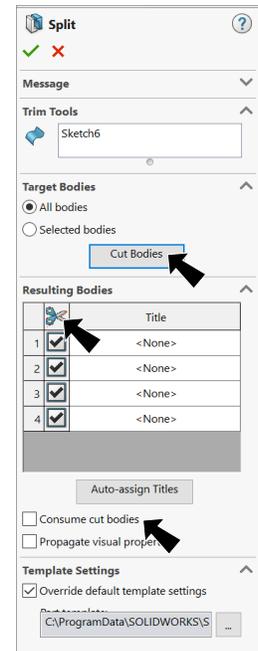


Fig. 38

K. Combine Bodies.

- Step 1. Click **Isometric**  on the Standard Views toolbar. (**Ctrl-7**)
- Step 2. **Hide Sketch6.** To hide, click **Sketch6** in the Feature Manager and **Hide**  on the context toolbar, **Fig. 40.**
- Step 3. Select the **three Wheel**  bodies and not the **Rim** .
 First, determine which body is the Rim.
 To determine, expand **Solid Bodies**  folder in the Feature Manager, **Fig. 41.**
 Click Rim in the graphics area, **Fig. 43.**
 Then, in the **Solid Bodies**  folder, **Ctrl click all bodies except Rim body**, **Fig. 41.**
- Step 4. Click Insert Menu > Features > Combine.
- Step 5. In the Combine Property Manager:
 under Operation Type, **Fig. 42**
 select **Add**
 Wheel bodies were preselected
 click OK .
- Step 6. Save  (**Ctrl-S**).

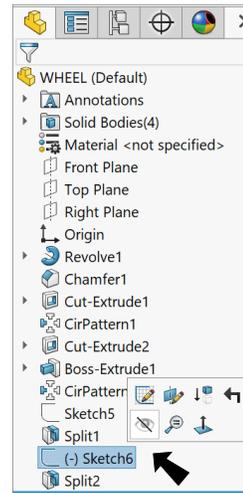


Fig. 40

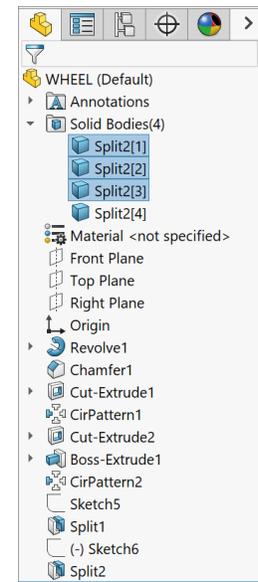


Fig. 41

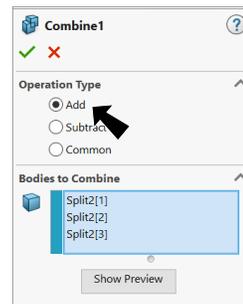


Fig. 42

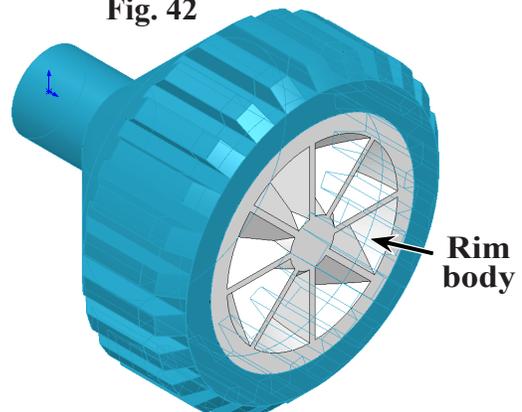


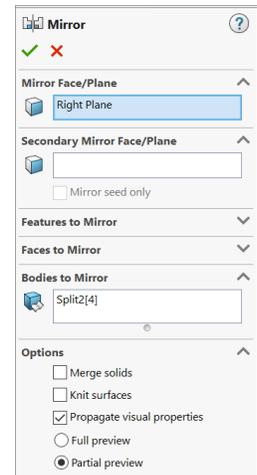
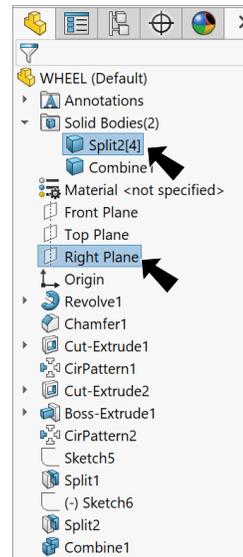
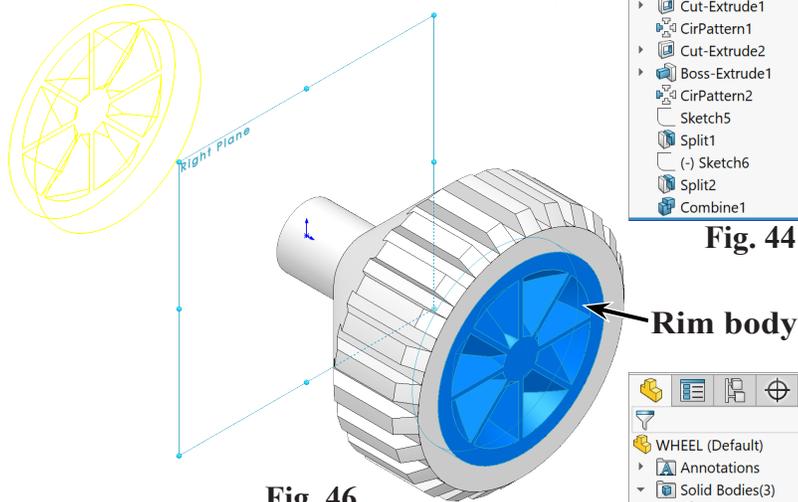
Fig. 43

L. Mirror Bodies 1 RIM.

Step 1. Expand Solid Bodies folder in the Feature Manager. **Ctrl click Split2(4) body and Right Plane** to select body and plane, Fig. 44.

Step 2. Click **Mirror** on the Features toolbar.

Step 3. In the Mirror Property Manager click OK.



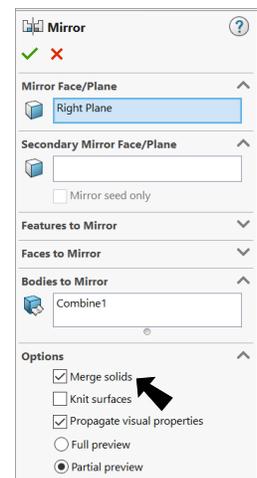
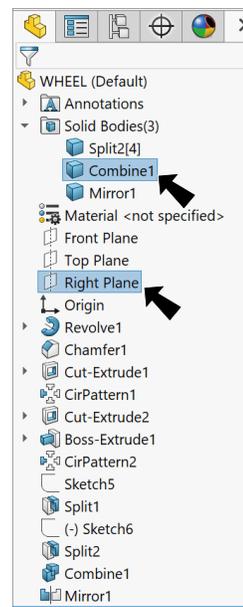
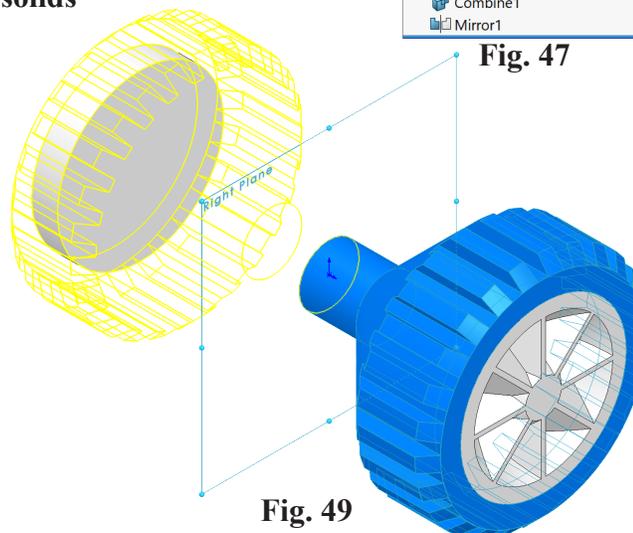
M. Mirror Bodies 2 WHEEL.

Step 1. Expand Solid Bodies folder in the Feature Manager. **Ctrl click Combine1 body and Right Plane** to select body and plane, Fig. 47.

Step 2. Click **Mirror** on the Features toolbar.

Step 3. In the Mirror Property Manager set: under Options, **check Merge solids** click OK.

Step 4. Save (Ctrl-S).



N. Rename Bodies.

- Step 1. Rename bodies RIM1, RIM2 and WHEEL, Fig. 50.
 To rename, expand Solid Bodies folder in the Feature Manager.
 Slowly click twice over Split 2[4] and key-in RIM1 or use the F2 key. Repeat and rename RIM2 and WHEEL.

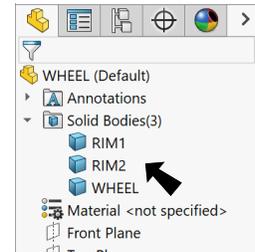


Fig. 50

O. Appearance: Safari Tan and Rubber.

- Step 1. Click the part to select part, click Appearances Callout on the context toolbar and click WHEEL, Fig. 51.

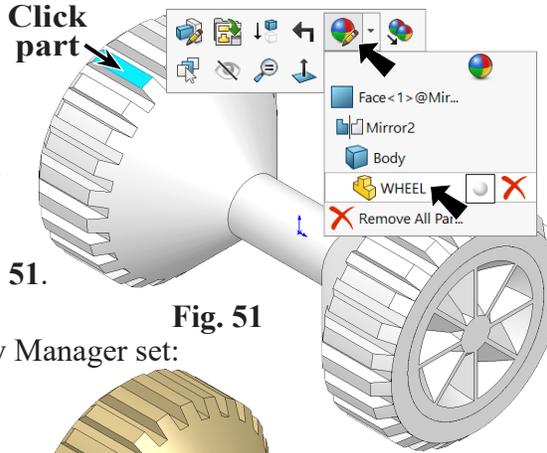


Fig. 51

- Step 2. In the Appearances Property Manager set:
 under Color, Fig. 52
 set RGB values
 R 204
 G 184
 B 131

- click Keep Visible and OK. The Push Pin on allows selection of another appearance.

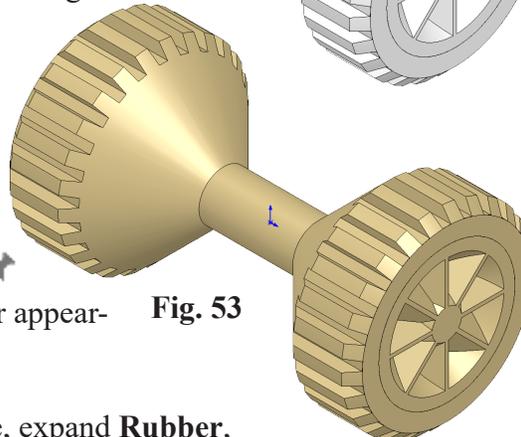


Fig. 53

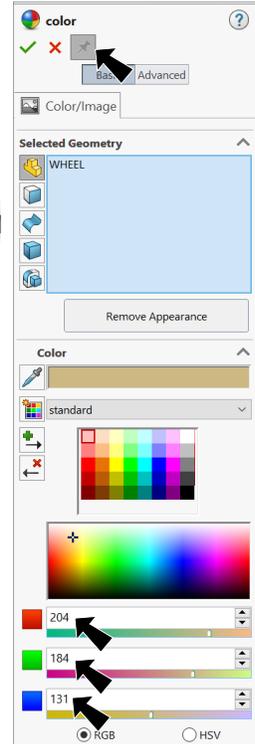


Fig. 52

- Step 3. In the Appearances Task pane, expand Rubber, click Gloss and in the lower pane select glossy rubber, Fig. 54.

- Step 4. Back in the Appearances Property Manager, under Selected Geometry
 click Select Bodies, Fig. 55
 click WHEEL, Fig. 56
 click OK and click Cancel.

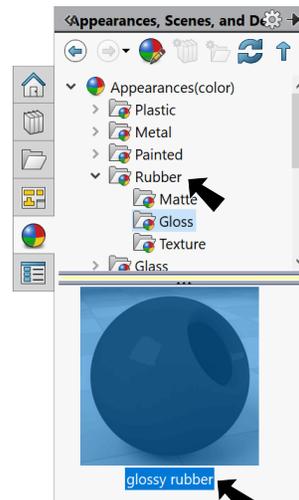


Fig. 54

- Step 5. Save (Ctrl-S).

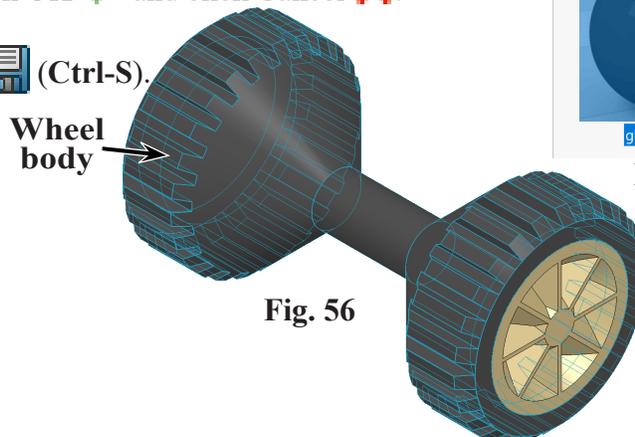


Fig. 56

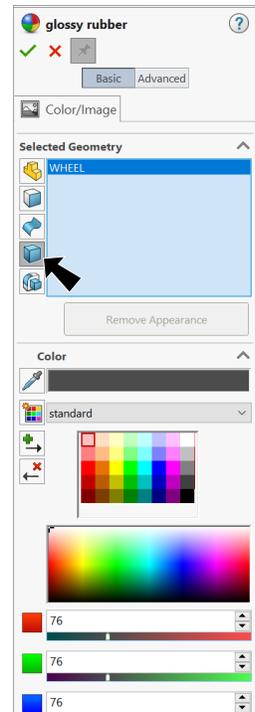


Fig. 55