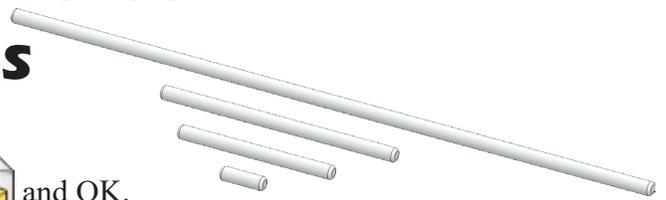


Cluster Wheel Vehicle Axles



A. Axle.

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

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

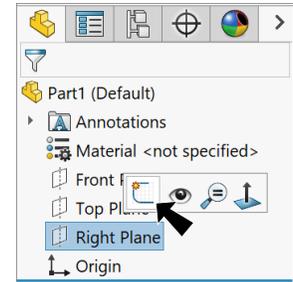


Fig. 1

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

Step 4. Sketch a circle starting at the Origin , **Fig. 2**.

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

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

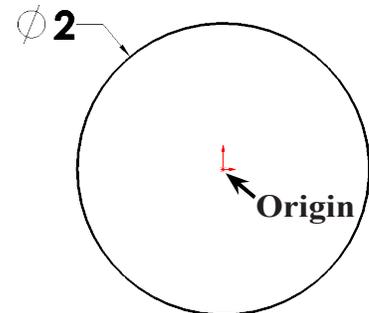
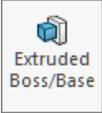


Fig. 2

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  **98.5**

click OK .

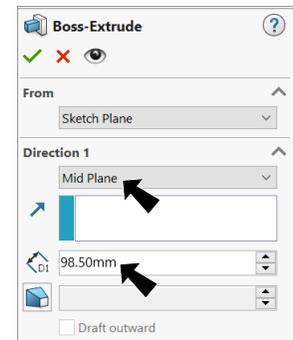


Fig. 3

Step 10. Click **Zoom to Fit**  (F) on the View toolbar.

Front Axle
98.5

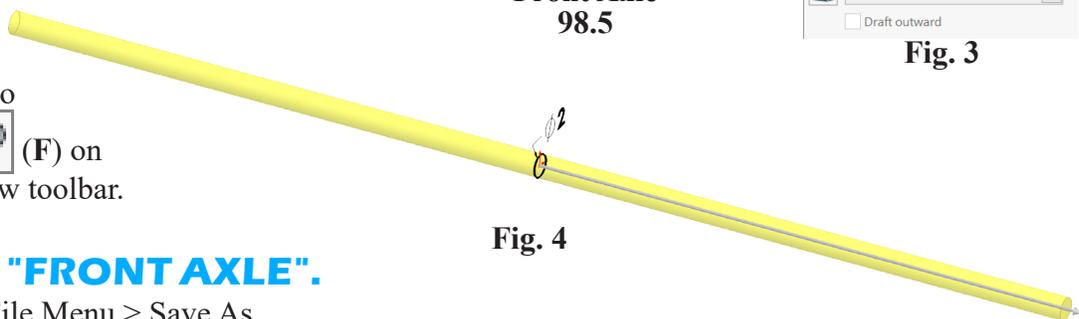


Fig. 4

B. Save as "FRONT AXLE".

Step 1. Click File Menu > Save As.

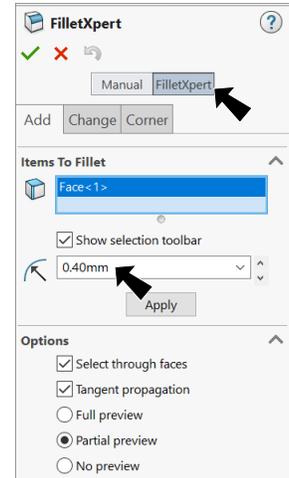
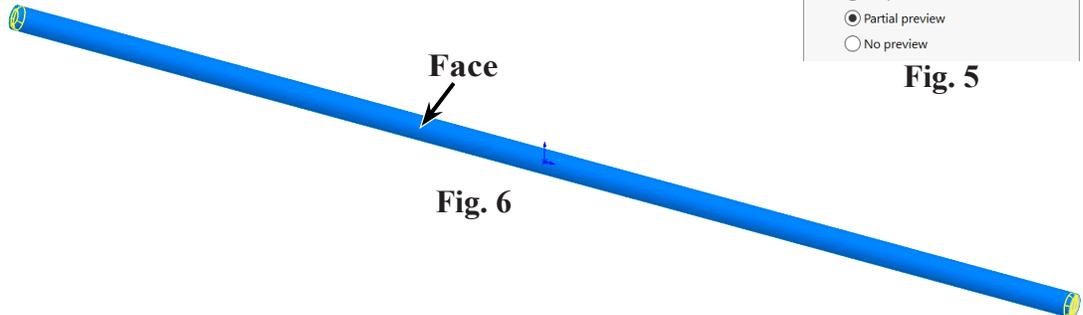
Step 2. Key-in **FRONT AXLE** for the filename and press ENTER.

C. Fillet Edges.

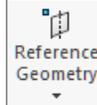
Step 1. Click **Fillet**  on the Features toolbar.

Step 2. In the Fillet Property Manager set:
select **FilletXpert**, Fig. 5
set **Radius**  .4
click **cylindrical face**, Fig. 6
click OK .

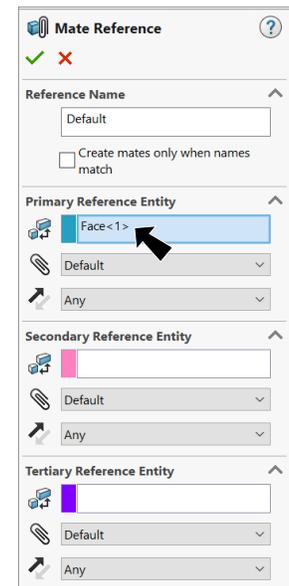
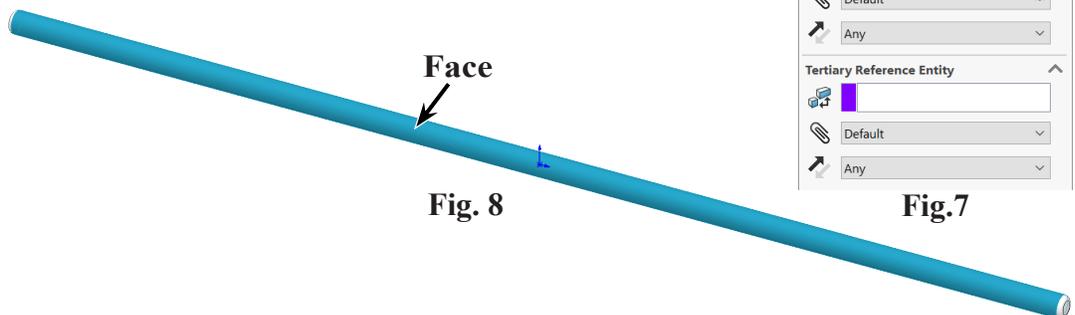
Step 3. Save  (Ctrl-S).



D. Mate References.

Step 1. Click **Reference Geometry**  on the Features toolbar and **Mate Reference** from the menu.

Step 3. In the Mate Reference Manager set:
under **Primary Reference Entity**
click **cylindrical face**, Fig. 8
click OK .



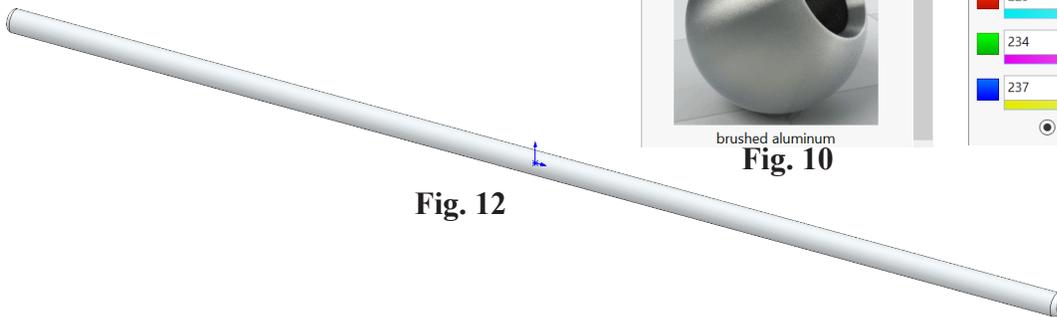
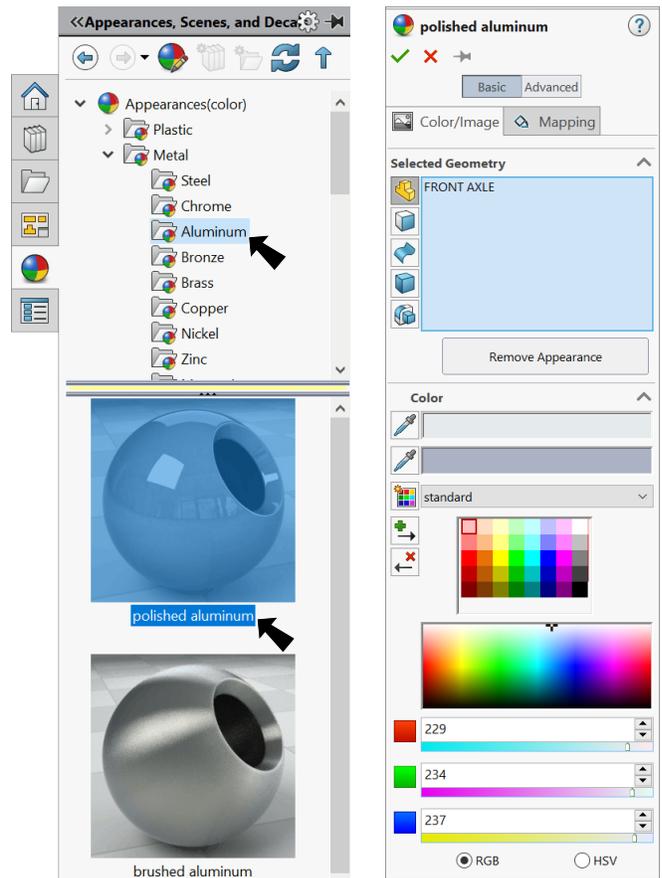
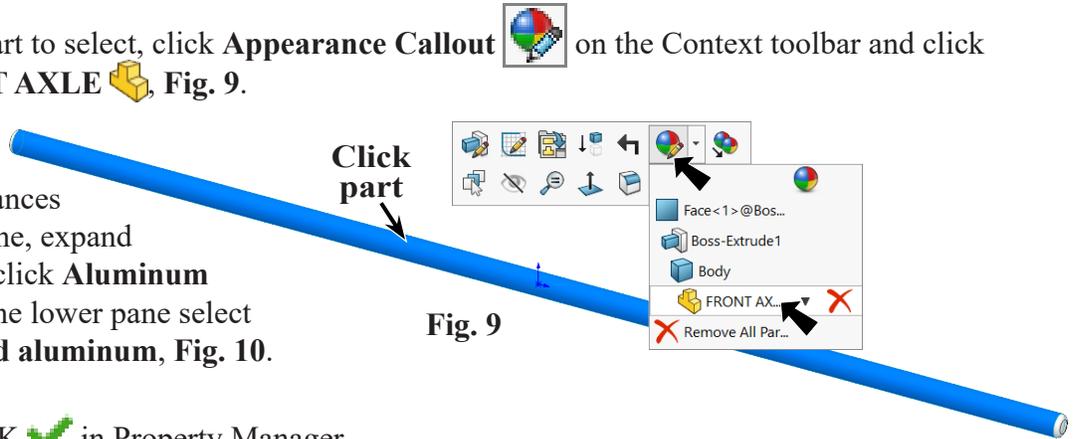
E. Appearance.

Step 1. Click part to select, click **Appearance Callout**  on the Context toolbar and click **FRONT AXLE** , Fig. 9.

Step 2. In the Appearances Task pane, expand **Metal**, click **Aluminum** and in the lower pane select **polished aluminum**, Fig. 10.

Step 3. Click OK  in Property Manager.

Step 4. Save  (Ctrl-S).



F. Save as "REAR AXLE".

Step 1. Save.

Use **Ctrl-S** to save FRONT AXLE. **Very important to save here.**

Step 2. Click File Menu > Save As.

Step 3. Key-in **REAR AXLE** for the filename.

You now have two axle files, FRONT and REAR. Next, we change length of REAR axle.

G. Change Extrude Depth.

Step 1. Click **Boss-Extrude1**  in the Feature Manager and click **Edit Feature**  in the context toolbar, **Fig. 13**.

Step 2. In the Property Manager change:
under Direction 1, **Fig. 14**

Depth  35

click OK .

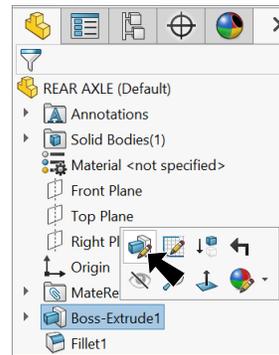


Fig. 13

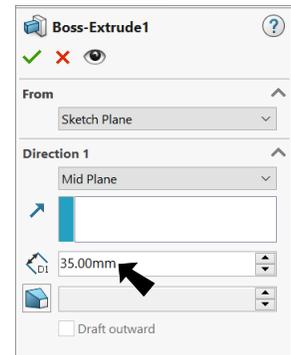


Fig. 14

Step 3. Save  (**Ctrl-S**). (Rear Axle)

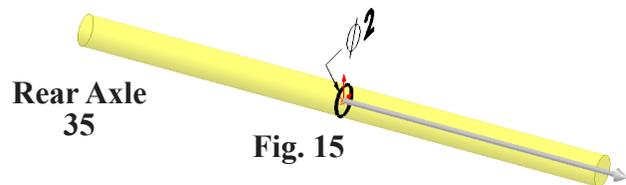


Fig. 15

H. Save as "RIM AXLE".

Step 1. Save.

Use **Ctrl-S** to save REAR AXLE. **Very important to save here.**

Step 2. Click File Menu > Save As.

Step 3. Key-in **RIM AXLE** for the filename.

I. Change Extrude Depth.

Step 1. Click **Boss-Extrude1**  in the Feature Manager and click **Edit Feature**  in the context toolbar, **Fig. 16**.

Step 2. In the Property Manager change:
under Direction 1, **Fig. 17**

Depth  23

click OK .

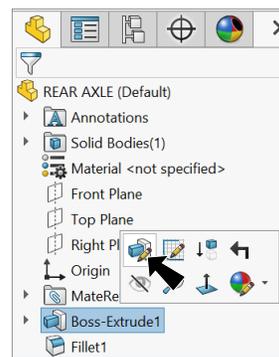


Fig. 16

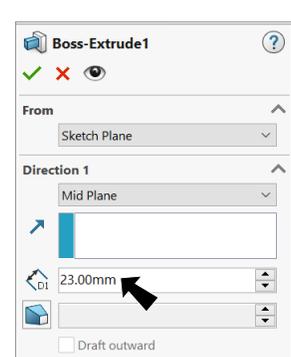


Fig. 17

Step 3. Save  (**Ctrl-S**). (Rim Axle)

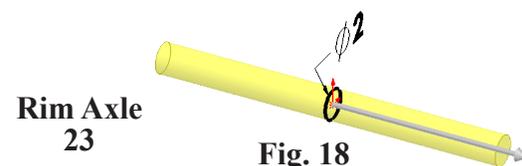


Fig. 18

J. Save as "IDLER AXLE".

Step 1. Save.
Use **Ctrl-S** to save RIM AXLE.

Step 2. Click File Menu > Save As.

Step 3. Key-in **IDLER AXLE** for the filename.

K. Change Extrude Depth.

Step 1. Click **Boss-Extrude1**  in the Feature Manager and click **Edit Feature**  in the context toolbar, **Fig. 19**.

Step 2. In the Property Manager change:
under Direction 1, **Fig. 20**

Depth  **6.4**
click OK .

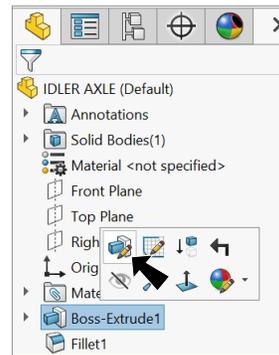


Fig. 19

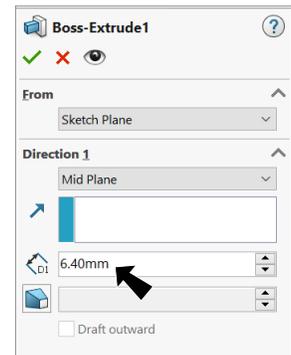


Fig. 20

Step 3. Save  (**Ctrl-S**). (Idler Axle)

**Idler Axle
6.4**

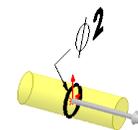


Fig. 21

You should have 4 axles:

FRONT 98.5 mm

REAR 35 mm

RIM 23 mm

IDLER 6.4 mm

