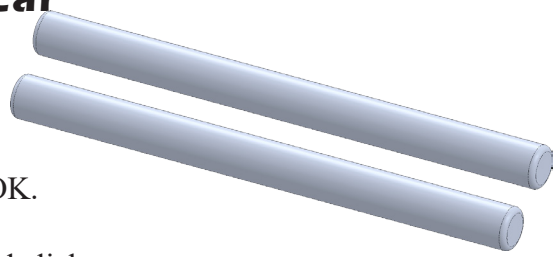






Chapter 7

CO2 Shell Car 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**.

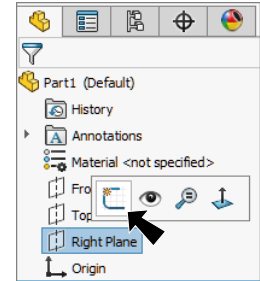


Fig. 1

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 3.18**, **Fig. 2**.

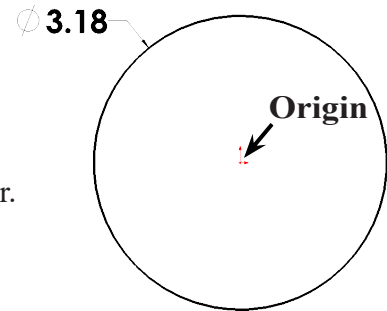
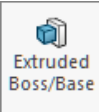




Fig. 2

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  **38.8**
click OK .

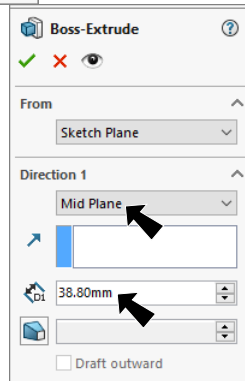



Fig. 3

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

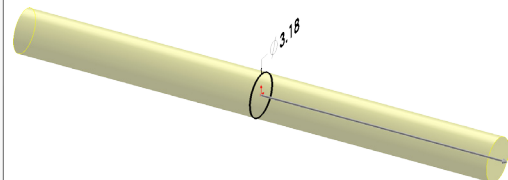


Fig. 4



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.

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

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

Step 3. Save. Use **Ctrl-S**.

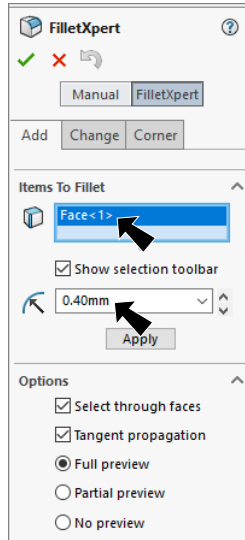


Fig. 5

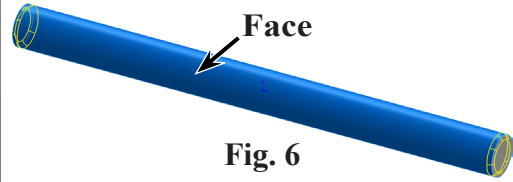


Fig. 6

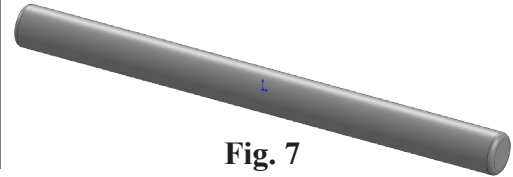

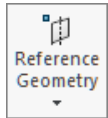


Fig. 7

D. Mate References.

Step 1. Click **Right Plane**  in the Feature Manager to select Plane, **Fig. 8**.

Step 2. Click **Reference Geometry**  on the Features toolbar and **Mate Reference** from the menu.

Step 3. In the Mate Reference Manager: under **Primary Reference Entity**, **Fig. 9**

Mate Reference Type  **Coincident**

under **Secondary Reference Entity**

click in Entity box 
 and click **cylindrical face of axle**, **Fig. 10**

click **OK** .

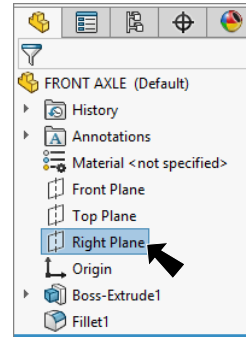


Fig. 8

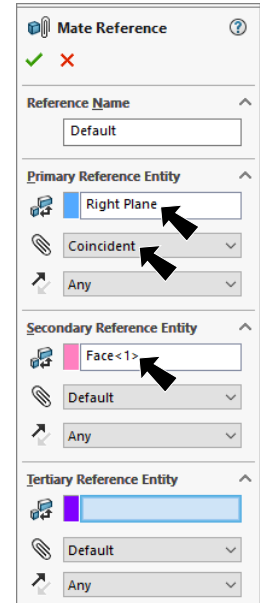


Fig. 9

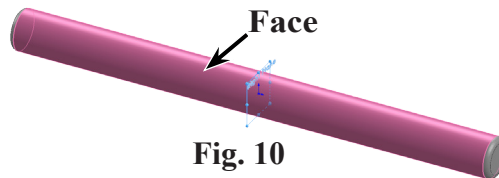


Fig. 10

E. Material Aluminum.

Step 1. Right click **Material** in the Feature Manager and click **Edit Material**, Fig. 11.

Step 2. Expand **Aluminum Alloys** in the material tree and select **1060 Alloy**, Fig. 12. Click **Apply** and **Close**.

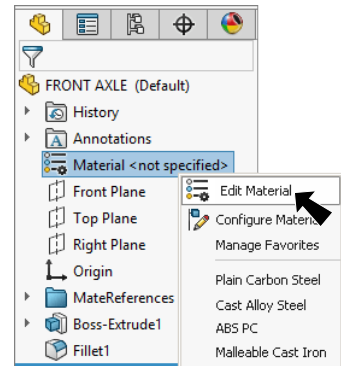


Fig. 11

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

Step 2. Click File Menu > Save As.

Step 3. Key-in **REAR AXLE** for the filename and press ENTER. You now have two axle files, FRONT and REAR. Next, we change length of REAR axle.

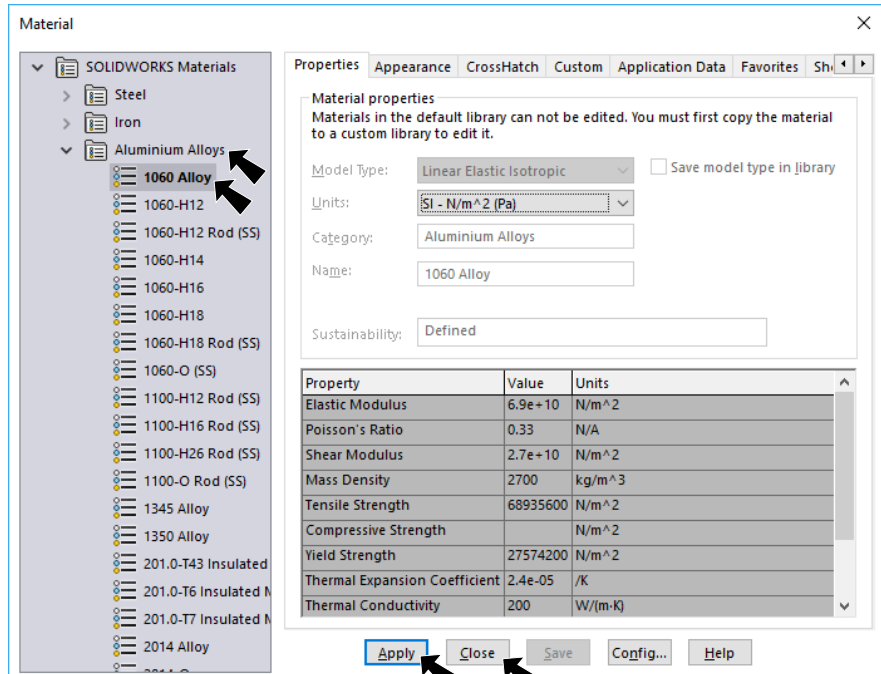


Fig. 12

G. Change Extrude Depth.

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

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

change **Depth** to **39**

click OK

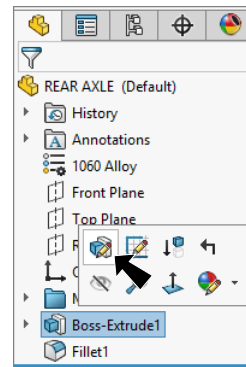


Fig. 13

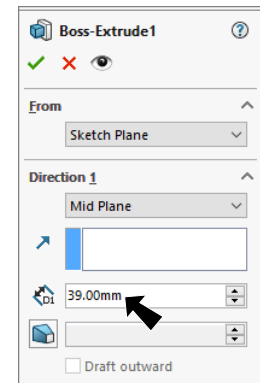


Fig. 14

Step 3. Save. Use **Ctrl-S**.

You should have 2 axles:

FRONT 38.5

REAR 39

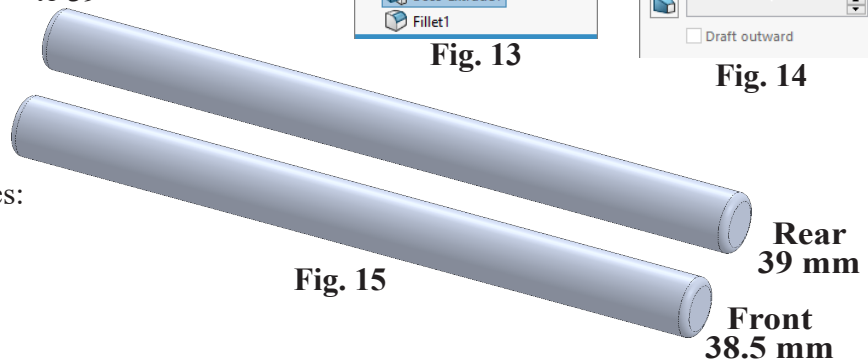


Fig. 15