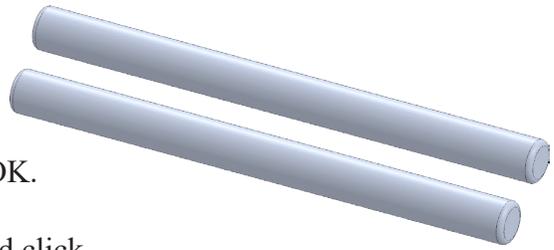


CO2 Shell Car Axles



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**.

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

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

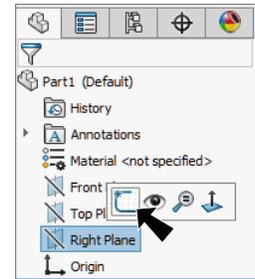


Fig. 1

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

Step 6. Dimension circle **diameter 3.18**, **Fig. 2**.

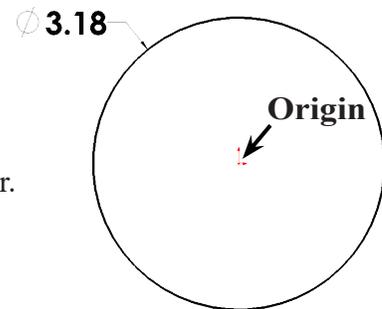
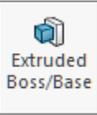


Fig. 2

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  **38.5**
click OK .

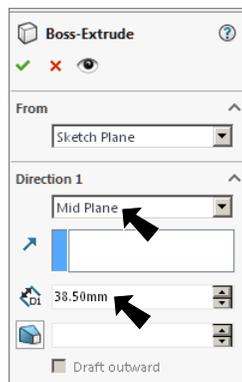


Fig. 3

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

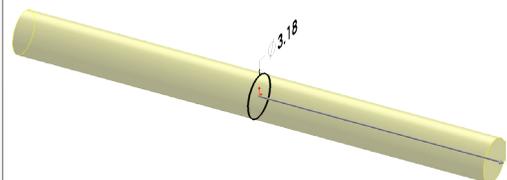


Fig. 4

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 Edges.

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**.

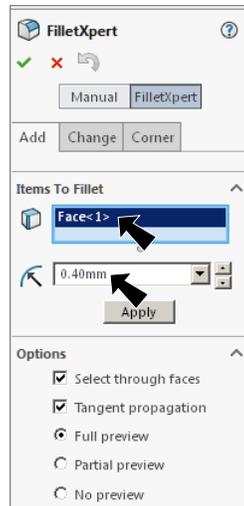


Fig. 5

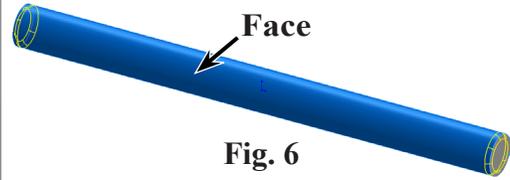


Fig. 6

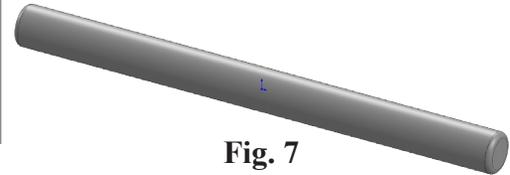
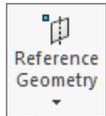


Fig. 7

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** .

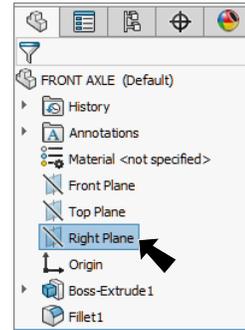


Fig. 8

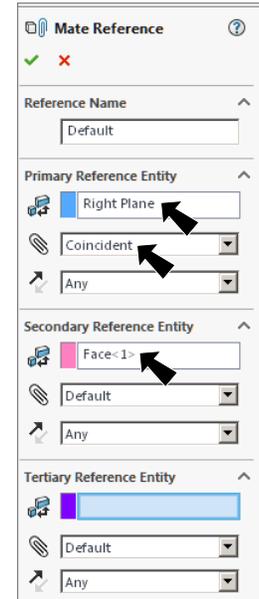


Fig. 9

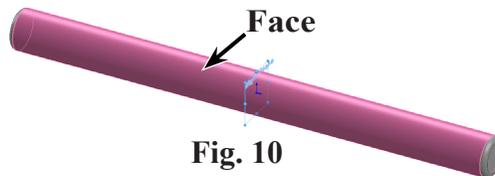


Fig. 10

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**.

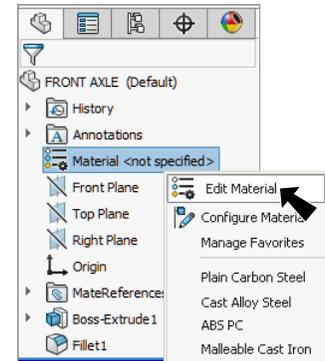


Fig. 11

F. Save As "REAR AXLE".

- 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.

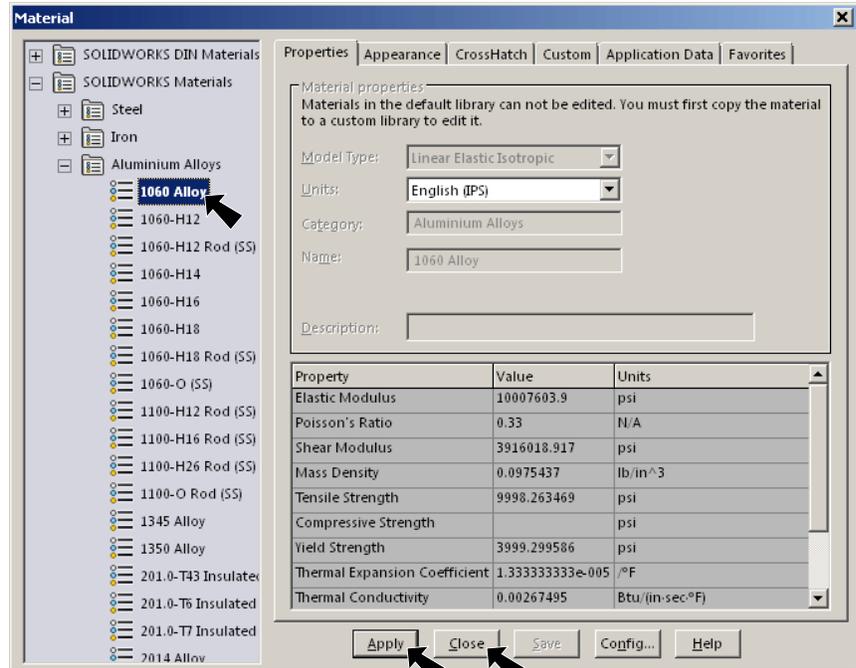


Fig. 12

G. Change Extrude Depth.

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

- Step 2. In the Property Manager set: under Direction 1, Fig. 14 change **Depth**  to **39** click OK .

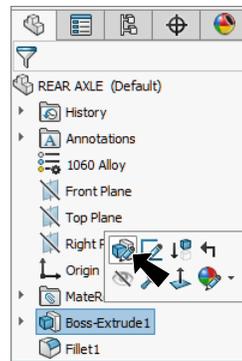


Fig. 13

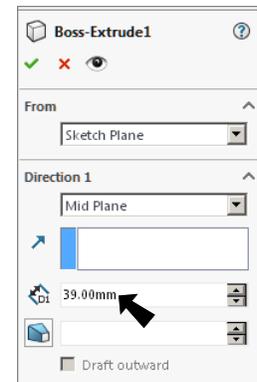


Fig. 14

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

You should have 2 axles:
FRONT 38.5
REAR 39

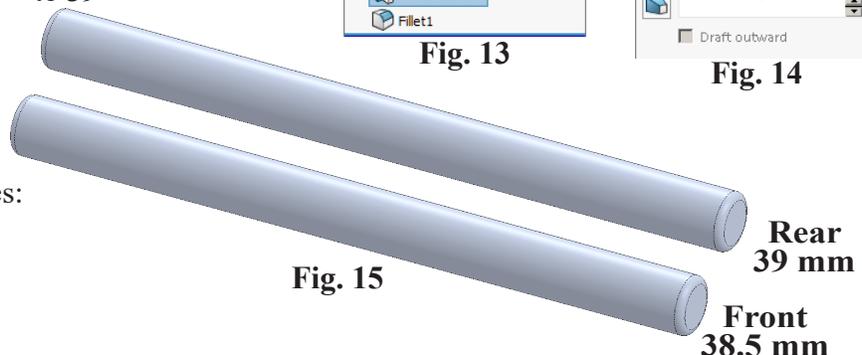


Fig. 15