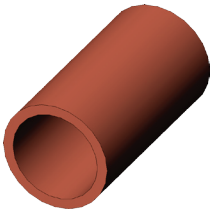
Chapter 17

Boat Bushing



A. Tube.

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

Step 2. Click **Front Plane** in the Feature Manager and click **Sketch** from the Content toolbar, **Fig. 1**.

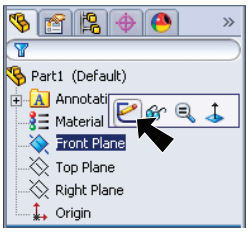


Fig. 1

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

Step 4. Draw **two circles** starting at the Origin , **Fig. 2**.

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

Step 6. Dimension the circle as shown in **Fig. 2**.

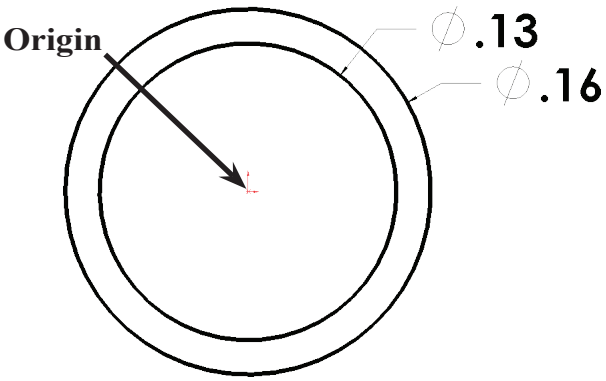


Fig. 2

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:

Depth to **.3**

click OK , **Fig. 4** and **Fig. 5**.

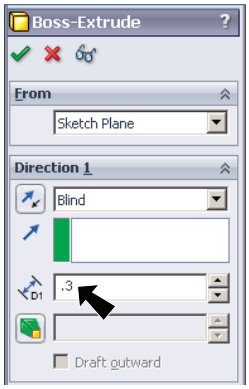


Fig. 3

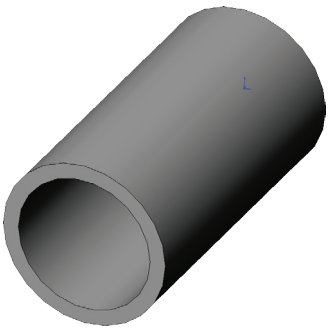


Fig. 4

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

B. Save as "BUSHING".

Step 1. Click File Menu > Save As.

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

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C. Material POM Acetal Copolymer.

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

Step 2. **Expand Copper Alloys** in the material tree and select **Copper**. Click **Apply** and **Close**.

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

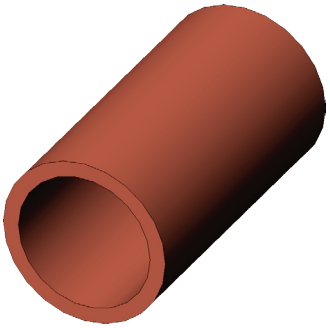

Fig. 5

D. Insert Bushing into BOAT ASSEMBLY.

Step 1. Open your **BOAT ASSEMBLY** file.

Step 2. Rotate view as shown in **Fig. 6**. Hold down middle mouse button (wheel) and drag.

Step 3. Click **Insert Components** on the Assembly toolbar.

Step 4. **Browse** and place **BUSHING** as positioned in **Fig. 6**.

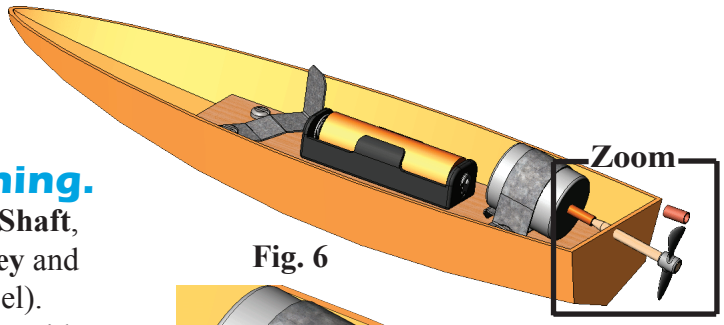

Fig. 6

E. Mate: Prop Shaft and Bushing.

Step 1. Zoom in around **Bushing and Prop Shaft**, **Fig. 6**. To **zoom**, hold down **Shift key** and drag with middle mouse button (wheel). To **pan**, hold down **Ctrl key** and drag with middle mouse button (wheel).

Step 2. Click **Mate** on the Assembly toolbar.

Step 3. Click **cylindrical face of Prop Shaft** and **inside cylindrical face of Bushing hole**, **Fig. 7**.

Step 4. Click Add/Finish Mate in Mate pop-up toolbar to add a **Concentric** mate.

Step 5. Click OK in the Property Manager.

Step 6. Grab the Bushing and slide to insert into boat hull, **Fig. 8**.

Step 7. Save. Use **Ctrl-S**.

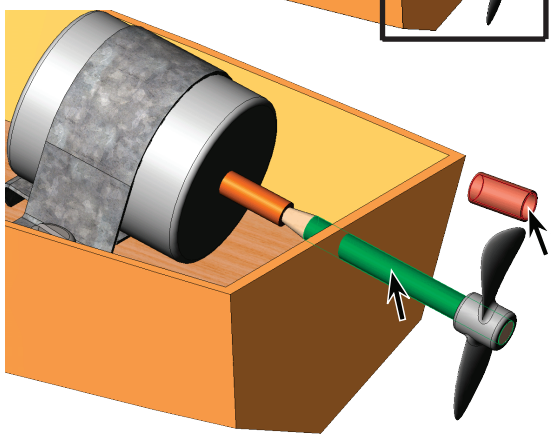

Fig. 7

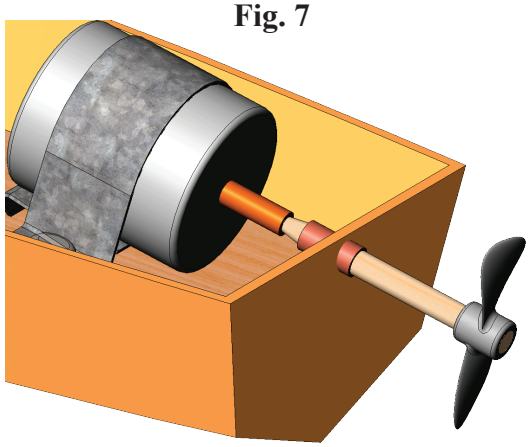

Fig. 8