



CO₂ Shell Car E-Clip



A. Sketch Circles.

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

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

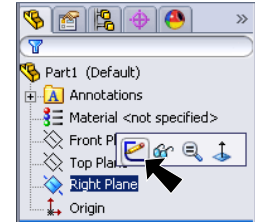


Fig. 1

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

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

Step 5. Click **Fully Defined Sketch**  (D) on the Sketch toolbar and OK  in the Property Manager.

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

Step 7. Click **Zoom to Fit**  (F) on the View toolbar.

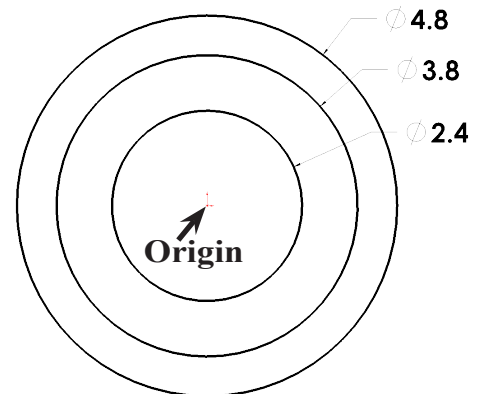



Fig. 2


B. Save as "E CLIP".

Step 1. Click File Menu > Save As.

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

C. Add Lines.

Step 1. Click **Line**  (L) on the Sketch toolbar.

Step 2. Starting from the Origin  draw **two lines** out to the middle circle. Keep **one line horizontal** and the other at angle as shown in **Fig. 3**. To restart the line, **right click** and select **End Chain** from menu.

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

Step 4. Dimension the angle between the lines **70 degrees** as shown in **Fig. 3**. To Smart dimension the angle click both lines then move the cursor out away from the lines and click. Key-in **70** for the dimension and press ENTER.

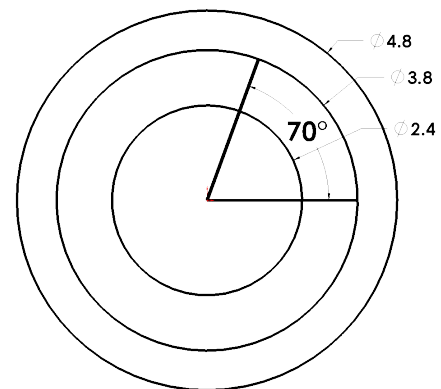



Fig. 3

D. Trim 1.

Step 1. Click **Trim Entities**  on the Sketch toolbar.

Step 2. In the Property Manger select **Trim to closest** , Fig. 4. Click entities to trim, Fig. 5. Results shown in Fig. 6.

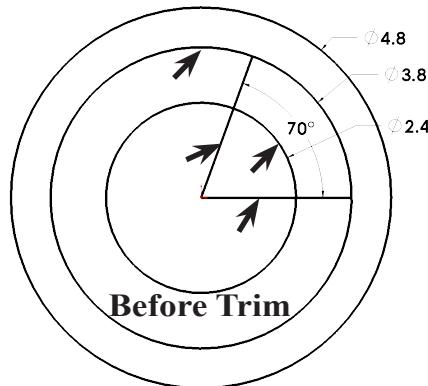


Fig. 5

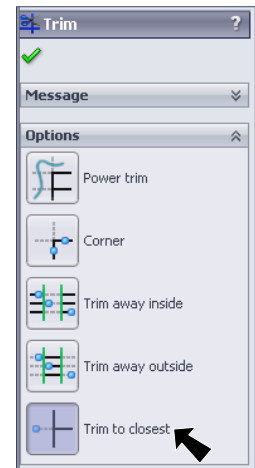





Fig. 4

E. Centerline.

Step 1. Click **Centerline**  in the **Line** flyout  (S) on the Sketch toolbar.

Step 2. Draw a vertical centerline starting from the Origin  and extending out pass the top of large circle, Fig 7. Continue a second centerline back down at angle and extending outside bottom of large circle as shown in Fig 7.

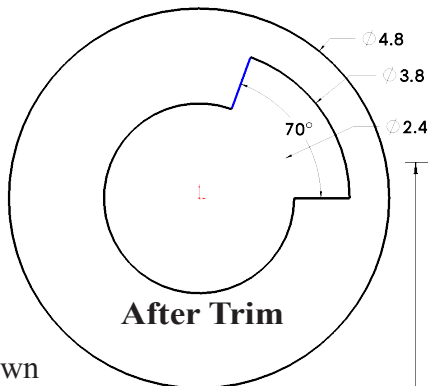


Fig. 6

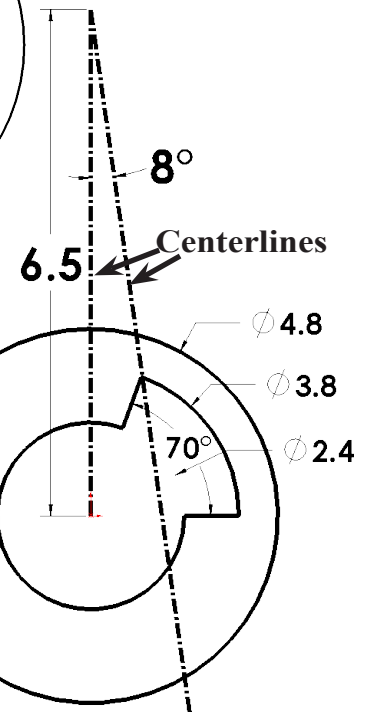


Fig. 7


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

Step 4. Dimension the vertical centerline 6.5 and the angle between centerlines 8 degrees as shown in Fig. 7.

Step 5. Save. Use **Ctrl-S**.

F. Trim 2.

Step 1. Click **Trim Entities**  on the Sketch toolbar.

Step 2. In the Property Manger select **Trim to closest**  and click entities to trim, Fig. 8. Results shown in Fig. 9.

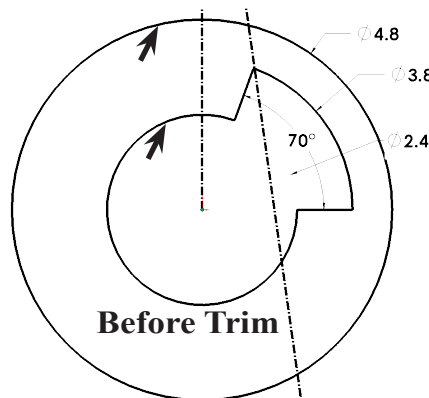


Fig. 8

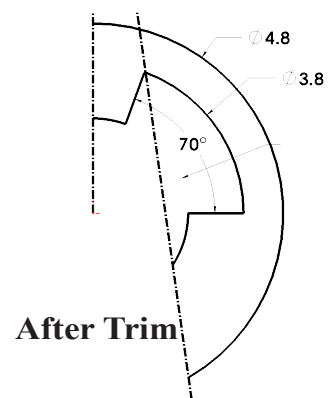


Fig. 9

G. Add Line.



Step 1. Click **Line**  (L) on the Sketch toolbar.



Step 2. Draw a line to close bottom of clip as shown in **Fig. 10**.

H. Sketch Fillets.

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

Step 2. In the Sketch Fillet Property Manager set:

Radius  .3, **Fig. 11**
click **top two corners** shown in **Fig. 12**
click OK 

Radius  .35, **Fig. 13**
click **bottom corner** shown in **Fig. 12**
click OK **twice**  when done.

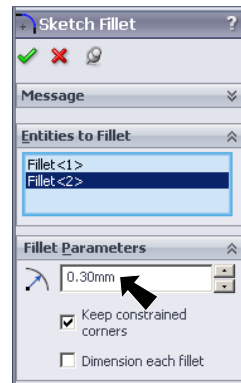


Fig. 11

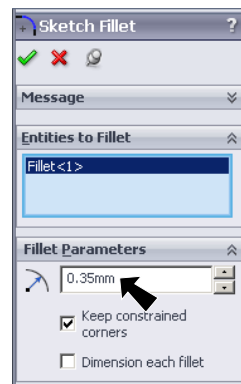


Fig. 13

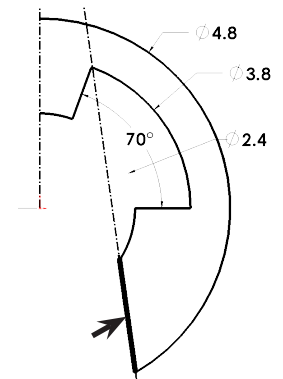


Fig. 10

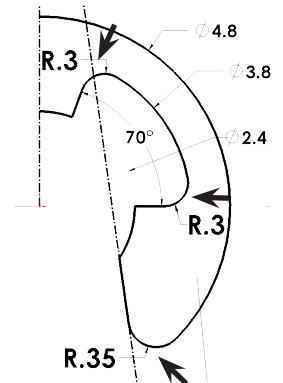



Fig. 12

I. Mirror Geometry.

Step 1. Click **Mirror Entities**  on the Sketch toolbar.

Step 2. In the Mirror Property Manager set:
under **Entities to mirror**:

click in the **Entities to mirror**  box, **Fig. 14**

in the sketch, **drag a selection around all the geometry** as shown in **Fig. 15**

click in **Mirror about**  box, **Fig. 14**

click **vertical centerline** as **entity to mirror about**, **Fig. 15**

click OK  **Fig. 16**.

Drag a selection around all geometry

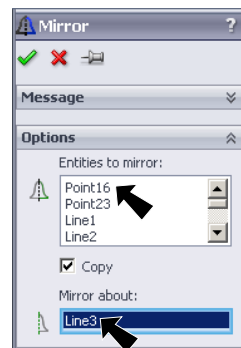


Fig. 14

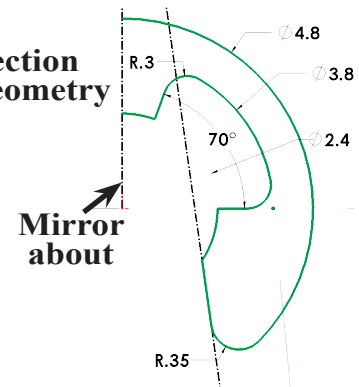


Fig. 15

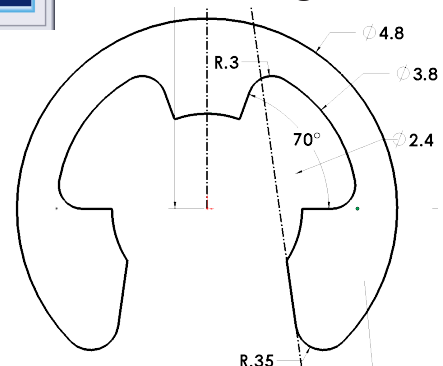
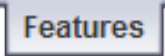


Fig. 16

J. Extrude.

Step 1. Click **Features**  on the Command Manager toolbar.

Step 2. Click **Extruded Boss/Base**  on the Features toolbar.

Step 3. In the Property Manager set:

End Condition to **Mid Plane**

Depth  D1 .25

click OK , **Fig. 17** and **Fig. 18**.

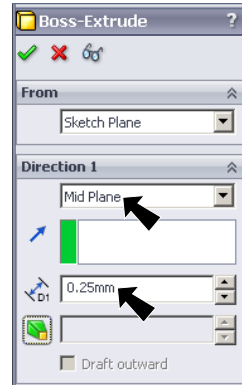



Fig. 17



Fig. 18

K. Material Stainless Steel.

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

Step 2. **Expand Steel** in the material tree and select **AISI 316 Stainless Steel Sheet**. Click **Apply** and **Close**.

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