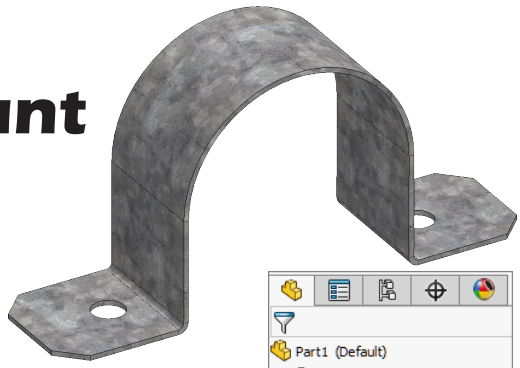
Chapter 5

Solar Car

Motor Mount



A. Sheet Metal.

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

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

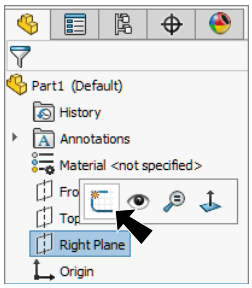
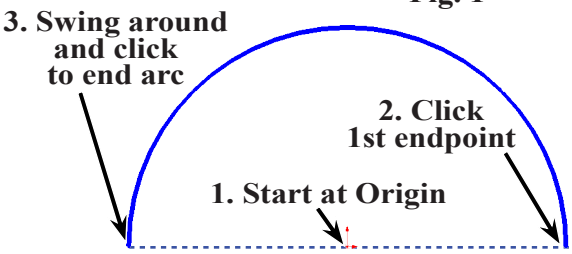


Fig. 1

Step 3. Click **Centerpoint Arc** **(S)** in the **Arc flyout** on the Sketch toolbar.

Step 4. Click the Origin to start the arc and move the cursor to the right. Click to place the first end point, then move cursor counterclockwise 180 degrees. Click to place the second end point, **Fig. 2**.



Step 5. Click **Line** **(L)** on the Sketch toolbar.

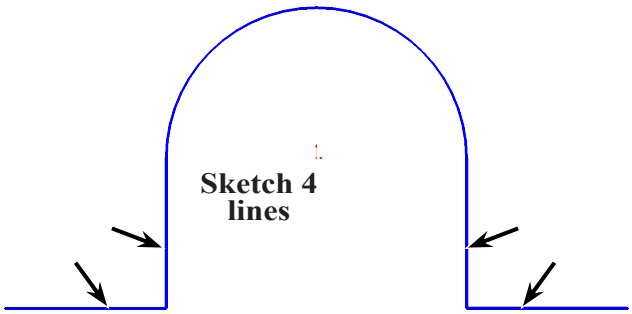


Fig. 3

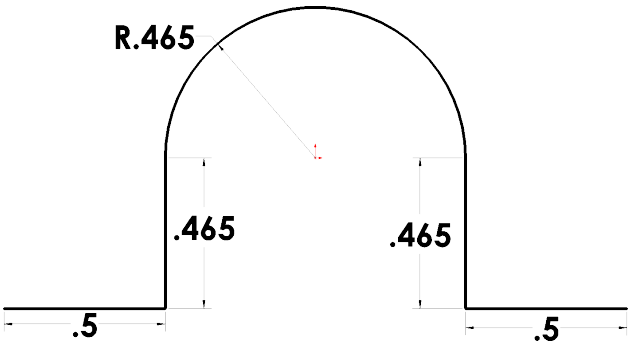


Fig. 4

Step 6. Sketch the lines in **Fig. 3**. Start the lines tangent at the endpoint of the arc.

Step 7. Click **Smart Dimension** **(S)** on the Sketch toolbar.

Step 8. **Dimension the .465 radius first**, then the others dimensions, **Fig. 4**.

Step 9. Click Insert Menu > Sheet Metal > Base Flange.

Step 10. Click **Right** on the View toolbar. **(Ctrl-4)**

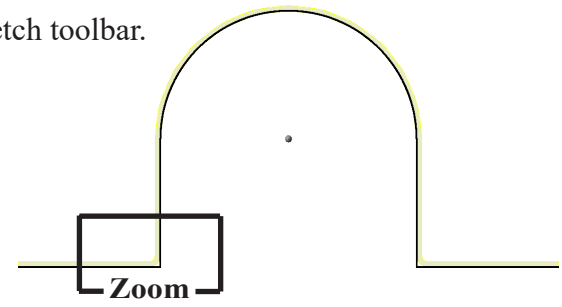


Fig. 5

Step 11. Zoom in around **corner**, **Fig. 5**. To **zoom**, place the cursor over the corner and spin the wheel on mouse back. While spinning the wheel keep cursor on corner.

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Step 12. In the Property Manager set:
under Direction 1, **Fig. 7**
select **Mid Plane**
Depth D1 **.5**
under Sheet Metal Gauges
check **Use gauge table**
select **Sample Table - Aluminum**
under **Sheet Metal Parameters**
select **Gauge 26**

IF **sheet metal**, **Fig. 6** is on the **top of sketch -** click OK ✔ .

IF **sheet metal is on bottom, Fig. 8,** check **Reverse direction** in the Property Manager, **Fig. 7**

Sketch (black line) has to be on bottom of sheet metal (green/yellow part)

click OK ✔ .

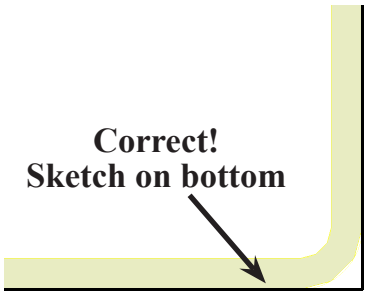


Fig. 6

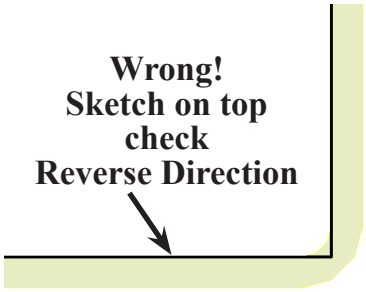


Fig. 8

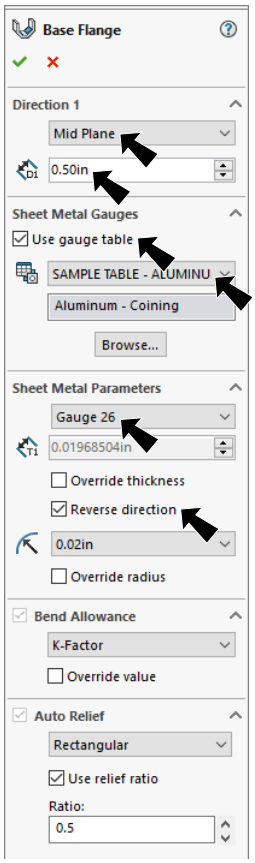


Fig. 7

B. Save as "MOTOR MOUNT".

Step 1. Click File Menu > Save As.

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

C. Holes.

Step 1. Click **Isometric** on the View toolbar. (**Ctrl-7**)

Step 2. Click the **top face** and click **Sketch** on the context toolbar, **Fig. 9**.

Step 3. Click **Normal To** on the Views toolbar (**Ctrl-8**).

Step 4. Click **Circle** on the Sketch toolbar.

Step 5. Sketch **two circles** for the holes, **Fig. 10**.

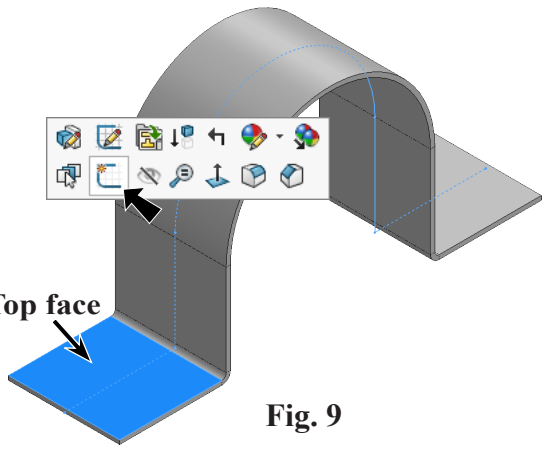


Fig. 9

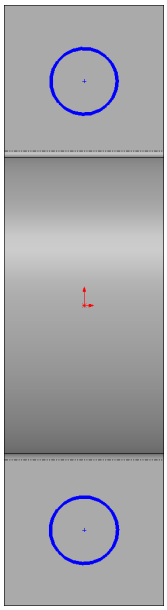


Fig. 10

Step 6. Click **Smart Dimension**

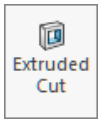
(**S**) on the Sketch toolbar.

Step 7. Add dimensions, **Fig. 11**.

Step 8. Click **Isometric** on the View toolbar. (**Ctrl-7**)

Step 9. Click **Features**

on the Command Manager toolbar.

Step 10. Click **Extruded Cut** 

on the Features toolbar.

Step 11. In the Property Manager set:
under Direction 1, **Fig. 12**
End Condition **Through All**
click OK ✔ .

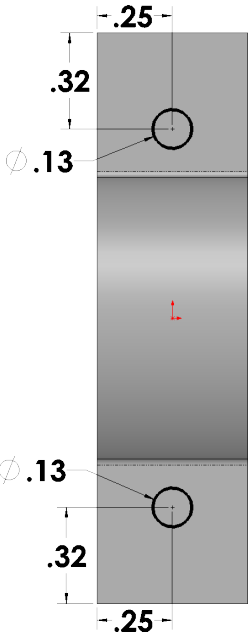


Fig. 11

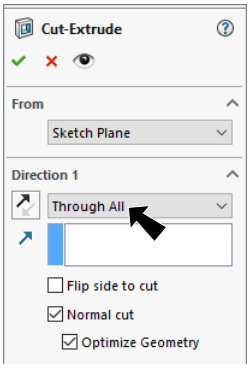


Fig. 12

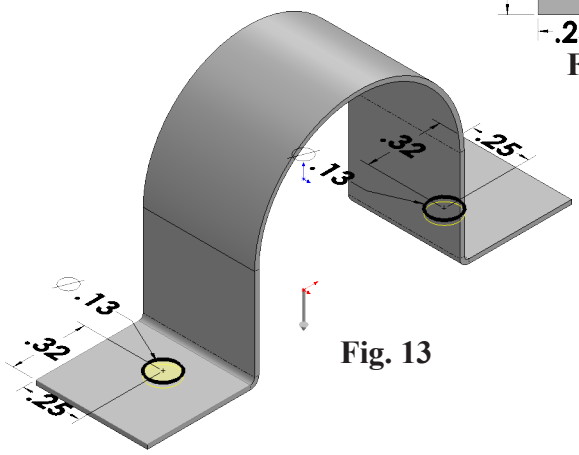
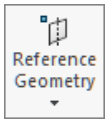


Fig. 13

D. Mate Reference.

Step 1. Click the **bottom circular edge of hole** to select edge, **Fig. 14**.

Step 2. Click **Reference Geometry** 

on the Features toolbar and **Mate Reference** from the menu.

Step 3. In the Mate Reference Property Manager click OK ✔ , **Fig. 15**.

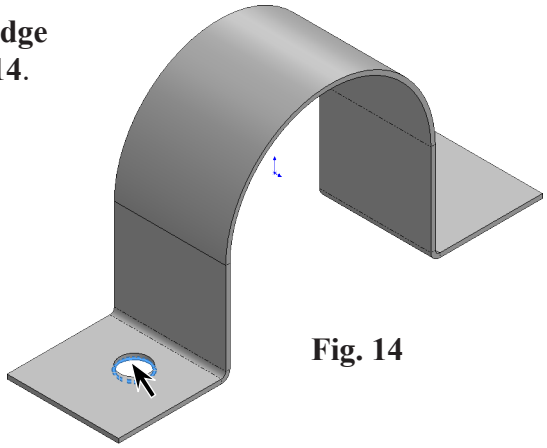


Fig. 14

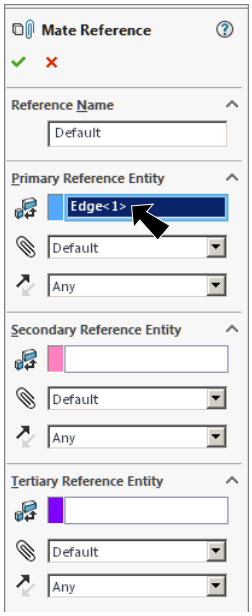


Fig. 15

E. Chamfers.

Step 1. Click **Chamfer**

on the Features toolbar.

Step 2. In the Chamfer Property Manager set:
under Chamfer Type, **Fig. 16**
select **Angle Distance**
under Chamfer Parameters
Distance **.1**
Angle **45°**
Drag a selection around each corner to select the corner vertical edge, **Fig. 17**.
Click OK .

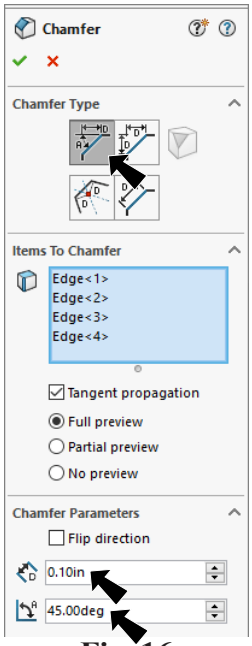


Fig. 16

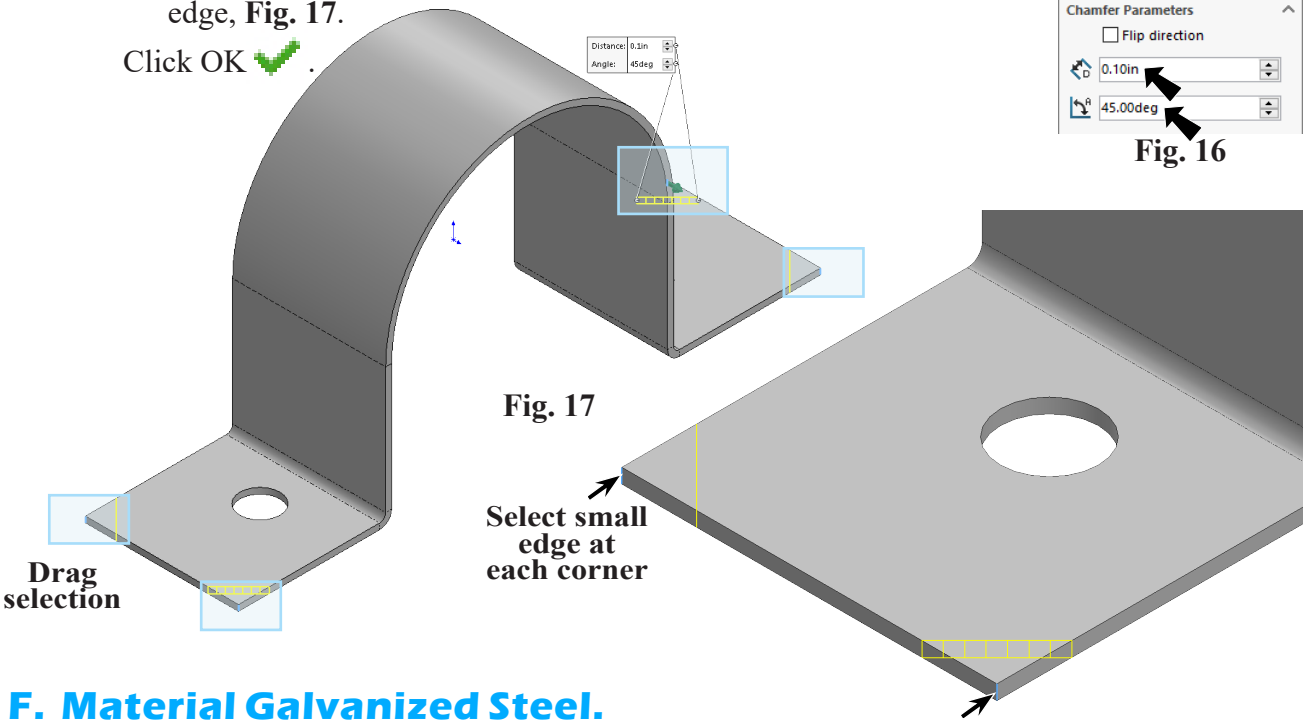


Fig. 17

F. Material Galvanized Steel.

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

Step 2. Expand **Steel** in the material tree and click **Galvanized Steel**. Click **Apply** and **Close**.

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

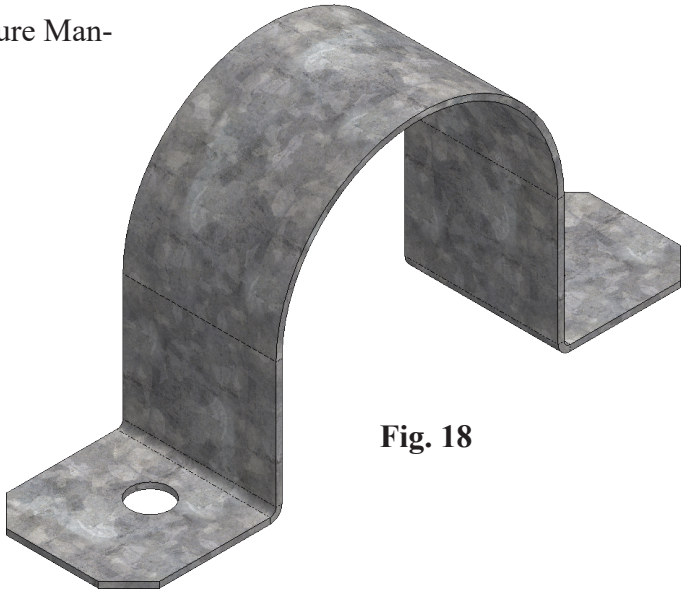


Fig. 18