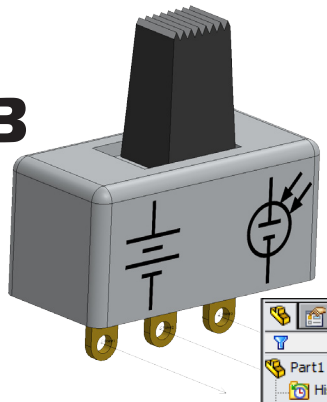
JSS

Switch AB



A. Right Extrude.

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 Context toolbar, **Fig. 1**.

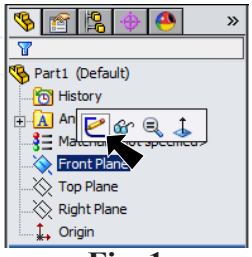


Fig. 1

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

Step 4. Draw a rectangle **away from** the Origin , **Fig. 2**.

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

Step 6. Add dimensions, **Fig. 2**.

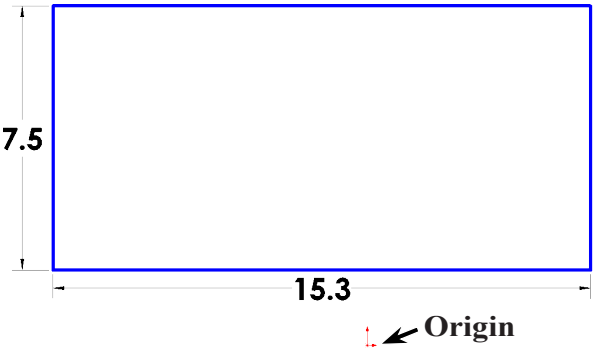


Fig. 2

Step 7. **Right click graphics area and click Select** from menu to unselect Smart Dimension.

Step 8. **Ctrl click** the **bottom line of the rectangle** and **Origin**. Release Ctrl key and click **Make Midpoint** from the Context toolbar, **Fig. 3**.

Step 9. Click **Features** on the Command Manager toolbar.

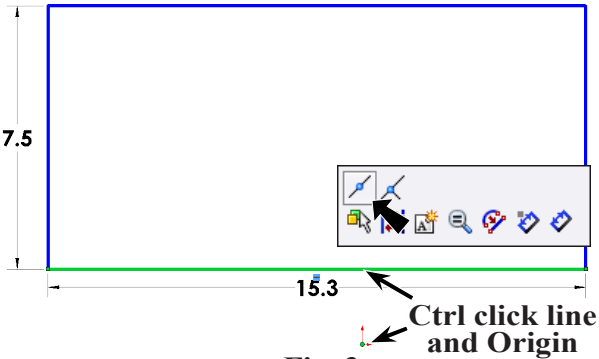


Fig. 3

Step 10. Click **Extruded Boss/Base** on the Features toolbar.

Step 11. In the Property Manager set:
under Direction 1, **Fig. 4**
End Condition
Mid Plane
Depth D1 **7.5**
click OK .

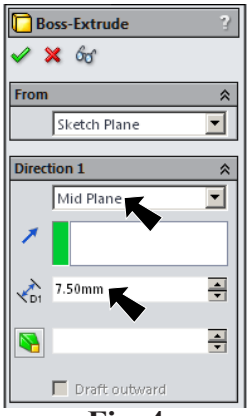


Fig. 4

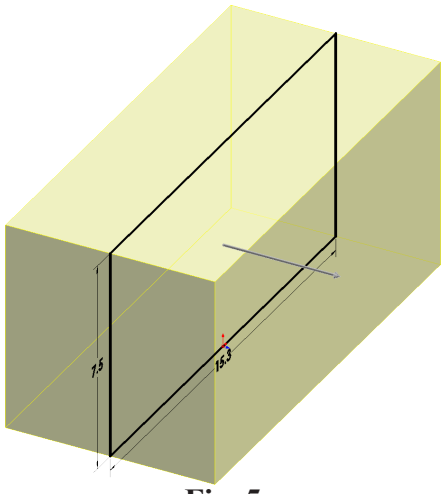


Fig. 5

6/29/14

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B. Save as "SWITCH AB".

Step 1. Click File Menu > Save As.

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

C. Top Cut.

Step 1. Click **top face** and click **Sketch** on the Context toolbar, **Fig. 6**.

Step 2. Click **Center Rectangle** **(S)** in the **Rectangle flyout** on the Sketch toolbar.

Step 3. Draw a **rectangle** from the Origin , **Fig. 7**.

Step 4. Click **Smart Dimension** **(S)** on the Sketch toolbar.

Step 5. Dimension rectangle **6.6 by 4.2**, **Fig. 7**.

Step 6. Click **Features** on the Command Manager toolbar.

Step 7. Click **Extruded Cut** on the Features toolbar.

Step 8. In the Cut-Extrude Property Manager set:
under Direction 1, **Fig. 8**
Depth .75
and click OK .

Step 9. Save. Use **Ctrl-S**.

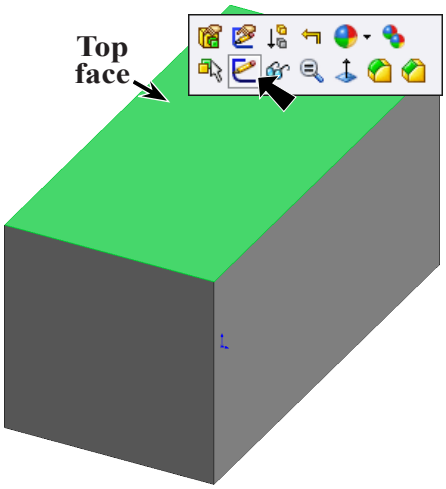


Fig. 6

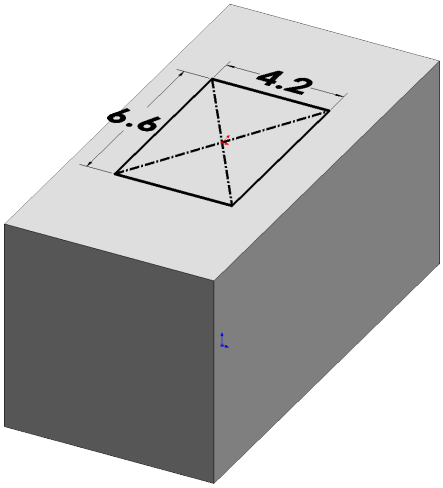


Fig. 7

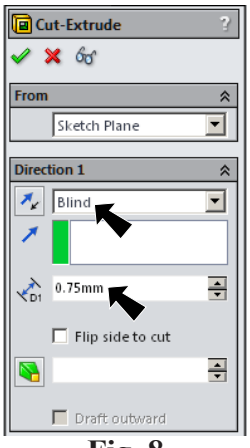


Fig. 8

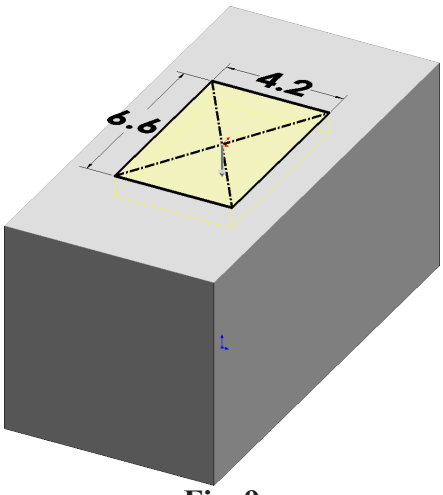


Fig. 9

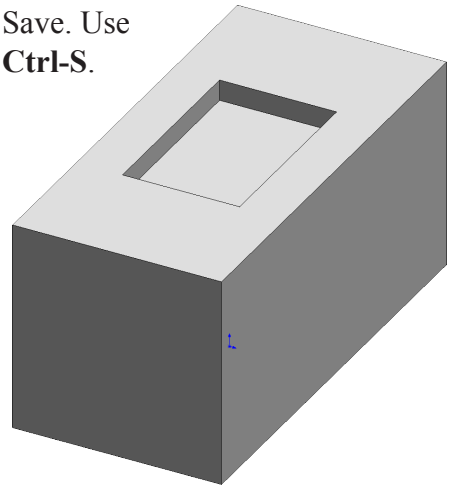


Fig. 10

D. Lever.

Step 1. Click **inside bottom face of cut** and click **Sketch** on the Context toolbar, **Fig. 11**.

Step 2. Click **Normal To** on the View toolbar. (**Ctrl-8**)

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

Step 4. Draw a rectangle **away from** the Origin , **Fig. 12**.

Step 5. **Right click graphics area and click Select** from menu to unselect Rectangle tool.

Step 6. **Ctrl click centerpoint of rectangle** and **Origin** to select both. **Release Ctrl key** and click **Make Vertical** on the Context toolbar, **Fig. 13**.

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

Step 8. Add dimensions, **Fig. 14**.

Step 9. Click **Trimetric** on the Standard Views toolbar.

Step 10. Click **Features** on the Command Manager toolbar.

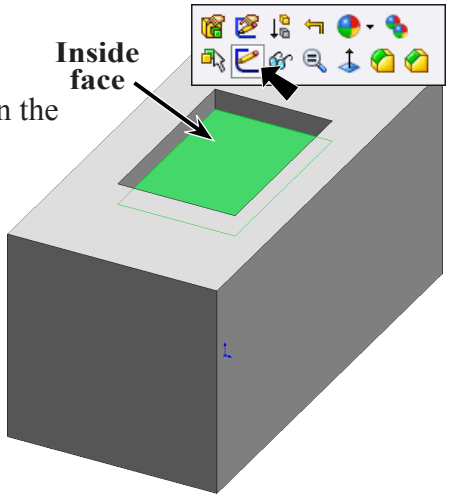


Fig. 11

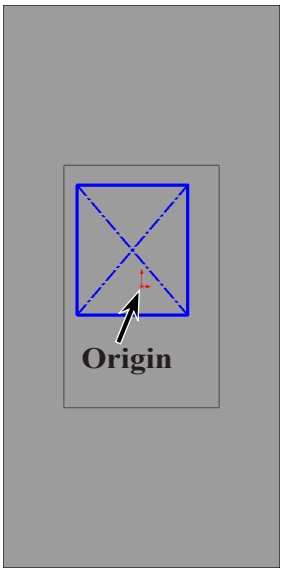


Fig. 12

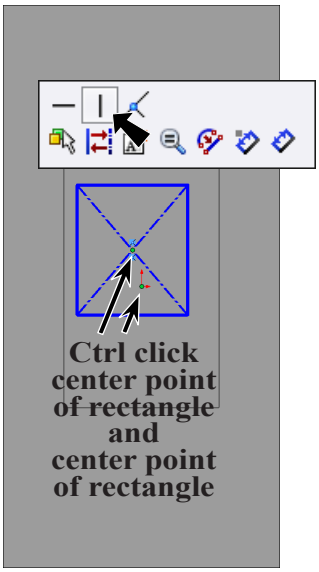


Fig. 13

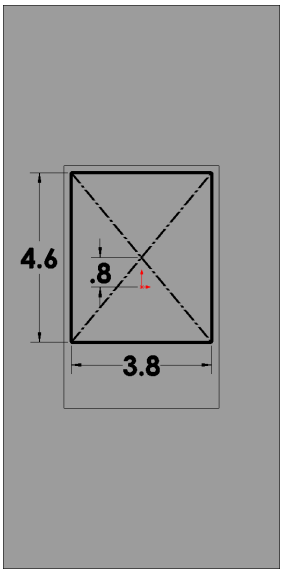
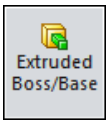


Fig. 14

Step 11. Click **Extruded Boss/Base** 

on the Features toolbar.

Step 12. In the Property Manager set:
under Direction 1, **Fig. 15**

Depth **7.6**

click **Draft On** **3º**

click OK .

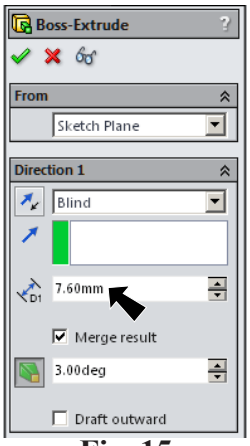


Fig. 15

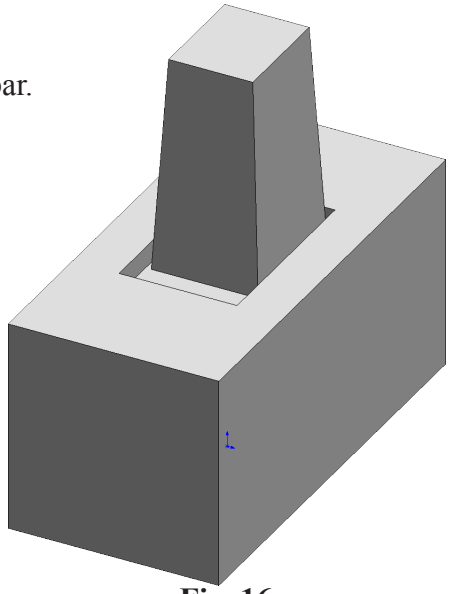


Fig. 16

E. Linear Pattern Cut.

Step 1. Click **Right Plane** in the Feature Manager and click **Sketch** from the Context toolbar, **Fig. 17**.

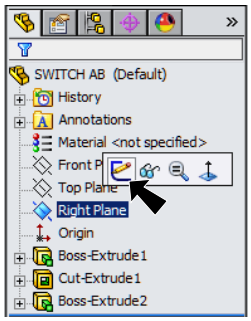


Fig. 17

Step 2. Click **Normal To** on the View toolbar. (**Ctrl-8**)

Step 3. Zoom in around **top of lever**, **Fig. 18**. To zoom, place the cursor over the area and spin the wheel on mouse back. While spinning the wheel keep cursor on the area.

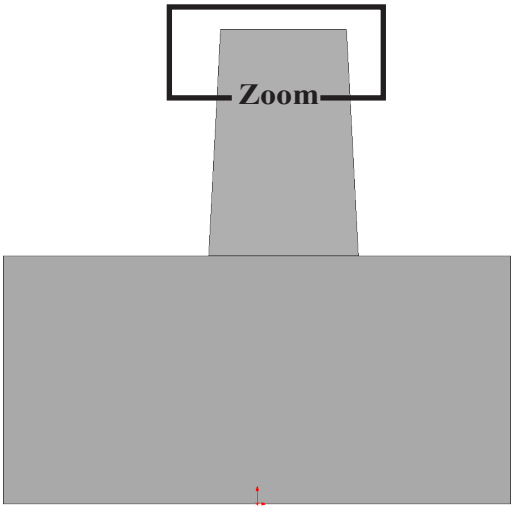


Fig. 18

Step 4. Click **Centerline** (**S**) in the **Line flyout** on the Sketch toolbar.

Step 5. Draw a **horizontal centerline** across lever and **vertical centerline** down from **Mid-point** of top edge, **Fig. 19**. To "**wake up**" **Midpoint,** hover cursor over edge. To terminate chain, double click back on the line you have just drawn.

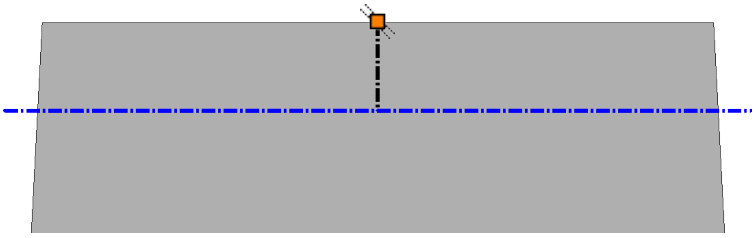


Fig. 19

Step 6. Click **Line** (**L**) on the Sketch toolbar.

Step 7. Draw **angled lines from horizontal centerline to edge and back down to bottom endpoint of vertical centerline**, **Fig. 20**.

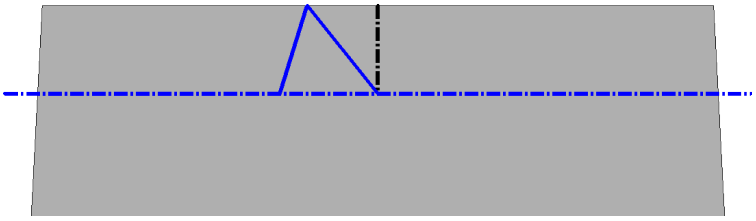


Fig. 20

Step 8. **Right click drawing and click Select** from menu to unselect Line tool.

Step 9. **Ctrl click both lines** to select both. Release Ctrl key and click **Make Equal** = on the Content toolbar, **Fig. 21**.

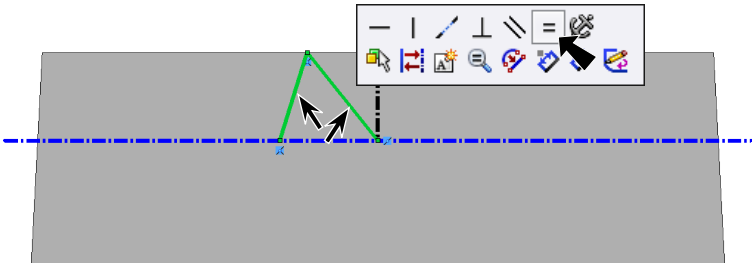


Fig. 21

Step 10. Click **Smart Dimension** Smart Dimension **(S)** on the Sketch toolbar.

Step 11. Add dimensions, **Fig. 22**.

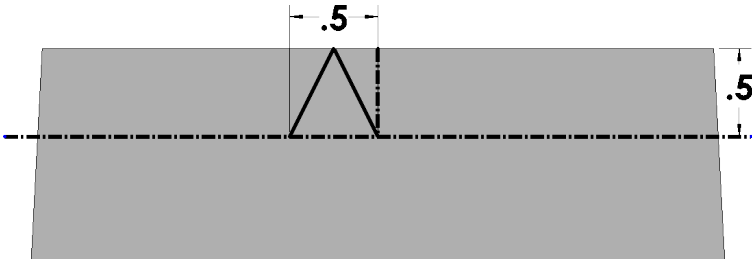


Fig. 22

Step 12. **Right click graphics area and click Select** from menu to unselect Smart Dimension.

Step 13. **Ctrl click both lines** to select both lines, **Fig. 23**.

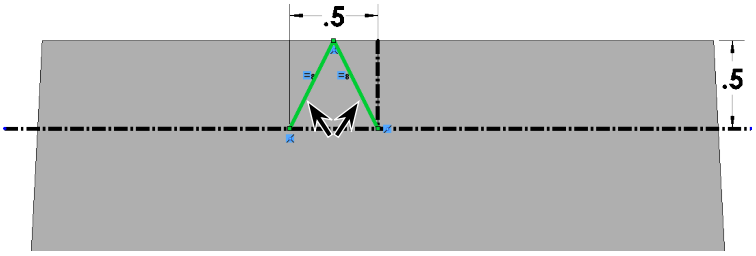


Fig. 23

Step 14. Click **Linear Sketch Pattern** Linear Sketch Pattern on the Sketch toolbar.

Step 15. In the Linear Sketch Property Manager:
under Direction 1, **Fig. 24**
X-axis
Spacing D1 **.5**
Number of Instances # **4**
click **Reverse Direction**

Direction arrow should **point to left**, **Fig. 25** if arrow is pointing in wrong direction, unselect **Reverse Direction**, **Fig. 24**.
Click OK.

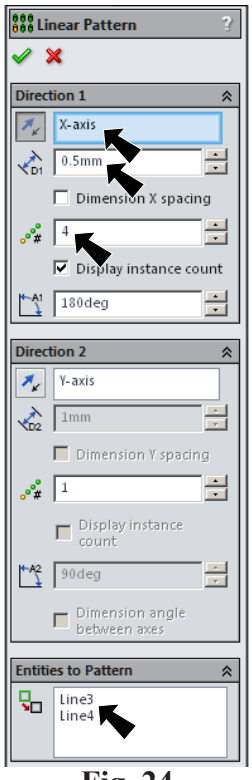


Fig. 24

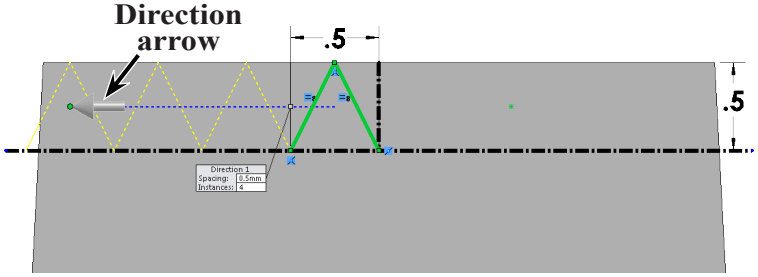


Fig. 25

Step 16. **Drag selection around Linear Pattern and vertical centerline** to select, **Fig. 26**.

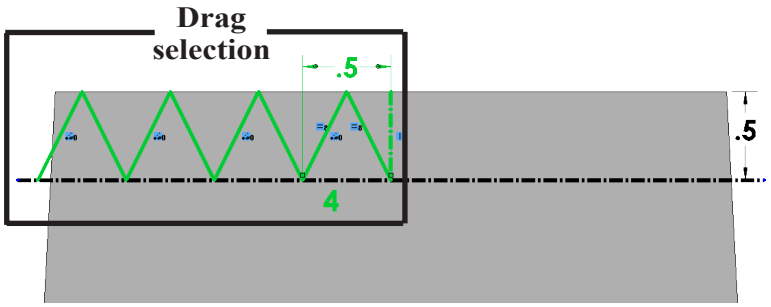


Fig. 26

Step 17. Click **Mirror Entities** Mirror Entities on the Sketch toolbar, **Fig. 27**.

Step 18. Click **Features** Features on the Command Manager toolbar.

Step 19. Click **Extruded Cut** Extruded Cut on the Features toolbar.

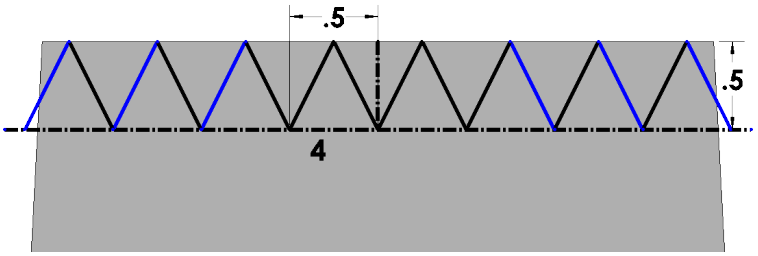


Fig. 27

Step 20. In the Cut-Extrude Property Manager set:

under Direction 1, **Fig. 28**

End Condition **Through All**

check **Flip side to cut**.

The Direction arrow should point towards area to be cut away (up), **Fig. 29**. If arrow is pointing in wrong direction, uncheck **Flip side to cut**.

Click OK .

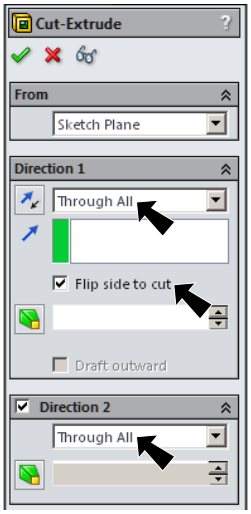


Fig. 28

Step 21. Save. Use **Ctrl-S**.

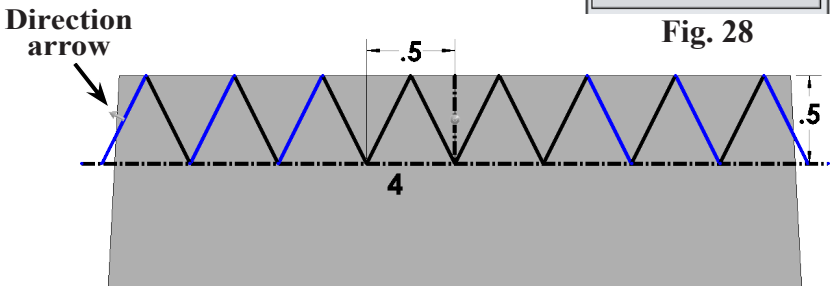


Fig. 29

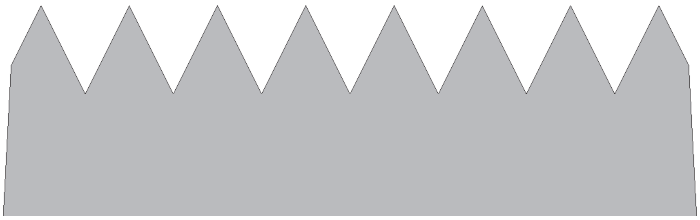


Fig. 30

F. Fillet.

Step 1. Click **Trimetric** on the Standard Views toolbar.

Step 2. Click **Fillet** on the Features toolbar.

Step 3. In the Fillet Property Manager:
select **FilletXpert**, **Fig. 31**
Radius **.75**
click **top edges and corner edges of first extrude**, **Fig. 32**
click OK .

Step 4. Save. Use **Ctrl-S**.

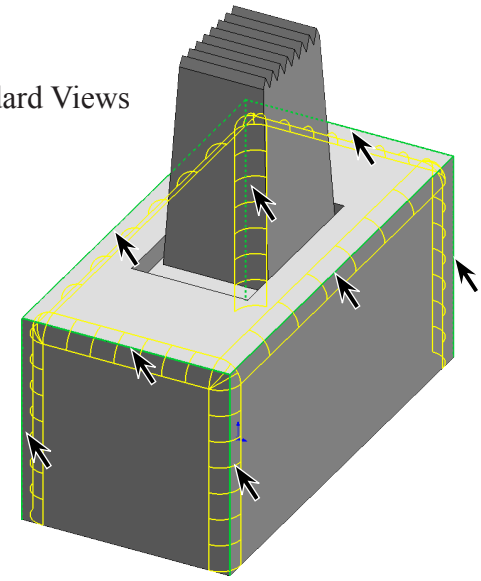


Fig. 32

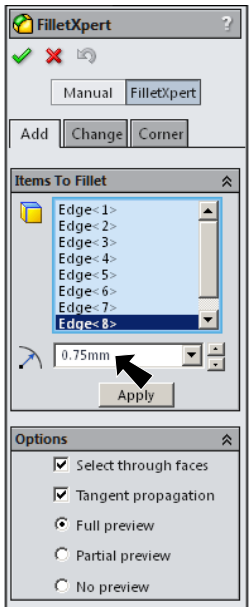


Fig. 31

G. Terminal.

Step 1. Click **Right Plane** in the Feature Manager and click **Sketch** from the Context toolbar, **Fig. 34**.

Step 2. Click **Normal To** on the Standard Views toolbar. (**Ctrl-8**)

Step 3. Zoom in around **bottom edge at Origin**, **Fig. 35**. To zoom, place the cursor over the area and spin the wheel on mouse back. While spinning the wheel keep cursor on the area.

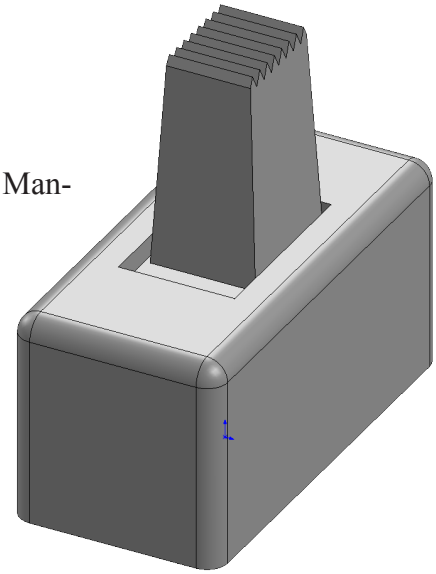


Fig. 33

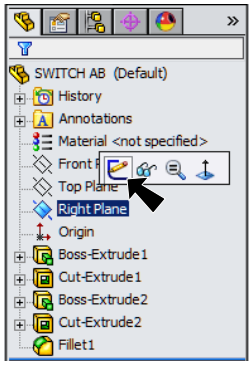


Fig. 34

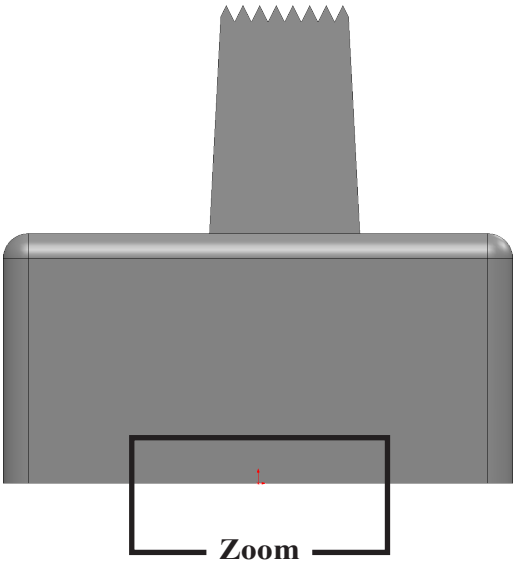


Fig. 35

Step 4. Click **Corner Rectangle** (**S**) on the Sketch toolbar.

Step 5. Draw a **rectangle below the bottom edge** and **away from Origin** , **Fig. 36**.

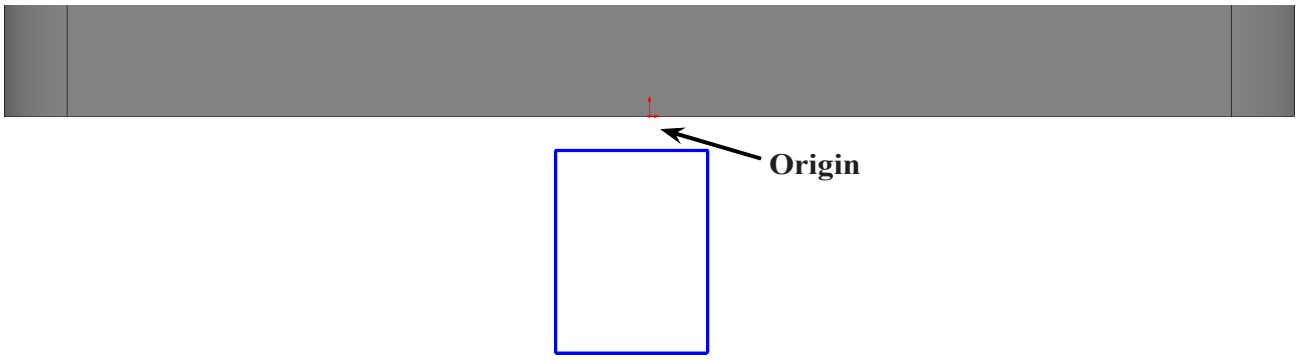


Fig. 36

Step 6. **Right click graphics area and click Select** from menu to unselect Rectangle tool.

Step 7. **Ctrl click** the **Origin and top line of rectangle**.

Release Ctrl key and click **Make Midpoint** from the Context toolbar, **Fig. 37**.

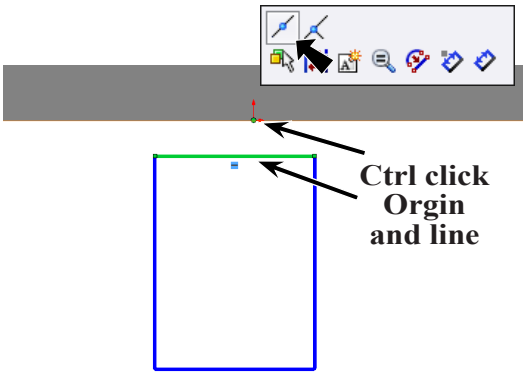


Fig. 37

Step 8. Click **Circle** (**S**) on the Sketch toolbar.

Step 9. Draw **two circles from Midpoint of bottom line of rectangle**. One of the circles, draw coincident to the endpoint of rectangle, **Fig. 38**.

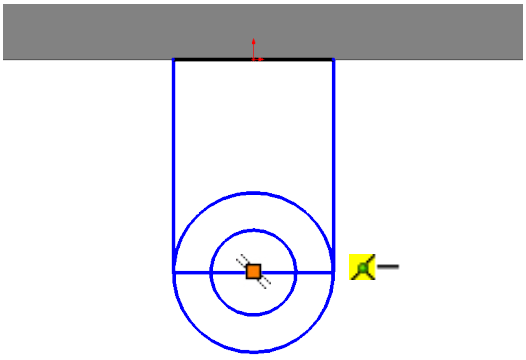


Fig. 38

Step 10. Click **Smart Dimension** (**S**) on the Sketch toolbar.

Step 11. Add dimensions, **Fig. 39**.

Step 12. Click **Features** on the Command Manager toolbar.

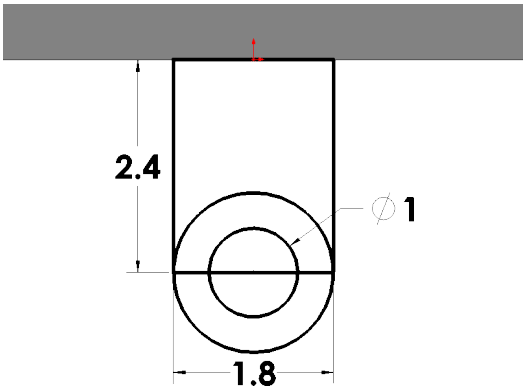
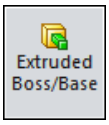


Fig. 39

Step 13. Click **Extruded Boss/Base** 

on the Features toolbar.

Step 14. In the Boss Extrude Property Manager set:
under Direction 1, **Fig. 40**
End Condition **Mid Plane**
Depth .5
under Selected Contours
click **contours above circle and between circles above and below bottom line**, **Fig. 41**
click OK .

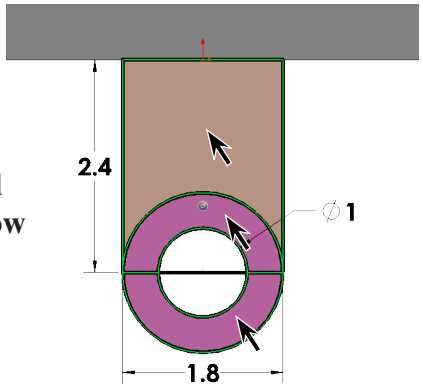


Fig. 41

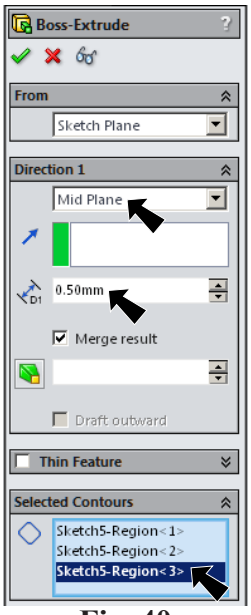


Fig. 40

Step 15. Save. Use **Ctrl-S**.

H. Linear Pattern Feature.

Step 1. Click **Terminal feature** to select, **Fig. 42**.

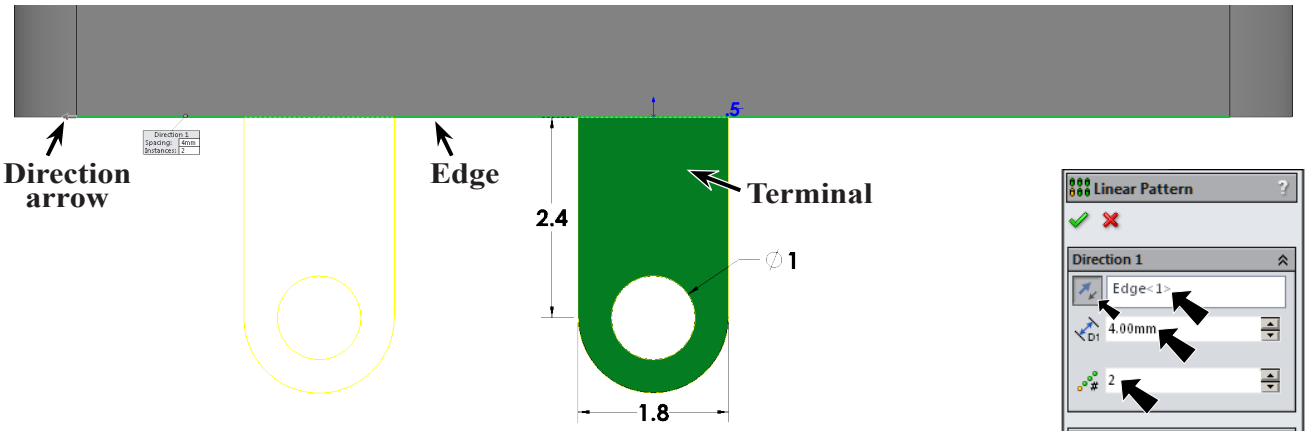
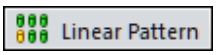


Fig. 42

Step 2. Click **Linear** 

on the Features toolbar.

Step 3. In the Linear Property Manager set:
under Direction 1, **Fig. 43**
for Pattern Direction
click **bottom edge of part**, **Fig. 42**

click **Reverse Direction** , **Fig. 43**.
Direction arrow should **point to left**, if arrow is pointing in wrong direction, unselect **Reverse Direction**

Spacing 4

Number of Instances 2

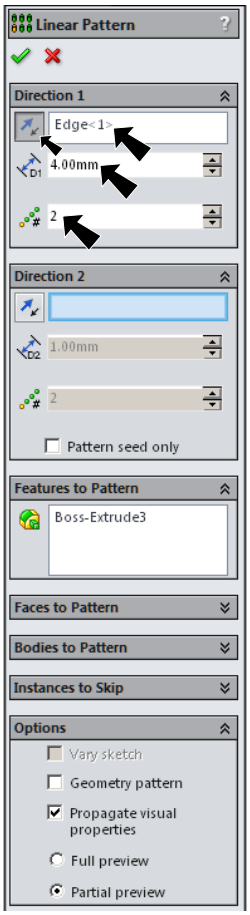


Fig. 43

under Direction 2, **Fig. 44**

for Pattern Direction

click **bottom edge of part**, **Fig. 45**

Direction arrow should **point to right**, if arrow is pointing in wrong direction, select **Reverse Direction** , **Fig. 44**

Spacing **4**

Number of Instances **2**

check **Pattern seed only**

click OK .

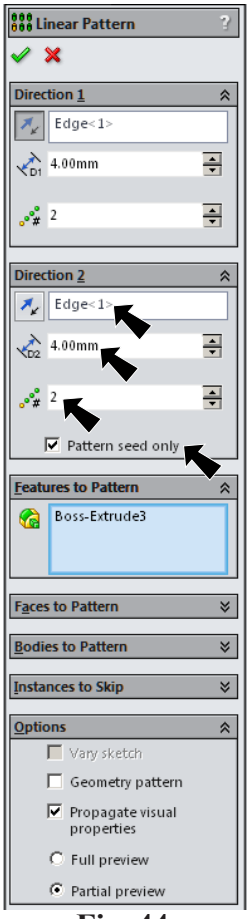


Fig. 44

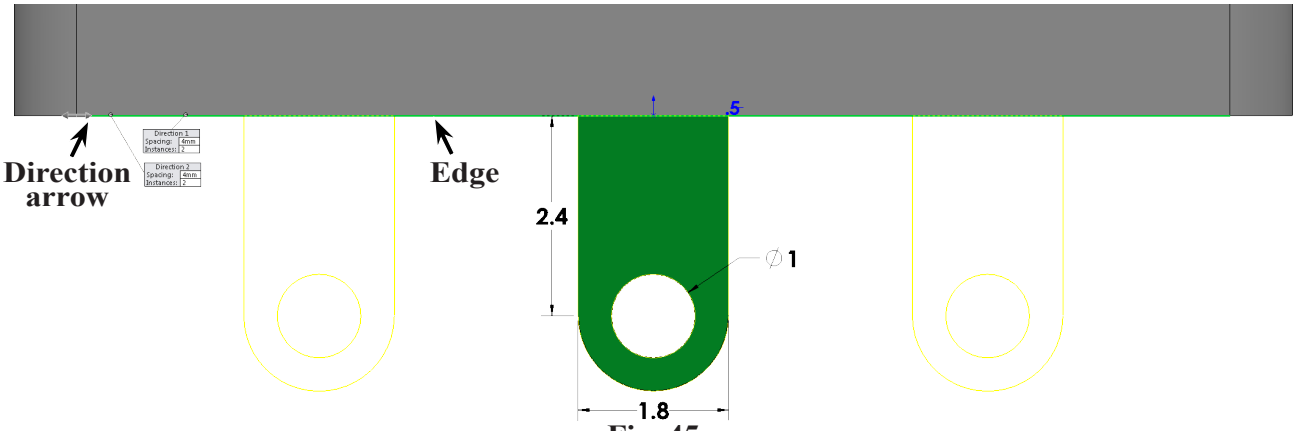


Fig. 45

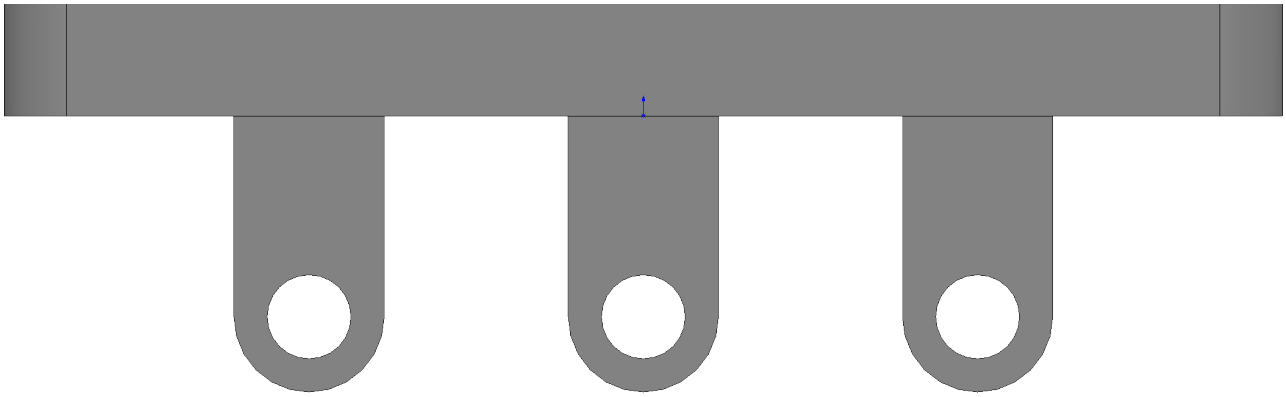


Fig. 46

I. Sketch for Electrical Routing.

Step 1. Click **Right Plane** in the Feature Manager and click **Sketch** from the Context toolbar, **Fig. 47**.

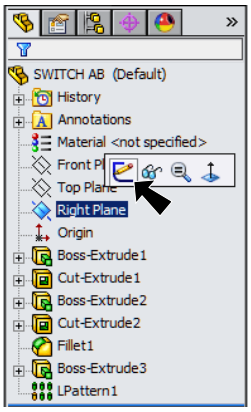


Fig. 47

Step 2. Click **Point** on the Sketch toolbar.

Step 3. Draw a **Point** at centerpoint of hole in each Terminals, **Fig. 48**. To wake up hole centerpoint, touch cursor to edge of hole.

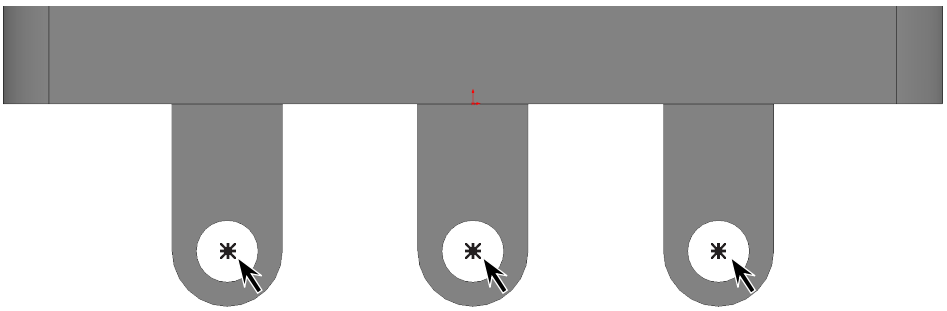


Fig. 48

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

J. Create C Points for Electrical Routing.

Step 1. Rotate view to view **Points in Terminals**, **Fig. 49**. Hold down middle mouse button (wheel) and drag to rotate view.

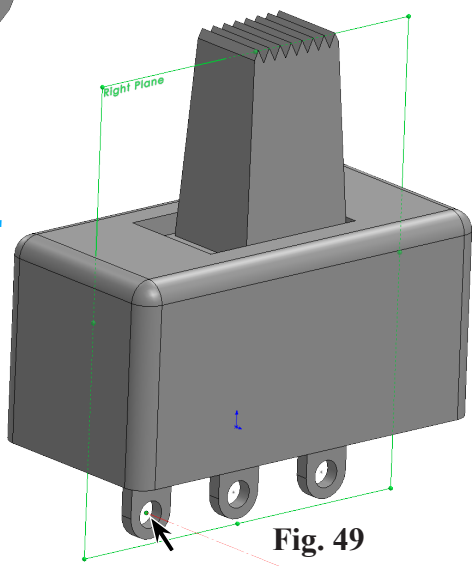


Fig. 49

Step 2. Click Routing Menu > Routing Tools > Create Connection Point.

Step 3. In the Connection Point Property Manager set:
under Selections, **Fig. 50**
expand the flyout Feature Manager design tree click +) in the top left corner of the graphics area and click **Right Plane**, **Fig. 51**

and click **Point in first Terminal**, **Fig. 49**

click **Keep Visible** and OK , **Fig. 50**.
The Push Pin on allows creation of another C Point.

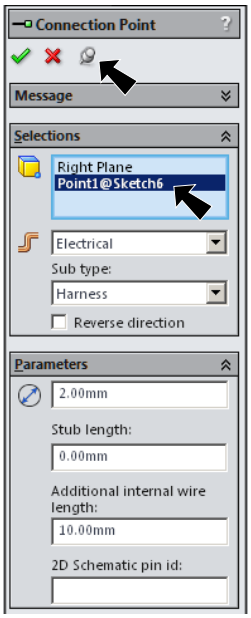


Fig. 50

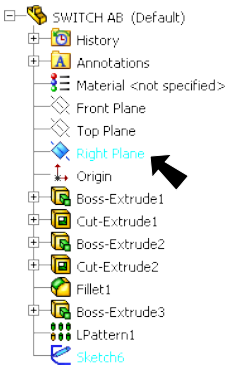


Fig. 51

Step 4. Repeat and add C Points to the other two Points,
To add another C Point,
In the Connection Point Property Manager set:
under Selections, **Fig. 52**
expand the flyout and click **Right Plane**, **Fig. 53**
click **Point in 2nd Terminal**, **Fig. 54**
click OK

Add the 3rd C Point, **Fig. 55**
click OK and then click Cancel .

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

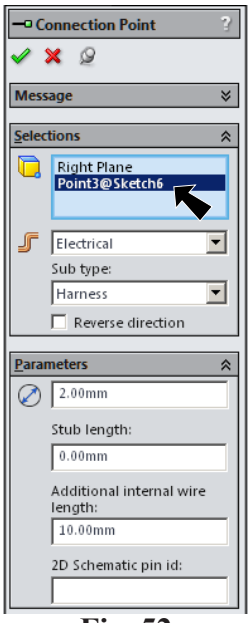


Fig. 52

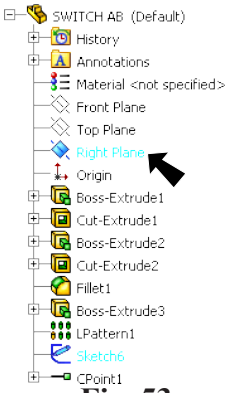


Fig. 53

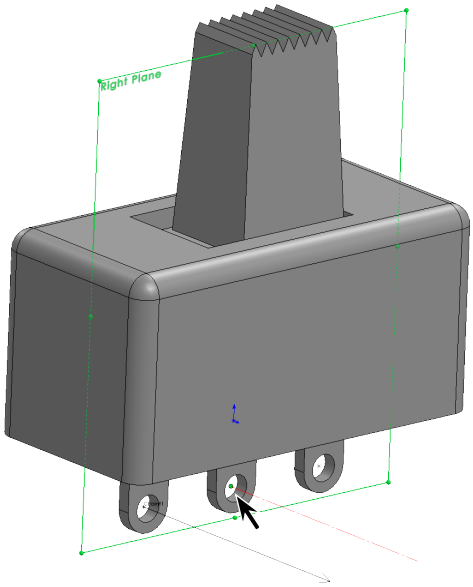


Fig. 54

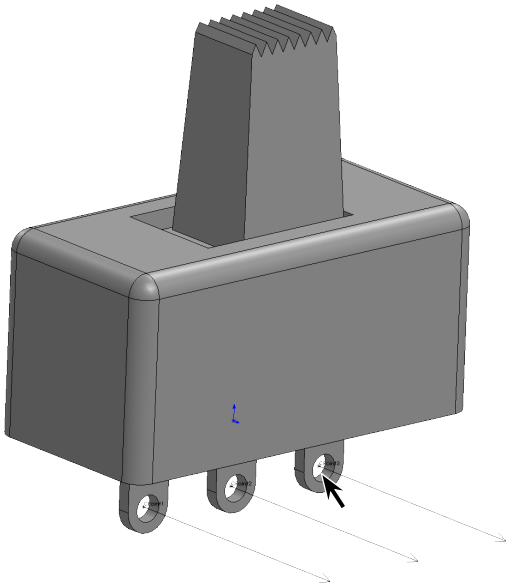


Fig. 55

K. Hide Sketch.

Step 1. **Hide Sketch6**. To hide, click **Sketch6** in Feature Manager and **Hide** on the Context toolbar, **Fig. 56**.

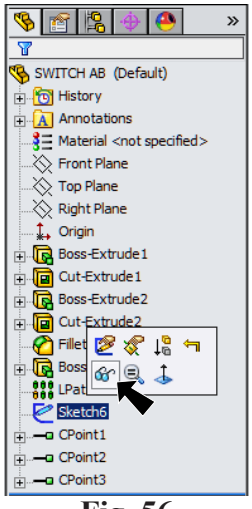


Fig. 56

L. Appearances.

Step 1. Click Switch to select the part, click **Appearance Callout** on the Context toolbar and click **SWITCH AB**, **Fig. 57**.

Step 2. In the Appearances Task pane, expand **Metals**, click **Aluminum** and in the lower pane select **polished aluminum**, **Fig. 58**.

Step 3. In the Appearances Property Manager, click **Keep Visible** and OK , **Fig. 59** and **Fig. 60**. The Push Pin on allows selection of another appearance.

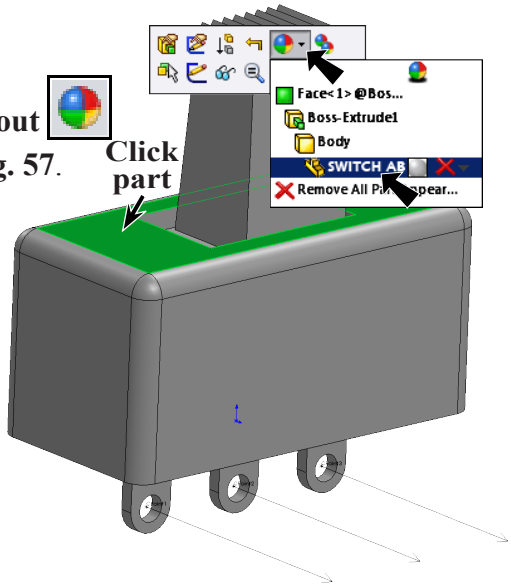


Fig. 57

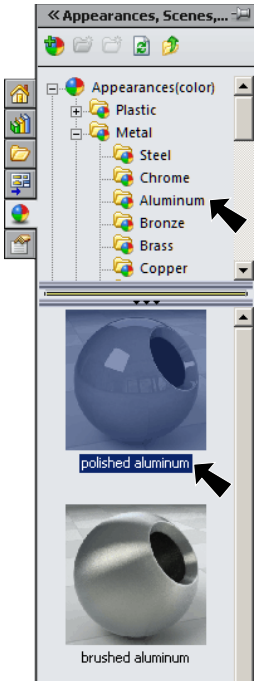


Fig. 58

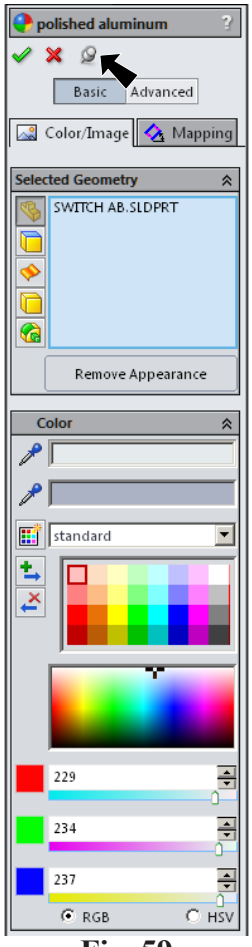


Fig. 59

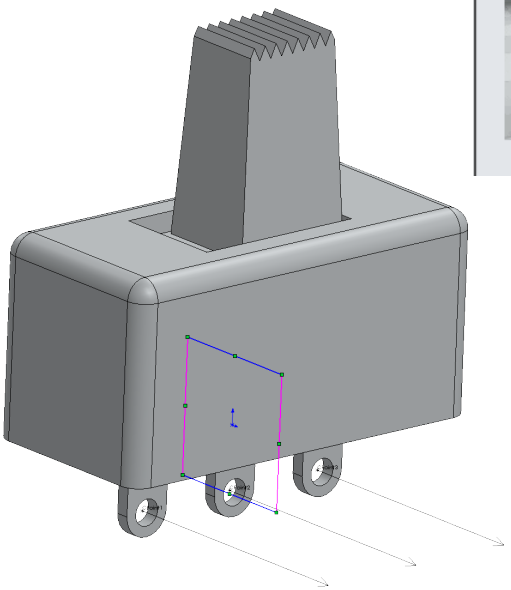


Fig. 60

Step 4. Over in the Appearances Task pane, expand **Plastic**, click **High Gloss** and in the lower pane select **dark gray high gloss plastic**, **Fig. 61**.

Step 5. In the Appearances Property Manager, under Selected Geometry, **Fig. 62**

click **Select Features**

click the **lever**, **Fig. 63**

click OK .

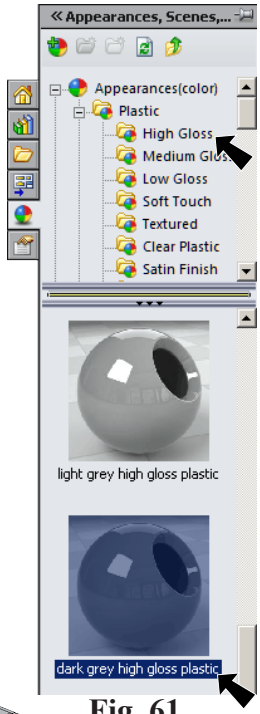


Fig. 61

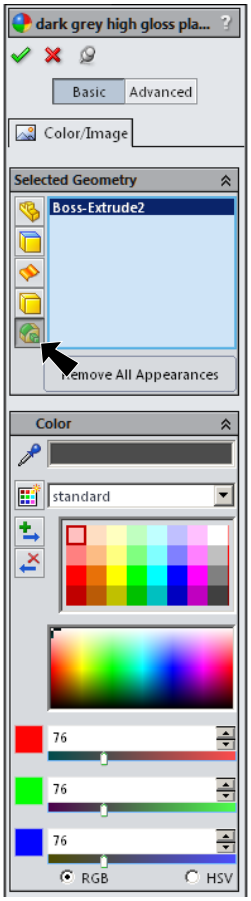


Fig. 62

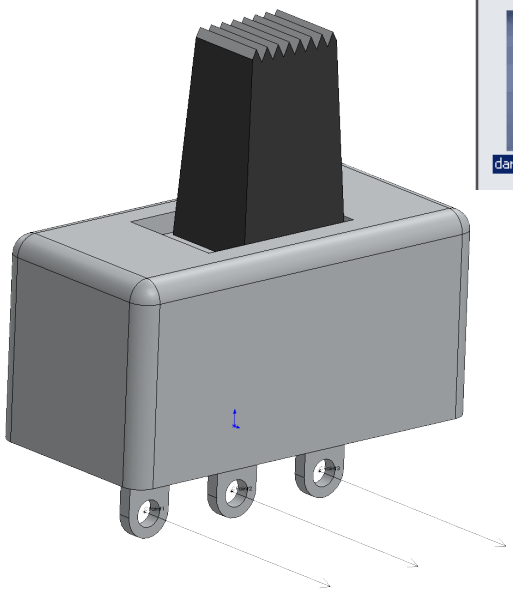


Fig. 63

Step 6. Back over in the Appearances Task pane, expand **Metal**, click **Brass** and in the lower pane select **polished brass**, **Fig. 64**.

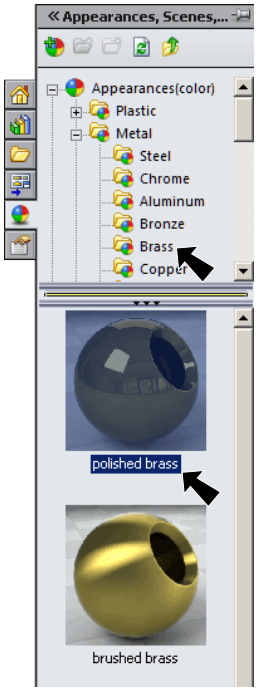


Fig. 64

Step 7. In the Appearances Property Manager, under Selected Geometry, **Fig. 65**

click **Select Features**

click **center then first terminals**, **Fig. 66**

click OK and then click Cancel .

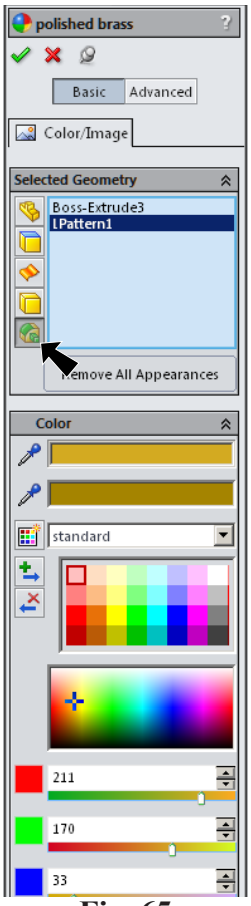


Fig. 65

Step 8. Save. Use **Ctrl-S**.

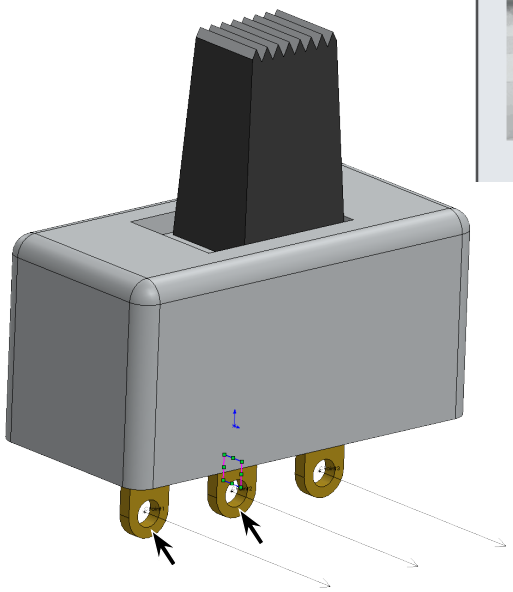


Fig. 66

M. Decal.

Step 1. Click **Right** on the Standard Views toolbar. (**Ctrl-4**)

Step 2. Click PhotoView 360 Menu > Edit Decal.

Step 3. In the Decals Property Manager Image tab:
under Decal Preview, **Fig. 67**
click **Browse** and **My Documents** buttons
open **solar-battery-symbols.png**
under Mask Image
select **Use decal image alpha channel**

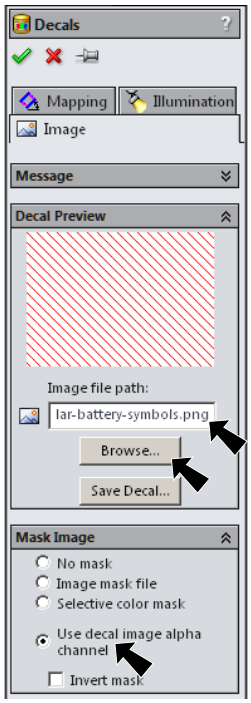


Fig. 67

Step 4. Click the **Mapping tab** Mapping at the top of the Decals Property Manager, **Fig. 68**
under Selected Geometry
unselect all except Select Faces
click **side face**, **Fig. 69**

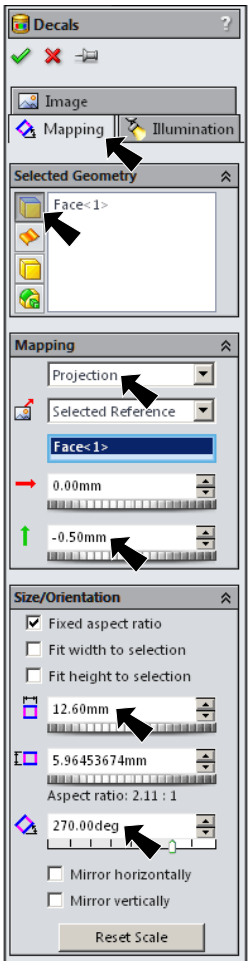


Fig. 68

under Mapping
Projection
Vertical location **-.5**

under Size/Orientation
Width **12.6**
Rotation **270**
click OK .

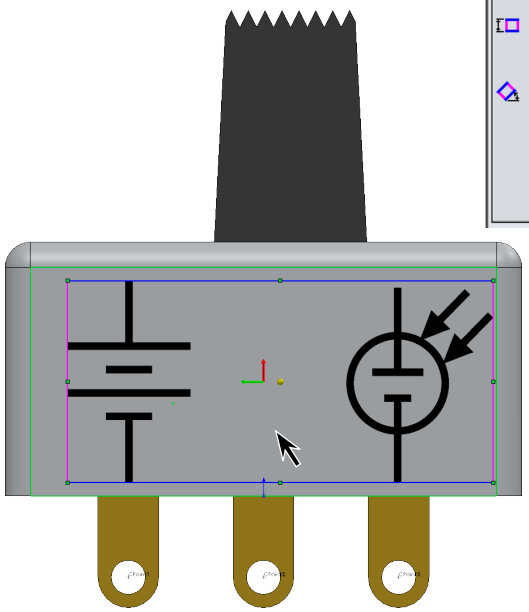


Fig. 69

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

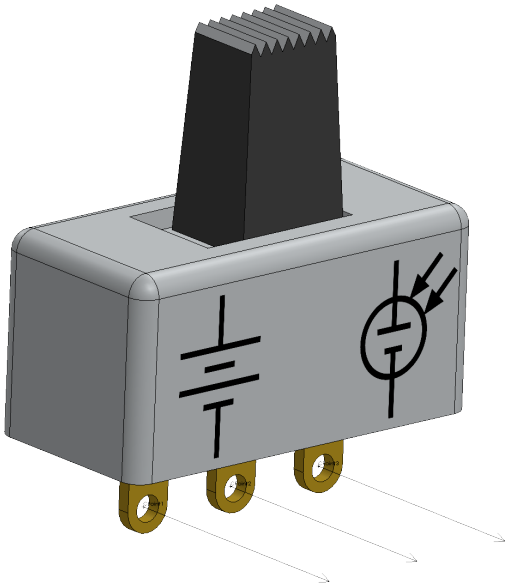


Fig. 70