

Rocket 3D Print Can

A. Cylinder.

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

Step 2. Click **Top 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 **two circles** starting at the Origin, **Fig. 2**.

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

Step 6. Add dimensions, **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 Boss-Extrude Property Manager set:
under Direction 1, **Fig. 3**

Depth 2.45
click OK.

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

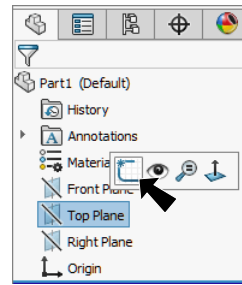


Fig. 1

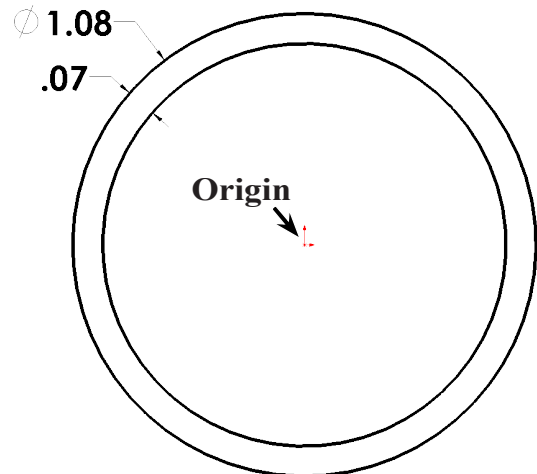
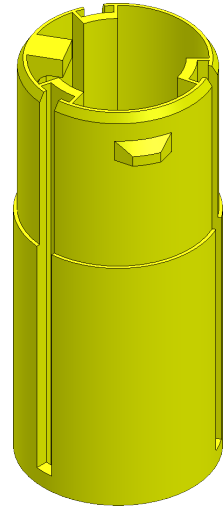


Fig. 2

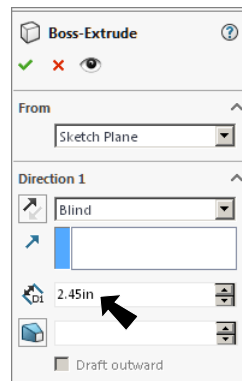


Fig. 3

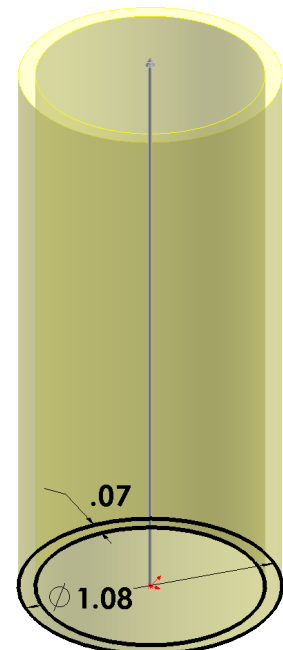



Fig. 4

B. Save as "CAN".

Step 1. Click File Menu > Save As.

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

C. Cut Cylindrical Boss.

Step 1. Click the **top face** of cylinder and click **Sketch**  on the context toolbar, **Fig. 5**.

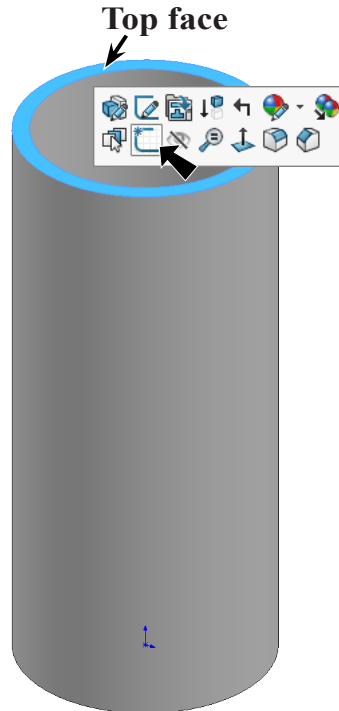



Fig. 5

Step 2. Click **Circle**  (S) on the Sketch toolbar.

Step 3. Sketch a **circle** starting at the **Origin** , **Fig. 6**.

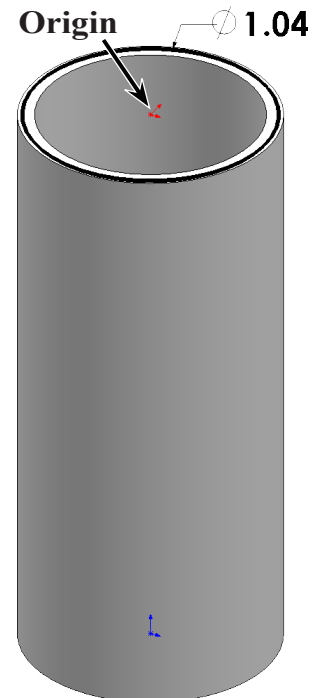


Fig. 6

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

Step 5. Dimension diameter **1.04**, **Fig. 6**.

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. 7**

Depth  **.95**
check **Flip side to cut**

The direction arrow should point to outside, **Fig. 8**

Click **OK** .

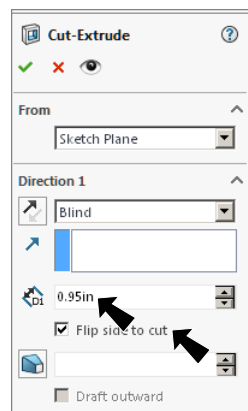


Fig. 7

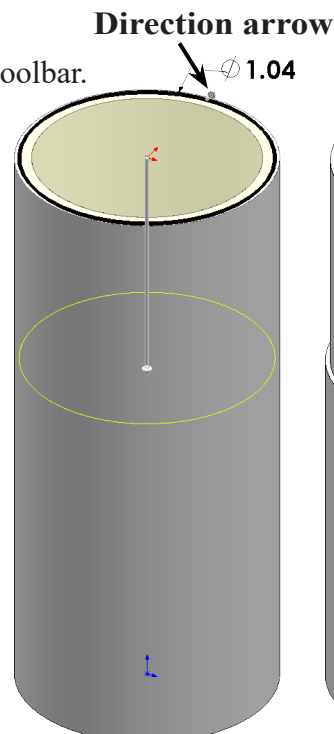


Fig. 8

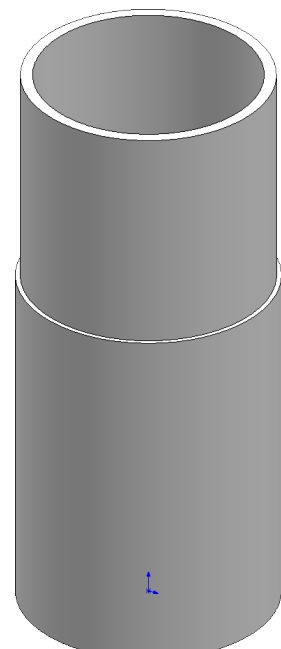


Fig. 9

D. Engine Hook Housing.

Step 1. Click **Top Plane**  in the Feature Manager and click **Sketch**  on the context toolbar, **Fig. 10**.

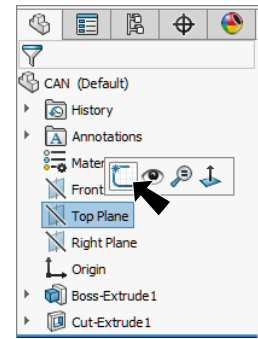




Fig. 10

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

Step 3. Click **Convert Entities**  on the Sketch toolbar.

Step 4. In the Convert Entities Property Manager:
 under Entities to Convert, **Fig. 11**
 click **inside circular edge**
of cylinder, **Fig. 12**
 click OK .

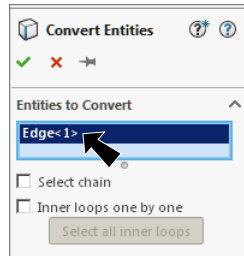



Fig. 11

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

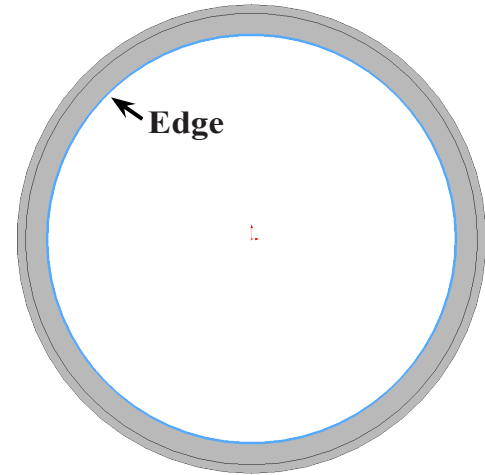





Fig. 12

Step 6. Sketch **circle** starting at the Origin , **Fig. 13**.

Step 7. Click **Centerline**  in the **Line** flyout  on the Sketch toolbar.

Step 8. **Sketch 3 radii from Origin**  **to outside edge of cylinder**, **Fig. 14**. **One radius vertical** and one on each side of the vertical centerline. To terminate chain, double click back on the line you have just sketched.

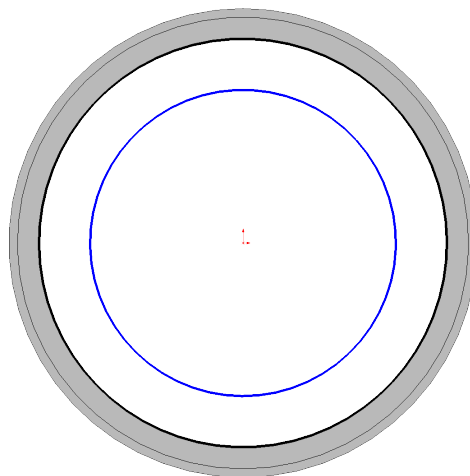


Fig. 13

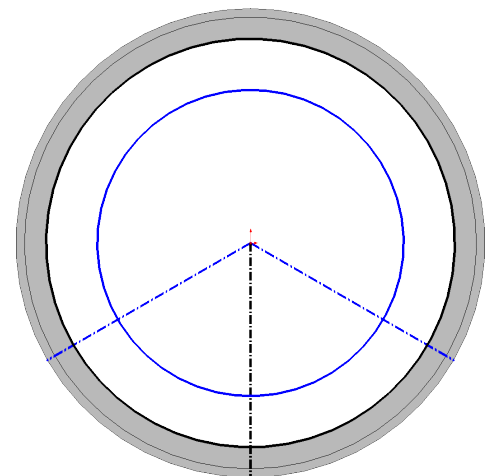


Fig. 14


Step 9. Click **Smart Dimension**  (S) on the Sketch toolbar.

Step 10. Add dimensions, **Fig. 15**.

Step 11. Click **Line**  (L) on the Sketch toolbar.

Step 12. Sketch line between converted circle and circle sort of parallel with left angled radius centerline, **Fig. 16**.

Step 13. **Right click graphics area and click Select** from menu to unselect Line tool.

Step 14. **Ctrl click line and angled radius centerline** to select both. Release Ctrl key and click **Make Parallel**  on the context toolbar, **Fig. 17**.

Step 15. Click **3 Point Center Rectangle**  in the **Rectangle flyout**  on the Sketch toolbar.

Step 16. Sketch small narrow rectangle at angled centerline, **Fig. 18**. To sketch rectangle, click angled centerline to place rectangle's center point. Bring cursor out sort of perpendicular from centerline and click. Then, click move cursor slightly to side and click.

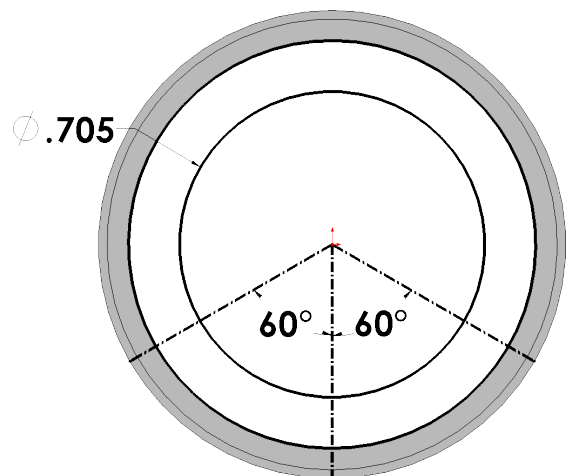


Fig. 15

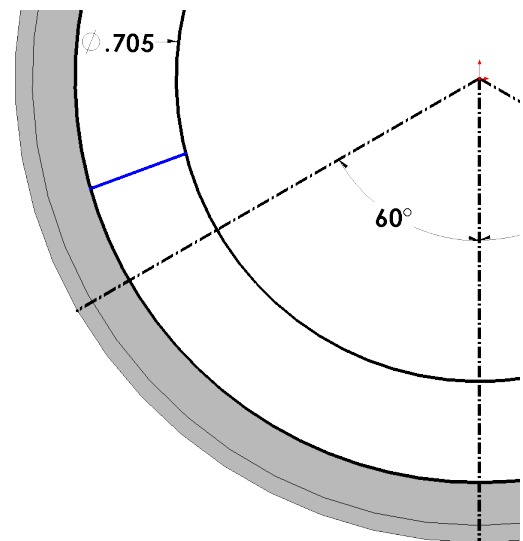


Fig. 16

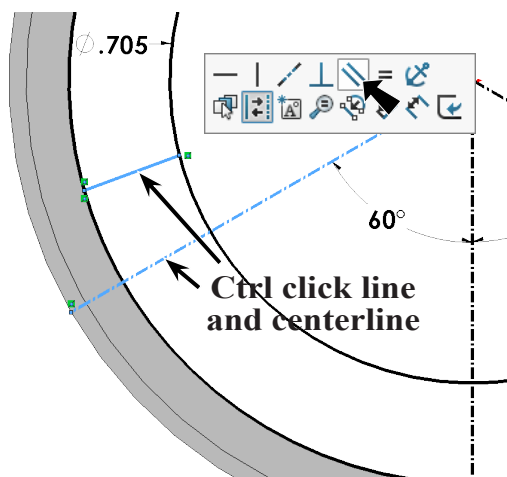


Fig. 17

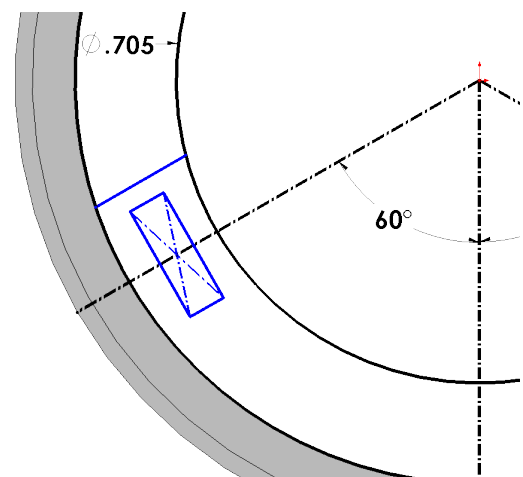



Fig. 18

Step 17. **Right click graphics area and click Select** from menu to unselect Rectangle tool.

Step 18. **Ctrl click centerpoint of rectangle and angled centerline** to select both. Release Ctrl key and click **Make Coincident**  on the context toolbar, **Fig. 19**.

Step 19. **Ctrl click short line of rectangle and angled centerline** to select both. Release Ctrl key and click **Make Parallel**  on the context toolbar, **Fig. 20**.

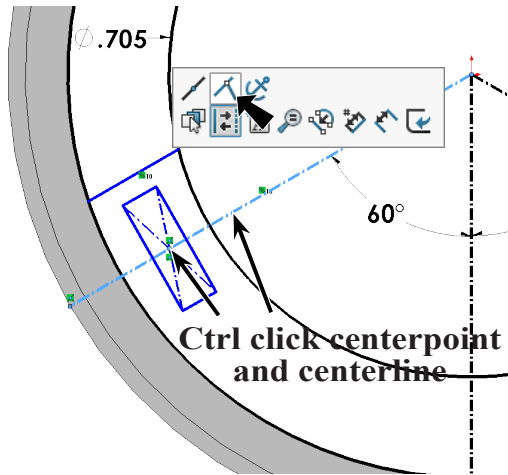


Fig. 19

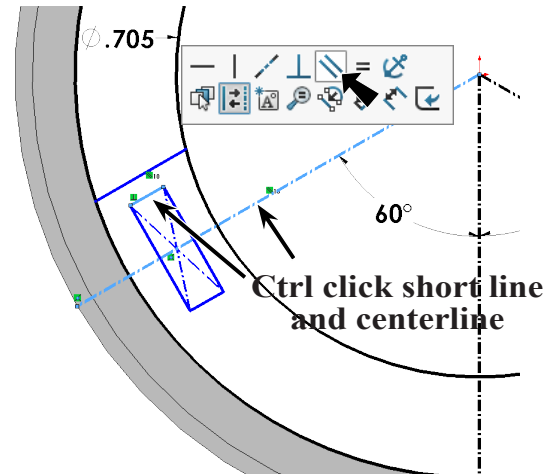



Fig. 20

Step 20. Click **Line**  (L) on the Sketch toolbar.

Step 21. Sketch line perpendicular to long line of rectangle and circle. To sketch line, click circle to start line on circle and click long line of rectangle then use the auto perpendicular relation , **Fig. 21**.

Step 22. Click **Smart Dimension**  (S) on the Sketch toolbar.

Step 23. Add dimensions, **Fig. 22**.

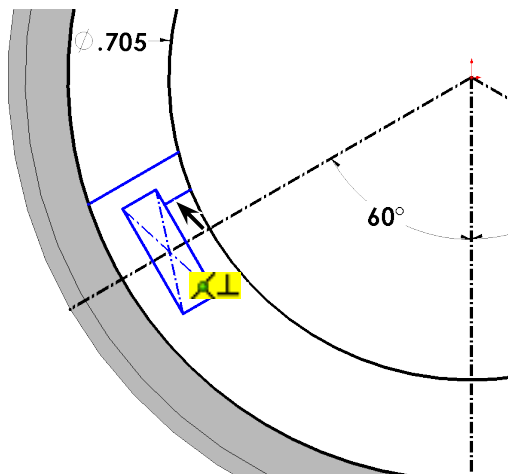


Fig. 21

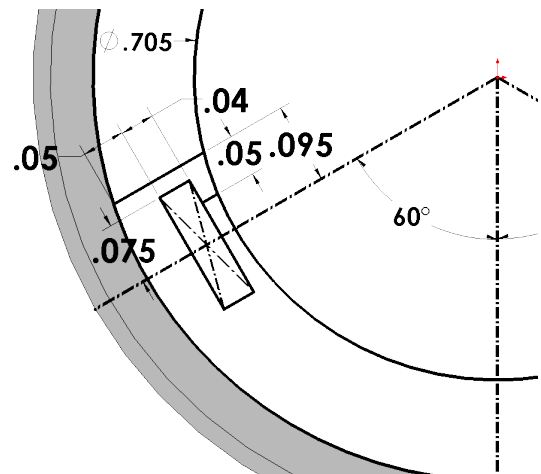
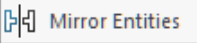


Fig. 22

Step 24. **Right click graphics area and click Select** from menu to unselect Smart Dimension.

Step 25. **Ctrl click the two lines and angled centerline** to select, **Fig. 23**.

Step 26. Click **Mirror Entities**  on the Sketch toolbar, **Fig. 24**.

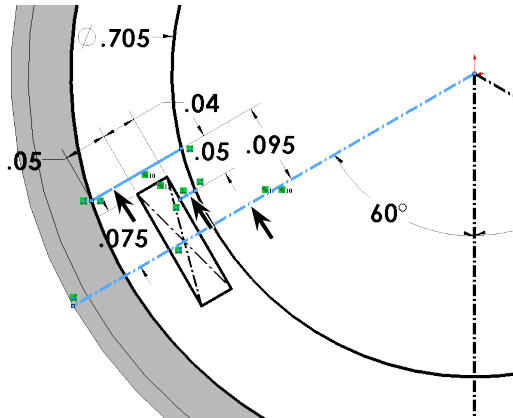


Fig. 23

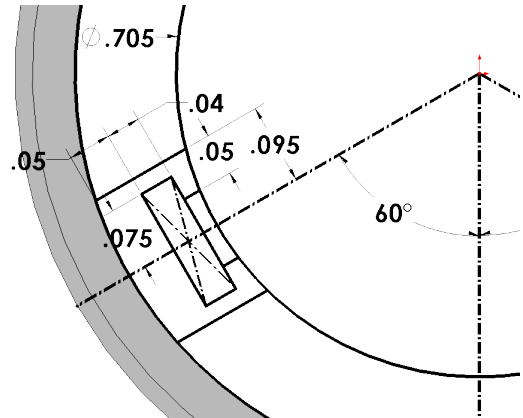


Fig. 24

Step 27. Click **Features**  on the Command Manager toolbar.

Step 28. Click **Extruded Boss/Base**  on the Features toolbar.

Step 29. In the Boss-Extrude Property Manager set:
under Selected Contours, **Fig. 25**
click the **contour**, **Fig. 26**

click **Isometric**  on the Standard Views toolbar

under Direction 1
End Condition **Offset From Surface**
for **Face/Plane**
click **top face of cylinder**, **Fig. 27**

Depth  **.2**
click **OK** .

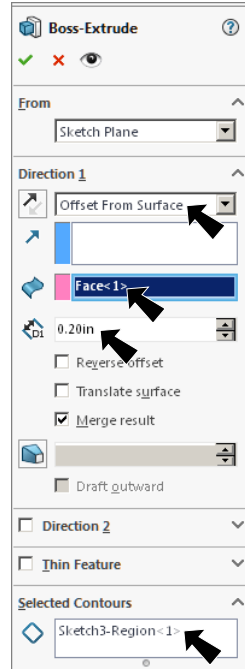


Fig. 25

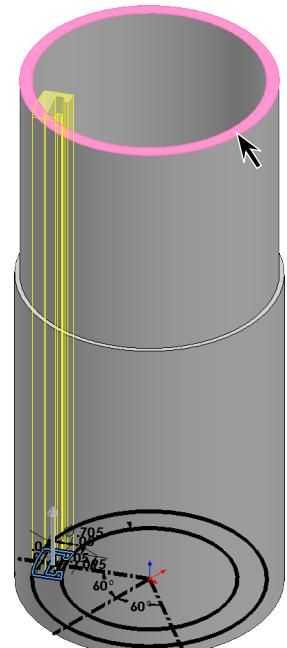


Fig. 27

Step 30. Save. Use **Ctrl-S**.

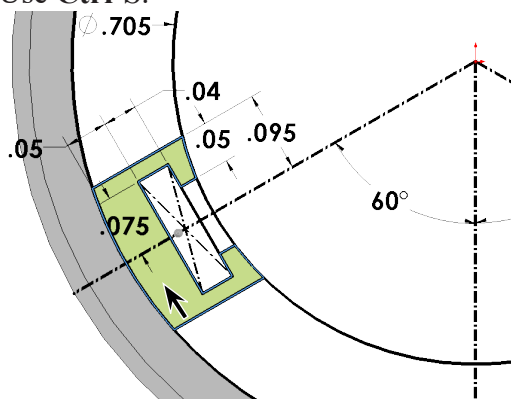



Fig. 26

E. Create Plane 1.

Step 1. **Show Sketch3 in Boss-Extrude2.** To show, expand Boss-Extrude2 in the Feature Manager, click **Sketch3** and **Show**  on the context toolbar, **Fig. 28**.

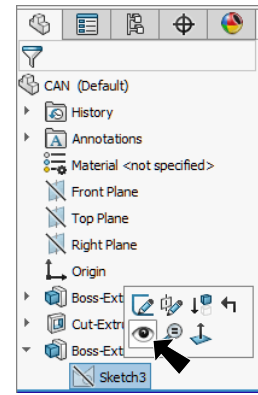
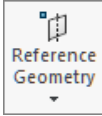



Fig. 28

Step 2. **Show Temporary Axes.** Click View Menu > Show/Hide > Temporary Axes. (**Alt-V H X**)

Step 3. Click **Reference Geometry**  on the Features toolbar and **Plane** from the menu.

Step 4. In the Plane Property Manager set:
 under First Reference, **Fig. 29**
 click **left angled radius in Sketch3**,
Fig. 30
 under Second Reference
 click **Temporary Axes**
 click OK .

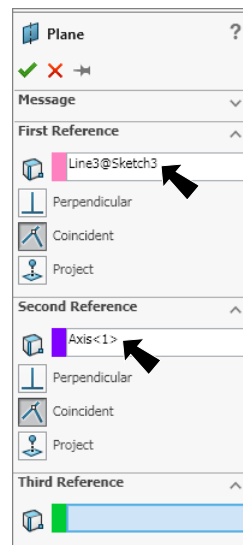


Fig. 29

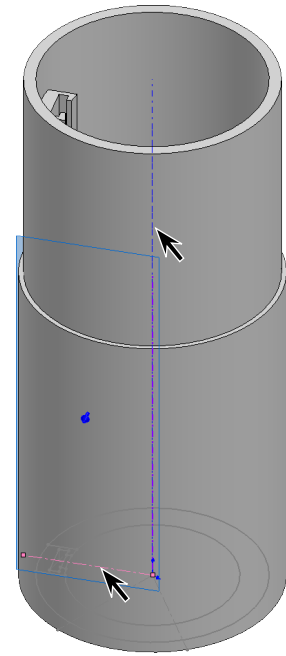



Fig. 30

Step 5. **Hide Sketch3.** To hide, expand Boss-Extrude2 in the Feature Manager, click **Sketch3** and **Hide**  on the context toolbar, **Fig. 31**.

Step 6. **Hide Planes.** Click View Menu > Show/Hide > Planes. (**Alt-V H P**)

Step 7. **Hide Temporary Axes.** Click View Menu > Show/Hide > Temporary Axes. (**Alt-V H X**)

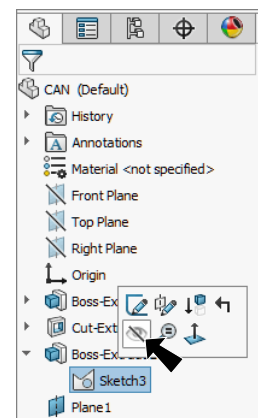


Fig. 31

F. Create Section View.

Step 1. Click **Plane1** in the Feature Manager and click **Normal To** on the context toolbar, **Fig. 32**.

Step 2. Click **Section View** on the View toolbar.

Step 3. In the Section View Property Manager set:
under Section 1, **Fig. 33**
confirm **Plane1** is selected
click OK.

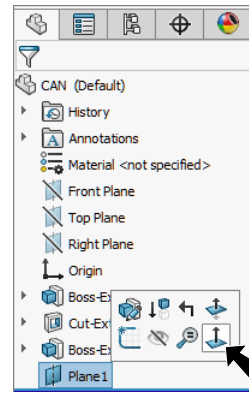


Fig. 32

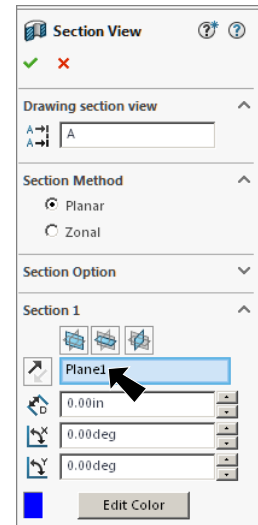


Fig. 33

G. Cut 1 Engine Hook Housing.

Step 1. Click **Plane1** in the Feature Manager and click **Sketch** on the context toolbar, **Fig. 34**.

Step 2. Click **Convert Entities** on the Sketch toolbar.

Step 3. In the Convert Entities Property Manager:
under Entities to Convert, **Fig. 35**
click **the two vertical edges of Hook slot**, **Fig. 36**
click OK.

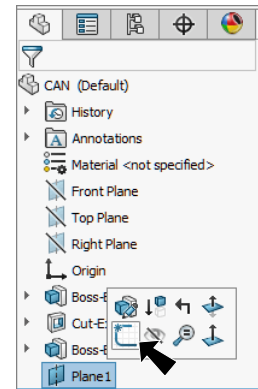
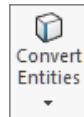


Fig. 34

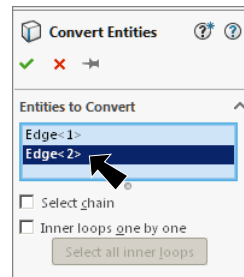


Fig. 35

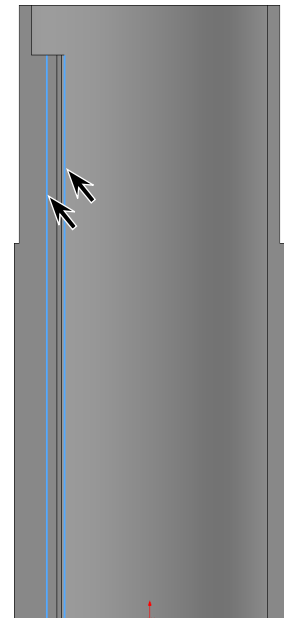


Fig. 36

Step 4. Click **Line**  (L) on the Sketch toolbar.

Step 5. Sketch lines across bottom endpoints of converted lines, **Fig. 37**.

Step 6. Click **Linear Pattern**  on the Sketch toolbar.


Step 7. In the Linear Pattern Property Manager set:
under Direction 1, **Fig. 38**

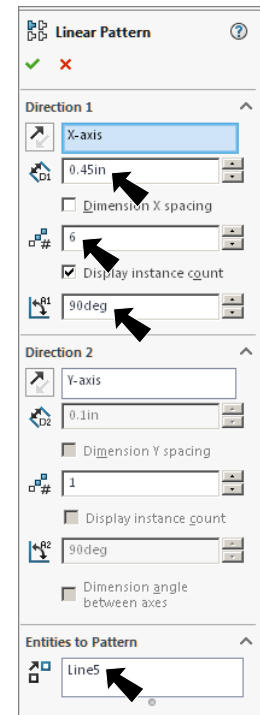
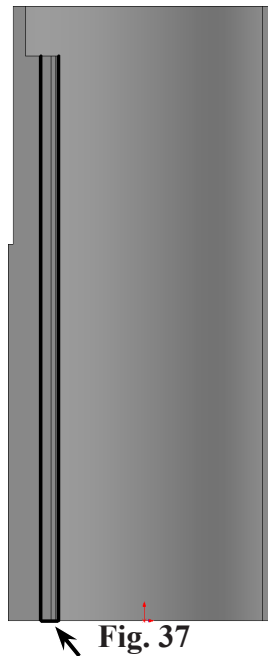
click **Reverse** 


Distance  .45

Number of Instances  # 6

Angle  90

under Entities to Pattern
short bottom line should be preselected
click OK .



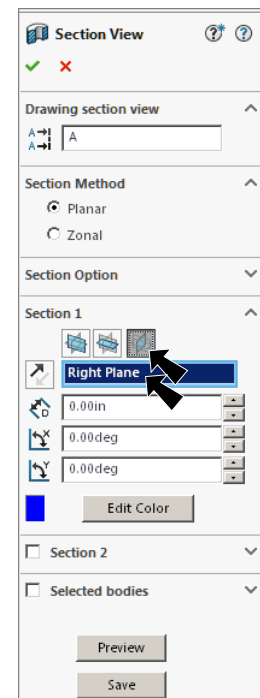
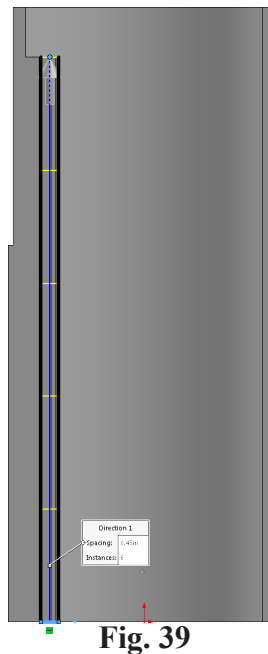
Step 8. Click **Right**  on the Standard Views toolbar. (Ctrl-4)

Step 9. Click **Section View**  twice on the View toolbar.

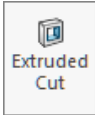
Step 10. In the Section View Property Manager set:
under Section 1, **Fig. 40**


Right Plane 

click OK .



Step 11. Click **Features**  on the Command Manager toolbar.

Step 12. Click **Extruded Cut**  on the Features toolbar.

Step 13. In the Cut-Extrude Property Manager set:
 under Direction 1, **Fig. 41**
 End Condition **Up To Next**
 direction arrow should point to **right**
 under Selected Contours
 click the **4 contours**
 (2 top and 2 bottom), **Fig. 42**
 click OK .

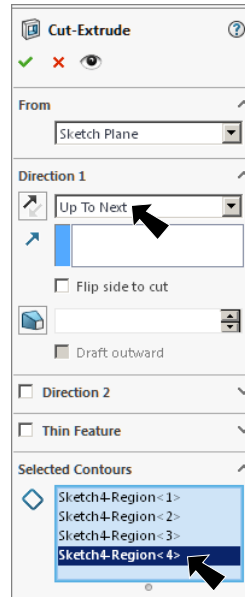


Fig. 41

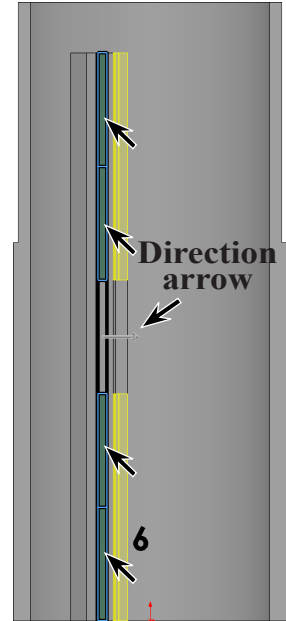




Fig. 42

H. Cut 2 Engine Hook Housing.

Step 1. Expand **Cut-Extrude2** in the Feature Manager and click **Sketch4** to select, **Fig. 43**.

Step 2. Click **Extruded Cut**  on the Features toolbar.

Step 3. In the Cut-Extrude Property Manager set:
 under Direction 1, **Fig. 44**
 End Condition **Up To Next**
 click **Reverse Direction** 
 direction arrow should point to **left**
 under Selected Contours
 click the **3 contours** (3 in middle), **Fig. 45**.
 click OK .

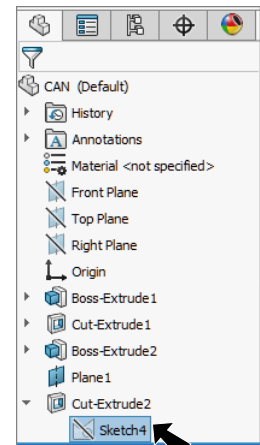


Fig. 43

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

Step 5. You can use the Down Arrow key to view Hook housing cuts, **Fig. 46**.

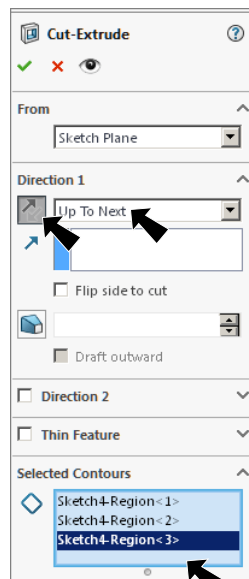


Fig. 44

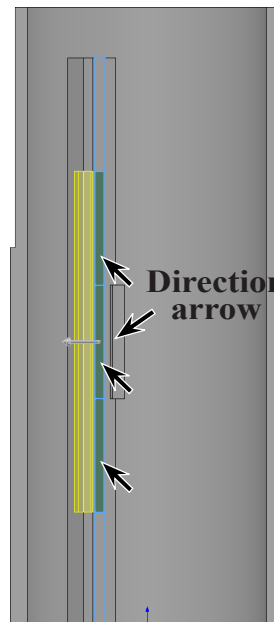


Fig. 45

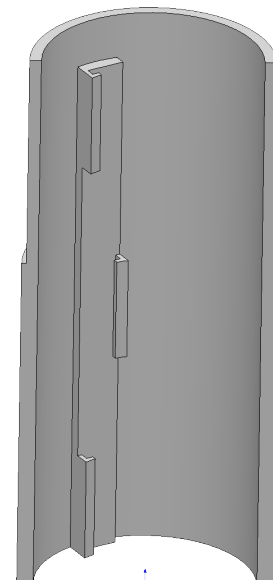




Fig. 46

I. Hook Stop.

Step 1. Click **Plane1**  in the Feature Manager and click **Sketch**  on the context toolbar, **Fig. 47**.

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

Step 3. Click **Wireframe**  on the View toolbar.

Step 4. Zoom in top of Hook housing, **Fig. 48**. To zoom, place the cursor over the top of the Hook housing area and spin the wheel on mouse back. While spinning the wheel keep cursor on the area where you want to zoom.

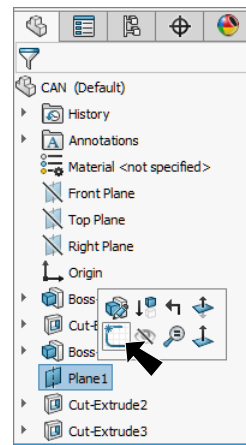


Fig. 47

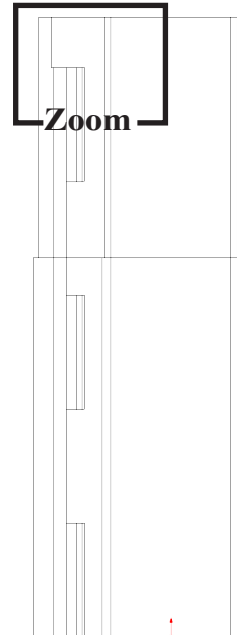



Fig. 48

Step 5. Click **Convert Entities**  on the Sketch toolbar.

Step 6. In the Convert Entities Property Manager:
under Entities to Convert, **Fig. 49**
click **vertical edge of Hook slot**, **Fig. 50**
click OK .

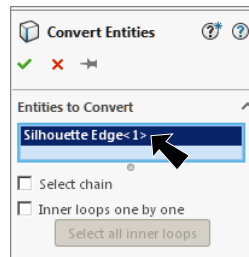


Fig. 49

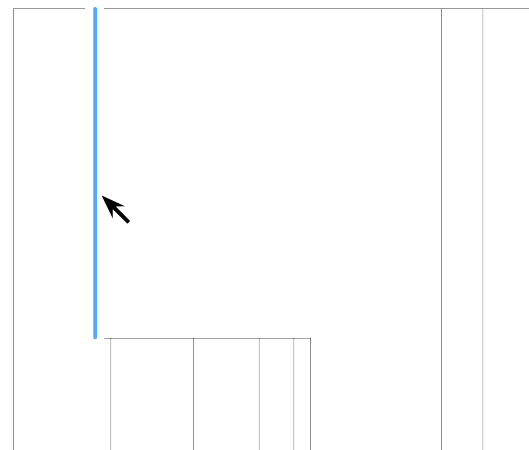


Fig. 50

Step 7. Click **Line**  (L) on the Sketch toolbar.

Step 8. Starting from the bottom endpoint of converted line, sketch line across top of Hook housing and a short vertical line up at from right vertex of housing, **Fig. 51**.

Use autotransitioning to transition from line to tangent arc. To transition, move cursor away from endpoint of line.

Move the cursor back to endpoint and away again to transition to Tangent Arc tool.

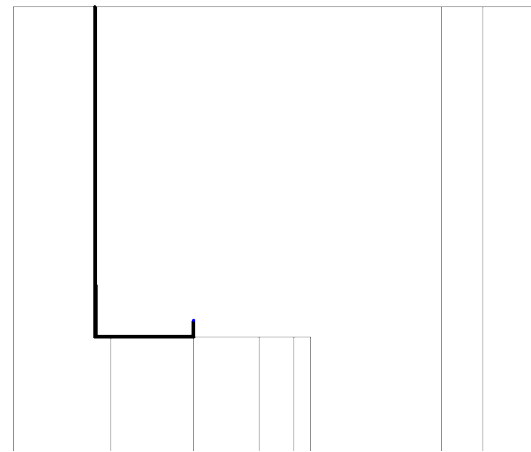


Fig. 51

Sketch Tangent Arc to right, roughly a 90 deg arc, **Fig. 52**.

Continue a **horizontal line across and vertical line up to top edge** of part. Then, **horizontal line back to top endpoint of converted line**, **Fig. 53**.

Tip: You can use the A key to toggle between Arc and Line tools.

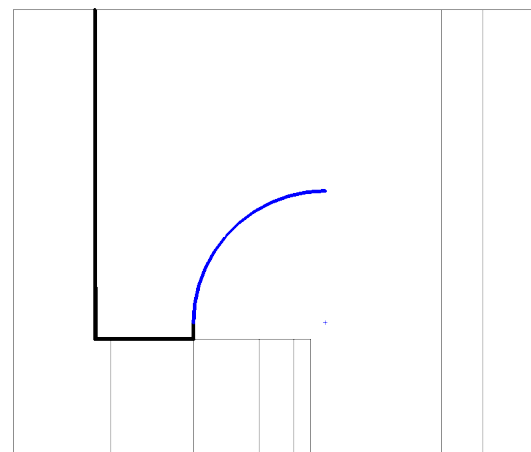


Fig. 52

Step 9. Click **Smart Dimension**  (S) on the Sketch toolbar.

Step 10. Add dimensions, **Fig. 54**.

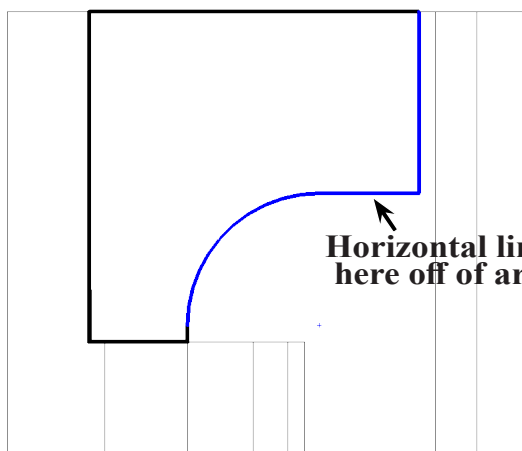


Fig. 53

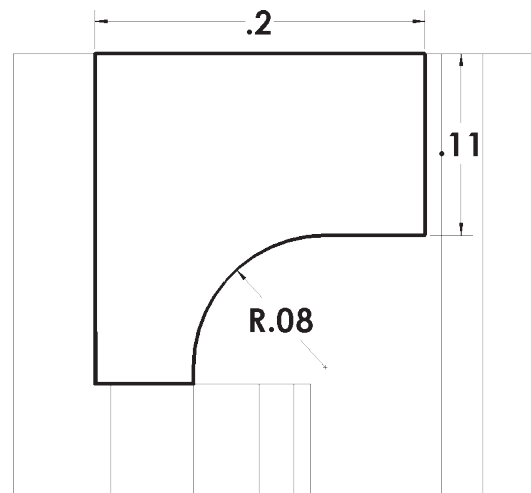
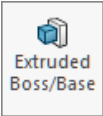





Fig. 54

Step 11. Click **Shaded With Edges**  on the View toolbar.

Step 12. Click **Right**  on the Standard Views toolbar. (**Ctrl-4**)

Step 13. Click **Features**  on the Command Manager toolbar.

Step 14. Click **Extruded Boss/Base**  on the Features toolbar.

Step 15. In the Boss Extrude Property Manager set:
under Direction 1, **Fig. 55**
End Condition **Up to Surface**
click in Face/Plane box 
click **outside face Hook housing, Fig. 56**
under Direction 2
End Condition **Up to Surface**
click in Face/Plane box 
rotate view to view right face of Hook housing, click in graphics area and use left Arrow key
click **outside right face Hook housing, Fig. 57**
click OK .

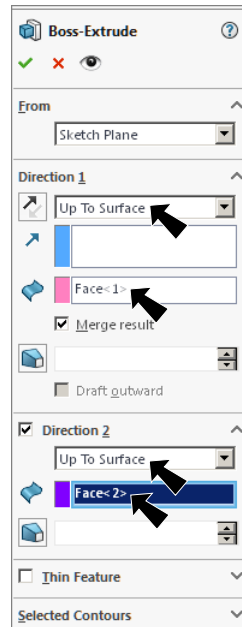


Fig. 55

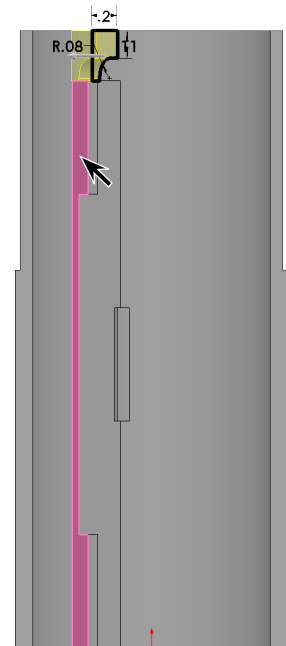


Fig. 56

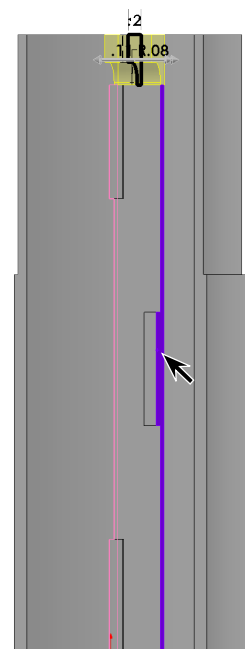


Fig. 57

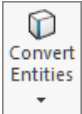
Step 16. Save. Use **Ctrl-S**.


J. Hook Bottom Tapered Slot.

Step 1. Click **Plane1**  in the Feature Manager and click **Sketch**  on the context toolbar, **Fig. 58**.

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

Step 3. Click **Wireframe**  on the View toolbar.

Step 4. Click **Convert Entities**  on the Sketch toolbar.

Step 5. In the Convert Entities Property Manager:
 under Entities to Convert, **Fig. 59**
 click **bottom horizontal edge of part and the two vertical edges of Hook housing**, **Fig. 60**
 click OK  .

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

Step 7. Sketch a line at angle between converted lines, **Fig. 61**.

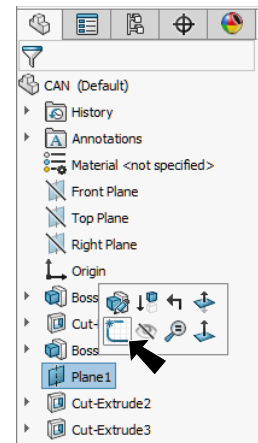


Fig. 58

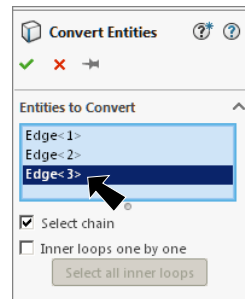


Fig. 59

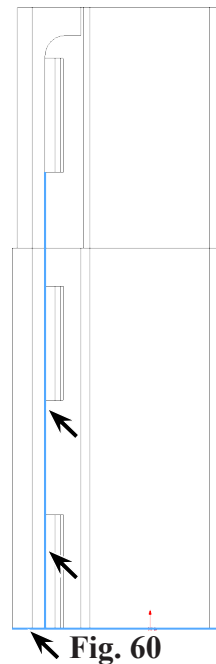


Fig. 60

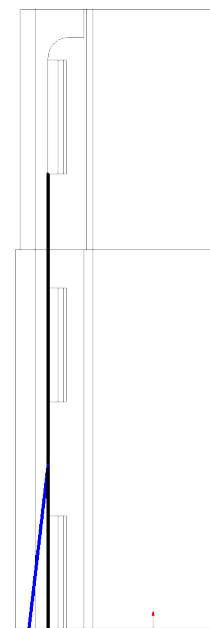


Fig. 61

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


Step 9. In the Trim Property Manger:

select **Trim to closest** , **Fig. 62**

Trim 3 segments outside of “triangle”, **Fig. 63**.

Click segments to trim.

Results shown in **Fig. 64**.

Click OK  when done.

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

Step 11. Add dimensions, **Fig. 64**.

Step 12. Click **Shaded With Edges**  on the View toolbar.

Step 13. Click **Right**  on the Standard Views toolbar. (Ctrl-4)

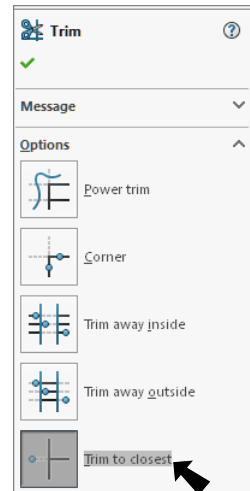


Fig. 62

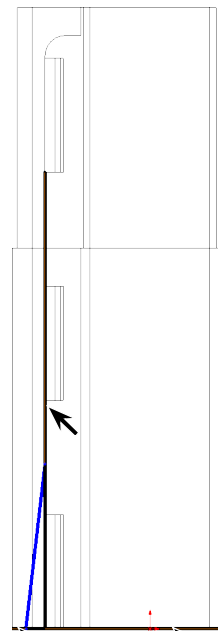


Fig. 63

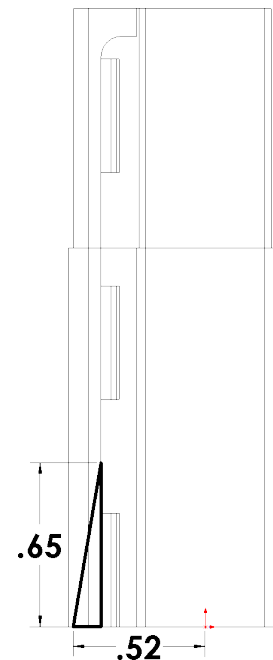





Fig. 64

Step 14. Use the down Arrow key on keyboard to rotate view slightly to view cuts in Hook Housing, **Fig. 66**.

Step 15. Click **Features**  on the Command Manager toolbar.

Step 16. Click **Extruded Cut**  on the Features toolbar.

Step 17. In the Cut-Extrude Property Manager set:
 under Direction 1, **Fig. 65**
 End Condition **Up to Vertex**
 click in Vertex box 
 click **inside Vertex of Cut 1 Engine Hook Housing, Fig. 66**
 under Direction 2
 End Condition **Up to Vertex**
 click in Vertex box 
 click **inside Vertex of Cut 2 Engine Hook Housing, Fig. 66**
 click OK  .

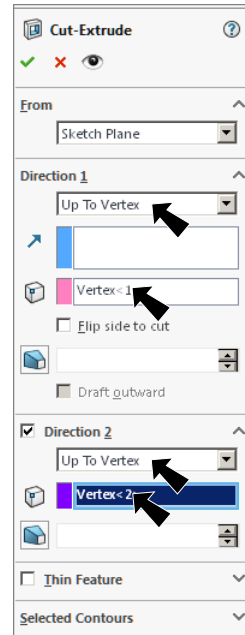


Fig. 65

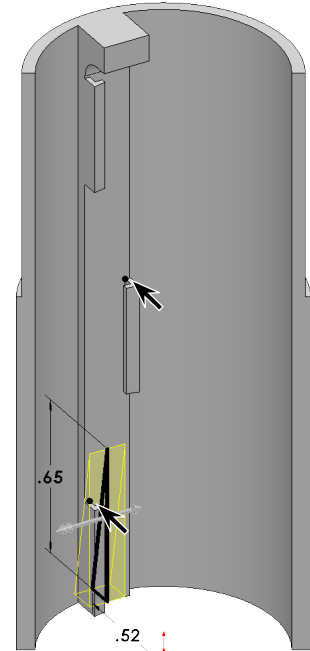




Fig. 66


K. Cut Fin Slot.

Step 1. Turn off **Section View**  on the View toolbar.

Step 2. Click **Top Plane**  in the Feature Manager and click **Sketch**  on the context toolbar, **Fig. 67**.

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

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

Step 5. Sketch a rectangle below the **Origin**  , **Fig. 68**.

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

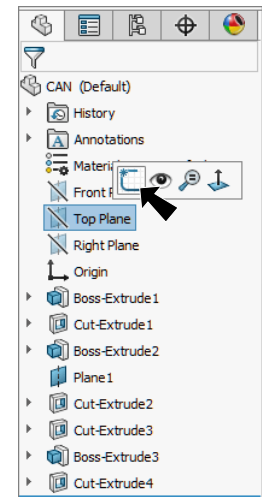


Fig. 67

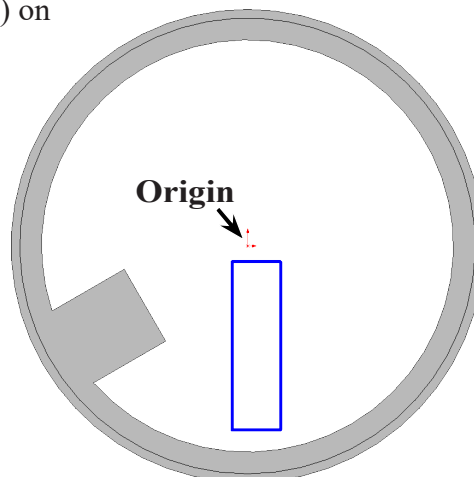





Fig. 68

Step 7. **Ctrl click top horizontal line of rectangle and Origin**  to select both. Release Ctrl key and **Make Midpoint**  on the context toolbar, **Fig. 69**.

Step 8. **Ctrl click bottom horizontal line of rectangle and outside edge of cylinder** to select both. Release Ctrl key and click **Make Tangent**  on the context toolbar, **Fig. 70**.

Step 9. **Drag a “trend to left - more liberal” selection across both vertical lines of rectangle and click Construction Geometry**  on the context toolbar, **Fig. 71**.

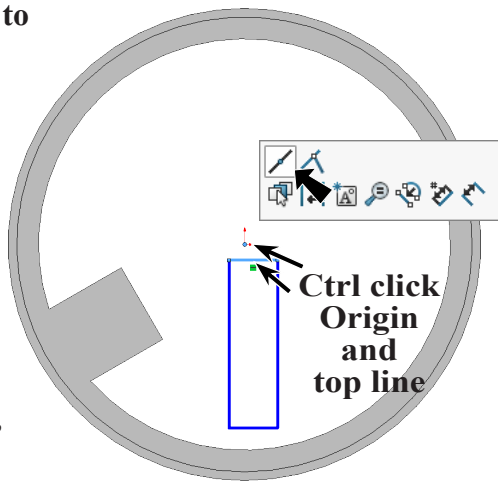


Fig. 69

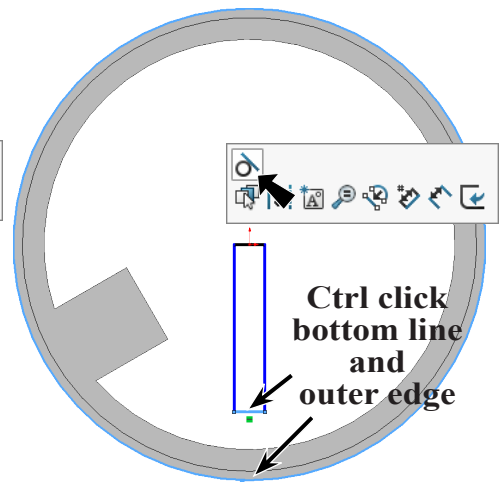



Fig. 70

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

Step 11. Dimension rectangle **.1**, **Fig. 72**.

The **.1** dimension is the thickness of the Fin. Next we will add clearance for the Fin.

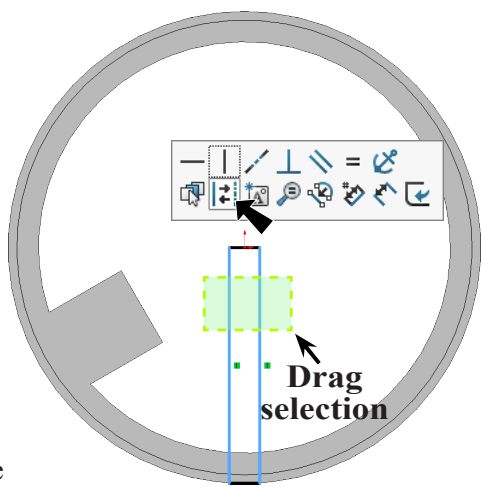


Fig. 71

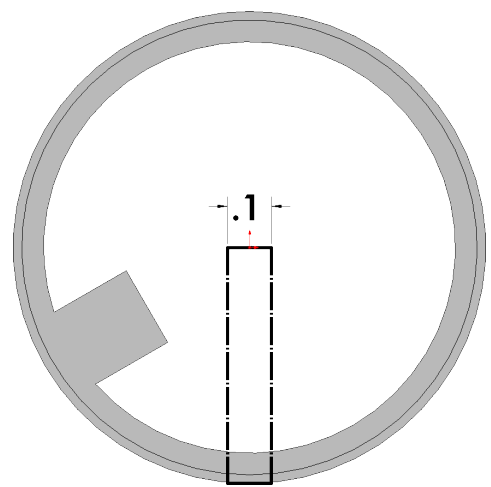


Fig. 72

Step 12. Click **Offset Entities**  on the Sketch toolbar.

Step 13. In the Offset Entities Property Manager set:
under Parameters, **Fig. 73**

Distance  **.004**

uncheck **Select chain**

click **left vertical line of rectangle**

check **Cap ends** and select **Lines**

The yellow offset should on **left**
(outside) of original line, **Fig. 74**.

Click **Keep Visible**  and OK .

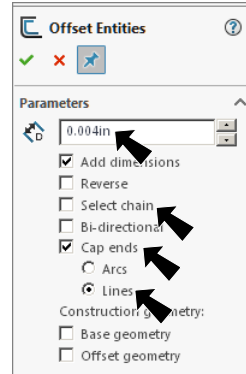


Fig. 73

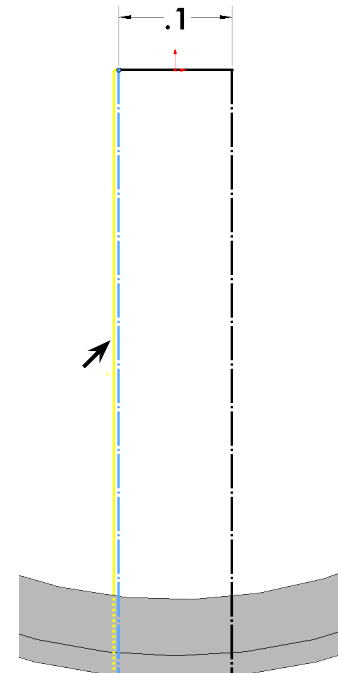


Fig. 74

Step 14. In the Offset Entities Property Manager set:
under Parameters, **Fig. 75**

check **Reverse**

click **right vertical line of rectangle**

The yellow offset should on **right**
outside of original line, **Fig. 76**.

Click OK  and click Cancel .

The .004 offset is clearance for Fin to slide
into Can slot.

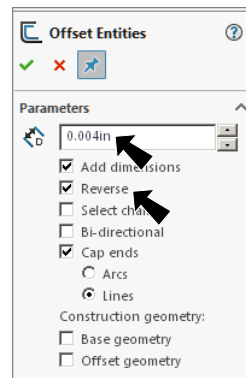


Fig. 75

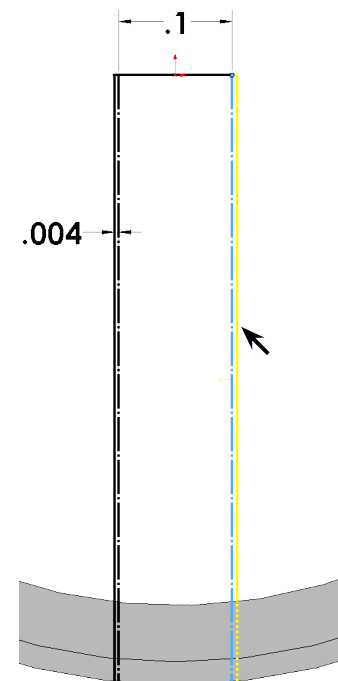


Fig. 76

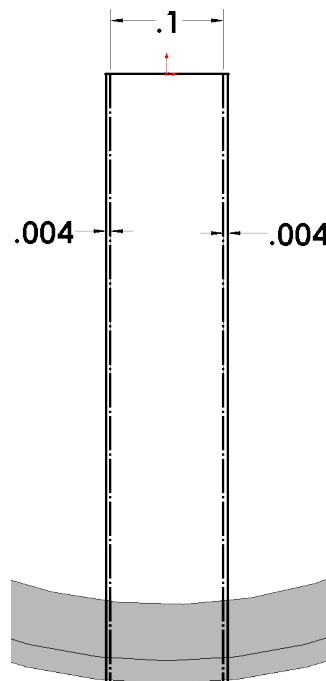



Fig. 77



Step 15. Click **Isometric**  on the Standard Views toolbar. (**Ctrl-7**).

Step 16. Click **Features**  on the Command Manager toolbar.

Step 17. Click **Extruded Cut**  on the Features toolbar.

Step 18. In the Cut-Extrude Property Manager set:
 under From, **Fig. 78**
 Start Condition **Offset**
 Offset Value **.1**

under Direction 1
 End Condition **Through All**

click **Reverse Direction** 
Direction arrow points up, Fig. 79
 click OK .

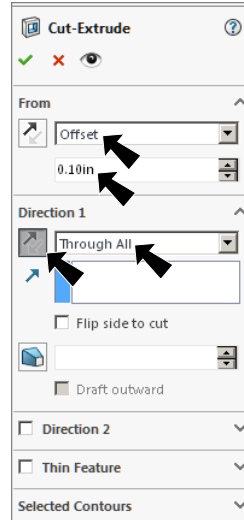


Fig. 78

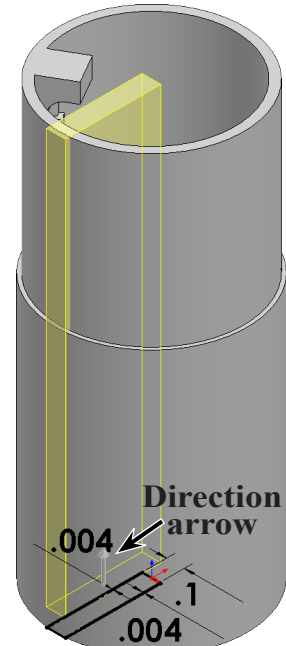





Fig. 79

L. Fin Housing.

Step 1. Click **Top Plane**  in the Feature Manager and click **Sketch**  on the context toolbar, **Fig. 80**.

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

Step 3. Click **Convert Entities**  on the Sketch toolbar.

Step 4. In the Convert Entities Property Manager:
 under Entities to Convert, **Fig. 81**
 click **inside circular edge of cylinder on both sides of Fin cut, Fig. 82**
 click OK .

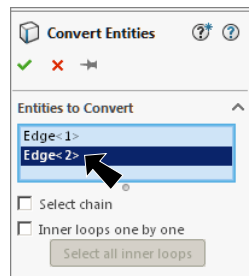


Fig. 81

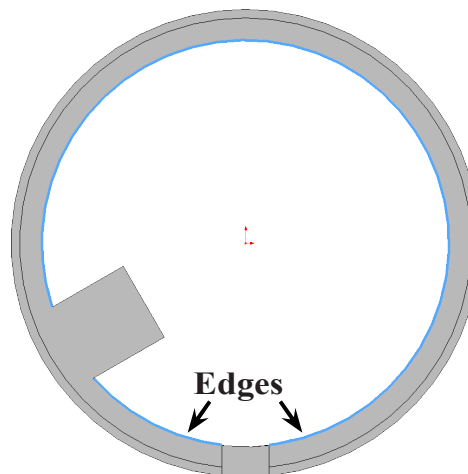


Fig. 82

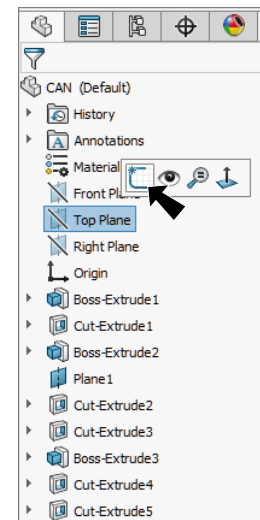




Fig. 80

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

Step 6. Sketch **two circles** starting at the Origin , **Fig. 83**.

Step 7. Click **Line**  (L) on the Sketch toolbar.

Step 8. Sketch **radius from Origin**  to **outside circular edge of cylinder** at an angle, **Fig. 84**. To terminate chain, double click back on the line you have just sketched.

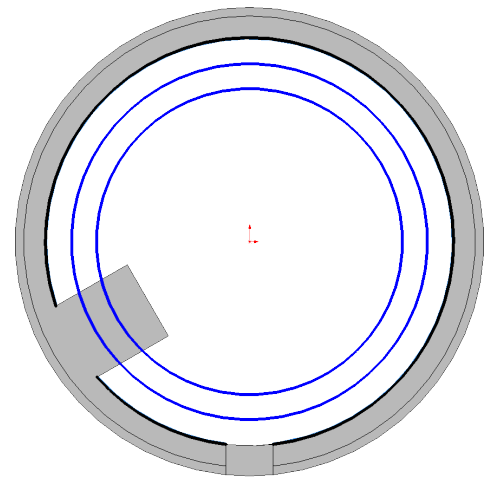




Fig. 83

Step 9. Sketch a **vertical centerline radius from Origin**  to **outside circular edge of cylinder** and **right click** then, click **Construction Geometry**  on the context toolbar, **Fig. 85**.

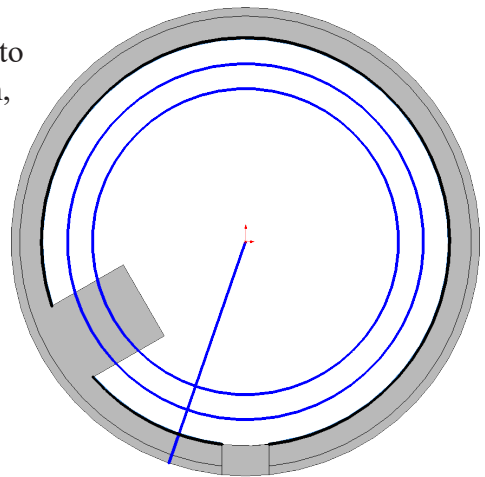


Fig. 84

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

Step 11. Dimension diameters, **Fig. 86**.

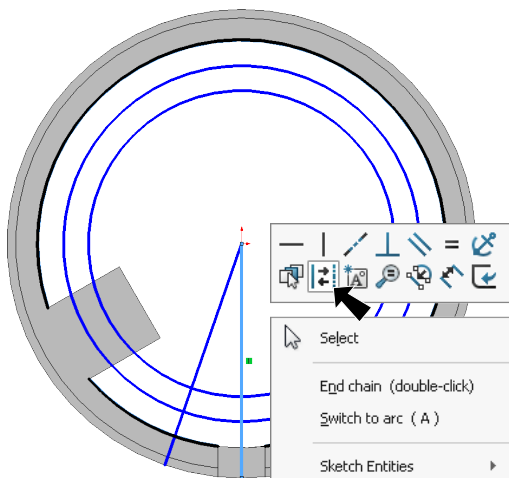


Fig. 85

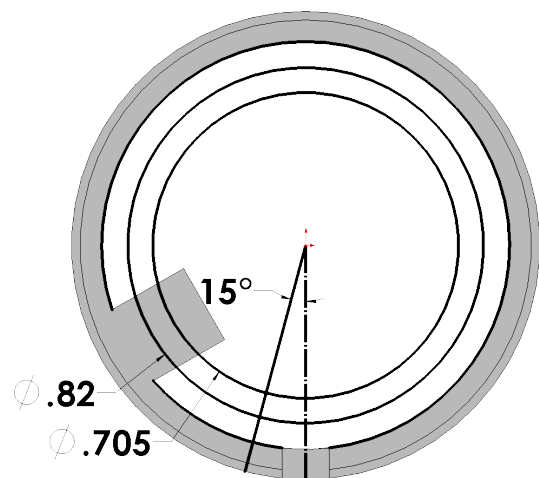




Fig. 86

Step 12. Click **Offset Entities**  on the Sketch toolbar.

Step 13. In the Offset Entities Property Manager set:
under Parameters, **Fig. 87**

- Distance**  **.02**
- click **angled radius line**
- check **Reverse**
- uncheck **Cap ends**
- The yellow offset should be on **right side** of original line, **Fig. 88**.
- click OK .

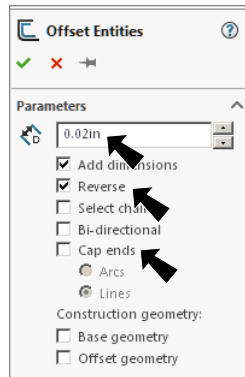


Fig. 87

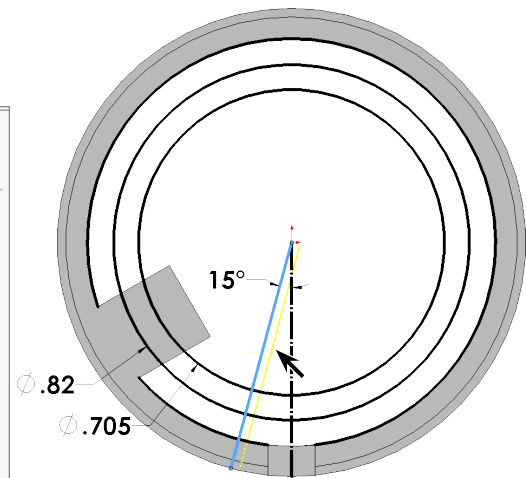



Fig. 88


Step 14. Drag a “trend to left - more liberal” selection across all radii, **Fig. 89**.

Step 15. Click **Mirror Entities**  **Mirror Entities** on the Sketch toolbar, **Fig. 91**.

Step 16. Click **Features**  on the Command Manager toolbar.

Step 17. Click **Extruded Boss/Base**  on the Features toolbar.

Step 18. In the Boss-Extrude Property Manager set:
under Direction 1, **Fig. 90**

- End Condition**
- Through All**
- under Selected Contours
- click the **6 contours**,
- Fig. 91**
- click OK .

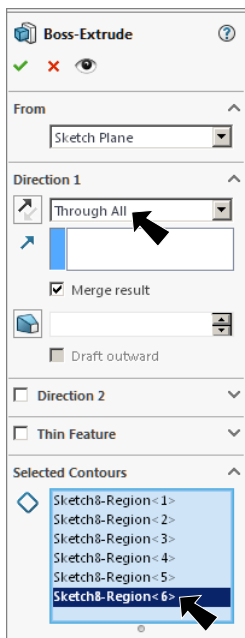


Fig. 90

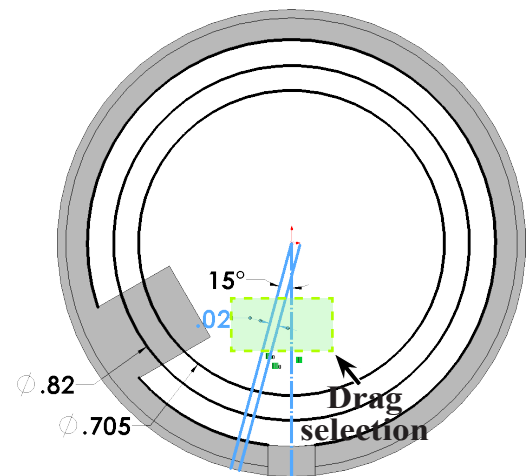


Fig. 89

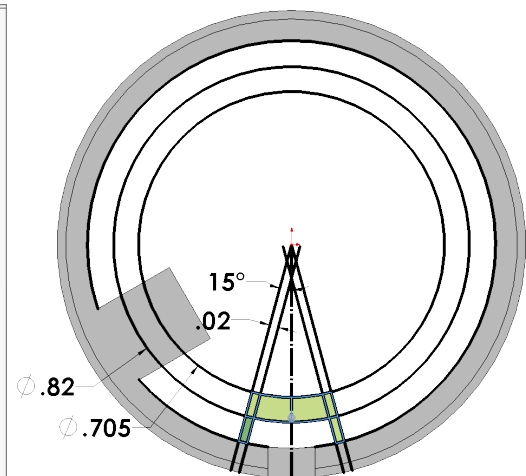





Fig. 91

M. Circular Pattern.

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

Step 2. **Ctrl click Cut-Extrude5 and Boss-Extrude4** in the Feature Manager to select both features, **Fig. 92**.

Step 3. Click **Circular Pattern**  in the **Linear Pattern flyout**  on the Features toolbar.

Step 4. In the Circular Pattern Property Manager set:
 under Features and Faces, **Fig. 93**
 click **Cut-Extrude1** should be selected under Parameters
 click in **Pattern Axes** box
 click **cylindrical face of Can**, **Fig. 94**
Number of Instances  **3**
 check **Equal spacing**
 click OK .

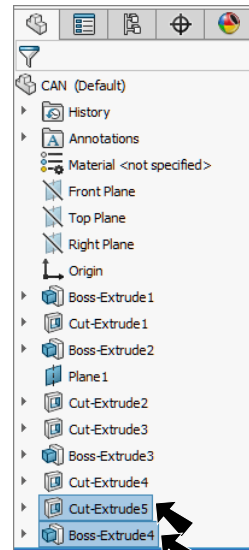


Fig. 92

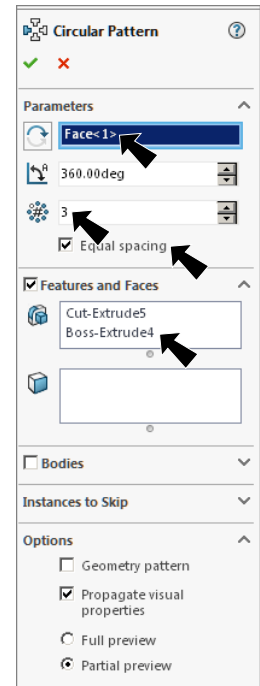


Fig. 93

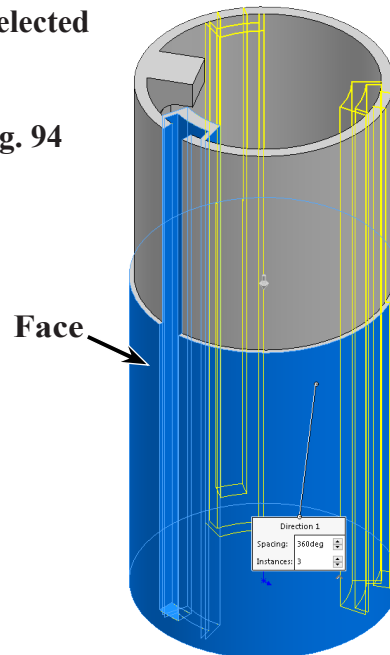





Fig. 94


N. Create Plane2.

Step 1. **Show Sketch3 in Boss-Extrude2.** To show, expand Boss-Extrude2 in the Feature Manager, click **Sketch3** and **Show**  on the context toolbar, **Fig. 95.**

Step 2. **Show Temporary Axes.** Click View Menu > Show/Hide > Temporary Axes. (**Alt-V H X**)

Step 3. Click **Reference Geometry**  on the Features toolbar and **Plane** from the menu.

Step 4. In the Plane Property Manager set:
 under First Reference, **Fig. 96**
 click **Temporary Axis**, **Fig. 97**
 under Second Reference
 click **angled radius on right side of centerline in Sketch3**
 click **Perpendicular** 
 click **OK** .

Step 5. **Hide Sketch3.** To hide, expand Boss-Extrude2 in the Feature Manager, click **Sketch3** and **Hide**  on the context toolbar, **Fig. 98.**

Step 6. **Hide Temporary Axes.** Click View Menu > Show/Hide > Temporary Axes. (**Alt-V H X**)

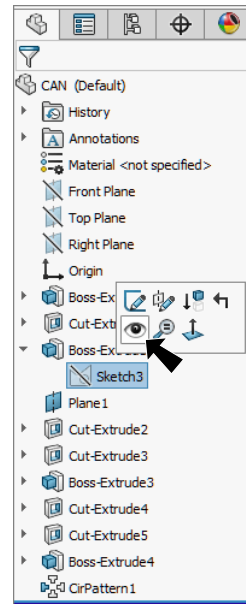


Fig. 95

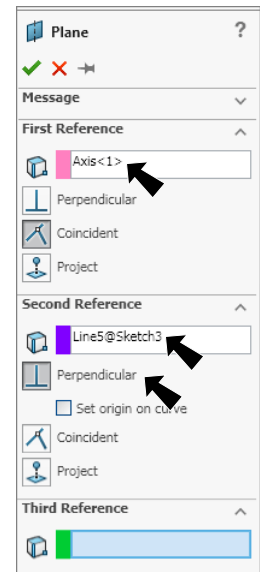


Fig. 96

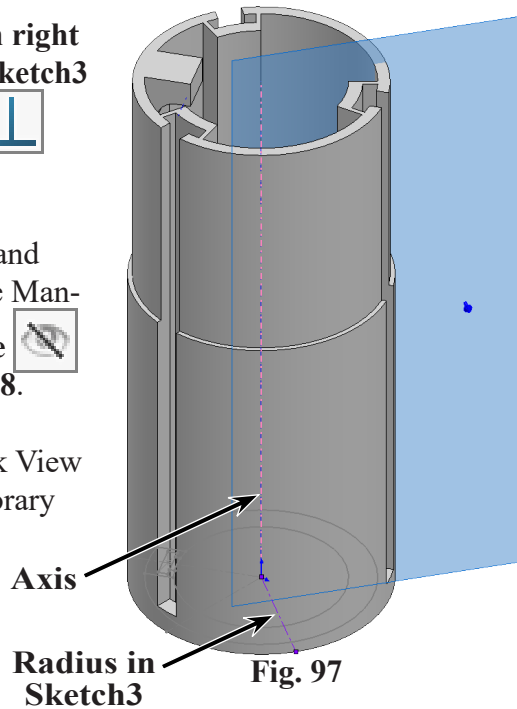


Fig. 97

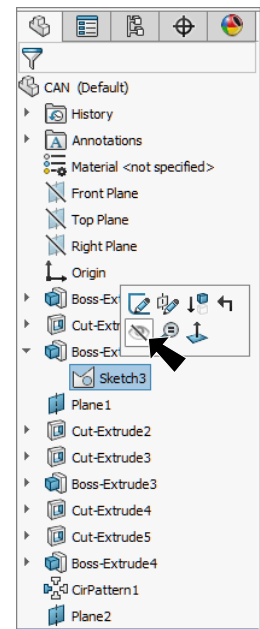


Fig. 98

O. Body Tube Retainer.

Step 1. Click **Plane2** in the Feature Manager and click **Sketch** on the context toolbar, **Fig. 99**.

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

Step 3. Click **Center Rectangle** in the **Rectangle** flyout on the Sketch toolbar.

Step 4. Sketch small rectangle below top of Can, **Fig. 100**.

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. 101**.

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

Step 8. Add dimensions, **Fig. 102**.

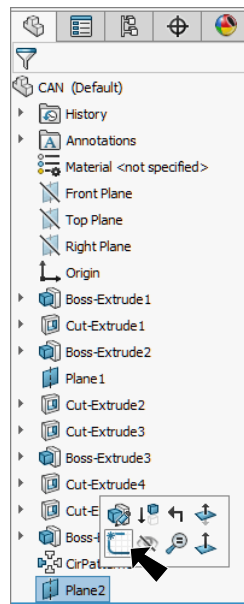


Fig. 99

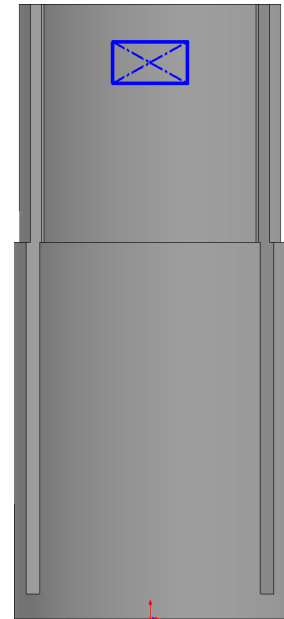


Fig. 100

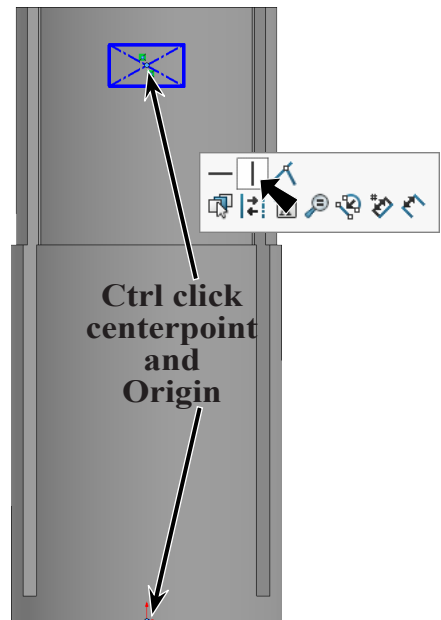


Fig. 101

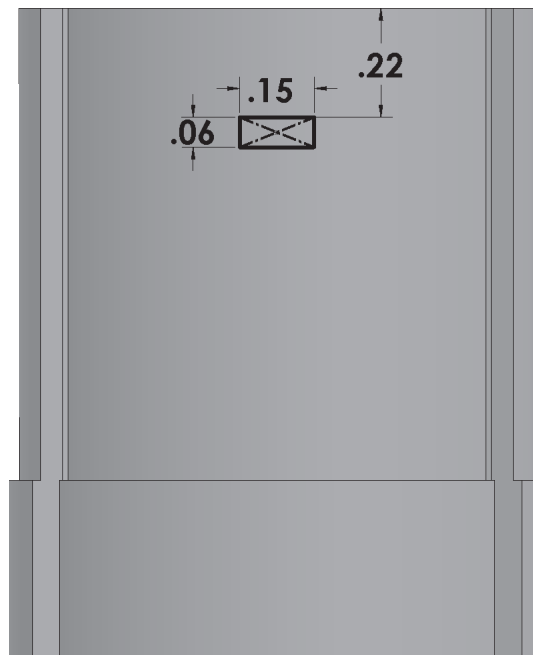


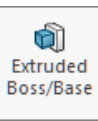




Fig. 102

Step 9. Click **Isometric**  on the Standard Views toolbar. (**Ctrl-7**)

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

Step 11. Click **Extruded Boss/Base**  on the Features toolbar.

Step 12. In the Boss-Extrude Property Manager set:
under From, **Fig. 103**
Start Condition **Surface/Face/Plane**
for **Face/Plane**
click **cylindrical face of boss Can**,
Fig. 104
under Direction 1
Depth  **.06in**
click **OK** .

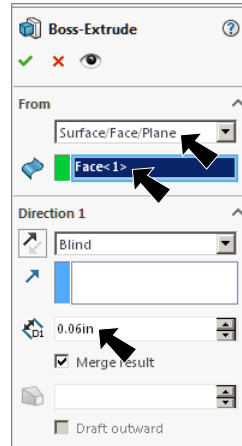


Fig. 103

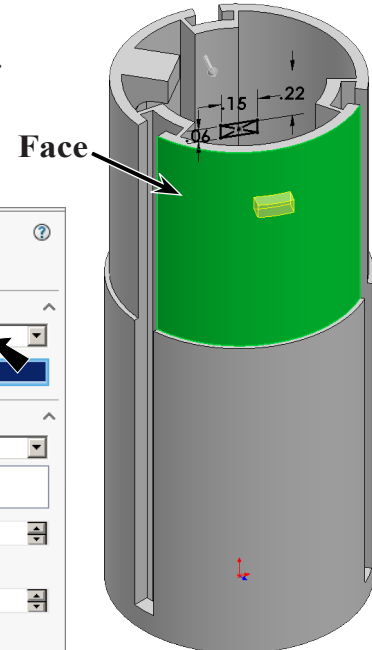





Fig. 104

Step 13. Save. Use **Ctrl-S**.

P. Chamfer1.

Step 1. Click **Chamfer**  on the Features toolbar.

Step 2. In the Chamfer Property Manager set:
under Chamfer Parameters, **Fig. 105**
select **Angle distance**
Distance  **.06**
Angle  **45**
Click **top edge of retainer boss at cylinder** and **left side edge of boss at cylinder**, **Fig. 106**.
Direction arrow should **point out from cylinder** along side of boss.
If opposite direction check **Flip direction**, **Fig. 105**.
Click **OK** .

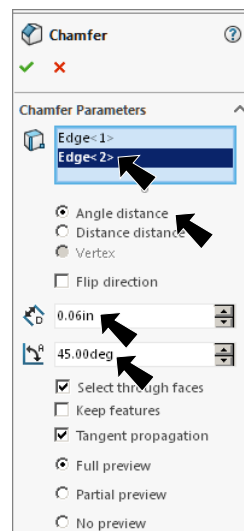


Fig. 105

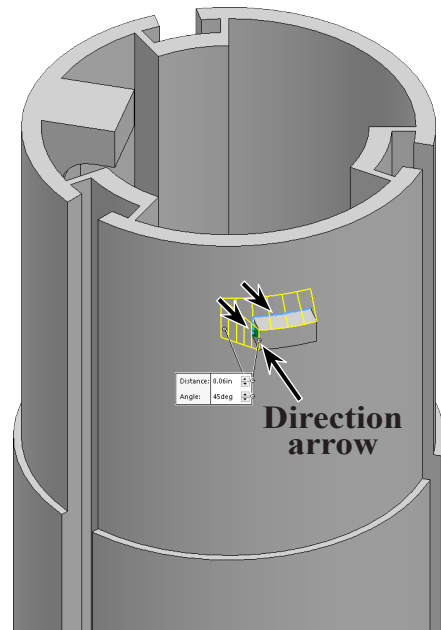
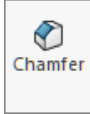


Fig. 106

Q. Chamfer2.

Step 1. Click **Chamfer**  on the Features toolbar.

Step 2. In the Chamfer Property Manager set:
under Chamfer Parameters, **Fig. 107**

select **Angle distance**
check **Flip direction**

Distance  **.06**

Angle  **45**

Click **right side edge of re-tainer at cylinder**, **Fig. 108**,
Direction arrow should **point out from cylinder**. If opposite direction uncheck Flip direction.

click OK  .

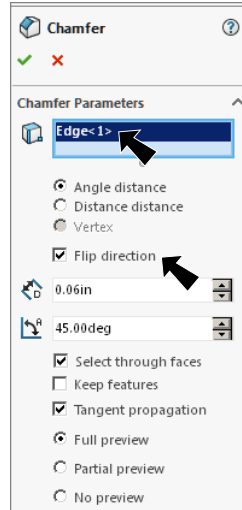


Fig. 107

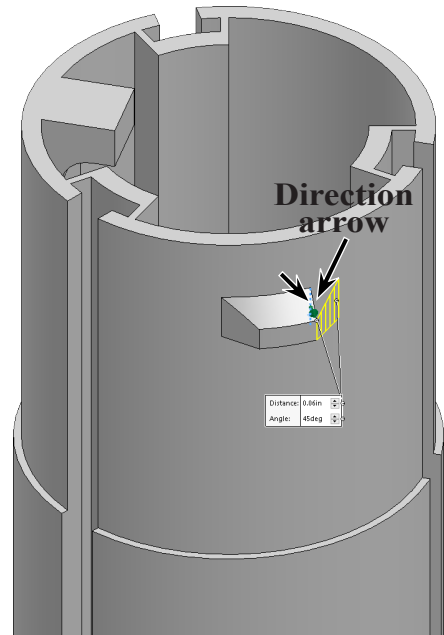


Fig. 108

R. Chamfer3.

Step 1. Click **Chamfer**  on the Features toolbar.

Step 2. In the Chamfer Property Manager set:
under Chamfer Parameters, **Fig. 109**

select **Distance distance**

Depth 1  **.05**

Depth 2  **.03**

click the **3 top outside circular edges of Can**, **Fig. 110**

click OK  .

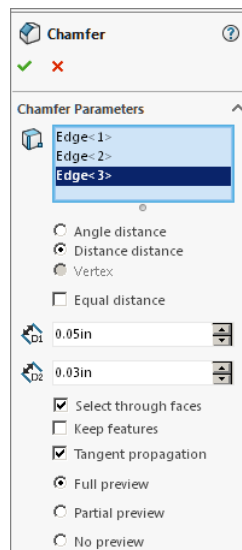


Fig. 109

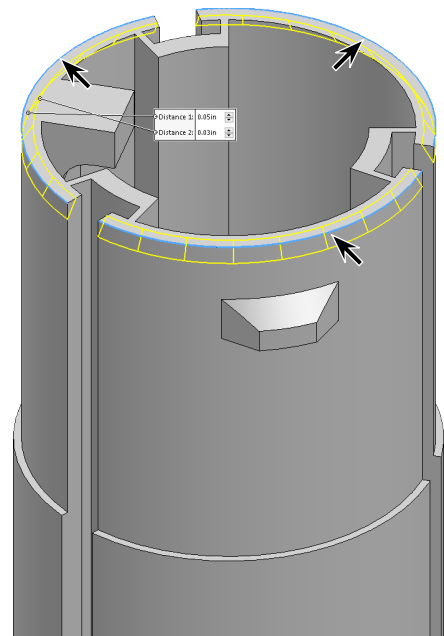


Fig. 110

S. Chamfer4.

Step 1. Rotate view to view **bottom inside edges of Can**, hold down middle mouse button (wheel) and drag to rotate view, **Fig. 112**.

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

Step 3. In the Chamfer Property Manager set:
under Chamfer Parameters, **Fig. 111**

select **Distance distance**

Depth 1  **.05**

Depth 2  **.03**

click **inside bottom circular edges of Fin housing and Hook housing**, **Fig. 112**

click OK .

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

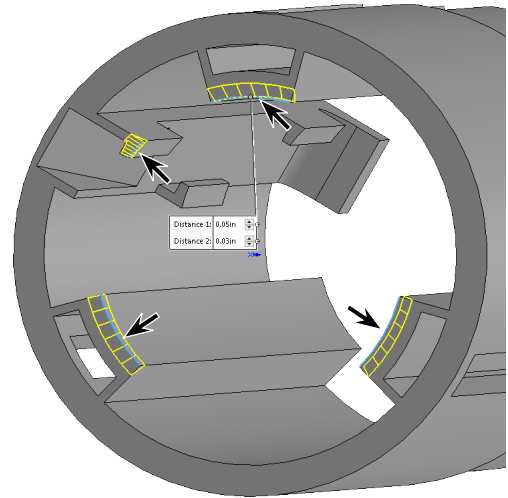


Fig. 112

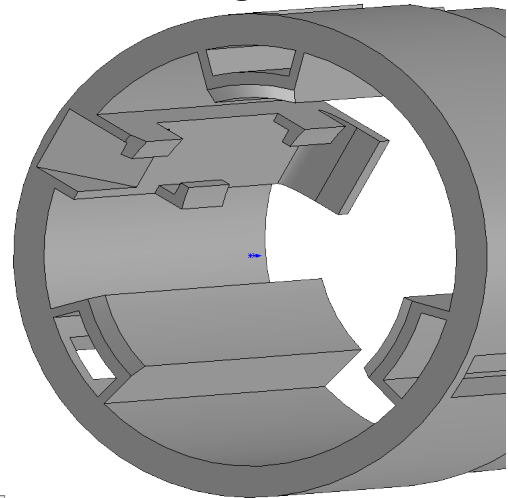


Fig. 113

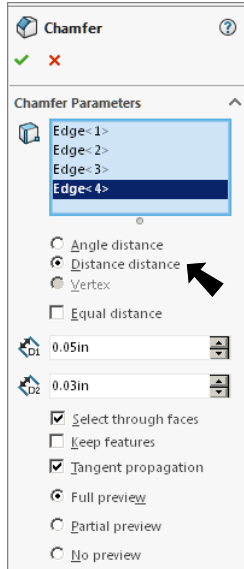


Fig. 111

T. Material ABS Plastic.

Step 1. **Right click Material**  in the Feature Manager and click **Edit Material**, **Fig. 114**.

Step 2. **Expand Plastics** in the material tree and select **ABS**. Click **Apply** and **Close**.

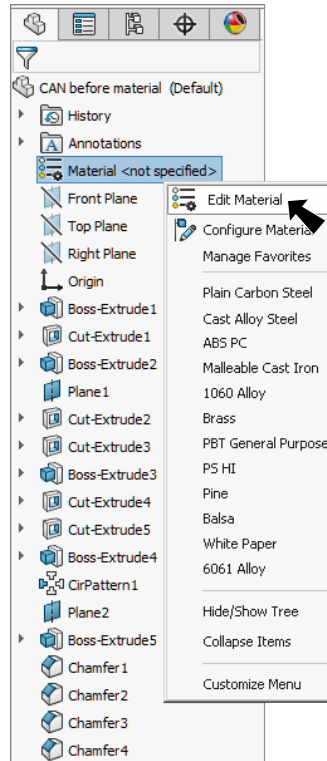





Fig. 114

U. Appearance.

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

Step 2. Click the Can to select the part, click **Appearance Callout**  on the content toolbar and click **CAN** , **Fig. 115**.

Step 3. In the Appearances Property Manager, under Color, **Fig. 116**
set **RGB** values
R 243
G 255
B 0
click **OK** .

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

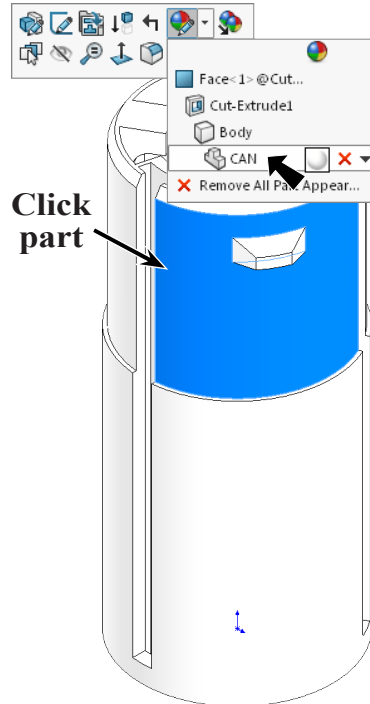


Fig. 115

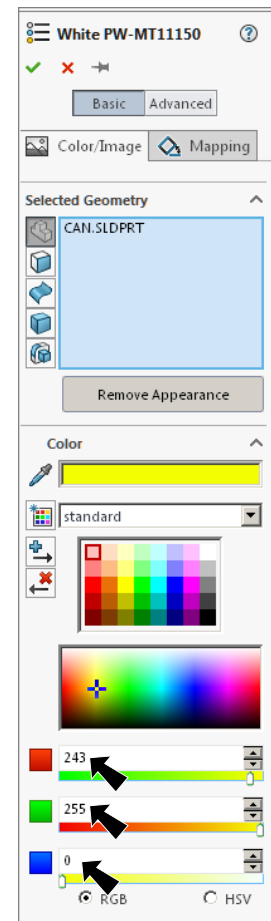


Fig. 116

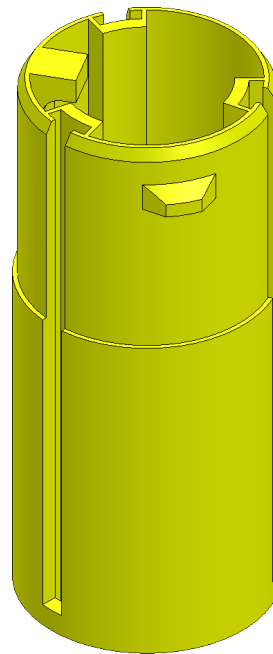


Fig. 115