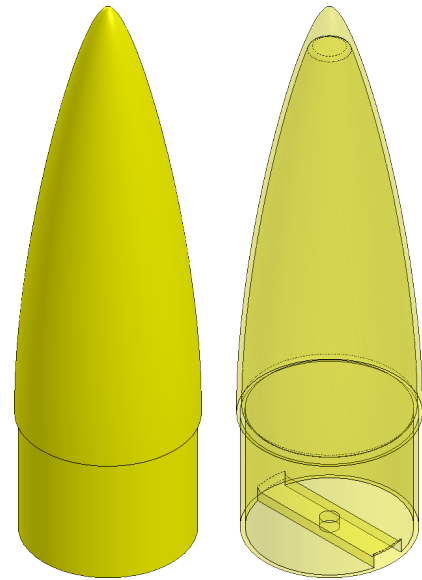




Rocket 3D Print Nose Cone



A. Revolve.

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

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

Step 3. Click **Line**  (L) on the Sketch toolbar.

Step 4. Starting from the Origin  sketch lines, **Fig. 2**.

Step 5. **Right click graphics area and click Select** from menu to un-select Line tool.

Step 6. Click the **vertical line at Origin** and click **Construction Geometry**  on the context toolbar, **Fig. 3**.

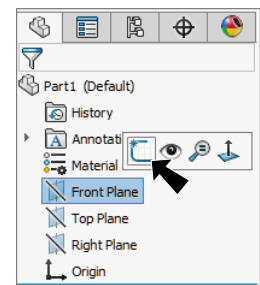


Fig. 1

Step 7. Click **Smart Dimension**



(S) on the Sketch toolbar.

Step 8. Dimension lines, **Fig. 4**. Dimension **double distance both diameters**. To double distance dimension inside diameter, click centerline and then left vertical line, move the cursor Origin and click. Key-in 1.04 in the Modify box and press ENTER. Double distance outside diameter.

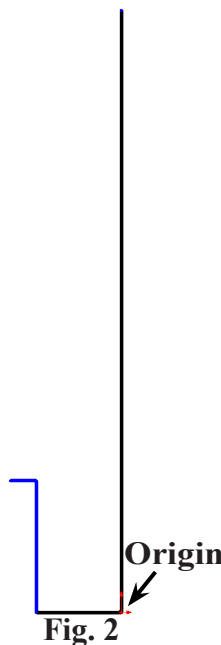


Fig. 2

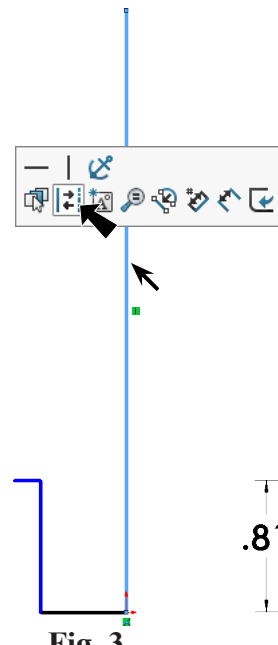


Fig. 3

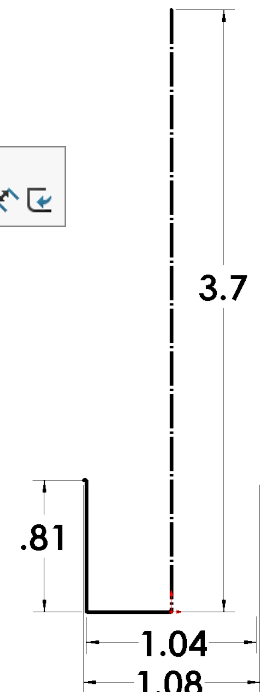




Fig. 4

Step 9. Click Zoom to Fit  (F) on the View toolbar.

Step 10. Click **Style Spline**  in the **Spline flyout**  on the Sketch toolbar.

Step 11. Sketch a **4 control vertex point Spline** between left endpoints of short horizontal line and top endpoint of vertical centerline, **Fig. 5**. Press Escape to end the spline.

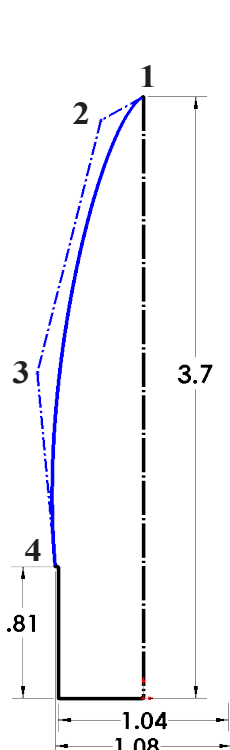


Fig. 5

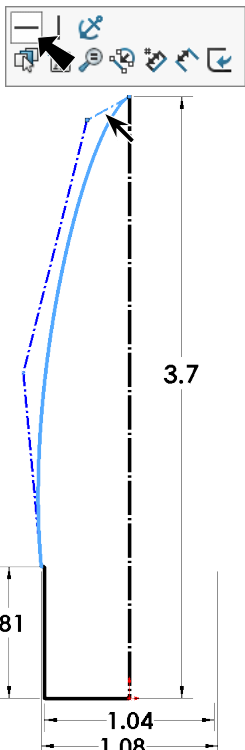


Fig. 6

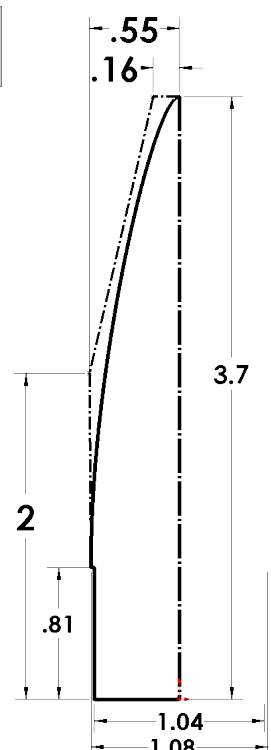




Fig. 7

Step 12. Click **top control polygon segment** and click **Make Horizontal**  on the context toolbar, **Fig. 6**.



Step 13. Click **Smart Dimension**  (S) on the Sketch toolbar.

Step 14. Add dimensions, **Fig. 7**.

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

Step 16. Click **Revolved Boss/Base**  on the Features toolbar.

Step 17. Click **Yes** to close sketch message.

Step 18. In the Revolve Property Manger set:
 under Axis of Revolution 
vertical centerline should be selected, **Fig. 8**
 click OK .

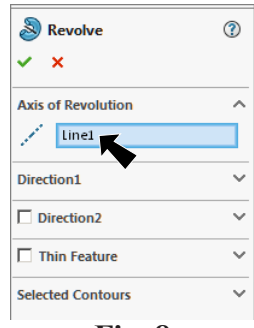


Fig. 8

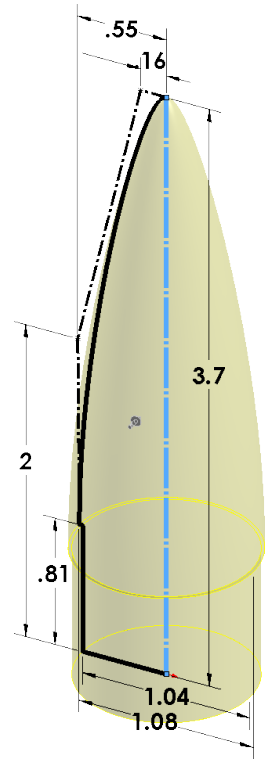




Fig. 9

B. Save as "NOSE CONE".

Step 1. Click File Menu > Save As.

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

C. Split.

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

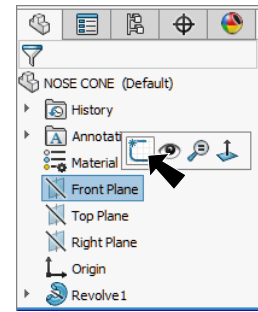



Fig. 10

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

Step 3. Click **Line**  (**L**) on the Sketch toolbar.

Step 4. Sketch a horizontal line below top of Nose Cone, **Fig. 11**.

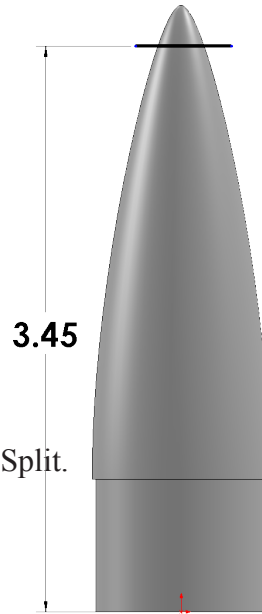




Fig. 11

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

Step 6. Add **3.45** dimension, **Fig. 11**.

Step 7. Click Insert Menu > Features > Split.

Step 8. In the Split Property Manager:
 under Trim Tools, **Fig. 12**
 click **Cut Part**
 click part in graphics area,
Fig. 13
 click OK .

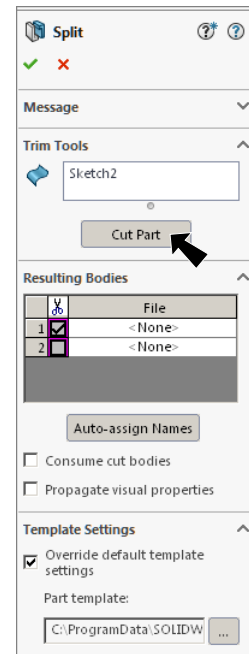


Fig. 12

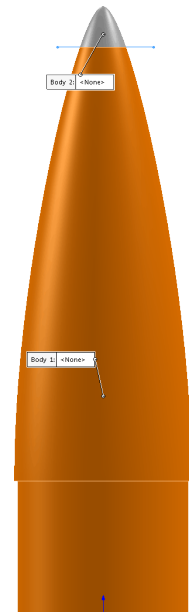



Fig. 13

D. Shell.

Step 1. **Hide Sketch2**. To hide, click **Sketch2** in the Feature Manager and **Hide**  on the context toolbar, **Fig. 14**.

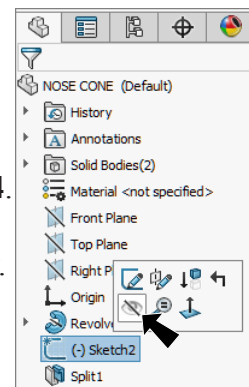
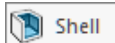




Fig. 14

Step 2. Use **Up Arrow** key on keyboard to rotate view slightly.

Step 3. Click **Shell**  on the Features toolbar.

Step 4. In the Shell Property Manager set:
 under Parameters, **Fig. 15**

Distance  **.03**
 check **Show preview**
 click **bottom face** of Nose Cone, **Fig. 16**
 click OK .

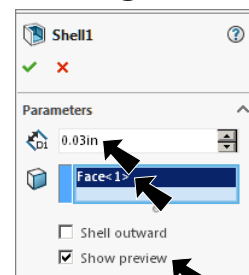


Fig. 15



Fig. 16

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

E. Combine Bodies.

Step 1. Click Insert Menu > Features > Combine.

Step 2. In the Combine Property Manager:
 under Operation Type, **Fig. 17**
 select **Add**
 under Bodies to Combine
 click **both bodies**, **Fig. 18**
 click OK ✓.

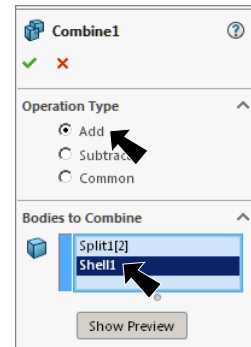




Fig. 17



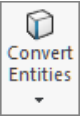
Fig. 18

F. Shock Cord Tie.

Step 1. Click **Top Plane**  in the Feature Manager and click **Sketch**  on the content toolbar, **Fig. 19**.

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. 20**
 click **inside circular edge**, **Fig. 21**
 click OK ✓.

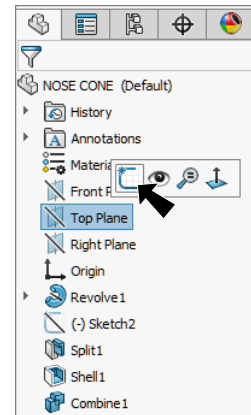



Fig. 19

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

Step 7. Sketch horizontal line across converted circle through Origin , **Fig. 22**.

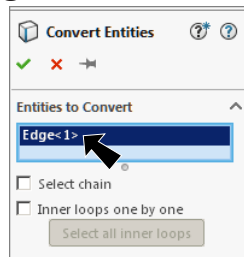


Fig. 20

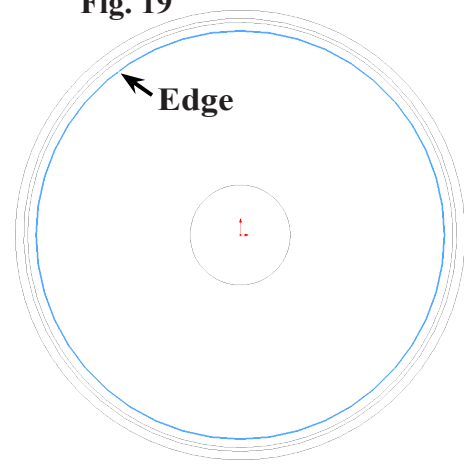


Fig. 21

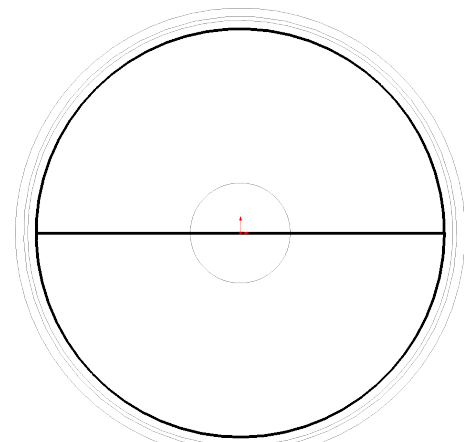




Fig. 22

Step 8. Click **Offset Entities**  on the Sketch toolbar.

Step 9. In the Offset Entities Property Manager set:
under Parameters, **Fig. 23**
check **Bi-directional**

Distance  **.11**
click **horizontal line**, **Fig. 24**
click **OK** .

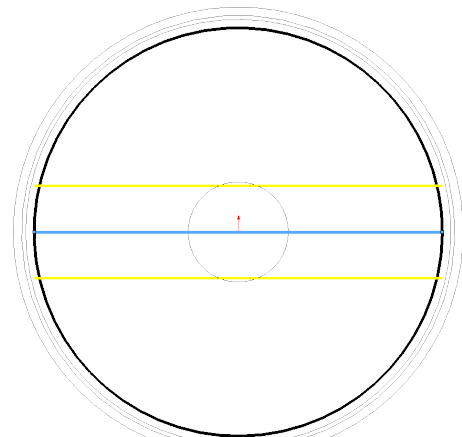
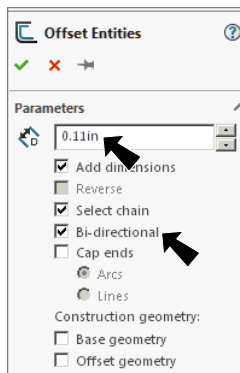



Fig. 24

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

Step 11. Sketch a **circle** at Origin , **Fig. 25**.


Step 12. Click **Smart Dimension**  (S) on the Sketch toolbar.



Step 13. Dimension diameter **.12**, **Fig. 25**.

Step 14. Click **Features**  on the Command Manager toolbar.

Step 15. Click **Extruded Boss/Base**  on the Features toolbar.

Step 16. In the Boss Extrude Property Manager set:
under Direction 1, **Fig. 26**

Depth  **.07**
under Selected Contours
click **both contours outside**
circle, **Fig. 27**.

Click **Front**  on the
Standard Views toolbar. (**Ctrl-1**)
Click **OK** .

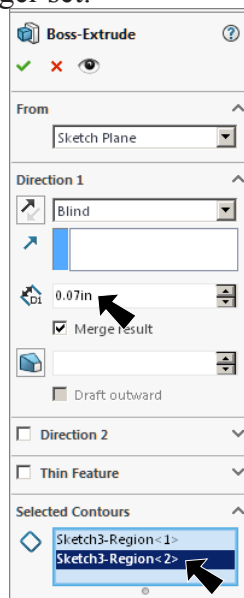


Fig. 26

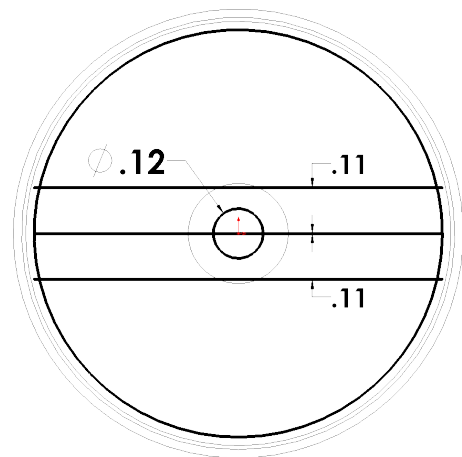


Fig. 25

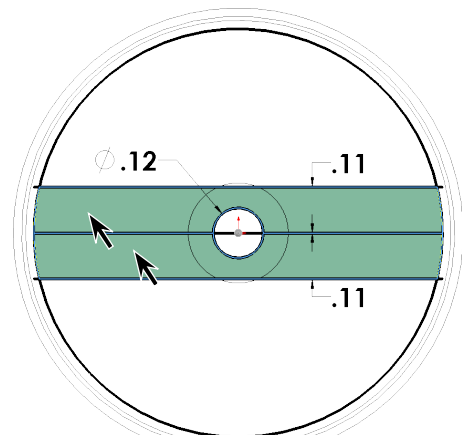


Fig. 27

Step 17. Save. Use **Ctrl-S**.

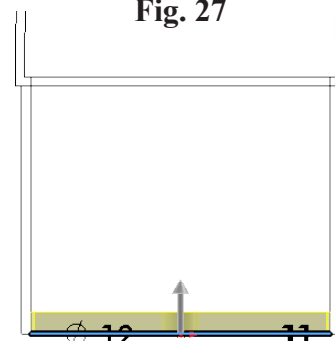


Fig. 28

G. Fillet Edges.

Step 1. Click **Shaded With Edges**  on the View toolbar.

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

Step 3. In the Section View Property Manager set:
under Section 1, **Fig. 29**

click **Front Plane** 

click OK .

Step 4. Use **Down Arrow** key on keyboard to rotate view slightly.

Step 5. Click **Fillet**  on the Features toolbar.

Step 6. In the Fillet Property Manager set:
select **FilletXpert**, **Fig. 30**

Radius  **.03**

click the **4 edges on inside**, **Fig. 31**

click OK .

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

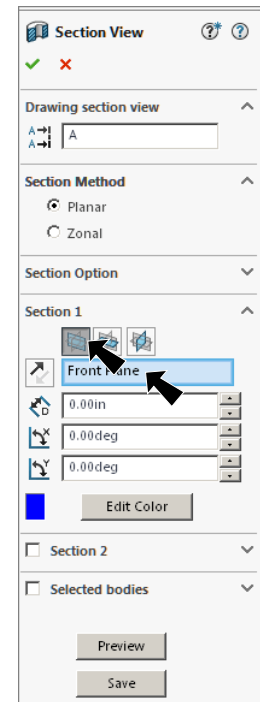


Fig. 29

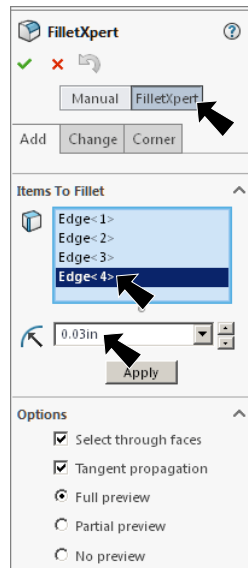


Fig. 30



Fig. 31



Fig. 32

H. Material ABS Plastic.

Step 1. Right click Material  in the Feature Manager and click **Edit Material**, Fig. 33.

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

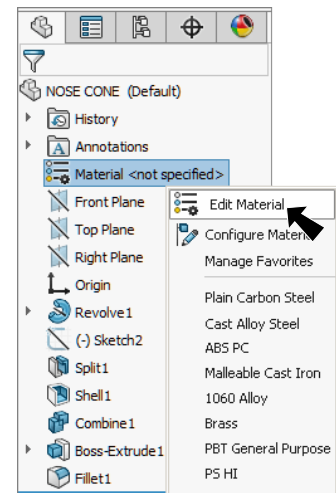





Fig. 33

I. Appearance Color.

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

Step 2. Click **Isometric**  on the Standard Views toolbar. (**Ctrl-7**)

Step 3. Click the part, click **Appearance Callout**  on the context toolbar and click **NOSE CONE** , Fig. 34.

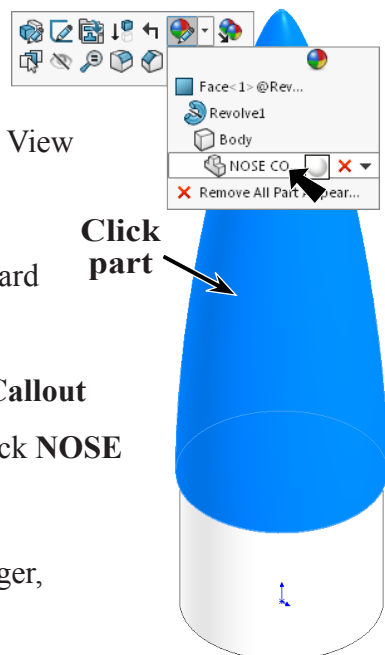


Fig. 34

Step 4. In the Appearances Property Manager, under **Color**, Fig. 35 set **RGB values**
R 243
G 255
B 0
 click **OK** .

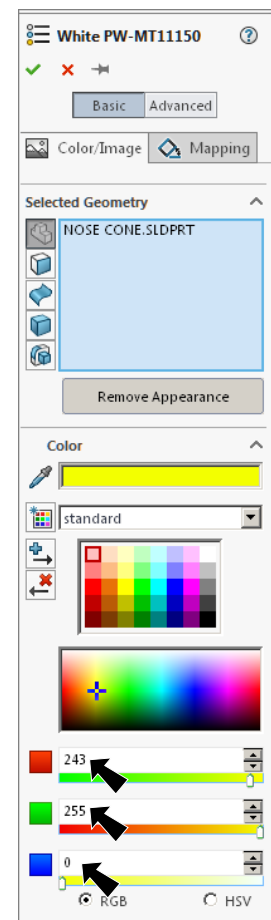


Fig. 35

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



Fig. 36