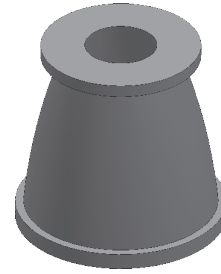




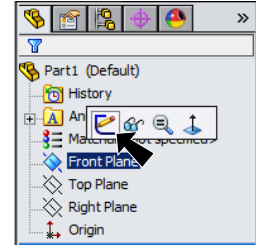
Delta IV Heavy Engine Nozzle




A. Sketch Lines.

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

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




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

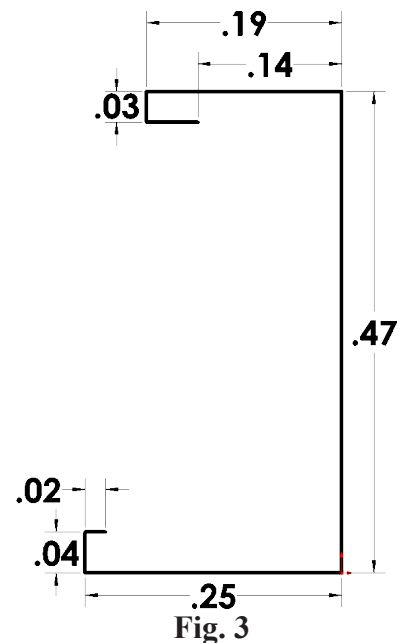
Step 4. Draw **7 lines** starting at Origin , **Fig. 2**. To terminate chain, double click back on the line you have just sketched.



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

Step 6. Add dimensions **Fig. 3**.

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



B. Save as "ENGINE NOZZLE".

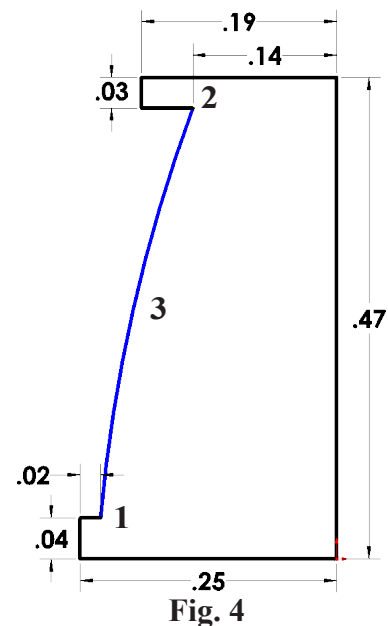
Step 1. Click File Menu > Save As.

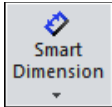
Step 2. Key-in **ENGINE NOZZLE** for the filename and press ENTER.

C. 3 Point Arc.

Step 1. Click **3 Point Arc**  on the Sketch toolbar.

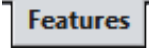
Step 2. Draw an arc between the Position 1, Position 2 and Position 3, **Fig. 4**.



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

Step 4. Dimension arc radius 1.55, Fig. 5.

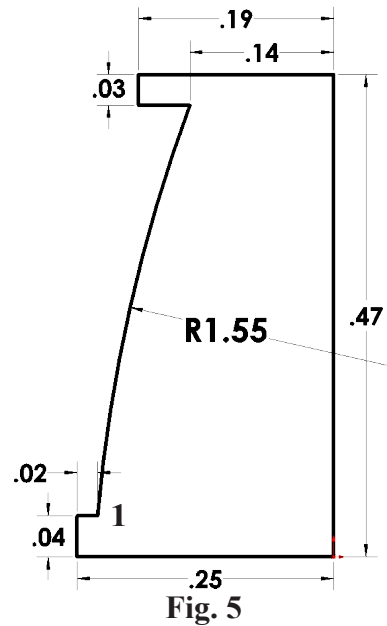
D. Revolve.

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


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

Step 3. In the Revolve Property Manger,



Axis of Revolution
click **vertical line on right side of sketch**, Fig. 7
click OK .



E. Shell.

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

Step 2. In the Shell Property Manager set:
under Parameters, Fig. 8

Distance  D1 .04
check **Show preview**
in the face to remove box
click **top face**, Fig. 9
rotate view to view **bottom**
face, Fig. 10. To rotate view, hold
down middle mouse button
(wheel) and drag
click **bottom face**, Fig. 10
click OK .

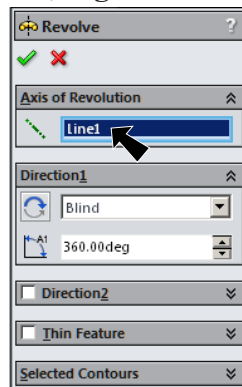


Fig. 6

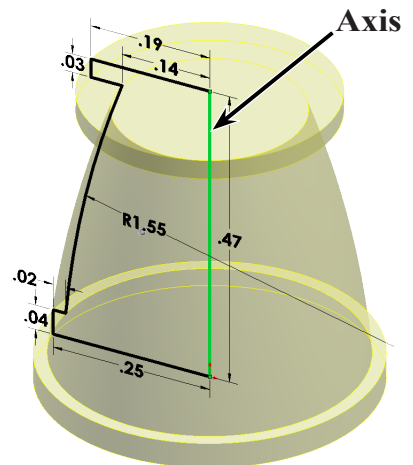


Fig. 7

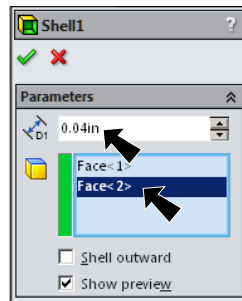


Fig. 8

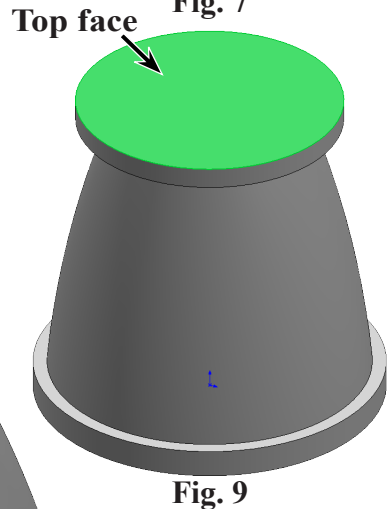


Fig. 9

Step 3. Save.
Ctrl-S.

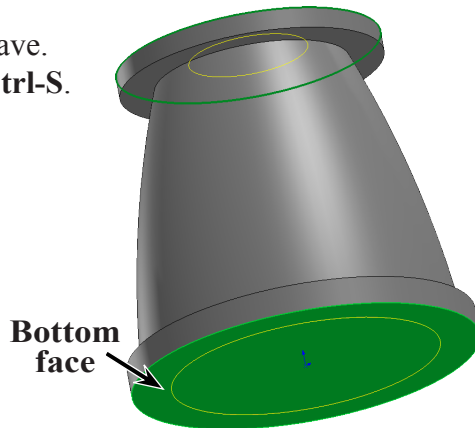


Fig. 10

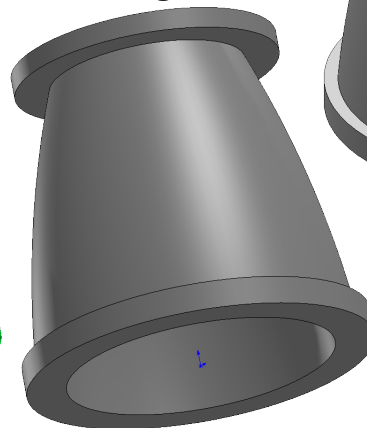



Fig. 11

F. Appearance Color.

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

Step 2. Click the part, expand **Appearance Callout**  on the Context toolbar and click **ENGINE NOZZLE** , Fig. 12.

Step 3. In the Appearances Task pane, expand **Metal**, click **Steel** and in the lower pane select **cast carbon steel**, Fig. 13.

Step 4. In the Appearances Property Manager, under **Color**, Fig. 14
click **third from top Gray** swatch
click OK .

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

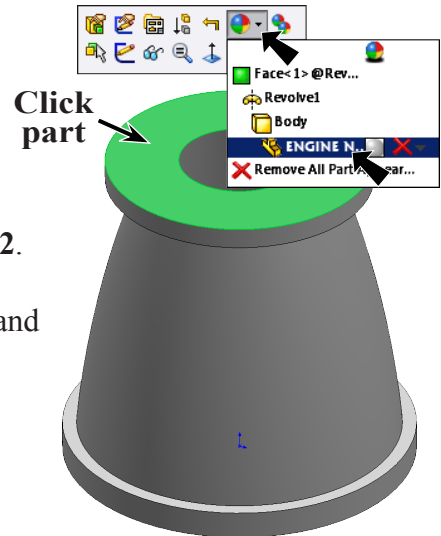


Fig. 12

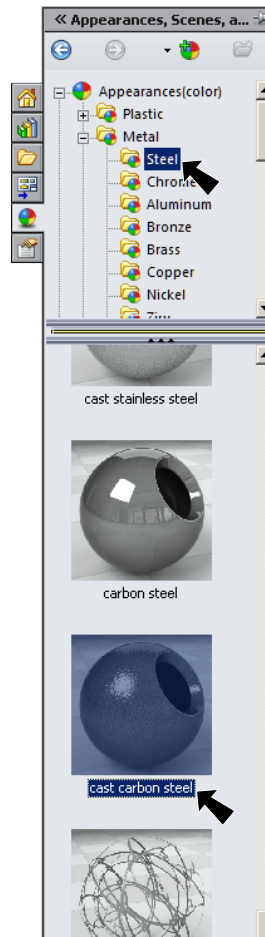


Fig. 13

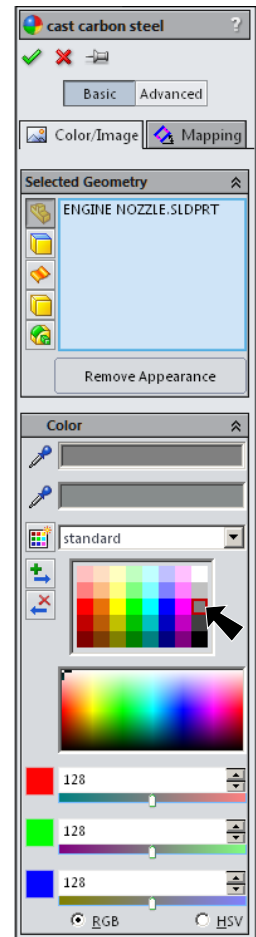


Fig. 14

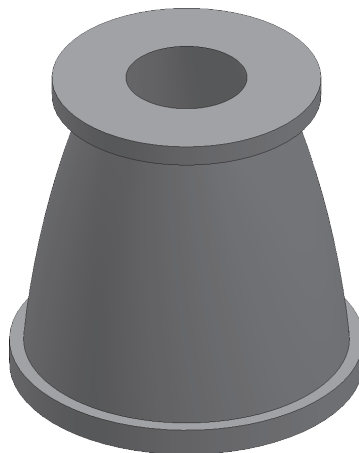


Fig. 15