



Wind Up Car Spring Axle

A. Sketch.

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

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

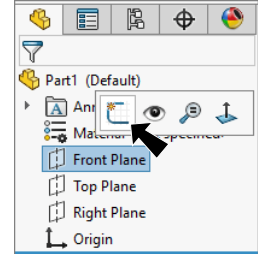




Fig. 1

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

Step 4. Sketch lines starting off the Origin  with a vertical line and after sketching the **bottom horizontal line, right click** horizontal line and click **Construction Geometry**  on the context toolbar, **Fig. 2**.

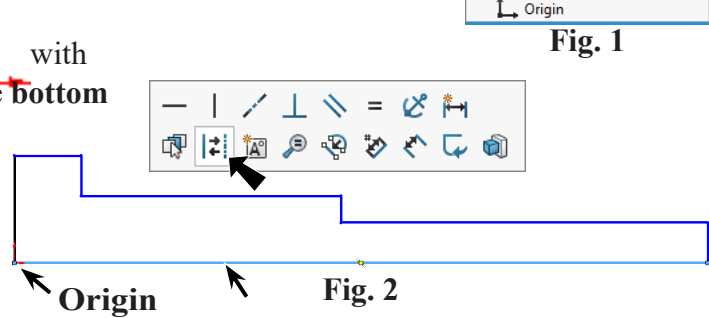


Fig. 2

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

Step 6. Add dimensions, **Fig. 3**. Dimension **double distance** the heights. To double distance dimension, click centerline and then a horizontal line, move cursor to left of sketch (Origin) and click. Key-in dimension in the Modify box and press ENTER. Double distance 16, 10 and 6 dimension.

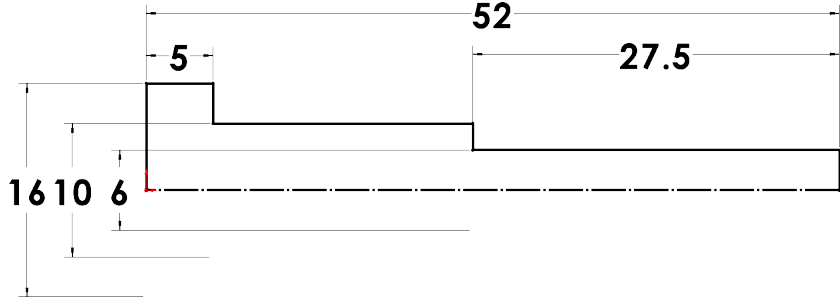


Fig. 3

B. Save as "SPRING AXLE".

Step 1. Click File Menu > Save As.


Step 2. Key-in **SPRING AXLE** for the filename and press ENTER.

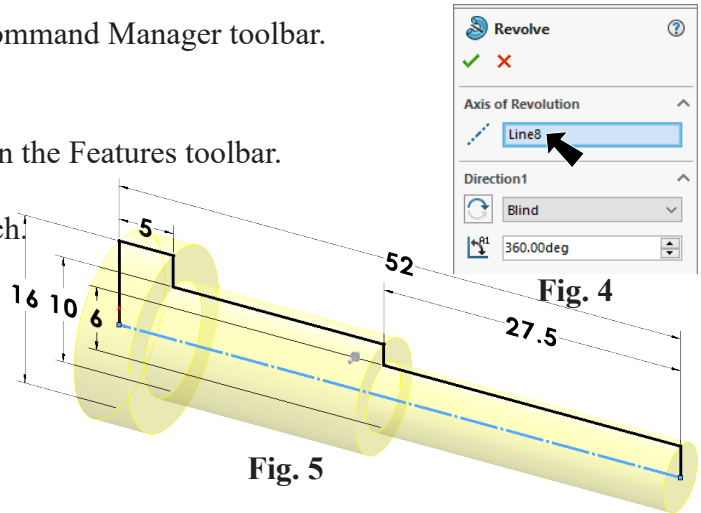
C. Revolved Boss/Base.

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


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

Step 3. Click **Yes** to automatically close sketch.

Step 4. In the Revolve Property Manger:
click OK .




D. Cut Back Boss.

Step 1. Click **side face of middle boss** and click **Sketch**  on the context toolbar, Fig. 6.

Step 2. Click **Polygon**  on Sketch toolbar.

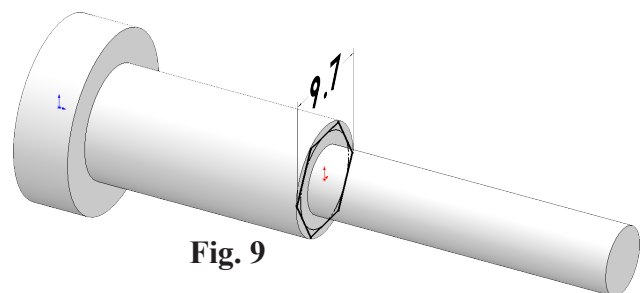
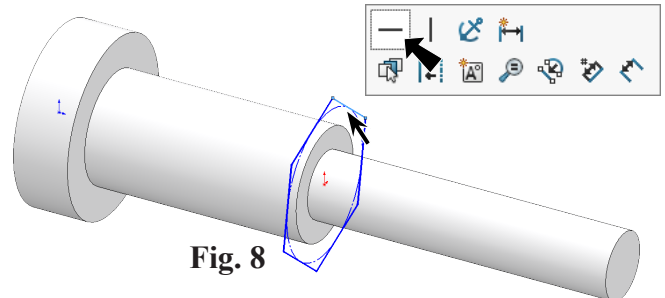
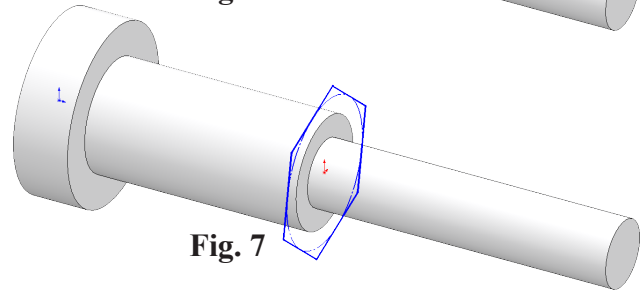
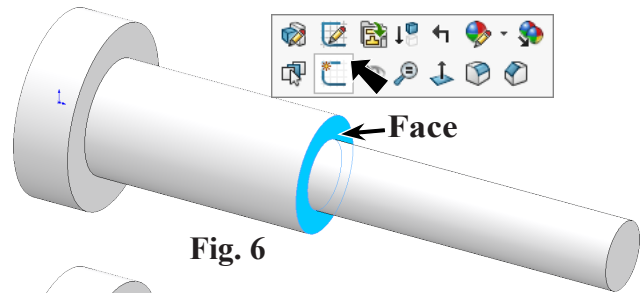
Step 3. Confirm **6 sides**  and sketch **polygon** starting at the Origin , Fig. 7.

Step 4. **Right click graphics area and click Select**  from menu to unselect Polygon tool.

Step 5. Click a **polygon segment** and click **Make Horizontal**  on the context toolbar, Fig. 8.

Step 6. Click **Smart Dimension**  (S) on the Sketch toolbar.



Step 7. Dimension **9.7** across corners, Fig. 9.



Step 8. Click **Features**  on the Command Manager toolbar.

Step 9. Click **Extruded Cut**  on the Features toolbar.

Step 10. In the Cut-Extrude Property Manager set:
under Direction 1, **Fig. 10**

Depth  **14**
check **Flip side to cut**
click **OK** .

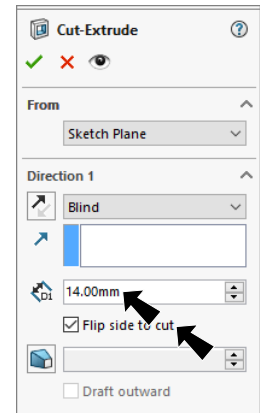
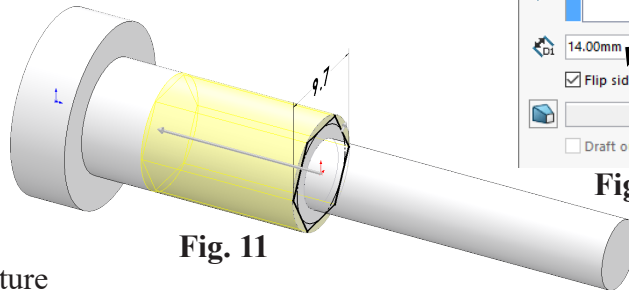


Fig. 10

Fig. 11


E. Cut for Key.

Step 1. Click **Right Plane**  in the Feature Manager and click **Sketch**  on the context toolbar, **Fig. 12**.

Step 2. Click **Polygon**  on Sketch toolbar.

Step 3. Sketch **polygon** starting at the Origin , **Fig. 13**.

Step 4. **Right click graphics area and click Select**  from menu to unselect Polygon tool.

Step 5. Click a **polygon segment** and click **Make Horizontal**  on the context toolbar, **Fig. 14**.

Step 6. Click **Smart Dimension**  (S) on the Sketch toolbar.

Step 7. Dimension **12** across corners, **Fig. 15**.

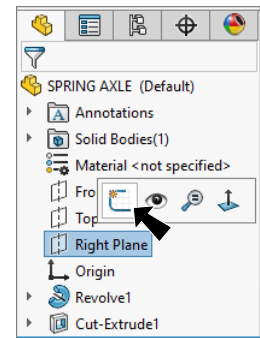


Fig. 12

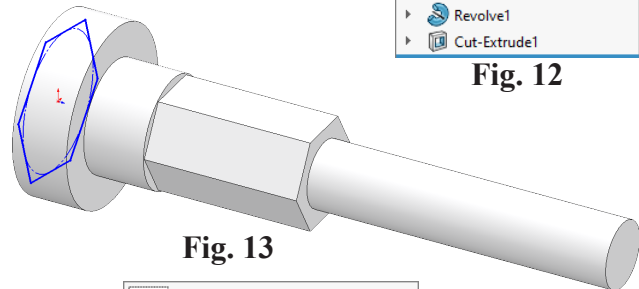


Fig. 13

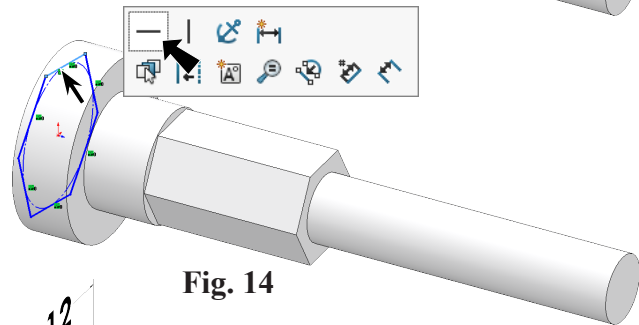


Fig. 14

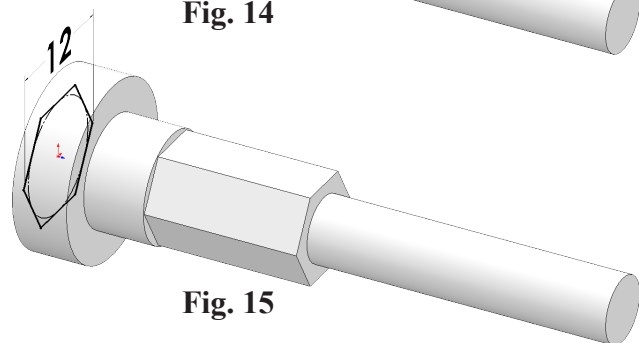



Fig. 15

Step 8. Click **Features**  on the Command Manager toolbar.

Step 9. Click **Extruded Cut**  on the Features toolbar.

Step 10. In the Cut-Extrude Property Manager set:
under Direction 1, **Fig. 16**

Depth  4

Reverse Direction 

click OK .

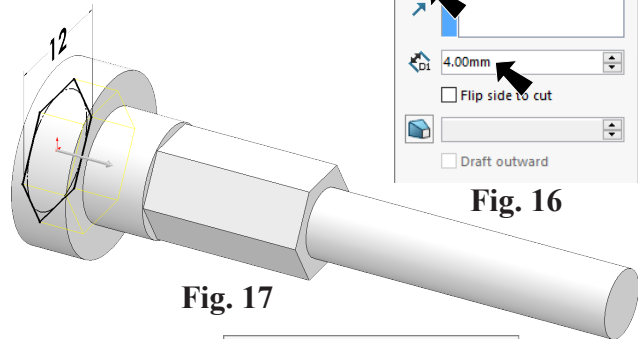




Fig. 16

F. Appearance.

Step 1. Click part, click **Appearance Callout**

 on the context toolbar and click **SPRING A...** , Fig. 18.

Step 2. In the Appearances Task pane, expand **Plastic**, click **High Gloss** and in the lower pane select **white high gloss plastic**, Fig. 19.

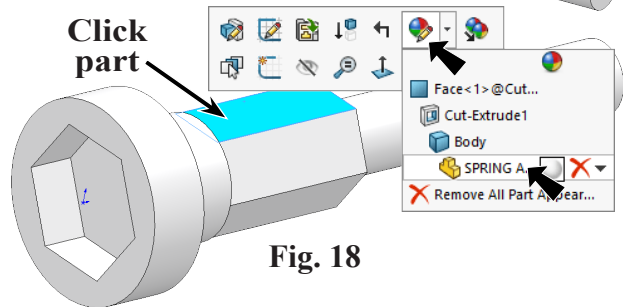


Fig. 18

Step 3. In the Appearances Property Manager set:
under Color, **Fig. 20**

set **RGB values**

R 188

G 173

B 217

click OK .

Step 4. Save  (Ctrl-S).

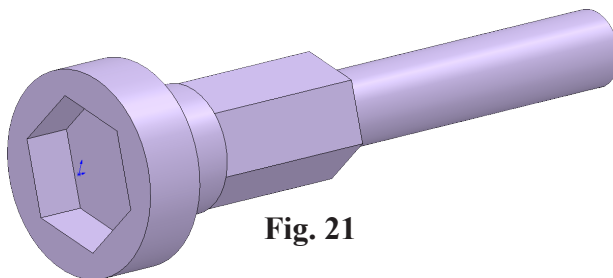


Fig. 21

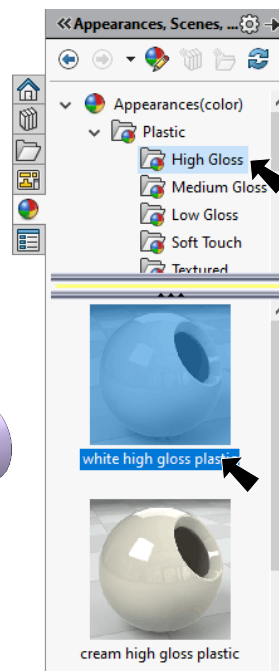


Fig. 19

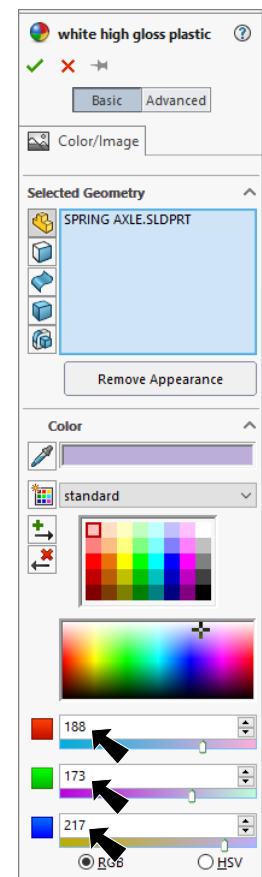


Fig. 20