


A. New Component Part.

- Step 1. Open your STRUT ASSEMBLY file.
- Step 2. Click Insert Menu > Component > New Part.
- Step 3. Click **Right Plane**  in the Feature Manager, **Fig. 1** and **Fig. 2**.

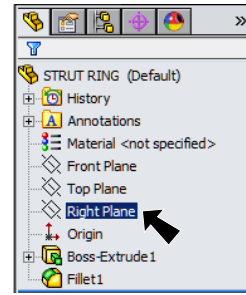


Fig. 1

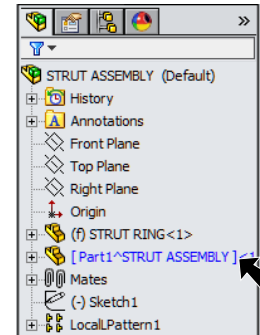


Fig. 2

B. Save as "STRUT".

- Step 1. Click File Menu > Save As.
- Step 2. Key-in STRUT for the filename and press ENTER, **Fig. 3**.

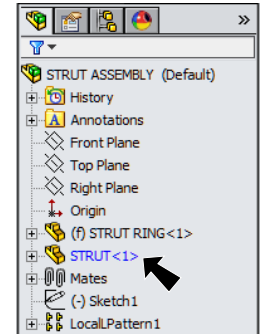
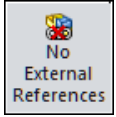




Fig. 3

C. Extrude.

- Step 1. Confirm **No External References**  on the Sketch toolbar **should not be on** (button should not be depressed).

- Step 1. Click **Normal To**  on the Standard Views toolbar. (**Ctrl-8**)

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

- Step 3. Sketch circle out to left of the Origin , **Fig. 4**.

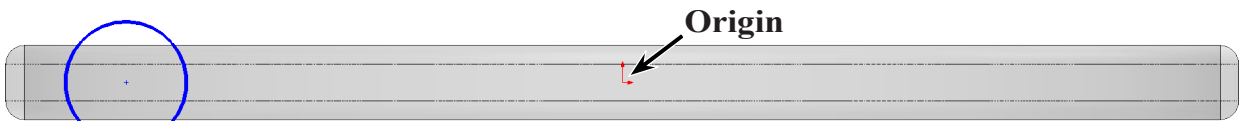


Fig. 4

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

- Step 5. **Ctrl click circle centerpoint and Origin**  and click **Make Horizontal**  on the Context toolbar, **Fig. 5**.

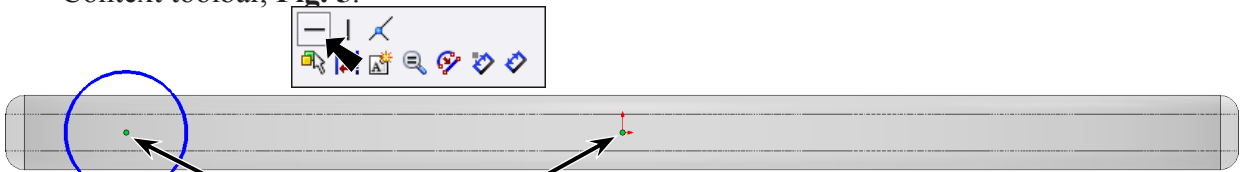
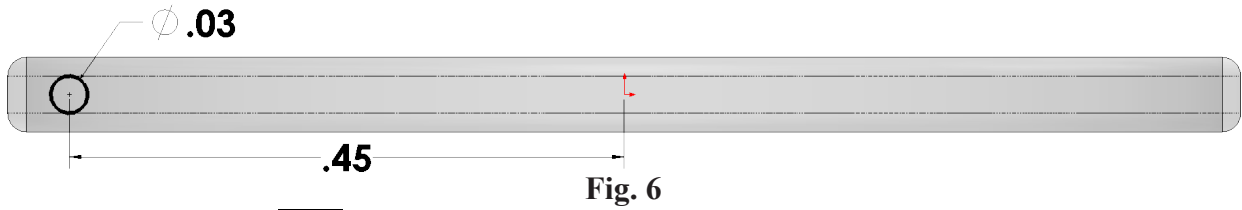



Fig. 5

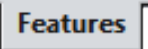
Ctrl click center point and Origin

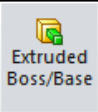
Step 6. Click **Smart Dimension**  (S) on the Sketch toolbar.

Step 7. Add dimensions **Fig. 6**.



Step 8. Click **Isometric**  on the Standard Views toolbar. (Ctrl-7)

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

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

Step 11. In the Boss Extrude Property Manager set:
under From, **Fig. 7**

Start Condition **Surface/Face/Plane**

click in Select a Surface/Face/Plane box 

click the **outside cylindrical face of left ring**, **Fig. 8**

under Direction 1, **Fig. 7**

End Condition **Up to Surface**

click in Face/Plane box 

click **outside cylindrical face of center ring**, **Fig. 8**

click OK .

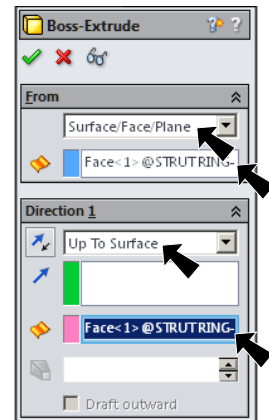


Fig. 7

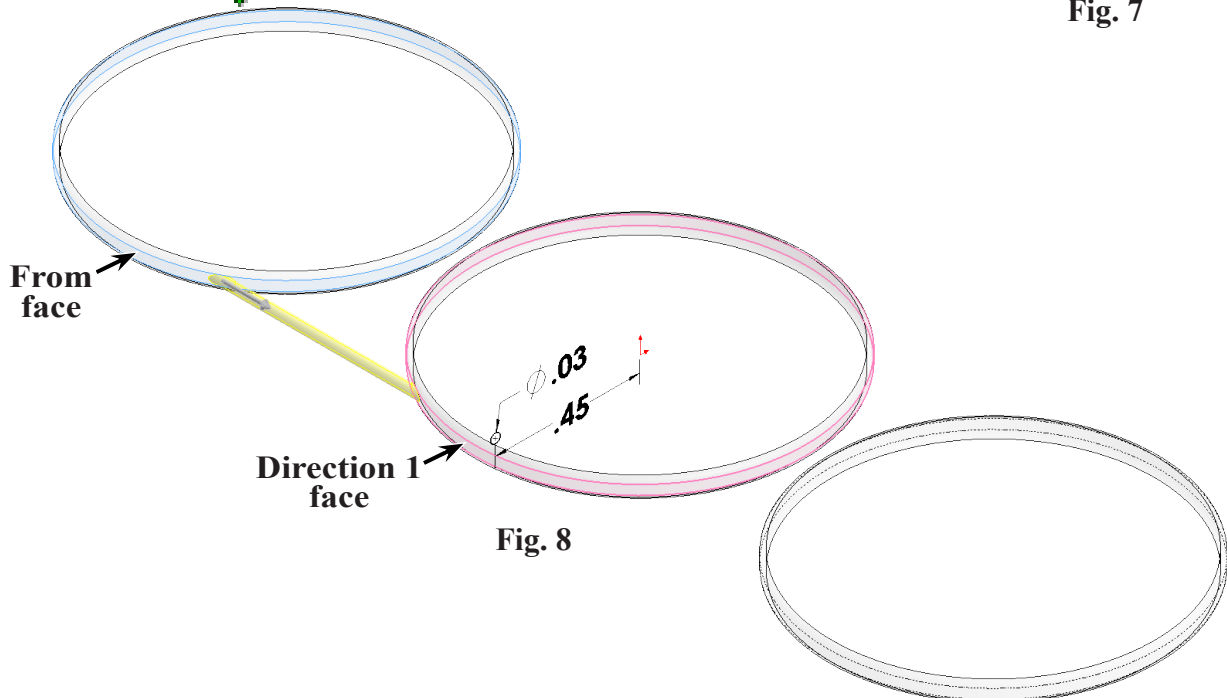


Fig. 8

D. Appearance Color.

Step 1. Click the Strut part, expand **Appearance Callout**  on the Context toolbar and click **STRUT** , Fig. 9.

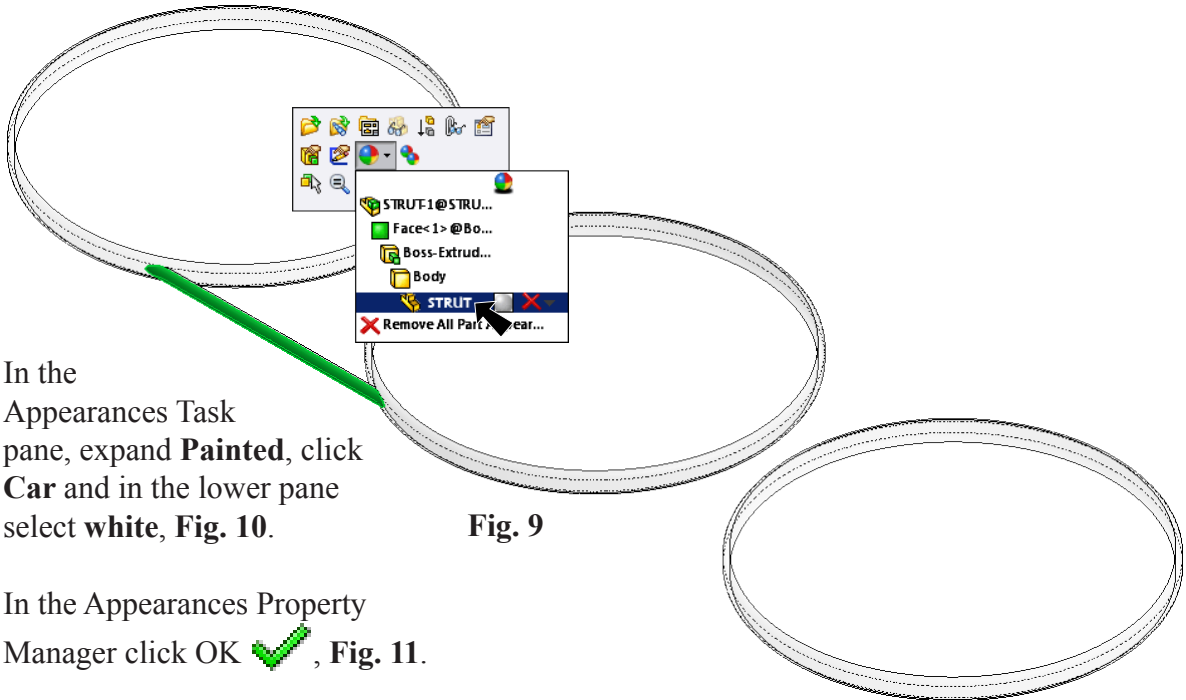




Fig. 9

Step 2. In the Appearances Task pane, expand **Painted**, click **Car** and in the lower pane select **white**, Fig. 10.

Step 3. In the Appearances Property Manager click OK , Fig. 11.

Step 4. You might have to rebuild to display color. To rebuild, click **Rebuild**  in the Standard toolbar. (**Ctrl-B**)

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

Step 6. Click **Exit Edit Component**  in top right corner of graphics area.

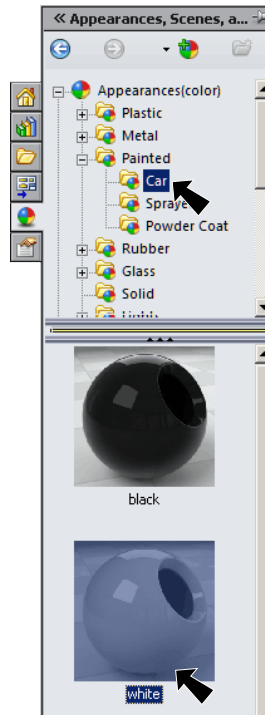


Fig. 10

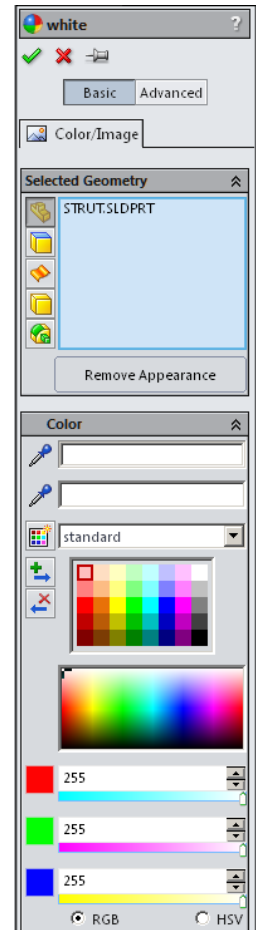


Fig. 11


E. Mirror1.

Step 1. **Ctrl click Front Plane**  and **Strut** in the Feature Manager to select both, **Fig. 12**.

Step 2. Click Insert Menu > Mirror Components.

Step 3. In the Mirror Property Manager:

click **Next**  at top of Property Manager, **Fig. 13**

click **Reorient**  until the component is oriented correctly, **Fig. 14** and **Fig. 15**

click **OK** .

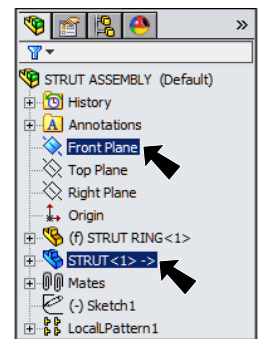


Fig. 12

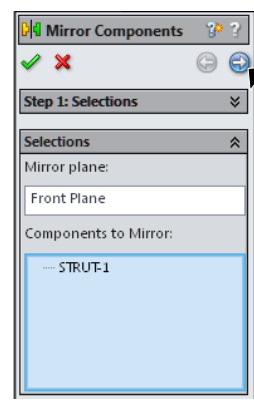


Fig. 13

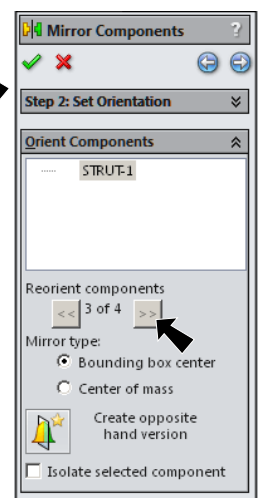


Fig. 14

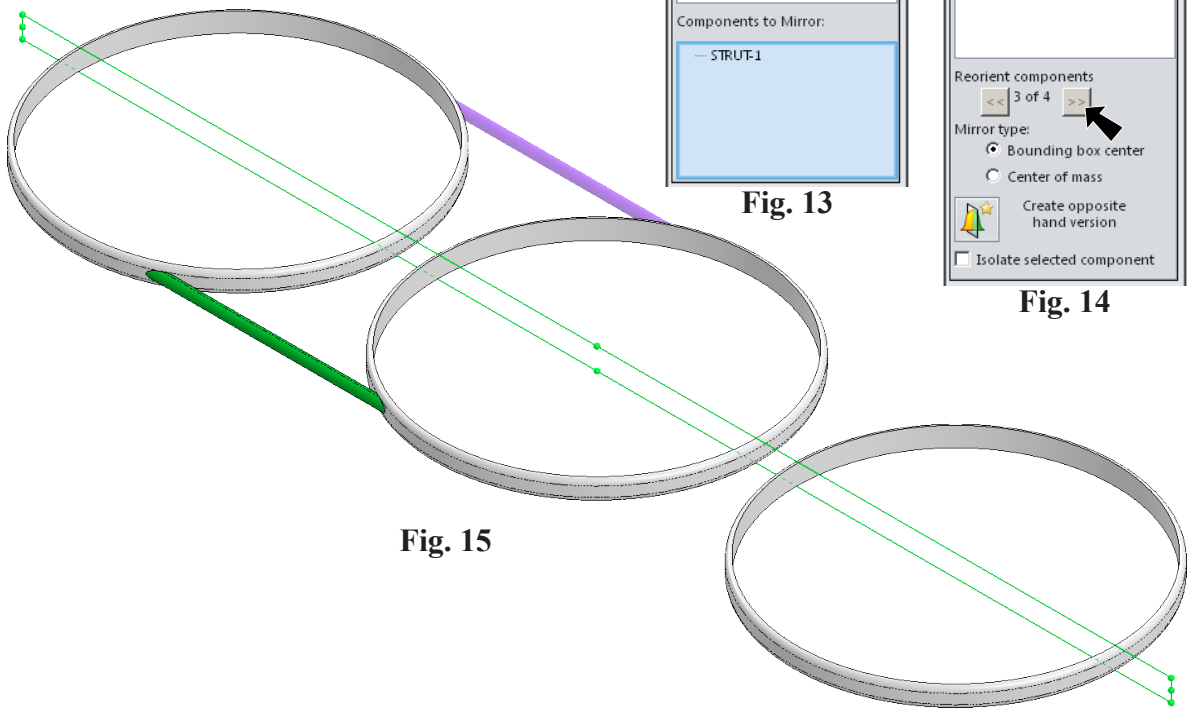



Fig. 15

F. Mirror2.

Step 1. **Ctrl click Right Plane** , **Strut** and **Mirror Component1** in the Feature Manager to select the three, **Fig. 16**.

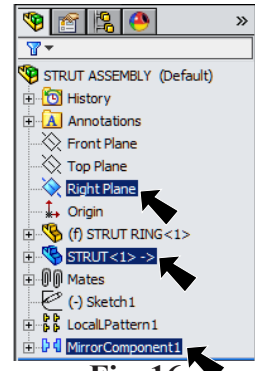


Fig. 16

Step 2. Click Insert Menu > Mirror Components.


Step 3. In the Mirror Property Manager:

click **Next**  at top of Property Manager, **Fig. 17**
under Orient Components

with Strut1 selected, **Fig. 18**

click Reorient  until the component is oriented correctly, **Fig. 20**

click **Strut2** to select, **Fig. 19**

click Reorient  until oriented correctly, **Fig. 20**

click OK .

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

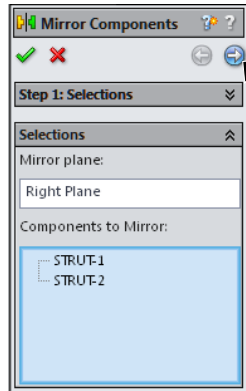


Fig. 17

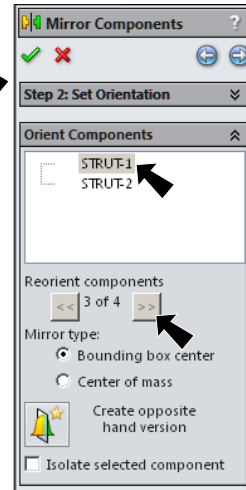


Fig. 18

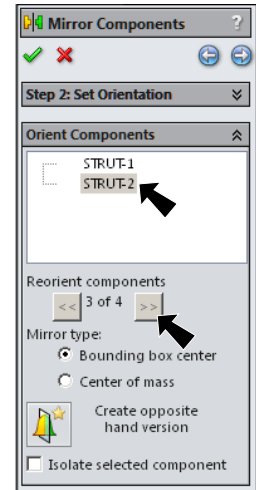


Fig. 19

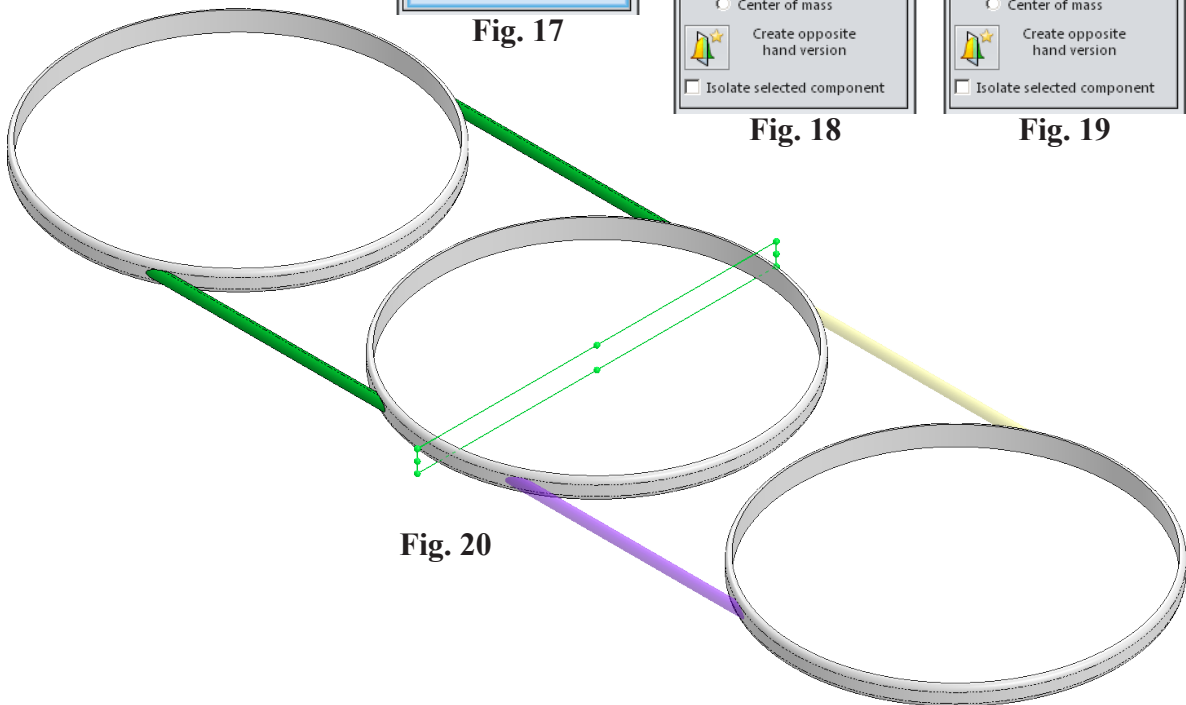


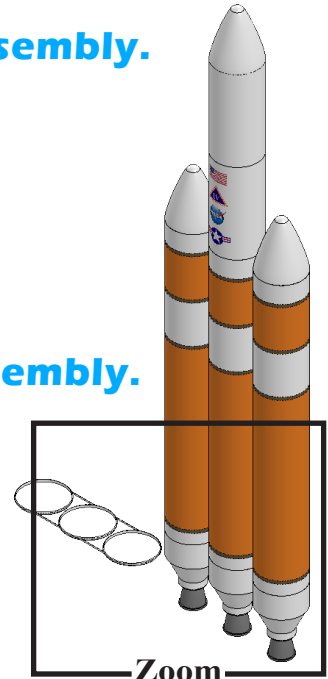
Fig. 20

G. Insert Strut Assembly into Delta IV Heavy Assembly.

Step 1. Open your DELTA IV HEAVY ASSEMBLY file.

Step 2. Click **Insert Components**  on the Assembly toolbar.


Step 3. **Browse** and place **Strut Assembly** as positioned in **Fig. 21**.



Zoom
Fig. 21


H. Mate: Strut Assembly and Delta IV Heavy Assembly.

Step 1. Zoom in on **Strut Assembly** and **center Engine Nozzle**, **Fig. 21**.
To zoom, place the cursor over the area and spin the wheel on mouse back. While spinning the wheel keep cursor on area.

Step 2. Click **Mate**  on the Assembly toolbar.

Step 3. Click **cylindrical face of center Ring** and **vertical cylindrical face at bottom of center Engine Nozzle**, **Fig. 22**.

Step 4. Check **Lock Rotation** and **Add/Finish**

Mate  in Mate pop-up toolbar to add a **Concentric** mate, **Fig. 23**.

Step 5. Click **Zoom to Fit**  (F) on the View toolbar.

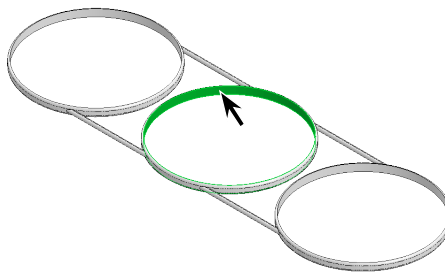


Fig. 22



Fig. 23

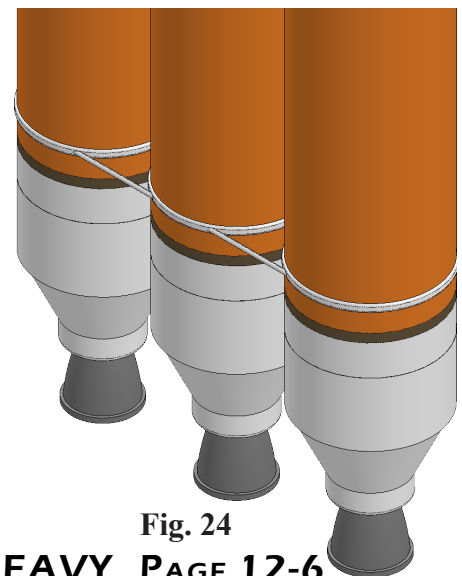
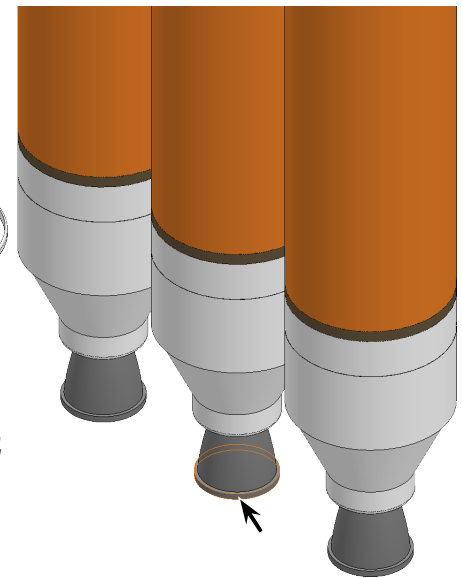


Fig. 24

Step 6. Expand the flyout Feature Manager design tree in the top left corner of the graphics area and click **Top Plane**, Fig. 25.

Step 7. Expand **Strut Assembly** and click **Top Plane**, Fig. 25.

Step 8. Click **Distance** in Mate pop-up, Fig. 26. Set distance **8.2** and press ENTER key. The **Strut Assembly should just under bottom edge of Nose Cones**, Fig. 27. If positioned in opposite direction, click **Flip Dimension** in the Mate pop-up, Fig. 26. Click Add/Finish Mate to add Distance mate.

Step 9. Click OK in the Property Manager when done.

Step 10. Save. Use **Ctrl-S**.

