

Rocket 3D Print Engine Assembly


A. Insert Casing, Nozzle and Retainer Cap.

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

Step 2. Click **Keep Visible**  in the Property Manager, **Fig. 1**.

Step 3. Click **Browse** in the Property Manager, **Fig. 1**.

Step 4. Select your **Engine Casing** file and click Open.

Step 5. Click OK  in the Property Manager. This will place Casing origin at the assembly origin and fix the position so Casing cannot move. This fixed component should have a **(f)** before its name in the Feature Manager.

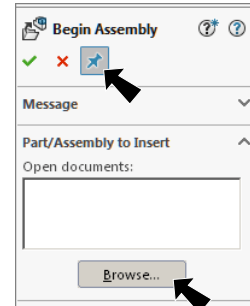
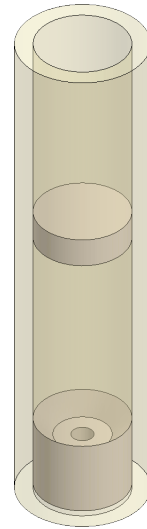



Fig. 1



Step 6. Click **Browse** and **Ctrl click Engine Nozzle and Engine Retainer Cap**. Position parts as shown in **Fig. 2**. Click OK  in the Property Manager when done.

B. Save as "ENGINE ASSEMBLY".

Step 1. Click File Menu > Save As and Yes to Rebuild Now.

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

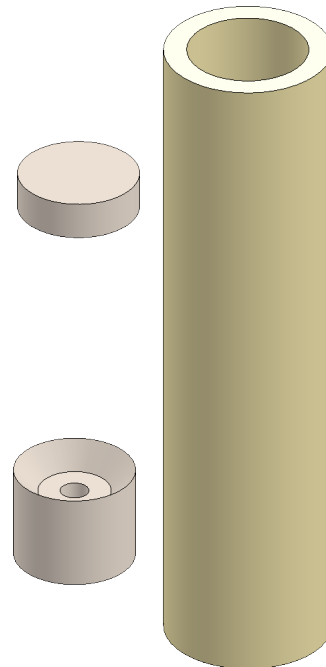
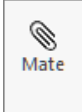


Fig. 2

C. Mate: Multiple Mode.

Step 1. Click **Mate**  on the Assembly toolbar.

Step 2. In the Mate Property Manager set:
under Mate Selections, **Fig. 3**

click **Multiple mate mode** 

for Common reference

click **cylindrical face of Casing**, **Fig. 3**

for Component references

click **cylindrical face Nozzle** and **cylindrical face Retainer Cap**

click OK  to add **Concentric** mates.

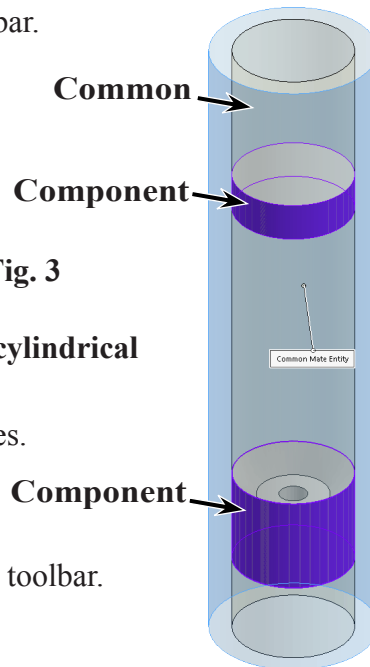


Fig. 4

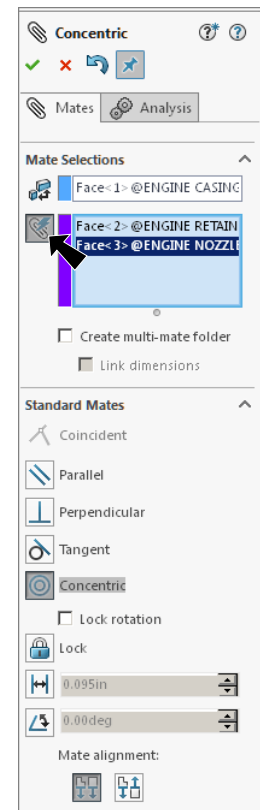



Fig. 3



D. Mate: Nozzle Distance.

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


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

Step 3. In the Mate Property Manager set:
under Mate Selections, **Fig. 5**

click **Multiple mate mode**  to unselect.

Step 4. Expand the flyout Feature Manager design tree (click ) in the top left corner of the graphics area and click **Top Plane** , **Fig. 6**.

Step 5. Expand **Nozzle** and click **Top Plane** , **Fig. 6**.

Step 6. Click **Distance**  in Mate pop-up, **Fig. 7**. Set **distance .12** and press ENTER. The Nozzle Top Plane should be above the Assembly Top Plane **.12**, **Fig. 8**.



If positioned in opposite direction, click **Flip Dimension**  in the Mate pop-up, **Fig. 7**. Click Add/Finish Mate  to add Distance mate.



Fig. 7

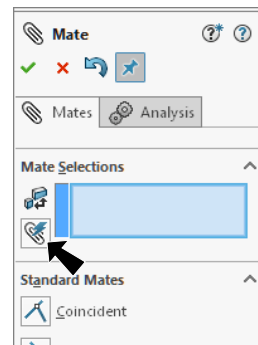


Fig. 5

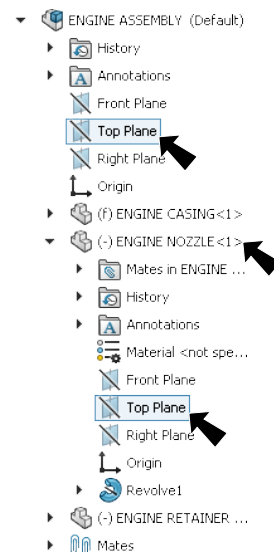


Fig. 6

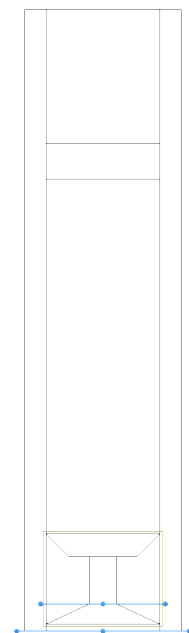





Fig. 8

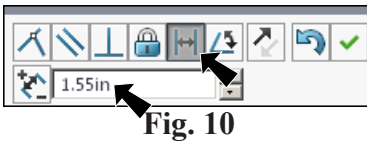
E. Mate: Retainer Cap Distance.

Step 1. Expand the flyout Feature Manager design tree and click **Top Plane**, Fig. 9.

Step 2. Expand **Retainer Cap** and click **Top Plane**, Fig. 9.

Step 3. Click **Distance**  in Mate pop-up, Fig. 10. Set **distance 1.55** and press ENTER. The Retainer Cap should be above the Assembly Top Plane **1.55**, Fig. 11. If positioned in opposite direction, click **Flip Dimension**  in the Mate pop-up, Fig. 7. Click **Add/Finish Mate**  to add Distance mate.

Step 4. Click **OK**  in the Property Manager when done.



Step 5. Click **Shaded With Edges**  on the View toolbar.

Step 6. Save. Use **Ctrl-S**.

