Rocket Sheet Metal Assembly

A. Insert Parts.

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 **BODY TUBE** file and click Open.

Step 5. Click OK in the Property Manager. This will place Body Tube origin at the assembly origin and fix the position so Body Tube cannot move. This fixed component should have a **(f)** before its name in the Feature Manager (f) BODY TUBE<1>.

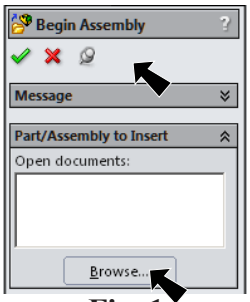

Fig. 1

Step 6. Click **Browse** in the Property Manager, **Fig. 1**.

Step 7. Select your **FIN** file and click Open.

Step 8. Click approximately where the Fin is positioned in **Fig. 2**. Click OK in the Property Manager.

Fig. 2

B. Save as "ROCKET SHEET METAL ASSEMBLY".

Step 1. Click File Menu > Save As.

Step 2. Key-in **ROCKET SHEET METAL ASSEMBLY** for the filename and press ENTER.

C. Mate: Body Tube and Fin.

Step 1. Click **Bottom** on the Standard Views toolbar. (**Ctrl-6**)

Step 2. **Drag the fin over to the tube**, **Fig. 3**.

Step 3. Zoom in on **Fin meets Tube**, **Fig. 3**. To zoom, place the cursor over the flanges and tube and spin the wheel on mouse back. While spinning the wheel keep cursor on flanges and tube area.

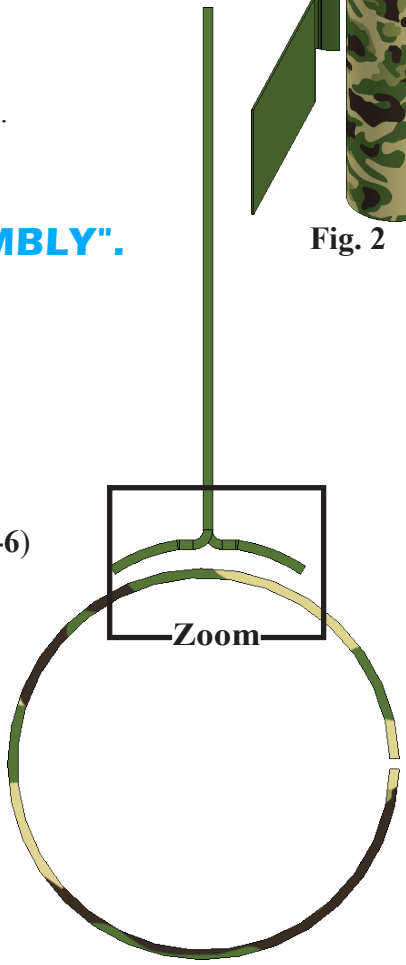

Fig. 3

Tip: You can crank up the image quality resolution setting resulting in more accurate curves but slower model rebuilding. Click **Options** on the Standard toolbar. Select **Document Properties tab** and **Image Quality**. Then, drag out slider.

Step 4. Click **Right Plane** in the Feature Manager and click **Mate** on the Context toolbar, **Fig. 4**.

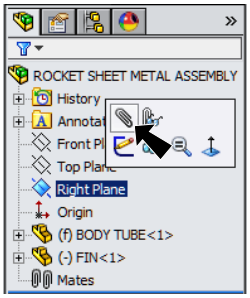

Fig. 4

Step 5. Expand the flyout Feature Manager design tree in the top left corner of the graphics area, expand **FIN** and click **Right Plane** , **Fig. 5**.

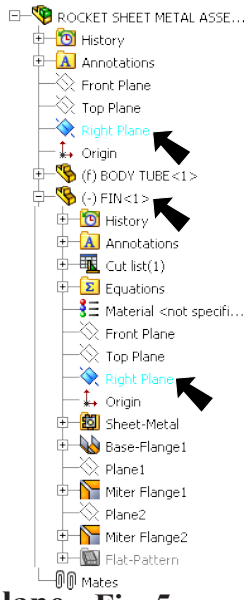

Fig. 5

Step 6. Click **Distance** in Mate pop-up, **Fig. 6**. Set **distance .01** and press Tab key.

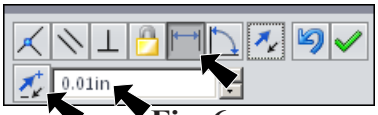

Fig. 6

The **center of Fin should align with the Right plane of assembly**, **Fig. 7**. If positioned in opposite direction, click **Flip Dimension** in the Mate pop-up, **Fig. 6**. Click Add/Finish Mate to add Distance mate.

Fig. 7

Step 7. Click an **vertex on edge of Fin** and **outside edge of Body Tube**, **Fig. 8**.

Step 8. Click Add/Finish Mate in Mate pop-up toolbar to add a **Coincident** mate.

Step 9. Click **bottom face of left flange** and **bottom face of Body Tube**, **Fig. 9**.

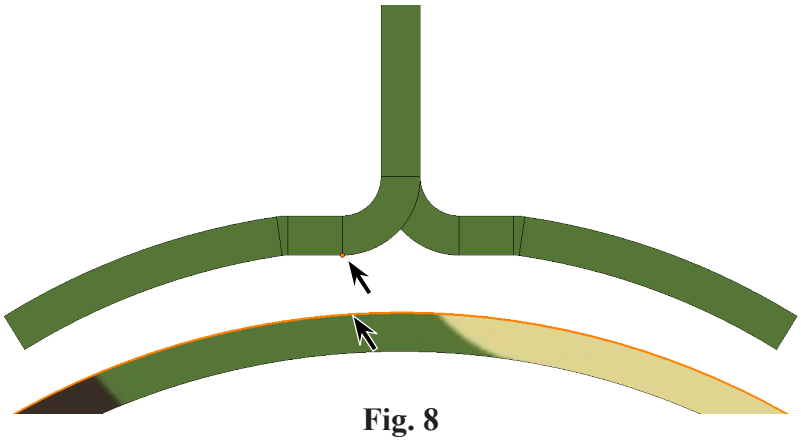
Fig. 8

Step 10. Click Add/Finish Mate to add a **Coincident** mate.

Step 11. Click OK in the Property Manager when done.

Step 12. Save. Use **Ctrl-S**.

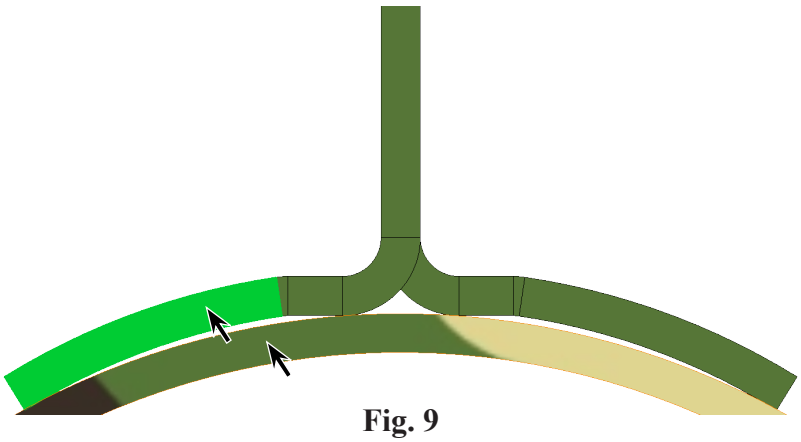
Fig. 9

D. Fin Circular Pattern.

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

Step 2. Click Insert Menu > Component Pattern > Circular Pattern.

Step 3. In the Circular Pattern Property Manager set:
under Components to Pattern, **Fig. 10**
click **Fin**, **Fig. 11**

under Parameters,
click in **Pattern Axis** box, **Fig. 10**
click **edge** of Body Tube
Angle **360**
Number of Instances **3**
check **Equal spacing**

click OK .

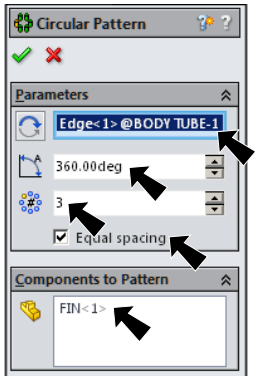

Fig. 10

Fig. 11

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

E. Insert Nose Cone.

Step 1. Click **Insert Components** on the Assembly toolbar.

Step 2. Click **Browse** in the Property Manager.

Step 3. Select **NOSE CONE** file and click Open.

Step 4. Place Nose Cone as positioned in **Fig. 12**.

F. Mate: Nose Cone.

Step 1. Zoom in on **Nose Cone and top of Body Tube**, **Fig. 12**. To zoom, place the cursor over the Nose Cone and Top of Body Tube area and spin the wheel on mouse back. While spinning the wheel keep cursor on Nose Cone and top of Tube.

Fig. 12

Step 2. Click **Mate** 

on the Assembly toolbar.

Step 3. Click **bottom outer edge of Nose Cone and top outer edge of Body Tube**, **Fig. 13**.

Step 4. Click Add/Finish Mate  in Mate pop-up toolbar to add a **Coincident** mate.

Step 5. Click OK  in the Property Manager.

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

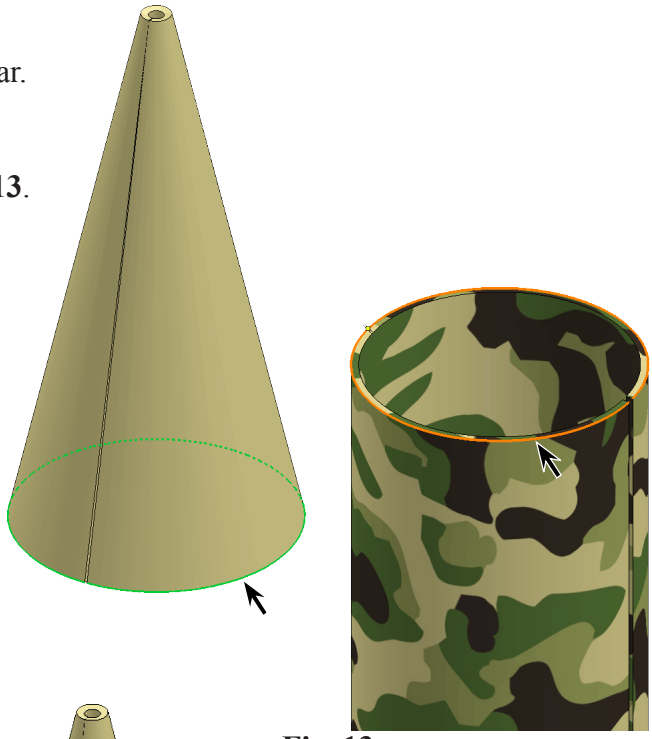

Fig. 13

Fig. 14