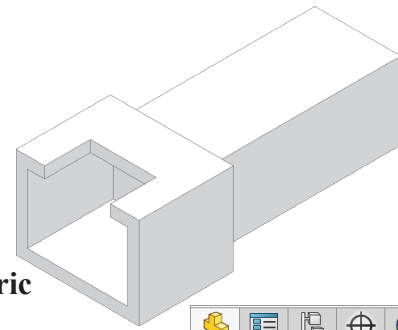




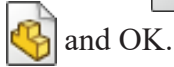
Chapter 21

Solar Train JST Plug



A. Extrude1.

Step 1. Click **New**  on the Standard toolbar, click **Part Metric**



and OK.

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

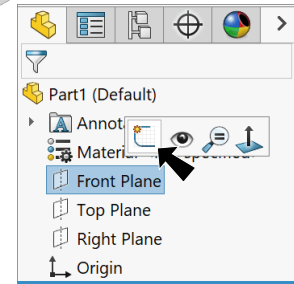


Fig. 1

Step 3. Click **Center Rectangle**  in the **Rectangle** flyout  on the Sketch toolbar.

Step 4. Sketch center rectangle at Origin , **Fig. 2**.

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

Step 6. Add dimensions, **Fig. 2**.

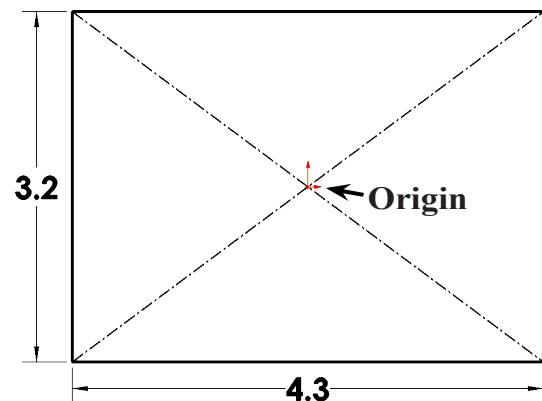
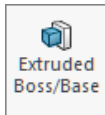


Fig. 2

Step 7. Click **Features**  on the Command Manager toolbar.

Step 8. Click **Extruded Boss/Base**  on the Features toolbar.

Step 9. In the Boss-Extrude Property Manager set:

under Direction 1, **Fig. 3**

End Condition **Blind**

Depth  **3.3**

click OK .

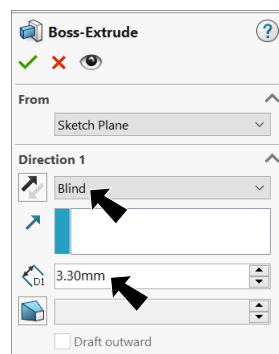


Fig. 3

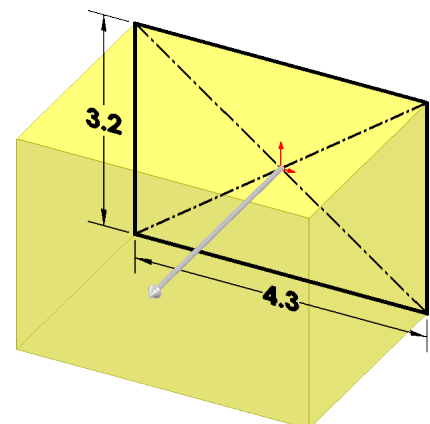


Fig. 4

B. Save as "JST PLUG".

Step 1. Click File Menu > Save As.

Step 2. Key-in **JST PLUG** for the filename and press ENTER.

C. Extrude2.

Step 1. Click **Front Plane**  in the Feature Manager and click **Sketch**  on the context toolbar, **Fig. 5**.

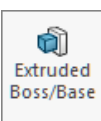
Step 2. Click **Center Rectangle**  in the **Rectangle flyout**  on the Sketch toolbar.

Step 3. Sketch center rectangle at Origin , **Fig. 6**.

Step 4. Click **Smart Dimension**  (S) on the Sketch toolbar.

Step 5. Add dimensions, **Fig. 6**.

Step 6. Click **Features**  on the Command Manager toolbar.

Step 7. Click **Extruded Boss/Base**  on the Features toolbar.

Step 8. In the Boss-Extrude Property Manager set:
under Direction 1, **Fig. 7**
End Condition **Blind**

Depth  **6.5**

Reverse Direction 

click OK .

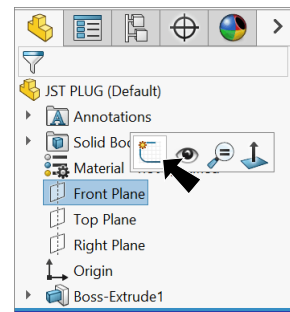


Fig. 5

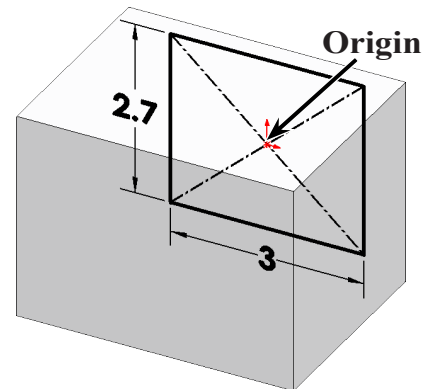


Fig. 6

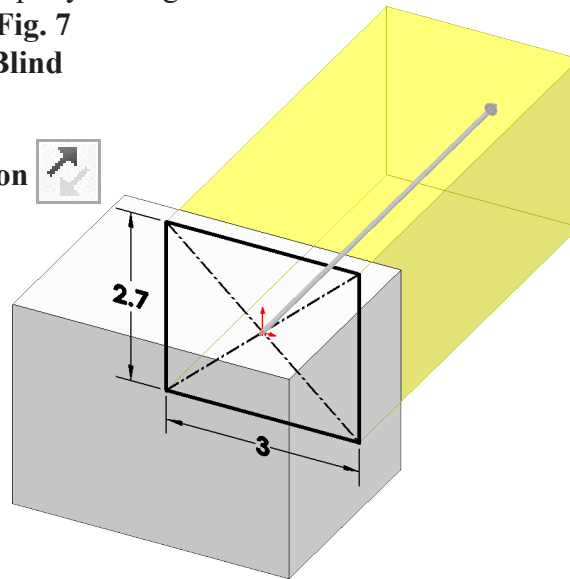


Fig. 8

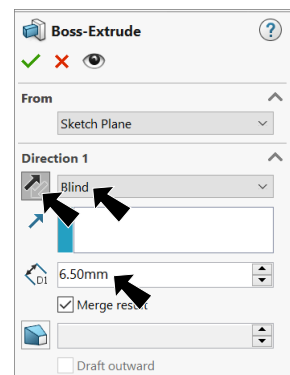


Fig. 7

D. Extruded Cut 1.

Step 1. Click **front face** and click **Sketch**  on the context toolbar, **Fig. 9**.

Step 2. With the face still selected, click **Offset Entities**



Step 3. In the Offset Entities Property Manager set:
under Parameters, **Fig. 10**

Distance  **.4**

check **Reverse**

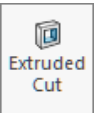
Yellow offset on inside, Fig. 11

click OK .

Step 4. Click **Features**

Features on the
Command Manager
toolbar.

Step 5. Click **Extruded**

Cut  on the
Features toolbar.

Step 6. In the Cut-Extrude Property Manager set:
under Direction 1, **Fig. 12**
End Condition **Blind**

Depth  **3**

click OK .

Step 7. Save  (Ctrl-S).

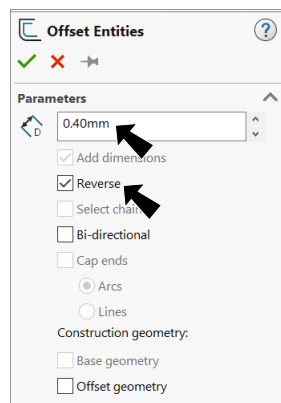


Fig. 10

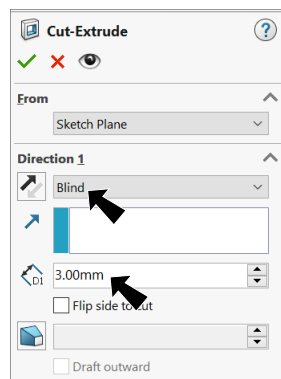


Fig. 12

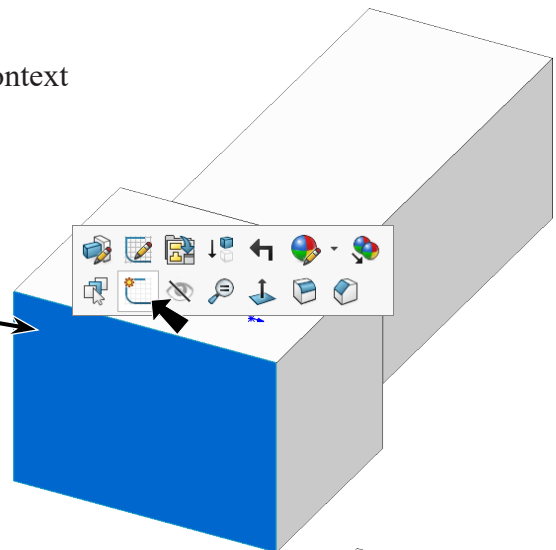


Fig. 9

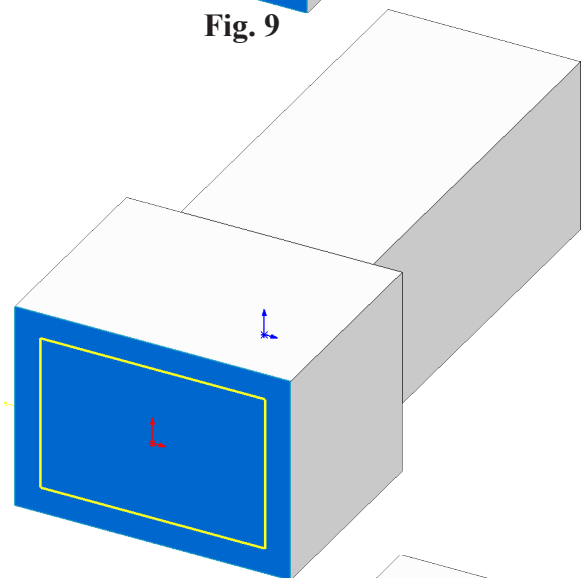


Fig. 11

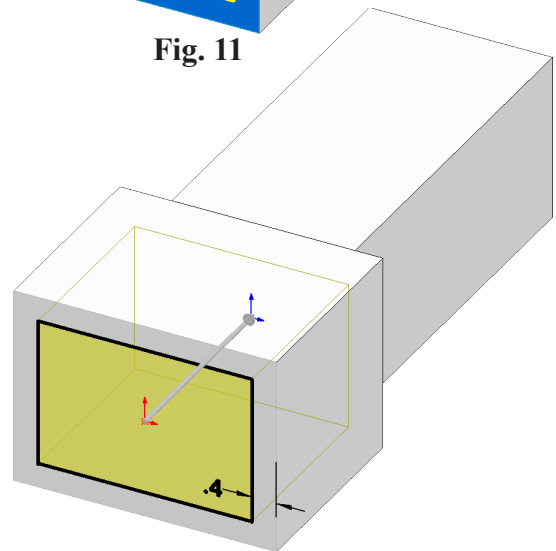


Fig. 13

E. Extruded Cut2.

Step 1. Click **front face** and click **Sketch**  on the context toolbar, **Fig. 14**.

Step 2. Click **Corner Rectangle**  in the **Rectangle flyout**  on the Sketch toolbar.

Step 3. Sketch corner rectangle on front face coincident  with top and bottom edges of cut, **Fig. 15**.

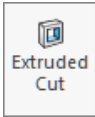
Step 4. **Unselect Rectangle tool**. To unselect, **right click graphics area** and click **Select**  from menu.

Step 5. **Ctrl click midpoint of horizontal Line** and **Origin**  (blue) to select both. Release Ctrl key and click **Make Vertical**  on the context toolbar, **Fig. 16**.

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

Step 7. Add dimension, **Fig. 17**.

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. 18**

Depth  **1.6**
click OK .

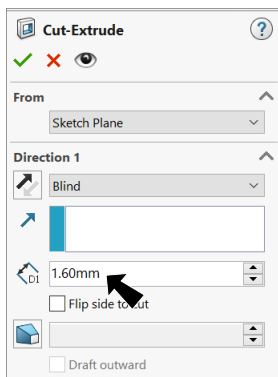


Fig. 18

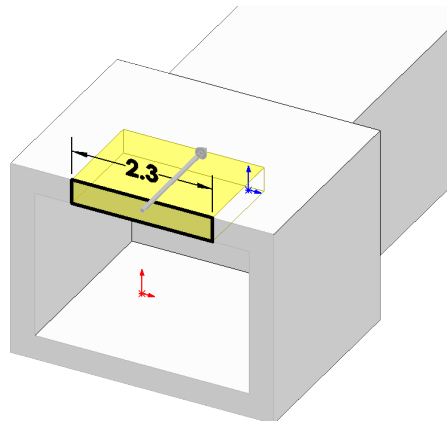


Fig. 19

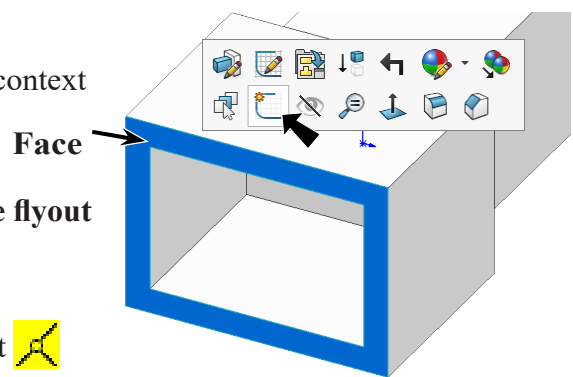


Fig. 14

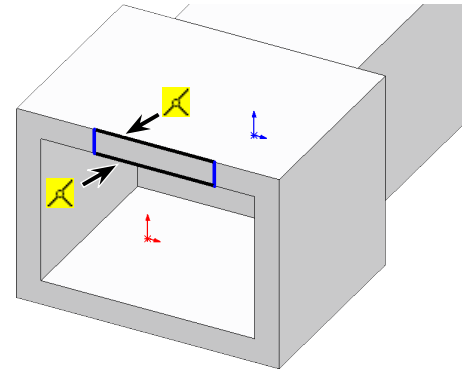


Fig. 15

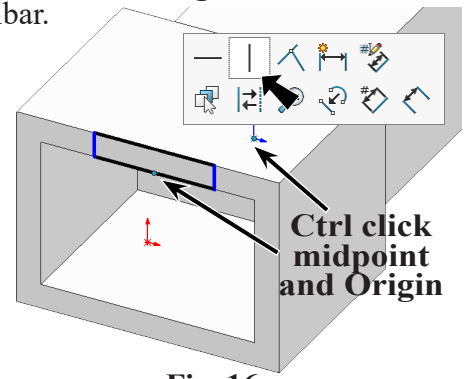


Fig. 16

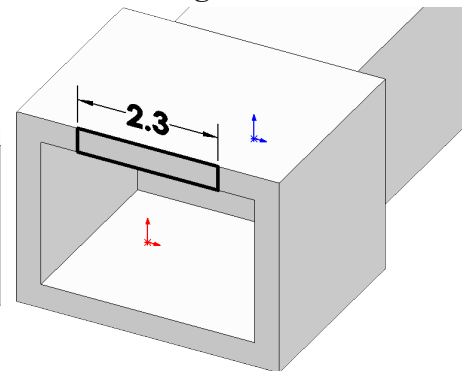


Fig. 17

F. Appearance: Plastic White.

Step 1. Click the part, click **Appearances Callout**  on the context toolbar and click **JST PLUG** , Fig. 20.

Step 2. In the Appearances Task pane, expand **Plastic**, click **Medium Gloss** and in the lower pane select **white gloss plastic**, Fig. 21.

Step 3. In the Appearances Property Manager click OK .

Step 4. Save  (Ctrl-S).

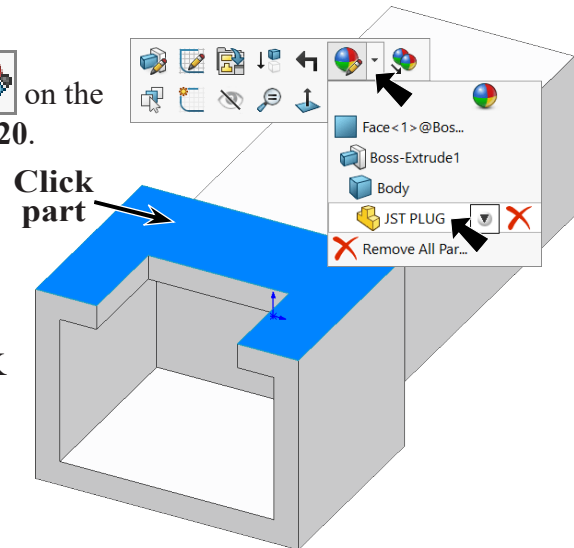


Fig. 20

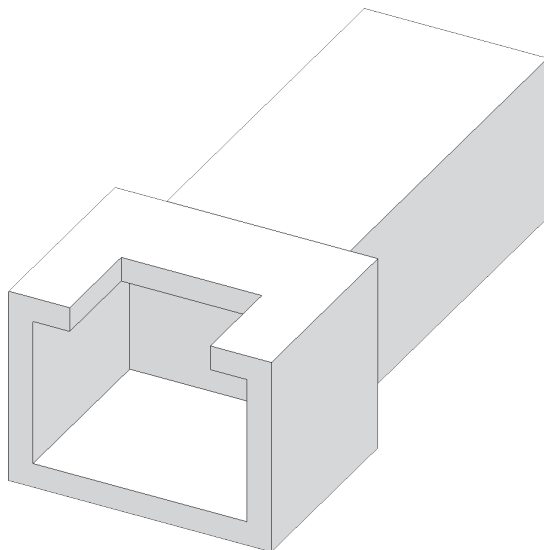


Fig. 23

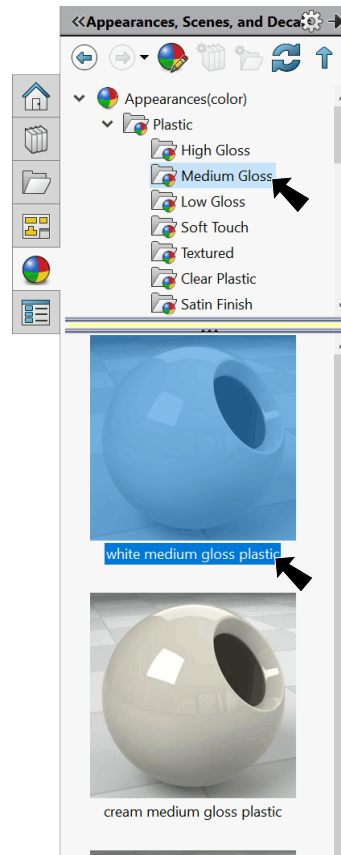


Fig. 21

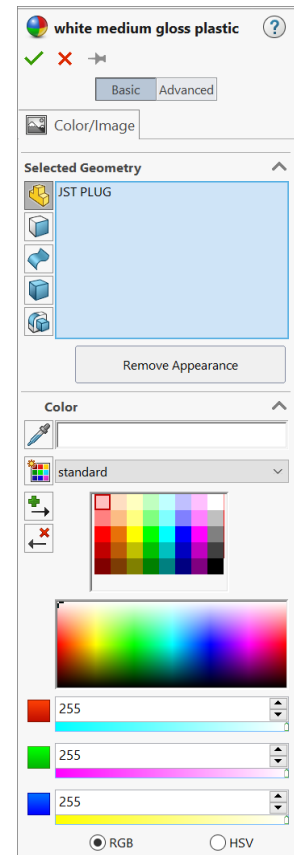
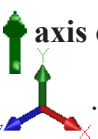


Fig. 22

G. Insert JST Plug Into Locomotive Assembly.

Step 1. Open your **Locomotive Assembly** file.

Step 2. Rotate view to back side, click **Isometric**  on the Standard Views toolbar (Ctrl-7), then Shift

click the Y  axis of the Reference Triad

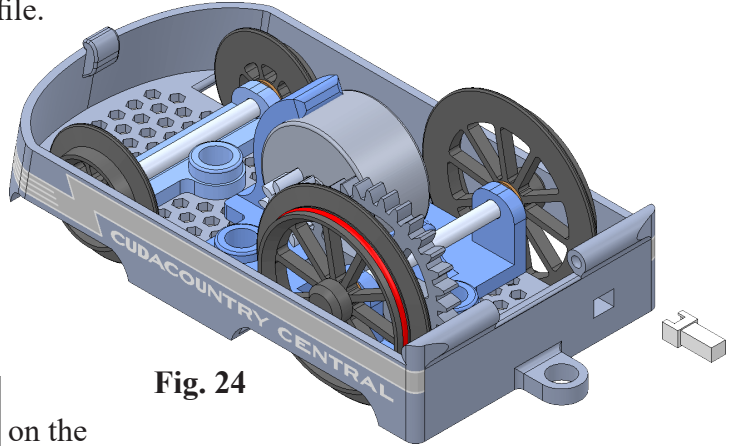
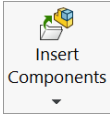


Fig. 24

Step 3. Click **Insert Components**  on the Assembly toolbar.

Step 4. Click to place Plug, **Fig. 24**.

H. Mate: JST Plug.

Step 1. Click **Top Plane**  in the Feature Manager and **Mate**  on the context toolbar, **Fig. 25**.

Step 2. In the flyout Feature Manager design tree, expand **JST Plug** and click **Top Plane** , **Fig. 26**.

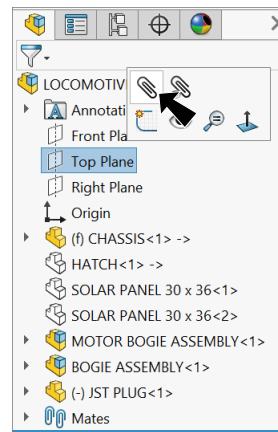


Fig. 25

Step 3. Click **Distance**  in Mate pop-up, **Fig. 27**. Set **distance 6.45** and press ENTER. The JST should positioned horizontally with hole, **Fig. 28**. If positioned in opposite direction, click



Fig. 27

Flip Dimension  in the Mate pop-up. Click Add/Finish Mate

 to add Distance mate.

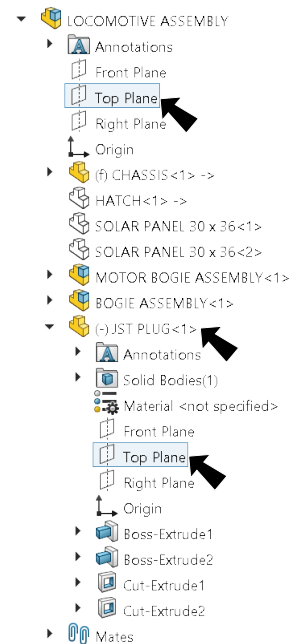


Fig. 26

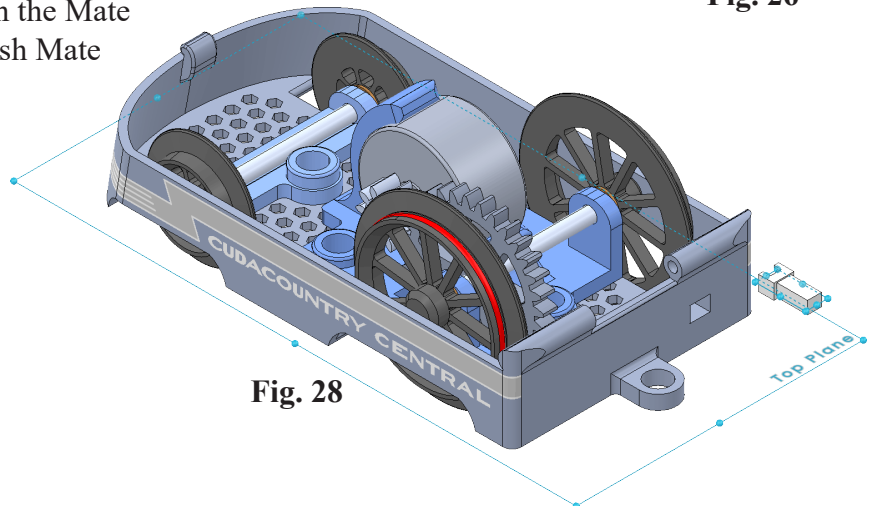


Fig. 28

Step 4. In the flyout Feature Manager design tree click **Right Plane** , expand **JST Plug** and click **Right Plane** , Fig. 29.

Step 5. Click **Distance**  in Mate pop-up, Fig. 30. Set distance **13.95** and press ENTER. Click **Flip Mate Alignment**  twice. The JST flip around and align with hole, Fig. 31. If positioned in opposite direction, click **Flip Dimension**  in the Mate pop-up. Click Add/Finish Mate  to add Distance mate.



Fig. 30

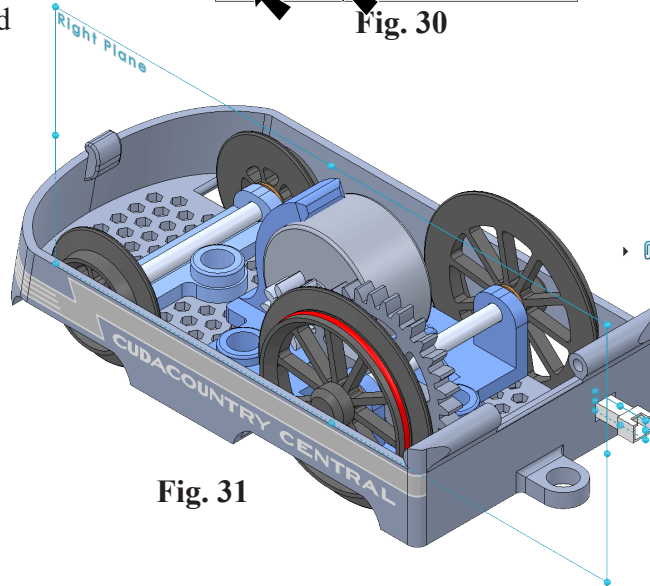


Fig. 31

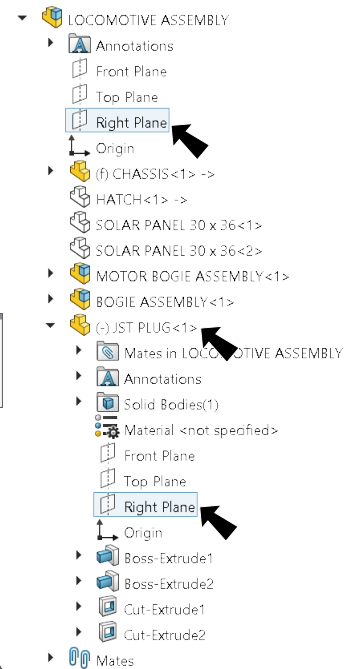


Fig. 29

Step 6. Click the **rear face of Chassis** and **rear face of JST**, Fig. 32.

Step 7. Click **Distance**  in Mate pop-up, Fig. 33. Set **distance 2** and press ENTER. The JST should extend out the rear of Chassis, Fig. 34. If positioned in opposite direction, click **Flip Dimension**  in the Mate pop-up. Click Add/Finish Mate  to add Distance mate.

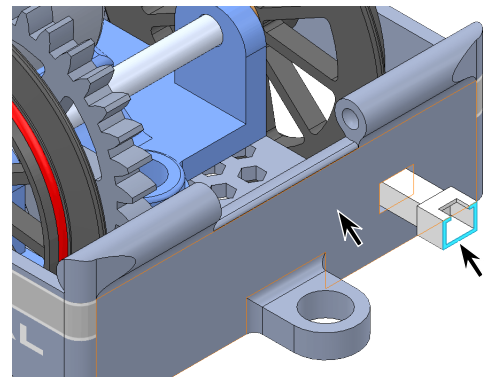


Fig. 32



Fig. 33

Step 8. Click OK  in the Property Manager.

Step 9. Save  (Ctrl-S).

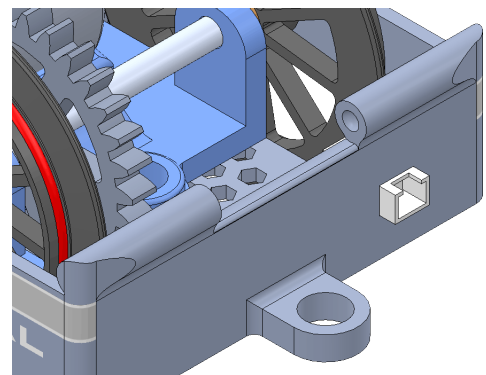


Fig. 34