

Curved Track Assembly

A. Insert Rail and End Tie.

Step 1. Click **New**  on the Standard toolbar, click **Assembly Metric**  and OK.

Step 2. Select your **CURVED RAIL R40** file and click Open from the Open dialog box.

Step 3. In the Begin Assembly Property Manager set:

click **Keep Visible** , Fig. 1

Only fix first component

Click OK  in the Property Manager. This will place Curved Rail origin at the assembly origin and fix the position so Rail cannot move. This fixed component should have a **(f)** before its name in the Feature Manager  **(f) CURVED RAIL R40<1>**.

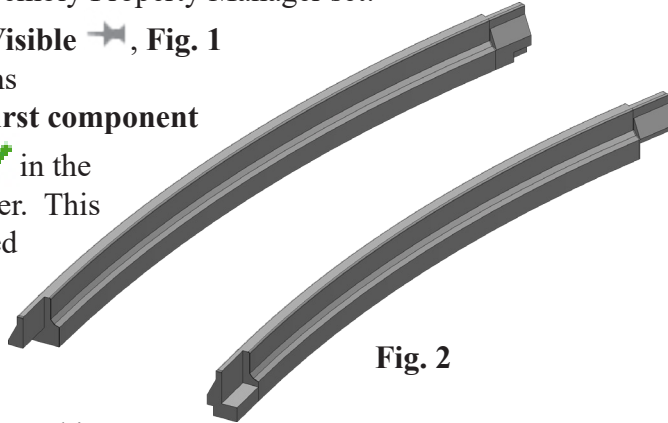
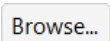


Fig. 2

Step 4. Click **Browse**  in the Property Manager, Fig. 1.

Step 5. Select your **END TIE** file and click Open.

Step 6. Back in the Begin Assembly Property Manager:
under Part/Assembly in Insert, Fig. 3
select **END TIE** to highlight it.

Step 7. Click to position **End Tie**, Fig. 4.

Step 8. Click OK  in the Property Manager.

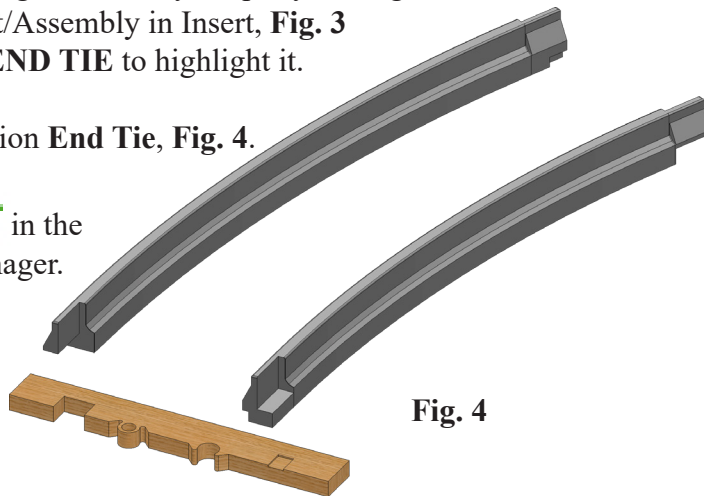


Fig. 4

B. Save as "CURVED TRACK ASSEMBLY".

Step 1. Click File Menu > Save As.

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

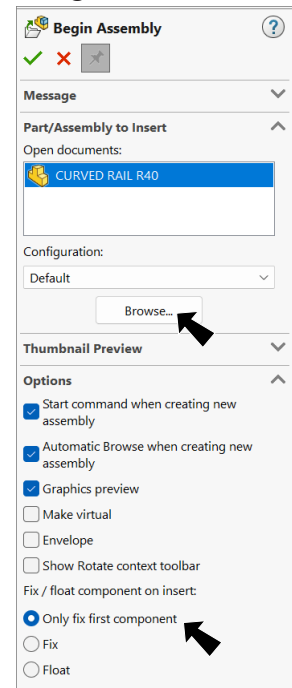


Fig. 1

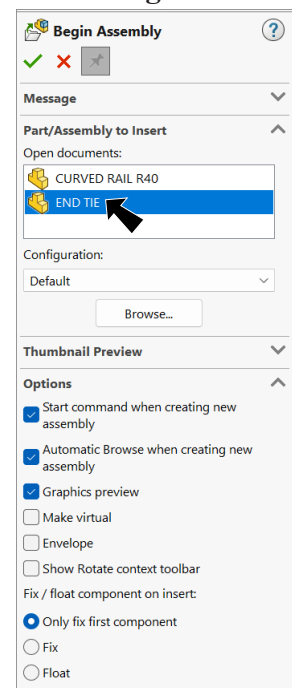


Fig. 3

C. Mate: End Tie.

Step 1. Click **Top Plane**  in the Feature Manager and **Mate**  on the context toolbar, **Fig. 5**.

Step 2. Expand the flyout Feature Manager design, expand **End Tie** and click **Top Plane** , **Fig. 6**.

Step 3. Click Add/Finish Mate  to add **Coincident**  mate.

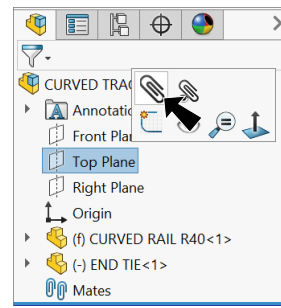


Fig. 5

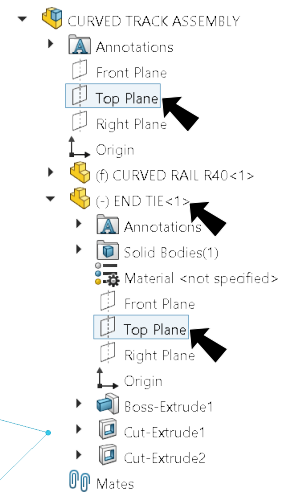


Fig. 6

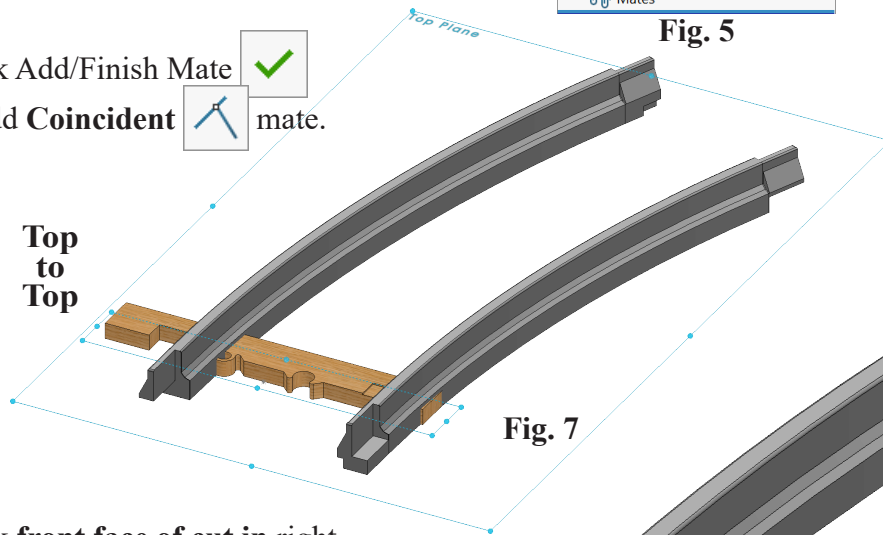


Fig. 7

Step 4. Click **front face of cut** in right hand (passenger's side) **Rail** and **front face of notch cut** in **End Tie**, **Fig. 8**.

Step 5. Click Add/Finish Mate  to add **Coincident**  mate.

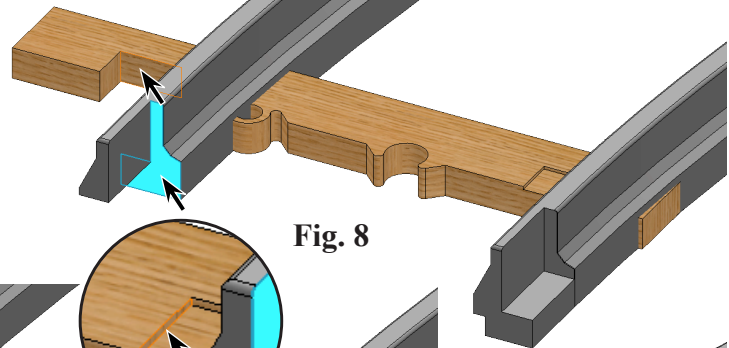


Fig. 8

Step 6. Click **side face of cut** in left hand (driver's side) **Rail** and **small side face of cut** in **End Tie**, **Fig. 9**.

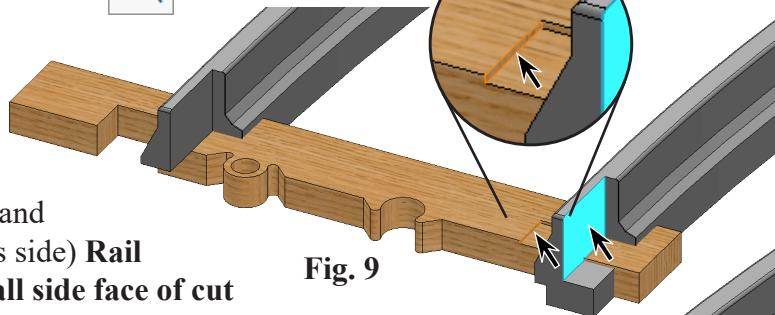


Fig. 9

Step 7. Click Add/Finish Mate  to add **Coincident**  mate.

Step 8. Click OK  in the Property Manager.

Step 9. Save  (Ctrl-S).

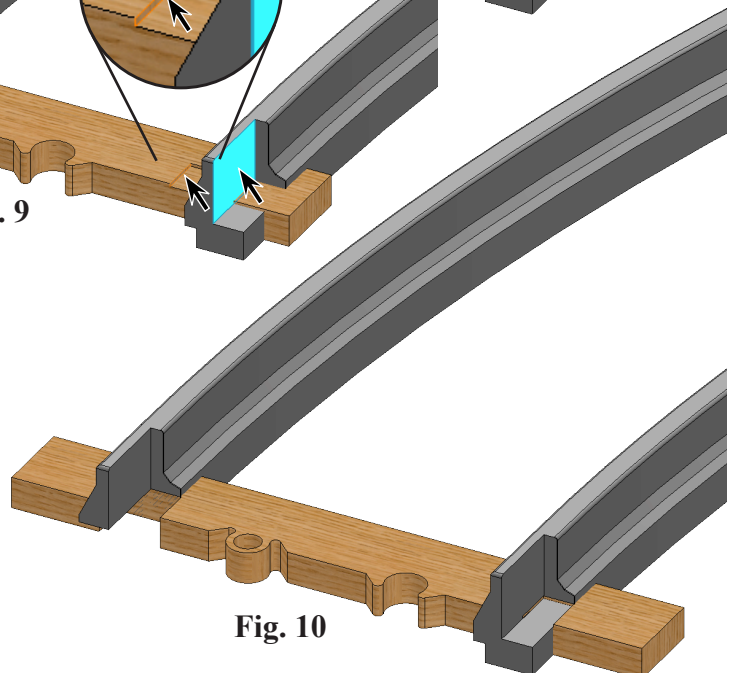


Fig. 10

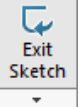
D. Sketch1 for Plane.

Step 1. **Show Sketch2**  in **Curved Rail**  component. To show, expand Curved Rail  in the Feature Manager. Click **Sketch2**  and **Show**  on the context toolbar, **Fig. 11**.

Step 2. Click **Front Plane**  in the Feature Manager and click **Sketch**  on the context toolbar, **Fig. 12**.

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

Step 4. Sketch **vertical line down from Origin** , **Fig. 13**.

Step 5. Click **Exit Sketch**  on the Sketch toolbar.

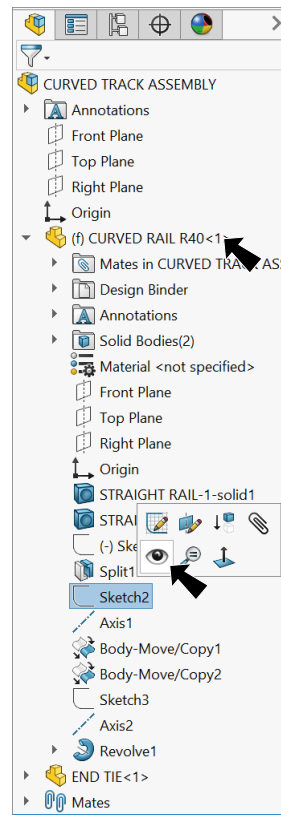


Fig. 11

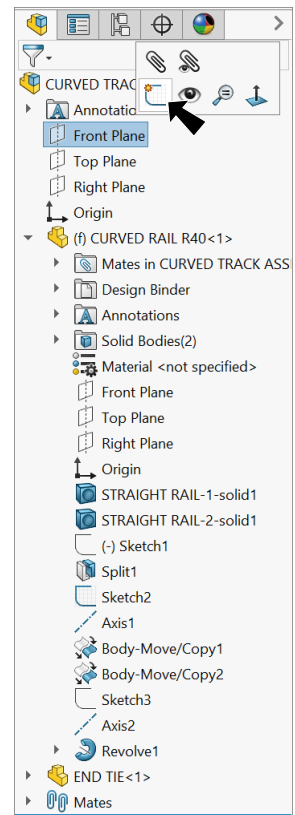


Fig. 12

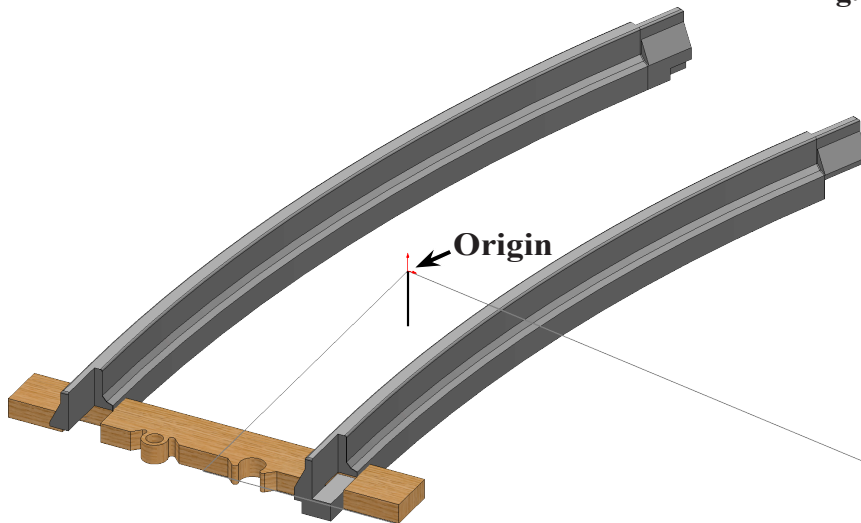
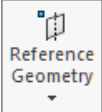


Fig. 13

E. Create Plane.

Step 1. Click **Reference Geometry**  on the Assembly toolbar and **Plane** from the menu.

Step 2. In the Plane Property Manager set:
under First Reference, **Fig. 14**
click **line centerline in Sketch2**, **Fig. 15**
under Second Reference
click **bottom endpoint of line in Sketch1**
click OK .

Step 3. Save  (Ctrl-S).

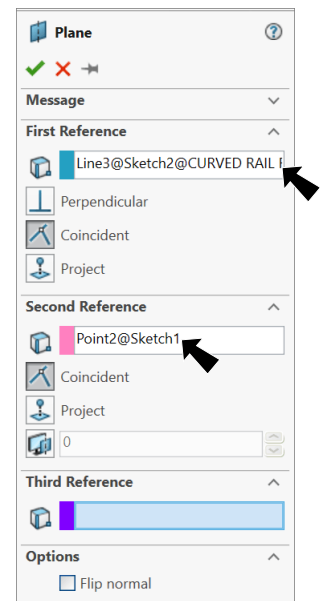


Fig. 14

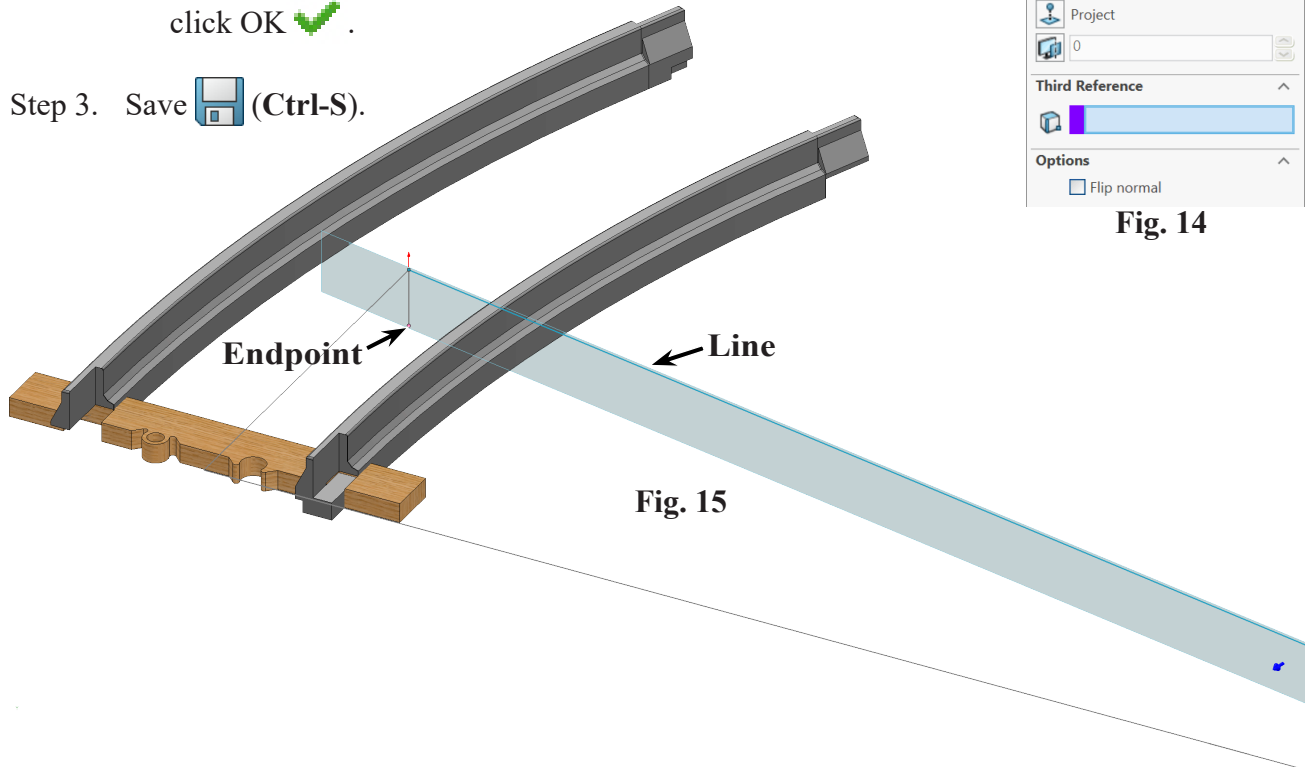


Fig. 15

F. Sketch2 for Mate.

- Step 1. Click **Top Plane**  in the Feature Manager and click **Sketch**  on the context toolbar, **Fig. 16**.
- Step 2. Click **Centerpoint Arc**  (S) in the **Arc flyout**  on the Sketch toolbar.
- Step 3. Sketch a centerpoint arc, **Fig. 17**. To sketch the arc, click intersecting of long lines to place the center of the arc. Start the first arc endpoint at outside vertex of End Tie, then swing the arc to the right to centerline. Click to place the second endpoint.

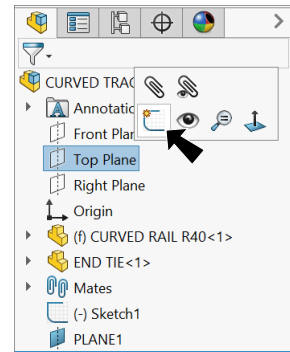
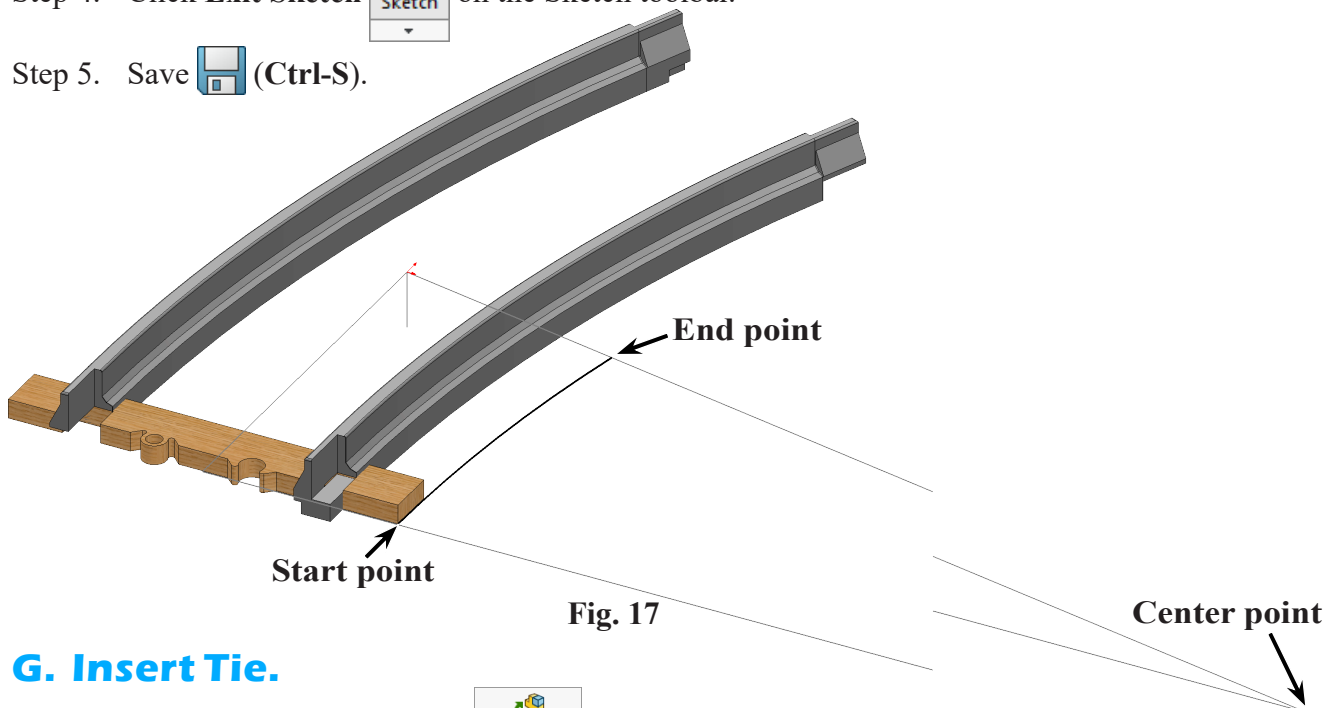


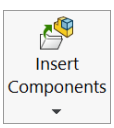
Fig. 16

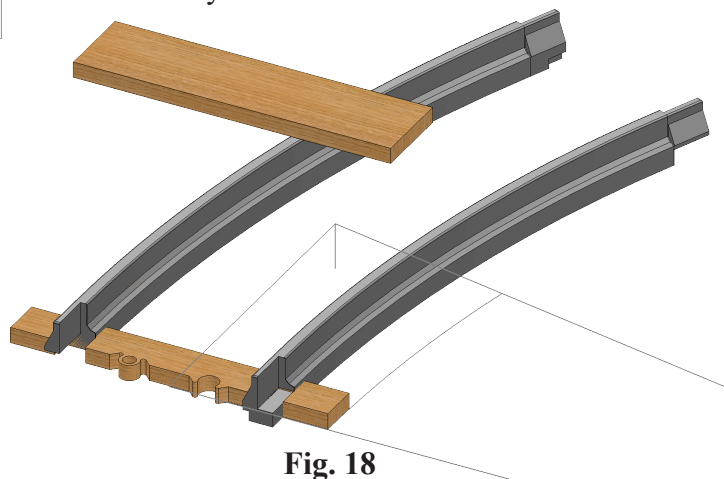
- Step 4. Click **Exit Sketch**  on the Sketch toolbar.

- Step 5. Save  (Ctrl-S).



G. Insert Tie.

- Step 1. Click **Insert Components**  on the Assembly toolbar.
- Step 2. Select your **Tie** file and Open.
- Step 3. Click to place **Tie**, **Fig. 18**.



H. Mate: Tie.

Step 1. Click **Top Plane**  in the Feature Manager and **Mate**  on the context toolbar, **Fig. 19**.

Step 2. Expand the flyout Feature Manager design, expand **Tie** and click **Top Plane** , **Fig. 20**.

Step 3. Click Add/Finish Mate  to add **Coincident**  mate.

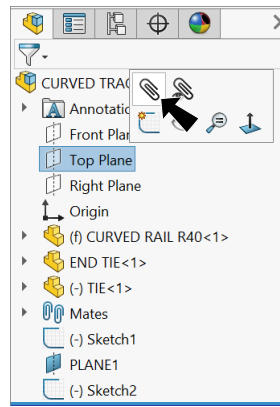


Fig. 19

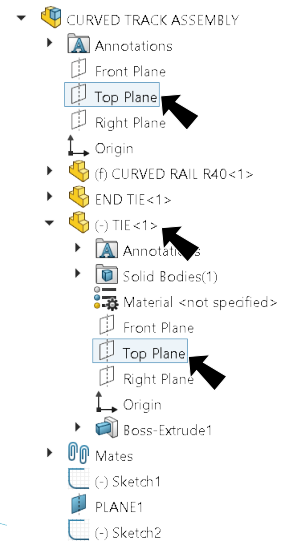


Fig. 20

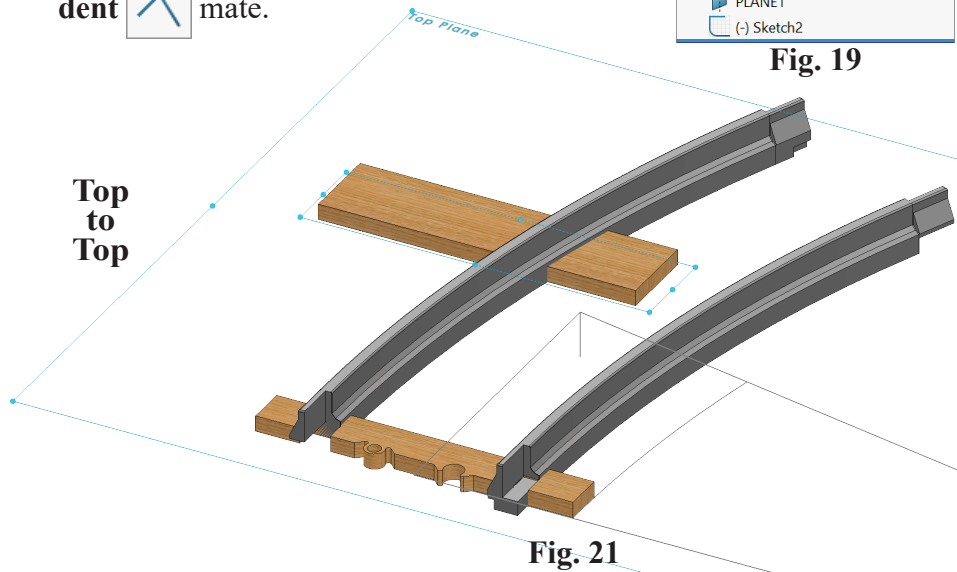


Fig. 21

Step 4. Expand the flyout Feature Manager design tree, expand **Tie** and click **Front Plane**  and click **Plane1** , **Fig. 22**.

Step 5. Click Add/Finish Mate  to add **Coincident**  mate.

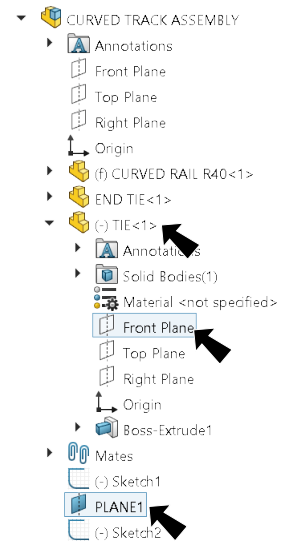


Fig. 22

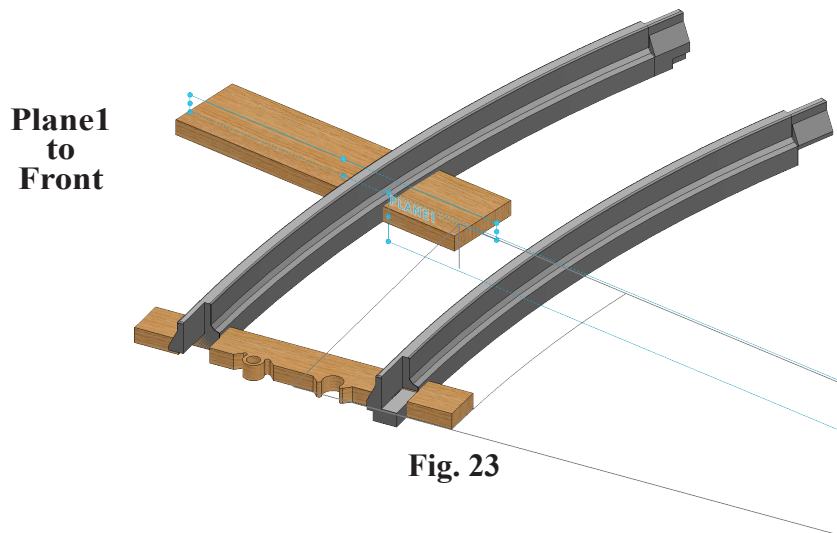
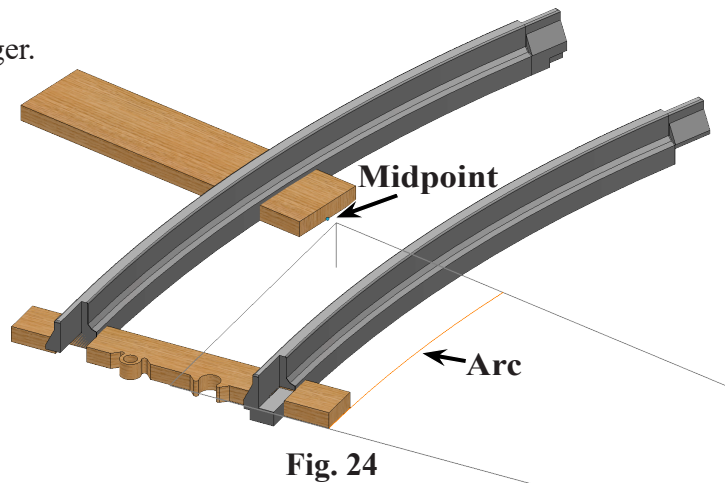


Fig. 23

Step 6. Click **midpoint of bottom edge of Tie** and **arc in Sketch2**, Fig. 24.

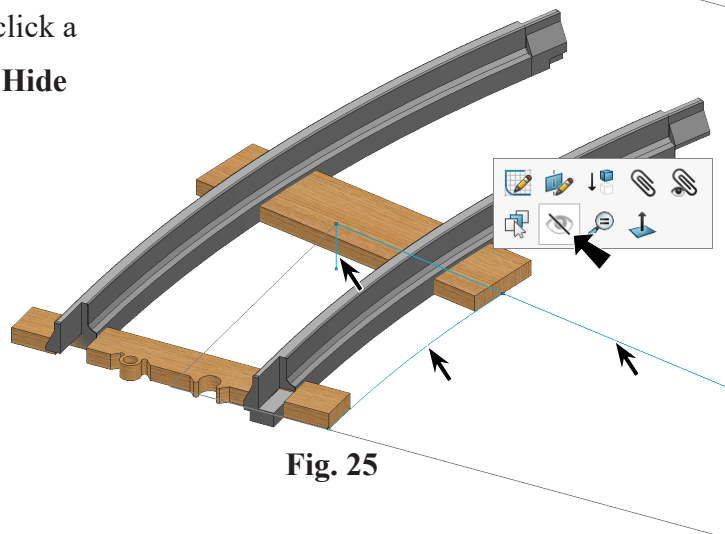
Step 5. Click Add/Finish Mate  to add **Coincident**  mate.

Step 8. Click OK  in the Property Manager.



Step 9. **Hide the 3 Sketches** . To hide, click a **Sketch**  in the graphics area and **Hide**  on the context toolbar, Fig. 25.

Step 9. Save  (Ctrl-S).



I. Mirror End Tie Plane 1.

Step 1. **Ctrl click End Tie** and **Plane1** component in the Feature Manager to select plane and component, **Fig. 26**.

Step 2. Click **Mirror Components** in the **Linear Component Pattern flyout** on the Features toolbar.

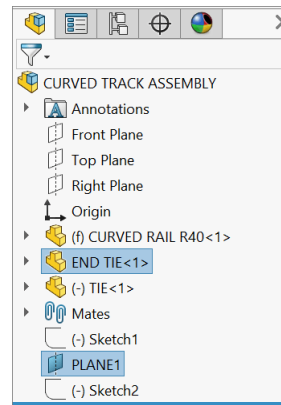


Fig. 26

Step 3. In the Mirror Property Manager:
Step 1: Selections
all were preselected
click **Next** , **Fig. 27**

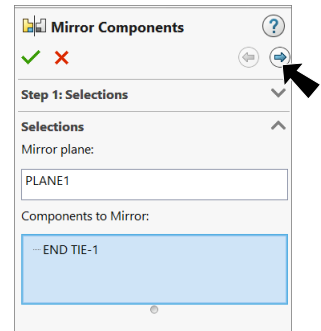


Fig. 27

Step 4. Still in Mirror Property Manager:
Step 2: Set Orientation
under Mirror Type, **Fig. 28**
select **Center of bounding box**
under Orient Components
Rail was preselected
select **X-mirrored and flipped, Y-mirrored**
click **OK** .

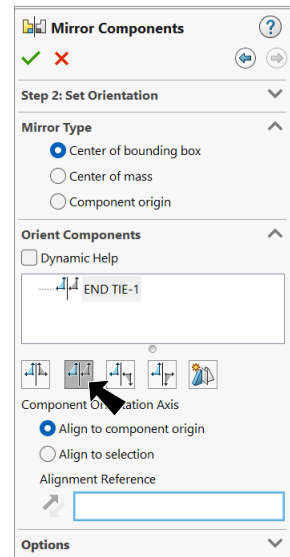


Fig. 28

Step 5. Save (Ctrl-S).

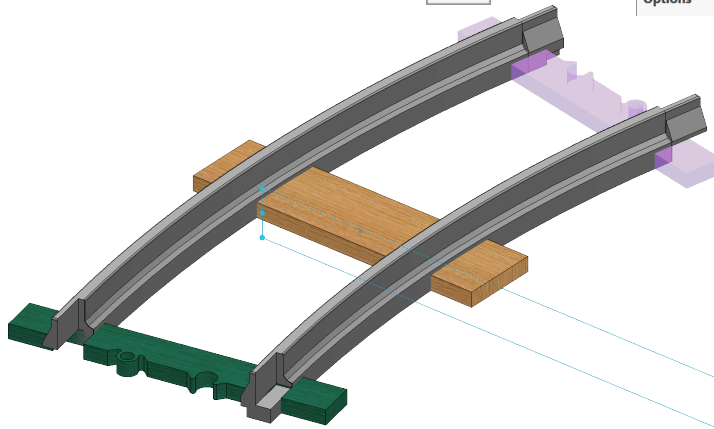


Fig. 29

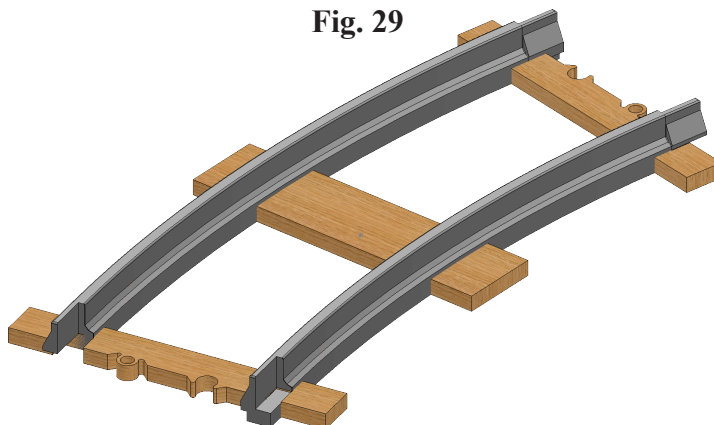
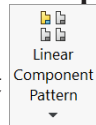


Fig. 30

J. Circular Component Pattern.

Step 1. Click **Circular Component Pattern**  in the **Linear Component**

Pattern flyout on the Features toolbar.



Step 2. In the Circular Pattern Property Manager set:

under Components to Pattern, **Fig. 31**

click **Tie**, **Fig. 32**

under Direction 1

click in Pattern Axis  box

click a **cylindrical face** a Rail

Angle  5.625° (22.5/4)

Number of Instances  2

select **Equal spacing**

under Direction 2

check **Symmetric**

click OK .

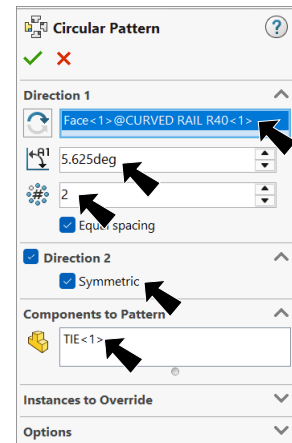


Fig. 31

Step 3. Save  (Ctrl-S).

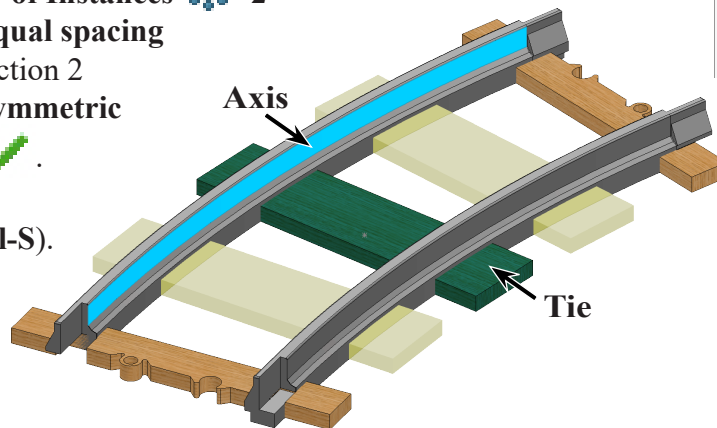


Fig. 32

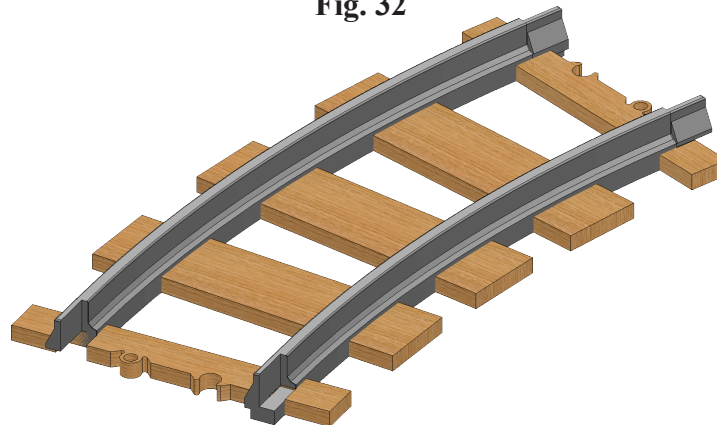


Fig. 33