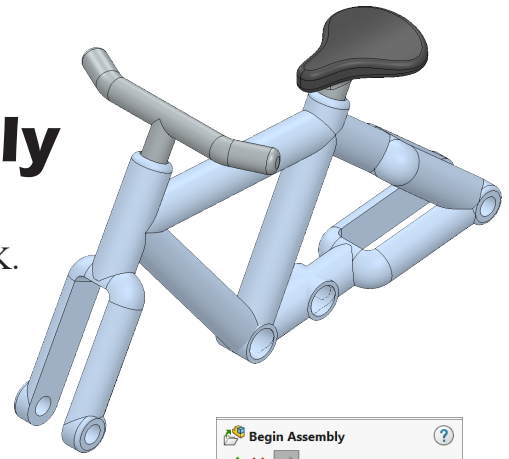


Bike and Trailer Bike Assembly



A. Insert Frame and Fork.

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

Step 2. Select your **FRAME** file and click Open from the Open dialog box.

Step 3. In the Begin Assembly Property Manager set:

click **Keep Visible** , **Fig. 1**

Click OK  in the Property Manager.

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

▶  (f) FRAME<1> .

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

Step 5. Select your **FORK** file and click Open.

Step 6. Click approximately where Fork is positioned in **Fig. 2**.

Step 7. Click OK  in the Property Manager when done.

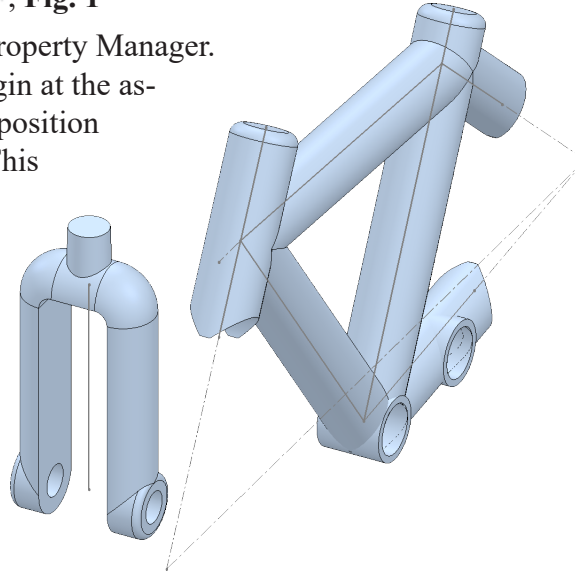


Fig. 2

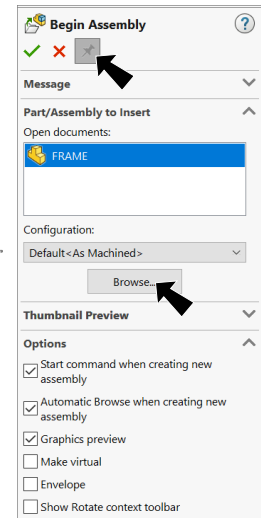


Fig. 1

B. Save as "BIKE ASSEMBLY".

Step 1. Click File Menu > Save As.

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

C. Mate: Fork<1>.

Step 1. Click **Isometric**  on the Standard Views toolbar. (Ctrl-7)

Step 2. Click **Right Plane**  in the Feature Manager and **Mate**  on the context toolbar, **Fig. 3**.

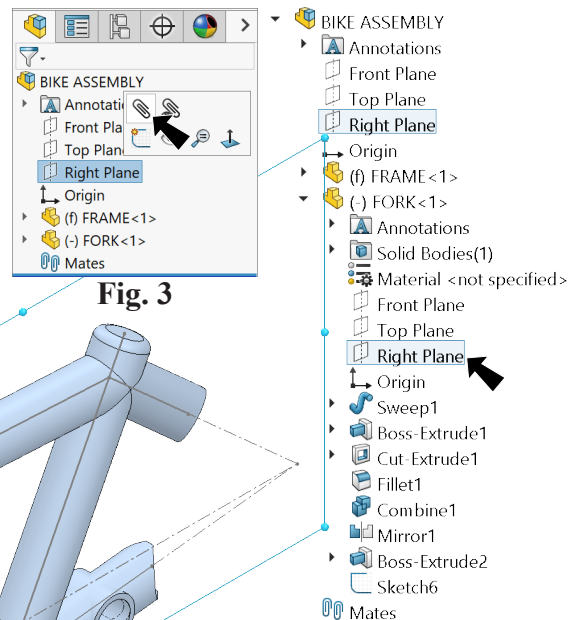



Fig. 3

Step 3. Expand the flyout Feature Manager design tree, expand **FORK** and click **Right Plane** , **Fig. 4**.

Step 4. Click Add/Finish Mate  to add a **Coincident** mate.

Step 5. Click **Head Tube construction line in Frame sketch** and **line in Fork**, **Fig. 6**.

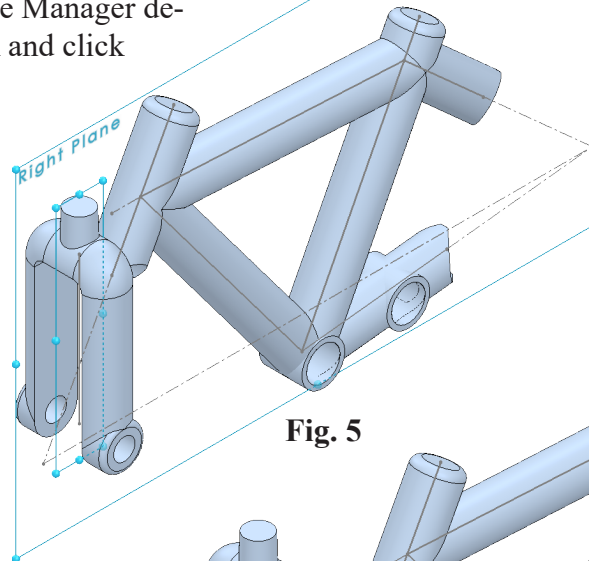



Fig. 5

Step 6. Click Add/Finish Mate  to add a **Coincident** mate.

Step 7. Click **bottom endpoint of Head Tube construction line in Frame sketch** and **bottom endpoint of line in Fork**, **Fig. 7**.

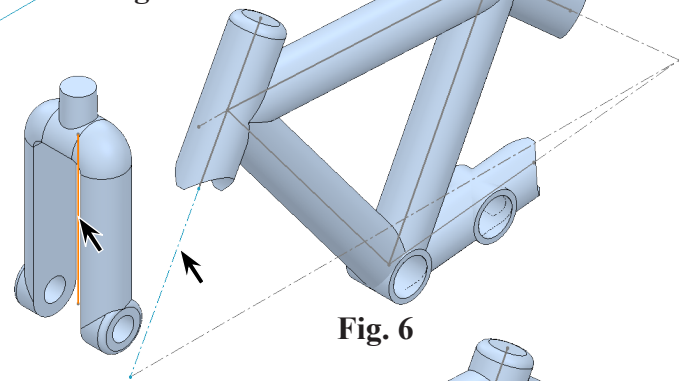


Fig. 6

Step 8. Click Add/Finish Mate  to add a **Coincident** mate.

Step 9. Click OK  in the Property Manager.

Step 10. Save  (Ctrl-S).

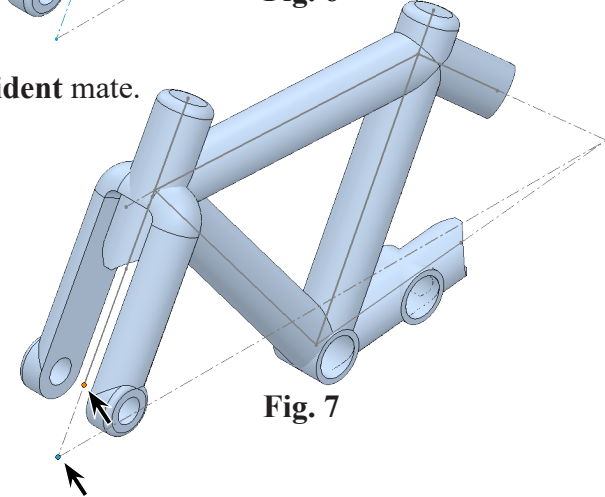


Fig. 7

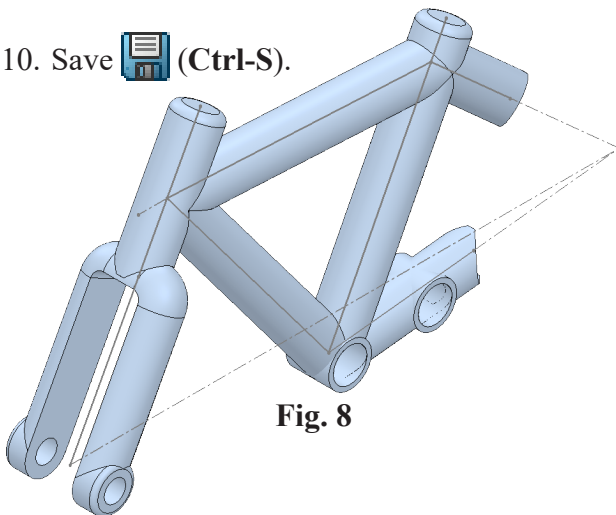


Fig. 8

D. Copy with Mates1 Fork<2>.

Step 1. Right click Fork<1>  in the Feature Manager and click Copy with Mates on menu, Fig. 9.

Step 2. In the Copy with Mates Property Manager:

Step 1: Select Component, Fig. 10

Preselected

click Next 

Step 3. Still in Copy with Mates Property Manager:

Step 2: Mates, Fig. 11

under Mates

Coincident1 check Repeat, Fig. 12

Coincident2 click Chain Stays construction line, Fig. 13

Coincident3 click bottom (rear) endpoint of Chain Stays construction line, Fig. 14

click OK 

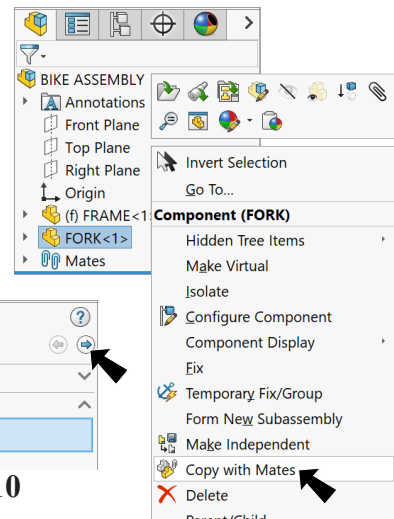


Fig. 10

Fig. 9

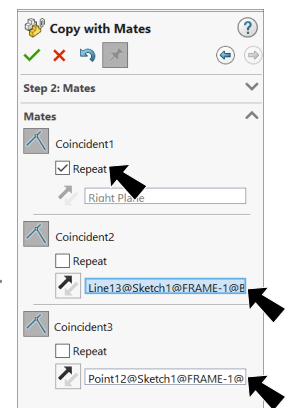


Fig. 11

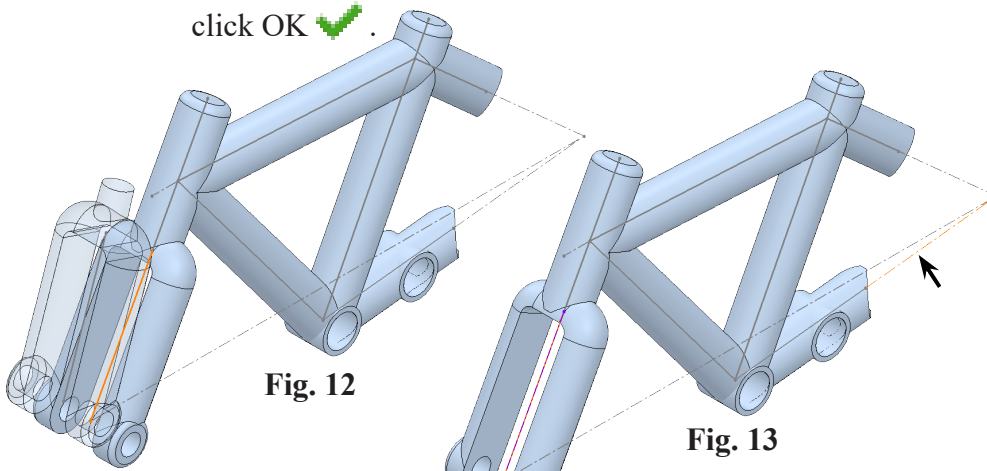


Fig. 12

Fig. 13

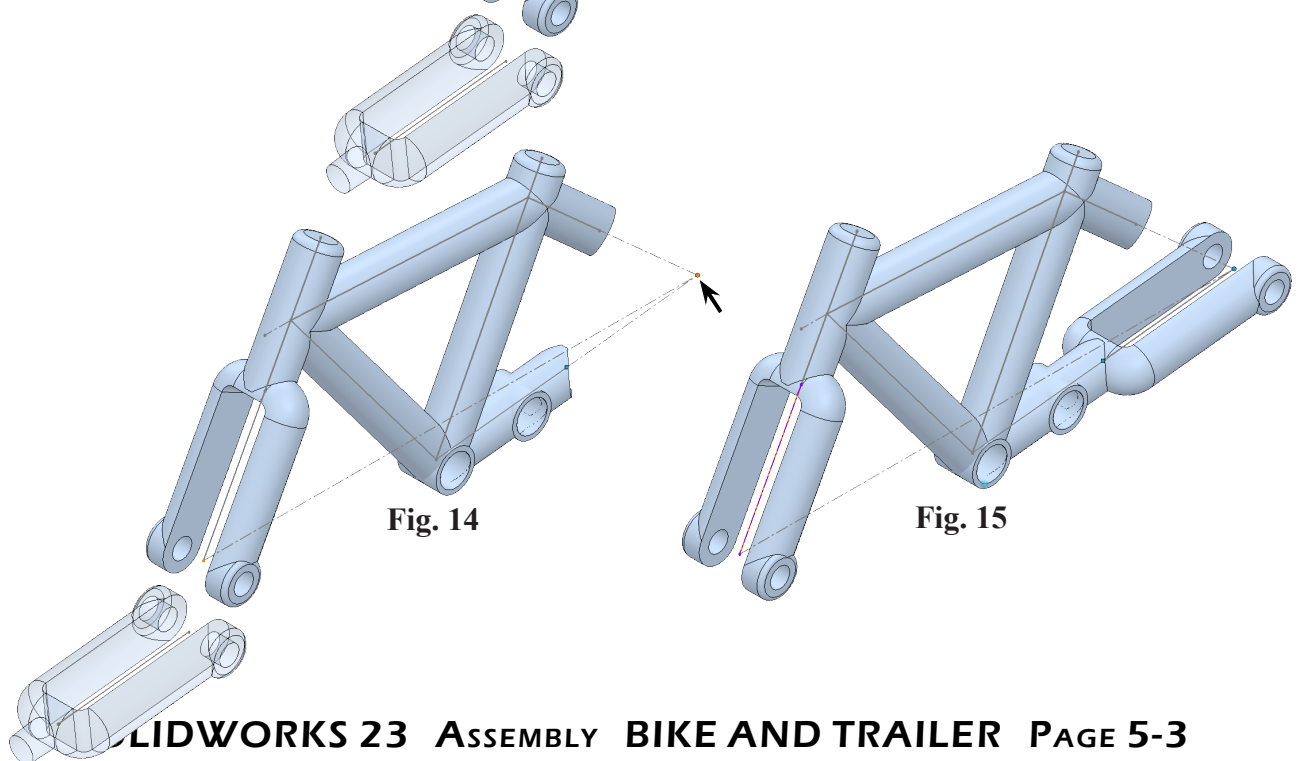


Fig. 14

Fig. 15

E. Copy with Mates2 Fork<3>.

Step 1. Still in Copy with Mates Property Manager:

Step 2: Mates, **Fig. 16**

under Mates

Coincident1 check **Repeat**, **Fig. 17**

Coincident2 click **Seat Stays construction line**, **Fig. 18**

Coincident3 click **bottom endpoint of Chain Stays construction line**, **Fig. 19**

If necessary: Coincident2

click **Flip Mate Alignment** , **Fig. 16**

click OK  and click Cancel .

Step 2. Save  (Ctrl-S).

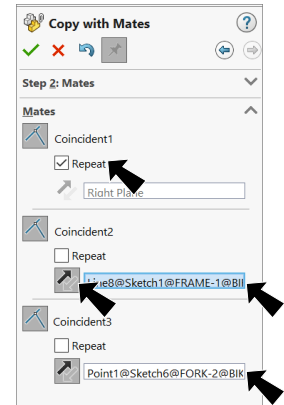


Fig. 16

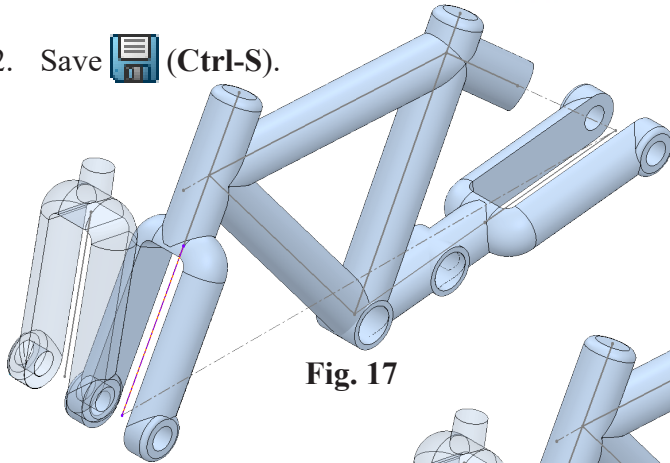


Fig. 17

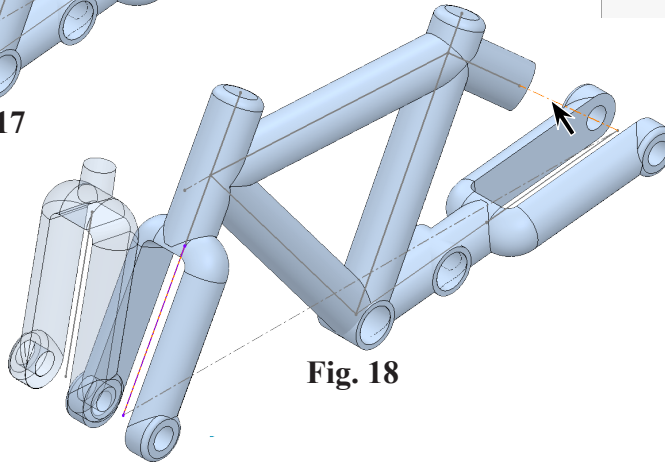


Fig. 18

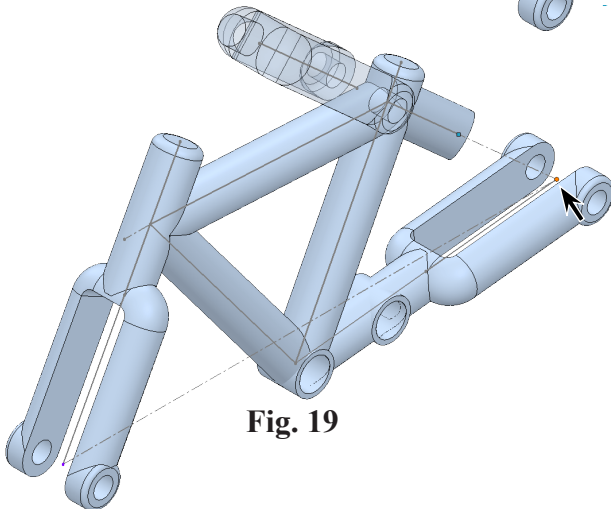


Fig. 19

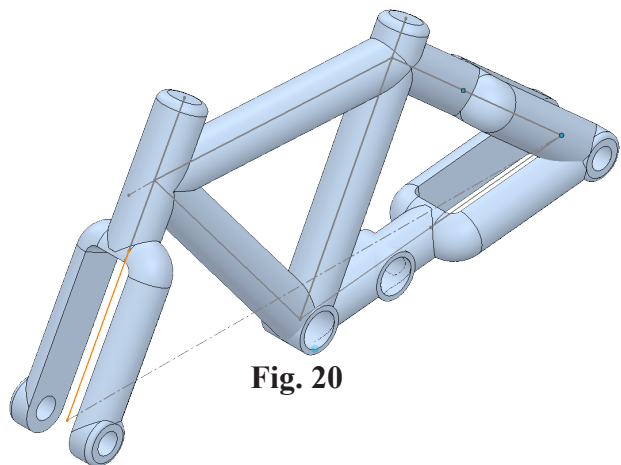


Fig. 20

F. Replace Fork<3> with Seat Stays Fork.

Step 1. In the graphics area click the Fork<3> at the Seat Stay to select, Fig. 21.

Step 2. Click File Menu > Replace.

Step 3. In the Replace Property Manager set:
click **Browse** button, Fig. 22
select your **SEAT STAYS FORK**
part file and click Open
under Instances to replace
select **Only selected**
click OK ✓.

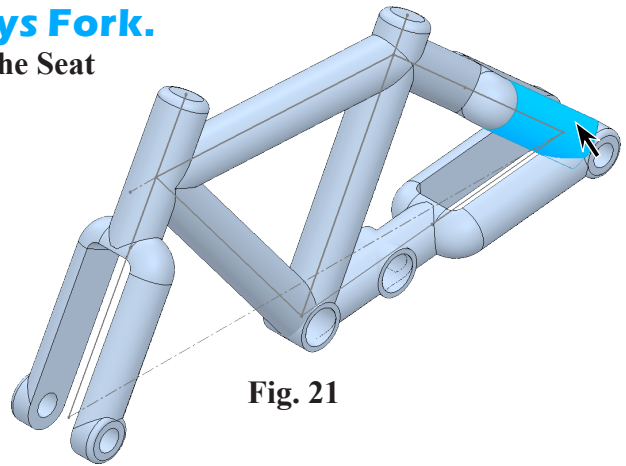


Fig. 21

Step 4. In the Mated Entities Property Manager click OK ✓, Fig. 23.

Step 5. Save  (Ctrl-S).

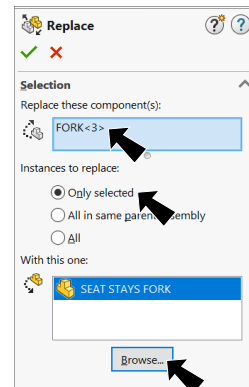


Fig. 22

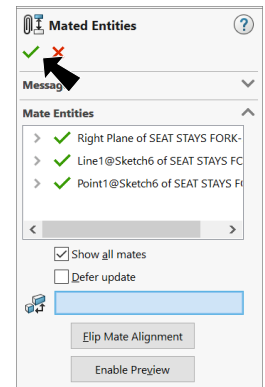









Fig. 23

G. Hide Sketches.

Step 1. **Hide the 3 sketches** , Fig. 24. To hide, click **Sketch1**  in **Frame**  in graphics area and **Hide**  on the context toolbar. Hide **Sketch6**  in **Fork**  and **Seat Stays Fork** .

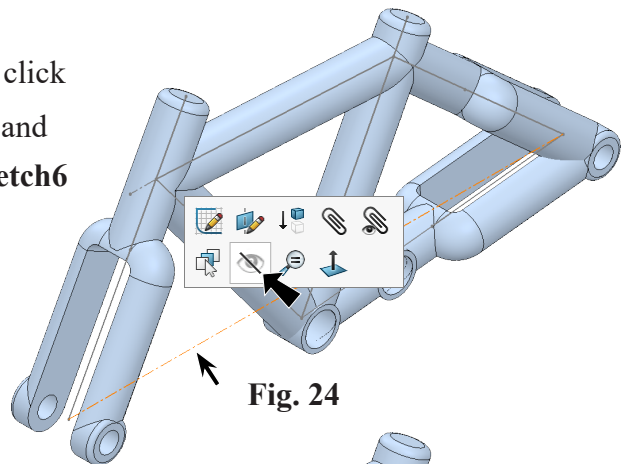


Fig. 24

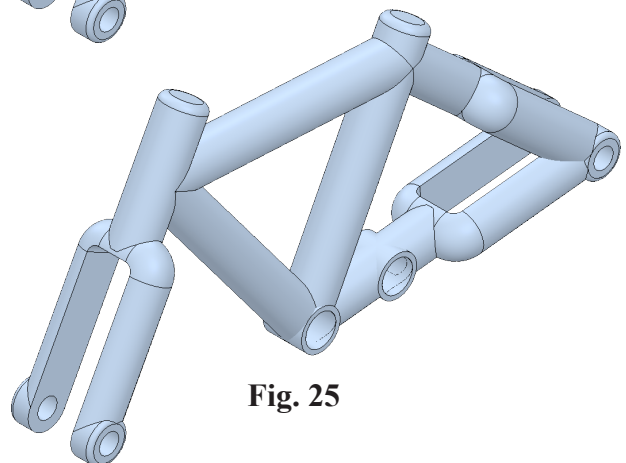




Fig. 25

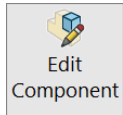
H. Indent Fork<2> into Seat Stays Fork.

Step 1. Click **Seat Stays Fork** part in the Feature Manager and click **Edit Part**  on the context toolbar, **Fig. 26**.

Step 2. Click Insert Menu > Features > Indent.

Step 3. In the Indent Property Manager:
under Selections, **Fig. 27**
Target body:
click **Seat Stays Fork**, **Fig. 28**
Tool body region:
click **Fork<2>**
check **Cut**
under Parameters
Clearance 0
click OK .

Step 4. Click **Edit Component**



on the Features toolbar to exit.

Step 5. Save All  (**Alt-F L**),
File Menu > Save All.

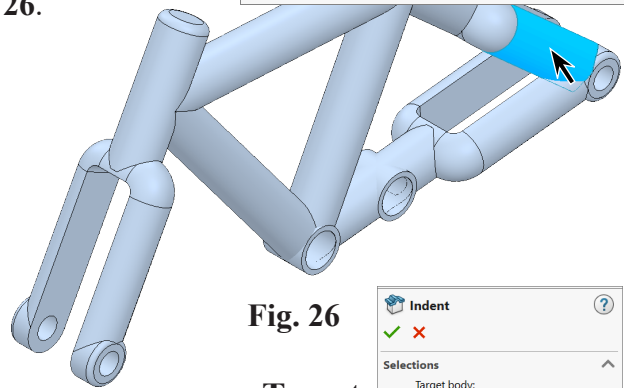
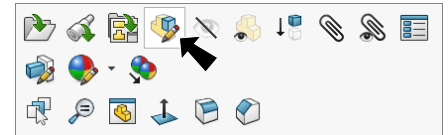


Fig. 26

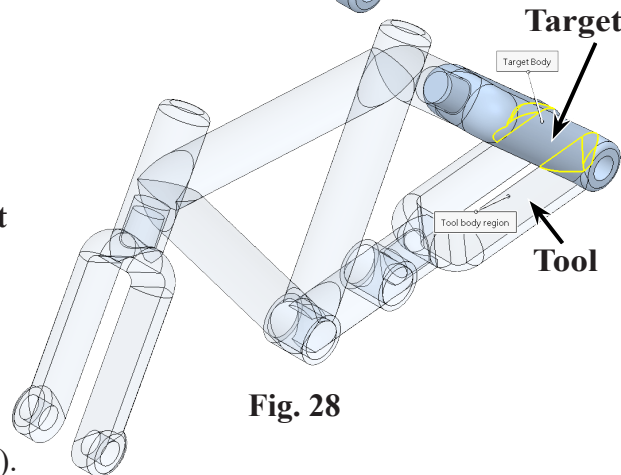


Fig. 28

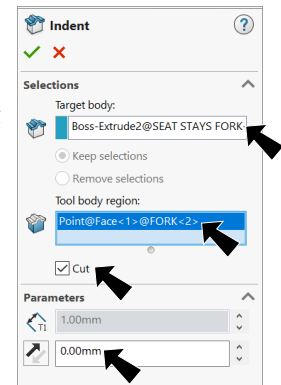


Fig. 27

I. Insert Handlebars.

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

Step 2. Click **Handlebars** file and click Open from the Open dialog box.

Step 3. Click to place Handlebars above Head Tube, **Fig. 29**.

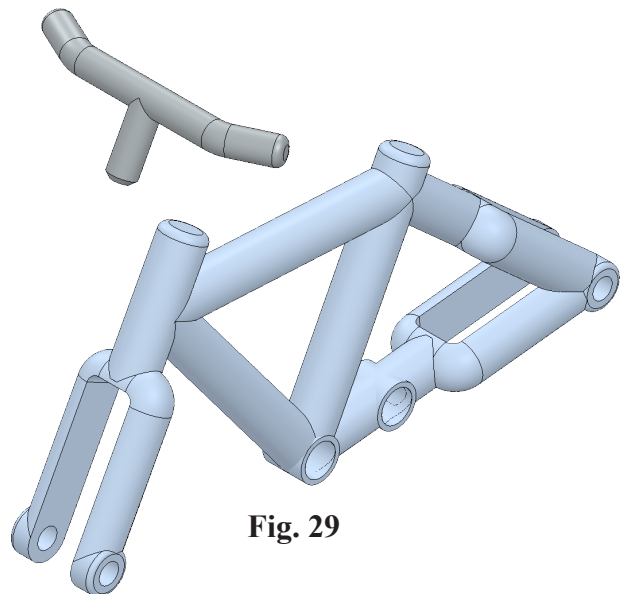




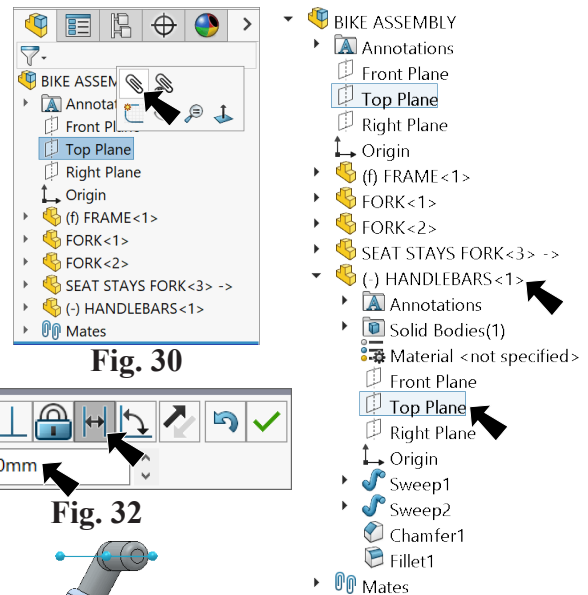





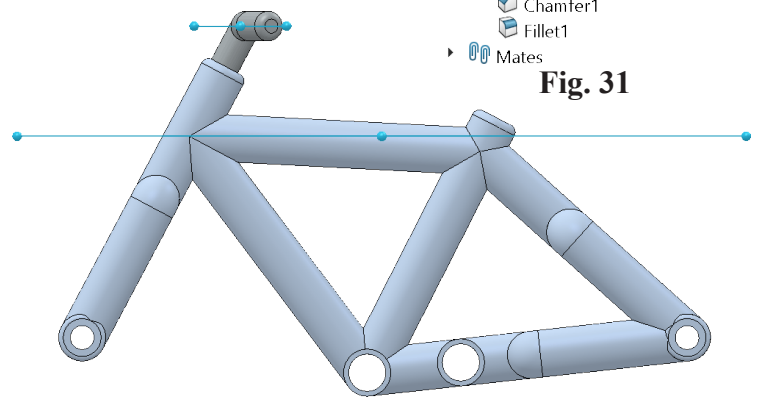
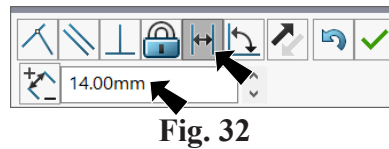
Fig. 29

J. Mate: Handlebars.

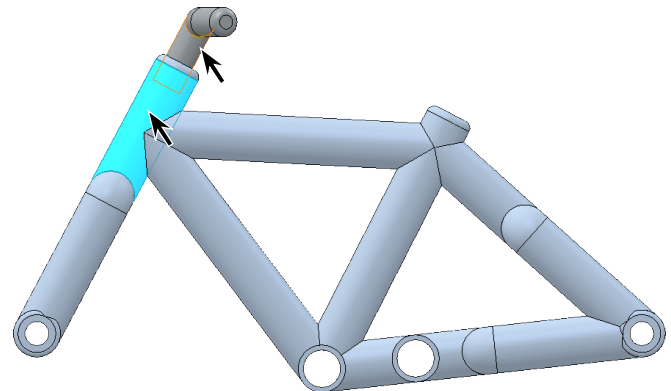
- Step 1. Click **Right**  on the Standard Views toolbar. (Ctrl-4)
- Step 2. Click **Top Plane**  in the Feature Manager and **Mate**  on the context toolbar, **Fig. 30**.
- Step 3. Expand the flyout Feature Manager design tree, expand **HANDLEBARS** and click **Top Plane** , **Fig. 31**.






- Step 4. Click **Distance**  in Mate pop-up, **Fig. 32**. Set distance **14** and press ENTER. The **Handlebars** should be above Frame, **Fig. 33**. If positioned in opposite direction, click **Flip Dimension**  in the Mate pop-up. Click Add/Finish Mate  to add Distance mate.

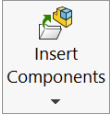


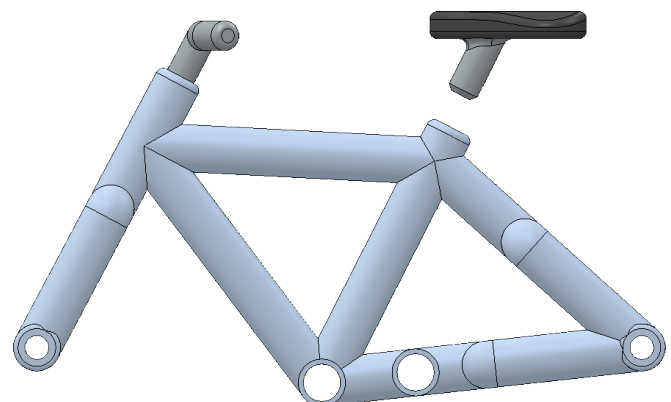
- Step 5. Click **cylindrical face of Head Tube in Frame** and a **cylindrical face of Handlebar stem**, **Fig. 34**.





- Step 6. Click Add/Finish Mate  to add **Concentric** mate.
- Step 7. Click OK  in the Property Manager.
- Step 8. Save  (Ctrl-S).

K. Insert Saddle.



- Step 1. Click **Insert Components**  on the Assembly toolbar.
- Step 2. Click **Saddle** file and click Open from the Open dialog box.
- Step 3. Click to place Saddle above Seat Tube, **Fig. 35**.




L. Mate: Saddle.

Step 1. Click **Top Plane**  in the Feature Manager and Mate  on the context toolbar, **Fig. 36**.

Step 2. Expand the flyout Feature Manager design tree, expand **SADDLE** and click **Top Plane** , **Fig. 37**.

Step 3. Click **Distance**  in Mate pop-up, **Fig. 38**. Set **distance 5.5** and press ENTER. The **Saddle** should be above Frame, **Fig. 39**. If positioned in opposite direction, click **Flip Dimension** 

in the Mate pop-up. Click Add/Finish Mate  to add Distance mate.

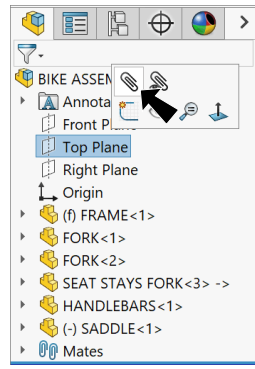


Fig. 36

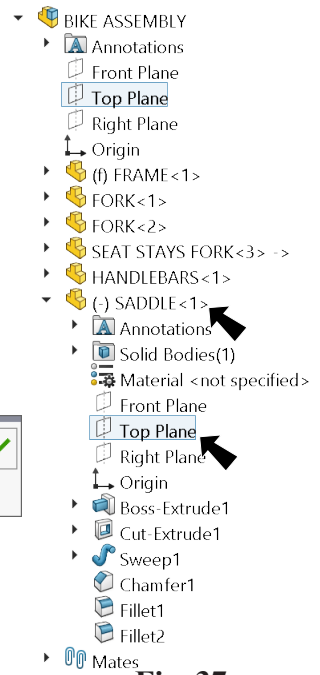



Fig. 37



Fig. 38

Step 4. Click **cylindrical face of Seat Tube in Frame** and a **cylindrical face of Saddle stem**, **Fig. 40**.

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

Step 6. Click OK  in the Property Manager.

Step 7. Save  (Ctrl-S).

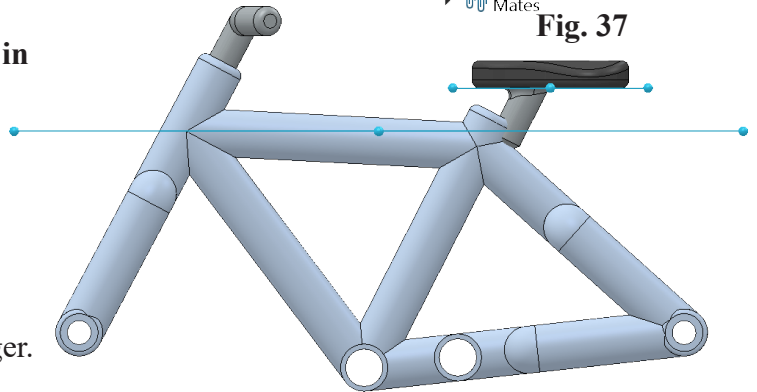


Fig. 39

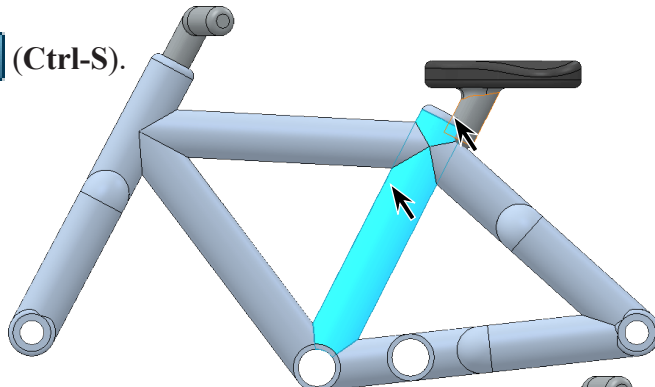


Fig. 40

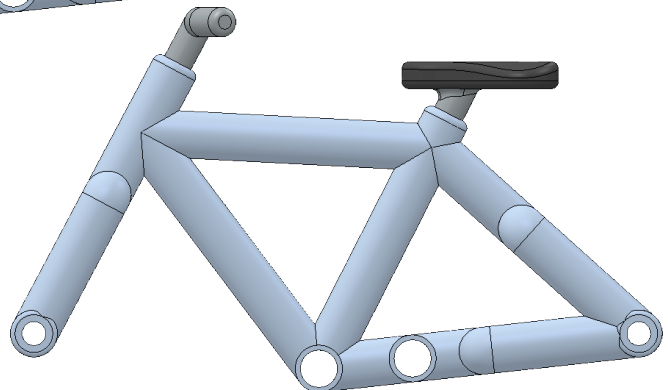



Fig. 41


M. Indent Handlebars into Frame.

Step 1. Click **Frame** part in the graphics area and click **Edit Part**  on the context toolbar, **Fig. 42**.

Step 2. Click Insert Menu > Features > Indent.

Step 3. In the Indent Property Manager:

under Selections, **Fig. 43**
 Target body:
 click **Head Tube in Frame**,
Fig. 44

Tool body region:
 click **Handlebars**
 check **Cut**
 under Parameters
Clearance .18
 click OK .

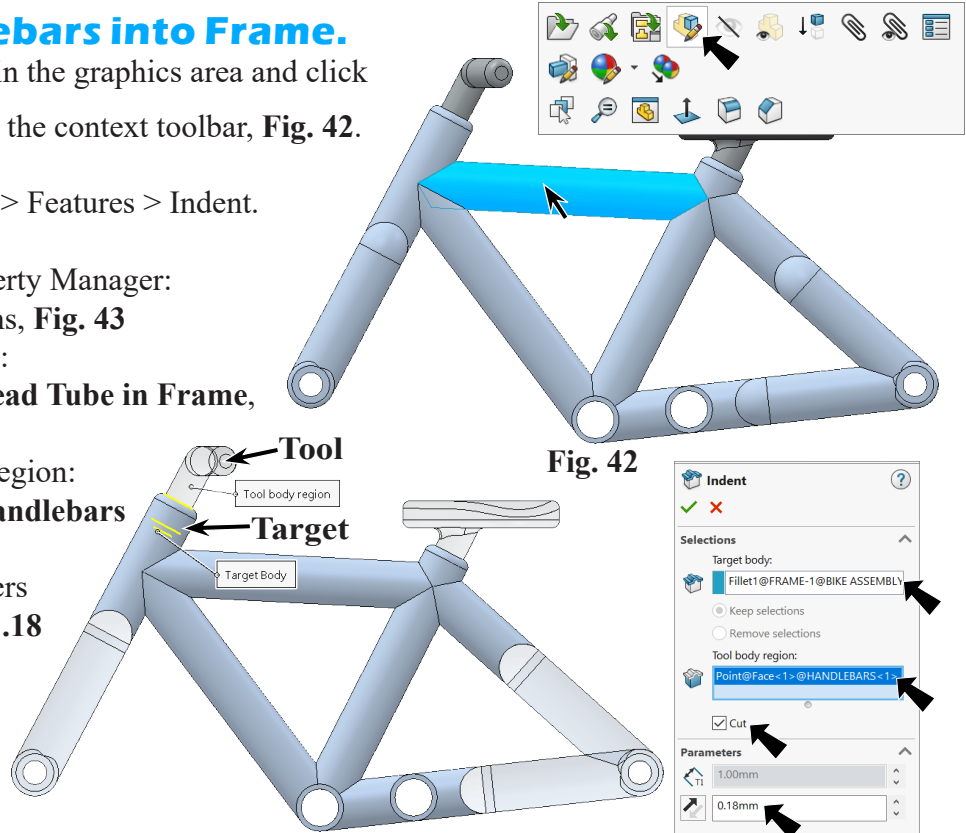


Fig. 42

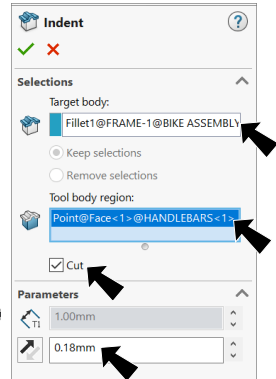



Fig. 43

N. Indent Saddle into Frame. **Fig. 44**

Step 1. Click Insert Menu > Features > Indent.

Step 2. In the Indent Property Manager:
 under Selections, **Fig. 45**

Target body:
 click **Seat Tube in Frame**, **Fig. 46**

Tool body region:
 click **Saddle**
 check **Cut**
 under Parameters
Clearance .18
 click OK .

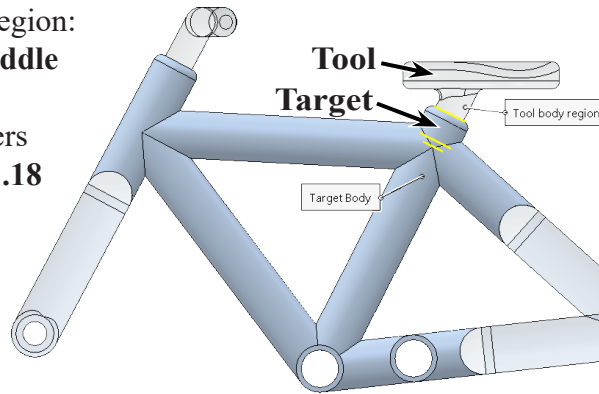


Fig. 46

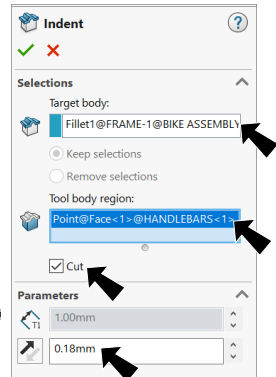
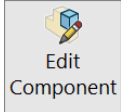


Fig. 45

Step 3. Click **Edit Component**



on the Features toolbar to exit.

Step 4. Save All  (**Alt-F L**). File Menu > Save All.