

Bike and Trailer Fork

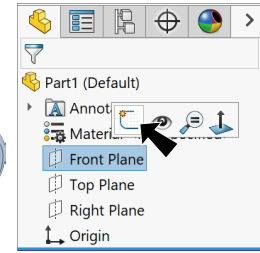
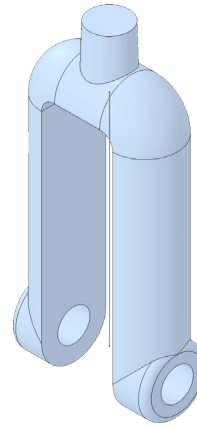




Fig. 1

A. Sketch 1 Sweep Path.

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

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

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

Step 4. Sketch two lines starting from **Origin** , **Fig. 2**.

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

Step 6. Add dimensions, **Fig. 3**.

Step 7. Click **Sketch Fillet**  on the Sketch toolbar.

Step 8. In the Sketch Fillet Property Manager set:
under Fillet Parameters, **Fig. 4**

Radius  **1.2**

click **intersection**, **Fig. 5**

click **OK**  twice.

Step 9. Click **Exit Sketch**  on the Sketch toolbar.

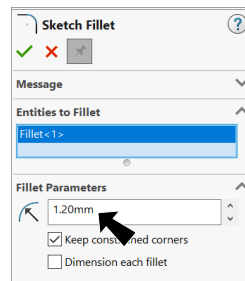


Fig. 4

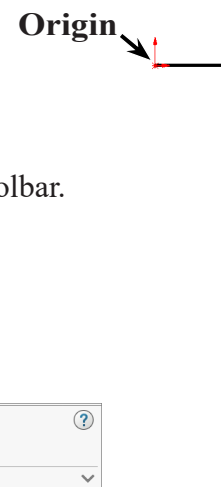


Fig. 2

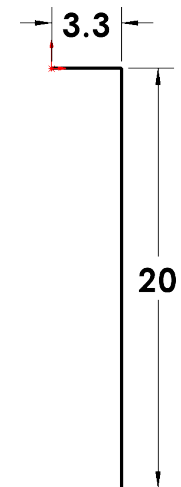


Fig. 3



Fig. 5

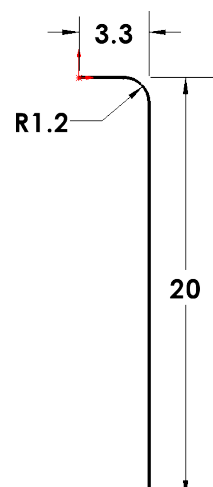



Fig. 6

B. Save as "FORK".

Step 1. Click File Menu > Save As.

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

C. Sketch2 Sweep Profile.

Step 1. Click **Right Plane**  in the Feature Manager and click **Sketch**  on the context toolbar, **Fig. 7**.

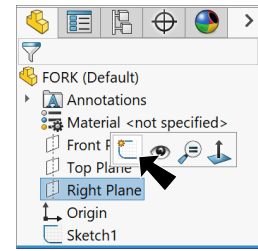
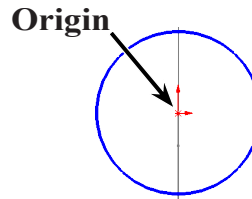


Fig. 7

Step 2. Click **Normal To**  on the Standard Views toolbar. (Ctrl-8)

Step 3. Click **Circle**  (S) on the Sketch toolbar.



Step 4. Sketch a circle at **Origin** , **Fig. 8**.

Step 5. Click **Line**  (L) on the Sketch toolbar.

Step 6. Sketch **horizontal line across circle**, **Fig. 9**.

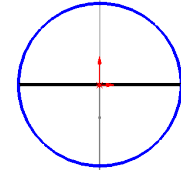


Fig. 9

Step 7. Click **Smart Dimension**  (S) on the Sketch toolbar.

Step 8. Dimension **diameter 6**, **Fig. 10**.

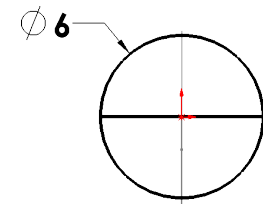




Fig. 10

Step 9. Click **Trim Entities**  (S) on the Sketch toolbar.

Step 10. In the Trim Property Manger:

select **Trim to closest** , **Fig. 11**
 check **Keep trimmed entities as construction geometry**
 click **circle below line**, **Fig. 12**.
 Results shown in **Fig. 13**.
 Click **OK**  when done.

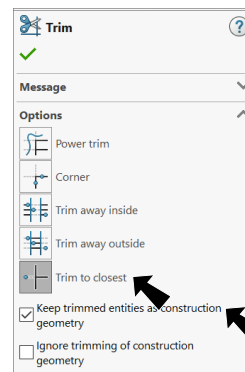


Fig. 11

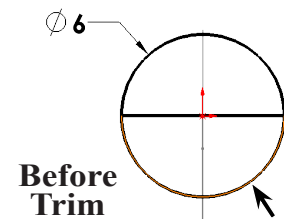
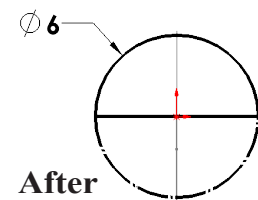








Fig. 12



After Trim

Fig. 13

D. Sweep.

- Step 1. Click **Isometric**  on the Standard Views toolbar. (Ctrl-7)
- Step 2. Click **Features**  on the Command Manager toolbar.
- Step 3. Click **Swept Boss/Base**  on the Features toolbar.
- Step 4. In the Swept Boss/Base Property Manager:
 - under Profile and Path, **Fig. 14**
 - Profile**  **Sketch2** is selected
 - Path**  click any geometry in **Sketch1**
 - click OK .

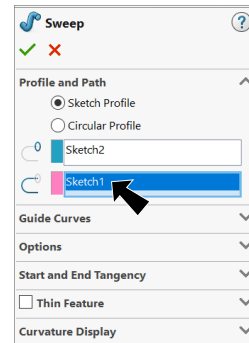


Fig. 14

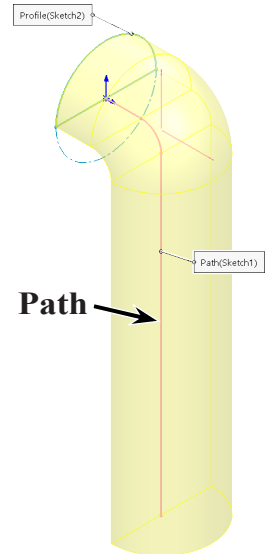








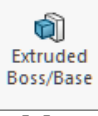




Fig. 15

E. Extrude 1.

- Step 1. Click **Right Plane**  in the Feature Manager and click **Sketch**  on the context toolbar, **Fig. 16**.
- Step 2. Click **Normal To**  on the Standard Views toolbar. (Ctrl-8)
- Step 3. Click **Circle**  (S) on the Sketch toolbar.
- Step 4. Sketch a **circle at midpoint**  of bottom edge of Sweep, **Fig. 17**.
- Step 5. Click **Smart Dimension**  (S) on the Sketch toolbar.
- Step 6. Dimension **diameter 6**, **Fig. 17**.
- Step 7. Click **Isometric**  on the Standard Views toolbar. (Ctrl-7)
- Step 8. Click **Features**  on the Command Manager toolbar.
- Step 9. Click **Extruded Boss/Base**  on the Features toolbar.
- Step 10. In the Boss-Extrude Property Manager set:
 - under From, **Fig. 18**
 - Start Condition **Vertex**
 - click **vertex at bottom edge of Sweep**
 - under Direction 1
 - End Condition **Blind**
 - Depth**  **3**
 - uncheck **Merge result**
 - click OK .

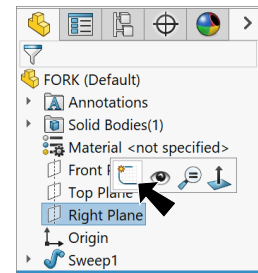


Fig. 16



Fig. 17

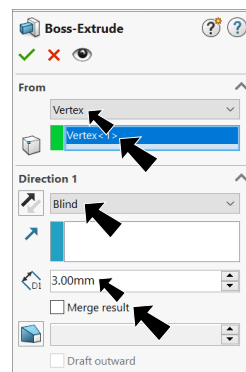


Fig. 18

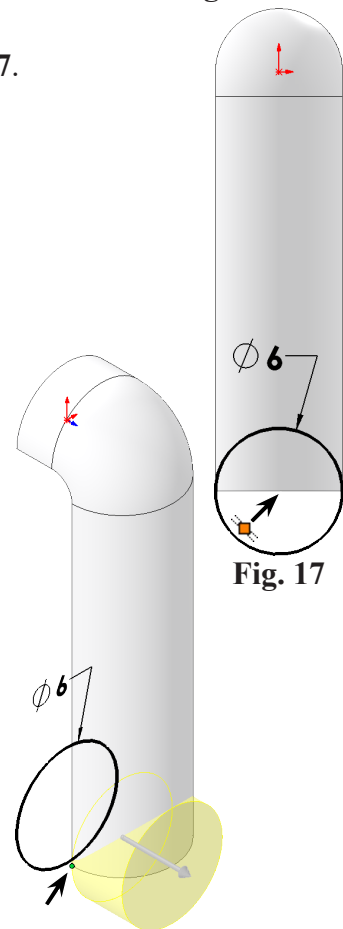



Fig. 19

F. Cut Extrude Axle Hole.

Step 1. Click **Right Plane**  in the Feature Manager and click **Sketch**  on the context toolbar, **Fig. 20**.

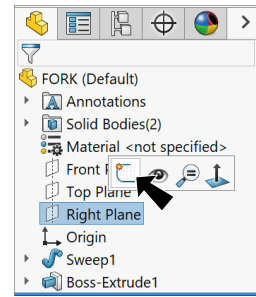


Fig. 20

Step 2. Click **Circle**  (S) on the Sketch toolbar.

Step 3. Sketch **circle at centerpoint of circular edge of Boss**, **Fig. 21**. To wake up centerpoint, hover cursor over circular edge.

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

Step 5. Dimension **diameter 3**, **Fig. 21**.

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

Step 7. Click **Extruded Cut**  on the Features toolbar.

Step 8. In the Cut-Extrude Property Manager set:

under Direction 1, **Fig. 22**
End Condition **Through All**

Reverse Direction 

click OK .

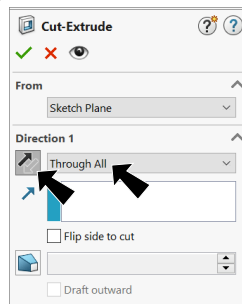
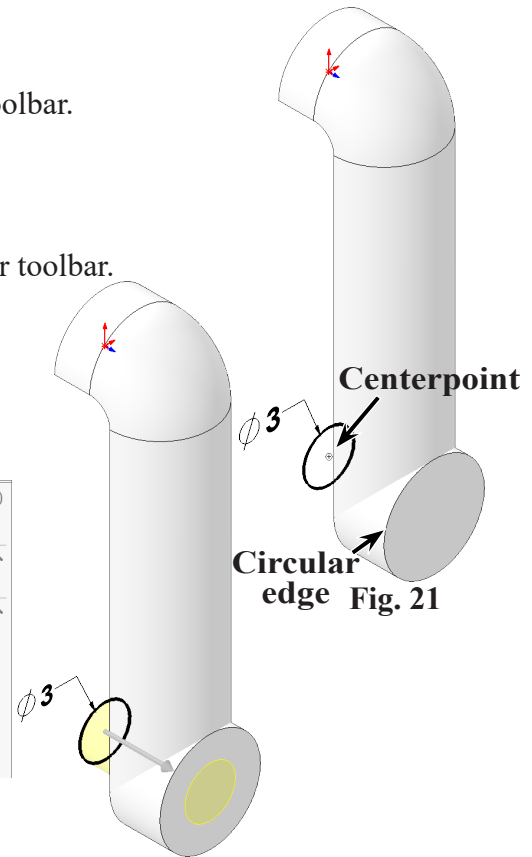


Fig. 22

Step 9. Save  (Ctrl-S).



Centerpoint
Circular edge **Fig. 21**

Fig. 23

G. Fillet Edge.

Step 1. Click **Fillet**  on the Features toolbar.

Step 2. In the Fillet Property Manager set:
select **FilletXpert**, **Fig. 24**

Radius  **.6**

click **circular edge of Boss**, **Fig. 25**

click OK .

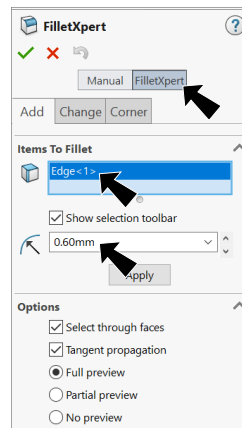


Fig. 24

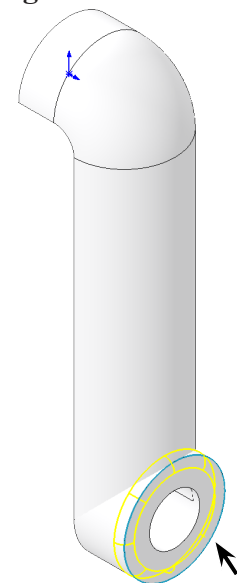



Fig. 25

H. Combine Bodies.

Step 1. Click Insert Menu > Features > Combine.

Step 2. In the Combine Property Manager:
 under Operation Type, **Fig. 26**
 select **Add**
 drag a selection to select all, **Fig. 27**
 click OK .

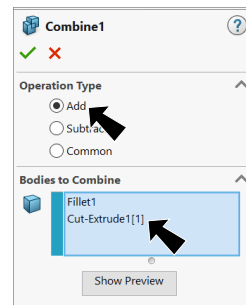


Fig. 26



Fig. 27

I. Mirror Body.

Step 1. Expand Solid Bodies folder in the Feature Manager. **Ctrl click Combine1** body and **Right Plane** to select Body and Plane, **Fig. 28**.

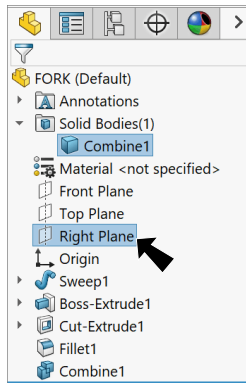


Fig. 28

Step 2. Click **Mirror**  on the Features toolbar.

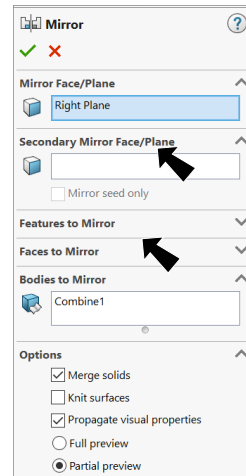



Fig. 29

Step 3. In the Mirror Property Manager click OK , **Fig. 29**.

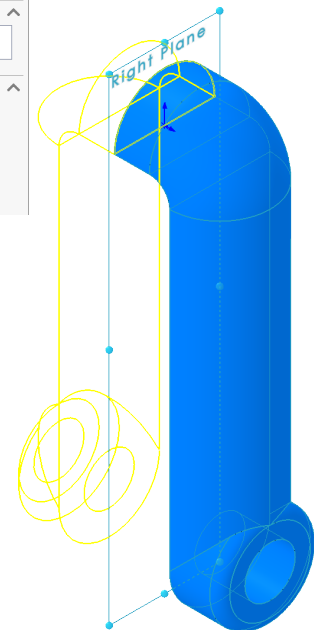


Fig. 30

J. Extrude2.

Step 1. Click **Top Plane**  in the Feature Manager and click **Sketch**  on the context toolbar, **Fig. 31**.

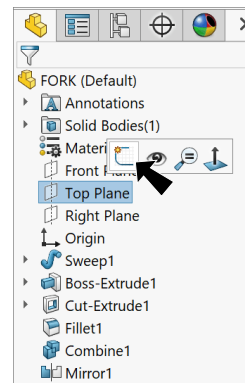



Fig. 31

Step 2. Click **Normal To**  on the Standard Views toolbar. (Ctrl-8)

Step 3. Click **Circle**  (S) on the Sketch toolbar.

Step 4. Sketch a circle at **Origin** , **Fig. 32**.

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

Step 6. Dimension a **diameter 4**, **Fig. 32**.

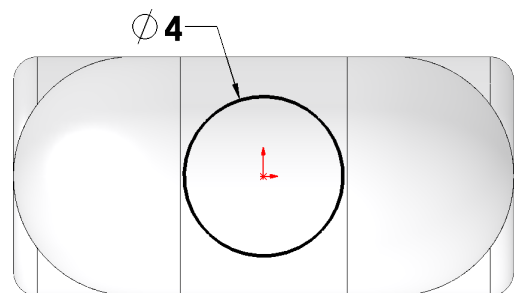



Fig. 32

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

Step 8. Click **Features**  on the Command Manager toolbar.

Step 9. Click **Extruded Boss/Base**  on the Features toolbar.

Step 10. In the Boss-Extrude Property Manager set:

under Direction 1, **Fig. 33**

End Condition **Blind**

Depth  **6.3**

click **Draft**  **1.5°**

click **OK** .

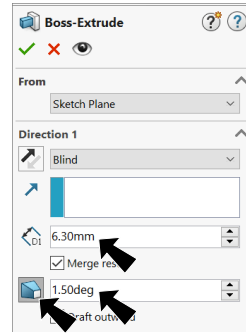


Fig. 33

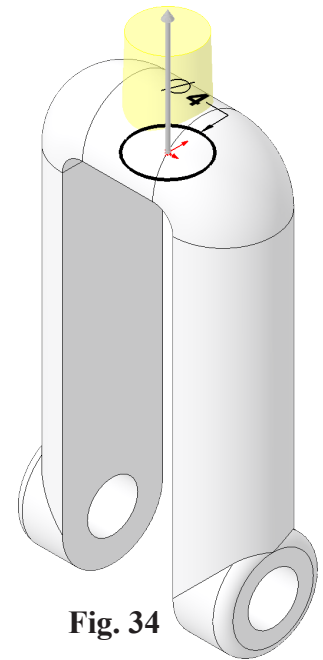





Fig. 34

K. Sketch for Mate.

Step 1. Click **Right Plane**  in the Feature Manager and click **Sketch**  on the context toolbar, **Fig. 35**.

Step 2. Click **Normal To**  on the Standard Views toolbar. (**Ctrl-8**)

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

Step 4. Sketch a vertical line from centerpoint of axle hole up pass the **Origin** , **Fig. 36**.

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

Step 6. Add **.5 dimension**, **Fig. 37**.

Step 7. Click **Exit Sketch**  on the Sketch toolbar.

Step 8. Save  (**Ctrl-S**).

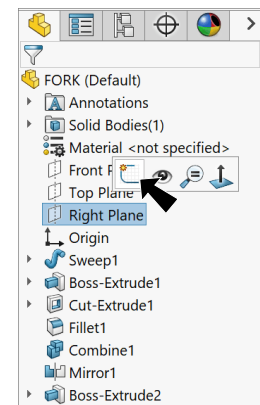


Fig. 35



Fig. 36

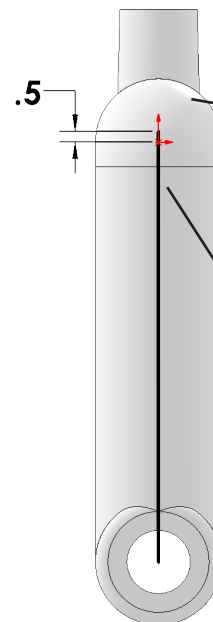




Fig. 37

L. Appearance: Blue Paint.

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

Step 2. Click the part to select part, click **Appearances Callout**  on the context toolbar and click **FORK** , Fig. 38.

Step 3. In the Appearances Task pane, expand **Painted**, click **Car** and in the lower pane select **gloss blue**, Fig. 39.

Step 4. In the Appearances Property Manager set:

under **Color**, Fig. 40

set **RGB values**

R 207

G 229

B 255

click **OK** .

Step 5. Save  (Ctrl-S).

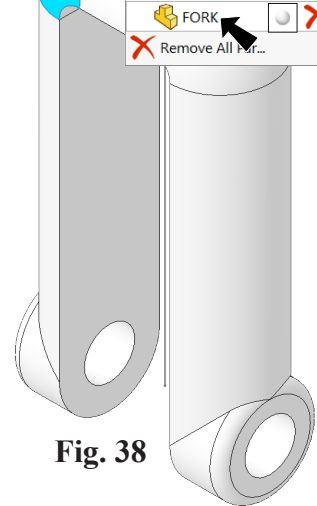
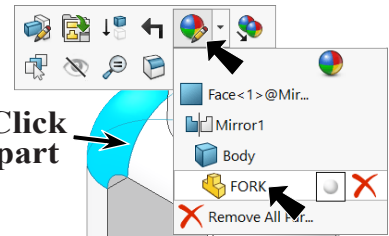


Fig. 38

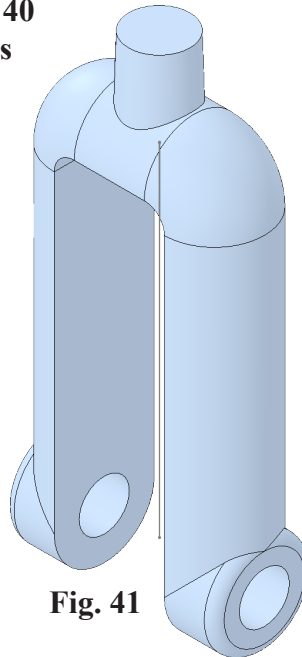


Fig. 41

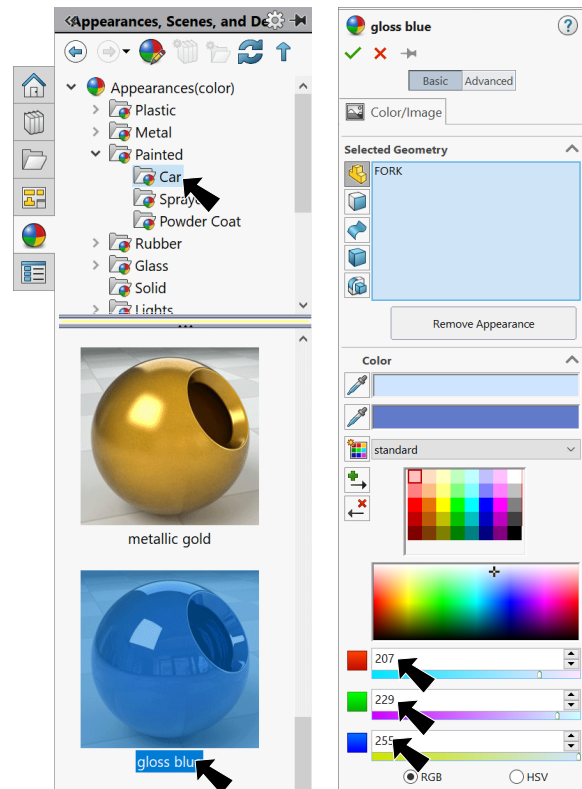


Fig. 39

Fig. 40

M. Save As "SEAT STAYS FORK".

Step 1. Save. Use **Ctrl-S**  to save FORK.

Step 2. Click File Menu > Save As.

Step 3. Key-in **SEAT STAYS FORK** for the file-name and press ENTER.

You now have two Fork files, FORK and SEAT STAYS FORK.

In the Assembly chapter we will add an Indent feature to the Seat Stays Fork file.