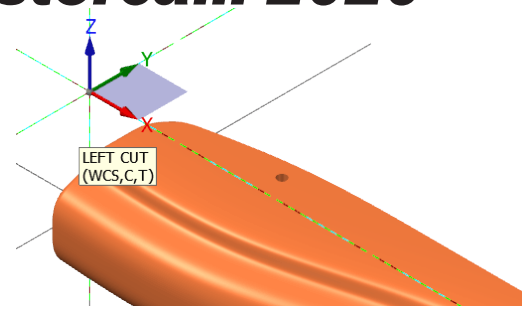
CO2 Rail Body Form Car

Fusion 360 V2 to Mastercam 2020

A. Open File in Mastercam 2020.

Step 1. In Fusion, export your **Body** file as IGES file. The file is saved in the Download folder and requires no cloud translation.



Step 2. In Mastercam 2020, click File Menu > Open  .

Step 3. In the Open dialog box set **Files of type** to **IGES Files**, navigate to the Download folder, select your **BODY** file and click Open, **Fig. 1**.

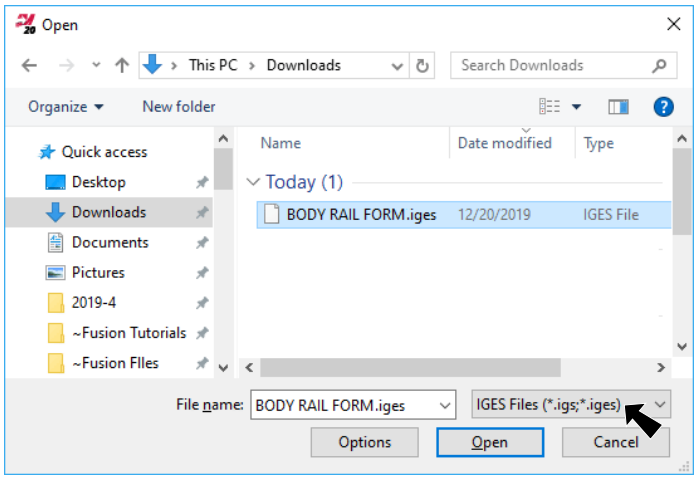
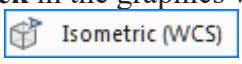


Fig. 1

Step 4. Change to the Isometric View. **Right click** in the graphics window and click 

(**Alt-7**).

B. Confirm Metric Units.

Step 1. In the bottom right corner of the display confirm units are **Metric**, **Fig. 2**.

Tip: The IGES file comes in Mastercam as all surfaces. We will add curves to edge at rear to be able to select the cartridge hole, then convert to solid.

C. Save Your File.

Step 1. **Save As**  (**Ctrl-Shift-S**).

Step 2. Key-in **RAIL BODY FORM** for the filename, change to **Mastercam Parts folder** and Save.

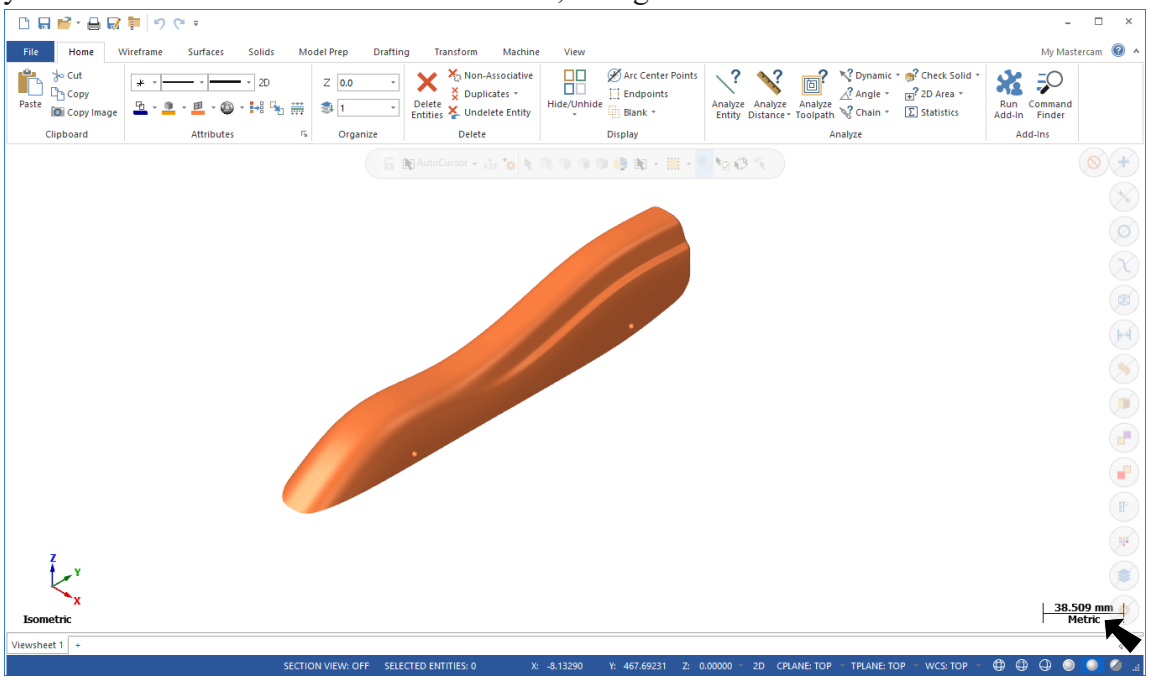


Fig. 2

12/21/19

http://www.cudacountry.net email:cudacountry@hotmail.com

D. Rotate Body Around Axes.

Step 1. Confirm **TOP CPLANE** and **3D Construction Mode** in Status bar at bottom of graphics window, **Fig 3**.

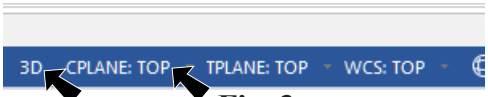
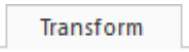
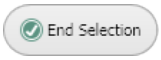


Fig. 3

Step 2. On the Transform tab 

click **Rotate** 

.

Step 3. Use **Ctrl-A** to select all, **Fig 4**. The surfaces will highlight when selected. Click **End Selection** 

(ENTER).

Step 4. In the Rotate function panel:
under Method, **Fig. 5**
Select **Move**
Number 1
Angle 90 and press **Tab** key
Click **OK and Create New Operation** .

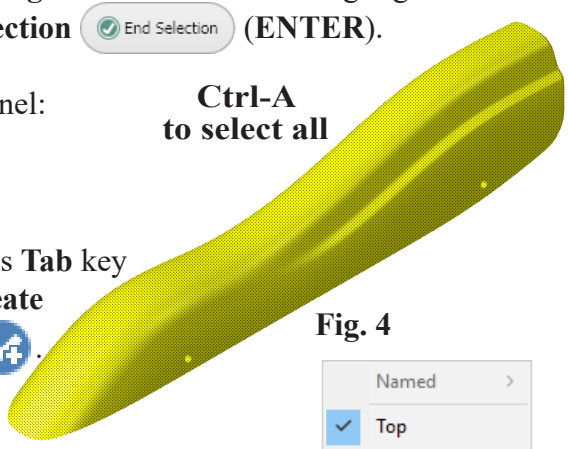


Fig. 4

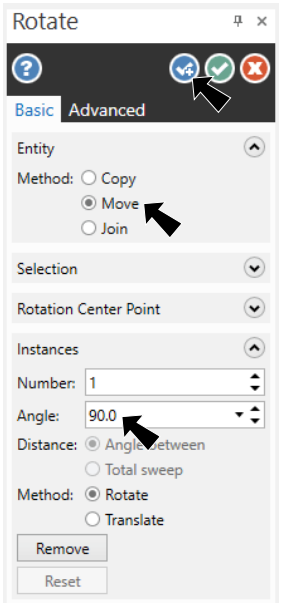


Fig. 5

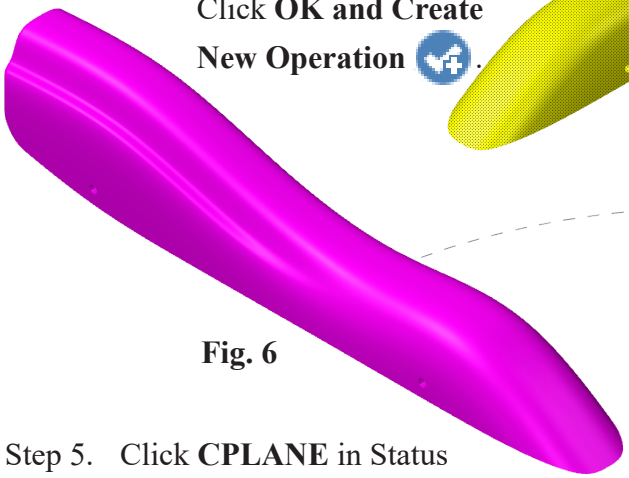


Fig. 6

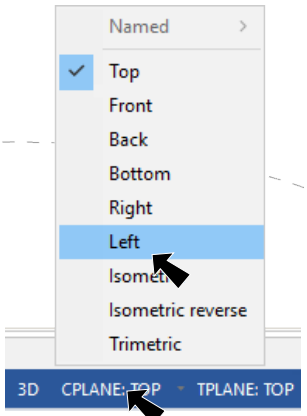
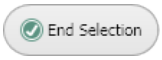


Fig. 7

Step 5. Click **CPLANE** in Status bar at bottom of the graphics window and click **Left** from the menu, **Fig 7**.

Step 6. Use **Ctrl-A** to select all **again** and click **End Selection** 

(ENTER)

Step 7. In the Rotate function panel:
under Method, **Fig. 8**
Select **Move**
Angle -90 and press **Tab**
Click OK .

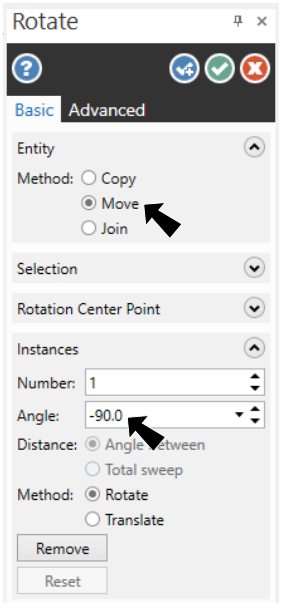


Fig. 8

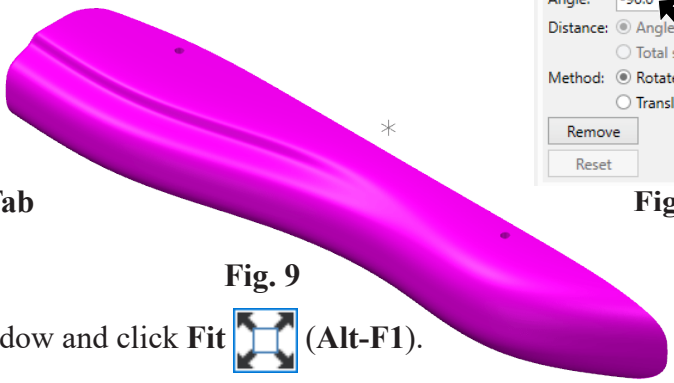


Fig. 9

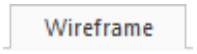
Step 8. **Right click** the graphics window and click **Fit** **(Alt-F1)**.

Step 9. **Right click** the graphics window and click **Clear Colors** 
.

Step 10. Save  **(Ctrl-S)**.

E. Curve on Edges.

Step 1. **Right click** in the graphics window and from the menu click GView > **Isometric Reverse (WCS)**.

Step 2. On the Wireframe tab 

click Curve All Edges 

.

Step 3. In the Curve On All Edges function panel:

Click **inside cylindrical surface of cartridge hole**, **Fig. 11**

Click **End Selection**

(ENTER)

Click OK
.

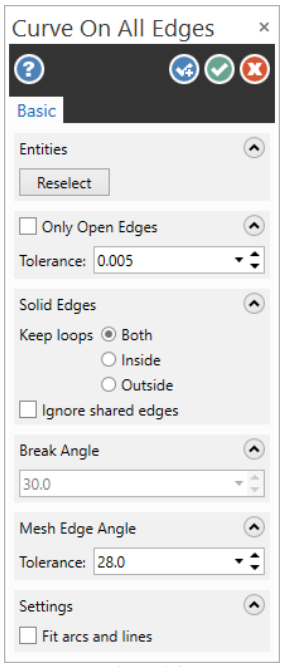


Fig. 10

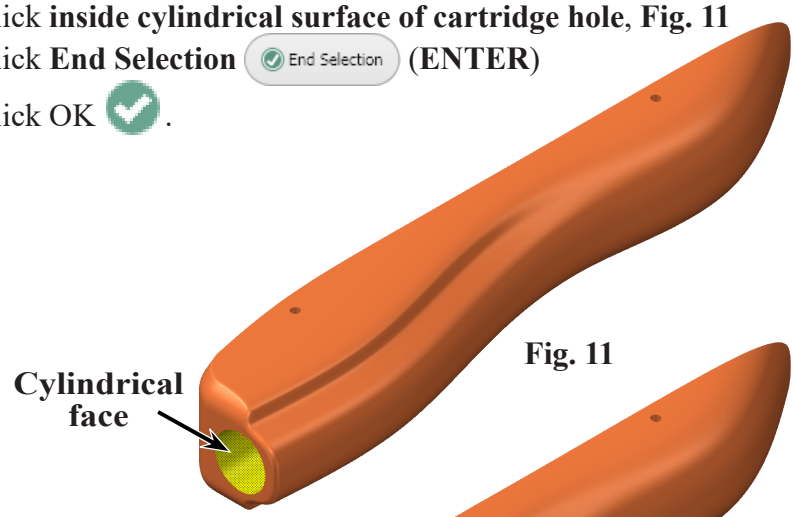


Fig. 11

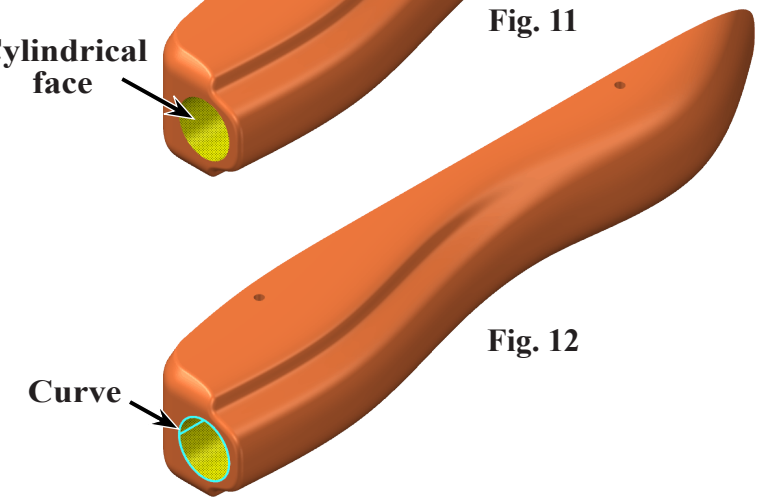
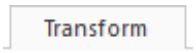
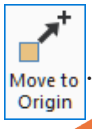


Fig. 12

F. Move to Origin.

Step 1. Display the Origin. Use **F9** to toggle axes, **Fig. 13**.

Step 2. On the Transform tab 

click **Move to Origin** 

.

Step 3. Press the **C key** on keyboard to configure Auto Cursor behavior of your cursor to snap to **Arc Center**, **Fig. 14**.

Fig. 14

Step 4. Click **curve at rear edge of cartridge hole** as point to translate from, **Fig. 15**.

Step 5. **Right click** the graphics window and click **Fit**  (**Alt-F1**).

Step 6. **Right click** the graphics window and click **Clear Colors**  .

Step 7. Confirm **center of cartridge hole at rear of car** as new position of Origin, **Fig. 16**.

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

Fig. 13

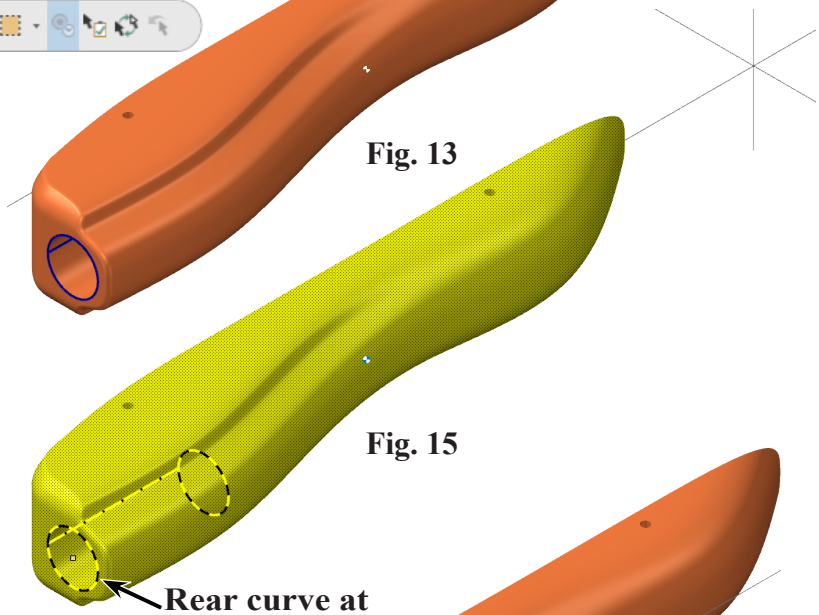


Fig. 15

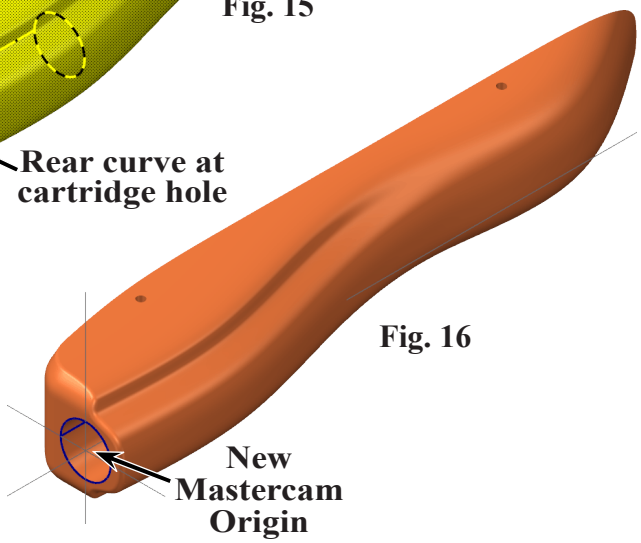


Fig. 16

G. Confirm Origin.

Step 1. **Right click** in the graphics window and from the menu click GView > **Left (WCS)**.

Step 2. Confirm Origin is in **center of cartridge hole**, **Fig. 17**.

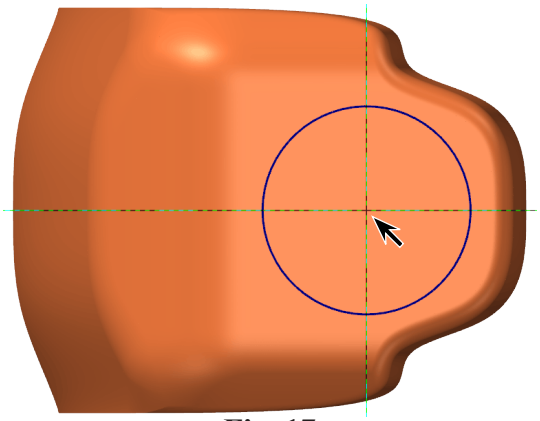


Fig. 17

H. Surfaces Into Solid.

Step 1. Change to the Isometric View. **Right click** in the graphics window and click Isometric (WCS) (**Alt-7**).

Step 2. **Right click** the graphics window and click **Fit** (**Alt-F1**).

Step 3. Toggle axes off. Use **F9**.

Step 4. On the Solids tab Solids click **From Surfaces** From Surfaces.

Step 5. Use **Ctrl-A** to select all, **Fig 18**. Click **End Selection** End Selection (**ENTER**).

Step 6. In the From Surfaces function panel set:
under Selection, **Fig. 19**
confirm **13 surfaces**
under Original surface
select **Delete**
Click OK .

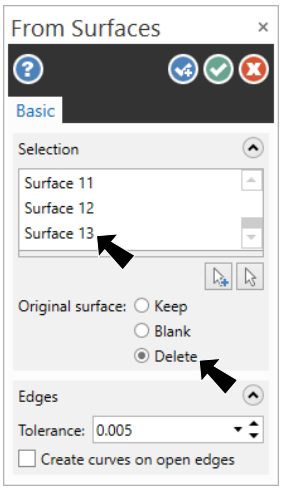
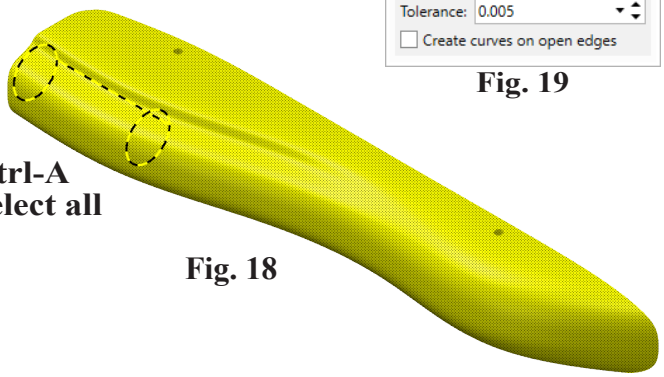


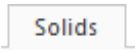
Fig. 19



Ctrl-A to select all

Fig. 18

I. Create Check Solid.

Step 1. On the Solids tab 

click **Block** 

.

Step 2. In the Primitive Block function panel:

under Type, **Fig. 20**
Solid
under Origin
select **Center**
under Dimensions
Length 40
Width 50
Height -2
under Axis
X
under Direction
Selected side
Click **most forward vertex** of body, **Fig. 21**.
Click OK  .

Step 3. Save  **(Ctrl-S)**.

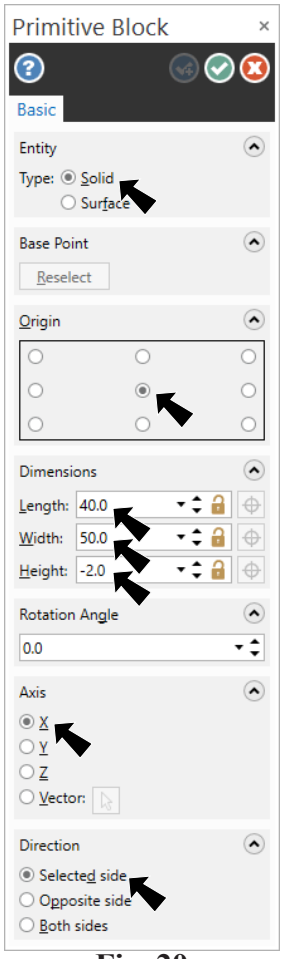


Fig. 20

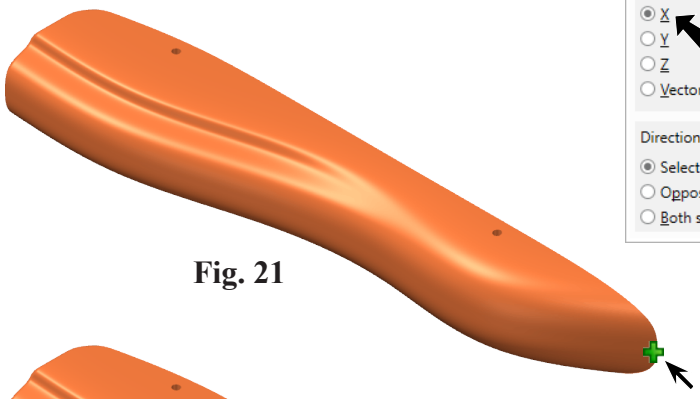


Fig. 21

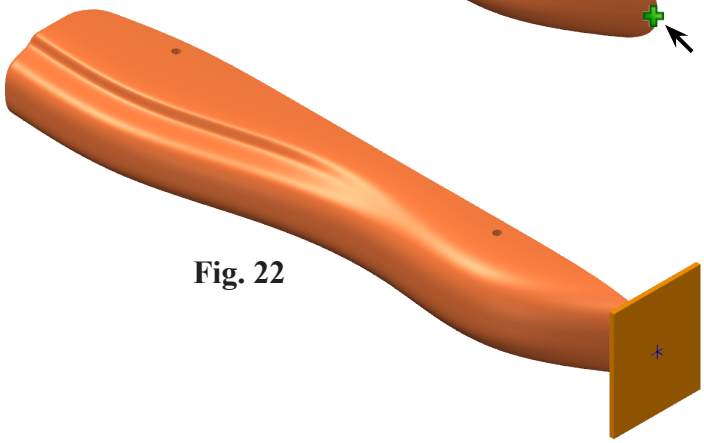


Fig. 22

J. Create WCS LEFT CUT Plane.

Step 1. Toggle axes on. Use **F9**.

Step 2. Display the **Planes Manager**. Use **Alt-L**.

Step 3. In the Planes Manger:

Click **Create a new plane** drop down and select **Relative to WCS > Top**, **Fig. 23**.

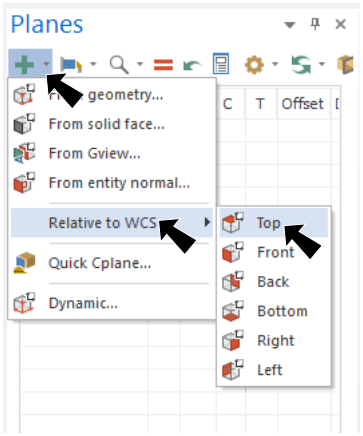


Fig. 23

Step 4. In the New Plane function panel:

Key-in **LEFT CUT** for name, **Fig. 24**
Origin X 0
Origin Y 0
Origin Z 34
Click OK .

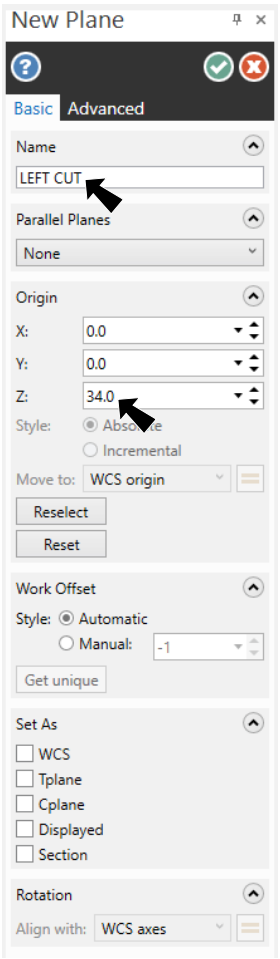


Fig. 24

Step 5. Back in the Planes Manager:

Click **Set All** , **Fig. 25**.

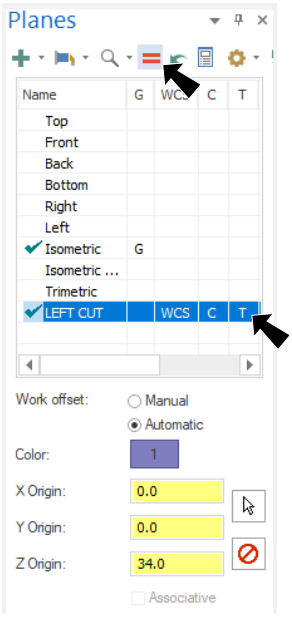


Fig. 25

Step 6. Confirm LEFT CUT Origin, **Fig. 26**.

Step 7. Save (**Ctrl-S**).

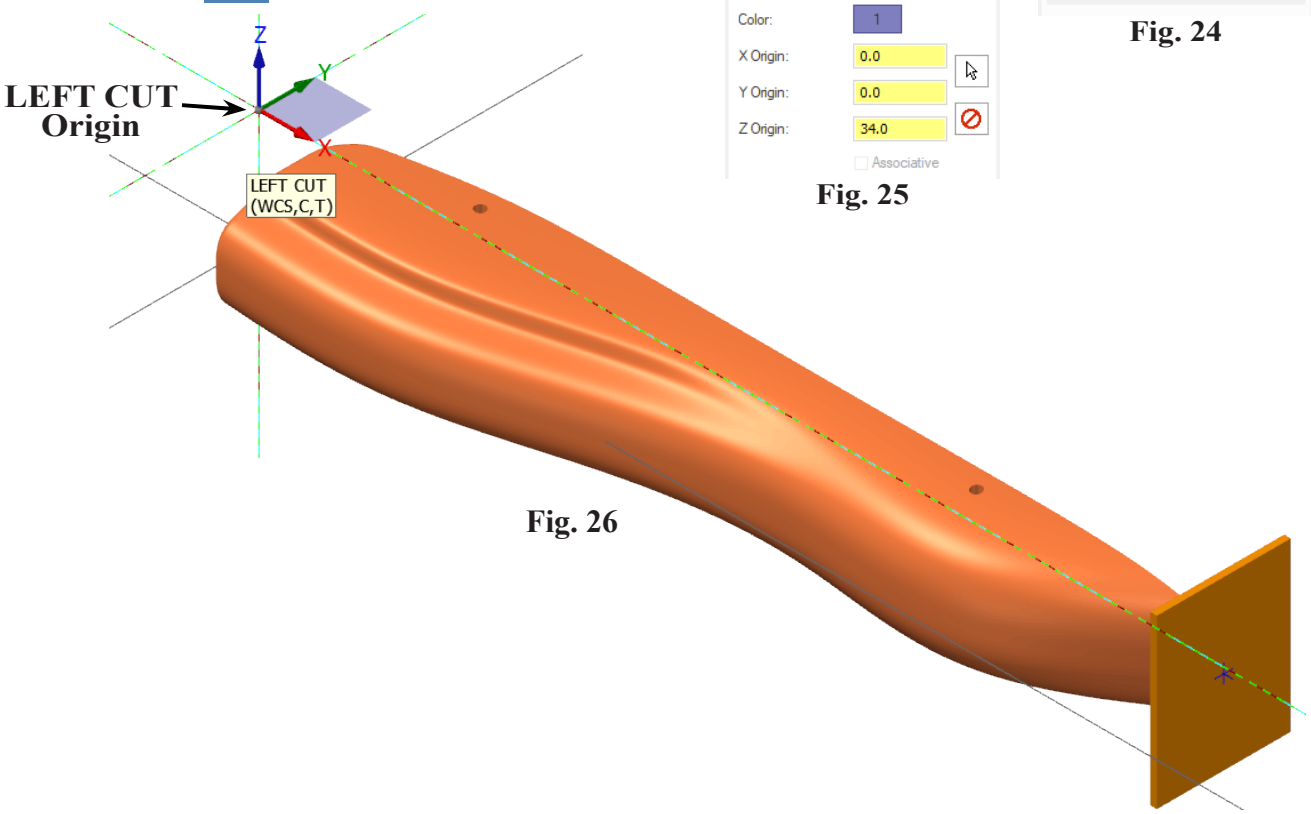


Fig. 26