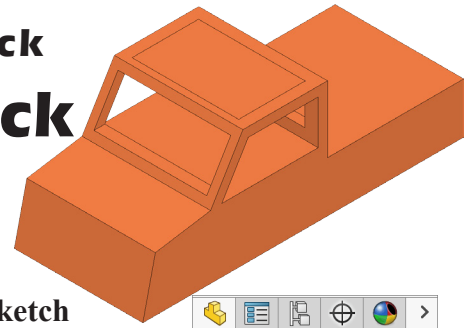




# Stake Bed Pickup Truck Multibody Truck



## A. Extrude1 Sketch1 Truck.

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

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

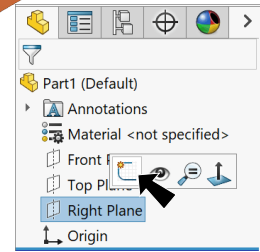


Fig. 1

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

Step 4. Sketch the **8 chained lines starting at the Origin** , **Fig. 2**.

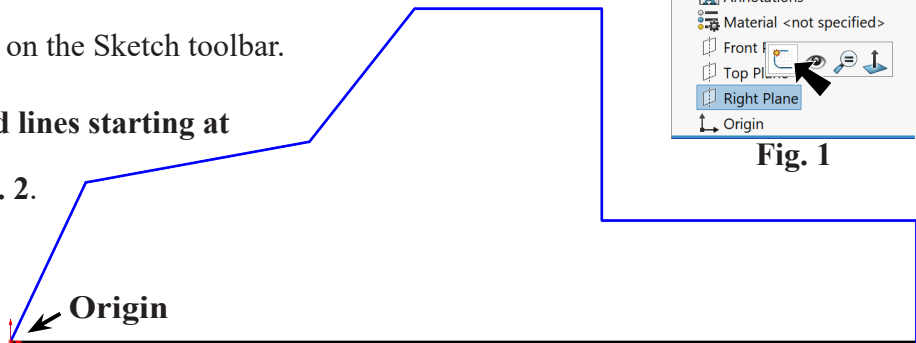


Fig. 2

Step 5. Click **Smart Dimension**



(S) on the Sketch toolbar.

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

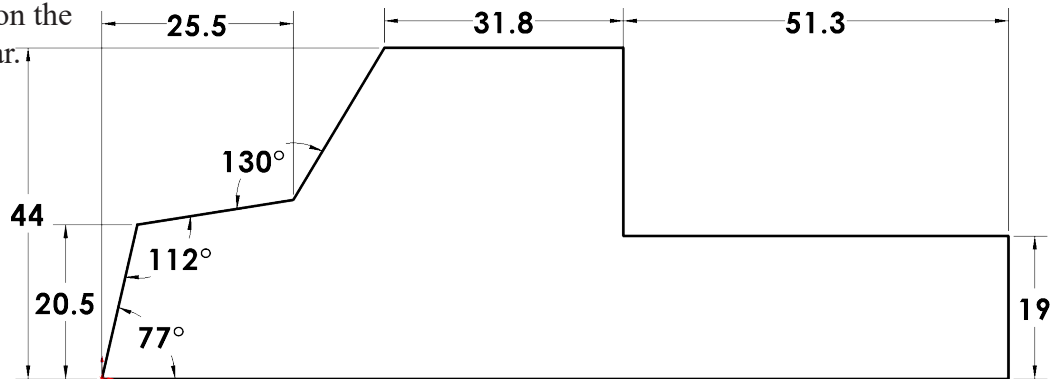
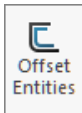


Fig. 3

Step 7. Click **Offset Entities**



on the Sketch toolbar.

Step 8. In the Offset Entities Property Manager set: under Parameters, **Fig. 4**

**Distance** **3.5**  
click **3 lines of the cab**, **Fig. 5**

uncheck **Reverse**  
uncheck **Select chain**  
uncheck **Bi-directional**

**Yellow offset should be to inside**

click **OK** .

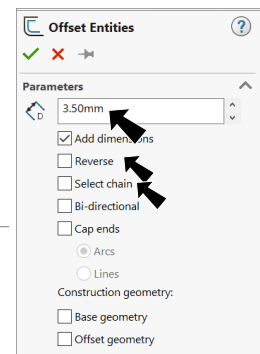


Fig. 4

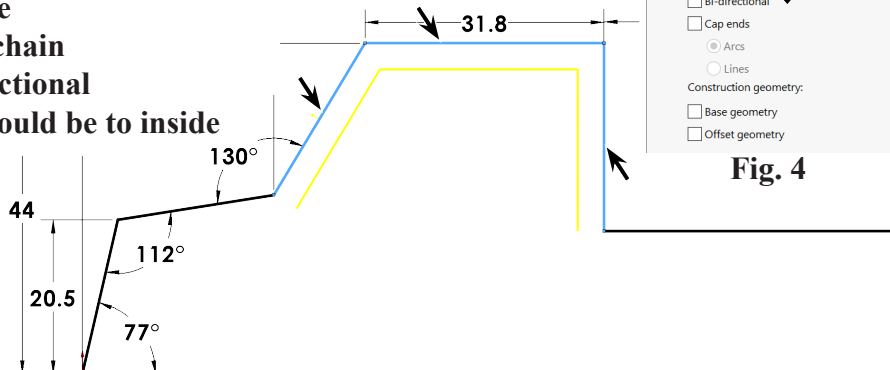


Fig. 5

Step 9. Drag bottom endpoint of windshield offset line down, Fig. 6.

Step 10. Drag down bottom endpoint of rear wind offset line to align with first dragged endpoint, Fig. 7. Use inferencing line to align.

Step 11. Click **Line**  (L) on the Sketch toolbar.

Step 12. Sketch a horizontal line across endpoints, Fig. 8.

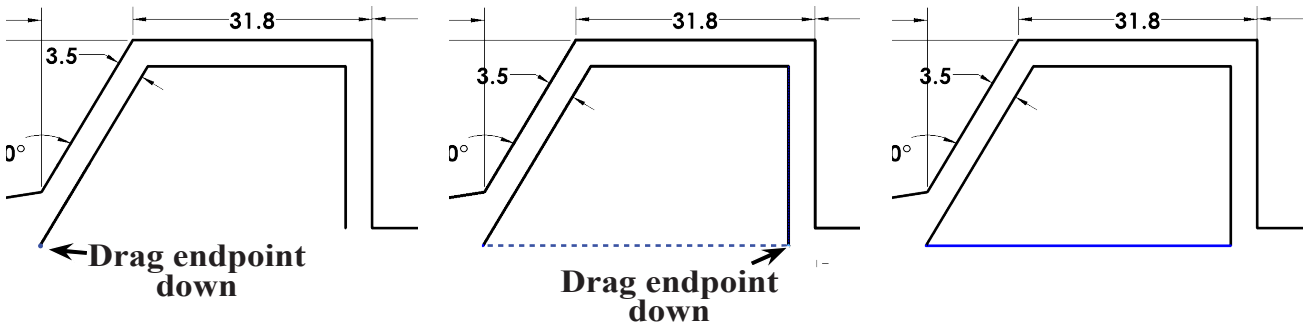


Fig. 6

Fig. 7

Fig. 8

Step 13. Click **Smart Dimension**  (S) on the Sketch toolbar.

Step 14. Add dimension 24, Fig. 9.

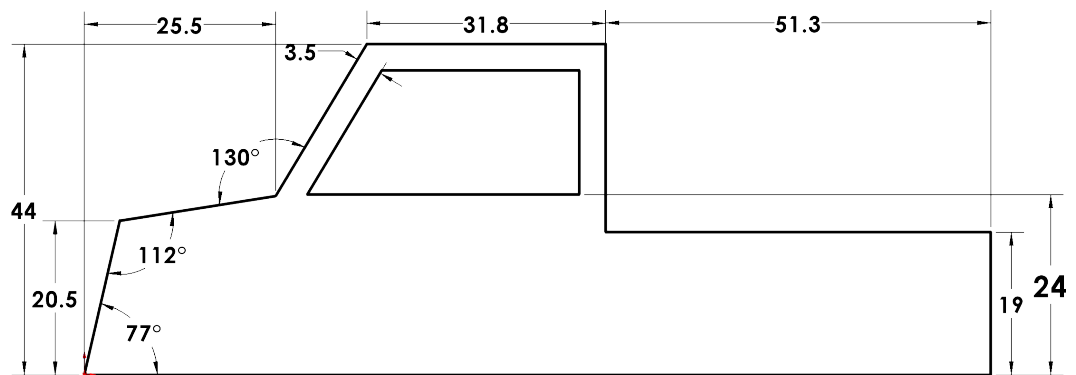



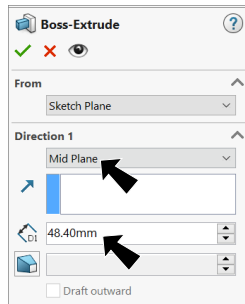
Fig. 9

Step 15. Click **Features**  on the Command Manager toolbar.

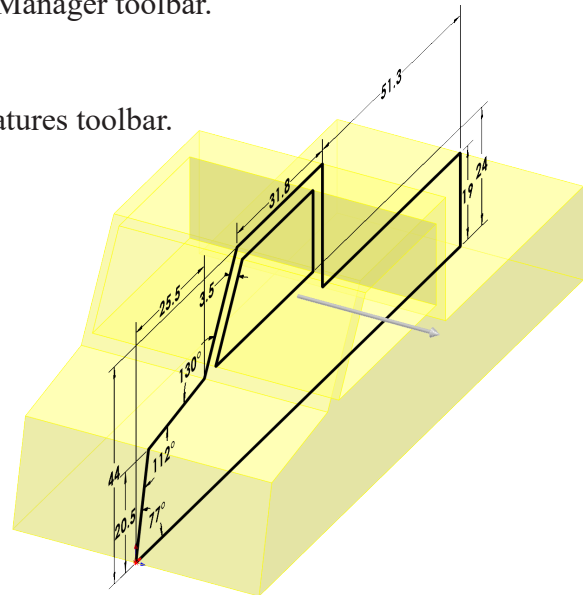
Step 16. Click **Extruded Boss/Base**  on the Features toolbar.

Step 17. In the Boss-Extrude Property Manager set:  
 under Direction 1, **Fig. 10**  
 End Condition **Mid Plane**

**Depth**  **48.4**  
 click OK .



**Fig. 10**



**Fig. 11**


## B. Save as "MULTIBODY TRUCK".

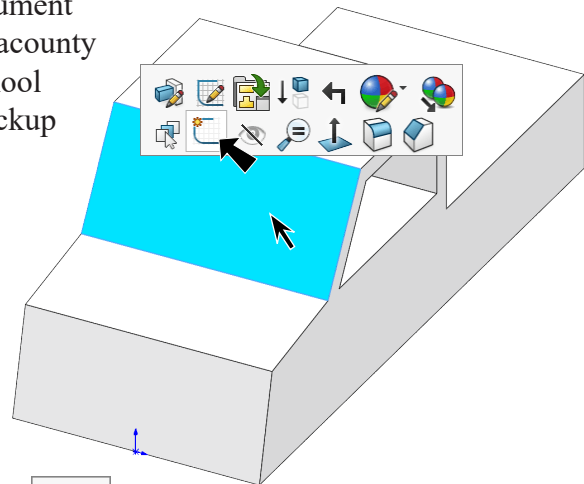
Step 1. Click File Menu > Save As.

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

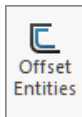
**Tip:** Create a **Pickup Truck** in your My Document folder to save your Truck project files. At cudacounty we go a step further, and create a Tech Ed [school year] folder and in that folder we create the Pickup Truck folder.  
 Documents\Tech Ed 22-23\Pickup Truck.

## C. Cut Extrude1 Sketch2 Windshield.



Step 1. Click the **windshield face** and click **Sketch**  on the context toolbar, **Fig. 12**.

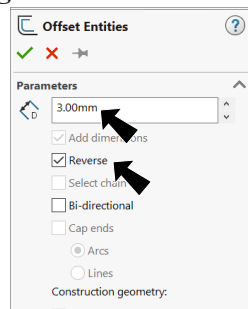


**Fig. 12**

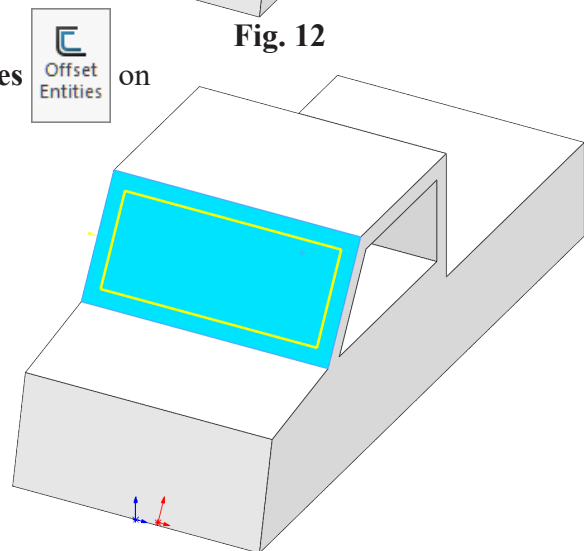
Step 2. With the face still selected, click **Offset Entities**  on the Sketch toolbar.

Step 3. In the Offset Entities Property Manager set:  
 under Parameters, **Fig. 13**


**Distance**  **3**  
 check **Reverse**  
**Yellow offset** should be on inside  
 click OK .

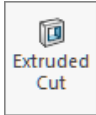


**Fig. 13**



**Fig. 14**

Step 4 . Click **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. 15**

End Condition **Up To Surface**

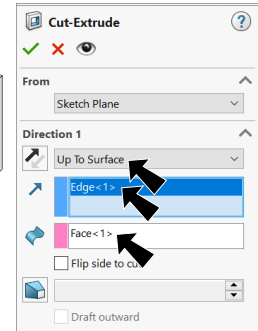
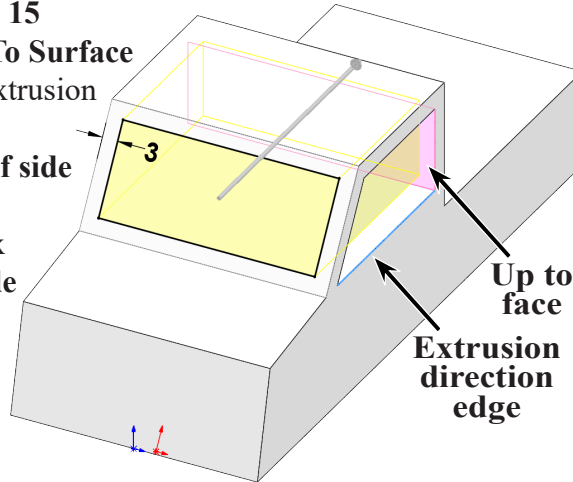
click in Direction of Extrusion box

click **bottom edge of side window**, **Fig. 16**

click in Face/Plane box

click **rear face inside cabin**

click OK  .




**Fig. 15**

Step 7. Save  (Ctrl-S).

**Fig. 16**

## **D. Cut Extrude2 Sketch3 Rear Window.**

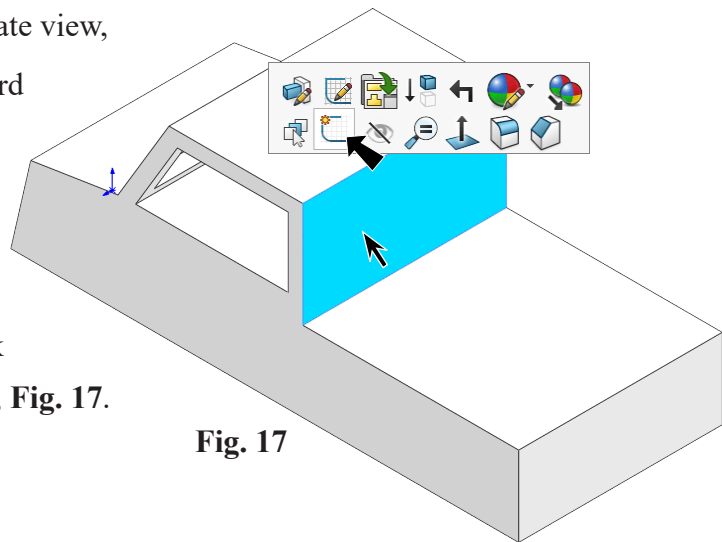
Step 1. Rotate view to rear, **Fig. 17**. To rotate view,

click **Isometric**  on the Standard Views toolbar (**Ctrl-7**), then in bottom left corner of graphics area **Shift click the Y axis of the**

**Reference Triad**  **one time.**

Step 2. Click the **rear face of cab** and click


**Sketch**  on the context toolbar, **Fig. 17**.






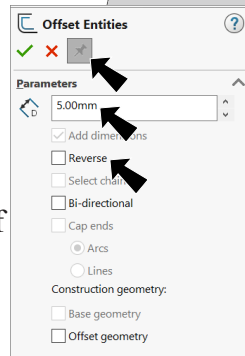
**Fig. 17**

Step 3. Unselect face and click **Offset Entities**  on the Sketch toolbar.

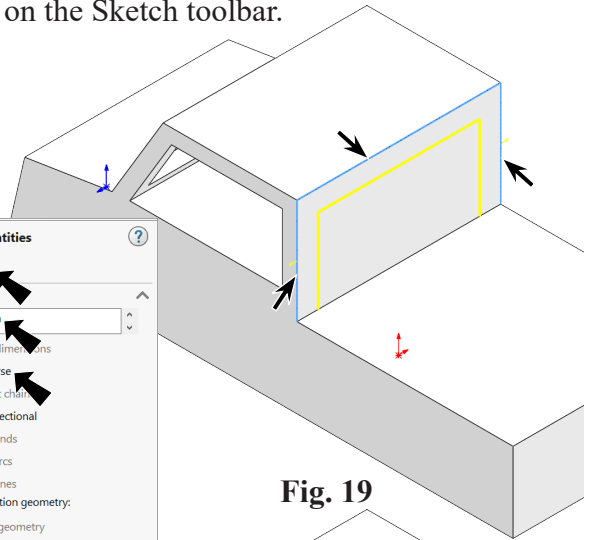
Step 4. In the Offset Entities Property Manager set:  
under Parameters, **Fig. 18**

**Distance**  **5**  
uncheck **Reverse**  
click **top and side edges of cab**,  
**Fig. 19**  
**Yellow offset on inside**

Click **Keep Visible**  and **OK** .  
The **Push Pin**  on allows selection of another offset.





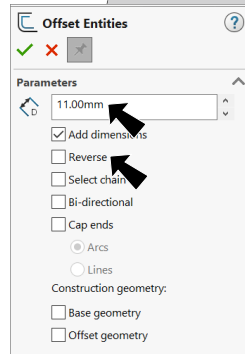
**Fig. 18**



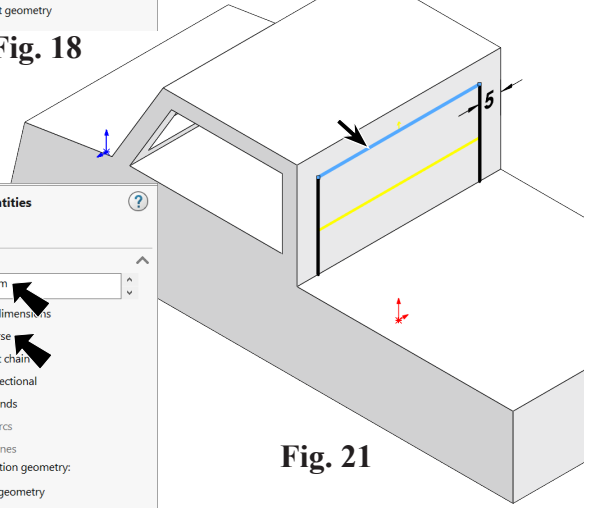
**Fig. 19**

under Parameters, **Fig. 20**

**Distance**  **11**  
click **horizontal offset line**, **Fig. 21**  
**yellow offset below**  
click **OK**  twice.



**Fig. 20**





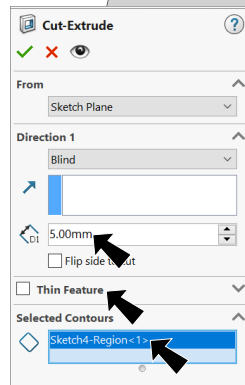
**Fig. 21**

Step 5. Click **Features**  on the Command Manager toolbar.

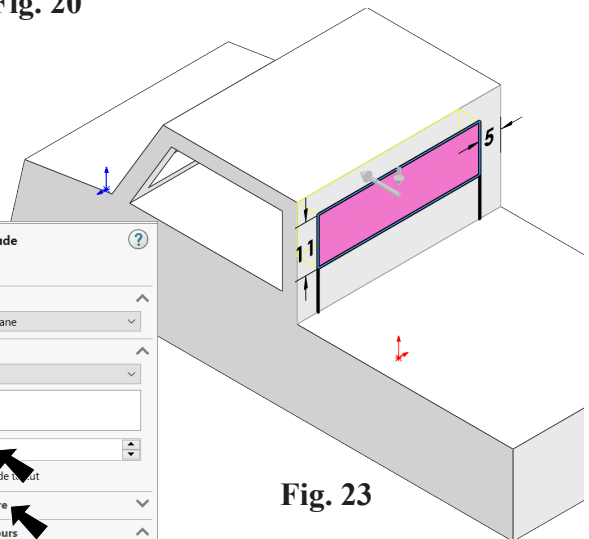
Step 6. Click **Extruded Cut**  on the Features toolbar.

Step 7. In the Cut-Extrude Property Manager set:  
under Direction 1, **Fig. 22**  
End Condition **Blind**

**Depth**  **5**  
uncheck **Thin Feature**  
under Selected Contours  
click the **contour**, **Fig. 23**  
click **OK** .



**Fig. 22**

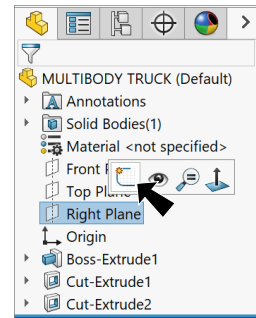


**Fig. 23**


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

## E. Split1 Sketch4 Sunroof.

Step 1. Click **Right Plane**  in the Feature Manager and click **Sketch**  on the context toolbar, **Fig. 24**.

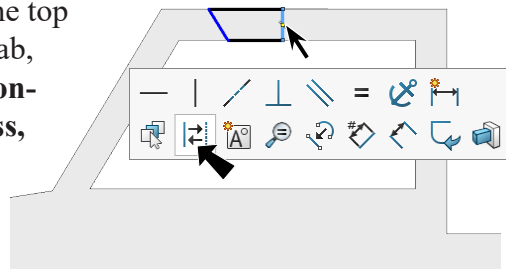


**Fig. 24**


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

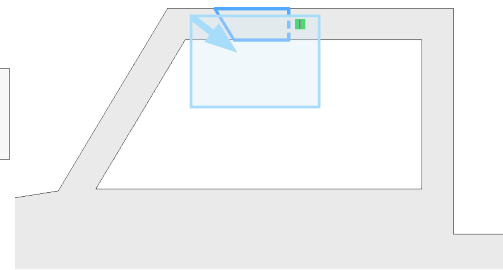
Step 3. Click **Line**  (**L**) on the Sketch toolbar.

Step 4. Starting on the top edge of the cab, sketch **horizontal line across, line down at angle and horizontal line across and vertical line back up**, after you click last endpoint, click



**Fig. 25**

vertical line and click **Construction Geometry**  on the context toolbar **Fig. 25**.

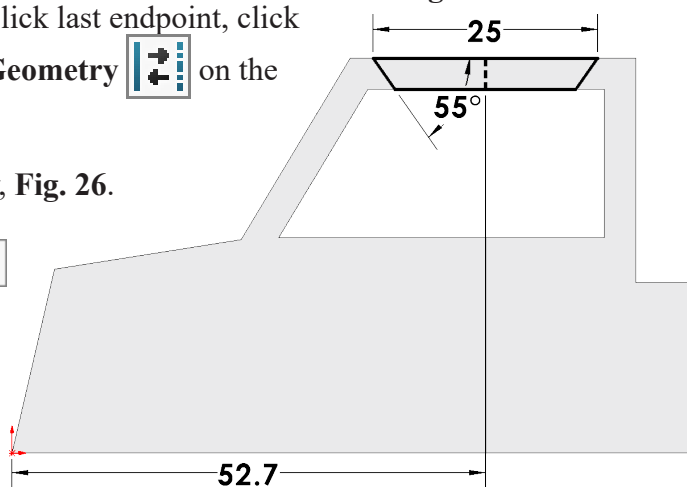


**Fig. 26**

Step 5. Drag a selection to select all geometry, **Fig. 26**.

Step 6. Click **Mirror Entities**  **Mirror Entities** on the Sketch toolbar.

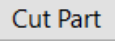
Step 7. Click **Smart Dimension**  (**S**) on the Sketch toolbar.





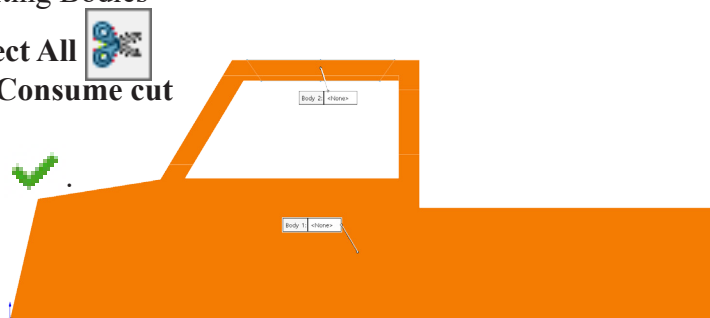
**Fig. 27**

Step 8. Add dimensions, **Fig. 27**.

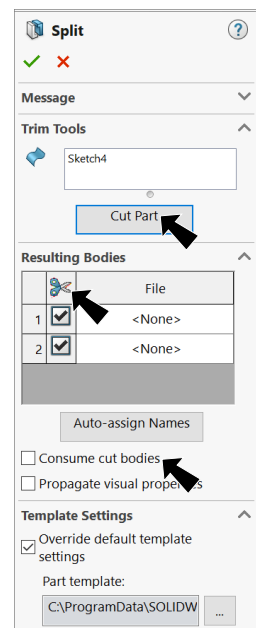
Step 9. Click Insert Menu > Features > Split.

Step 10. In the Split Property Manager:  
under Trim Tools, **Fig. 28**  
**Sketch4** was preselected  
click **Cut Part**  button  
under Resulting Bodies

click **Select All**   
uncheck **Consume cut bodies**  
click **OK** .




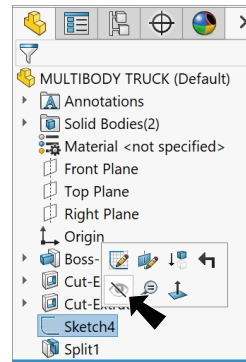
**Fig. 29**





**Fig. 28**

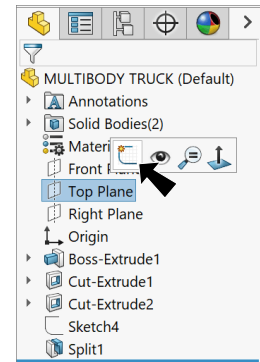
## F. Split2 Sketch5 Sunroof.

Step 1. **Hide Sketch4.** To hide, click **Sketch4** in the Feature Manager and **Hide**  on the context toolbar, **Fig. 30**.



**Fig. 30**


Step 2. Click **Top Plane**  in the Feature Manager and click **Sketch**  on the context toolbar, **Fig. 31**.

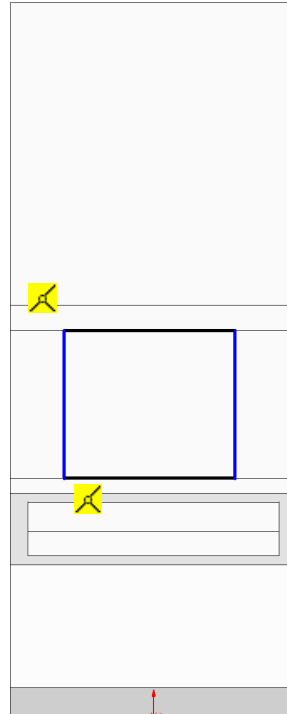


**Fig. 31**

Step 3. Click **Normal To**  on the Standard Views toolbar. (**Ctrl-8**)




Step 4. Click **Corner Rectangle**  in the **Rectangle flyout**  on the Sketch toolbar.

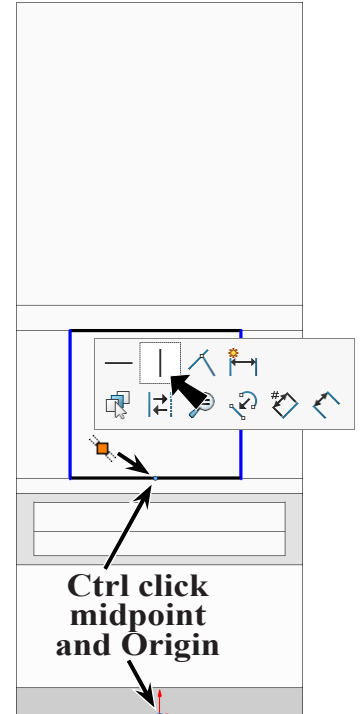
Step 5. Sketch **corner rectangle on top of cab coincident**  with front and rear edges of **Split1**, **Fig. 32**.



**Fig. 32**

Step 6. **Unselect Rectangle Tool.** To unselect, **right click graphics area and click Select**  from menu.

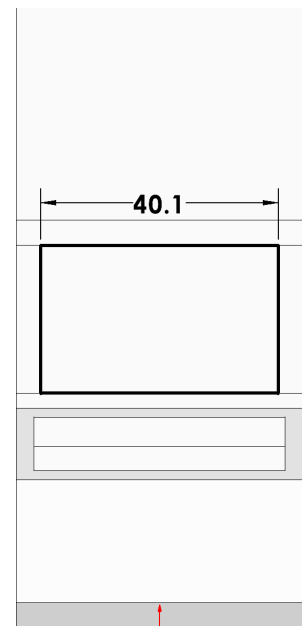
Step 7. **Ctrl click midpoint**  of a horizontal **line and Origin**  to select both. Release **Ctrl** key and click **Make Vertical**  on the context toolbar, **Fig. 33**.



**Fig. 33**



Step 8. Click **Smart Dimension**  (**S**) on the Sketch toolbar.

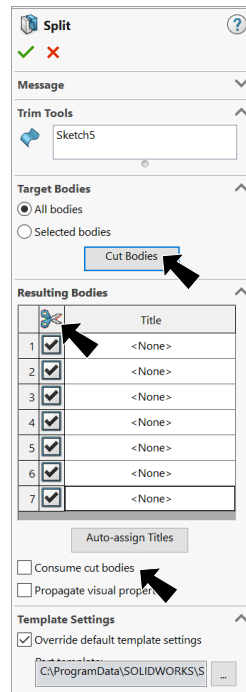
Step 9. Add **40.1** dimension, **Fig. 34**.



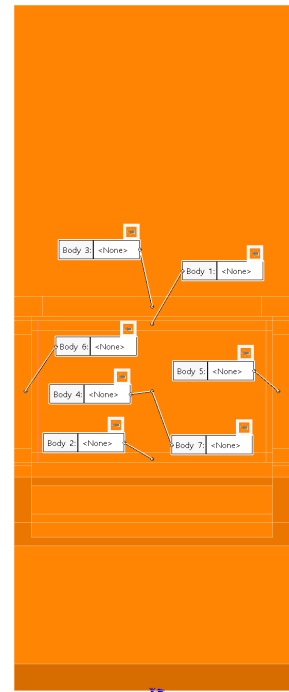
**Fig. 34**

Step 10. Click Insert Menu > Features > Split.

Step 11. In the Split Property Manager:  
 under Trim Tools, **Fig. 35**  
**Sketch5** was preselected  
 click **Cut Part** **Cut Part** button  
 under Resulting Bodies  
 click **Select All**   
 uncheck **Consume cut bodies**  
 click OK .





**Fig. 35**

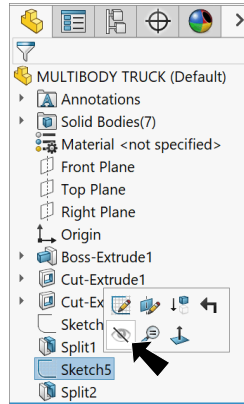


**Fig. 36**


### G. Combine Bodies.

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


Step 2. **Hide Sketch5**. To hide,  
 click **Sketch2** in the Fea-  
 ture Manager and **Hide**  
  
 on the context  
 toolbar, **Fig. 37**.




**Fig. 37**

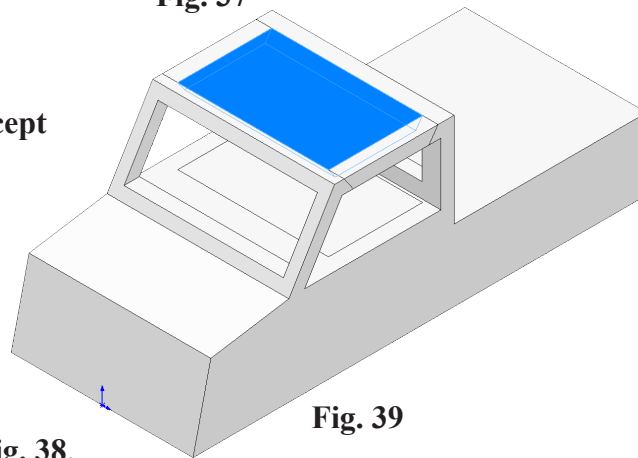
Step 3. Select all bodies **except**  
**Sunroof body** .

First, determine  
 which body is the  
 Sunroof.

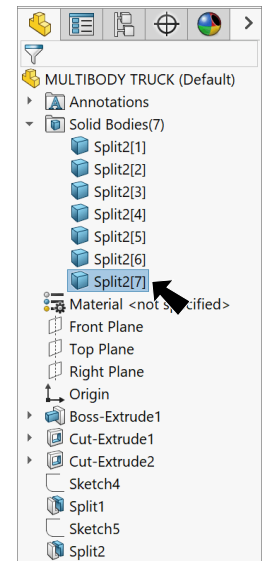
To determine,  
 expand **Solid Bod-**  
**ies**  folder in the  
 Feature Manager, **Fig. 38**.

Click Sunroof in the graphics area,  
**Fig. 39**.

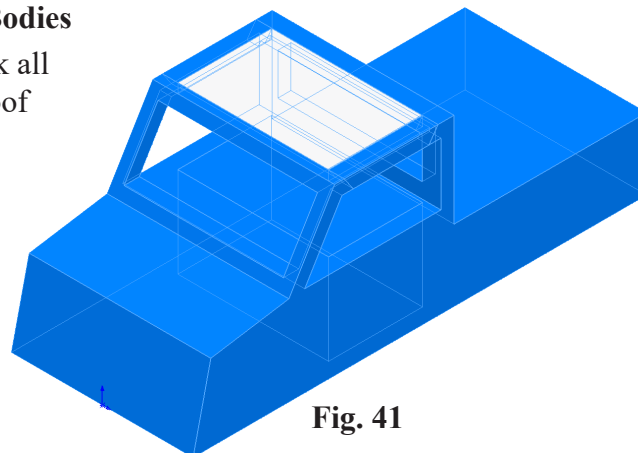
Then, in the **Solid Bodies**  
 folder, Ctrl click all  
 bodies except Sunroof  
 body, **Fig. 40**.



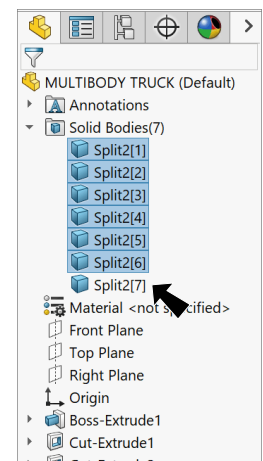
**Fig. 39**



**Fig. 38**




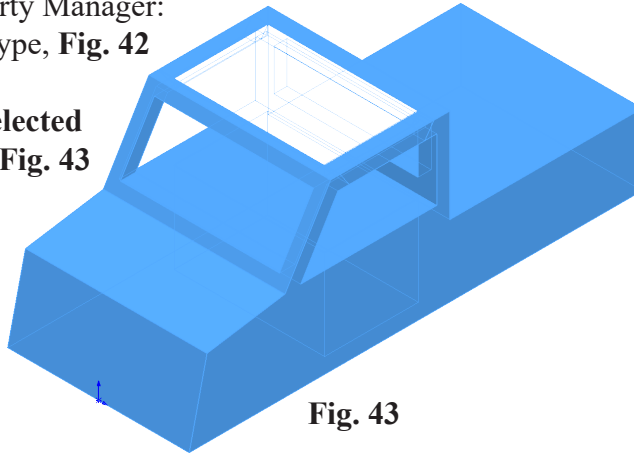
**Fig. 41**



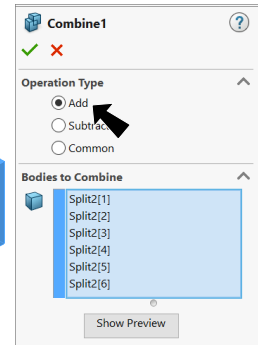
**Fig. 40**

Step 4. Click Insert Menu > Features > Combine.

Step 5. In the Combine Property Manager:  
under Operation Type, **Fig. 42**  
select **Add**  
**bodies were preselected**  
(not the Sunroof), **Fig. 43**  
click OK .







**Fig. 43**

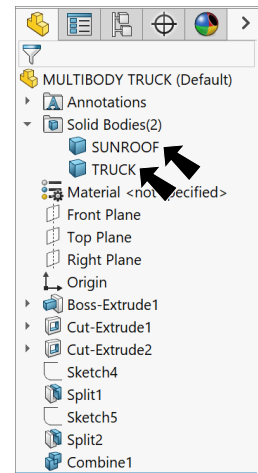


**Fig. 42**

## H. Rename Bodies.

Step 1. **Rename bodies SUNROOF  and TRUCK **, **Fig. 44**. To rename, expand **Solid Bodies ** folder in the Feature Manager. Slowly click twice over **Split 2[7] ** and key-in **SUNROOF** or use the F2 key. Repeat and rename **TRUCK**.

Step 2. Save  (**Ctrl-S**).



**Fig. 44**

## I. Appearance: Orange Paint.

Step 1. Click the part to select part, click **Appearances**

Callout  on the context toolbar and click **MULTIBODY TRUCK** , Fig. 45.

Step 2. In the Appearances Task pane, expand **Painted**, click **Car** and in the lower pane select **siena**, Fig. 46.

Step 3. In the Appearances Property Manager set:

under Color, Fig. 47

set RGB values

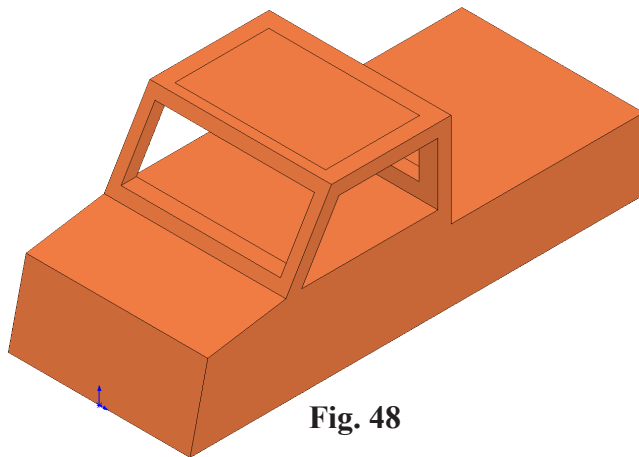
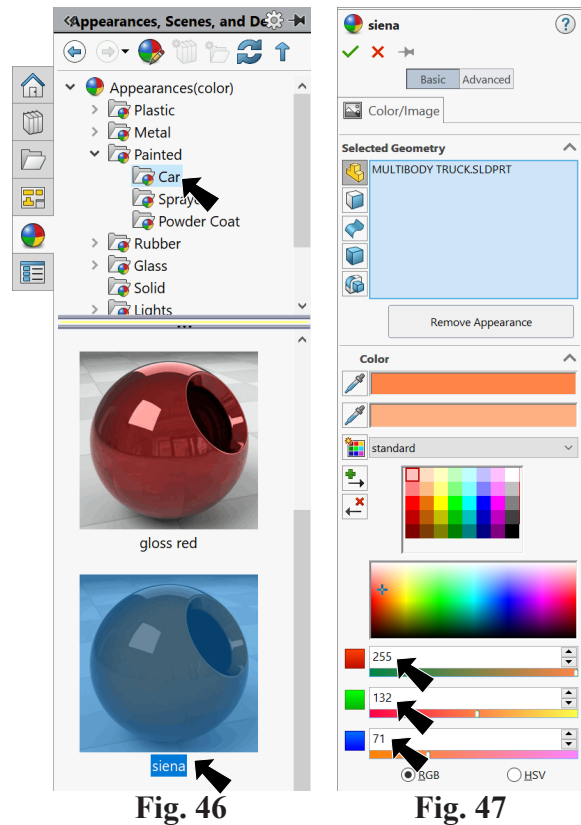
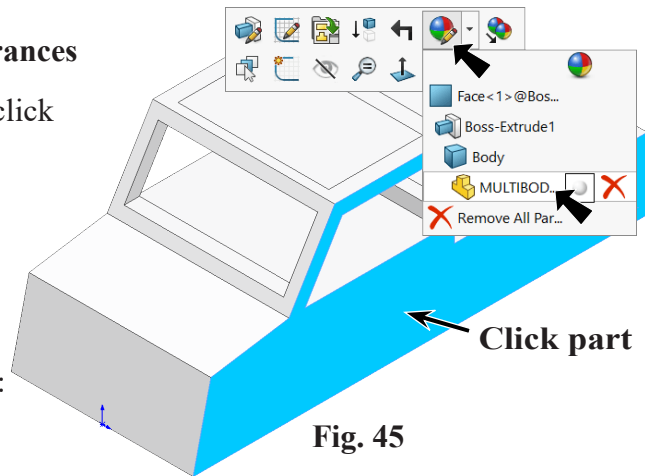
R 255

G 132

B 71

click OK .

Step 4. Save  (Ctrl-S).



## J. Save Bodies.

Step 1. Click Insert Menu > Features > Save Bodies.

Step 2. In the Save Bodies Property Manager:

under Create Assembly, **Fig. 49**

click **Browse** button

in the Save As dialog box:

key in **TRUCK ASSEMBLY** for file name

navigate to **My Documents/Tech Ed 22-23/Pickup Truck** folder

click **Save, Fig. 50**

under Template Settings

set **Part and Assembly template preference** to your **Metric**

templates

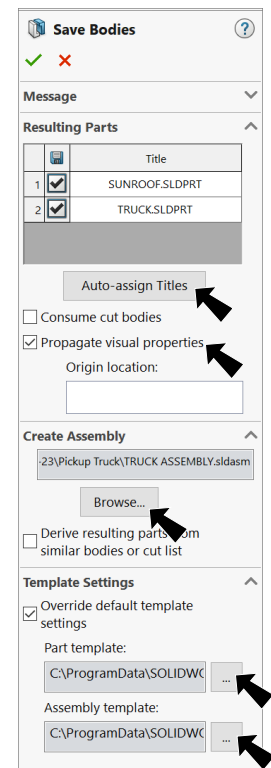
under Resulting Parts

click **Auto-assign Titles** **Auto-assign Titles** button

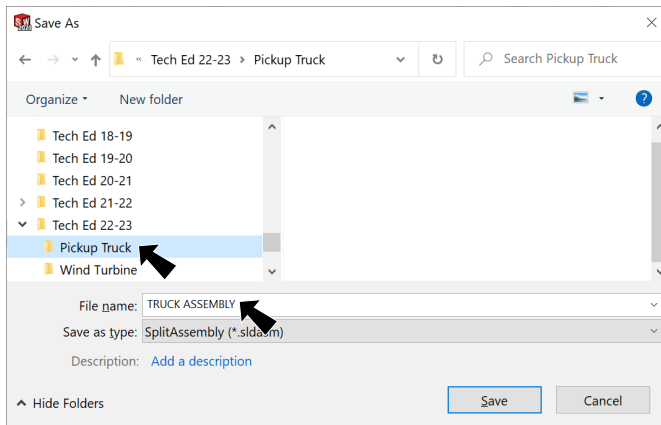
check **Propagate visual properties**

click **OK**  .

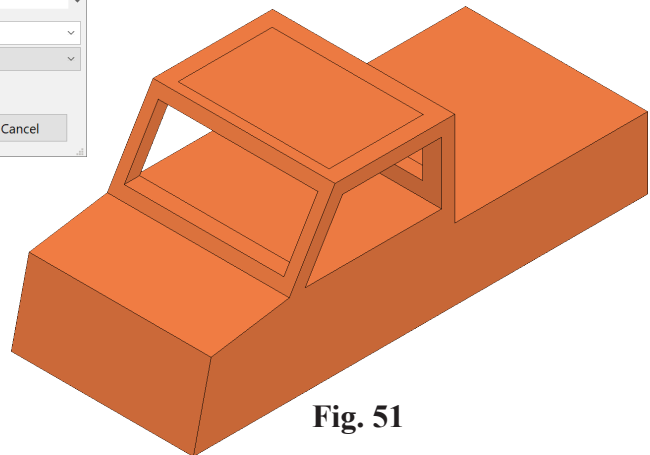
Step 3. Save  (**Ctrl-S**).



**Fig. 49**



**Fig. 50**



**Fig. 51**