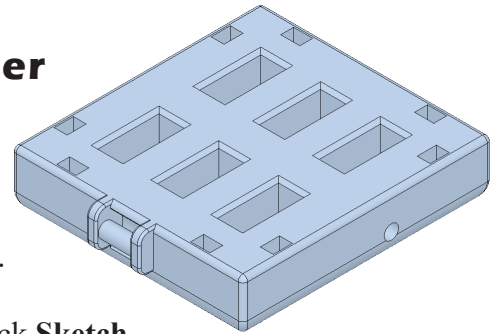




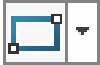
Bike and Trailer Bed



A. Extrude1 Bed.

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


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

Step 3. Click **Center Rectangle**  in the **Rectangle flyout**  on the Sketch toolbar.



Step 4. Sketch center rectangle at **Origin** , **Fig. 2**.

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

Step 6. Add dimensions, **Fig. 2**.

Step 7. Click **Features**  on the Command Manager toolbar.

Step 8. Click **Extruded Boss/Base**  on the Features toolbar.

Step 9. In the Boss-Extrude Property Manager set:
under Direction 1, **Fig. 3**
End Condition **Blind**
Depth  **12**
click OK .

B. Save as "BED".

Step 1. Click File Menu > Save As.

Step 2. Key-in **BED** for the file-name and press ENTER.

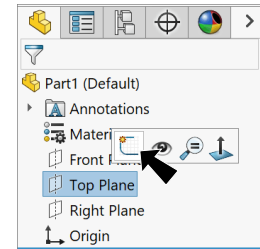


Fig. 1

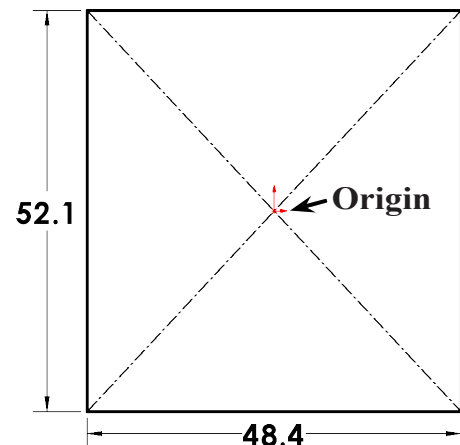


Fig. 2

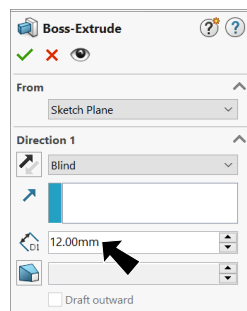


Fig. 3

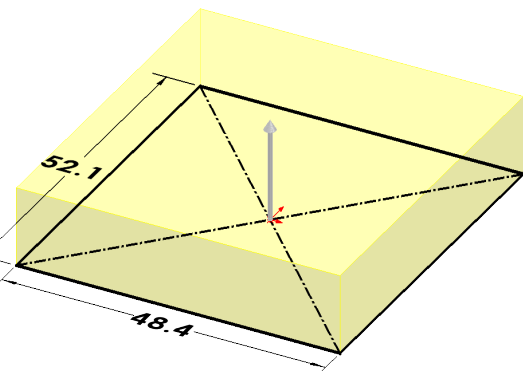
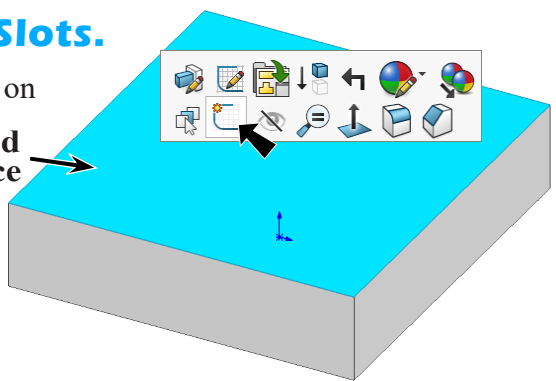



Fig. 4


C. Cut Extrude1 Sketch2 USB Drive Slots.

Step 1. Click the **top face of Bed** and click **Sketch**  on context toolbar, **Fig. 5**.



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

Step 3. Click **Centerline**  in the **Line flyout**  on the Sketch toolbar.

Step 4. Sketch **vertical center-line up from Origin** , **Fig. 6**.

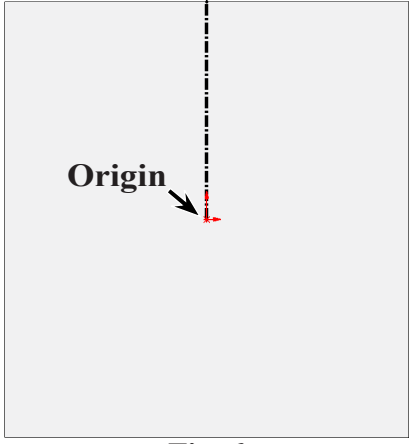


Fig. 6

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

Step 6. Sketch **point on center-line and point to left**, **Fig. 7**.

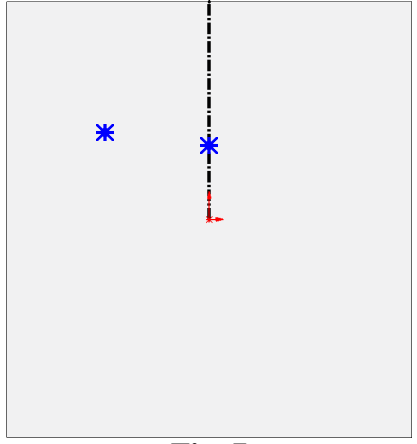



Fig. 7

Step 7. **Unselect Point tool.** To unselect, **right click graphics area and click Select**  from menu.

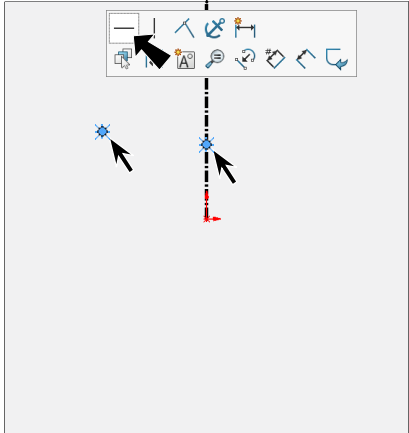



Fig. 8

Step 8. **Ctrl click both points** to select both. Release Ctrl key and click **Make Horizontal**  on the context toolbar, **Fig. 8**.

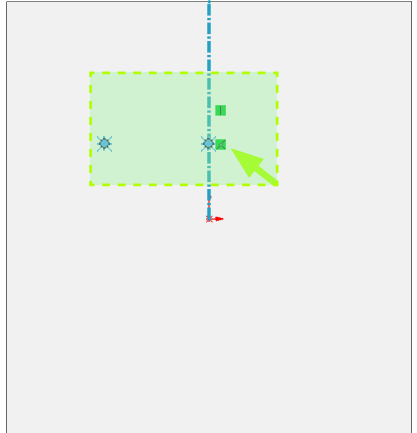


Fig. 9

Step 9. **Drag a selection to left** select all geometry, **Fig. 9**.

Step 10. Click **Mirror Entities**  **Mirror Entities** on the Sketch toolbar,

Step 11. **Drag a selection to right** select all points, **Fig. 10**.

Step 12. Click **Linear Sketch Pattern**  **Linear Sketch Pattern** on the Sketch toolbar.

Step 13. In the Linear Pattern Property Manager set:

under Direction 1, **Fig. 11**
click **centerline**, **Fig. 12**

Spacing  **21.3**

Reverse Direction 

Number of Instances  **2**

under Entities to Pattern
points were pre-selected

click **OK** .

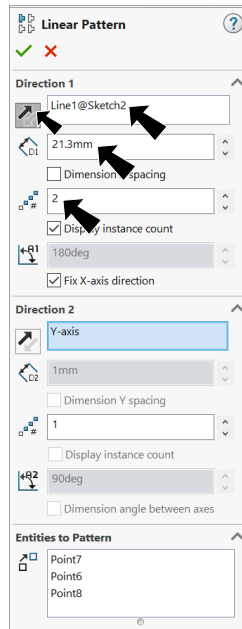


Fig. 11

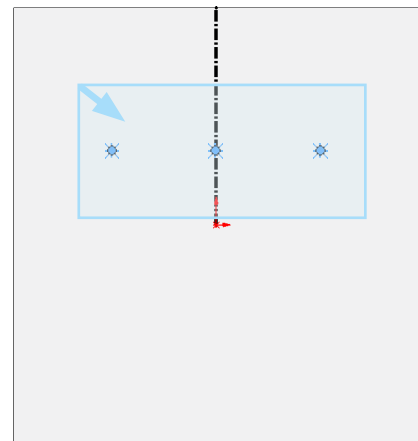


Fig. 10

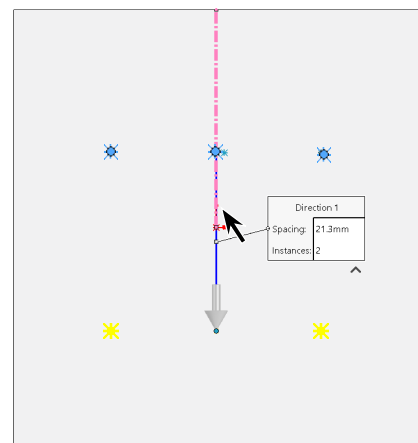



Fig. 12

Step 14. Click **Center Rectangle**  in the **Rectangle flyout**  on the Sketch toolbar.

Step 15. Sketch **center rectangle at first point on centerline**, **Fig. 13**.

Step 16. Click **Smart Dimension**



(S) on the Sketch toolbar.

Step 17. Add dimensions, **Fig. 14**.

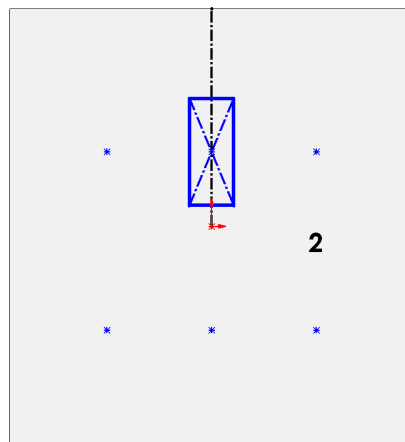


Fig. 13

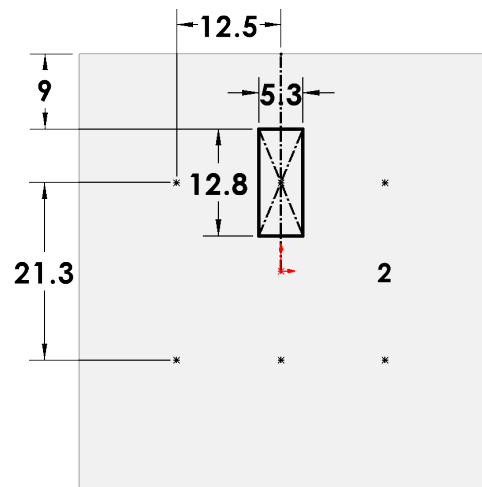


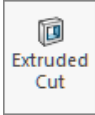



Fig. 14

Step 18. Click **Isometric**  on the Standard Views toolbar. (**Ctrl-7**)

Step 19. Click **Features**  on the Command Manager toolbar.

Step 20. Click **Extruded Cut**  on the Features toolbar.

Step 21. In the Cut-Extrude Property Manager set:
under Direction 1, **Fig. 15**
End Condition **Through All**
click OK .

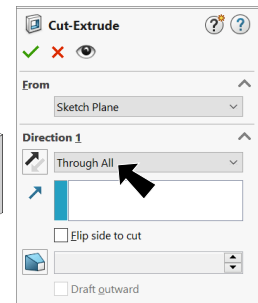
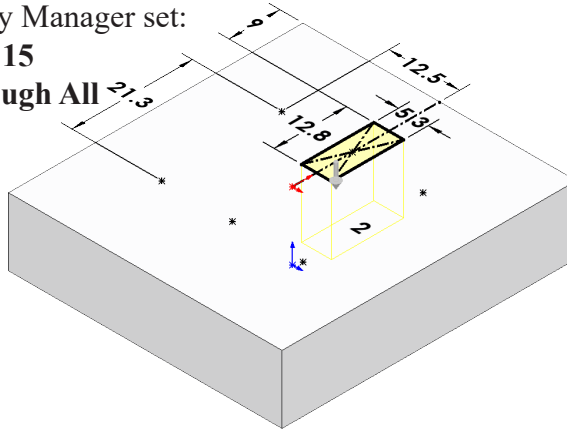


Fig. 15

Step 22. Save  (**Ctrl-S**).

Fig. 16

D. Chamfer.

Step 1. Click **Chamfer**  in the **Fillet flyout**  on the Features toolbar.

Step 2. In the Chamfer Property Manager set:
under Chamfer Type, **Fig. 17**

select **Angle Distance** 
under Chamfer Parameters

Distance  .7

Angle  45°
click top edges of
cut, **Fig. 18**

click OK .

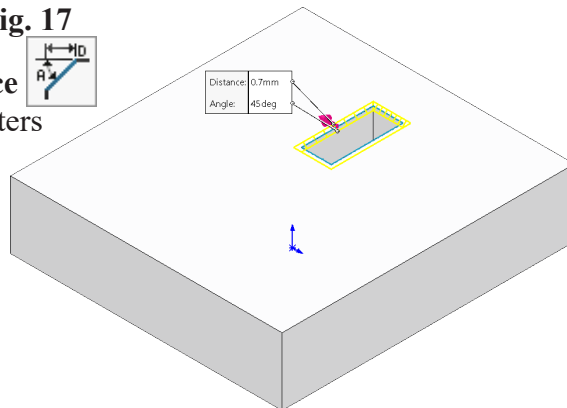


Fig. 16

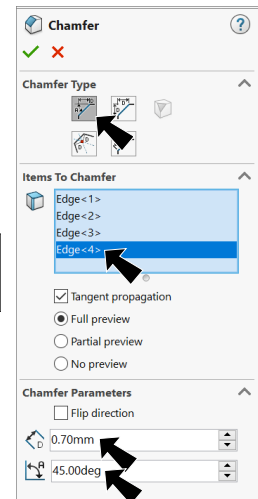


Fig. 17

E. Sketch Driven Pattern.

Step 1. Expand **Cut Extrude1** in the Feature Manager. **Ctrl click Sketch2, Cut Extrude1 and Chamfer1** to select sketch and features, **Fig. 19**.

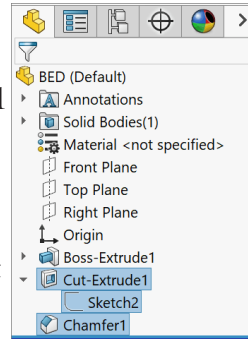
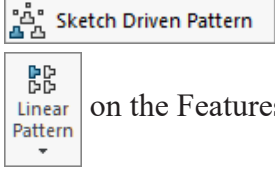


Fig. 19

Step 2. Click **Sketch Driven Pattern** in the **Linear Pattern** flyout



on the Features toolbar.

Step 3. In Sketch Driven Pattern Property Manager set:

- under Selections, **Fig. 20**
- Sketch2 was **preselected**
- under Features and Faces
- Cut Extrude1 and Chamfer1 were **preselected**
- under Options
- check **Geometry pattern**
- click OK .

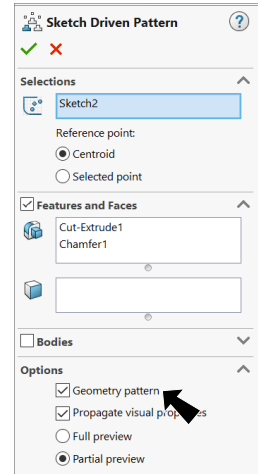


Fig. 20

Step 4. Save (**Ctrl-S**).

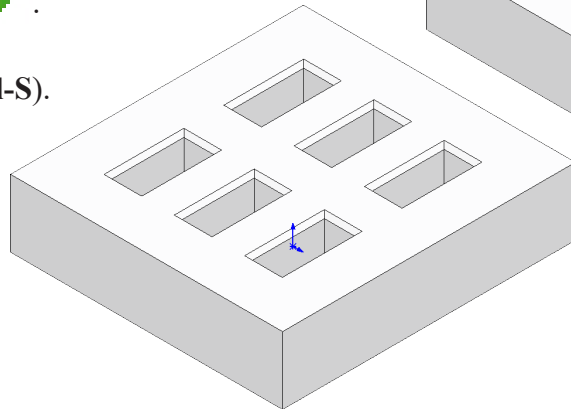


Fig. 22

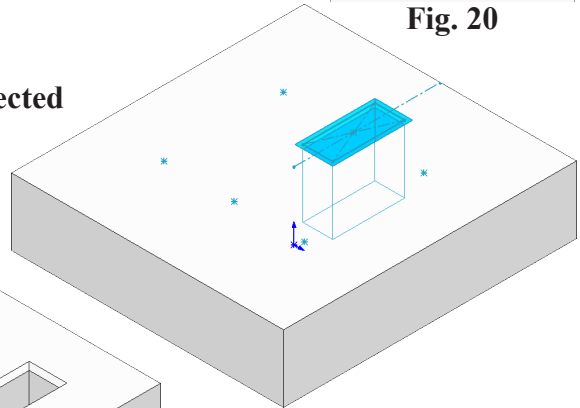


Fig. 21

F. Cut-Extrude2 Sketch3 Stake Holes.

Step 1. Click the **top face of Bed** and click **Sketch**

 on the context toolbar, **Fig. 23**.

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

Step 3. Click **Centerline**  in the **Line flyout**  on the Sketch toolbar.

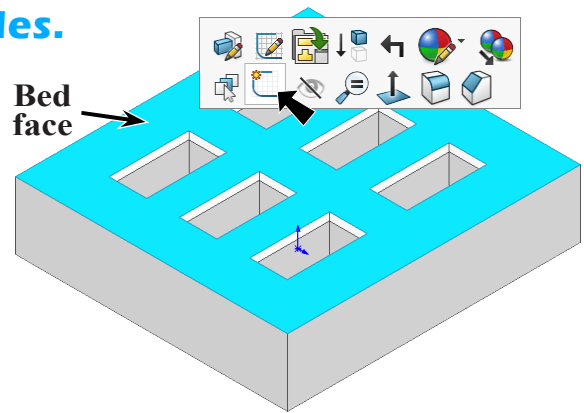






Fig. 23

Step 4. Sketch **vertical centerline** up from Origin

 and a **horizontal centerline** to left from

Origin , **Fig. 24**.

Step 5. Click **Center Rectangle**  in the **Rectangle flyout**  on the Sketch toolbar.

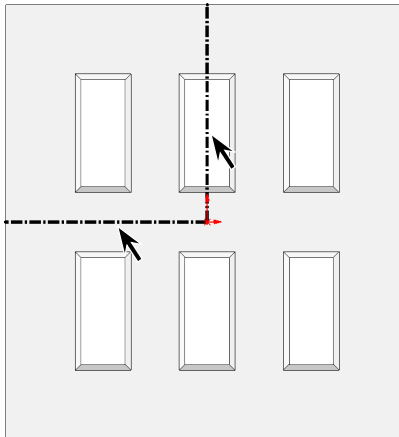


Fig. 24

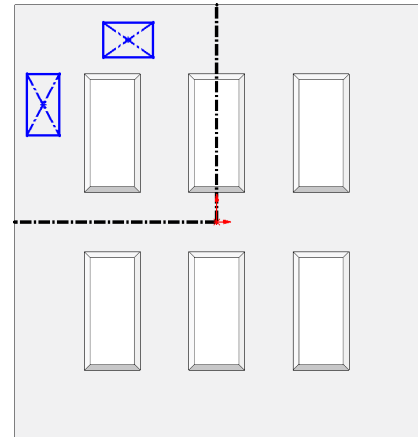



Fig. 25

Step 6. Sketch **2 rectangles**, **Fig. 25**.

Step 7. **Unselect Rectangle tool**. To unselect, **right click graphics area** and click **Select**  from menu.

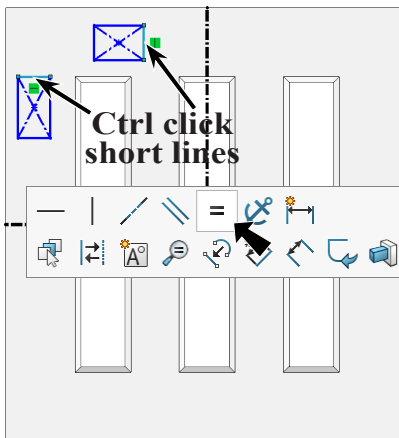




Fig. 26

Step 8. **Ctrl click a short side line of each rectangle** to select the two lines. Release Ctrl key and

click **Make Equal**  on the context toolbar, **Fig. 26**.

Step 9. **Ctrl click a long side line of each rectangle** to select the two lines. Release Ctrl key and click **Make Equal**  on the context toolbar, **Fig. 27**.

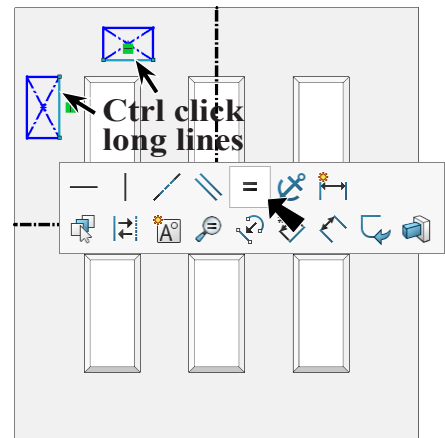





Fig. 27

Step 10. Click **Smart Dimension**  (S) on the Sketch toolbar.

Step 11. Add dimensions, **Fig. 28**.

Step 12. Click **Mirror Entities**  on the Sketch toolbar.

Step 13. In Mirror Property Manager:
 under Entities to mirror, **Fig. 29**
 drag a selection over rectangles, **Fig. 30**
 click in Mirror about box
 click **vertical centerline**
 click **Keep Visible** 
 and OK . The Push Pin 
 on allows selection for another mirror.

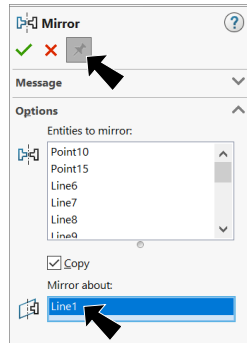




Fig. 29

Step 14. In Mirror Property Manager:
 under Entities to mirror, **Fig. 31**
 drag a selection over all rectangles, **Fig. 32**
 click in Mirror about box
 click the **horizontal centerline**
 click OK  and click Cancel .

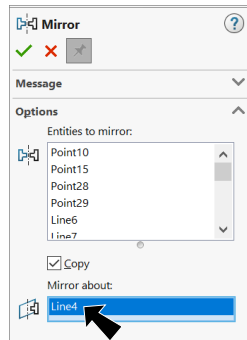


Fig. 31

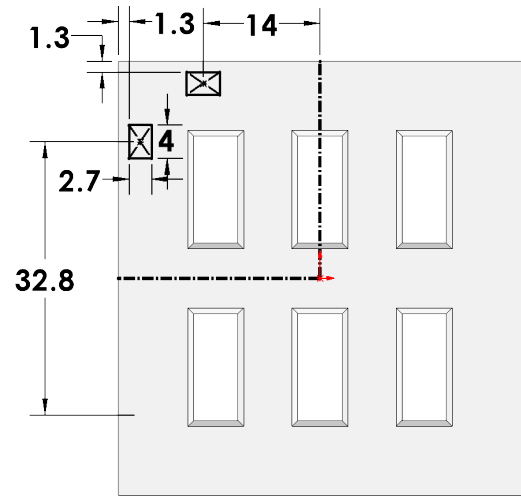


Fig. 28

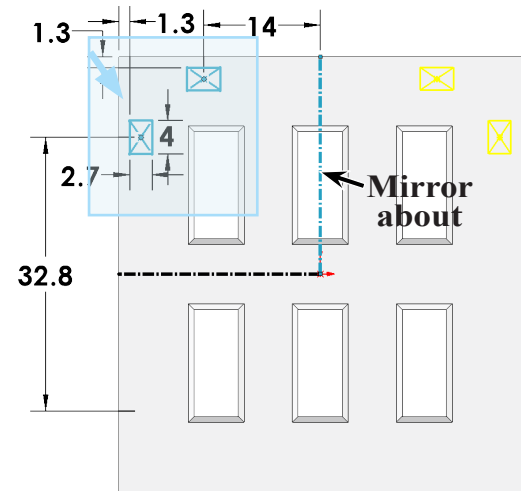


Fig. 30

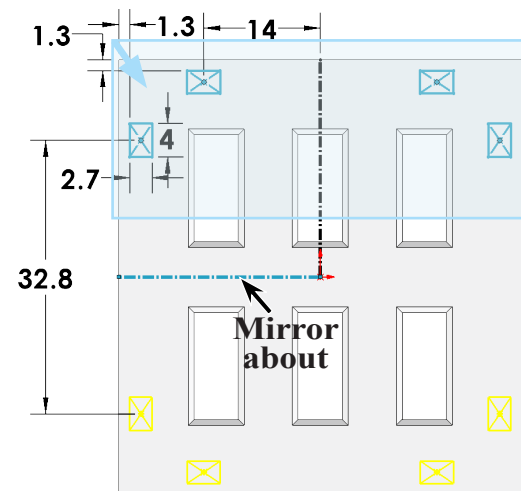




Fig. 32

Step 15. Click **Isometric**  on the Standard Views toolbar. (**Ctrl-7**)

Step 16. Click **Features**  on the Command Manager toolbar.

Step 17. Click **Extruded Cut**  on Features toolbar.

Step 18. In the Cut-Extrude Property Manager set:

under Direction 1, **Fig. 33**

End Condition **Blind**

Depth  **3.9**

click OK .

Step 19. Save  (**Ctrl-S**).

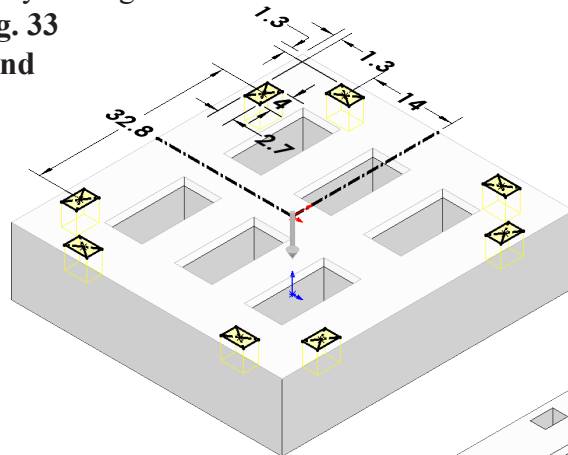


Fig. 34

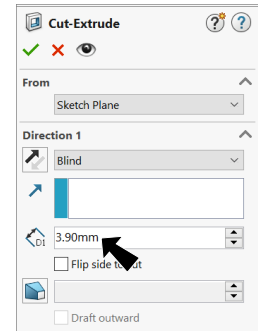


Fig. 33

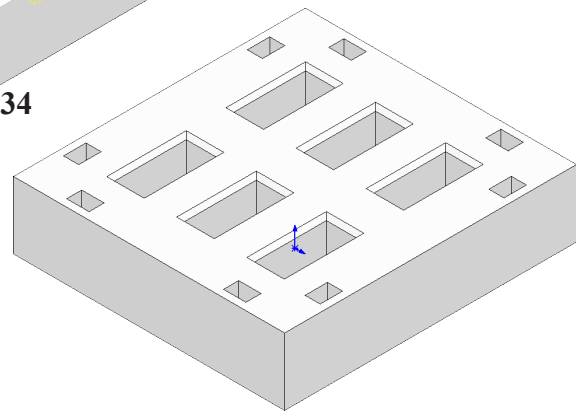


Fig. 35

G. Cut-Extrude3 Sketch4 Axle Hole.

Step 1. Click the **side face of Bed** and click **Sketch**



on the context toolbar, **Fig. 36**.

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

Step 3. Sketch **circle to the right (rear) of Origin**  , **Fig. 37**.

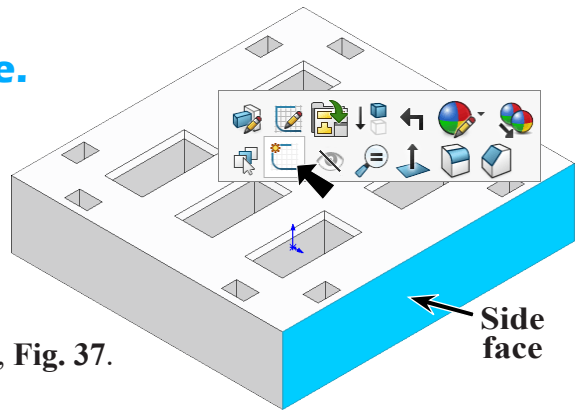

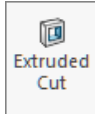


Fig. 36

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

Step 5. Add dimensions, **Fig. 38**.

Step 6. Click **Features**  on the Command Manager toolbar and **Extruded Cut**  on the Features toolbar.

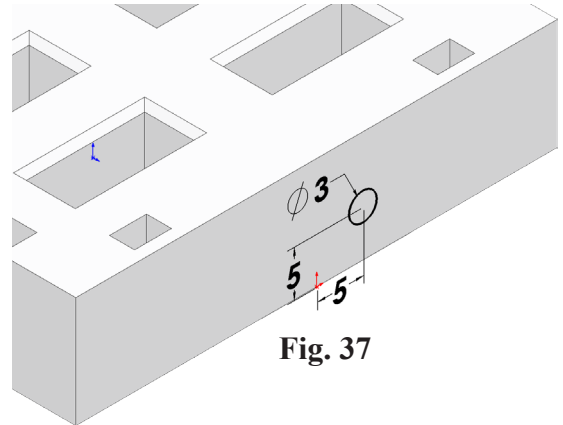


Fig. 37

Step 7. In the Cut-Extrude Property Manager set:
under Direction 1, **Fig. 39**

End Condition **Blind**

Depth  **5**

click OK .

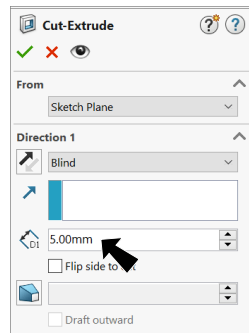


Fig. 38

Step 8. Save  (Ctrl-S).

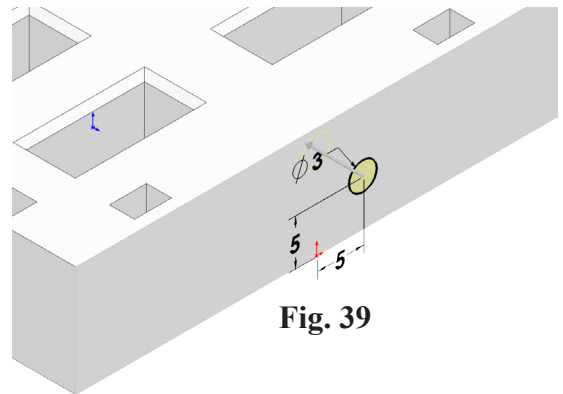




Fig. 39

H. Mirror.

Step 1. **Ctrl click Right Plane**  and **Cut-Extrude3** in the Feature Manager to select plane and feature, **Fig. 40**.

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

Step 3. In the Mirror Property Manager click **OK**  , **Fig. 41**.

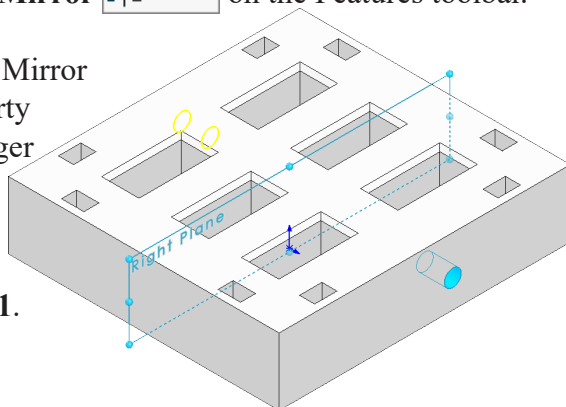


Fig. 42

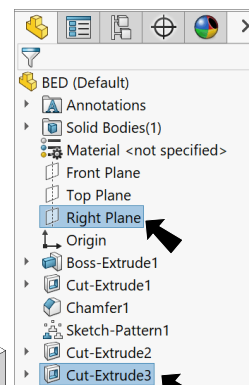


Fig. 40

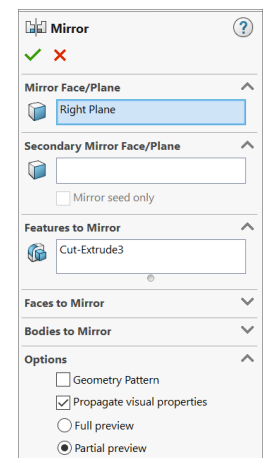


Fig. 41

I. Cut-Extrude4 Sketch5 Hitch Receiver Cut.

Step 1. Click **Right Plane**  in the Feature Manager and click **Sketch**  on the context toolbar, **Fig. 43**.

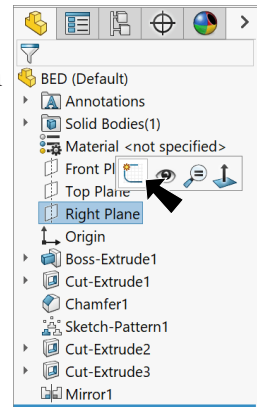




Fig. 43

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

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

Step 4. Sketch circle to the left of front edge, **Fig. 44**.

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

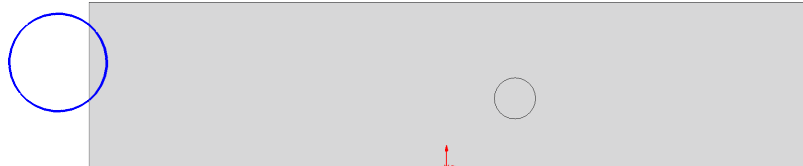


Fig. 44

Step 6. Add dimensions, **Fig. 45**.


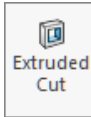
Step 7. Click **Isometric**  on the Standard Views toolbar. (**Ctrl-7**)



Fig. 45

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

Step 9. Click **Extruded Cut**  on the Features toolbar.

Step 10. In the Cut-Extrude Property Manager set:
 under Direction 1, **Fig. 46**
 End Condition **Mid Plane**

Depth  7
 click OK .

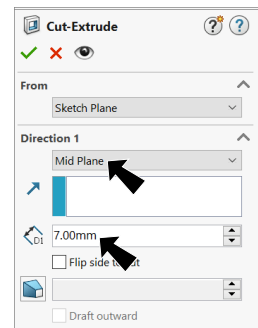


Fig. 46

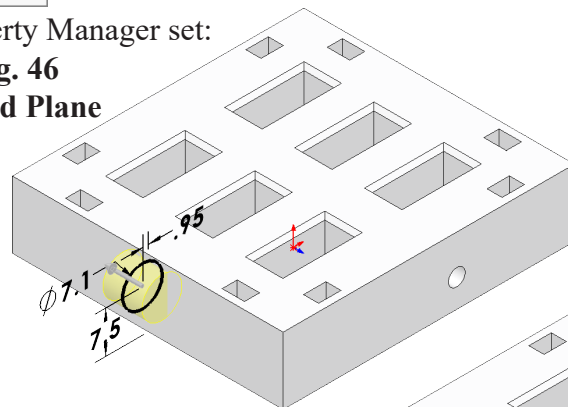


Fig. 47

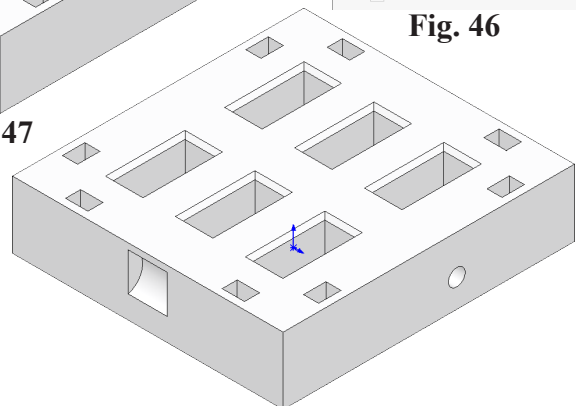


Fig. 48

J. Extrude2 Sketch6 Hitch Bar.

Step 1. Click **Right Plane**  in the Feature Manager and click **Sketch** on the context toolbar, **Fig. 49**.

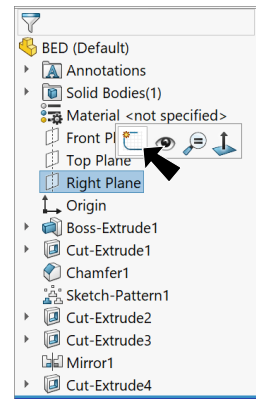



Fig. 49

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

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

Step 4. Sketch circle, **Fig. 50**.

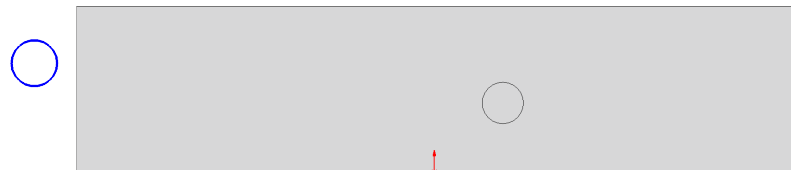



Fig. 50

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

Step 6. Add dimensions, **Fig. 51**.


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



Fig. 51

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. 52**
End Condition **Mid Plane**

Depth  7
click OK .

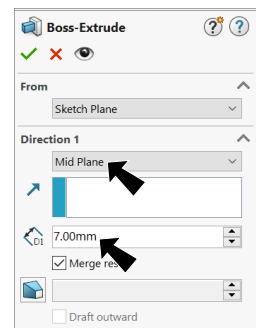


Fig. 52

Step 11. Save  (**Ctrl-S**).

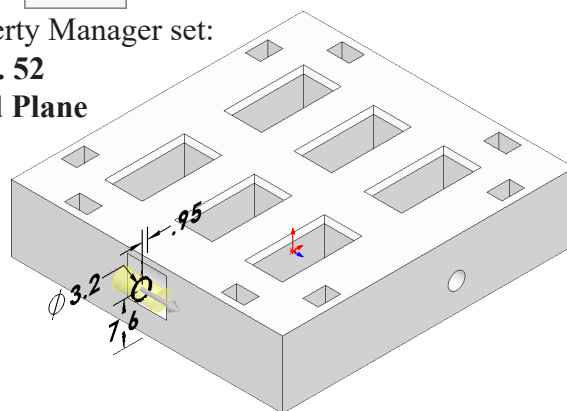


Fig. 53

K. Extrude3 Sketch7 Hitch Sides.

Step 1. Click **Right Plane**  in the Feature Manager and click **Sketch**  on the context toolbar, **Fig. 54**.

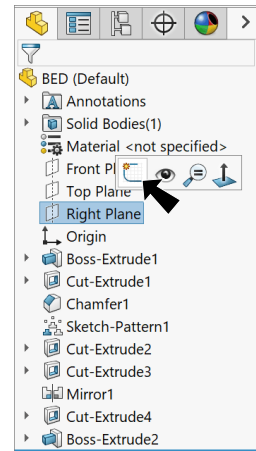




Fig. 54

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

Step 3. Click **Corner Rectangle**  in the **Rectangle flyout**  on the Sketch toolbar.

Step 4. Sketch **corner rectangle coincident with top vertex of part**, **Fig. 55**.

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

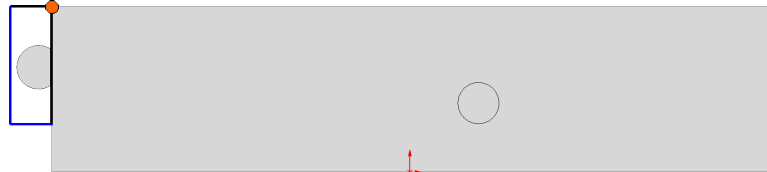



Fig. 55

Step 6. Add dimensions, **Fig. 56**.

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

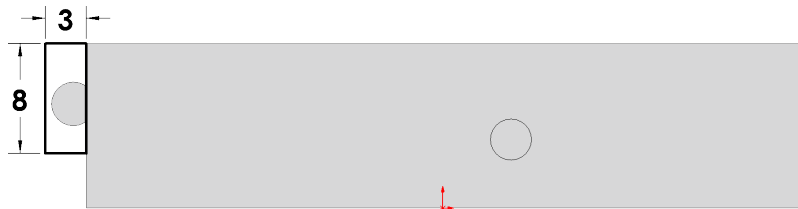




Fig. 56

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. 57**
- Start Condition **Offset**
- Offset value **3.5**
- under Direction 1
- End Condition **Blind**
- Depth**  **2**
- click OK .

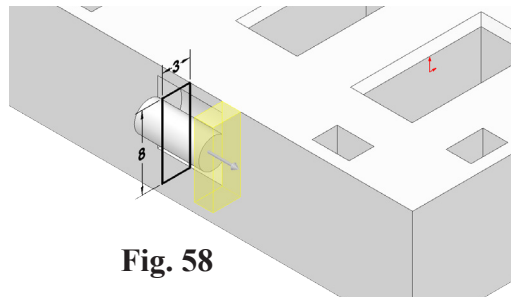


Fig. 58

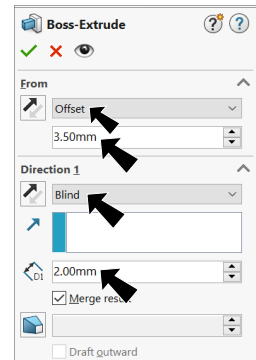


Fig. 57

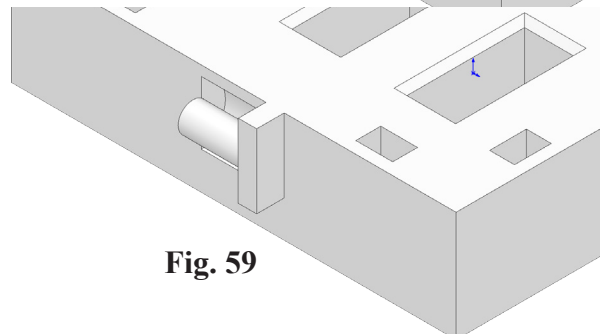


Fig. 59

L. Mirror2 Hitch.

Step 1. **Ctrl click Right Plane**  and **Boss-Extrude3** to select plane and last feature, **Fig. 60**.

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

Step 3. In the Mirror Property Manager click **OK** , **Fig. 61**.

Step 4. Save  (**Ctrl-S**).

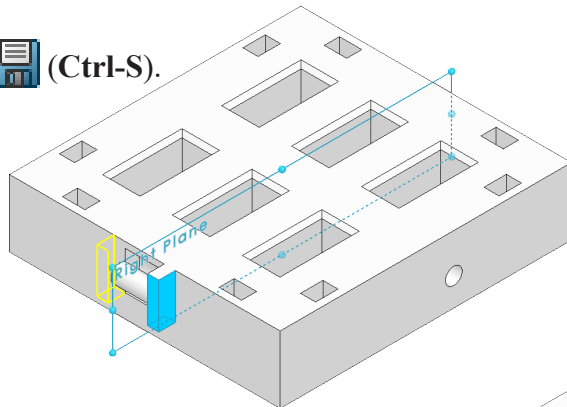


Fig. 62

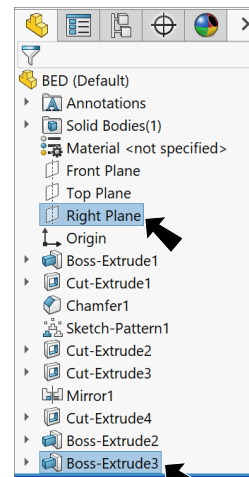


Fig. 60

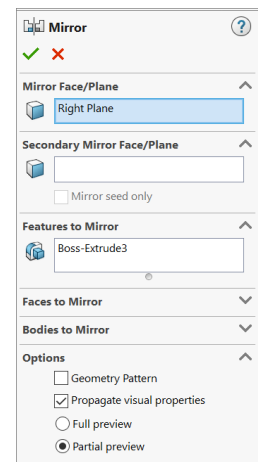


Fig. 61

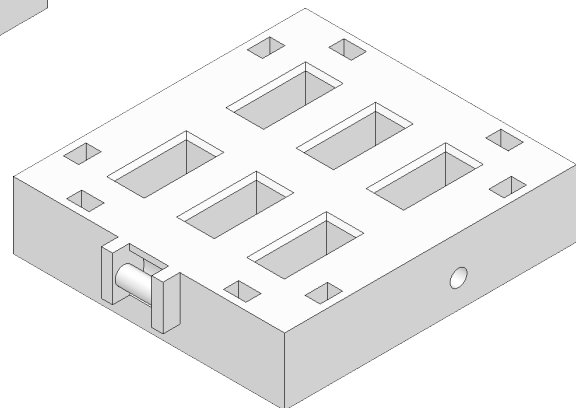



Fig. 63

M. Fillet Edges.

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

Step 2. In the Fillet Property Manager set:
select **FilletXpert**, Fig. 64

① **Radius**  4
click a **bottom edge (4)**, Fig. 65

click **Right loop**  3 Edges on the Fillet pop-up
click **Apply**

Radius 4

①

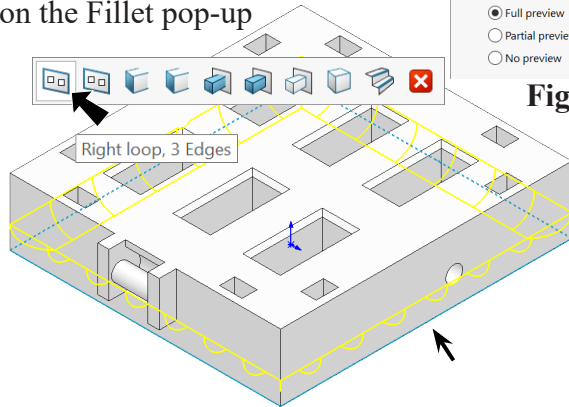


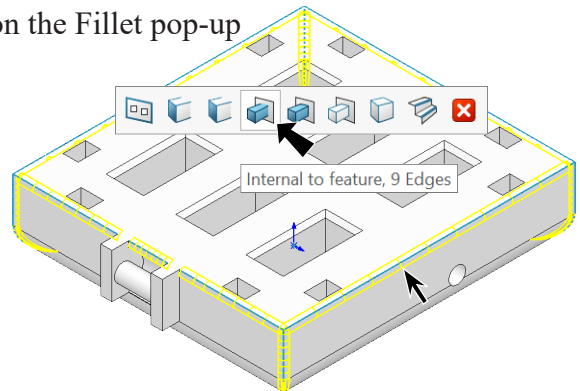
Fig. 64

② **Radius**  1
click a **top edge of Bed (Extrude1)**, Fig. 66

click **Internal to feature**  9 Edges on the Fillet pop-up
click **Apply**

Radius 1

②



③ **Radius**  2
click **top and bottom edges of hitch sides (4)**, Fig. 67
click **Apply**

Radius 2

③

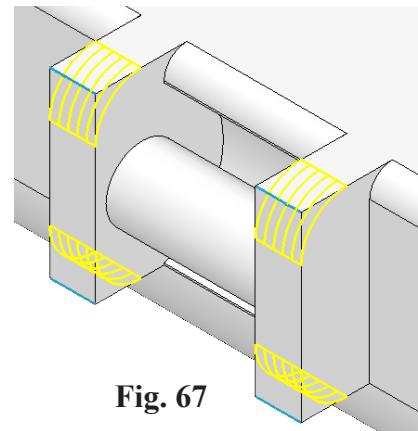
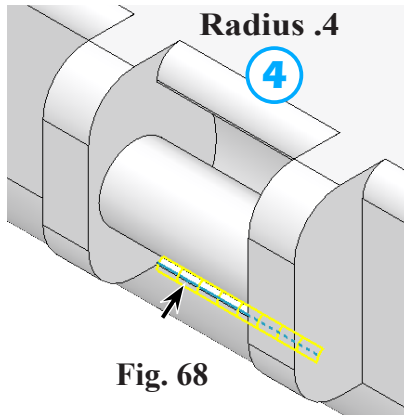


Fig. 67

- ④ Radius .4
click bottom edge of hitch (1), Fig. 68
click Apply



- ⑤ Radius .4
click side edges of hitch (4), Fig. 69
click OK ✓.

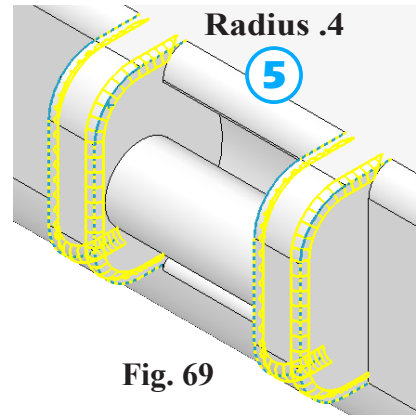


Fig. 68

Fig. 69

Step 3. Save (Ctrl-S).

N. Appearance: Blue Paint.

- Step 1. Click the part to select part, click Appearances Callout on the context toolbar and click BED, Fig. 71.

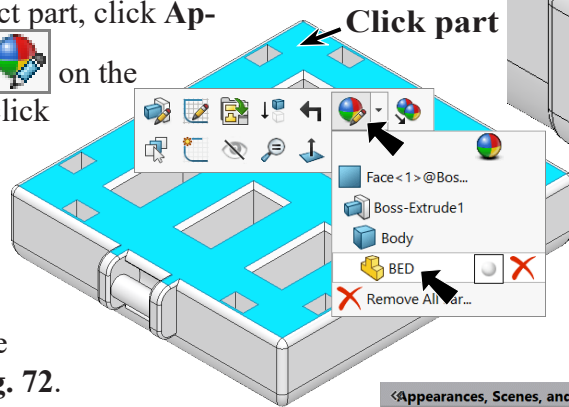


Fig. 70

- Step 2. In the Appearances Task pane, expand Painted, click Car and in the lower pane select gloss blue, Fig. 72.

Fig. 71

- Step 3. In the Appearances Property Manager set:
under Color, Fig. 73
set RGB values
R 207
G 229
B 255
click OK ✓.

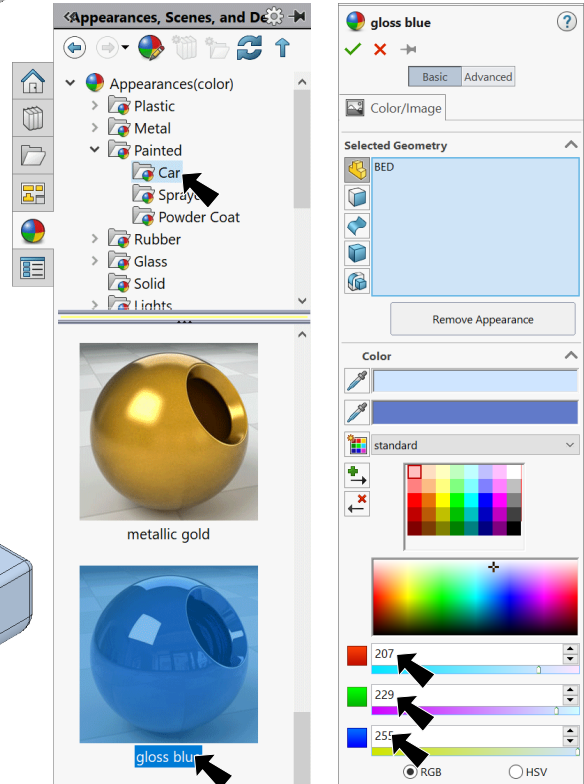


Fig. 72

Fig. 73

- Step 4. Save (Ctrl-S).

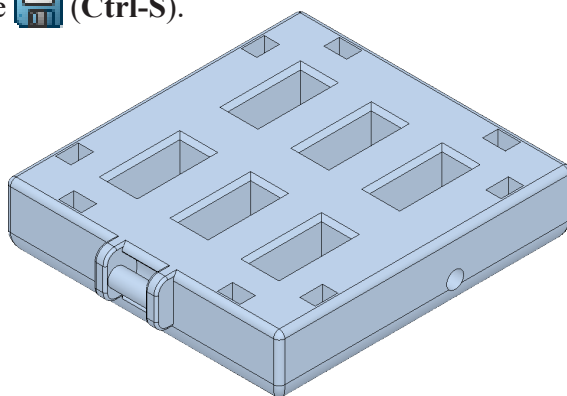


Fig. 74