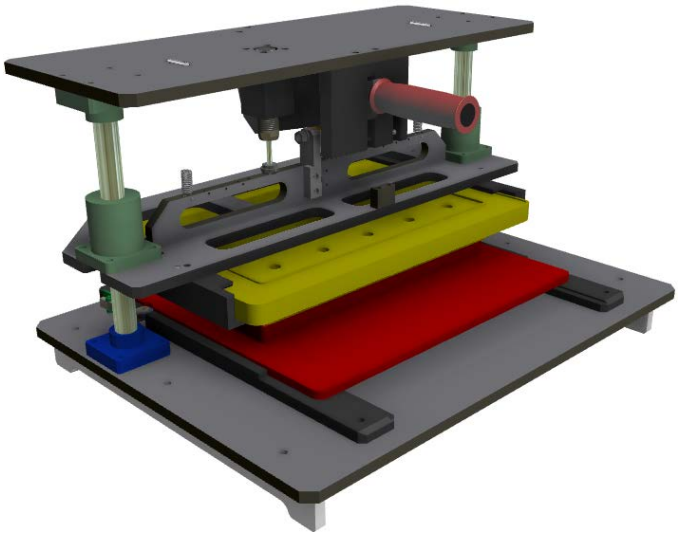
1 Designing in the Assembly Context (Top Down)

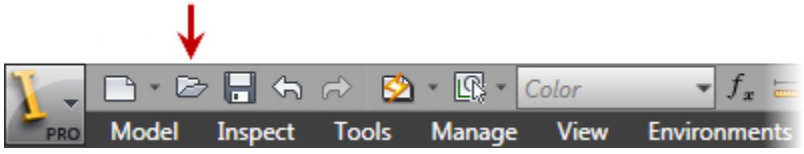
The following section will give an overview of interacting with an assembly model with in context designing. In context part creation and assembly component referencing will be used. Additional 3D constraints with complete this in process design.

1.1 Project 3

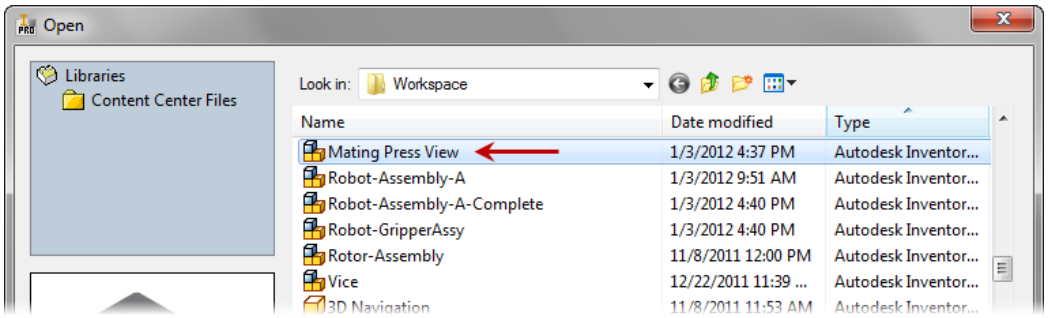
The upper press clamp assembly has been setup to its start postion as well as the handel detail. Using these postions a detail will need to be designed to mount a cam follower.



1. Open an existing assembly file.
   - On the **Quick Access** toolbar, click **Open**.

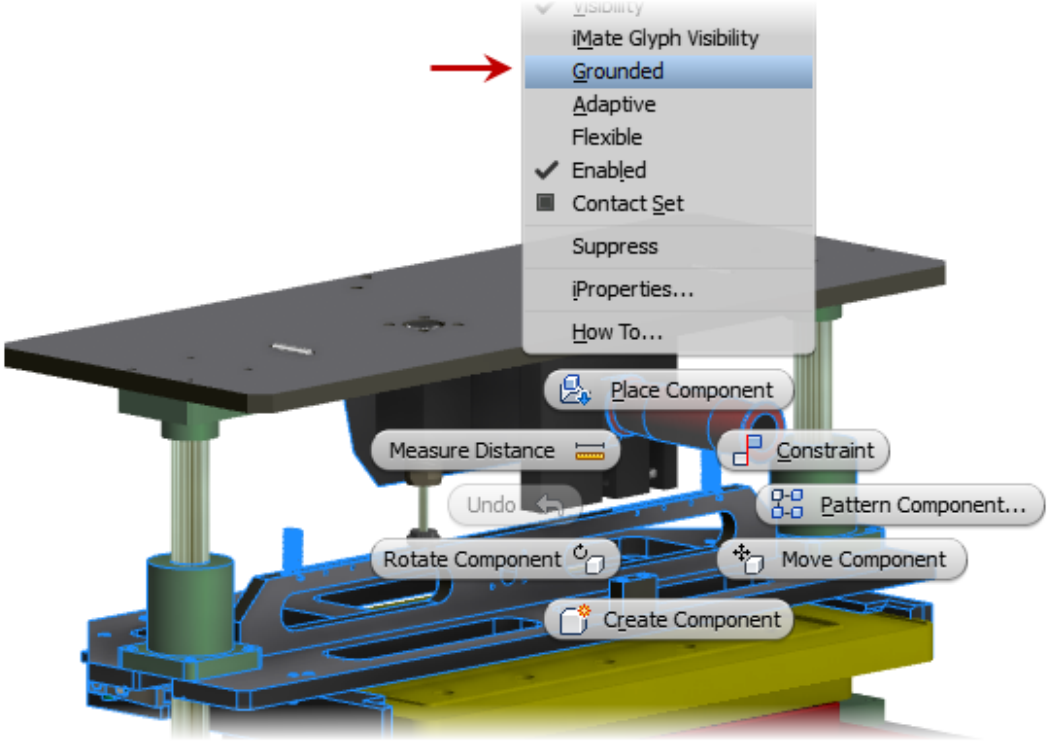


   - In the **Open** dialog box, select the file *Mating Press View.iam*

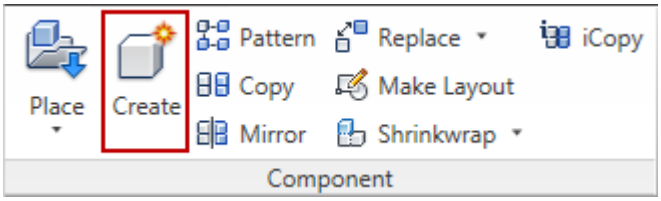


   - Click **Open**.

2. So that the start positions do not move while design, Shift-Select both *Press Clamp Assembly 2* and *Press Cam* in the graphics window or browser. Right-click, and select **Grounded**

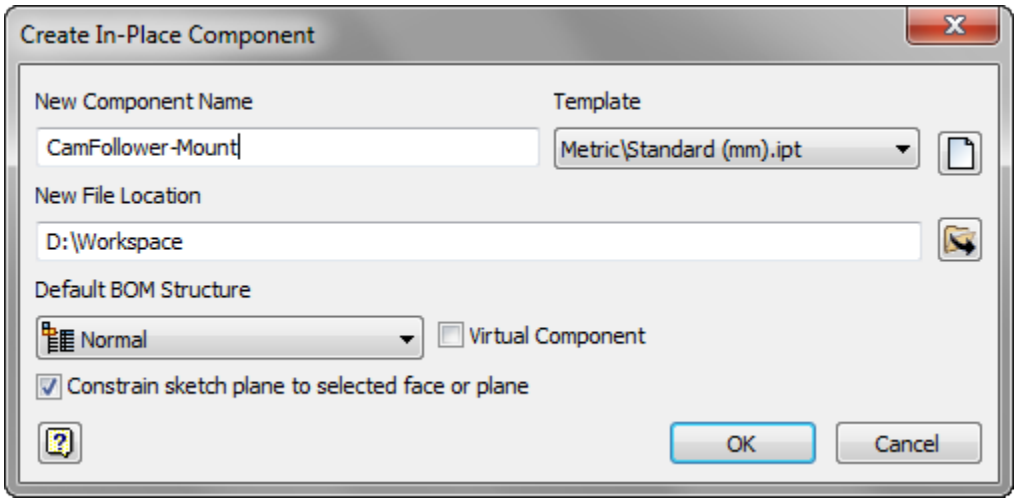


3. Create In-Place Component
   - Start the **Create In-Place Component** tool
     Assemble tab | Component panel | Create



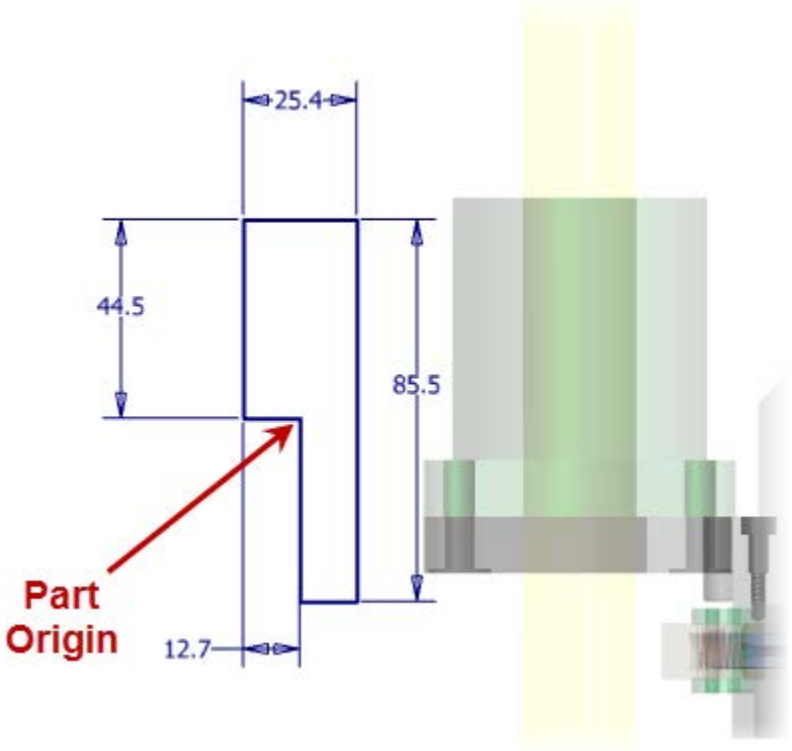
   - On the **Create In-Place Component** dialog box enter *CamFollower-Mount* for the **New Component Name**

- Click the **Browse Templates** to change the **Template** to **Metric\Standard (mm).iam**



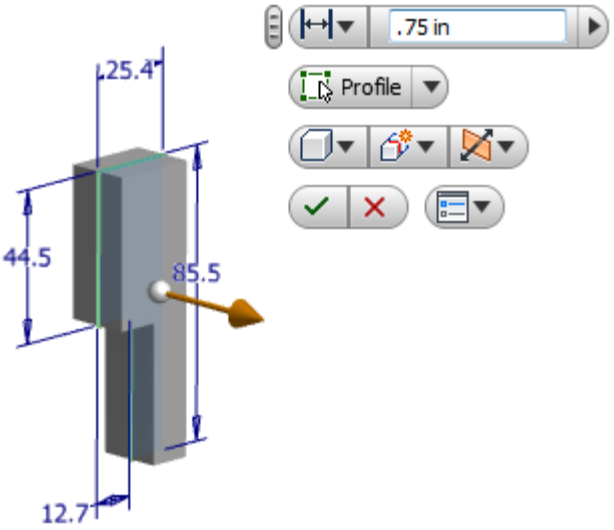
- Click **OK**

4. Sketch the following profile:



5. Start the **Extrude** tool

- Extrude using the **symmetric** option, **.75 in**



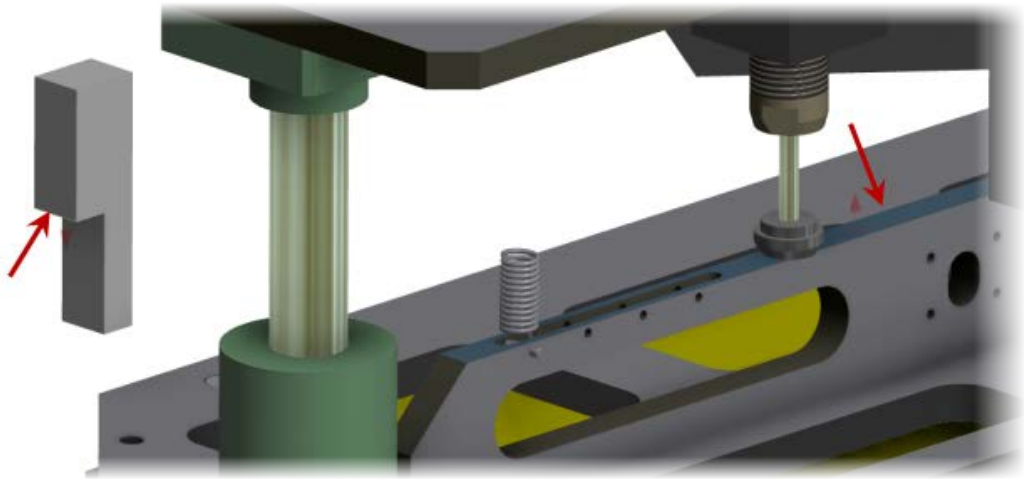
- Click **Return** on the ribbon to return to the assembly.

6. Start the **Constrain** tool

- On the **Place Constraint** dialog box set the following options
  Type: **Mate**
  Solution: **Mate**

- Pick the top face shown of the weldment rib for **Selection 1**

- Pick the underside face shown of component *CamFollwer-Mount* for **Selection 2**



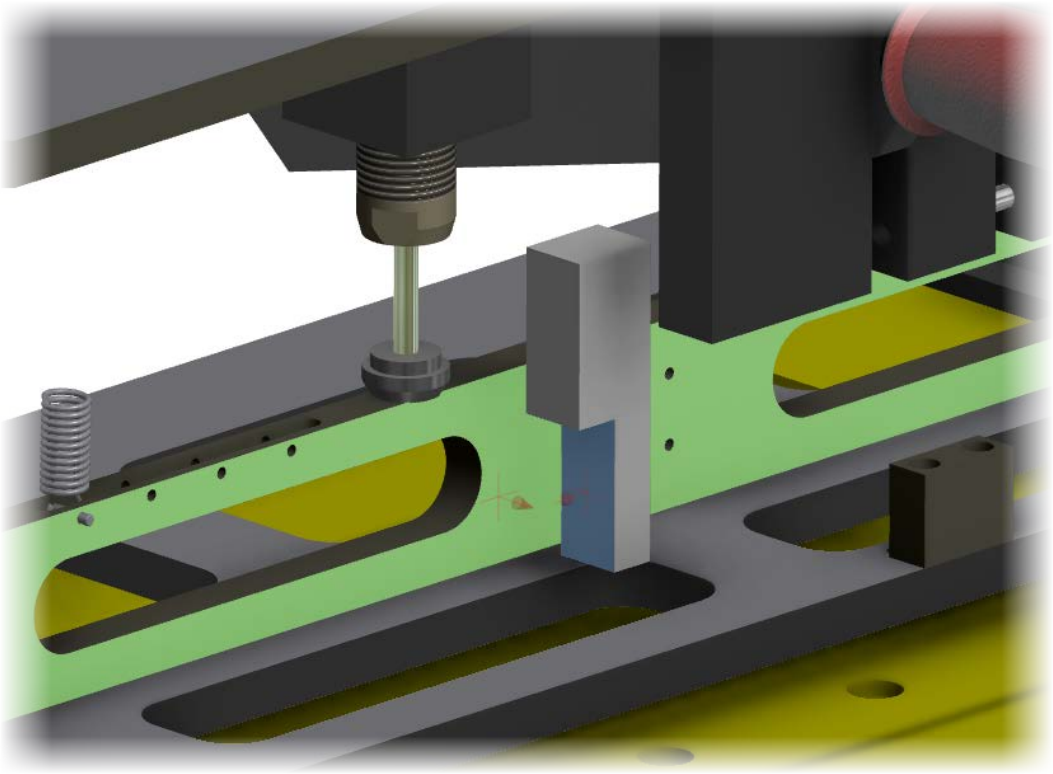
- Enter **0** into the **Offset** field.

- Click **Apply**

7. Continue the **Constrain** tool
   - On the **Place Constraint** dialog box set the following options
     Type: **Mate**
     Solution: **Mate**

   - Pick the face shown of component *CamFollower-Mount* for **Selection 1**

   - Pick the face shown of the weldment rib for **Selection 2**



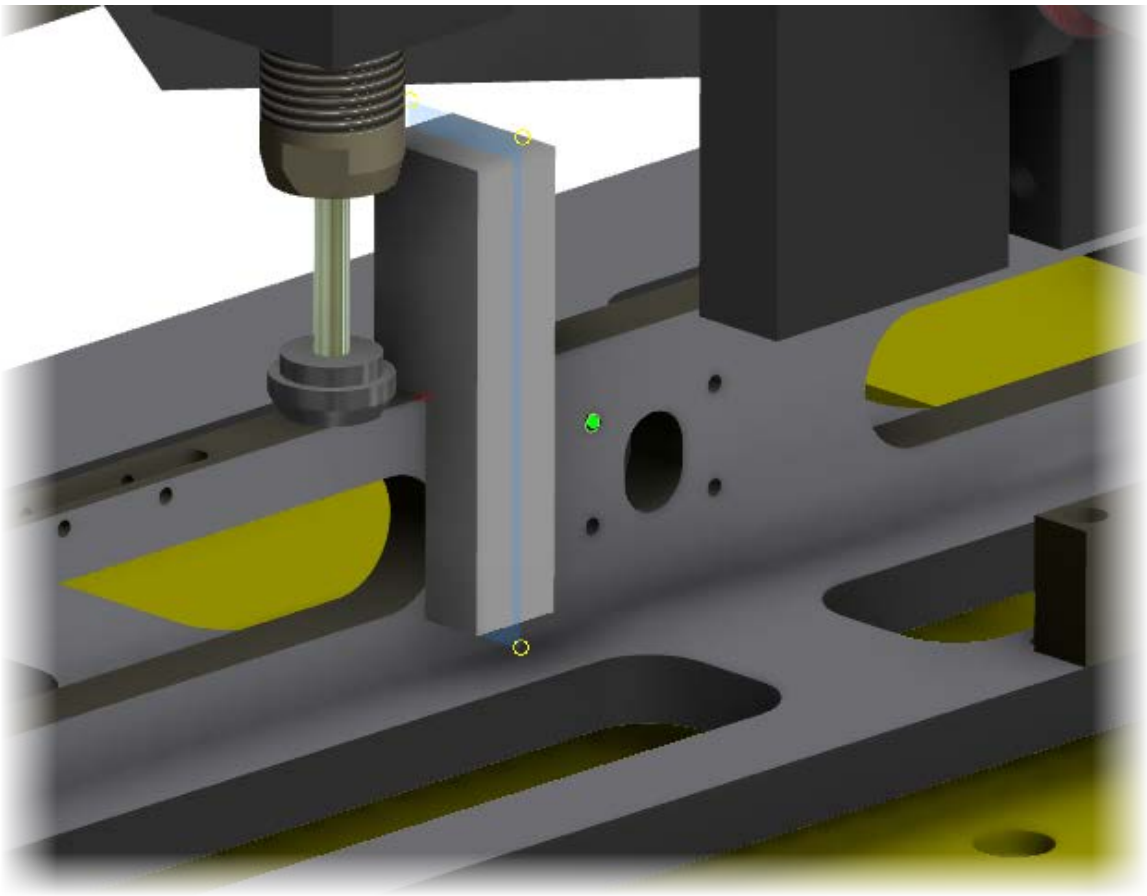
   - Enter **0** into the **Offset** field.

   - Click **Apply**

8. Continue the **Constrain** tool
   - On the **Place Constraint** dialog box set the following options
     Type: **Mate**
     Solution: **Mate**

   - Pick the Origin **XY Plane** of component *CamFollower-Mount* for **Selection 1**

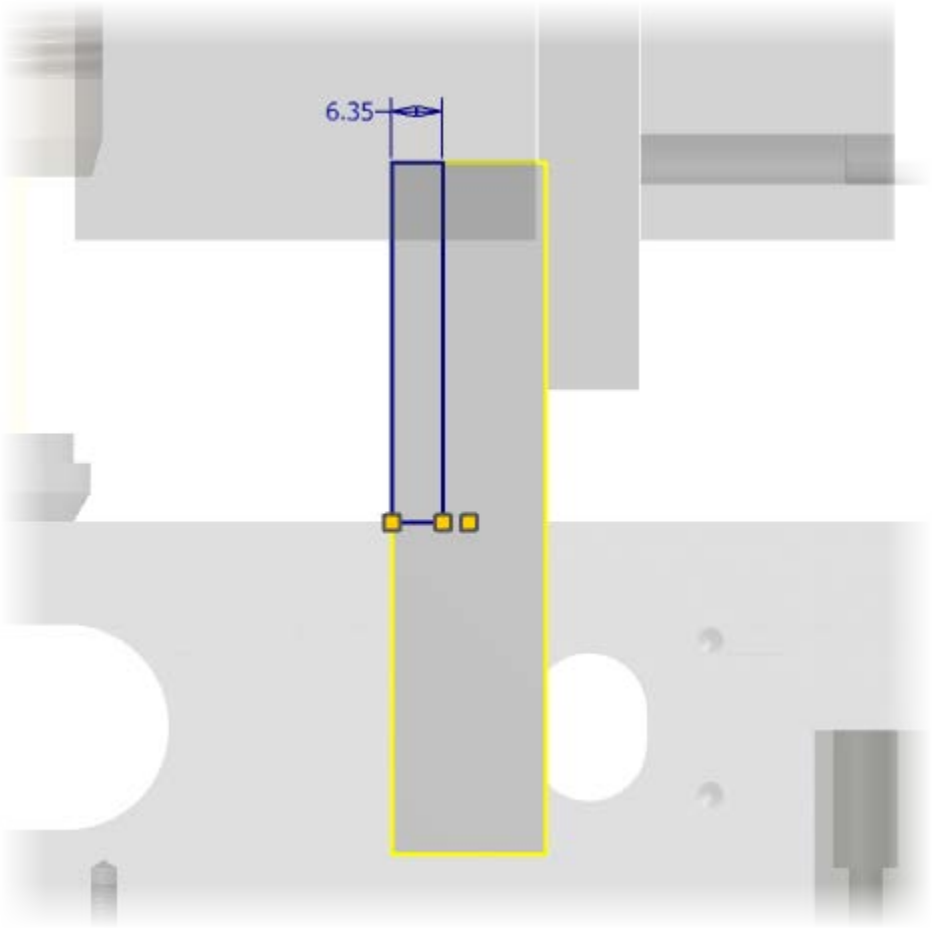
   - Pick the hole centerpoint shown of the weldment rib for **Selection 2**



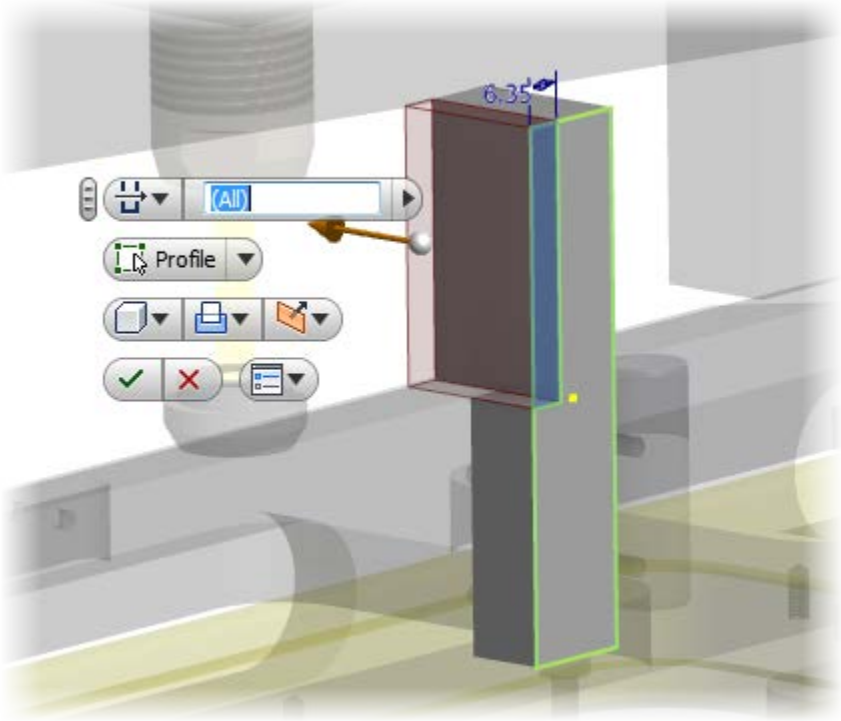
- Enter **0** into the **Offset** field.
- Click **OK**

9. Double click *CamFollower-Mount* to edit the part

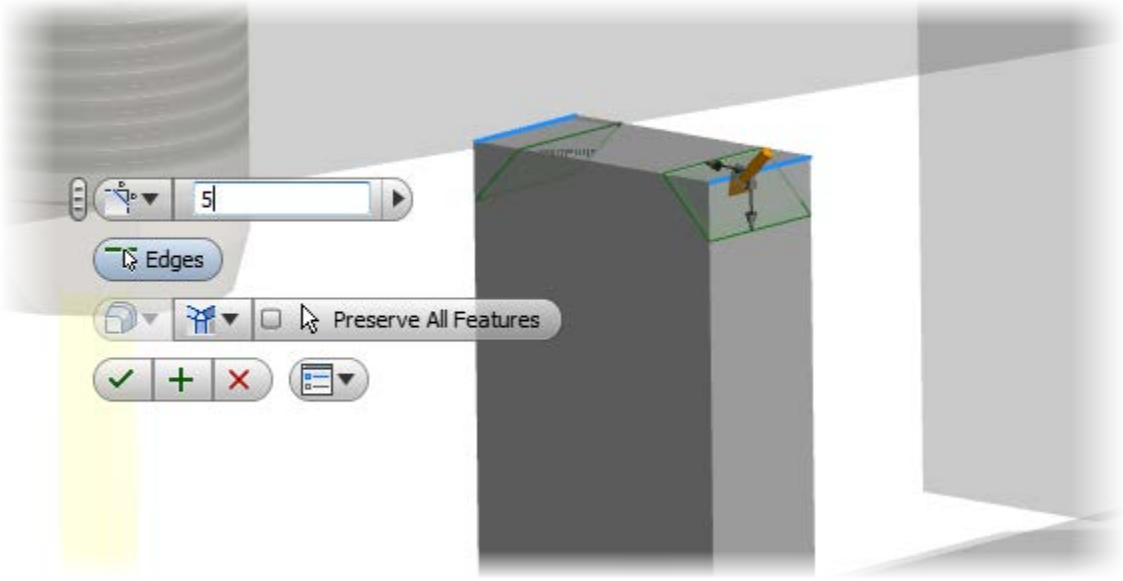
10. Sketch the following profile



11. Extrude the Cut profile **Through All**



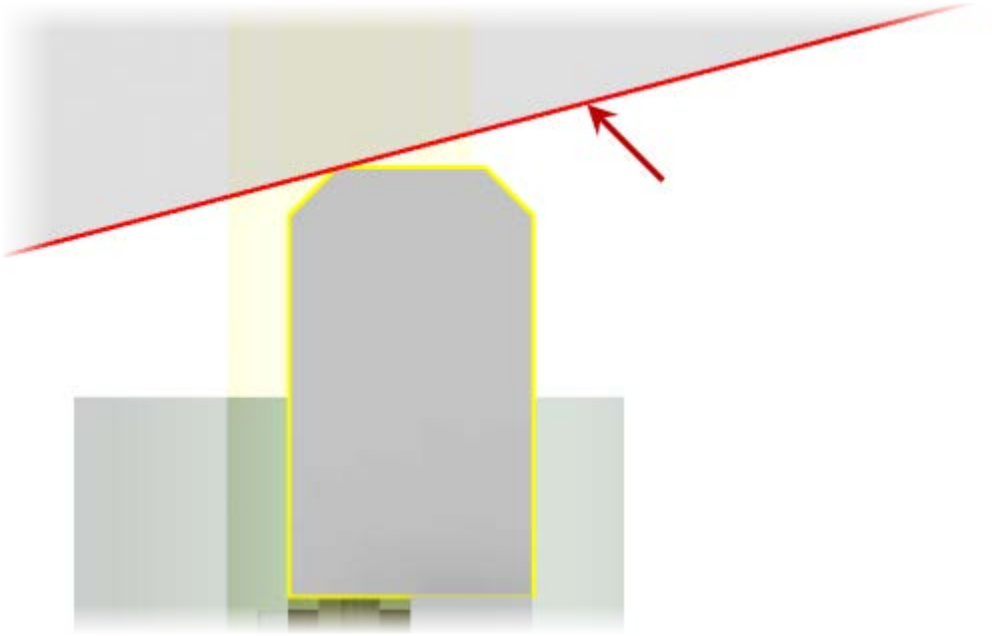
12. Create **5 mm** Chamfers on the top edges



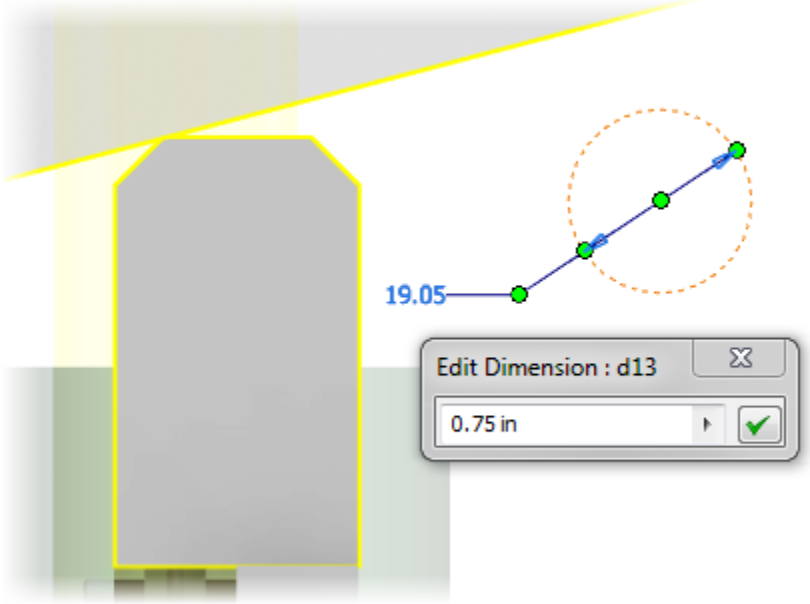
13. Position through hole for Cam Follower

- Create sketch on side face of *CamFollower-Mount*

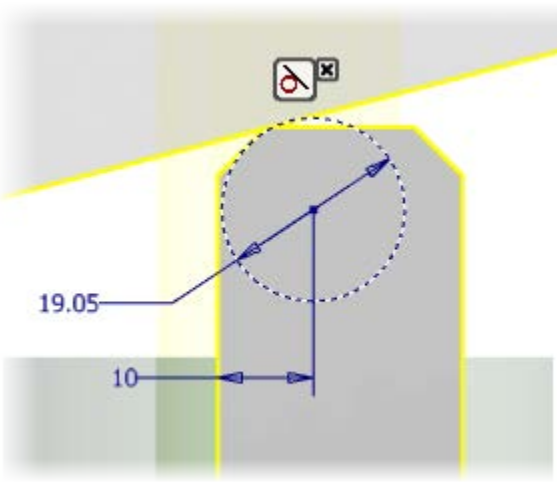
- Start **Project Geometry** Tool, project edge of component *Press_Cam*



- Create **.75** in construction circle to represent the Cam Follower



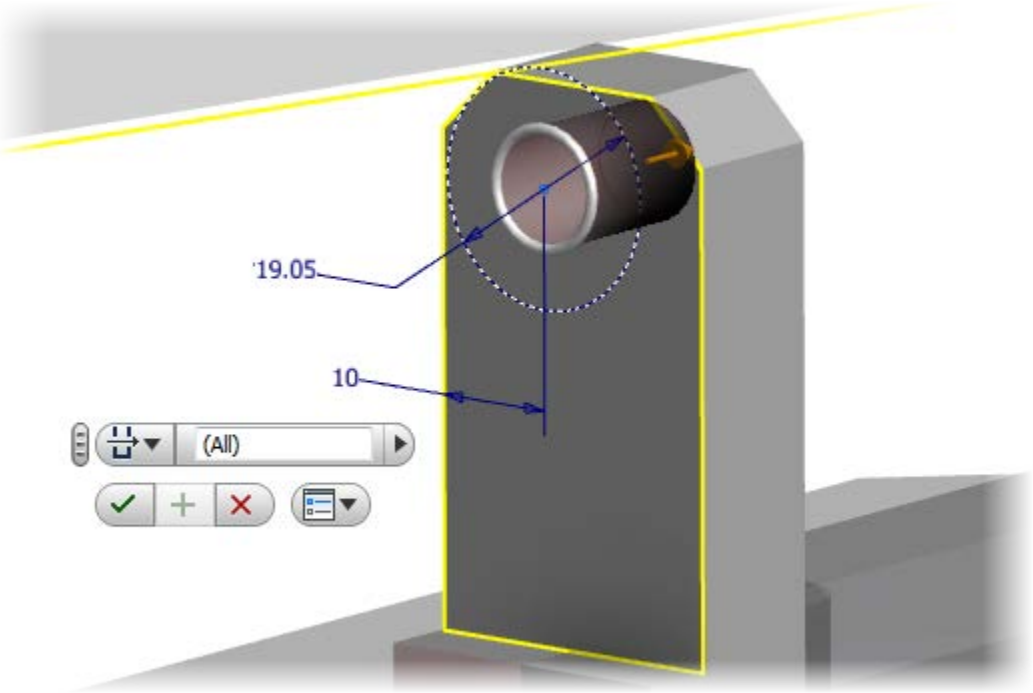
- Position the construction circle as shown with the tangent constraint



- Exit the sketch

- Start the **Hole** tool
  Place a **From Sketch Hole** picking the circle center point in the sketch with following options:
  Type: **Drilled**
  Diameter: .375 in
  Termination: **Through All**

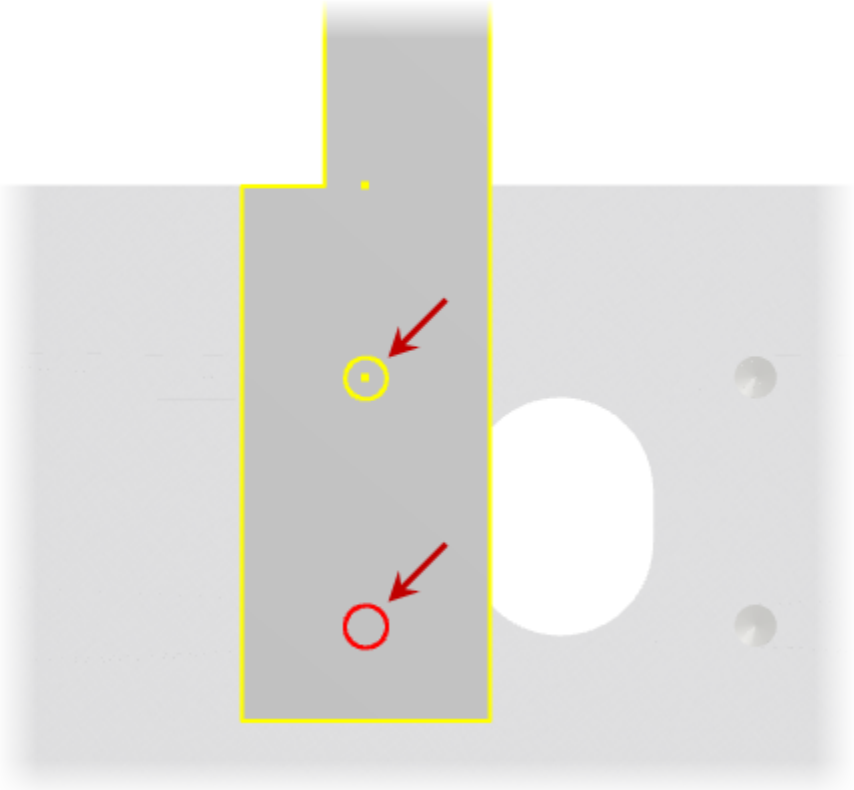
  Click **OK**



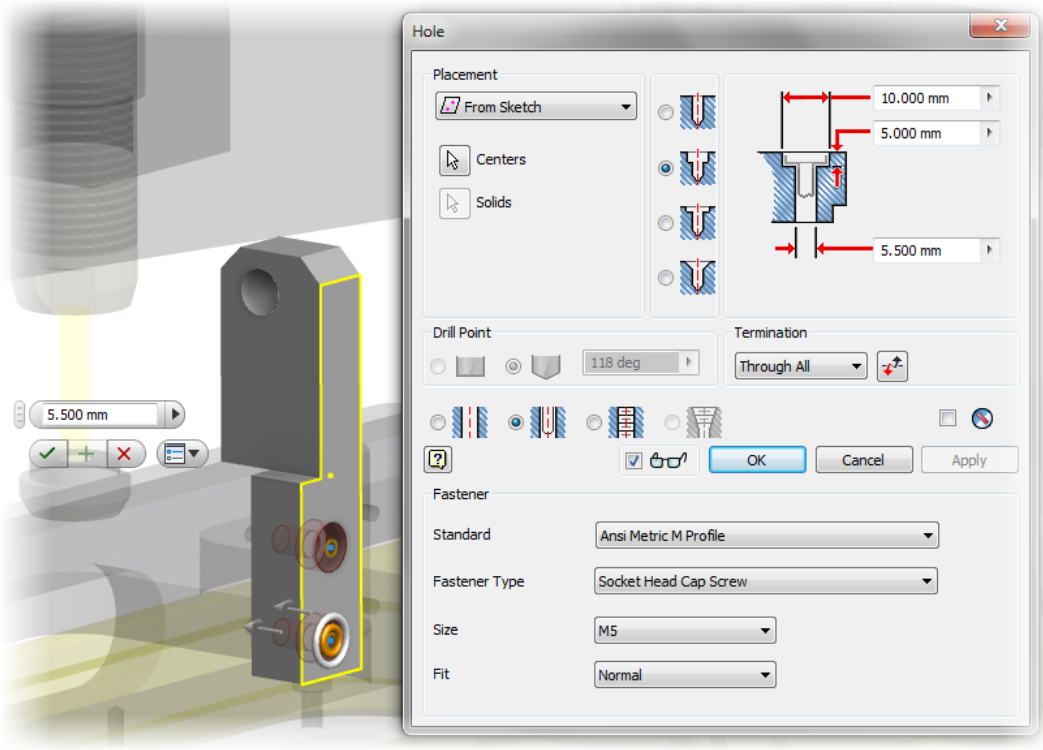
14. Add mounting holes

- Create sketch on front face of *CamFollower-Mount*

- Start **Project Geometry** tool
  Project tapped holes as shown



- Start **Hole** Tool
  Place a **From Sketch Hole** picking the circle center point in the sketch with following options:
  Type: **Counterbore**
  Standard: **ANSI Metric M Profile**
  Fastener Type: **Socket Head Cap Screw**
  Size: **M5**
  Fit: **Normal**
  Termination: **Through All**



- Click **OK**

15. Place Components

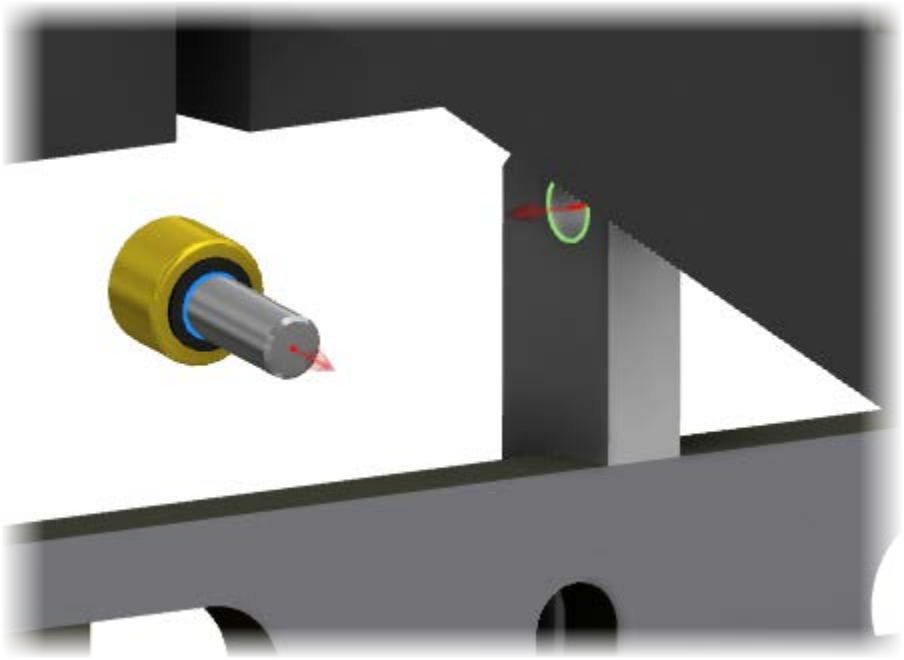
- Place the following components into the *Mating Press View*
  - *CCF-360.ipt*
  - *.375-LockWasher.ipt*
  - *.375-24-HexNut.ipt*

16. Start the **Constrain** tool.

- On the **Place Constraint** dialog box set the following options
  Type: **Insert**
  Solution: **Opposed**

- Pick the circular edge shown of component *CCF-360* for **Selection 1**

- Pick the circular edge shown of component *CamFollower-Mount* for **Selection 2**



- Enter **0** into the **Offset** field.

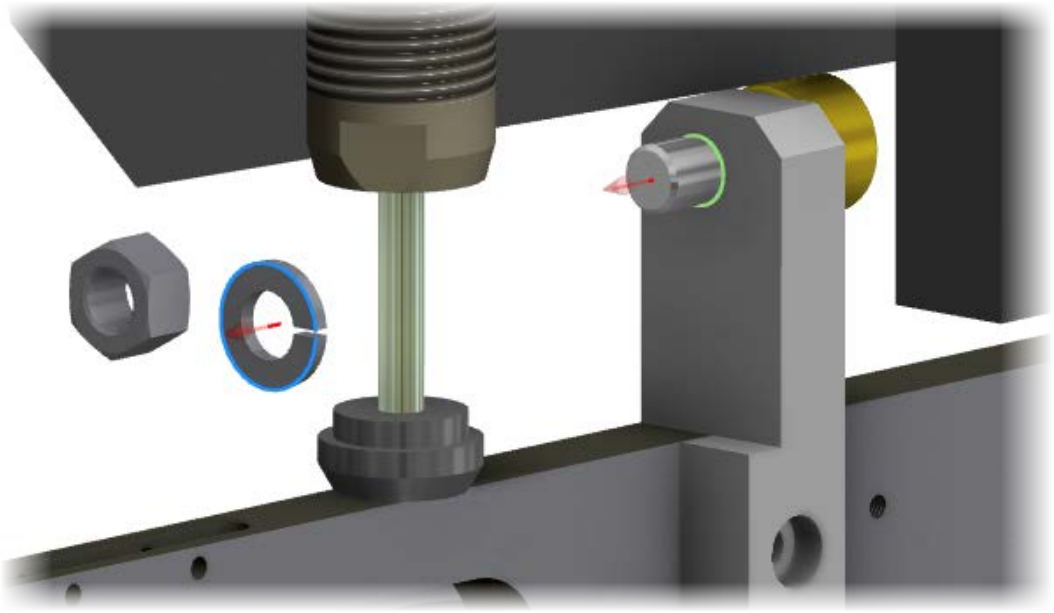
- Click **Apply**

17. Continue the **Constrain** tool.

- On the **Place Constraint** dialog box set the following options
  Type: **Insert**
  Solution: **Opposed**

- Pick the circular edge shown of component *.375-LockWasher* for **Selection 1**

- Pick the circular edge shown of component *CamFollower-Mount* for **Selection 2**



- Enter **0** into the **Offset** field.

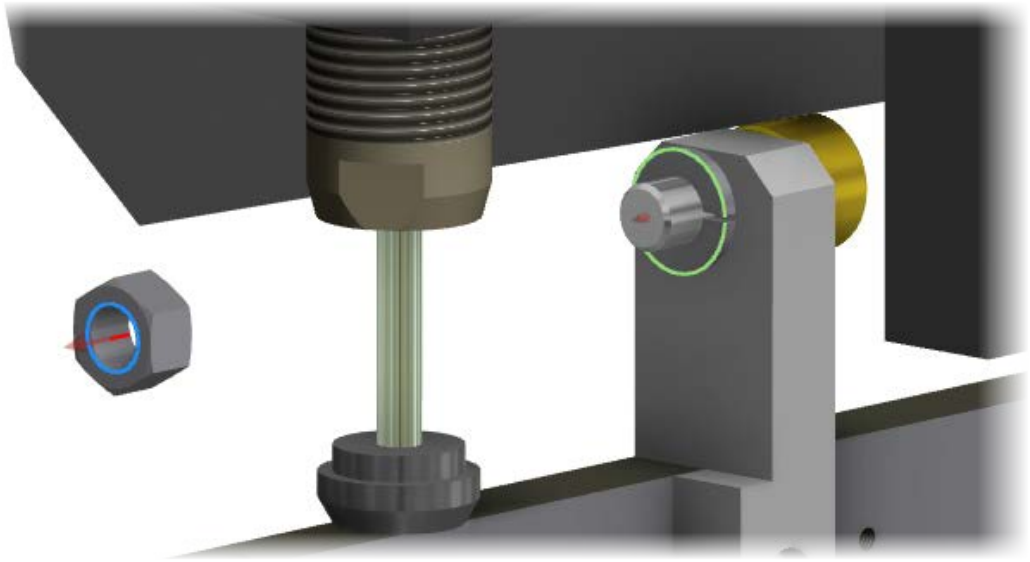
- Click **Apply**

18. Continue the **Constrain** tool.

- On the **Place Constraint** dialog box set the following options
  Type: **Insert**
  Solution: **Opposed**

- Pick the circular edge shown of component *.375-24-HexNut* for **Selection 1**

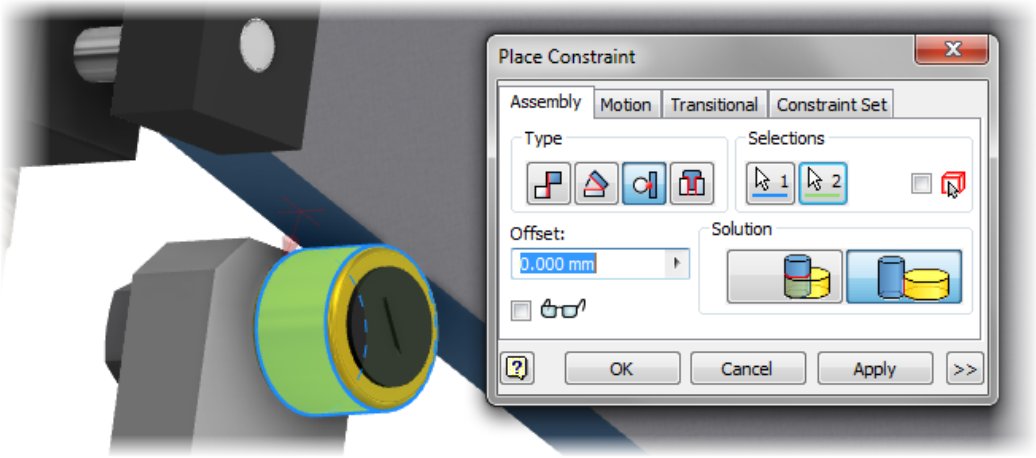
- Pick the circular edge shown of component *.375-LockWasher* for **Selection 2**



- Enter **0** into the **Offset** field.
- Click **Apply**

19. Start the **Constrain** tool.

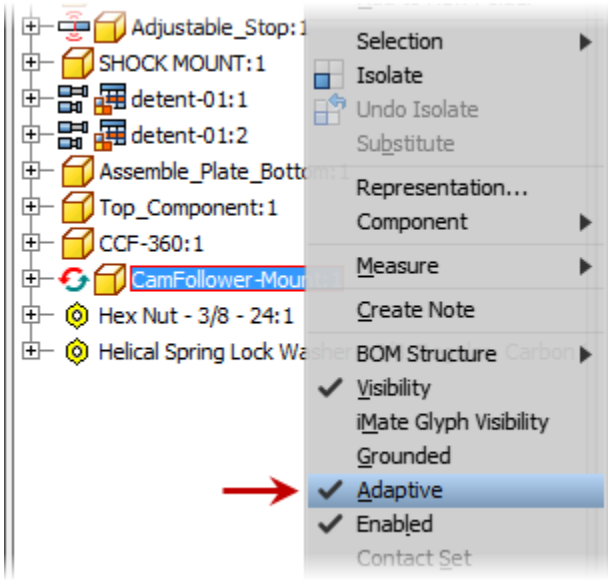
- On the **Place Constraint** dialog box set the following options
  Type: **Tangent**
  Solution: **Outside**
- Pick the face shown of component *Press_Cam* for **Selection 1**
- Pick the cylindrical face shown of component *CCF-360* for **Selection 2**



- Enter **0** into the **Offset** field.

- Click **OK**

20. Right-click *CamFollower-Mount* in the browser, select **Adaptive** to clear **Adaptivity**



21. Shift-select *Press Clamp Assembly 2* and *Press_Cam.*
Right-click, select **Ground** to **Unground** both components

22. Drag the *Press_Cam* handel.
Notice how the *Press Clamp Assembly 2* assembly moves.

23. Click **Save** on the **Quick Access Toolbar**

24. Close all files