Work Plane Examples

The following examples are two common methods of creating work planes:

Aligned to face/midpoint between two parallel faces

Offset from plane or surface

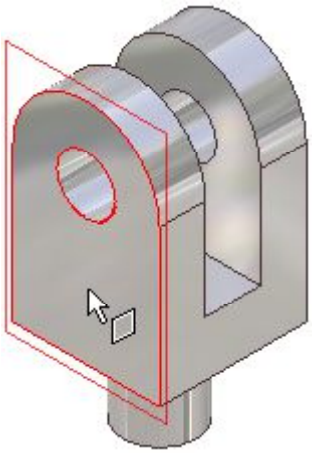


Figure 04
Selection 1 - Part Face

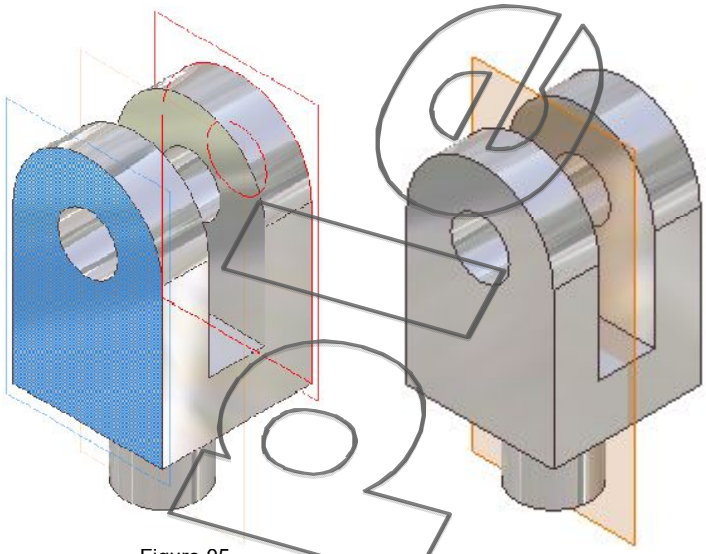


Figure 05
Selection 2 - Part Face

Figure 06 Resultant Work Plane

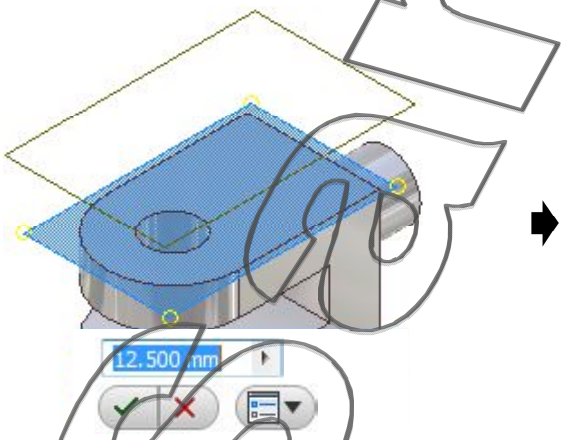


Figure 07 Click and Drag from existing work plane

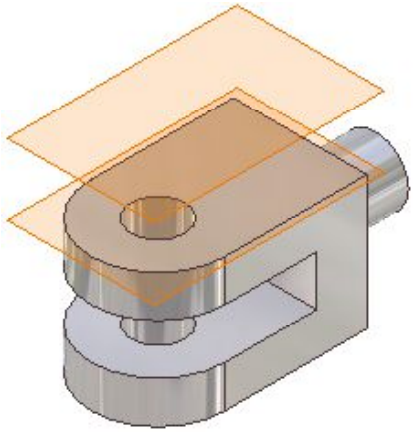


Figure 08 Result

Exercise 1 - Creating and Editing with Work Planes

In this exercise, several features will be created using different Origin and Work Planes.

1 **Expand** the folder **Section 3-1** and **open** the part file called **Pivot Clamp Ex.ipt**, then immediately **Save As...** under the filename of **Pivot Clamp** to preserve the original file for other users (replace if necessary).

Click the **File** button, then click the **Options** button to open the **Application Options** dialog box. Select the **Sketch** tab and un-tick the check box for **Look at sketch plane on sketch creation and edit - In Part environment** to set to **Off**. Then click **OK** or **Close**.

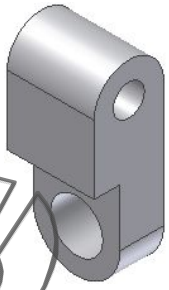
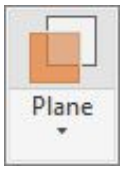


Figure 01
Pivot Clamp.ipt



2 On the **Model** panel browser, expand the **Origin** folder.

3 On the **Work Features** panel, click the **Plane** tool, then in the **Model** panel browser, select the **XZ Plane**.

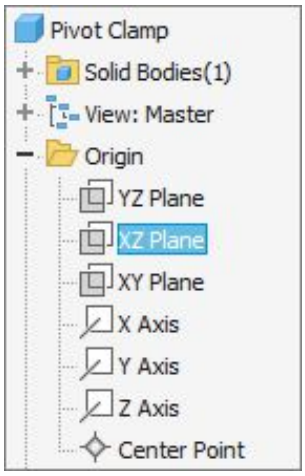


Figure 02 XZ Plane

Now select the **top curve** on the **Pivot Clamp** to create a **Work Plane** (Figure 03).

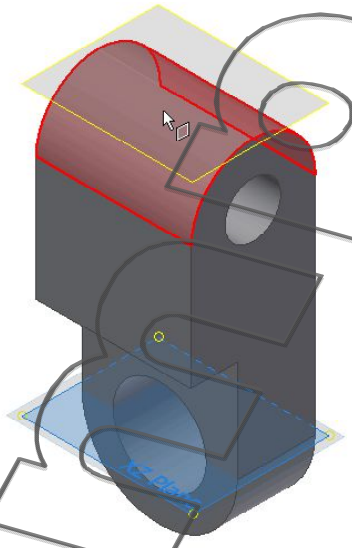
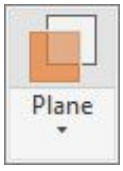


Figure 03 Top Selection



4 Select the **Plane** tool again and drag the **Work Plane** (select the small yellow circle shown on a corner of the work plane) upwards to show the **In-Canvas Display**. Enter **10 mm** as the value in the input box and click the OK green check-mark to accept.

5 In the **Model** panel browser, expand **Work Plane2** right-click on **Work Plane1**, then from the pop-up context menu, select **Visibility** to hide the lower work plane.

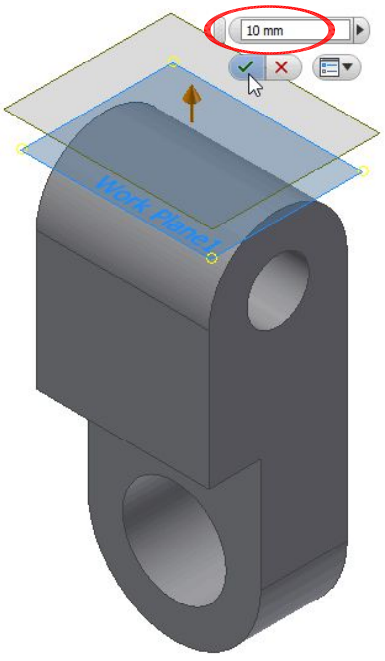


Figure 04 Work Plane - Offset

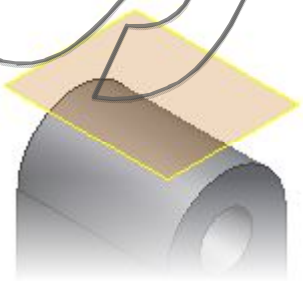


Figure 05 Work Plane1 - Visibility Off

6 On the **Sketch** panel, click the **Start 2D Sketch** tool and select the newly created **Work Plane**.

7 On the **Navigation Bar**, click the **View Face** tool and select the **Work Plane**.

8 On the **Create** panel, click the **Project Geometry** tool and select the edges marked (**A**) and (**B**).

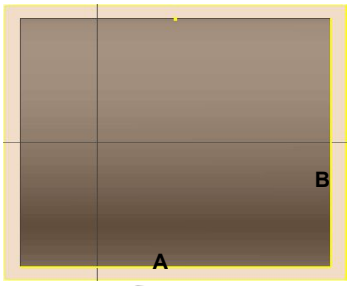


Figure 06
Project Geometry

9 Using the **Create** panel **> Rectangle/Slot > Slot Center to Center** tool, sketch and constrain the **slot** shape as shown in Figure 07.

Note the orientation of the horizontal and vertical constraints on the geometry midpoints.

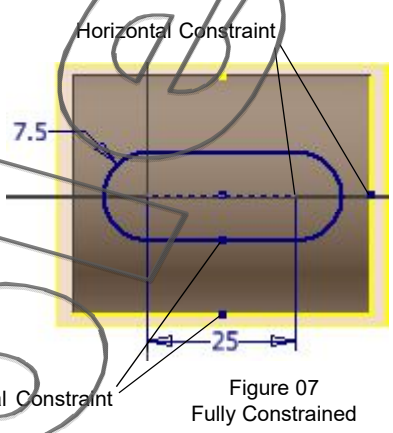


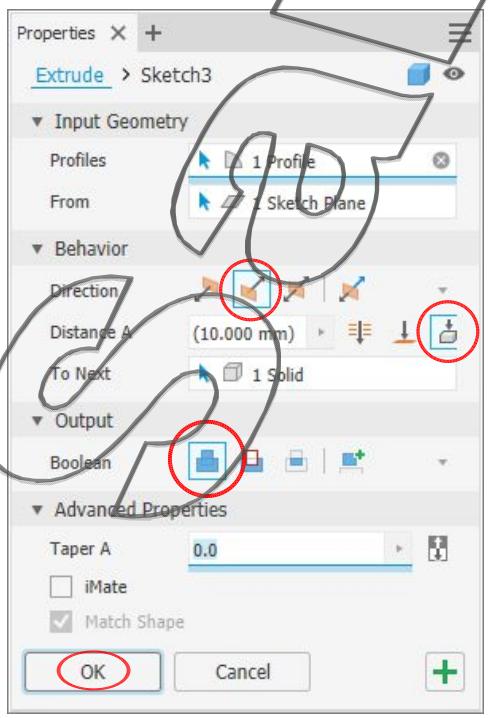
Figure 07
Fully Constrained

10 Right-click in the **Graphics Window** and from the pop-up shortcut menu, select **Home View** (or press ***[F6]***).

11 On the **Exit** panel, click the **Finish Sketch** tool to exit sketch mode.

12 On the **Create** panel, click the **Extrude** tool to display the **Extrude** dialog box.

Select the **Slot Profile** shown in Figure 08 and complete the dialog box as shown, then click **OK**.



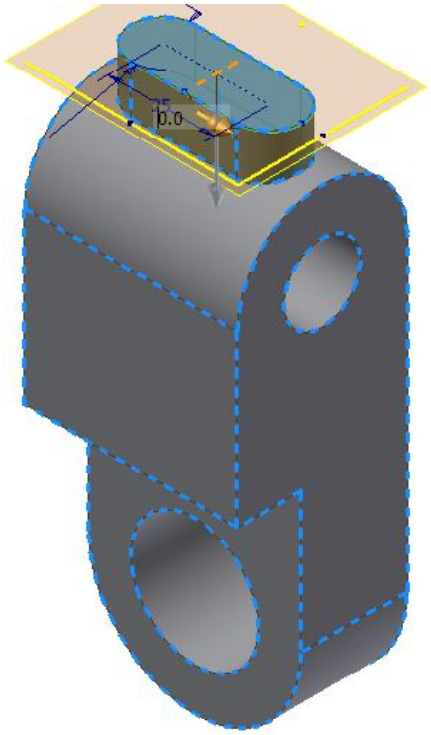
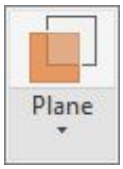


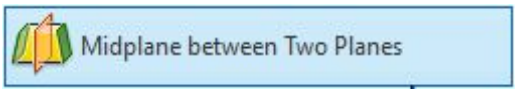
Figure 08 Extrude

13 On the **Model** panel browser, right-click on **Work Plane2** and from the pop-up context menu, select **Visibility** to hide the work plane.

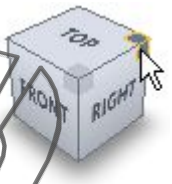
If necessary, right-click on **Sketch3** and select **Dimension Visibility** to hide the dimensions.



14 On the **Work Features** panel, click the **Midplane between Two Planes** tool and select the **front face** of the part as shown in Figure 09.



On the **ViewCube**, click the top right-hand corner 'hot-spot' so that the **back face** is visible and click on that **face** as shown in Figure 10.



The resultant **Work Plane** is shown on the **mid-plane** between the two faces - Figure 11.

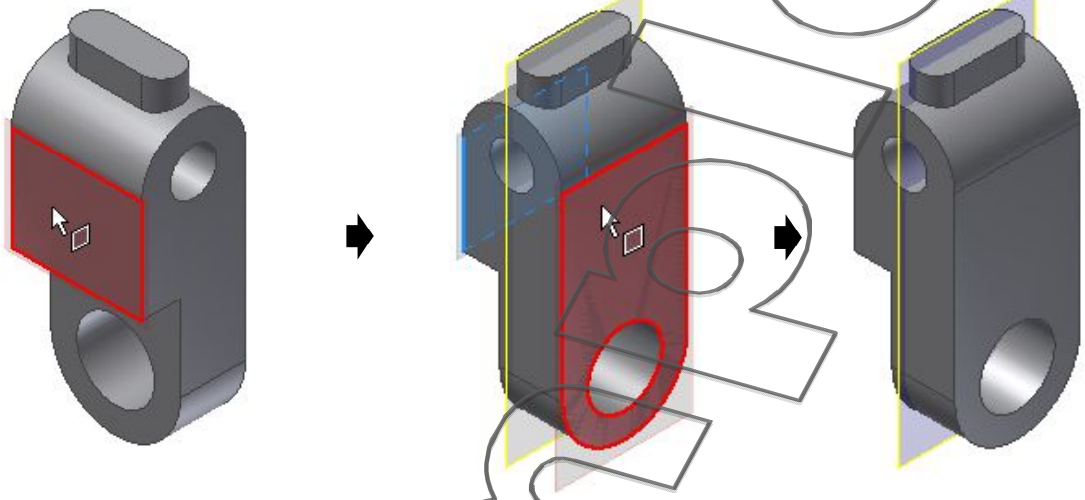


Figure 09 - Front Face

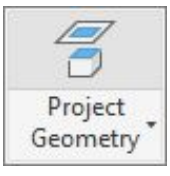
Figure 10 - Back Face

Figure 11 Work Plane

15 On the **Sketch** panel, click the **Start 2D Sketch** tool (or on the **Marking** menu) and select the new **Work Plane3**.

16 Right-click on the **Graphics Window** and from the pop-up shortcut menu, select **Slice Graphics** (or press *[F7]*).

17 On the **Navigation Bar**, click the **View Face** tool and select the **Work Plane**.



18 On the **Create** panel, click the **Project Geometry** tool and select the **top edge** and **circle**.

19 Using standard sketching tools, **Sketch**, **Constrain** and **Dimension** the **rectangle** as shown in Figure 13.

Tip: To make it easier to construct, place the constaints first before entering the 2 mm dimension.

20 Press *[F6]* to return to the isometric **Home View**.

21 On the **Exit** panel, click **Finish Sketch** tool to exit sketch mode.

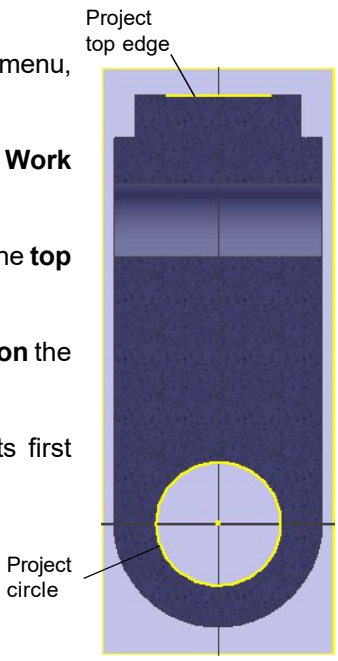


Figure 12
Project Geometry

22 On the **Create** panel, click the **Extrude** tool to display the **Extrude** dialog box.

Select the **Rectangular Profile** shown inFigure 14 and complete the dialog box as shown, then click **OK**.

23 On the **View** tab **> Visibility** panel, click the **Object Visibility** tool and from the listing , select **User Work Planes** to turn **off** all user work planes (or press ***ALT+]*** on the keyboard).

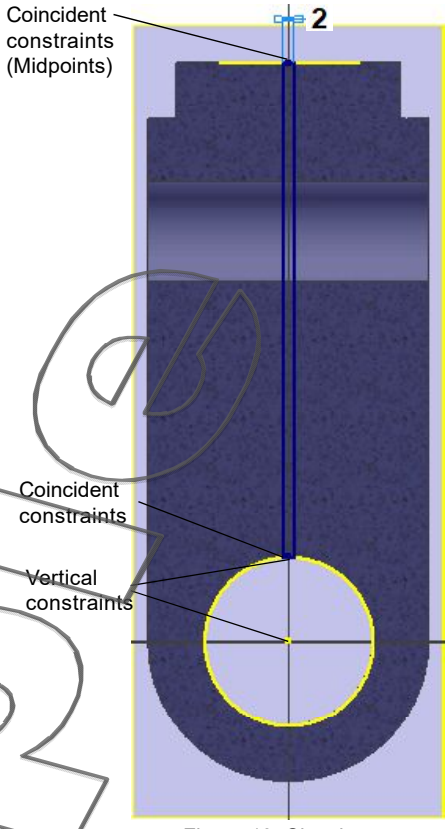


Figure 13 Sketch

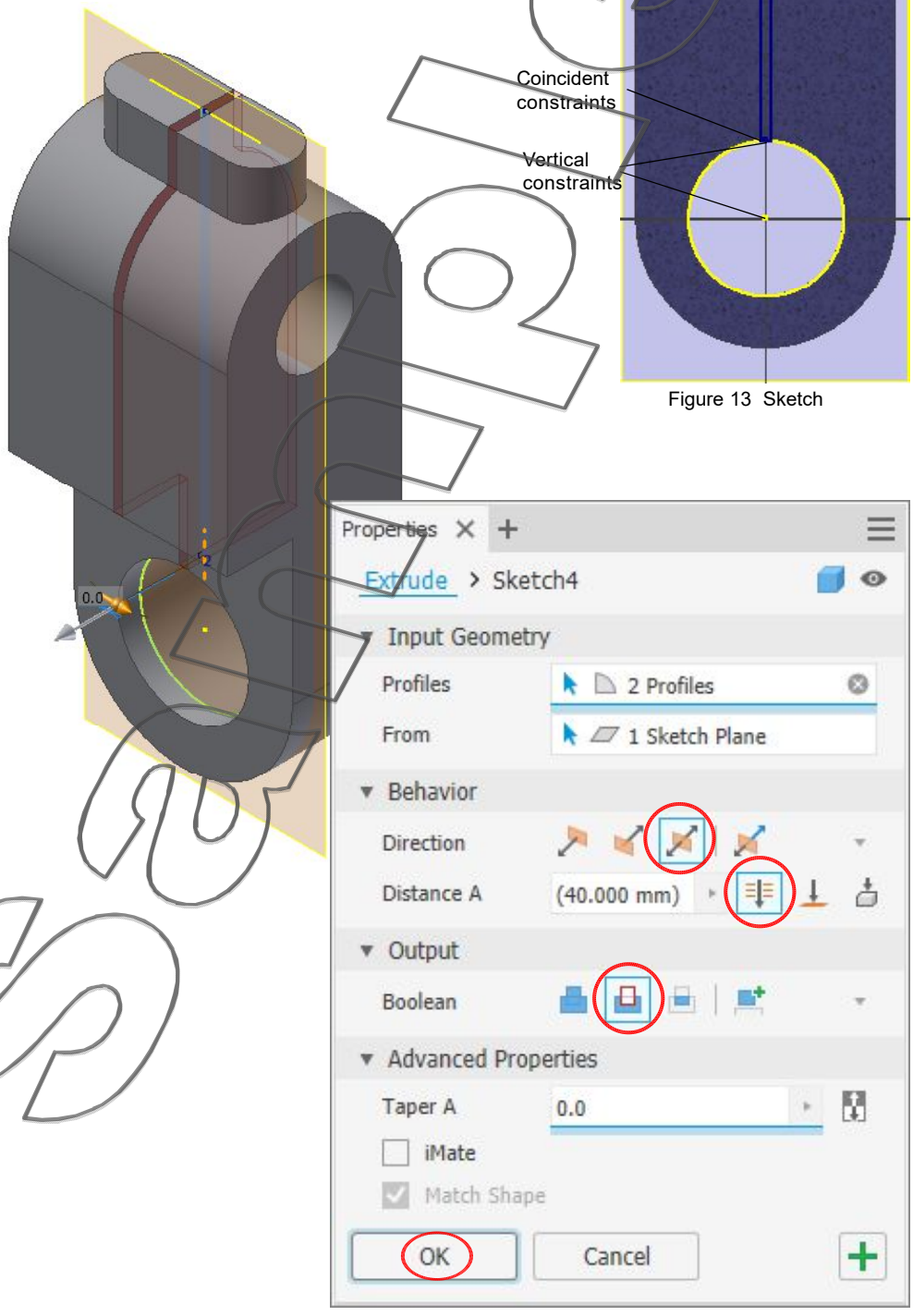


Figure 14 Extrude

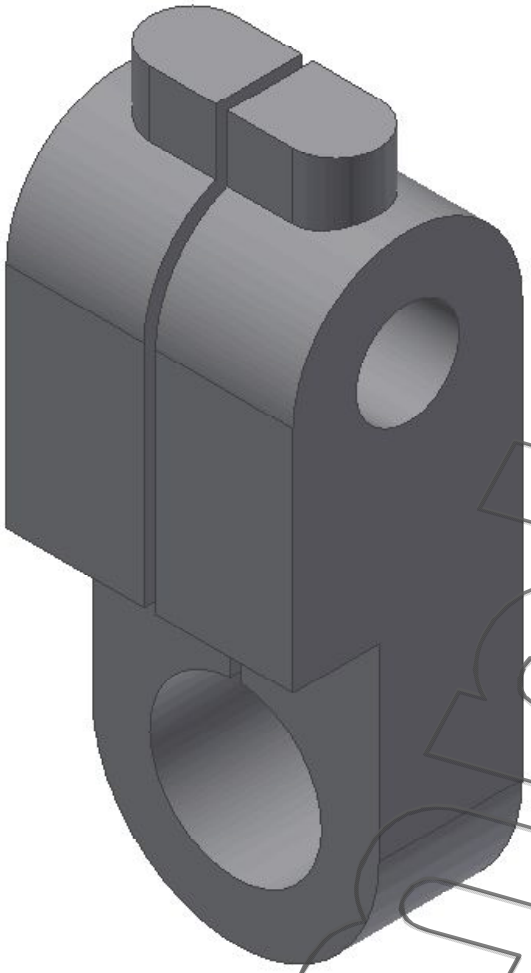


Figure 15 Completed Exercise

24 **Save** the part file under its default filename of **Pivot Clamp.ipt**.

End of Exercise 1.