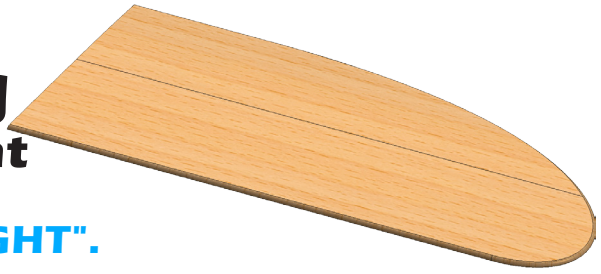



Glider Wing Straight

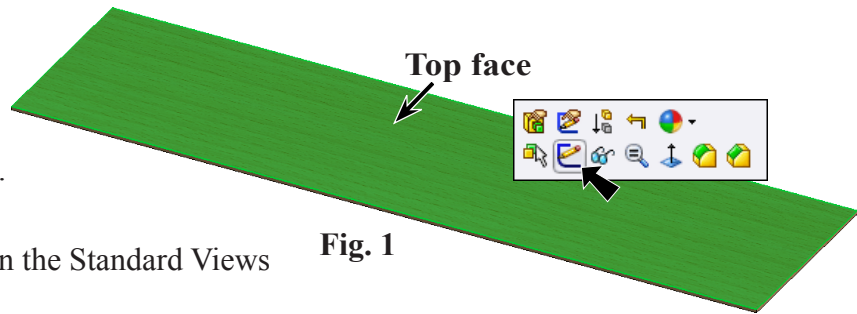


A. Open and Save as "WING STRAIGHT".

- Step 1. Open your **WING BLANK** file.
- Step 2. Click File Menu > Save As.
- Step 3. Key-in **WING STRAIGHT** for the filename and press ENTER.

B. Sketch Wing.


- Step 1. Click the **top face** of the Wing Blank and click **Sketch**  on the Content menu, **Fig. 1**.




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

Fig. 1

C. Lines.

- Step 1. Click **Line**  (L) on the Sketch toolbar.

- Step 2. Draw three lines, **Fig. 2**. Draw vertical centerline down Wing Blank through the Origin. Start from Midpoint  of an edge of Wing Blank. **Right click** and click End-chain from menu to restart line or use the L key to select Line tool and to end-chain. Also, draw two horizontal lines.

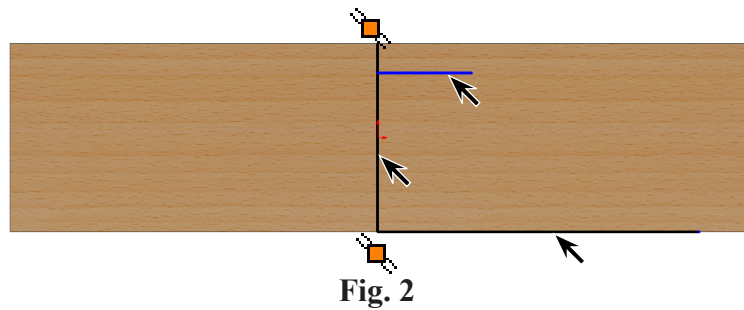



Fig. 2

- Step 3. Click **Smart Dimension**  (S) on the Sketch toolbar.

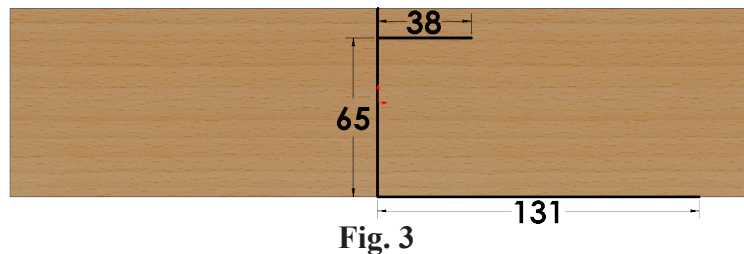


Fig. 3

- Step 4. Add the Dimensions as shown in **Fig. 3**.
- Step 5. Save. Use **Ctrl-S**.

D. 2 Point Spline.

Step 1. Click **Spline**  (S) on the Sketch toolbar.

Step 2. Draw a **2 Point Spline** between endpoints of horizontal lines, **Fig. 4**. Press Escape to end spline.

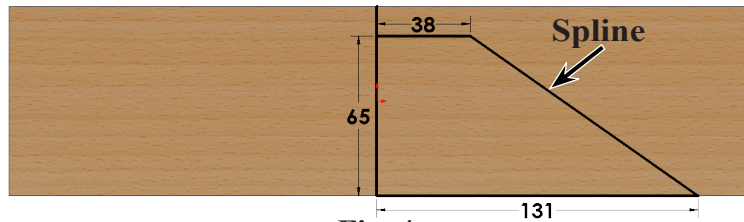




Fig. 4

Step 3. Click spline to select it. Grab **Circular Spline handle**  (small gray dot) of **Spline Point 1** and pull handle out to right, **Fig. 5** and **Fig. 6**. To find the Circular spline handle, start your cursor over the endpoints of spline and move up along the spline. The Circular spline handle will highlight as a red circle .

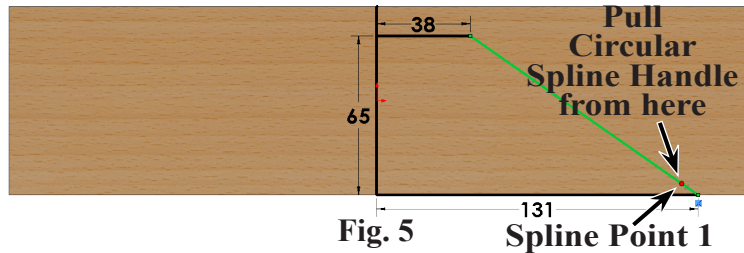


Fig. 5

Step 4. **Ctrl click spline and bottom horizontal line** to select both. Release Ctrl key and click



Fig. 6

Make Tangent  on the Content menu, **Fig. 7**.

Step 5. **Ctrl click spline and top horizontal line** to select both. Release Ctrl key and click

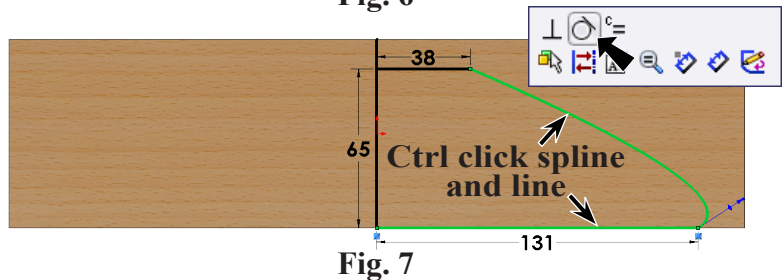



Fig. 7

Make Tangent  on the Content menu, **Fig. 8**.

Step 6. Click **Smart Dimension**  (S) on the Sketch toolbar.

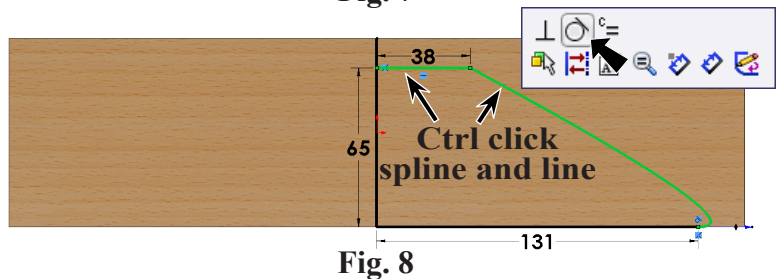



Fig. 8

Step 7. Dimension Spline Point 1 **Tangent Weighting2 120**, **Fig. 9**. To dimension Tangent Weighting, click the **Circular Spline handle** , then move the cursor out away from spline and click. Key-in 120 and press ENTER.

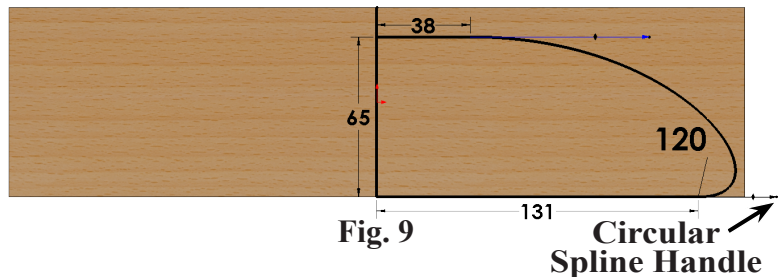


Fig. 9

Step 8. Dimension Spline Point 2 **Tangent Weighting** 330, **Fig. 10**. To dimension Tangent Weighting, click the **Circular Spline handle**, then move the cursor out away from spline and click. Key-in 330 and press ENTER.

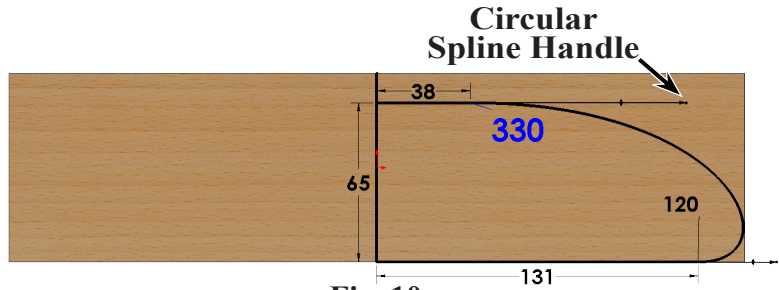
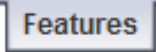


Fig. 10

Step 9. Save. Use **Ctrl-S**.

E. Extruded Cut WING INBOARD.

Step 1. Click **Features**  on the Command Manager toolbar.

Step 2. Click **Extruded Cut**  on the Features toolbar.

Step 3. In the Cut-Extrude Property Manager set:
 under Direction1, **Fig. 11**
 End Condition **Through All**
 check **Flip side to cut**
 uncheck **Direction 2**
 under Selected Contours
 click the **wing** in graphics area, **Fig. 12**.

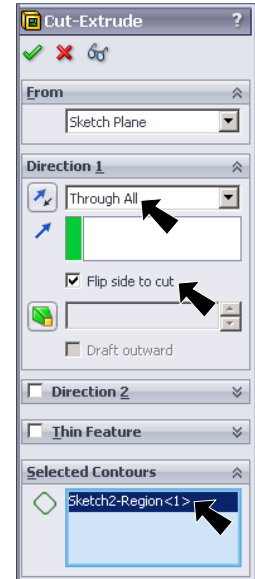


Fig. 11

The Direction arrow should point towards area to be cut away, **Fig. 12**. If arrow is pointing in wrong direction, uncheck **Flip side to cut**, **Fig. 11**.

Click OK .

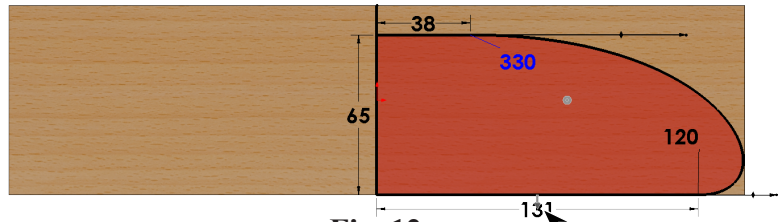


Fig. 12


Direction arrow



Fig. 13

F. Fillet Full Round.


Step 1. Click **Trimetric**  on the Standard Views toolbar.

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

Step 3. In the Fillet Property Manager, select **Manual**, **Fig. 14** under Fillet Type select **Full round fillet**

click in the **Face Set 1**  box click **top face**, **Fig. 15**

click in the **Center Face Set 1**  box, **Fig. 14** click **front face and side face**, **Fig. 15**

click in the **Face Set 2**  box, **Fig. 14** rotate view to view **bottom face**, hold down middle mouse button (wheel) and drag to rotate view, **Fig. 16**

click **bottom face**, **Fig. 16** click **OK** , **Fig. 17**.

Step 4. Save. Use **Ctrl-S**.

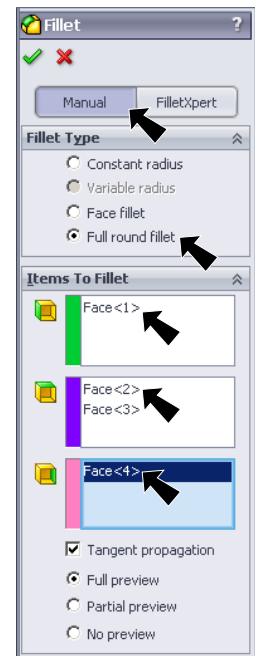


Fig. 14

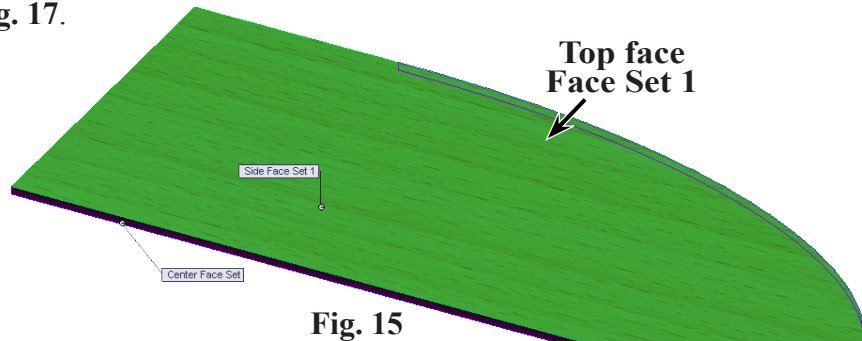


Fig. 15

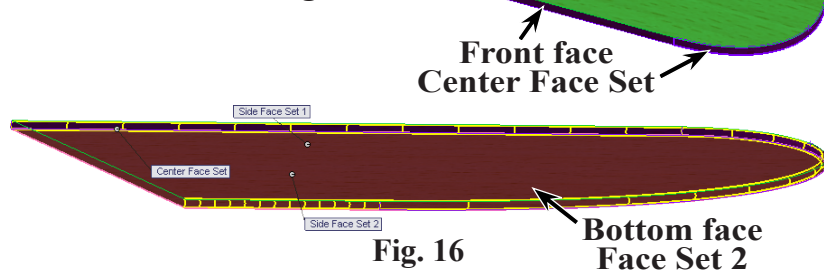


Fig. 16



Fig. 17

G. Air Foil Cut.

Step 1. Click **Right Plane**  in the Feature Manager and click **Sketch**  from the Content toolbar, **Fig. 18**.

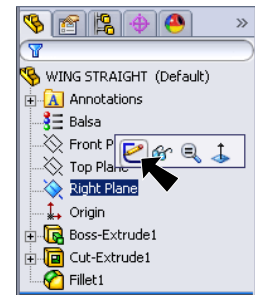



Fig. 18

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

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

Step 4. Draw a centerline part way across the sketch, **Fig. 19**. Start from Midpoint  of rear edge.



Fig. 19

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

Step 6. Draw a **2 Point Spline** from right endpoint of centerline to top edge of Wing, **Fig. 20**. Press Escape to end spline.

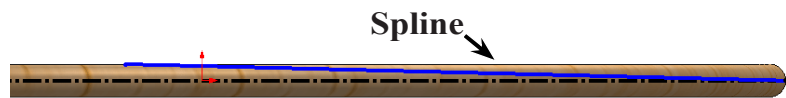





Fig. 20

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

Step 8. Add the **30** dimension as shown in **Fig. 21**.



Fig. 21

Step 9. Click the Spline to select it and locate the **Circular Spline handle**  (small gray dot) of **Spline Point 1**, **Fig. 22**. To find the Circular spline handle, start your cursor at the bottom Spline Point, Spline Point 1 and move cursor up along the spline. The Spline Point the Circular Spline handle will highlight as a red circle .

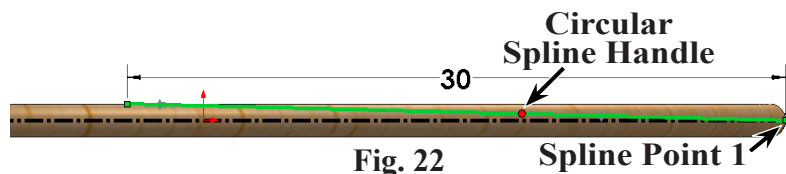



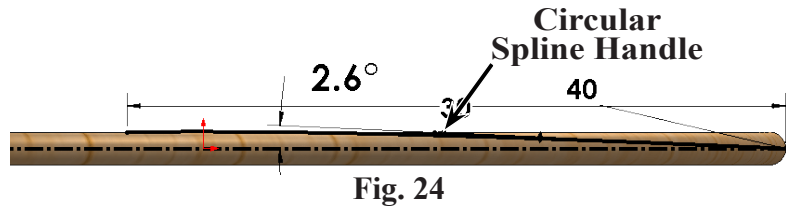
Fig. 22



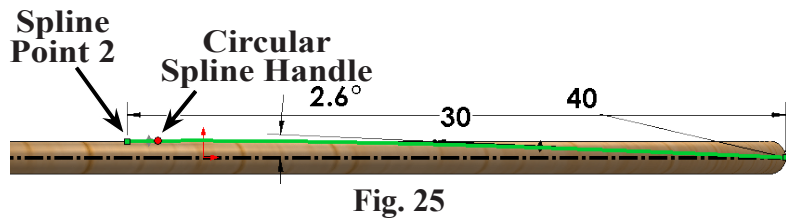
Fig. 23

Step 10. Dimension Spline Point 1 **Tangent Weighting2 40**, **Fig. 23**. To dimension Tangent Weighting, click the **Circular Spline handle** , then move the cursor out away from spline and click. Key-in 40 and press ENTER.

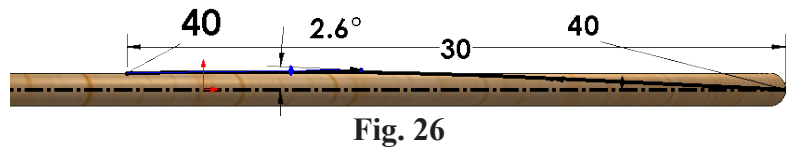
Step 11. Dimension Spline Point 1 **Tangent Radial Direction 2.6 degrees, Fig. 24.** To dimension Tangent Radial Direction, click the **Circular Spline handle** and **centerline**, then move cursor between and click. Key-in 2.6 and press ENTER.



Step 12. Click Spline to display the Circular Spline handle and locate the **Circular Spline handle** of **Spline Point 2, Fig. 25.**

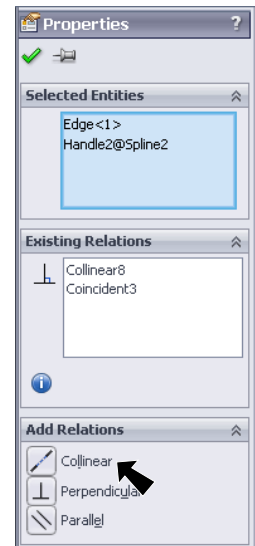
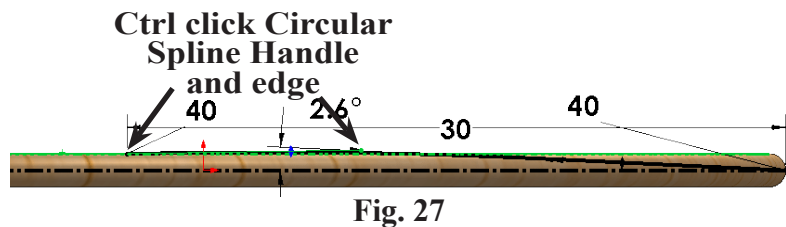


Step 13. Dimension Spline Point 2 **Tangent Weighting1 40, Fig. 26.** To dimension Tangent Weighting, click the **Circular Spline handle**, then move the cursor out away from spline and click. Key-in 40 and press ENTER.



Step 14. **Right click drawing and click Select from menu to unselect Smart Dimension.**

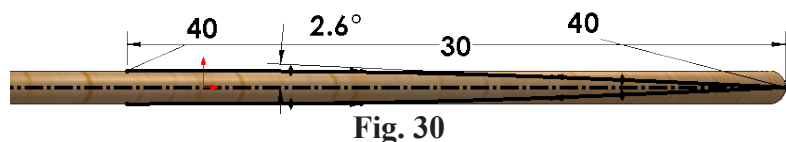
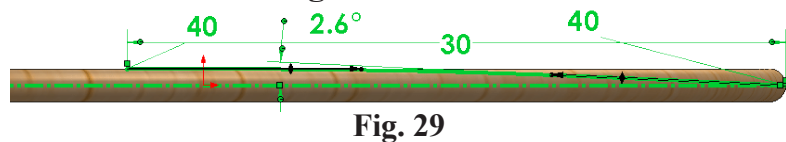
Step 15. **Ctrl click the Circular Spline handle of Spline Point 2 and the top edge of Wing to select both, Fig. 27.** Click **Make Collinear** on the Property Manager, Fig. 28.



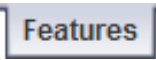
Step 16. **Drag selection around the sketch to select all entities, Fig. 29.** To drag selection, click **below** and to right of sketch and drag up and to left to drag around all.

Drag a selection around all geometry start bottom right corner

Step 17. Click **Mirror Entities** on the Sketch toolbar.



Step 18. Click **Trimetric**  on the Standard Views toolbar.

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:

under **Direction1**, **Fig. 31**

End Condition **Through All**

click **Reverse Direction** 

uncheck **Flip side to cut**

uncheck **Direction 2**.

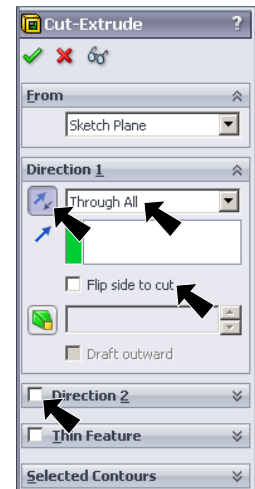


Fig. 31

The Direction arrow should point towards area to be cut away, **Fig. 32**. If arrow is pointing in wrong direction, check **Flip side to cut**, **Fig. 31**.

Click OK .

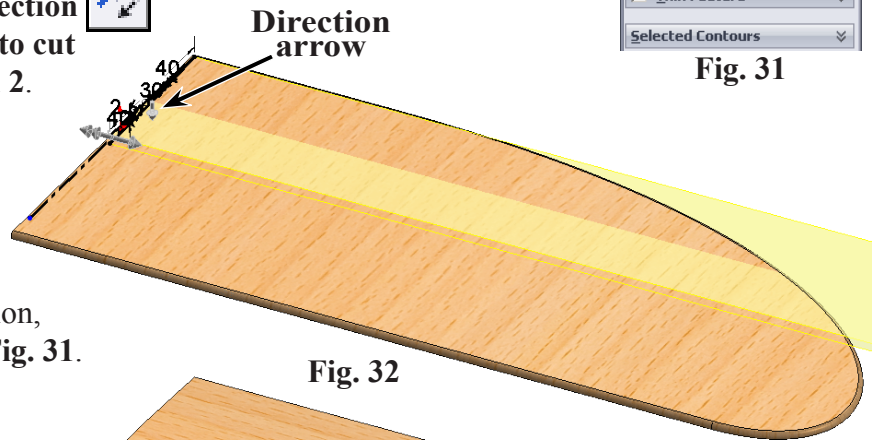


Fig. 32

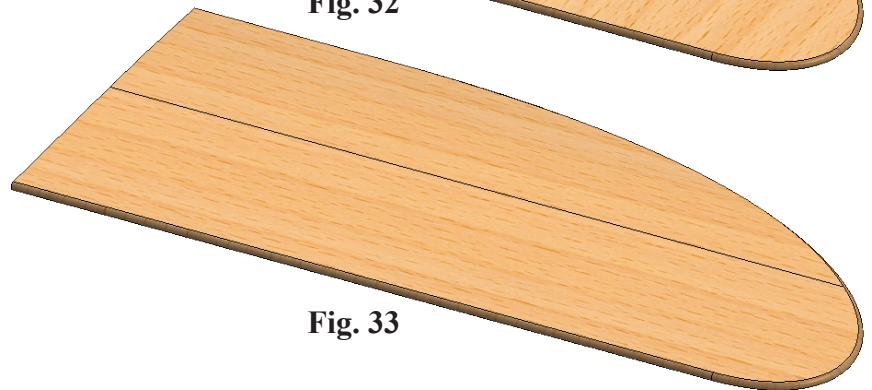




Fig. 33

H. Chamfer Dihedral Angle.

Step 1. Click **Fillet1** feature in the Feature Manager and click **Suppress**  in the menu, **Fig. 34**.

Step 2. Click **Chamfer**  in the **Fillet flyout** on the Features toolbar.

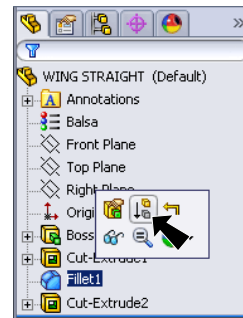



Fig. 34

Step 3. In the Chamfer Property Manager set: click **top root edge**, **Fig. 35**

Depth  **1.5**, **Fig. 35**

Angle  **15°**
 uncheck **Flip direction**.
 select **Full preview**

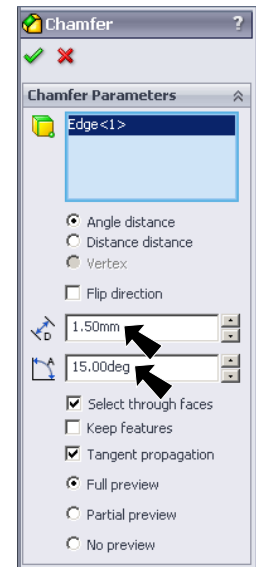


Fig. 35

The Direction arrow should point down, **Fig. 36**. If arrow is pointing in wrong direction, check **Flip direction**.

Click OK .

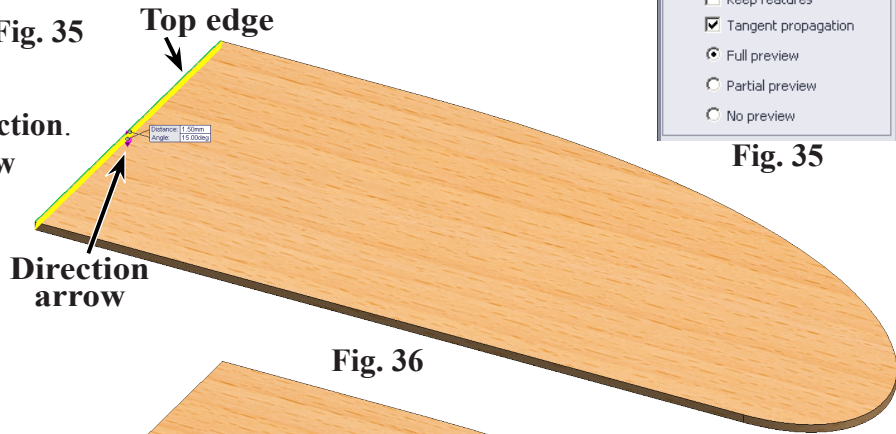



Fig. 36

Step 4. Click the suppressed **Cut-Extrude2** feature in the Feature Manager and click **Unsuppress**  in the menu, **Fig. 38** and **Fig. 39**.

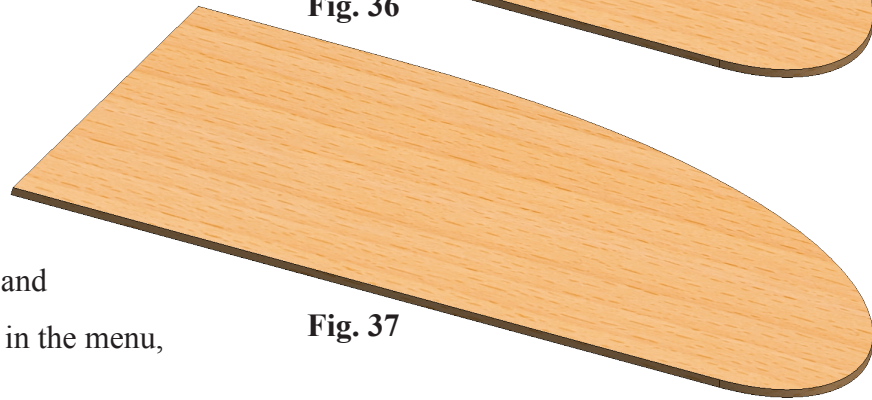


Fig. 37

Step 5. Save. Use **Ctrl-S**.



Fig. 38

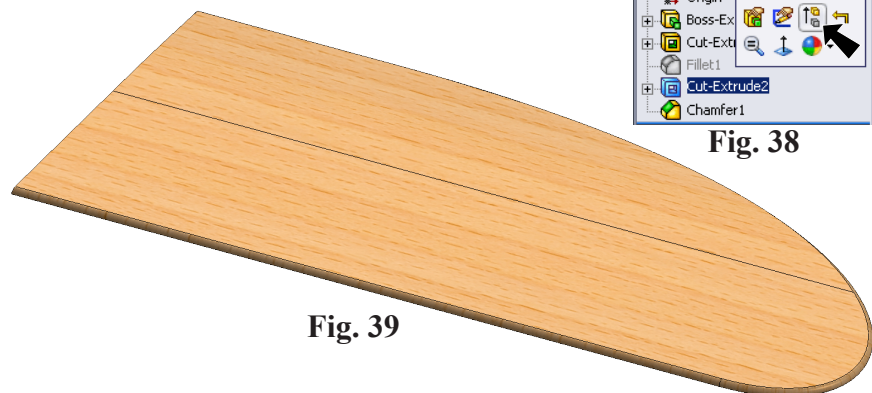


Fig. 39