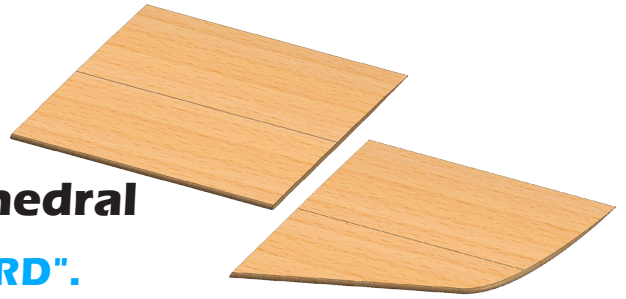


Glider Wing


4 Panel Polyhedral



A. Open and Save as "WING INBOARD".

- Step 1. Open your **WING BLANK** file.
- Step 2. Click File Menu > Save As.
- Step 3. Key-in **WING INBOARD** 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**.

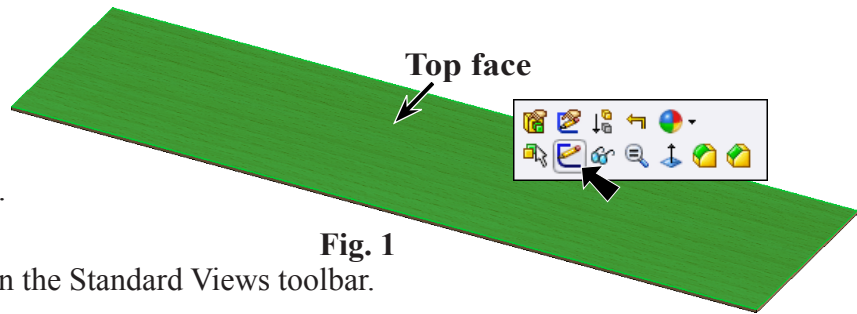



Fig. 1

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

C. Lines.

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

- Step 2. Draw vertical centerline down Wing Blank through the Origin. Start from Midpoint  of an edge of Wing Blank, **Fig. 2**. **Right click** and click End-chain from menu to restart line. Draw second vertical line and a line from bottom end-point up at an angle.

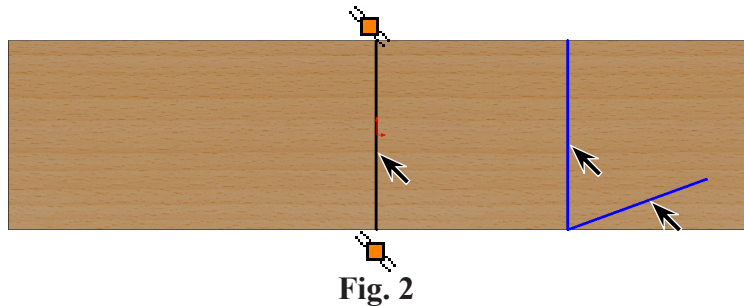



Fig. 2

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

- Step 4. Add the Dimensions as shown in **Fig. 3**.

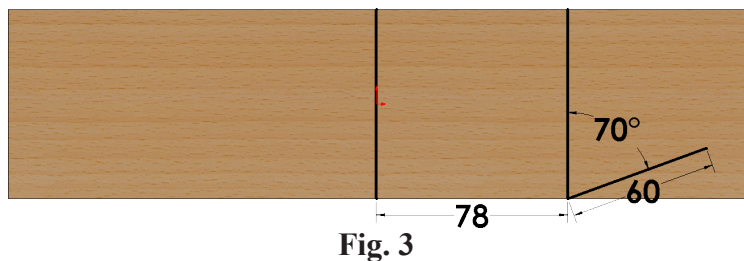


Fig. 3

- 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** from endpoint of angled line to top right corner of Wing Blank, **Fig. 4**. Press Escape to end spline.



Fig. 4




Step 3. **Ctrl click line and spline** to select both. Release Ctrl key and click **Make Tangent**  on the Content menu, **Fig. 5**.



Fig. 5

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

Step 5. Dimension Spline Point 1 **Tangent Weighting 2 30**, **Fig. 6** and **Fig. 7**. To dimension Tangent Weighting, click the **Circular Spline handle** , **Fig. 6**, then move the cursor out away from spline and click. Key-in 30 and press ENTER.

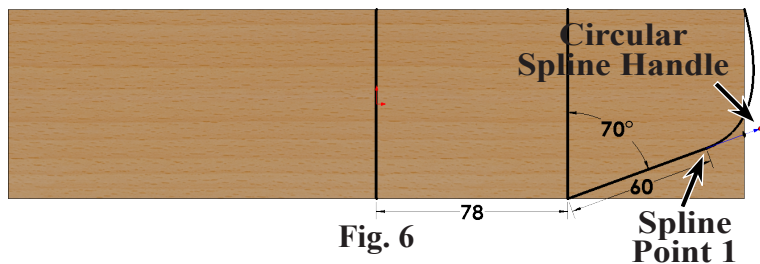


Fig. 6

Step 6. Save. Use **Ctrl-S**.

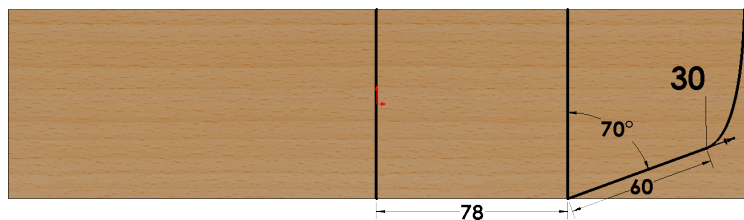
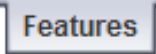



Fig. 7

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. 8**
 End Condition **Through All**
 check **Flip side to cut**
 uncheck **Direction 2**
 under Selected Contours
 click the **inboard contour** in graphics area, **Fig. 9**.
 The Direction arrow should point towards area to be cut away,
Fig. 9. If arrow is pointing in wrong direction, uncheck **Flip side to cut**
to cut, Fig. 8.
 click OK .

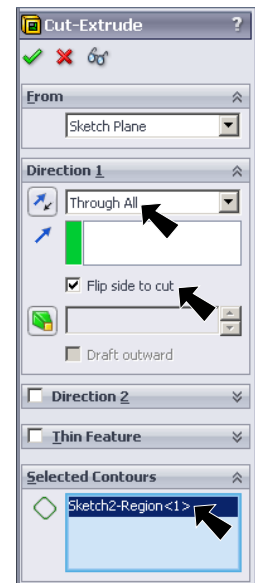


Fig. 8

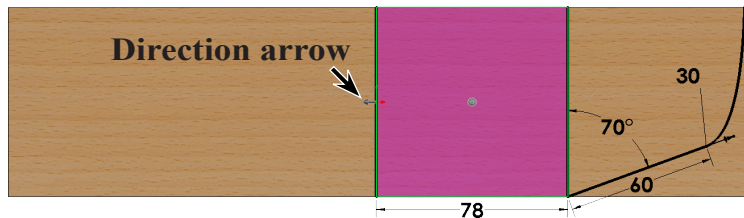






Fig. 9

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. 10**
 under **Fillet Type**
 select **Full round fillet**
 click in the **Face Set 1**  box
 click **top face**, **Fig. 11**
 click in the **Center Face Set 1**  box, **Fig. 10**
 click **front face**, **Fig. 11**
 click in the **Face Set 2**  box, **Fig. 10**

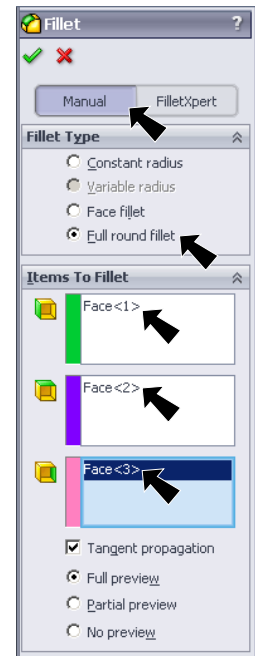


Fig. 10

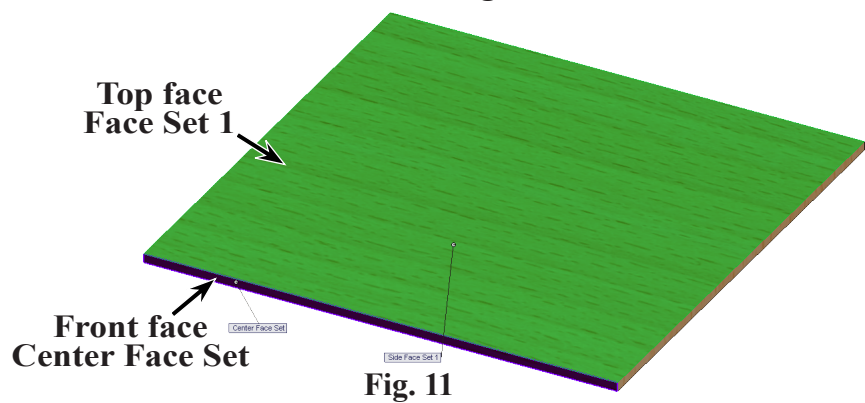


Fig. 11

rotate view to view **bottom face**, hold down middle mouse button (wheel) and drag to rotate view, **Fig. 12**

click **bottom face**, **Fig. 12**

click OK , **Fig. 13.**

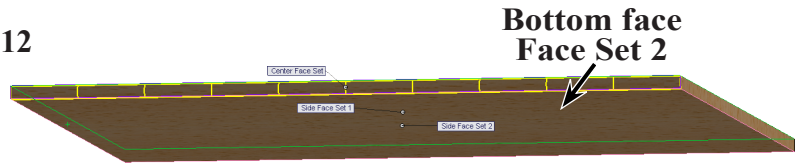



Fig. 12



Fig. 13

G. Air Foil Cut.

Step 1. Click **Right Plane**  in the Feature Manager and click **Sketch**  from the Content toolbar, **Fig. 14.**

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. 15.** Start from Midpoint  of rear edge.

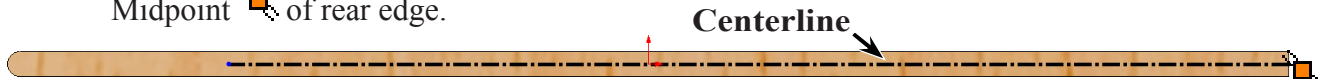


Fig. 15

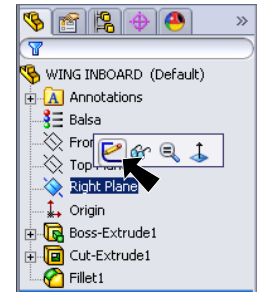


Fig. 14

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. 16.** Press Escape to end spline.

Step 7. Click **Smart Dimension**



(S) on the Sketch toolbar.





Fig. 16

Step 8. Add the **40** dimension as shown in **Fig. 17.**



Fig. 17

Step 9. Click the Spline to select it and locate the **Circular Spline handle**  (small gray dot) of **Spline Point 1**, **Fig. 18.** To find the Circular spline handle, start your cursor at the bottom Spline Point, Spline Point 1 and move cursor up along the spline. Just above the Spline Point the Circular Spline handle will highlight as a red circle .

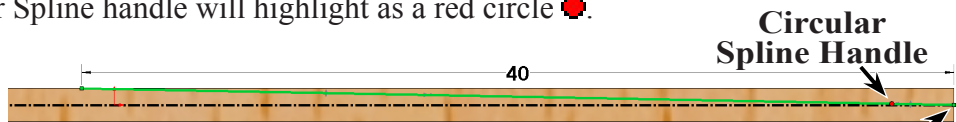



Fig. 18

Step 10. Dimension
Spline Point
1 Tangent
Weighting2



Fig. 19

40, Fig. 19. 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.

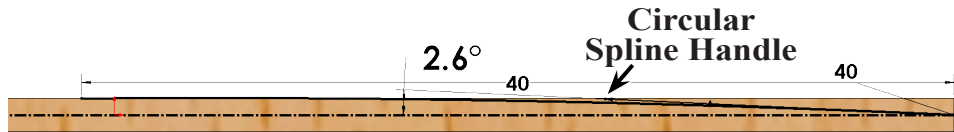




Fig. 20

20. 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**  (small gray dot) of Spline Point 2, Fig. 21.

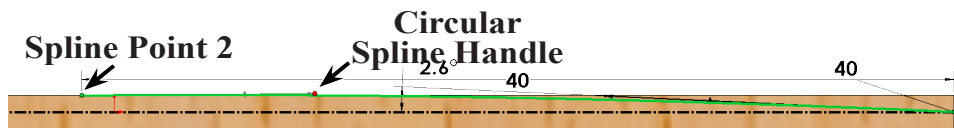


Fig. 21

Step 13. Dimension
Spline Point
2 Tangent
Weighting1
40, Fig. 22.

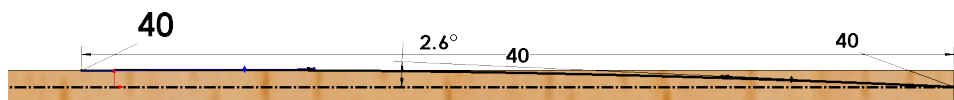



Fig. 22

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.

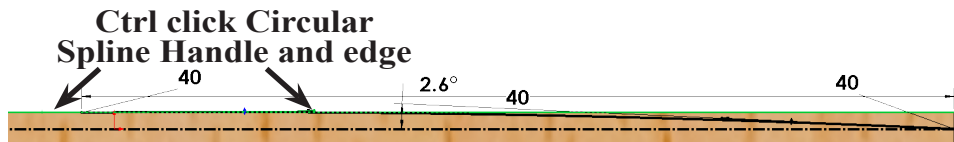




Fig. 23

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. 23. Click **Make Collinear**  on the Property Manager, Fig. 24.

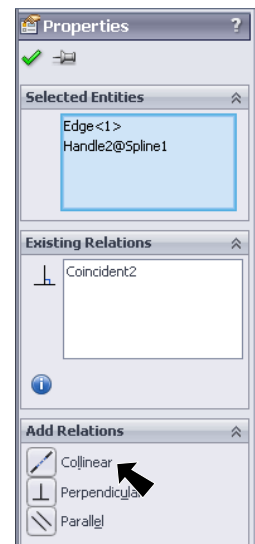


Fig. 24

Step 16. **Drag selection around the sketch** to select all entities, **Fig. 25**. To drag selection, click **below and to right** of sketch and drag up and to left to drag around all.

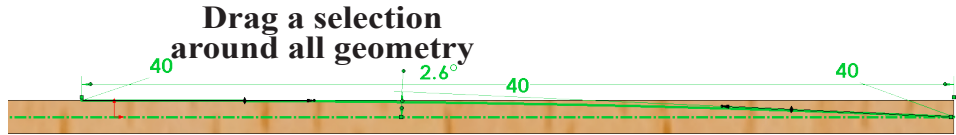


Fig. 25

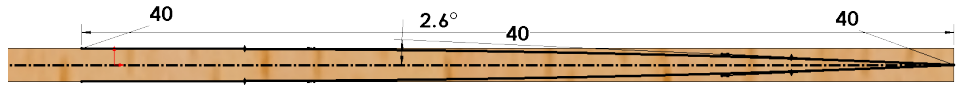
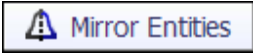
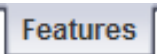



Fig. 26

Step 17. Click **Mirror Entities**  on the Sketch toolbar, **Fig. 26**.

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. 27**
 End Condition **Through All**
 click **Reverse Direction** 
 uncheck **Flip side to cut**
 uncheck **Direction 2**.

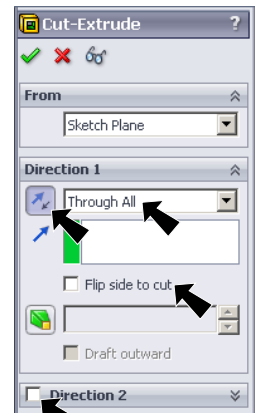



Fig. 27

The Direction arrow should point towards area to be cut away, **Fig. 28**. If arrow is pointing in wrong direction, check **Flip side to cut**, **Fig. 27**.
 click OK .

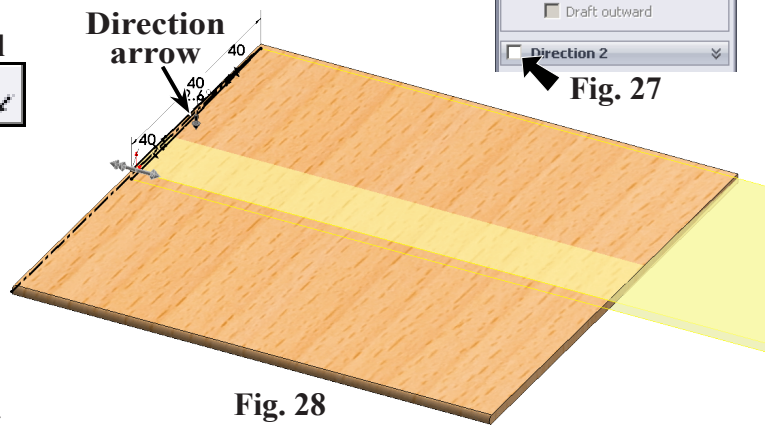


Fig. 28

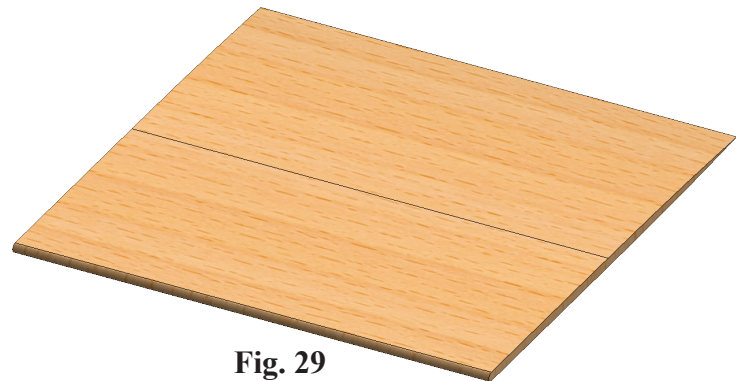


Fig. 29

H. Save, then Save As "WING OUTBOARD".

Step 1. Save. **Very important to save at this time.**
Use **Ctrl-S** to save WING INBOARD.

Step 2. Click File Menu > Save As.

Step 3. Key-in **WING OUTBOARD** for the filename and press ENTER.
Next, we change contour for Wing Outboard.

I. Change Cut Extrude 1 Contour.

Step 1. Click **Cut-Extrude1** in the Feature Manager and click **Edit Feature**



in the menu, Fig. 30.

Step 2. Click Zoom to Fit  on the View toolbar.

Step 3. In the Property Manager:

right click in the **Select Contours** box and click **Clear Selections** from menu, Fig. 31

click **Wing Outboard contour** in graphics area, Fig. 32

click OK , Fig. 36.

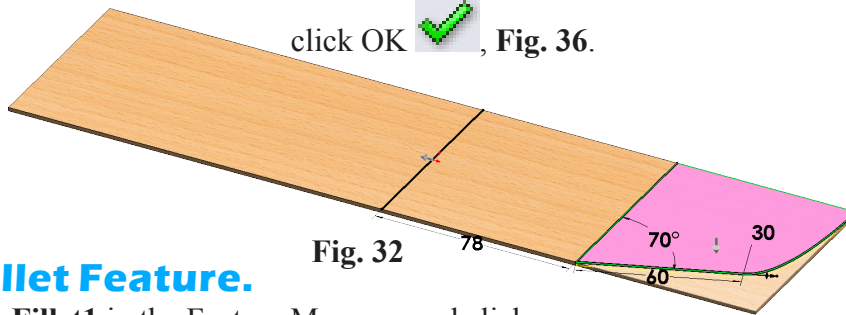


Fig. 32

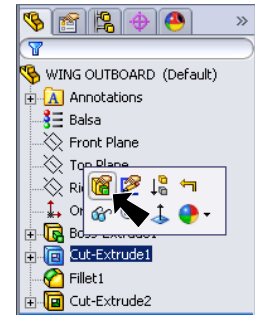


Fig. 30

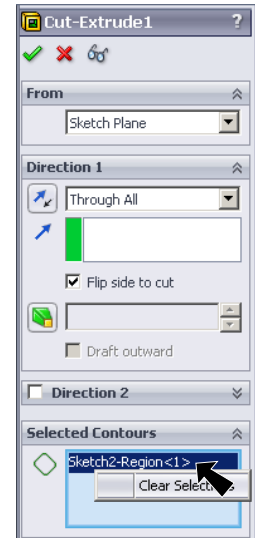


Fig. 31

J. Edit Fillet Feature.

Step 1. Click **Fillet1** in the Feature Manager and click

Edit Feature  in the menu, Fig. 33.

Step 2. In the Property Manager:

right click in the **Center Face Set 1**  box

and click **Clear Selections**, Fig. 34

click **front face**, Fig. 35

click OK , Fig. 36.

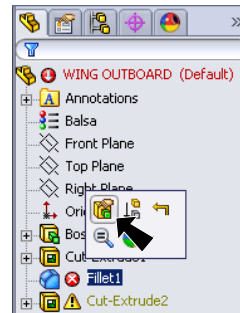


Fig. 33

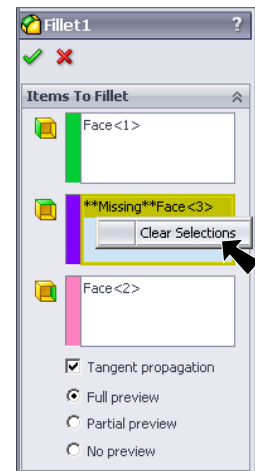
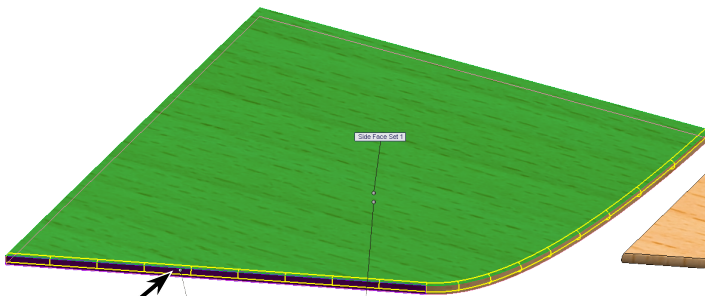


Fig. 34



Front face
Center Face Set
Fig. 35

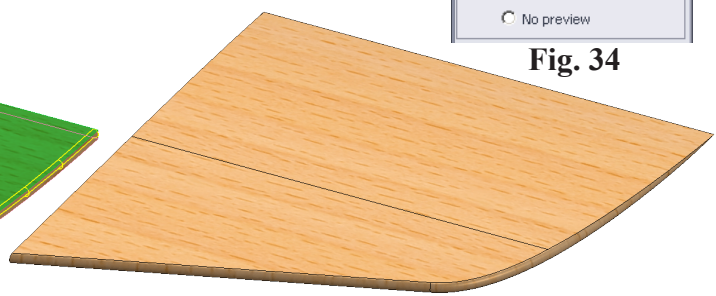



Fig. 36

K. Chamfer Dihedral Angle.

Step 1. Click **Fillet1** feature in the Feature Manager and click **Suppress**  in the menu, **Fig. 37**.

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

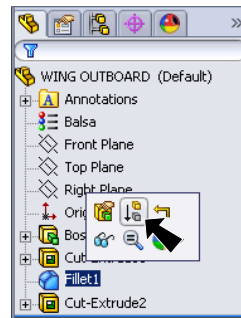


Fig. 37

Step 3. In the Chamfer Property Manager set:
click **top root edge**, **Fig. 39**

Depth  **1.5**, **Fig. 38**

Angle  **18°**

check **Flip direction**.

The Direction arrow should point down, **Fig. 39**. If arrow is pointing in wrong direction, uncheck **Flip direction**.

select **Full preview**

click **OK** .

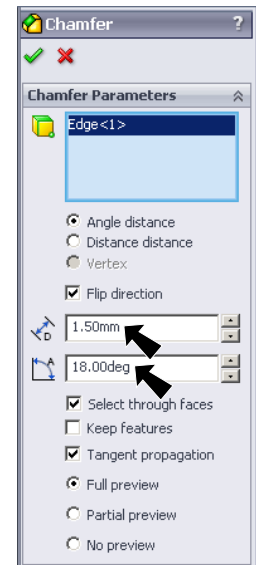


Fig. 38

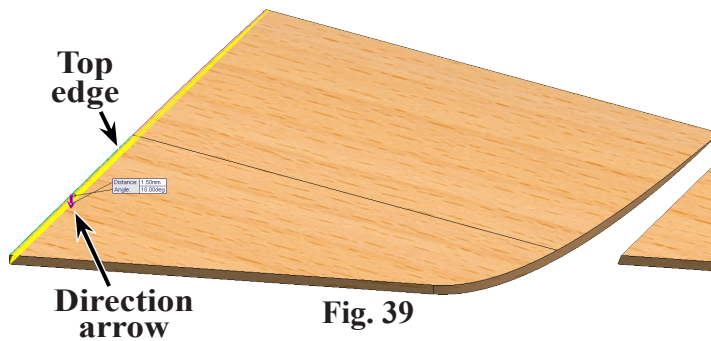


Fig. 39

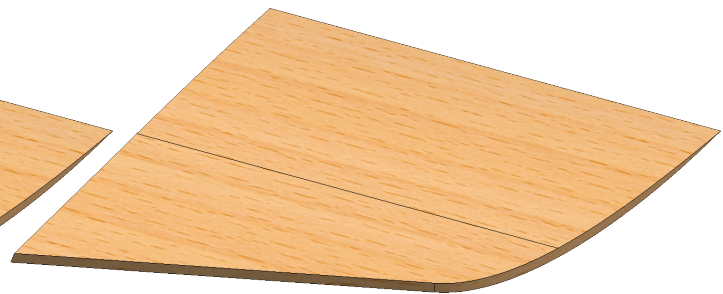



Fig. 40

Step 4. Click the suppressed **Fillet1** feature in the Feature Manager and click **Unsuppress**  in the menu, **Fig. 41** and **Fig. 42**.

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



Fig. 42

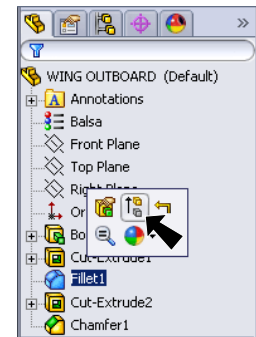


Fig. 41