

Whomp Rocket Glider

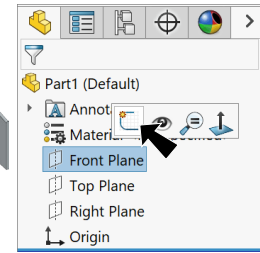
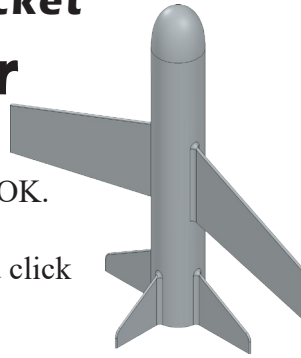




Fig. 1

A. Extrude1 Sketch1.

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 **Circle**  (S) on the Sketch toolbar.

Step 4. Sketch **two circles at Origin** , **Fig. 2**.

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

Step 6. Dimension **diameters 13.2 and 11.6**, **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  **78**
click OK .

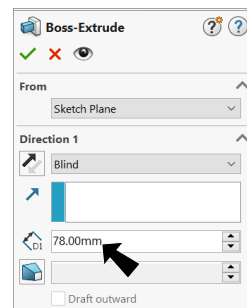


Fig. 3

B. Save as "GLIDER".

Step 1. Click File Menu > Save As.

Step 2. Key-in **GLIDER** for the filename and press ENTER.

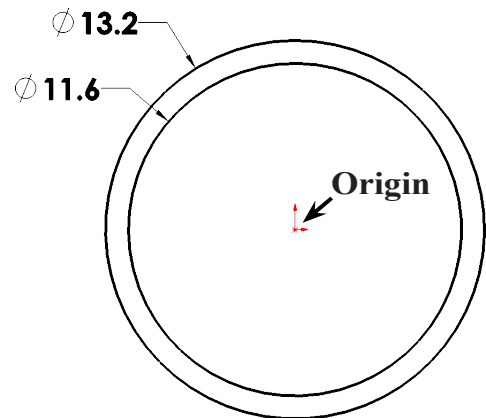


Fig. 2

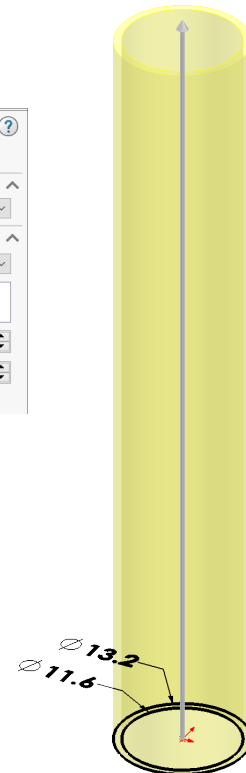




Fig. 4

C. Revolve Sketch2 Nose Cone.

Step 1. Click **Front Plane**  in the Feature Manager and click **Sketch**  on the context toolbar, **Fig. 5**.

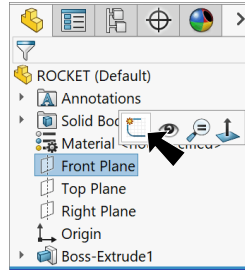



Fig. 5

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

Step 3. Zoom in on the nose cone area, **Fig. 6**.



Fig. 6

Step 4. Click **Line**  (L) on the Sketch toolbar.

Step 5. Sketch **horizontal line across top edge of Extrude to midpoint and up with a vertical line**, **Fig. 7**.

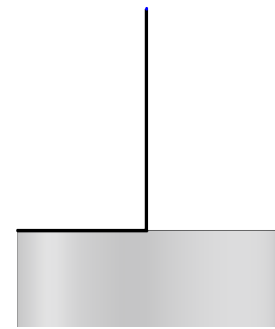


Fig. 7

Step 6. Click **Style Spline**  in the **Spline flyout**  on the Sketch toolbar.

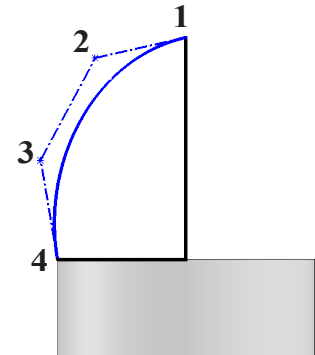



Fig. 8

Step 7. Sketch a **4 control vertex point Spline across line end-points**, **Fig. 8**. Press Escape to end spline.

Step 8. Click **top control polygon segment** and click **Make Horizontal**  on the context toolbar, **Fig. 9**.

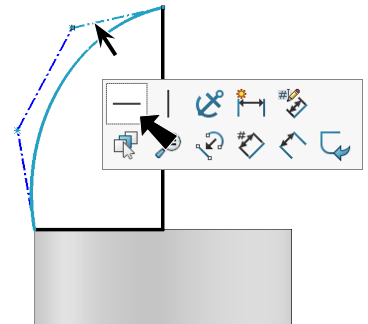



Fig. 9

Step 9. Click **bottom control polygon segment** and click **Make Vertical**  on the context toolbar, **Fig. 10**.

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

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

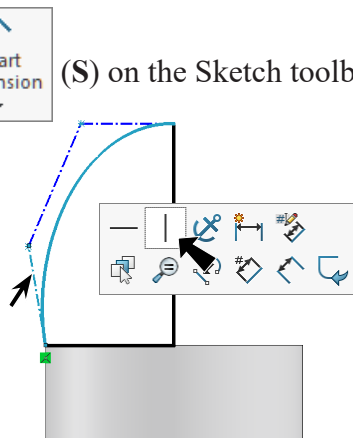


Fig. 10

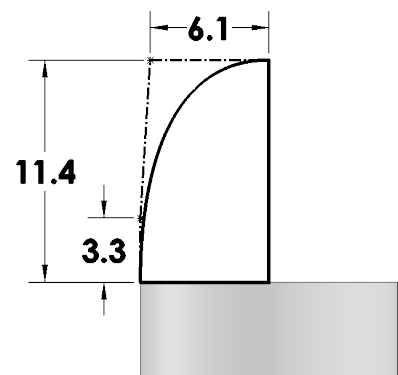




Fig. 11

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

Step 13. In the Offset Entities Property Manager set:
under Parameters, **Fig. 12**

Distance  **.8**
(thickness of Rocket tube)
check **Reverse**
uncheck **Select chain**
uncheck **Bi-directional**
click **spline**, **Fig. 13**
Yellow offset circle on inside
click **OK** .

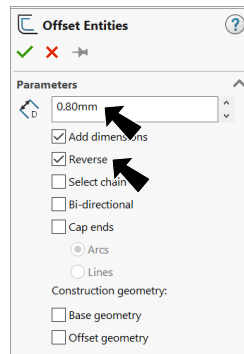


Fig. 12

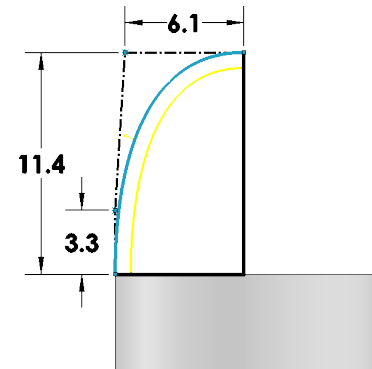



Fig. 13

Step 14. Click **Features**  on the Command Manager toolbar.

Step 15. Click **Revolved Boss/Base**  on the Features toolbar.

Step 16. In the Revolve Property Manger set:
uncheck **Thin Feature**, **Fig. 14**
under Selected Contours
click the **region**, **Fig. 15**
under Axis of Revolution
click in box
click **vertical line**
click **OK** .

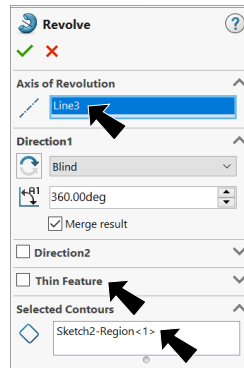


Fig. 14

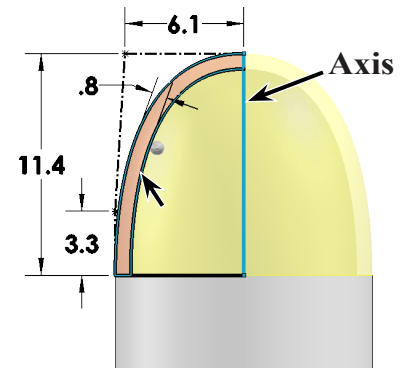


Fig. 15

Step 17. Save  (Ctrl-S).

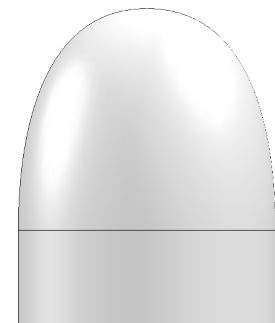




Fig. 16

D. Extrude2 Sketch3 V Stab.

Step 1. Click **Right Plane**  in the Feature Manager and click **Sketch**  on the context toolbar, **Fig. 17**.

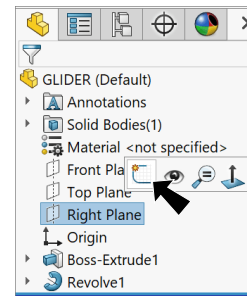


Fig. 17

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

Step 3. Zoom in on the bottom of Tube, **Fig. 18**.

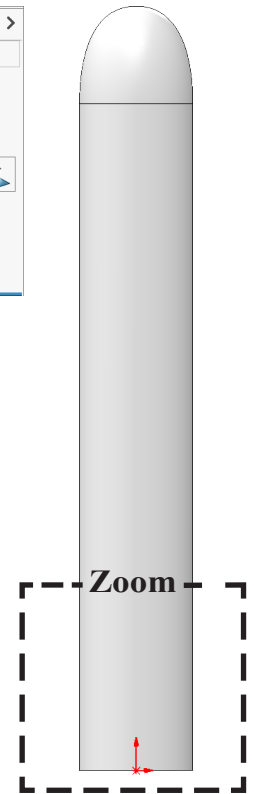


Fig. 18

Step 4. Click **Line**  (L) on the Sketch toolbar.

Step 5. Sketch **4 chained lines**, **Fig. 19**. Start sketch with vertical line down along left edge of tube to coincident with bottom edge, horizontal line across to left. Continue vertical line up and angled line back to top endpoint.

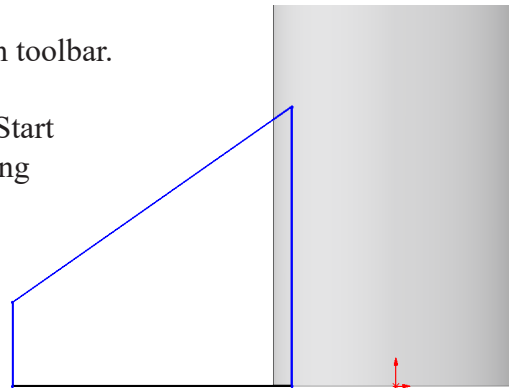


Fig. 19

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

Step 7. Add dimensions, **Fig. 20**.

Step 8. Click **Sketch Fillet**  on the Sketch toolbar.

Step 9. In the Sketch Fillet Property Manager set:

Radius  **3**

click **intersection of leading edge line and V Stab tip line**, **Fig. 22**

click **OK**  **twice**.

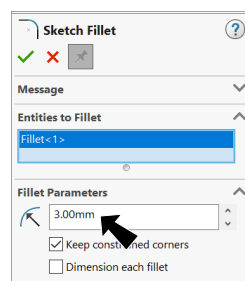


Fig. 21

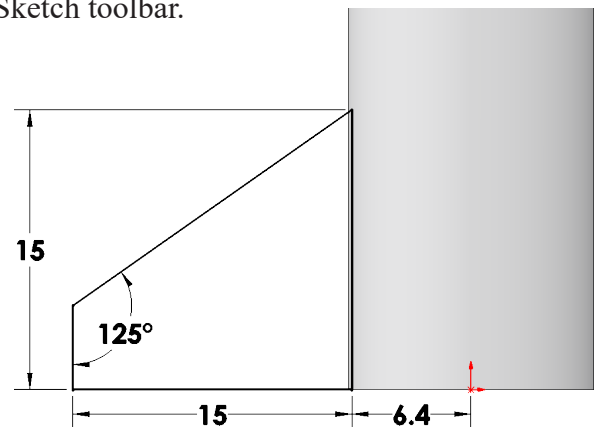


Fig. 20

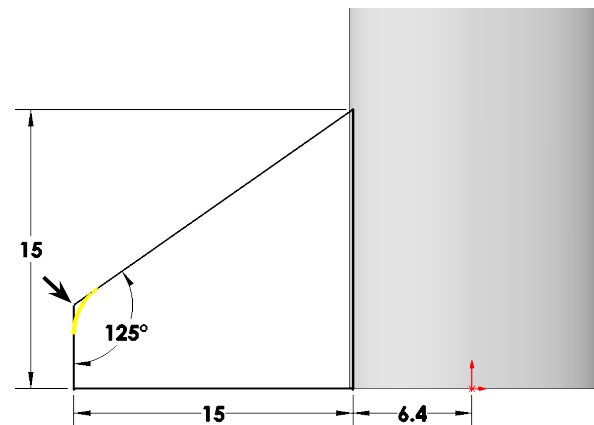



Fig. 22

Step 10. Click **Isometric**  on the Standard Views toolbar. (**Ctrl-7**)

Step 11. Click **Features**  on the Command Manager toolbar.

Step 12. Click **Extruded Boss/Base**  on the Features toolbar.

Step 13. In the Boss-Extrude Property Manager set:

under Direction 1, **Fig. 23**
End Condition **Mid Plane**

Depth  **.6**
click OK .

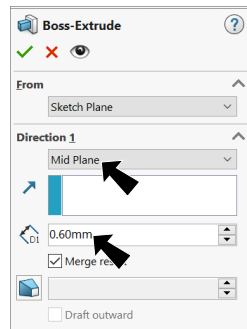


Fig. 23

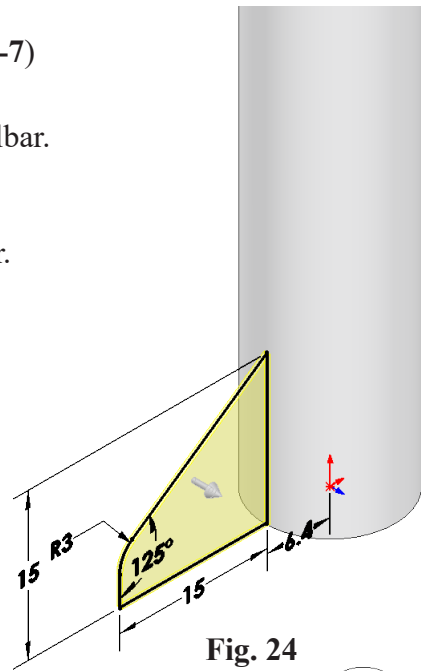




Fig. 24

Step 14. Save  (**Ctrl-S**).

E. Extrude3 Sketch4 H Stab.

Step 1. Click **Front Plane**  in the Feature Manager and click **Sketch**  on the context toolbar, **Fig. 25**.

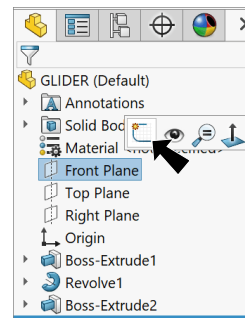


Fig. 25

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

Step 3. Zoom in on the bottom of Tube, **Fig. 26**.

Step 4. Click **Line**  (**L**) on the Sketch toolbar.

Step 5. Sketch **5 chained lines**, **Fig. 27**. Start sketch with vertical line down along right edge of tube to coincident with bottom edge, horizontal line across to right. Continue vertical line up, angled line up to left and horizontal line back to top endpoint.

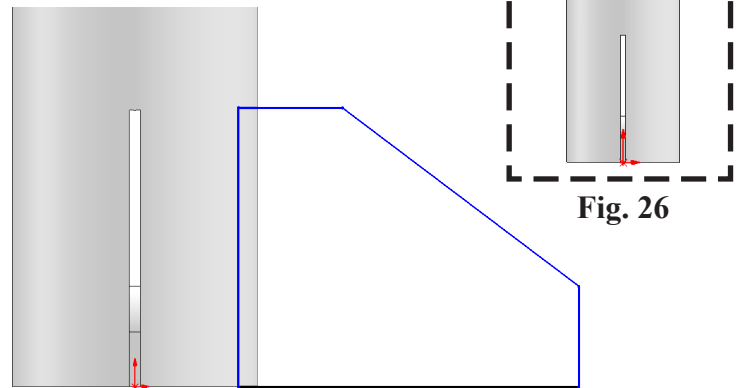


Fig. 27



Fig. 26


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

Step 7. Add dimensions, **Fig. 28**.

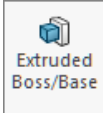
Step 8. Click **Sketch Fillet**  on the Sketch toolbar.

Step 9. In the Sketch Fillet Property Manager set: under Fillet Parameters, **Fig. 29**

Radius  2.5
click **leading edge corners**, **Fig. 30**
click OK  twice.

Step 10. Click **Isometric**  on the Standard Views toolbar. (Ctrl-7)

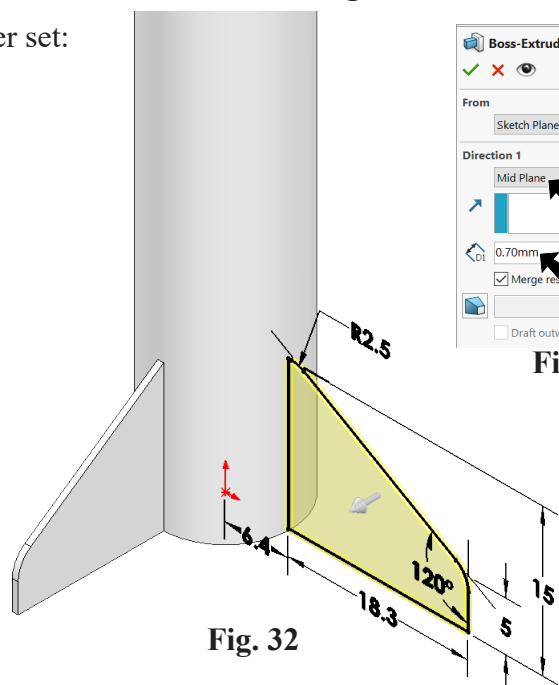
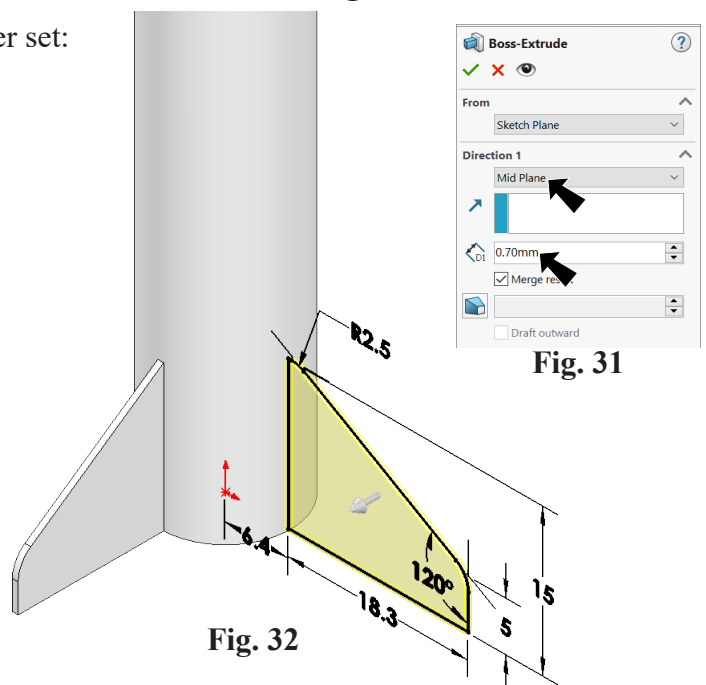
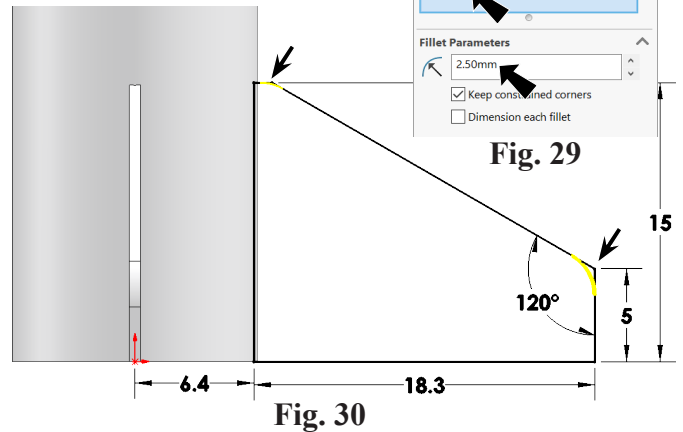
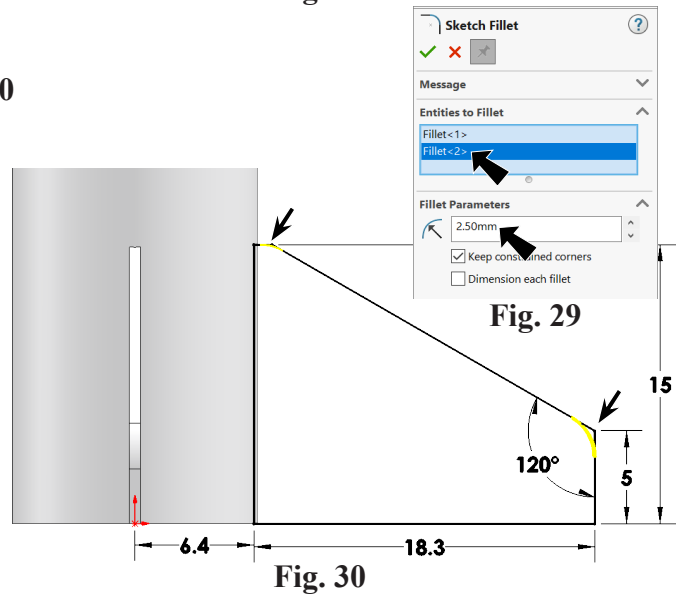
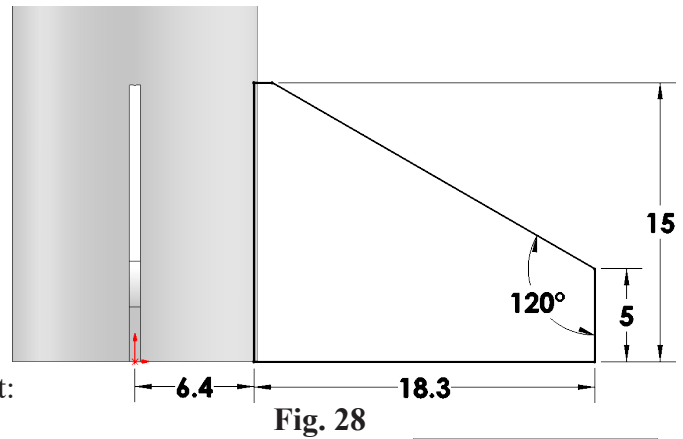
Step 11. Click **Features**  on the Command Manager toolbar.

Step 12. Click **Extruded Boss/Base**  on the Features toolbar.

Step 13. In the Boss-Extrude Property Manager set: under Direction 1, **Fig. 31**
End Condition **Mid Plane**

Depth  .7
click OK .

Step 14. Save  (Ctrl-S).



F. Create Plane 1 Sketch5 Wing Dihedral Angle.

Step 1. Click **Top Plane**  in the Feature Manager and click **Sketch**  on the context toolbar, **Fig. 33**.

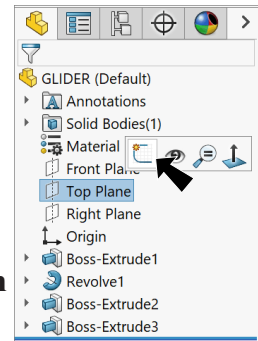



Fig. 33

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

Step 3. Click **Line**  (**L**) on the Sketch toolbar.

Step 4. Sketch line out from **Origin**  between the stabilizers, **Fig. 34**.

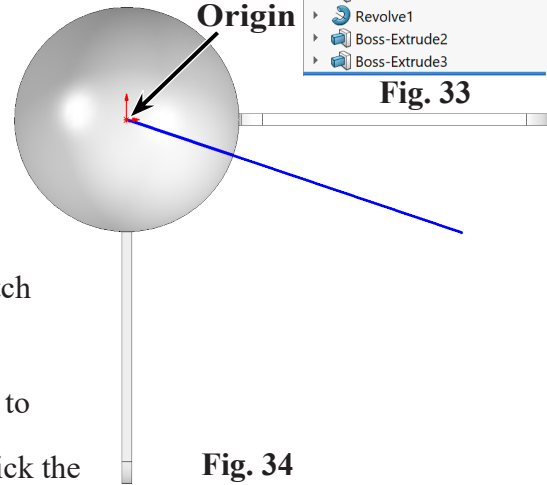




Fig. 34

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

Step 6. Dimension **angle 7**, **Fig. 35**. To dimension angle to imaginary line, click line and Origin , then click the **right horizontal crosshair**  and place dimension.

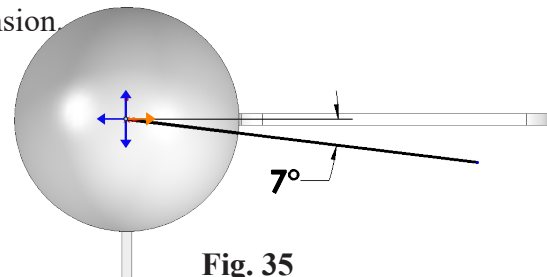



Fig. 35

Step 7. Click **Exit Sketch**  on the Sketch toolbar.

Step 8. Click **Isometric**  on the Standard Views toolbar. (**Ctrl-7**)

Step 9. Click **Top Plane**  in the Feature Manager to select the plane, **Fig. 36**.

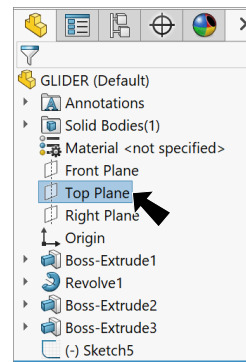


Fig. 36

Step 10. Click **Features**  on the Command Manager toolbar.

Step 11. Click **Reference Geometry**  on the Features toolbar and **Plane** from the menu.

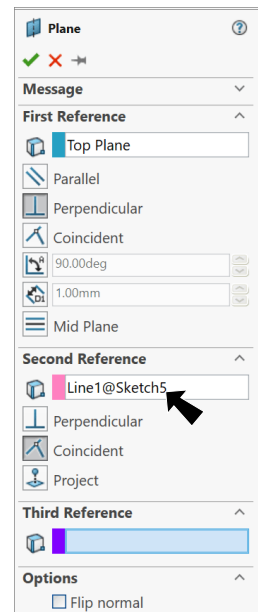




Fig. 37

Step 12. In the Plane Property Manager set:
 under First Reference, **Fig. 37**
 click **Top Plane**  was preselected
 under Second Reference
 click **line in Sketch5**, **Fig. 38**
 click **OK** .

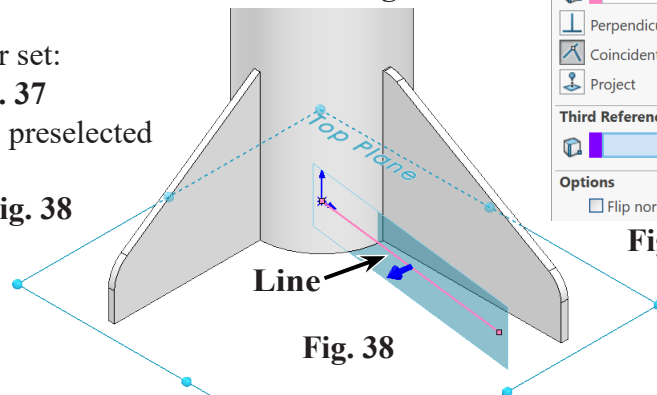





Fig. 38

Step 13. Save  (**Ctrl-S**).

G. Extrude4 Sketch6 Wing.

Step 1. **Hide Sketch5** . To hide, click **Sketch5**  in the graphics area and **Hide**  on the context toolbar, **Fig. 39**.

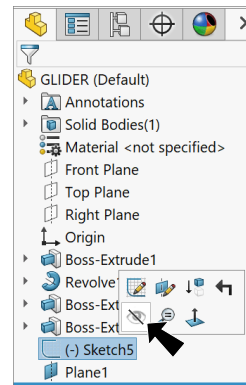





Fig. 39

Step 2. **Hide Plane1** . To hide, click **Plane1**  in the graphics area and **Hide**  on the context toolbar, **Fig. 40**.

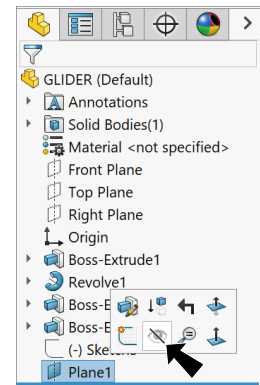


Fig. 40

Step 3. Click **Plane1**  in the Feature Manager and click **Sketch**  on the context toolbar, **Fig. 41**.

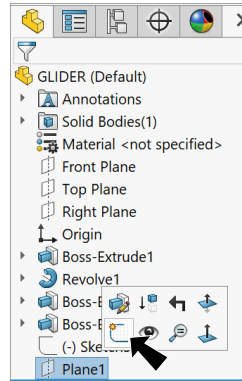



Fig. 41

Step 4. Click **Normal To**  on the Standard Views toolbar. (**Ctrl-8**)

Step 5. Click **Line**  (**L**) on the Sketch toolbar.

Step 6. Sketch **4 chained lines**, **Fig. 42**. Start sketch with vertical line down along right edge of tube, angle line, vertical line and angled line to top endpoint.

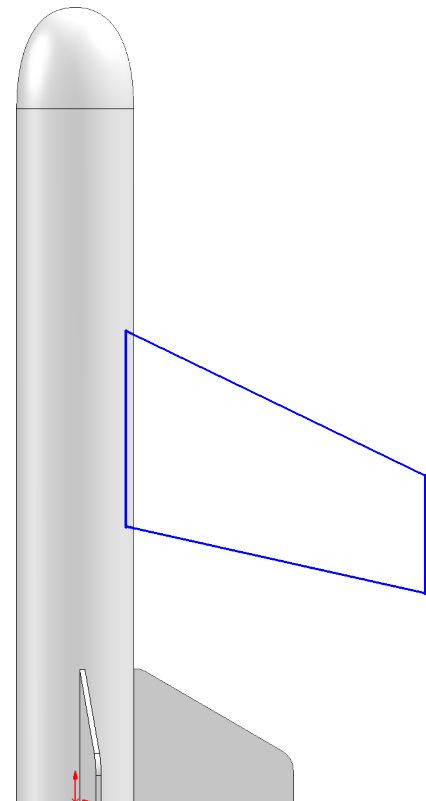


Fig. 42

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

Step 8. Add dimensions, **Fig. 43**.

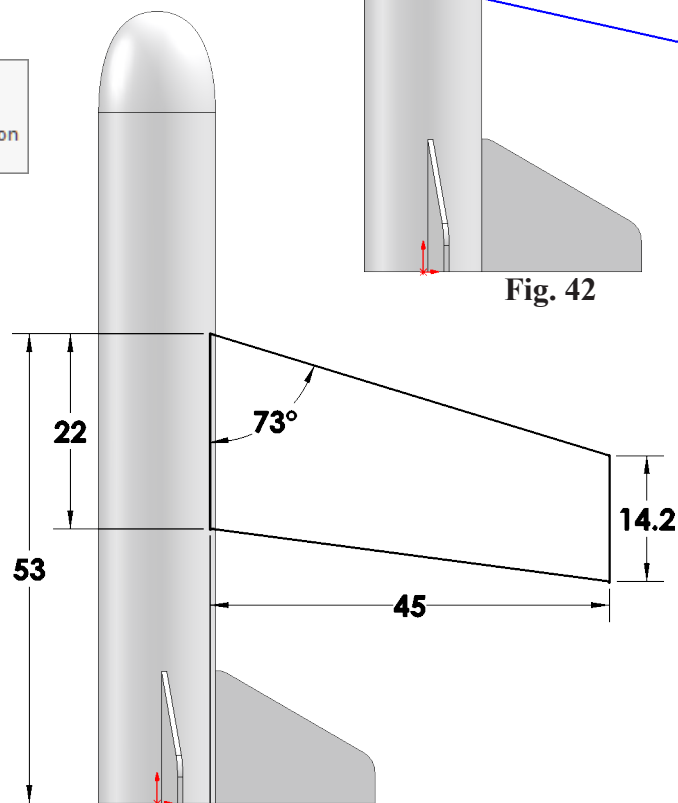

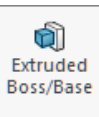


Fig. 43

Step 9. Click **Isometric**  on the Standard Views toolbar. (**Ctrl-7**)

Step 10. Click **Features**  on the Command Manager toolbar.

Step 11. Click **Extruded Boss/Base**  on the Features toolbar.

Step 12. In the Boss-Extrude Property Manager set:

under Direction 1, **Fig. 44**

End Condition **Mid Plane**

Depth  **.8**

click OK .

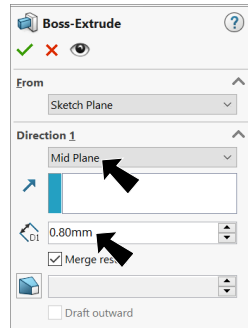


Fig. 44

Step 13. Save  (**Ctrl-S**).

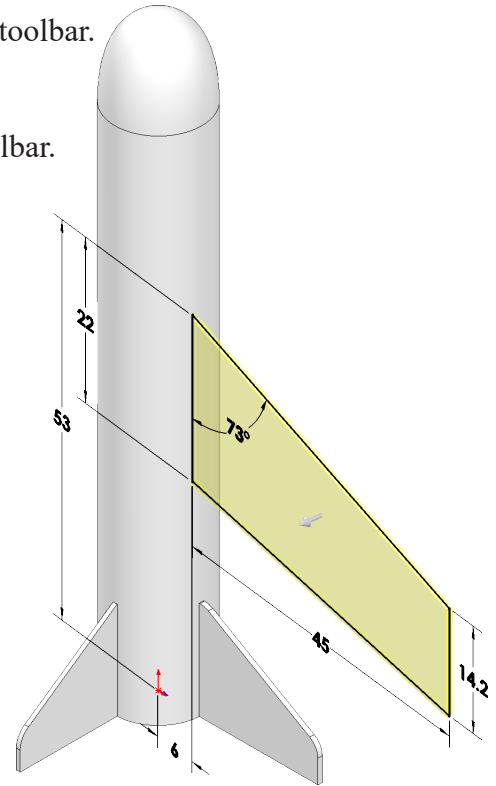


Fig. 45

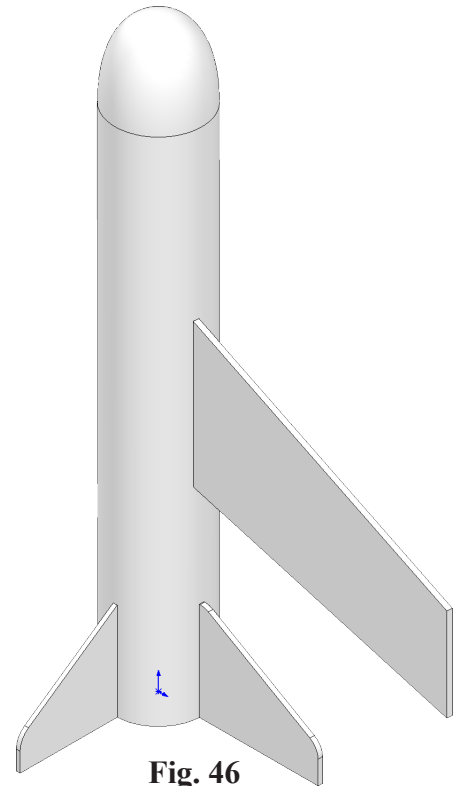


Fig. 46

H. Fillet1 Full Round Wing.

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

Step 2. In the Fillet Property Manager, select **Manual**, **Fig. 47** under Fillet Type

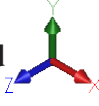

select **Full Round Fillet** 

click in **Side Face Set 1**  box
click **side face of Wing**, **Fig. 48**

Tip: Right click in graphics area to advance cursor to next selection in Property Manager
or...

click in **Center Face Set**  box
click **top face of Wing**, **Fig. 48**

click in **Side Face Set 2**  box
Rotate view to back side of **Wing**, **Fig. 49**.

To rotate view, **Shift click the Y axis of the Reference Triad** 
click **back side face**
click **OK** .

Step 3. Save  (**Ctrl-S**).

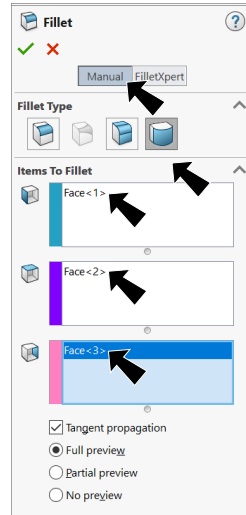


Fig. 47

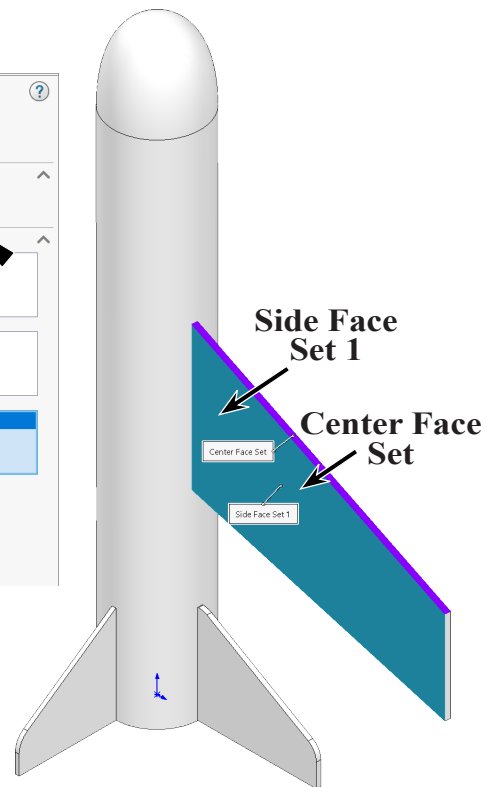


Fig. 48

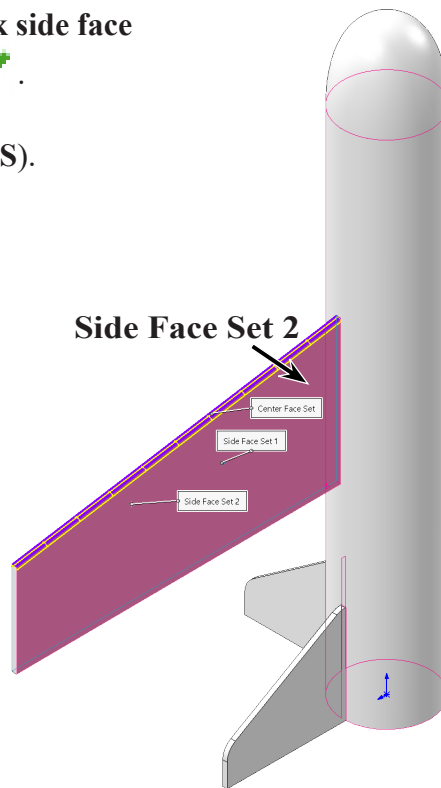


Fig. 49

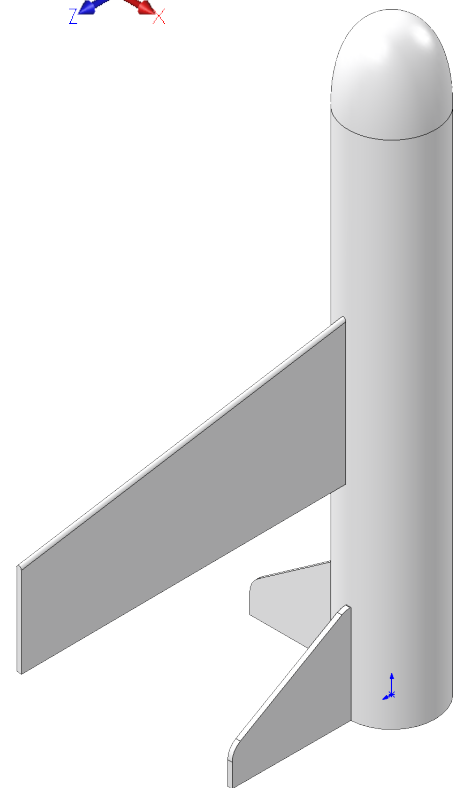


Fig. 50

I. Fillet2 Full Round H Stab.

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

Step 2. In the Fillet Property Manager, select **Manual**, **Fig. 51** under Fillet Type

select **Full Round Fillet** 

click in **Side Face Set 1**  box
click side face of H Stab, **Fig. 52**

Tip: Right click in graphics area to advance cursor to next selection in Property Manager

now in **Center Face Set**  box
click 4 top faces of H Stab, **Fig. 52**

click in **Side Face Set 2**  box

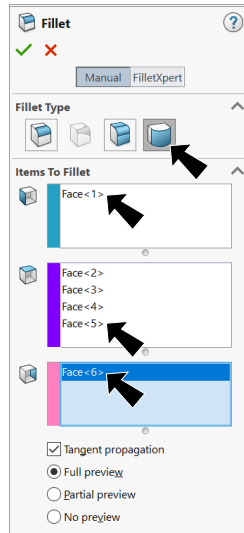


Fig. 51

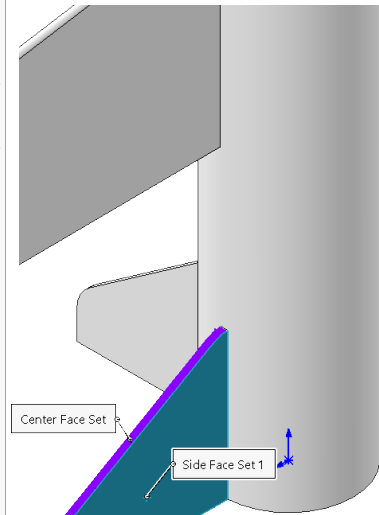



Fig. 52

Center Face Set **Side Face Set 1**

Rotate view to top side of H Stab, **Fig. 53**. To rotate view, click **Isometric**  on the Standard Views toolbar.

click **back side face**

click OK .

Step 3. Save  (Ctrl-S).

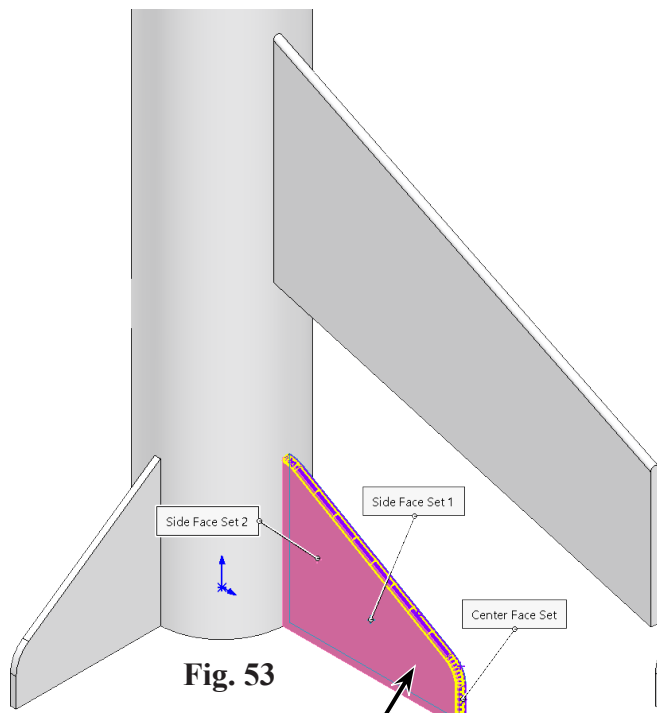


Fig. 53

Side Face Set 2

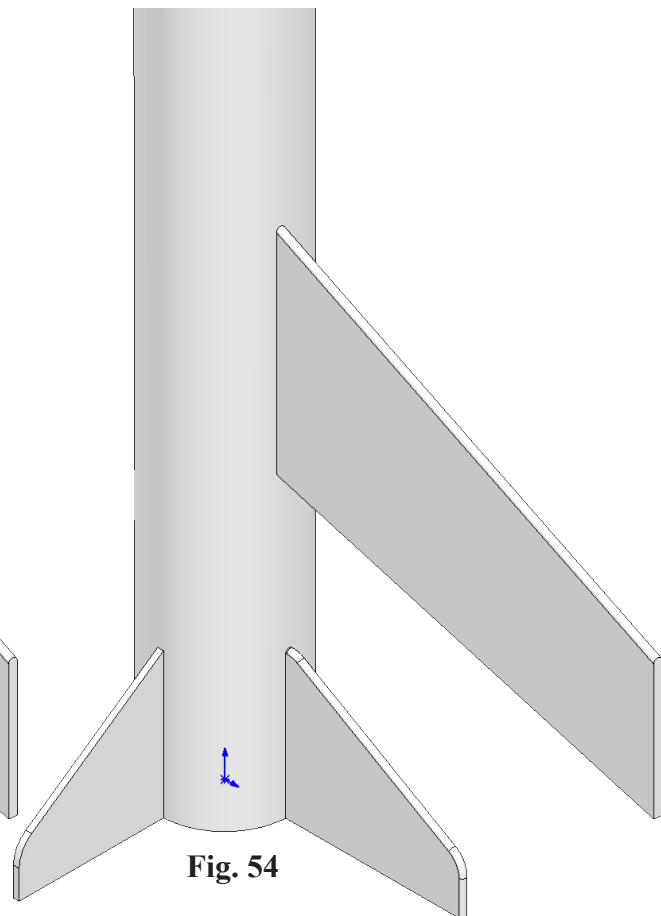


Fig. 54

J. Fillet3 Full Round V Stab.

Step 1. Add a Full Round Fillet  to leading edge of V Stab, Fig. 55.

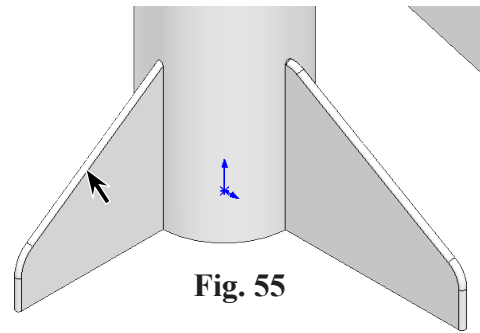




Fig. 55

K. Fillet4, 5 and 6 Stabs and Wing at Tube.

Step 1. Click Fillet  on the Features toolbar.

Step 2. In the Fillet Property Manager set: select FilletXpert, Fig. 56

④ Radius  1.2
Click edge of V Stab at tube, Fig. 57
click Apply (Right click)

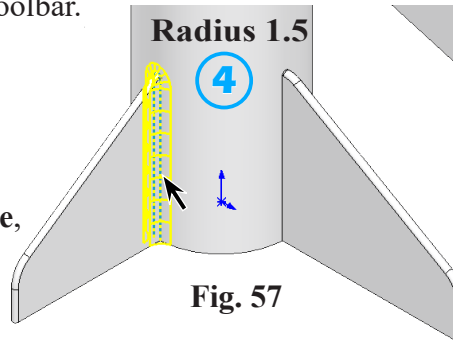


Fig. 57

⑤ Click edge of H Stab at tube, Fig. 58
click Apply (Right click)

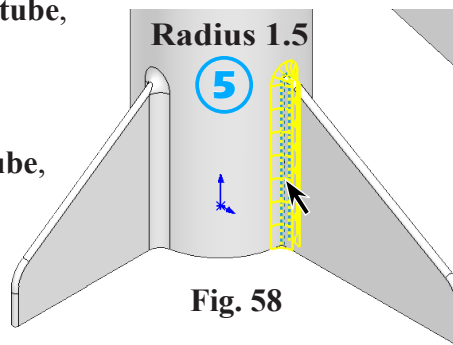


Fig. 58

⑥ Click edge of Wing at tube, Fig. 59
click OK .

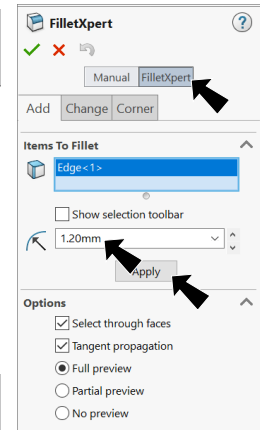


Fig. 56

Step 3. Save  (Ctrl-S).

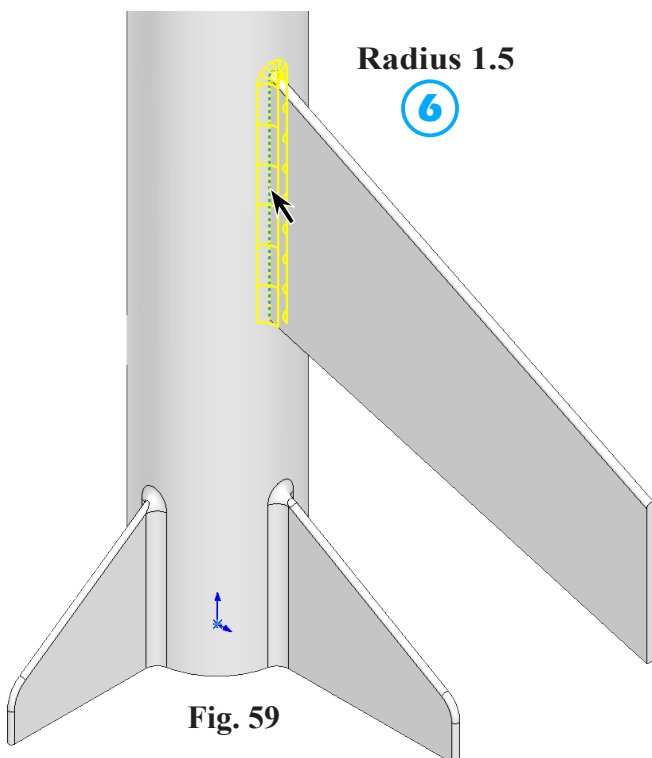


Fig. 59

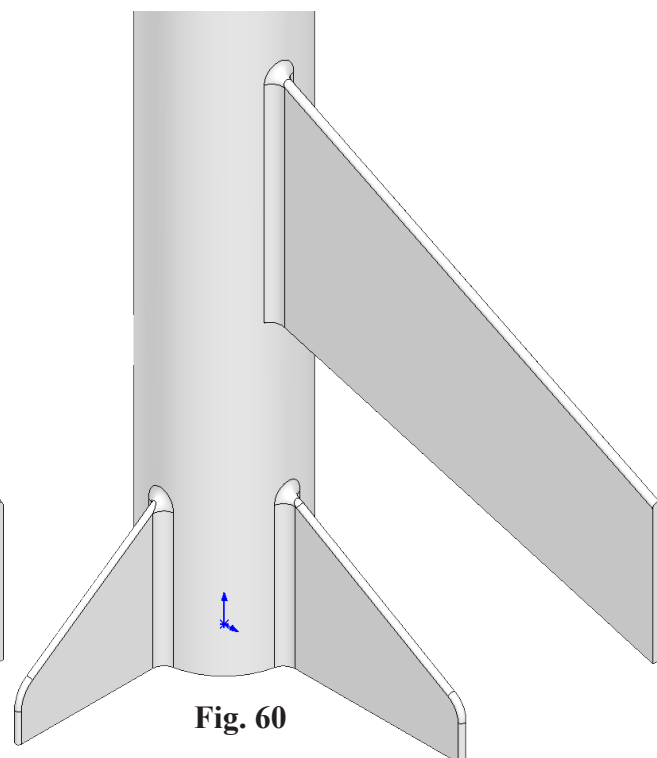


Fig. 60

L. Mirror Wing, H Stab and Fillets.

Step 1. **Ctrl click Right Plane**  in the Feature Manager to select plane, **Fig. 61**.

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

Step 3. In the Mirror Property Manager:
click in Features to Mirror box, **Fig. 62**
click **Wing, H Stab and their Fillets (4)**,
Fig. 63
click OK .

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

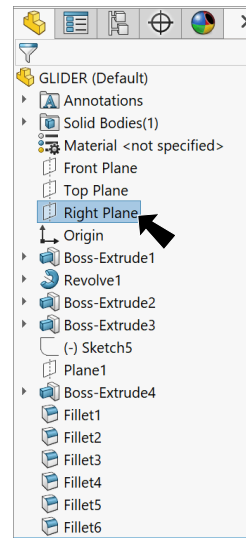


Fig. 61

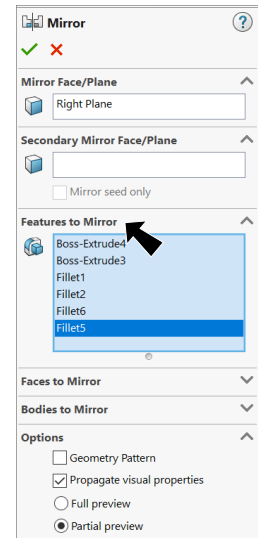


Fig. 62

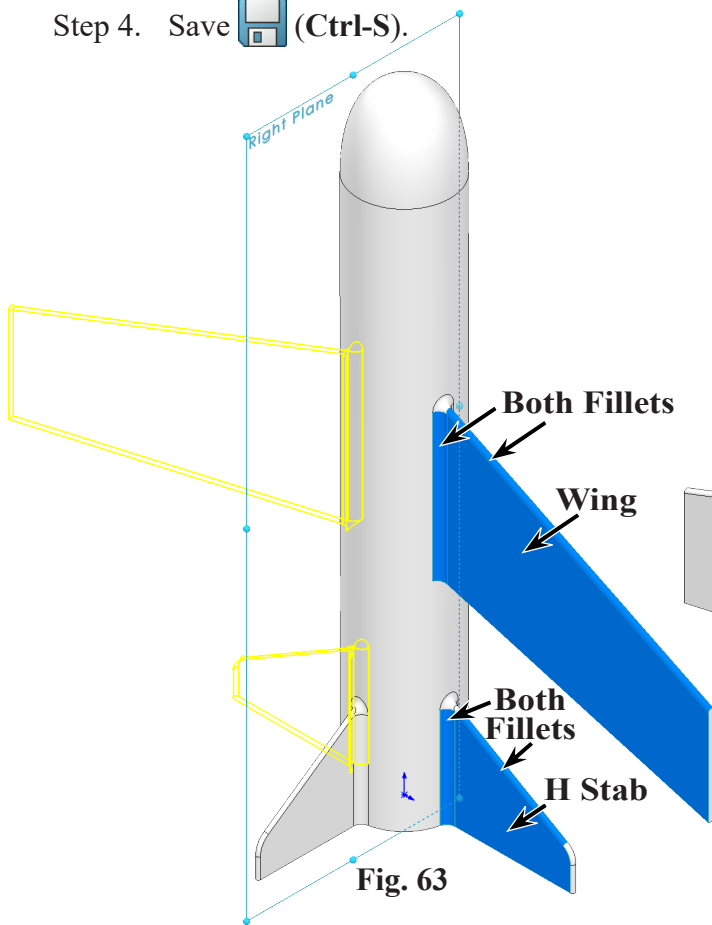


Fig. 63

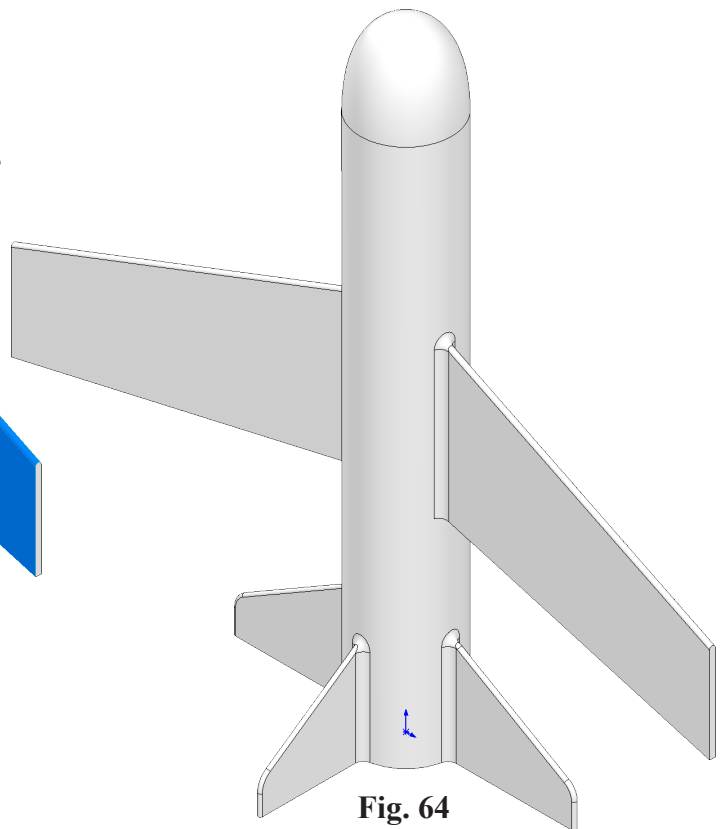





Fig. 64

M. Appearance: Chrome.

Step 1. Click the part to select part, click **Appearances**

Callout  on the context toolbar and click **GLIDER** , Fig. 65.

Step 2. In the Appearances Task pane, expand **Metal** and click **Chrome** and in the lower pane select **chromium plate**, Fig. 66.

Step 3. In the Appearances Property Manager click OK .

Step 4. Save  (Ctrl-S).

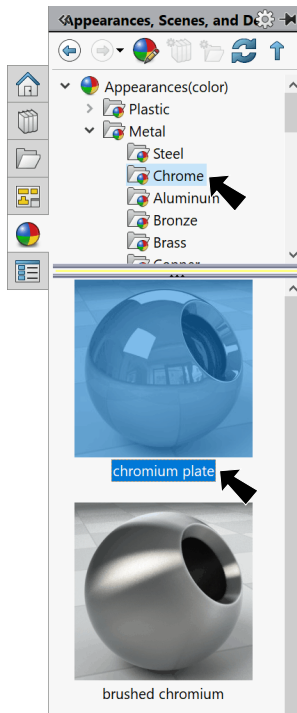


Fig. 66

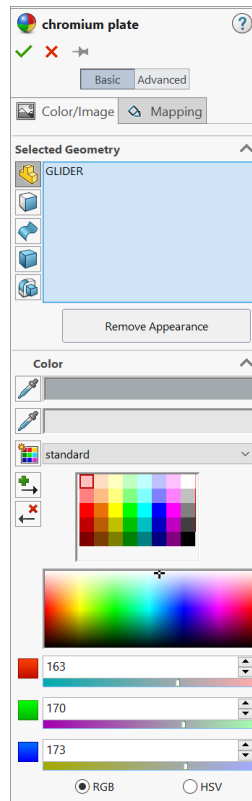


Fig. 67

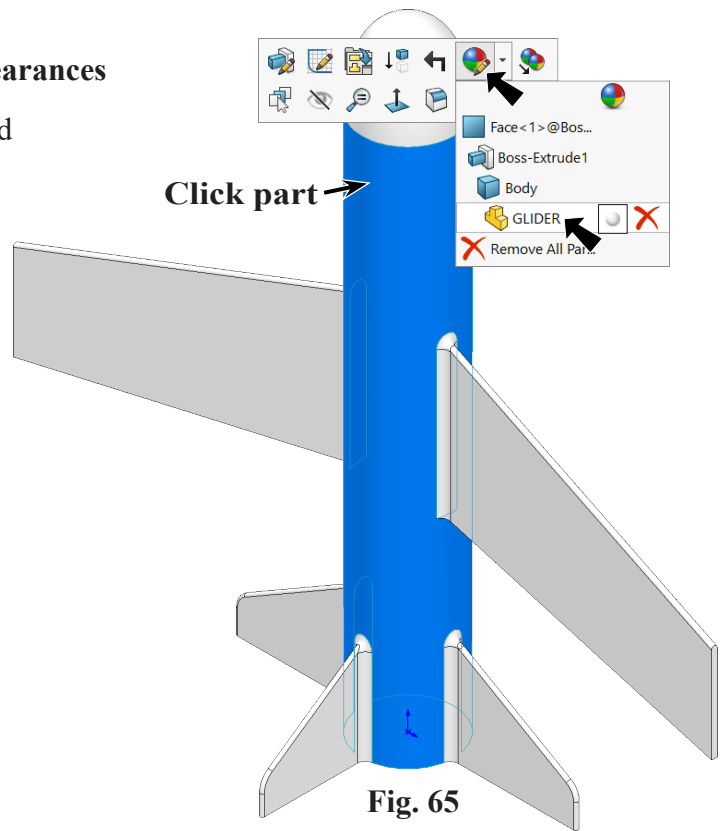


Fig. 65

Rendered in Visualize

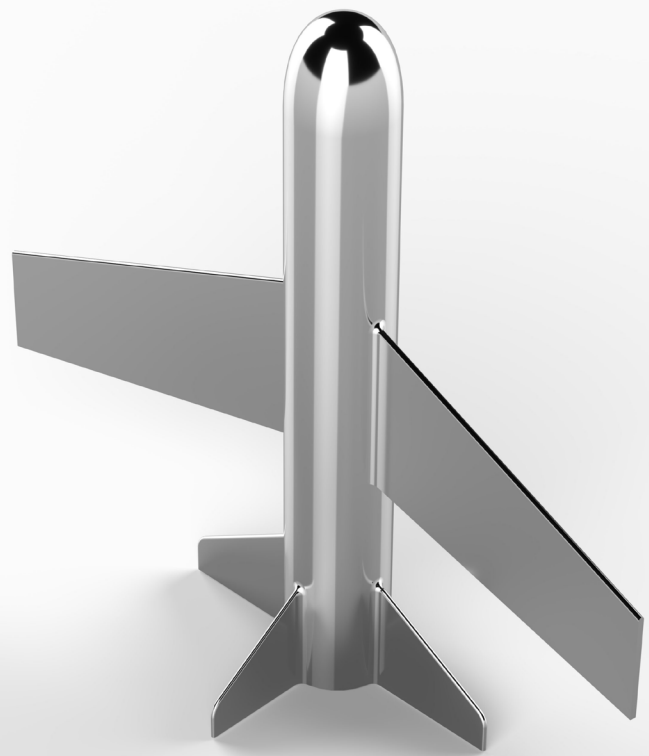


Fig. 68