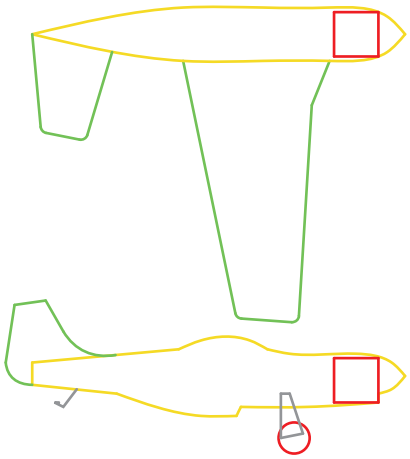
P-51 Mustang



A. Create Rectangle.

Step 1. If necessary start a new Mastercam file, click New on the Quick Access Toolbar QAT (**Ctrl-N**).

Step 2. On the Wireframe tab WIREFRAME click **Rectangle** Rectangle.

Step 3. In the Rectangle function panel:
under Dimensions, **Fig. 1**
Width 9
Height 1.8 and press ENTER
Press **O key** on keyboard to select AutoCursor Origin override
Click OK.

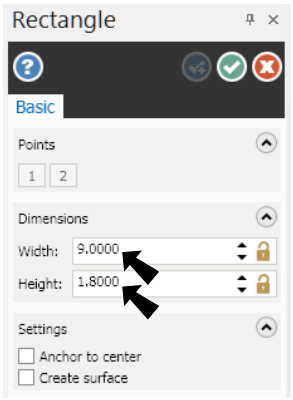


Fig. 1

Step 4. **Right click** the graphics window and click Fit **(Alt-F1)**.

B. Save As "P-51"

Step 1. Click **Save As** **(Ctrl-Shift-S)** on the Quick Access Toolbar QAT.

Step 2. Key-in **P-51** for the filename and press ENTER.

Fig. 2

C. Set Grid and Snap .2.

Step 1. On the View tab VIEW click **Show Grid** Show Grid and **Snap to Grid** Snap to Grid.

Step 2. Click the **Dialog Box Launcher** **(Alt-G)**, **Fig. 3**.

Step 3. In the Grid Settings dialog box:
under Spacing, **Fig. 4**
X and Y Spacing .1
Click OK.

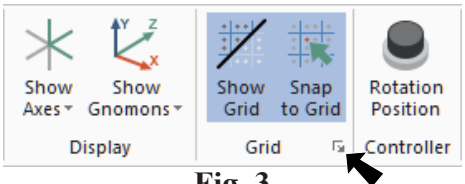


Fig. 3

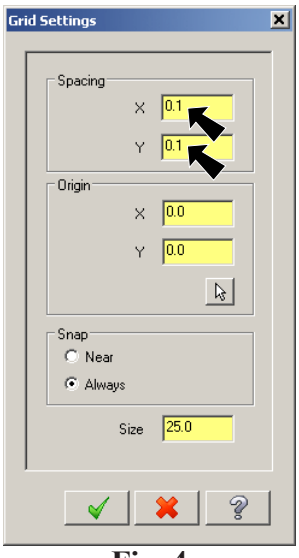


Fig. 4

D. Sketch Splines for Fuselage in Side View.

Step 1. Sketch fuselage **yellow**. **Right click** in the graphics window and on the Mini Toolbar click **Wireframe Color** drop down arrow and select **yellow**, **Fig. 5**.

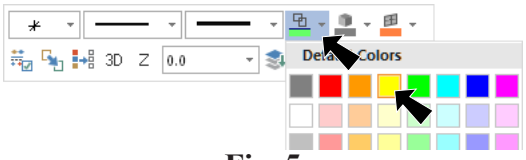


Fig. 5

Step 2. On the Wireframe tab WIREFRAME click **Spline Manual** Spline Manual.

Step 3. In the Spline Manual function panel:
Sketch the 3 point spline, **Fig. 7**.
Use tracking in Status Bar to view coordinates.
Press ENTER to end spline.
You can also use FastPoint to key-in coordinates.
To you FastPoint, key-in coordinates and press ENTER twice.

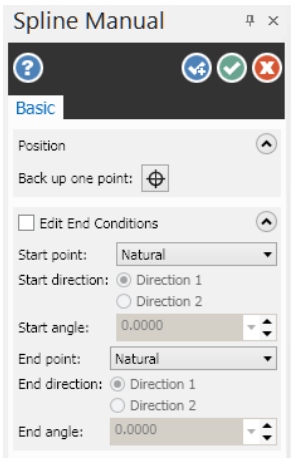


Fig. 6

Step 4. Continue sketching splines in **Figures 8 through 11.** Remember, click points in **each** Figure, then press ENTER**. Repeat for each Figure.**

Click OK when done.

Fig. 7

Fig. 8

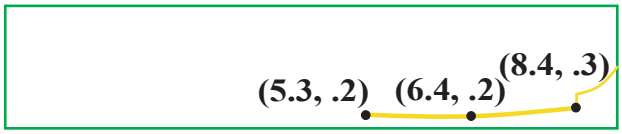


Fig. 9

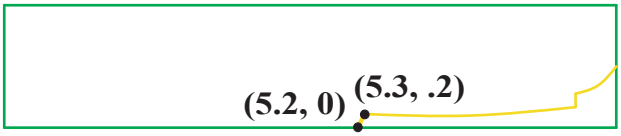


Fig. 10

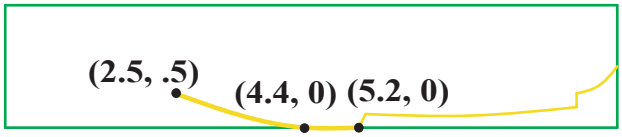
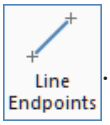


Fig. 11

E. Sketch Line For Fuselage In Side View.

Step 1. On the Wireframe tab WIREFRAME click **Line Endpoints** 

.

Step 2. In the Line Endpoints function panel:
under Type, **Fig. 12**
select **Multi-line**
Sketch lines between the 4 points, **Fig. 13**
Use tracking in Status Bar to view coordinates
Click OK when done.

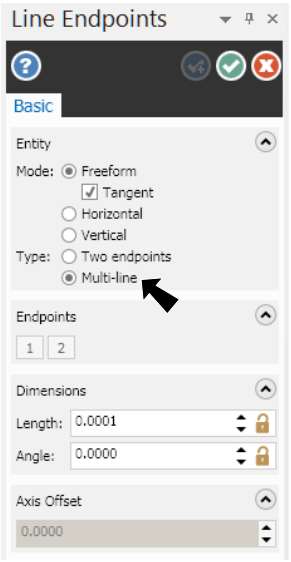


Fig. 12

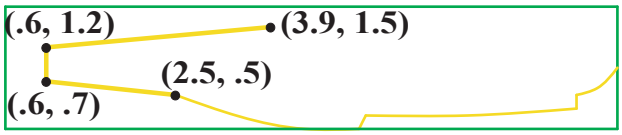
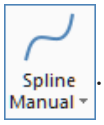


Fig. 13

F. Finish Splines For Fuselage.

Step 1. On the Wireframe tab WIREFRAME click **Spline Manual** 

.

Step 2. In the Spline Manual function panel:
Sketch splines in **Fig. 14** and **Fig. 15**.
Press ENTER to end spline
Click OK when done.

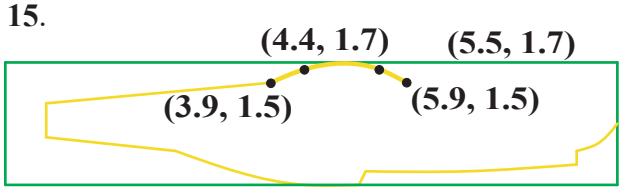


Fig. 14

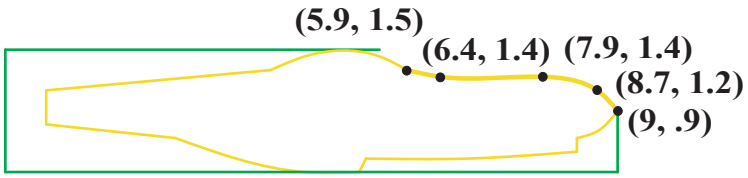


Fig. 15

G. Create a Rectangle for Fuselage in Top View.

Step 1. On the Wireframe tab WIREFRAME click **Rectangle** Rectangle.

Step 2. In the Rectangle function panel:
under Dimensions, **Fig. 16**
Width 9
Height 1.2 and press ENTER

Press **spacebar** to activate Fast Point

Key-in **0**, **8** 0,8 and press ENTER **twice**

Click OK .

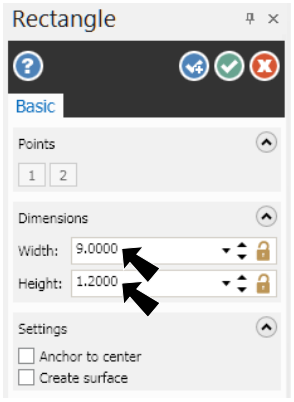
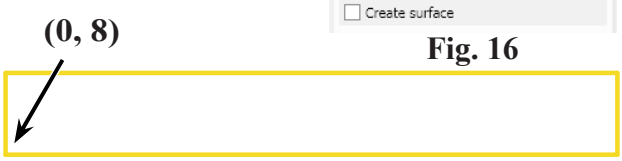


Fig. 16

Step 3. **Right click** the graphics window and click **Fit** (Alt-F1).



H. Sketch Spline For Fuselage In Top View.

Step 1. On the Wireframe tab WIREFRAME click **Spline Manual** Spline Manual.

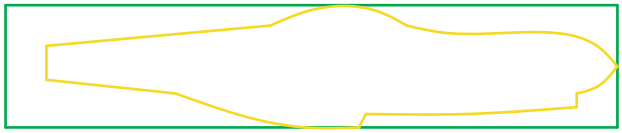


Fig. 17

Step 2. In the Spline Manual function panel:
Sketch spline using points in **Fig. 18**.

Click OK when done.

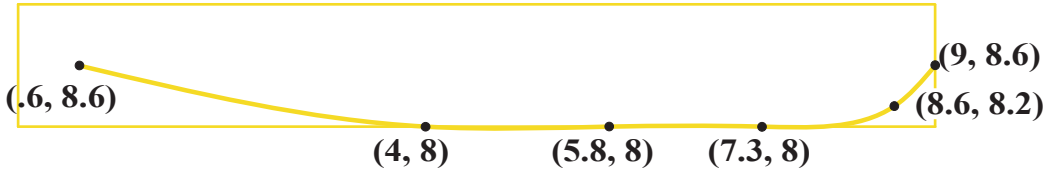


Fig. 18

I. Mirror Fuselage Spline.

Step 1. On the Transform tab TRANSFORM click **Mirror** Mirror.

Step 2. Click **spline** and click **End Selection** End Selection **(ENTER) Fig. 19**.

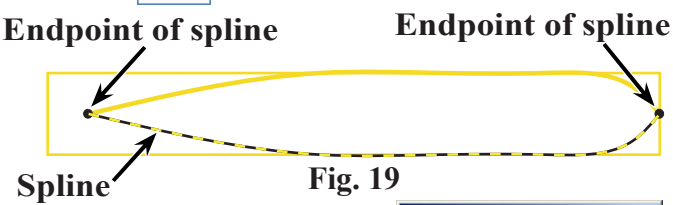


Fig. 19

Step 3. In Mirror dialog box:

Select **Copy** , **Fig. 20**

Click **2 Points**

Click **both endpoints of spline**, **Fig. 19**

Click OK.

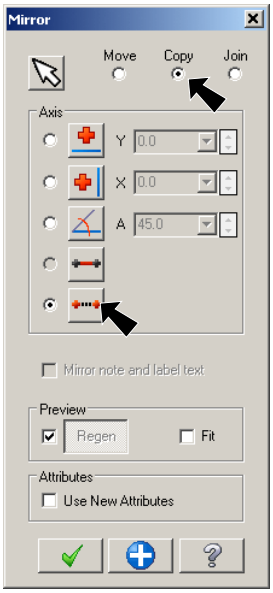


Fig. 20

Step 4. **Right click** the graphics window and click **Clear Colors**.

J. Sketch Lines For Wing In Top View.

Step 1. Sketch wing **green**. **Right click** in the graphics window and on the Mini Toolbar click **Wireframe Color** drop down arrow and select **green**, **Fig. 21**.

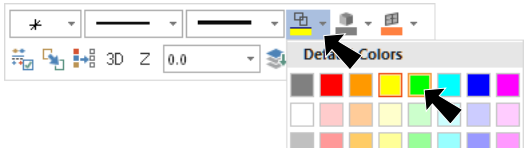


Fig. 21

Step 2. On the Wireframe tab WIREFRAME click **Line Endpoints** Line Endpoints.

Step 3. In the Line Endpoints function panel:

select **Multi-line**

Sketch lines between the 5 points in **Fig. 22**

Use the tracking in Status Bar to view coordinates

Click OK when done.

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

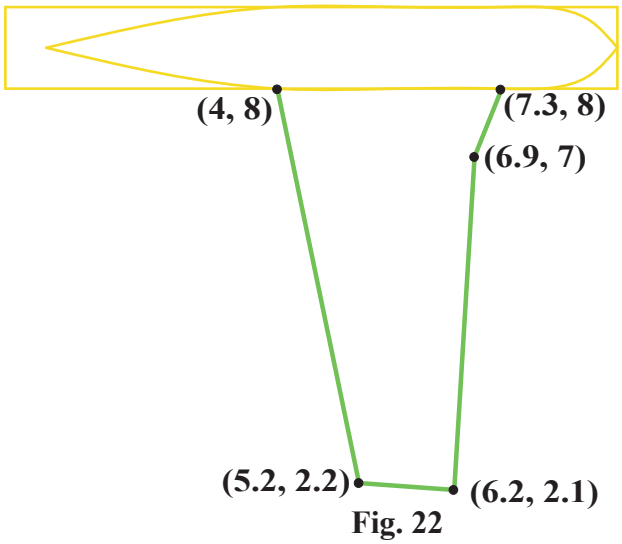


Fig. 22

K. Horizontal Stabilizer.

Step 1. Zoom-in on rear end of fuselage in Top View. Use **F1** and make a zoom window, **Fig. 23**.

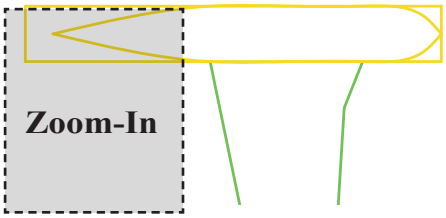
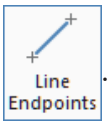


Fig. 23

Step 2. On the Wireframe tab WIREFRAME click **Line Endpoints** 

.

Step 3. In the Line Endpoints function panel:
select **Multi-line**
Sketch the 3 lines, **Fig. 24**
Click OK when done.

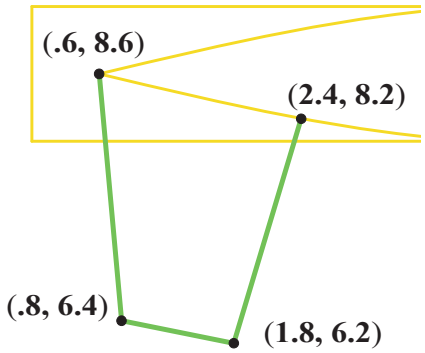


Fig. 24

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

L. Fillet Corners.

Step 1. **Fit** (Alt-F1).

Step 2. On the Wireframe tab WIREFRAME click **Fillet Entities** 

.

Step 3. In the Fillet Entities function panel:
under Radius, **Fig. 25**
Radius .15
Click Position 1 and Position 2 at two corners on Wing and Horizontal Stabilizer, **Fig. 26**
Click OK when done.

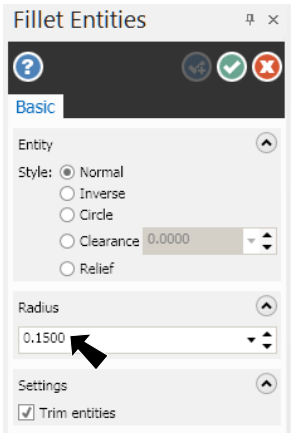


Fig. 25

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

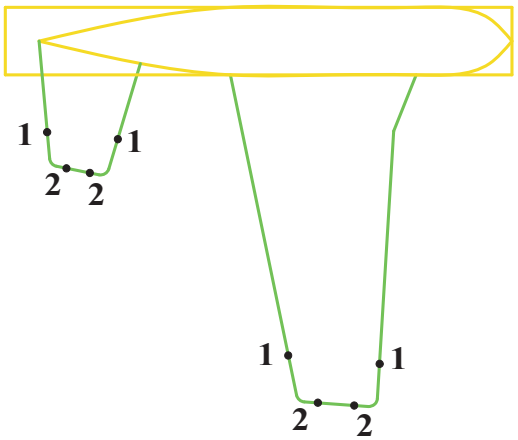


Fig. 26

M. Sketch Lines For Vertical Stabilizer.

Step 1. Zoom-in on rear end of fuselage in Side View. Use **F1** and make a zoom window, **Fig. 27**.

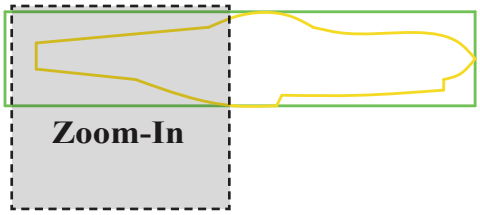
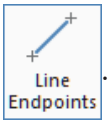


Fig. 27

Step 2. On the Wireframe tab WIREFRAME click **Line Endpoints** 

.

Step 3. In the Line Endpoints function panel:
select **Multi-line**
Sketch the 3 lines, **Fig. 28**
Click OK .

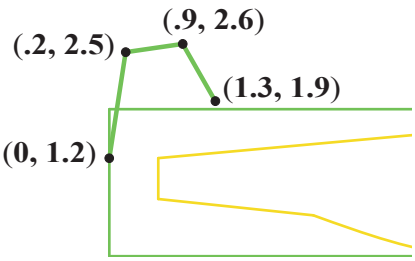
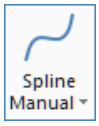


Fig. 28

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

N. Sketch Blended Spline For Vertical Stabilizer.

Step 1. On the Wireframe tab WIREFRAME click **Spline Blended** Spline Blended on **Spline Manual** 

drop down.

Step 2. In the Spline Blended function panel:
under Entity 1, **Fig. 29**
Magnitude 1.5
under Settings Trim
select **Both**
Click **Position 1** for curve 1
Slide arrow to **left end of line** and click, **Fig. 30**

Click Position 2 for curve 2
Slide arrow to **bottom end of line** and click, **Fig. 31**
Click **OK and Create New Operation** .

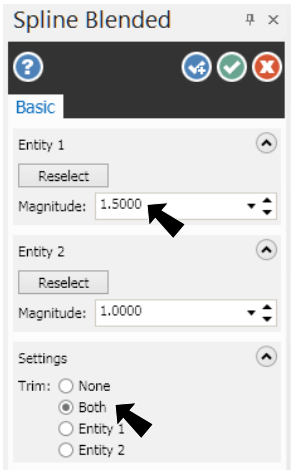


Fig. 29

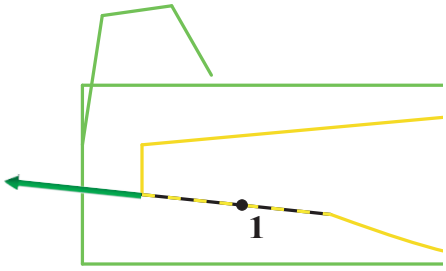


Fig. 30

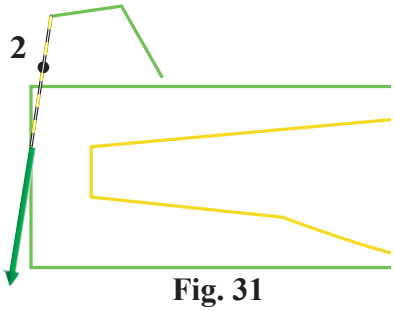


Fig. 31

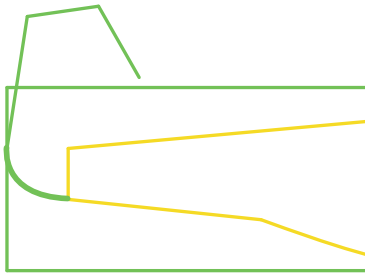


Fig. 32

Step 3. In the Spline Blended function panel:

under Entity 1, **Fig. 33**

Magnitude 1.5

under Settings Trim

select **Entity 2**

Click Position 1 for curve 1

Slide arrow to **right** and click, **Fig. 34**

Click Position 2 for curve 2

Slide arrow to **bottom end of line** and click, **Fig. 35**

Click OK .

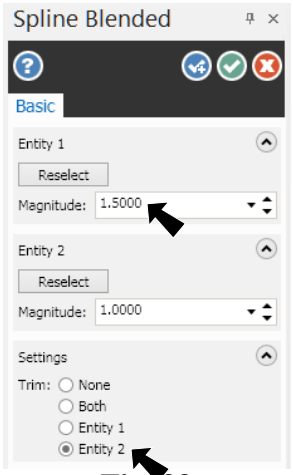


Fig. 33

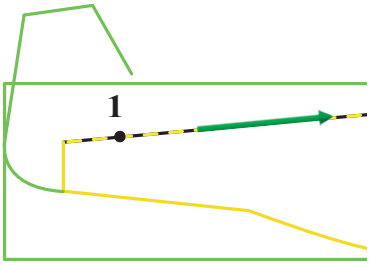


Fig. 34

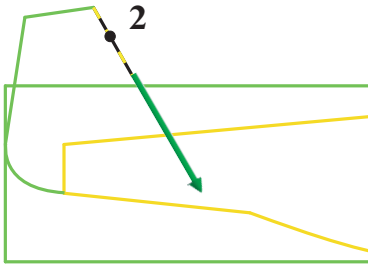


Fig. 35

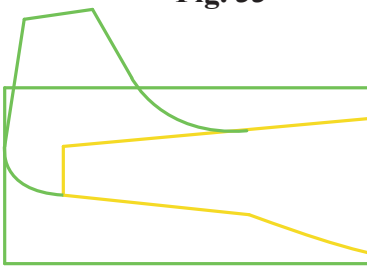


Fig. 36

O. Motor.

Step 1. **Right click** the graphics window and click **Fit** (**Alt-F1**).

Step 2. Sketch the motor **red**. Right click in the graphics window and on the Mini Toolbar click Wireframe **Color** drop down arrow and select **red**, **Fig. 37**.

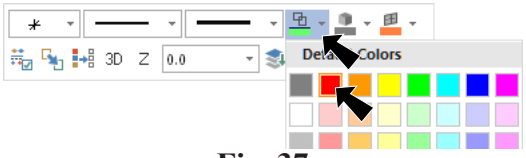


Fig. 37

Step 3. On the Wireframe tab WIREFRAME click **Rectangle** Rectangle.

Step 4. In the Rectangle function panel:
under Dimensions, **Fig. 38**
Lock both Width and Height
Width 1
Height 1 and press ENTER

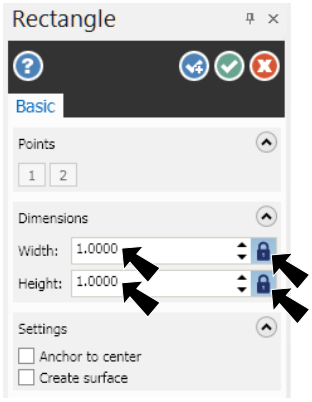


Fig. 38

Press **spacebar** to activate AutoCursor Fast Point

Key-in **7.4**, **8.1** 7.4,8.1 and press ENTER **twice**

Press **spacebar** to activate Fast Point

Key-in **7.4**, **.3** 7.4,.3 and press ENTER **twice**

Click OK .

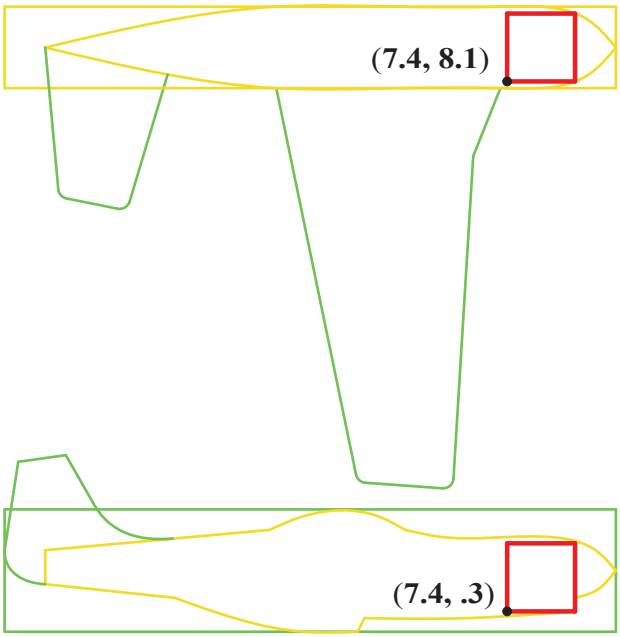
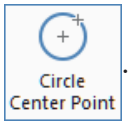


Fig. 39

P. Wheel.

Step 1. On the Wireframe tab WIREFRAME click **Circle Center Point** 

.

Step 2. In the Circle Center Point function panel:
under Size, **Fig. 40**
Diameter **.7** and press ENTER

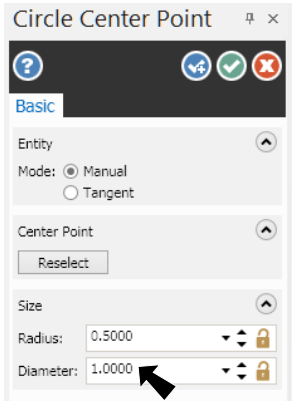
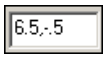


Fig. 40

Press **spacebar** to activate AutoCursor **Fast Point** 

Key-in **6.5**, **-.5** 

and press ENTER

Fit  **(Alt-F1)**.

Click OK  .

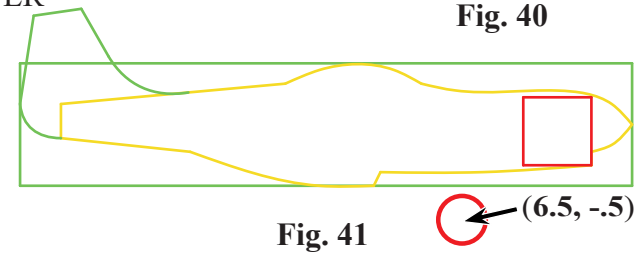


Fig. 41

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

Q. Sketch Landing Gear.

Step 1. Zoom-in on lower front end of fuselage in Side View.
Use **F1** and make a zoom window, **Fig. 42**.

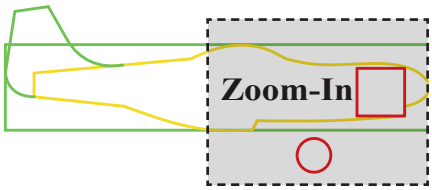


Fig. 42

Step 2. Sketch landing gear **light gray**. **Right click** in the graphics window and on the Mini Toolbar click Wireframe **Color**  drop down arrow and select **light gray**, **Fig. 43**.

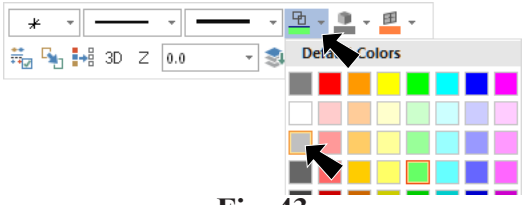
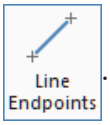


Fig. 43

Step 3. On the Wireframe tab WIREFRAME click **Line Endpoints** 

.

Step 4. In the Line Endpoints function panel:
select **Multi-line**
In the Side View sketch lines between points, **Fig. 44**

Click OK  .

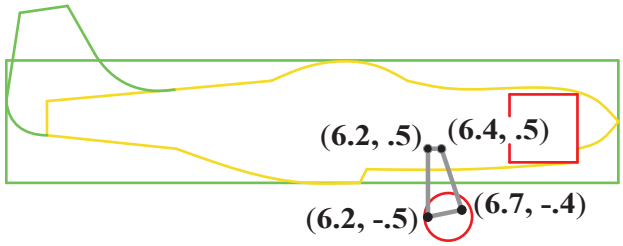


Fig. 44

R. Sketch Spline For Tail Hook.

Step 1. **Fit**  **(Alt-F1)**.

Step 2. Zoom-in on lower rear of fuselage in Side View. Use **F1** and make a zoom window, **Fig. 45**.

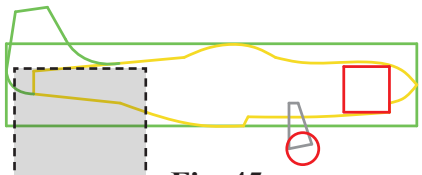
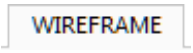
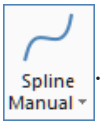


Fig. 45

Step 3. On the Wireframe tab 

click **Spline Manual** 

.

Step 4. In the Spline Manual function panel:

Press **spacebar** to activate AutoCursor

Fast Point 

Key-in coordinates. Spacebar for next set of coordinates. ENTER to end spline.

Or use the tracking in Status Bar to view coordinates.

Click OK  when done.

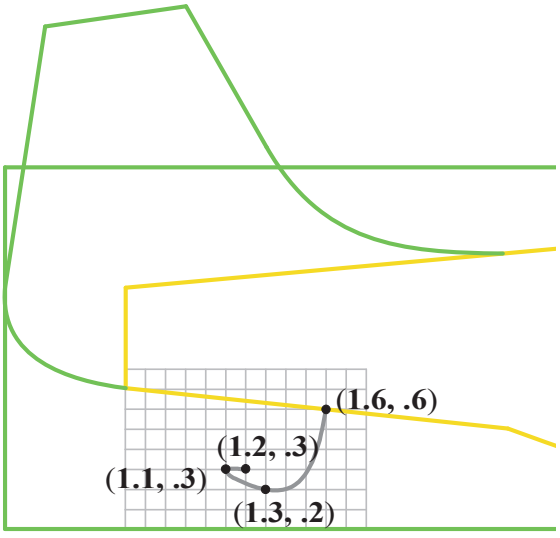


Fig. 46

Line Points using Grid

1) **Click Point 1 (1.6, .6) then**
2) **Down 4 and left 3**
3) **Left 2 and up 1**
4) **Right 1**

S. Delete Rectangle Lines.

Step 1. **Fit**  **(Alt-F1)**.

Step 2. Delete rectangle lines, **Fig. 47**. **Shift click** a line of **each rectangle to chain select both rectangles**. Press **Delete** key.

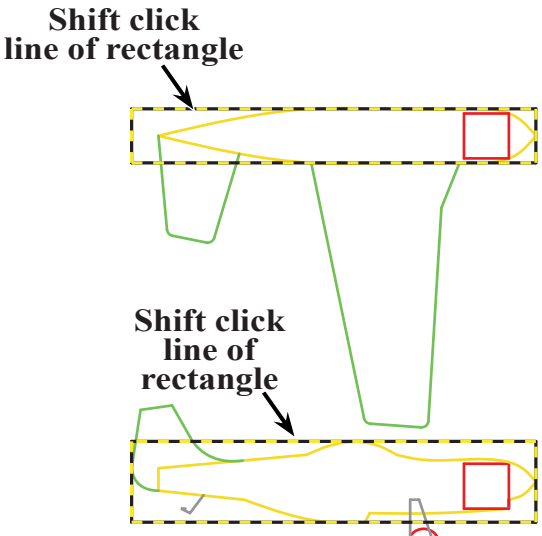


Fig. 47

T. Add Leading Edge, V Stab, H Stab Text.

Step 1. On the Drafting tab DRAFTING click **Note** Note.

Step 2. In the Note dialog box:
Lock the Caps, key-in: **LEADING EDGE**
Select **Multiple Notes**
Click OK, **Fig. 48**.

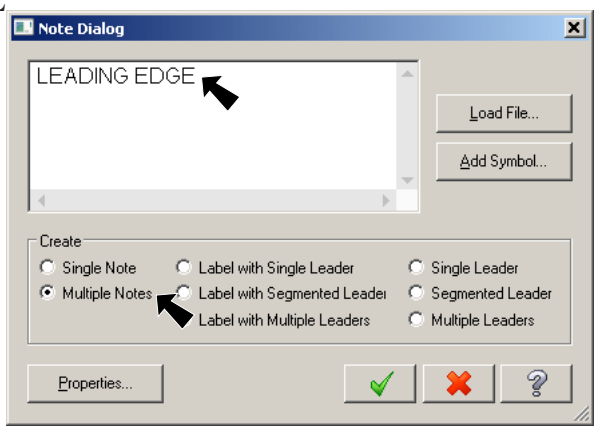


Fig. 48

Step 3. Click inside Leading Edge of Wing in Top View, **Fig. 49**.
Click **OK and Create New Operation** in the Drafting function panel.

Step 4. Add **H STAB** and **V STAB**
Click Cancel when done.

Step 5. Save (**Ctrl-S**).

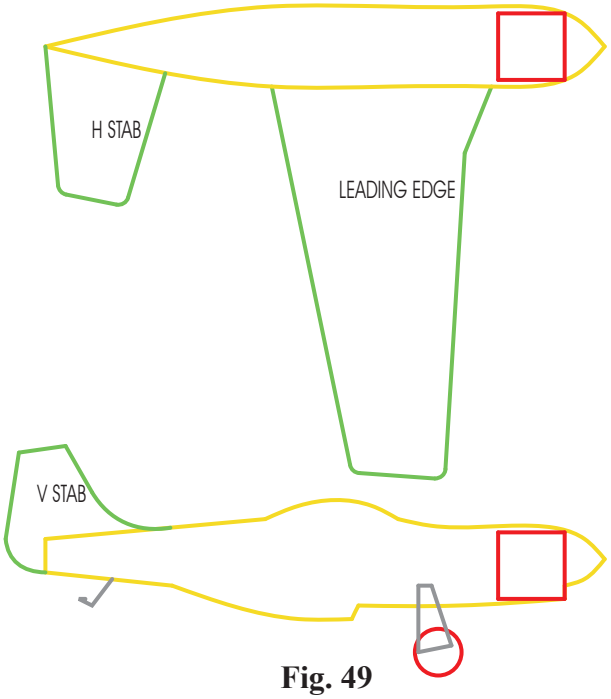


Fig. 49