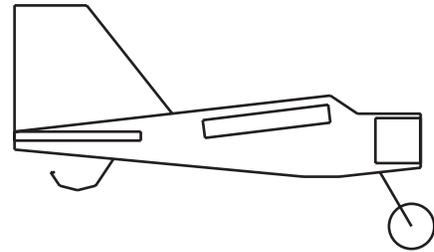## Chapter 16

PIPER

A. Draw Rectangle.

Step 1.   MAIN MENU.

Step 2.   Create.

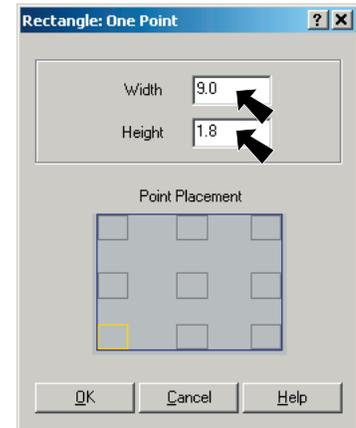Step 3.   Rectangle.

Step 4.   1 Point.

Step 5.   Set: Width **9** and Height **1.8**.

Step 6.   For the Placement Point, click the bottom left gray rectangle
and click OK, **Fig. 1**.

Step 7.   Origin.

Step 8.   Use **ALT-F1** or the icon to fit drawing on the screen.

Step 9.   Save the drawing. Use: File, Save and **piper** for a filename.
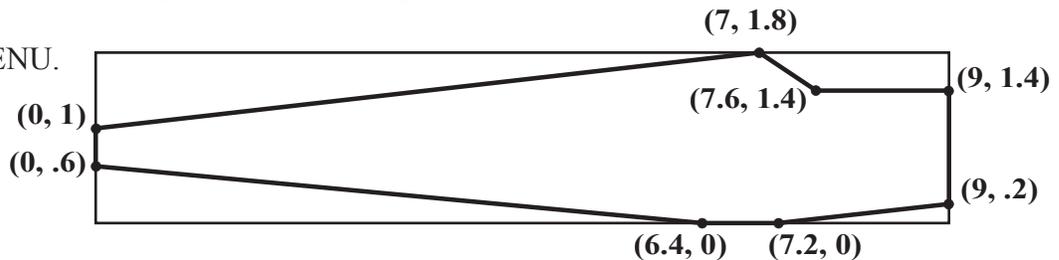
Fig. 1

B. Draw Fuselage.

Step 1.   Draw the fuselage lines a different color. Change the color to **magenta**. Click the color
swatch in the Secondary Menu. Click magenta, number 13 and click OK (**ALT-1**).

Step 2.   MAIN MENU.

Step 3.   Create.

Step 4.   Line.

Step 5.   Multi.

Fig. 2

(7, 1.8)   (9, 1.4)   (7.6, 1.4)   (0, 1)   (0, .6)   (9, .2)   (6.4, 0)   (7.2, 0)

Step 6.   Click the 9 points in **Fig. 2**. Press ESC to stop the line. Use the Cursor Tracking Window
located in the top right corner of the display to view the coordinates. Position the cursor as
close as possible then click.

C. Create a Rectangle for Fuselage in Top View.

Step 1.   MAIN MENU.

Step 2.   Create.

Step 3.   Rectangle.

Step 4.   1 Point.

Step 5. Set: Width **9** and Height **1.2**.

Step 6. For the Placement Point, click the bottom left gray rectangle and click OK.

Step 7. Key-in **0, 9** and press ENTER. You can not see the rectangle until you fit the drawing on the screen. Use **ALT-F1** or [icon]
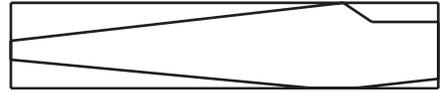

Fig. 3

D. Draw Fuselage in Top View.

Step 1. MAIN MENU.

Step 2. Create.

Step 3. Line.

Step 4. Multi.

Step 5. Draw lines between the 3 points in **Fig. 4**. Press ESC to stop the line.
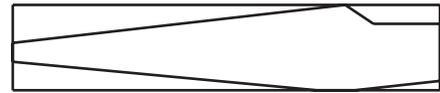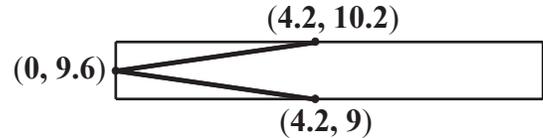

(4.2, 10.2)
(0, 9.6)
(4.2, 9)

Fig. 4

E. Wing.

Step 1. Draw the wing a different color. Change the color to **cyan**. Click the color swatch in the Secondary Menu. Click cyan, number 11 and click OK.

Step 2. MAIN MENU.

Step 3. Create.

Step 4. Rectangle.

Step 5. 2 Points.

Step 6. Draw the two rectangles in **Fig. 5**. First draw a rectangle in the Top View from (**4.2, 9**) to (**7, 2**).

Step 7. Then draw a rectangle in the Side View from (**4.2, 1.6**) to (**7, 1.2**), **Fig. 6**.

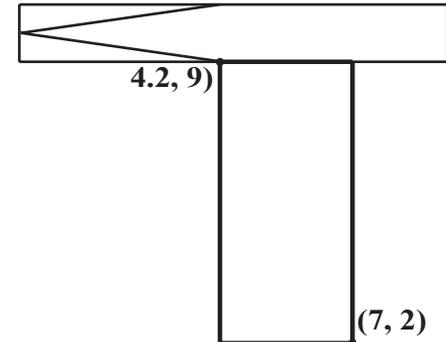4.2, 9)
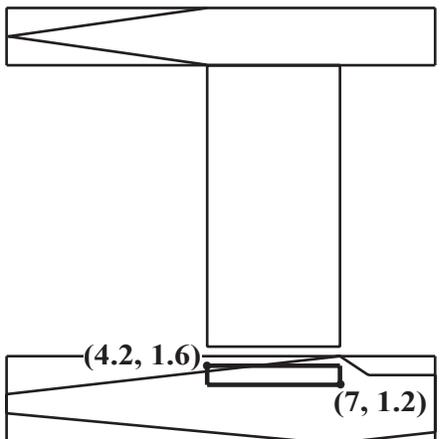(7, 2)

Fig. 5

(4.2, 1.6)
(7, 1.2)
Fig. 6

F. Rotate Angle of Attack.

Step 1.   MAIN MENU.

Step 2.   Xform.

Step 3.   Rotate.

Step 4.   In the Side View, click the lines of the rectangle that make up the wing, **Lines 1 through 4**, **Fig. 7**.
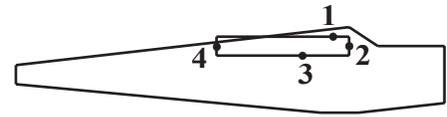
Step 5.   Done.

Step 6.   Click Position 1 for the point for rotation, **Fig. 8**.

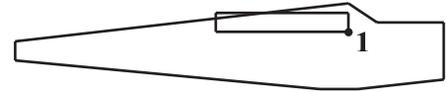Step 7.   Set: Move.
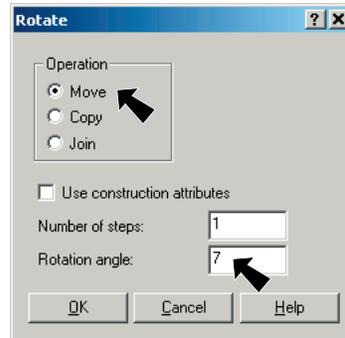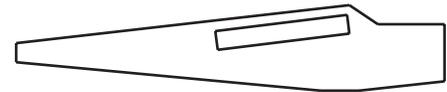   **7** for Rotation Angle and click OK, **Fig. 9** and **Fig. 10**.

Step 8.   Click the Clear Screen Colors Tool .

Step 9.   Save your drawing. Use **Alt-A** and press ENTER.

F. Delete and Trim Lines.

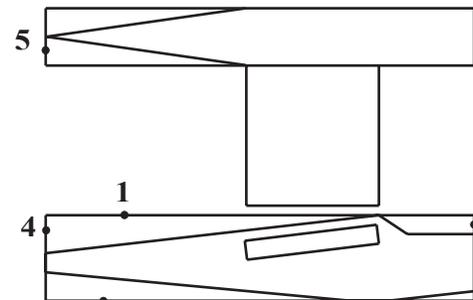Step 1.   Delete **Lines 1 through 5**, **Fig. 11**. Use **F5** to delete. Press ESC to exit delete.

Step 2.   Use **F3** to Repaint display.

G. Trim Lines.

Step 1.   MAIN MENU.

Step 2.   Modify.

Step 3.   Trim.

Step 4.   1 Entity.

Step 5.   Trim two lines. Click the line to trim at Position 1, then trim to the line at Position 2, **Fig. 12**. Repeat at the other line. That is, click the part of the line you are keeping, Position 1, then click Position 2.

Step 6.   Save your drawing. Use **Alt-A** and press ENTER.
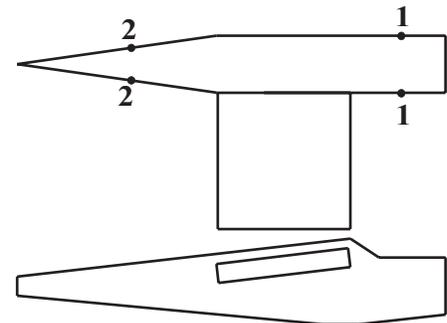
Fig. 7

Fig. 8

Fig. 10

Rotate

Operation
- ● Move
- ○ Copy
- ○ Join

☐ Use construction attributes

Number of steps: 1

Rotation angle: 7

OK   Cancel   Help

Fig. 9

Fig. 11

Fig. 12

I. Horizontal Stabilizer.

Step 1. Zoom-in on the back end of fuselage in the Top View. Use **F1** and make a zoom window, **Fig. 13**.

Step 2. Draw the horizontal stab a different color. Change the color to **green**. Click the color swatch in the Secondary Menu. Click green, number 10 and click OK.
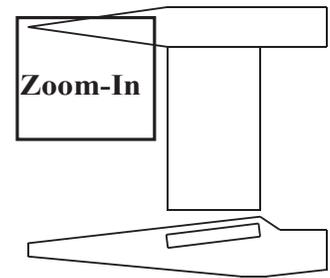
Zoom-In

Fig. 13

Step 3. MAIN MENU.

Step 4. Create.

Step 5. Line.

Step 6. Multi.

Step 7. Draw the 3 lines in **Fig. 14**. Press ESC to stop the line.
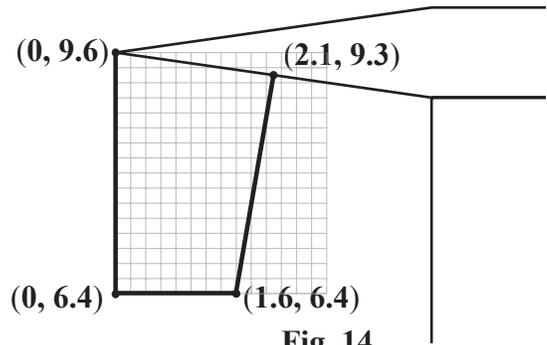
(0, 9.6)   (2.1, 9.3)

(0, 6.4)   (1.6, 6.4)

Fig. 14

Step 8. Use **ALT-F1** or [icon] to fit drawing on the screen.

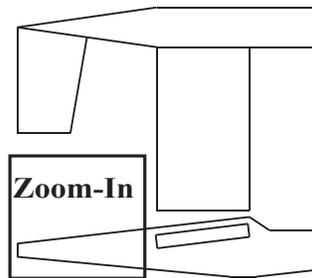Step 9. Zoom-in on the back fuselage in the Side View. Use **F1** and make a zoom window, **Fig. 15**.

Zoom-In

end of

(0, 1)   (2.8, 1)

(0, .8)   (2.8, .8)

Step 10. Multi.

Fig. 15   **Fig. 16**

Step 11. Draw the 4 lines in **Fig. 16**. Press ESC to stop the line.
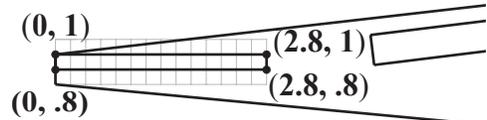
J. Vertical Stabilizer.

Step 1. Draw the vertical stab a different color. Change the color to **yellow**. Click the color swatch in the Secondary Menu. Click yellow, number 14 and click OK.

Step 2. MAIN MENU.

Step 3. Create.

Step 4. Line.

Step 5. Multi.

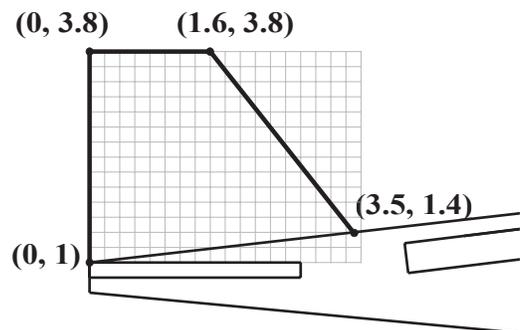Step 6. Draw the 3 lines in **Fig. 17**. Press ESC to stop the line.

(0, 3.8)   (1.6, 3.8)

(3.5, 1.4)

(0, 1)

Fig. 17

Zoom-In

Step 7. Use **ALT-F1** or [icon] to fit drawing on the screen.

Step 8. Zoom-in on the back end of fuselage in the Top View. Use **F1** and make a zoom window, **Fig. 18**.
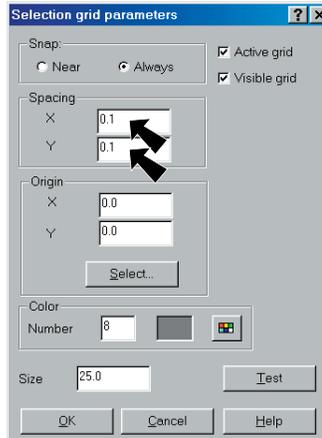
Fig. 18

Step 9. Change the **Grid and Snap to .1**. Use **ALT-G**. Hold down ALT and press G.

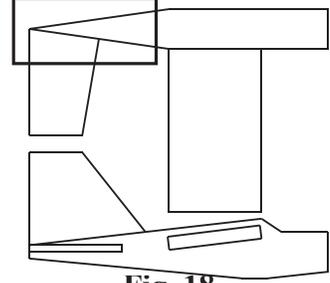Step 10. Set: X and Y Spacing to **.1**, **Fig. 19**.

Step 11. Click OK.

Step 12. Multi.

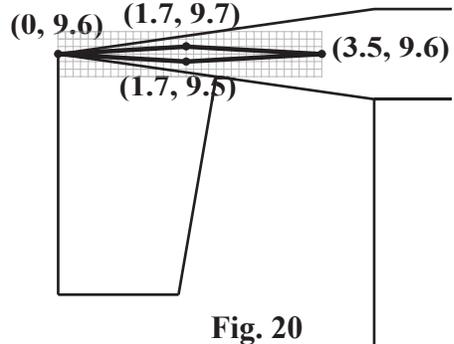Step 13. Draw the 4 lines in **Fig. 20**. Press ESC to stop the line.

K. Motor.

Step 1. Use **ALT-F1** or [icon] to fit drawing on the screen.

Selection grid parameters

Snap:
○ Near   ● Always
☑ Active grid
☑ Visible grid

Spacing
X 0.1
Y 0.1

Origin
X 0.0
Y 0.0

Select...

Color
Number 8

Size 25.0

OK   Cancel   Help

Test

Fig. 19

(0, 9.6) (1.7, 9.7)
(3.5, 9.6)
(1.7, 9.5)

Fig. 20

Step 2. Draw the motor a different color. Change the color to **red**. Click the color swatch in the Secondary Menu. Click red, number 12 and click OK.

Step 3. MAIN MENU.

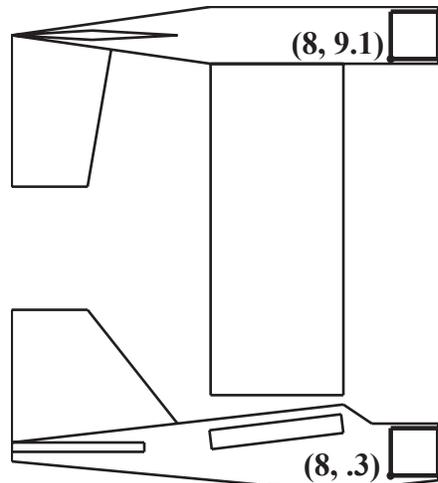Step 4. Create.

Step 5. Rectangle.

Step 6. 1 Point.

Step 7. Set: Width **1** and Height **1**.

Step 8. For the Placement Point, click the bottom left gray rectangle and click OK.

Step 9. In the Top View, click **(8, 9.1)**, **Fig. 21**.

Step 10. In the Side View, click **(8, .3)**, **Fig. 21**.

(8, 9.1)

(8, .3)

Fig. 21

L. Wheel.

Step 1. Zoom-in on the lower front end of fuselage in the Side View. Use **F1** and make a zoom window, **Fig. 22**. Use the Page Down key several times to create room at the bottom of the fuselage for the wheel.
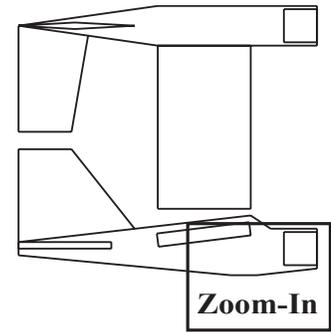
Step 2. MAIN MENU.

Step 3. Create.

Step 4. Arc.

Step 5. Circle Point and Diameter.

Step 6. Key-in **1** for diameter and press ENTER.

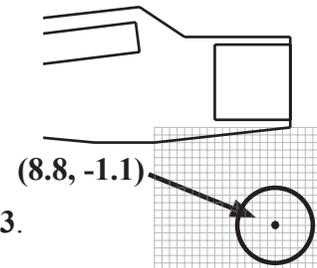Step 7. In the Side View, click **(8.8, -1.1)** for the center of the circle, **Fig. 23**.

M. Draw Landing Gear in Side View.

Step 1. Draw the landing gear a different color. Change the color to **light gray**. Click the color swatch in the Secondary Menu. Click light gray, number 7 and click OK.

Step 2. MAIN MENU.

Step 3. Create.

Step 4. Line.

Step 5. Endpoints.

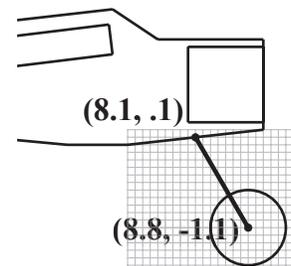Step 6. In the Side View, draw a line between points **(8.1, .1)** and **(8.8, -1.1)**, **Fig. 24**.

N. Draw Lines for Tail Hook.

Step 1. Use **ALT-F1** or [icon] to fit drawing on the screen.

Step 2. Zoom-in on the lower back end of fuselage in the Side View. Use **F1** and make a zoom window, **Fig. 25**.

Step 3. MAIN MENU.

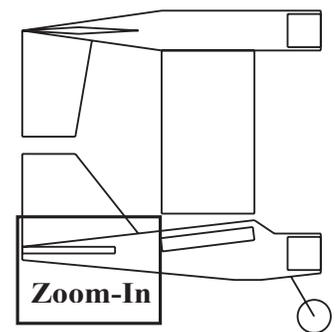Step 4. Create.

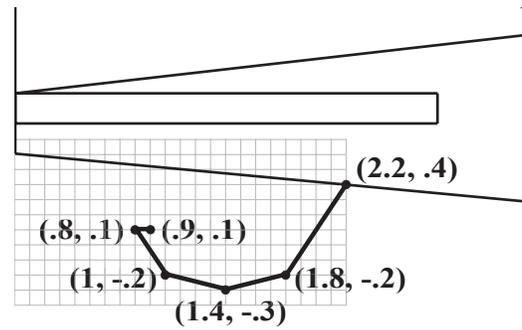Step 5. Line.

Step 6. Multi.

Zoom-In

Fig. 22

(8.8, -1.1)

Fig. 23

(8.1, .1)

(8.8, -1.1)

Fig. 24

Zoom-In

Fig. 25

Step 7. Click the 6 points in **Fig. 26**. Press ESC to stop the line.

Step 8. Save your drawing. Use **Alt-A** and press ENTER.

O. Rotate Top View for Plotting.

Step 1. Use **ALT-F1** or [icon] to fit drawing on the screen.
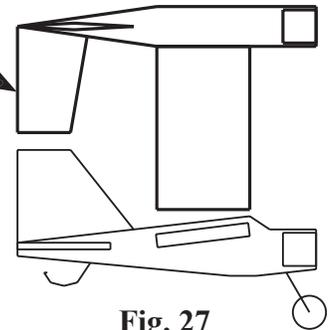
Step 2. MAIN MENU.

Step 3. Xform.

Step 4. Rotate.

Step 5. In the **Top View**, click **all** the lines that make up the Top View, **Fig. 27**.

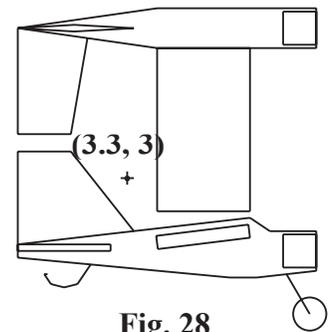**Step 6.** Done.

Step 7. Click **(3.3, 3)** for the point for rotation, **Fig. 28**.

Step 8. Set: Move.
    90 for Rotation Angle and click OK.

Step 9. Use **F3** to Repaint display.

Step 10. Click the Clear Screen Colors Tool [icon].

Step 11. Save your drawing. Use **Alt-A** and press ENTER.

(2.2, .4)

(.8, .1) (.9, .1)

(1, -.2) (1.8, -.2)

(1.4, -.3)

Fig. 26

Select all lines in the
Top View
to rotate.

Fig. 27

(3.3, 3)
+

Fig. 28

P. Add Your Name And The Period To The Drawing.

Step 1. Use **Page Down** to reduce the drawing. Use: **Create, Drafting, Note** commands to add your names and period to the drawing.

Step 2. Save your drawing. Use **Alt-A** and press ENTER.