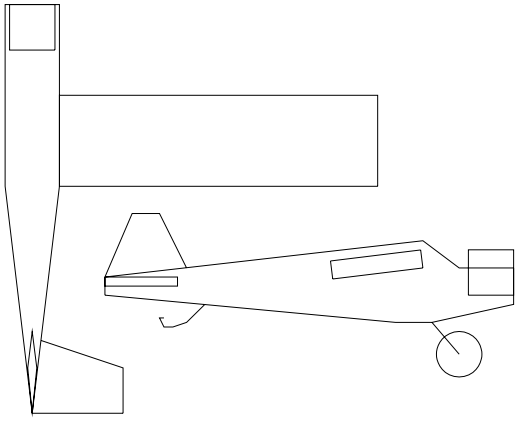
Chapter 15

# PIPER

## A. OPEN B FILE.



Step 1. When you start a new drawing always start with the B file (blank file). If you started this drawing with the B file go directly to Steps B. If your did not start with the B file complete these Steps:

Step 2. Click **File** from the Menu Bar.

Step 3. Click **Open** from the File Menu..

Step 4. Click **No** to save current part.

Step 5. Key in **a:b** for the filename and press ENTER.

## B. CREATE A RECTANGLE FOR FUSELAGE IN SIDE VIEW.

Step 1. ESC to Main Menu.

Step 2. F1 CREATE.

Step 3. F1 LINE.

Step 4. F7 RECTANGLE.

Step 5. F2 WIDTH/HEIGHT.

Step 6. Key in **9** for width and press ENTER.

Step 7. Key in **1.8** for height and press ENTER.

Step 8. F9 KEY IN.

Step 9. Key in:
Zero (**0**) for coordinate X and press ENTER.
**0** for Y and press ENTER.
**0** for Z and press ENTER.

Step 10. ESC to Main Menu.

Step 11. Use **ALT-A** to center the rectangle on the screen. Hold down ALT and press A.

## C. SCALE DRAWING TO SEE GRID.

Step 1. Reduce the drawing down to see the grid, use **ALT-S**. Hold down ALT and press S. Key in **1.3** and **press ENTER two times**.

## D. DRAW FUSELAGE IN SIDE VIEW.

Step 1. Draw the fuselage **purple**. Change the color to purple. Click the color swatch in the side Tool Bar. Click purple, number 6.

Step 2. ESC to Main Menu.

Step 3. F1 CREATE.

Step 4. F1 LINE

Step 5. F2 STRING.

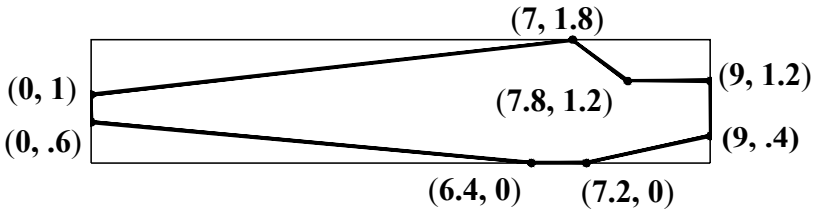


FIG. 1

Step 6. To indicate Start Point, move cursor to coordinates (**9, .4**) and click, **Fig. 1**. Use the Cursor Tracking Window located in the lower-left corner for the coordinates display.

Step 7. To indicate End Point, move cursor to coordinates (**7.2, 0**) and click, **Fig. 1.**

Step 8. To indicate End Point, move cursor to coordinates (**6.4, 0**) and click, **Fig. 1**.

Step 9. To indicate End Point, move cursor to coordinates (**0, .6**) and click, **Fig. 1**.

Step 10. To indicate End Point, move cursor to coordinates (**0, 1**) and click, **Fig. 1**.

Step 11. To indicate End Point, move cursor to coordinates (**7, 1.8**) and click, **Fig. 1**.

Step 12. To indicate End Point, move cursor to coordinates (**7.8, 1.2**) and click, **Fig. 1**.

Step 13. To indicate End Point, move cursor to coordinates (**9, 1.2**) and click, **Fig. 1**.

Step 14. To indicate End Point, move cursor to coordinates (**9, .4**) and click, **Fig. 1**.

Step 15. F10 BACKUP to stop the line.

Step 16. Use CTRL-R to clear temporary markers. Hold down CTRL and press R.

Step 17. At this time it is a good idea to save the drawing. Click **Save As** from the File Menu. Key **a:piper** filename and press ENTER. Press ESC for Part Description.

| Fit on Screen ALT-A | Delete CTRL-Q | Redraw CTRL-R | Half Size ALT-H |
|---|---|---|---|

## E. CREATE A RECTANGLE FOR FUSELAGE IN TOP VIEW.

Step 1. Use **Alt-H two** times to reduce the drawing half size twice. Hold down ALT and press H **two times**.

Step 2. ESC to Main Menu.

Step 3. F1 CREATE.

Step 4. F1 LINE.

Step 5. F7 RECTANGLE.

Step 6. F2 WIDTH/HEIGHT.

Step 7. Key in **9** for width and press ENTER.

Step 8. Key in **1.2** for height and press ENTER.

Step 9. F9 KEY IN.

Step 10. Key in:
Zero (**0**) for coordinate X and press ENTER.
**9** for Y and press ENTER.
**0** for Z and press ENTER, **Fig. 2**.

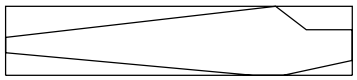


FIG. 2

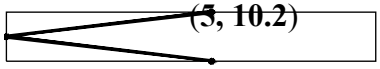
Step 11. Use **ALT-A** to center the rectangle on the screen. Hold down ALT and press A.

## F. DRAW FUSELAGE IN SIDE VIEW.

Step 1. ESC to Main Menu.

Step 2. F1 CREATE.

Step 3. F1 LINE




Step 4. F2 STRING.

Step 5. To indicate Start Point, move cursor to coordinates (**5, 10.2**) and click, **Fig. 3**.

Step 6. To indicate End Point, move cursor to coordinates (**0, 9.6**) and click, **Fig. 3.**

Step 7. To indicate End Point, move cursor to coordinates (**5, 9**) and click, **Fig. 3**.

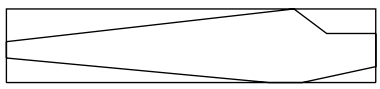


FIG. 3

| Fit on Screen ALT-A | Delete CTRL-Q | Redraw CTRL-R | Half Size ALT-H |
|---|---|---|---|

## G. WING.

Step 1. Draw the wing **blue**. Change the color to blue. Click the color swatch in the side Tool Bar. Click blue, number 5.

Step 2. ESC to Main Menu.

Step 3. F1 CREATE.

Step 4. F1 LINE.

Step 5. F7 RECTANGLE.

Step 6. F1 CORNERS.

Step 7. Draw the wing in the Top View, **Fig. 4**. Start the rectangle with a click at coordinates **(5, 9)**. Move the cursor to stretch the rectangle to coordinates **(7, 2)** and click.

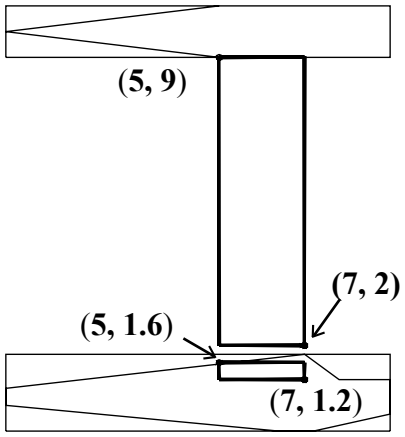


FIG. 4

Step 8. Draw the wing in the Side View, **Fig. 4**. Start the rectangle with a click at coordinates **(5, 1.6)**. Move the cursor to stretch the rectangle to coordinates **(7, 1.2)** and click.

Step 9. Save the drawing. Use **CTRL-S**.

## H. DELETE AND TRIM LINES.

Step 1. ESC to Main Menu.

Step 2. Delete Lines 1 through 5, **Fig. 5**. Use **Ctrl-Q** to delete the line. Hold down CTRL and press Q. Move the cursor over each line and select with a click. After the lines have been selected press ENTER.

Step 3. Use CTRL-R to clear temporary markers. Hold down CTRL and press R.

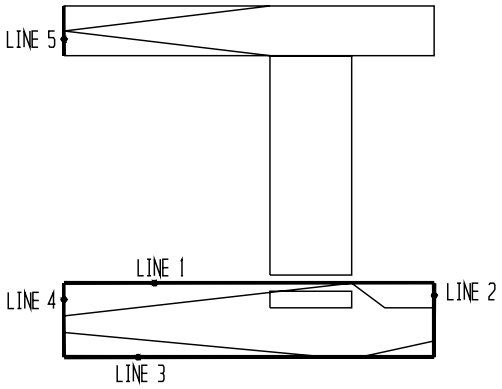


FIG. 5

## I. EDIT USING TRIM FIRST.

Step 1. ESC to Main Menu.

Step 2. F2 EDIT.

Step 3. F1 TRIM/EXTEND.

Step 4. F1 FIRST.

| Fit on Screen ALT-A | Delete CTRL-Q | Redraw CTRL-R | Half Size ALT-H |
|---|---|---|---|

Step 5. To trim part of a line, click the line you are to keep, Line 1, **Fig. 6**. Move cursor close to the intersection with Line 2 and click. Repeat at the other side of the fuselage. That is, click the part of the line you are keeping, Line 1, then move cursor close to the intersection with Line 2 and click.

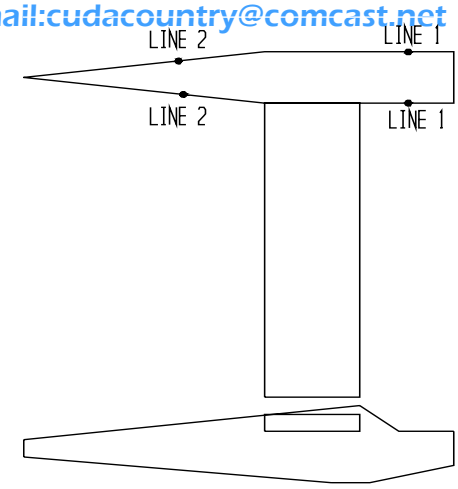


FIG. 6

Step 6. Save the drawing. Use **CTRL-S**.

## J. ROTATE ANGLE OF ATTACK.

Step 1. ESC to Main Menu.

Step 2. F4 X-FORM.

Step 3. F3 ROTATE.

Step 4. F1 MOVE.

Step 5. F1 SINGLE.

Step 6. In the Side View, click the lines of the wing, Lines 1, 2 , 3 and 4 and press ENTER, **Fig. 7**.

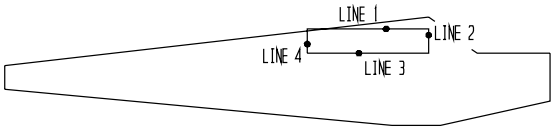


FIG. 7

Step 7. For the 1st point on axis, move the cursor to the corner of the wing, coordinates **(7, 1.2)**, **Fig. 8**, and click.

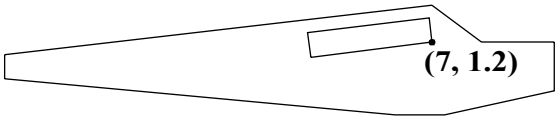


FIG. 8

Step 8. For 2nd point on axis press ENTER.

Step 9. Key in **7** for rotation angle and press ENTER.

Step 10. Use CTRL-R to clear temporary markers. Hold down CTRL and press R.

Step 11. At this point it is a good idea to save the drawing. Use **CTRL-S**.

## K. HORIZONTAL STABILIZER.

Step 1. Use **ALT-W** to zoom in on the back of fuselage in the Top View. Hold down ALT and press W. Move the cursor to just above and to the left of the back of the fuselage, **Fig. 9**. Click to start 1ST WINDOW CORNER. Move the mouse to right and down the to window the stabilizer area. Click to set 2ND WINDOW CORNER.

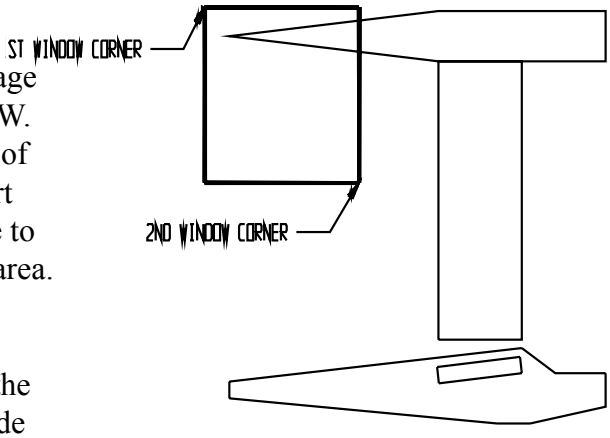


FIG. 9

Step 2. Draw the horizontal stabilizer **red**. Change the color to red. Click the color swatch in the side Tool Bar. Click red, number 2.

Step 3. ESC to Main Menu.

Step 4. F1 CREATE.

Step 5. F1 LINE

Step 6. F2 STRING.

Step 7. To indicate Start Point, move cursor to coordinates (**0, 9.6**) and click, **Fig. 10**.

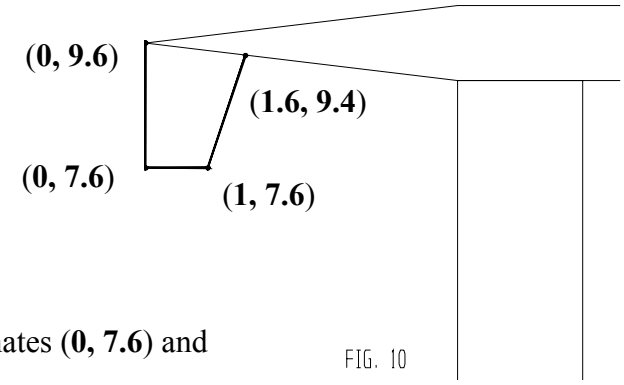


FIG. 10

Step 8. To indicate End Point, move cursor to coordinates (**0, 7.6**) and click, **Fig. 10.**

Step 9. To indicate End Point, move cursor to coordinates (**1, 7.6**) and click, **Fig. 10**.

Step 10. To indicate End Point, move cursor to coordinates (**1.6, 9.4**) and click, **Fig. 10**.

Step 11. F10 BACKUP to stop the line.

Step 12. Use **ALT-A** to center the drawing on the screen. Hold down ALT and press A.

Step 13. Use **ALT-W** to zoom in on the back of the fuselage in the Side View. Hold down ALT and press W. Move the cursor to just above and to the left of the back of the fuselage, **Fig. 11**. Click to start 1ST WINDOW CORNER. Move the mouse to right and down the window the stabilizer area. Click to set 2ND WINDOW CORNER.

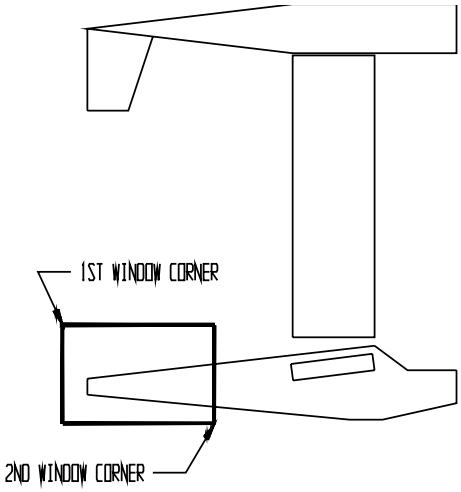


FIG. 11

Step 14. To indicate Start Point, move cursor to coordinates (**0, 1**) and click, **Fig. 12**. Use the Cursor Tracking Window located in the lower-left corner for the coordinates display.

Step 15. To indicate End Point, move cursor to coordinates (**1.6, 1**) and click, **Fig. 12.**

Step 16. To indicate End Point, move cursor to coordinates (**1.6, .8**) and click, **Fig. 12**.

Step 17. To indicate End Point, move cursor to coordinates (**0, .8**) and click, **Fig. 12**.

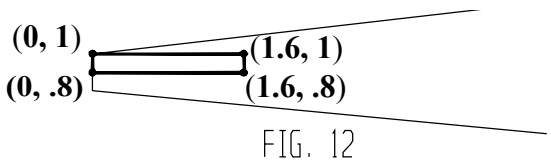


FIG. 12

Step 18. Use **ALT-A** to center the drawing on the screen. Hold down ALT and press A.

## L. VERTICAL STABILIZER.

Step 1. Use **ALT-W** to zoom in on the back of the fuselage in the Top View. Hold down ALT and press W. Move the cursor to just above and to the left of the back of the fuselage, **Fig. 13**. Click to start 1ST WINDOW CORNER. Move the mouse to right and down to window the stabilizer area. Click to set 2ND WINDOW CORNER.

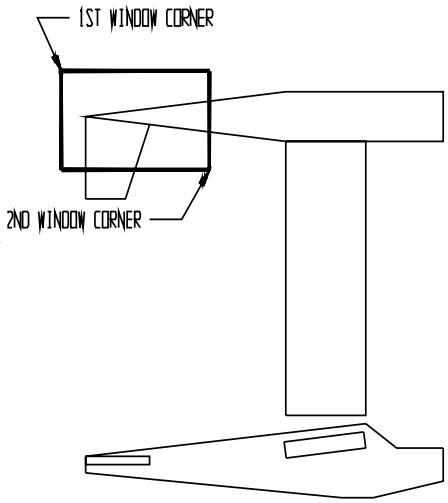


FIG. 13

Step 2. Draw the vertical stabilizer **yellow**. Change the color to yellow. Click the color swatch in the side Tool Bar. Click yellow, number 4.

Step 3. **Set the Snap to .1**. Use **CTRL-G**. Hold down CTRL and press G. Change the **Snap Properties Increment** to **X = .1 and Y = .1** Click OK.

Step 4. ESC to Main Menu.

Step 5. F1 CREATE.

Step 6. F1 LINE

Step 7. F2 STRING.

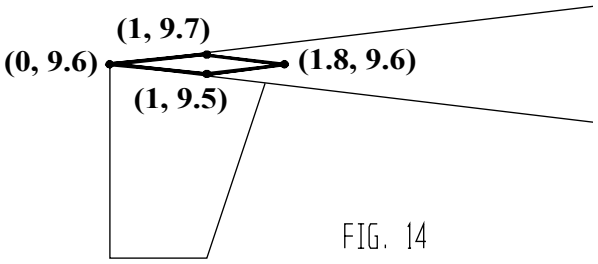


FIG. 14

Step 8. To indicate Start Point, move cursor to coordinates (**0, 9.6**) and click, **Fig. 14**.

Step 9. To indicate End Point, move cursor to coordinates (**1, 9.7**) and click, **Fig. 14.**

Step 10. To indicate End Point, move cursor to coordinates (**1.8, 9.6**) and click, **Fig. 14**.

Step 11. To indicate End Point, move cursor to coordinates (**1, 9.5**) and click, **Fig. 14**.

Step 12. To indicate End Point, move cursor to coordinates (**0, 9.6**) and click, **Fig. 14**

Step 13. F10 BACKUP to stop the line.

Step 14. Use **ALT-A** to center the drawing on the screen. Hold down ALT and press A.

Step 15. Use **ALT-W** to zoom in on the back of the fuselage in the Side View. Hold down ALT and press W. Move the cursor to just above and to the left of the back of the fuselage, **Fig. 15**. Click to start 1ST WINDOW CORNER. Move the mouse to right and down to window the stabilizer area. Click to set 2ND WINDOW CORNER.

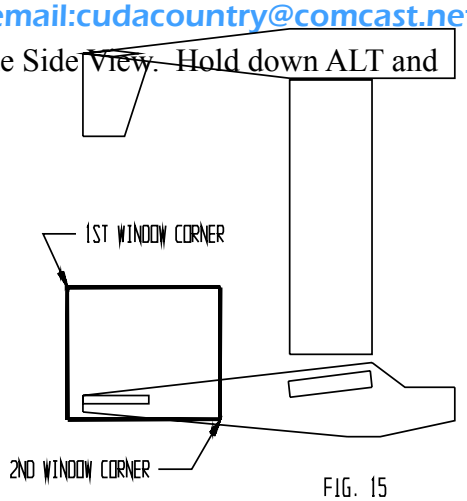


FIG. 15

Step 16. To indicate Start Point, move cursor to coordinates (**0, 1**) and click, **Fig. 16**.

Step 17. To indicate End Point, move cursor to coordinates (**.6, 2.4**) and click, **Fig. 16.**

Step 18. To indicate End Point, move cursor to coordinates (**1.2, 2.4**) and click, **Fig. 16**.

Step 19. To indicate End Point, move cursor to coordinates (**1.8, 1.2**) and click, **Fig. 16**.

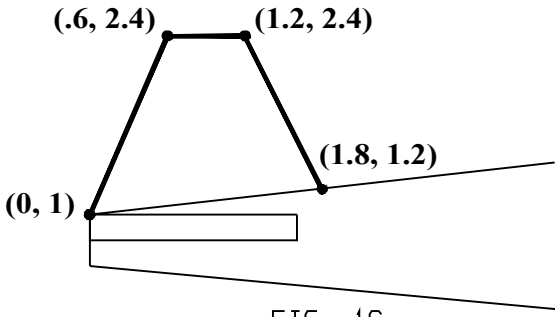


FIG. 16

Step 20. Use **ALT-A** to center the drawing on the screen. Hold down ALT and press A.

Step 21. Save the drawing. Use **CTRL-S**.

## M. MOTOR.

Step 1. Draw the motor **red**. Change the color to red. Change the color to red. Click the color swatch in the side Tool Bar. Click red, number 2.

Step 2. ESC to Main Menu.

Step 3. F1 CREATE.

Step 4. F1 LINE.

Step 5. F7 RECTANGLE.

Step 6. F2 WIDTH/HEIGHT.

Step 7. Key in **1** for width and press ENTER.

Step 8. Key in **1** for height and press ENTER.

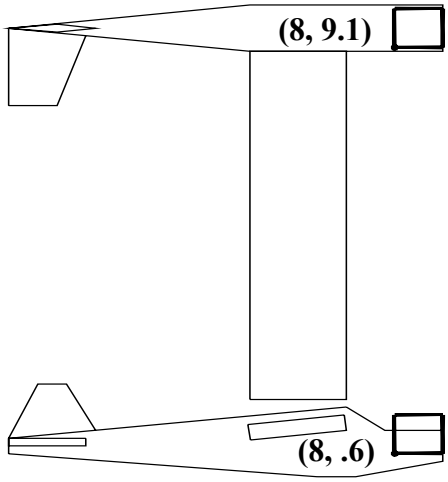


FIG. 17

Step 9. F1 CURSOR. To indicate the position of the rectangle in the Side View click point **(8, .6)**, **Fig. 17**.

Step 10. To indicate the position of the rectangle in the Top View click point **(8, 9.1)**, **Fig. 17**.

## N. WHEELS.

Step 1. Use **ALT-W** to zoom in on the fuselage in the Side View. Hold down ALT and press W. Move the cursor to just above and to the left of the back of the fuselage, **Fig. 18**. Click to start 1ST WINDOW CORNER. Move the mouse to right and down to window the fuselage. Click to set 2ND WINDOW CORNER.

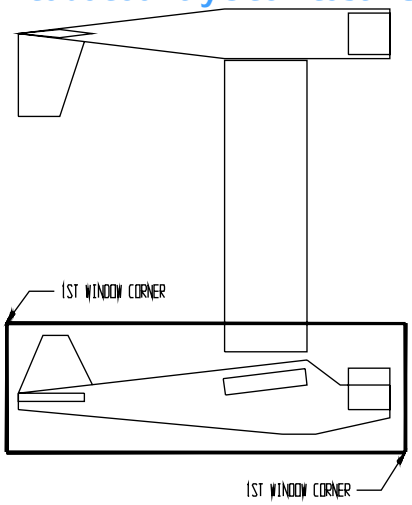


FIG. 18

Step 2. Draw the landing gear **gray**. Change the color to gray. Click the color swatch in the side Tool Bar. Click gray, number 14.

Step 3. ESC to Main Menu.

Step 4. F1 CREATE.

Step 5. F3 CIRCLE.

Step 6. F2 CENTER/DIAMETER.

Step 7. Key in **1** for diameter and press ENTER.

Step 8. Move the cursor to **(7.8, -.7)**, **Fig. 19** for the center of the circle and click.

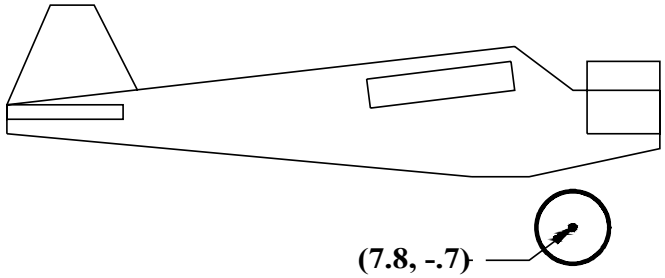


FIG. 19

Step 9. At this point it is a good idea to save the drawing. Use **CTRL-S**.

## O. DRAW LINE FOR LANDING GEAR IN SIDE VIEW.

Step 1. ESC to Main Menu.

Step 2. F1 CREATE.

Step 3. F1 LINE

Step 4. F1 ENDPOINTS.

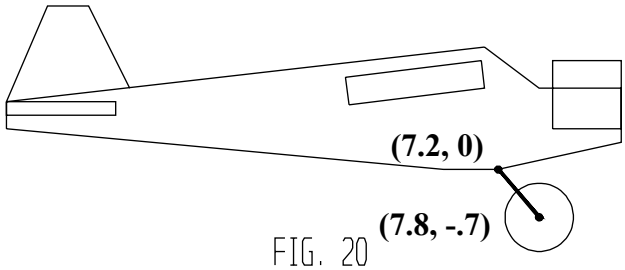


FIG. 20

Step 5. Draw a line between points **(7.2, 0)** and **(7.8, -.7)**, **Fig. 20** for the landing gear in the Side View.

## P. DRAW STRING OF LINES FOR TAIL HOOK WIRE.

Step 1. ESC to Main Menu.

Step 2. F1 CREATE.

Step 3. F1 LINE

Step 4 . F2 STRING.

Step 5. To indicate Start Point, move cursor to coordinates (**2.2, .4**) and click, **Fig. 21.**

Step 6. To indicate End Point, move cursor to coordinates (**1.8, 0) and** click, **Fig. 21.**

Step 7. To indicate End Point, move cursor to coordinates (**1.5, -.1**) and click, **Fig. 21**.

Step 8. To indicate End Point, move cursor to coordinates (**1.3, -.1**) and click, **Fig. 21**.

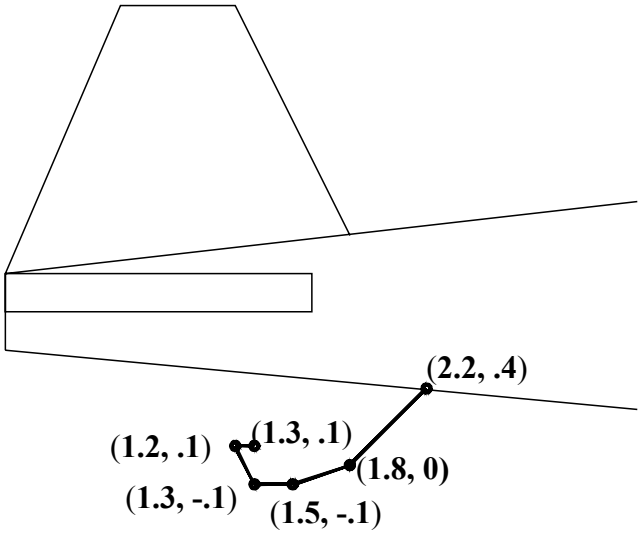


FIG. 21

Step 9. To indicate End Point, move cursor to coordinates (**1.2, .1**) and click, **Fig. 21**.

Step 10. To indicate End Point, move cursor to coordinates (**1.3, .1**) and click, **Fig. 21**.

Step 11. F10 BACKUP to stop the line.

Step 12. At this point it is a good idea to save the drawing. Use **CTRL-S**.

## Q. ROTATE TOP VIEW.

Step 1. Use **ALT-A** to center the drawing on the screen. Hold down ALT and press A.

Step 2. ESC to Main Menu.

Step 3. F4 X-FORM.

Step 4. F3 ROTATE.

Step 5. F1 MOVE.

Step 6. F1 SINGLE.

Step 7. In the Top View, click the all the lines that make up the Top View and press ENTER, **Fig. 22**.

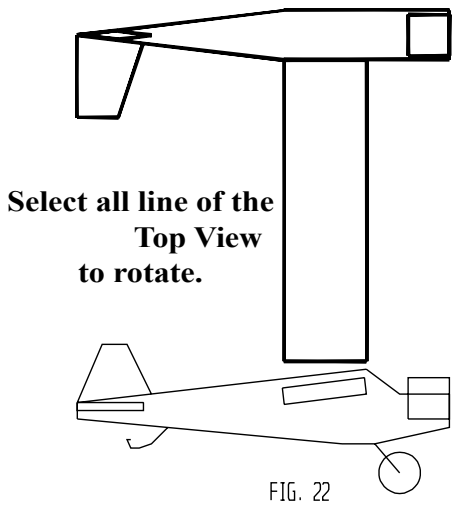


FIG. 22

Step 8. Move the cursor to coordinates (**5, 3.3**), **Fig. 23**, and click for the point on rotation axis.

Step 9. Press ENTER to accept 2nd point on axis.

Step 10. Key in **90** degrees for rotation angle and press ENTER, **Fig. 24**.

Step 11. Save the drawing. Use **CTRL-S**.

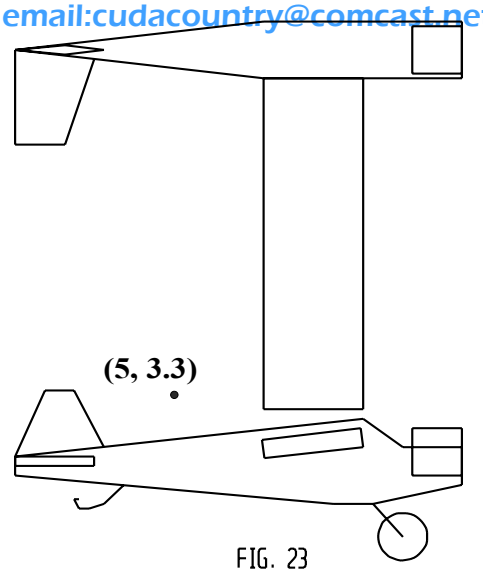


FIG. 23

## R. ADD YOUR NAME AND THE PERIOD TO DRAWING.

Step 1. Use **Alt-H** to reduce the drawing half size. Hold down ALT and press H. Use: **Detail, Note, Key-In** commands to add text.

Step 2. Save the drawing. Use **CTRL-S**.

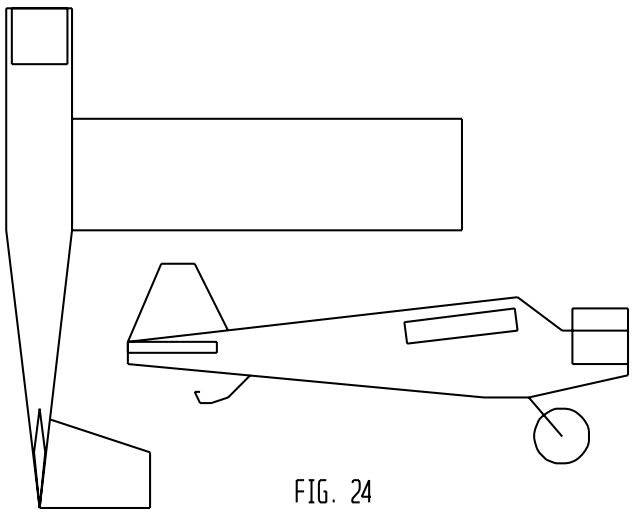


FIG. 24