POWER TRAIN FOR BOAT

A. Create Rectangle.

Step 1.   MAIN MENU.

Step 2.   Create.

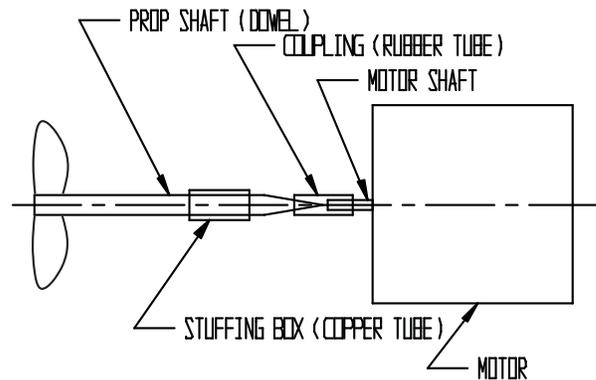Step 3.   Rectangle.

Step 4.   1 Point.

Step 5.   Set: Width **1** and Height **1**.

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** to fit rectangle on the screen. Hold down ALT and press F1.

Step 9.   MAIN MENU.

B. Set Grid And Snap.

Step 1.   Change the **Grid and Snap to .025**. Use **ALT-G**. Hold down ALT and press G.

Step 2.   Set: X and Y Spacing to **.025**, **Fig. 1**.

Step 3.   Click OK.

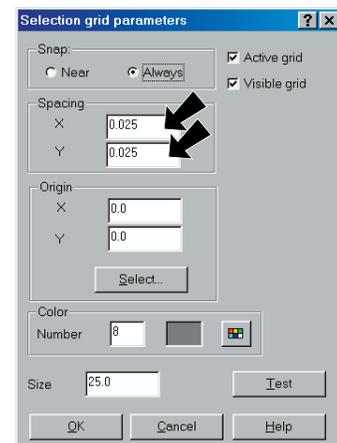Step 4.   Save the drawing. Use: File, Save and **power train** for a file-name.

Fig. 1

C. Create Horizontal Center Line.

Step 1.   Draw the next lines, the center lines in a different color. Change the color to **green**. Click the color swatch in the Secondary Menu. Click green, number 10 and click OK.

Step 2.   Change the line style to Center Lines. Click Attributes in the Secondary Menu. Set Line Style to **Center** and click OK.

Step 3.   MAIN MENU.

Step 4.   Create.

Step 5.   Line.

Fit on Screen ALT-F1	Delete F5	Repaint F3	Zoom In F1	Unzoom Page Down

Step 6. Endpoint.

Step 7. Midpoint.

Step 8. Click the right side of the rectangle and stretch the line across to the other side of the rectangle and click, **Fig. 2**.
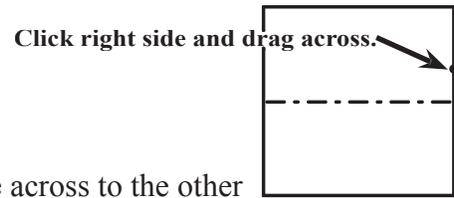
Fig. 2

D. Draw Motor Shaft.

Step 1. Draw the next lines, the motor shaft lines in a different color. Change the color to **red**. Click the color swatch in the Secondary Menu. Click red, number 12 and click OK.

Step 2. Change the line style back to solid. Click Attributes in the Secondary Menu. Set Line Style to **Solid** and click OK.

Step 3. Pan the drawing to the left to make room for the motor shaft. Use the **left arrow key 5 times**.

Step 4. MAIN MENU.

Step 5. Create.

(-.225, .525)

9

(0, .475)

Step 6. Rectangle.

Step 7. 2 Points.

Fig. 3

Step 8. Draw the rectangle in **Fig. 3**. Use the grid to determine the location of the rectangle. Or key-in the coordinates.
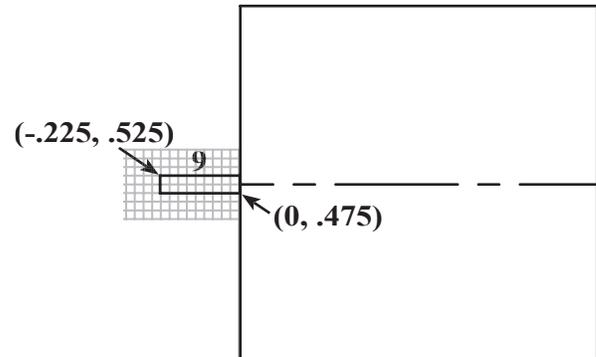
E. Draw Coupling (rubber tube).

Step 1. Draw the coupling different color. Change the color to **magenta**. Click the color swatch in the Secondary Menu. Click magenta, number 13 and click OK.

Step 2. MAIN MENU.

Step 3. Create.

(-.4, .55)

12

5

(-.1, .45)

Step 4. Rectangle.

Step 5. 2 Points.

Fig. 4

Step 6. Draw the rectangle in **Fig. 4**. Use the grid to determine the location of the rectangle. Or key-in the coordinates.
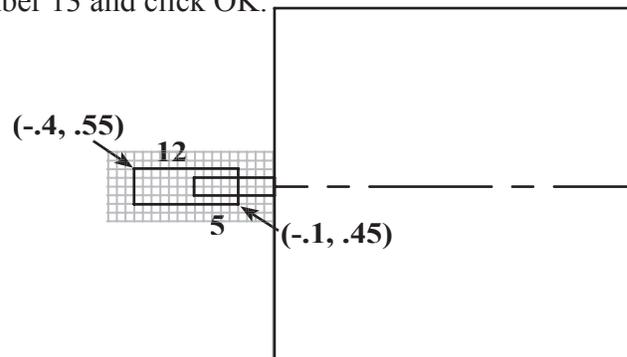
Step 7. Save your drawing. Use **Alt-A** and press ENTER.

Fit on Screen ALT-F1	Delete F5	Repaint F3	Zoom In F1	Unzoom Page Down

F. Extend Center Line.

Step 1.   MAIN MENU.

Step 2.   Modify.

Step 3.   Extend.

Step 4.   Length.

Step 5.   Key-in **2.7** and press ENTER.

Step 6.   Click the left end of the line at Position 1, **Fig. 5**.
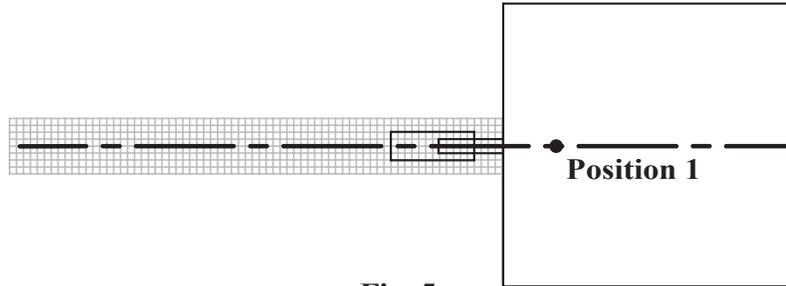
Fig. 5

Position 1

G. Draw Propeller Shaft (dowel).

Step 1.   Draw the propeller shaft 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.   Endpoints.

Step 6.   Draw the v shape line in the dowel, **Fig. 6**. Use **ALT-F1** to fit drawing on screen. Then, draw the dowel as far left as the center line.

Draw the v shape first.
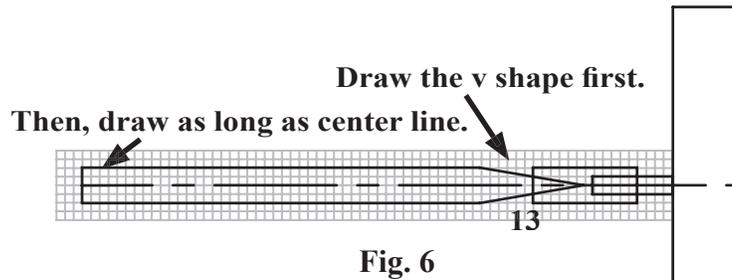
Then, draw as long as center line.

13

Fig. 6

H. Draw Stuffing Box (copper tube).

Step 1.   Draw the stuffing box a different color. Change the color to **tangerine**. Click the color swatch in the Secondary Menu. Click the 16/256 Button. Click tangerine, number 94 and click OK.

Step 2.   MAIN MENU.

Step 3.   Create.

Step 4.   Rectangle.

Step 5.   2 Points.

Step 6.   Draw the rectangle in **Fig. 7**. Use the grid to determine the location. Use the **page up** key to zoom in. Or key-in the coordinates.
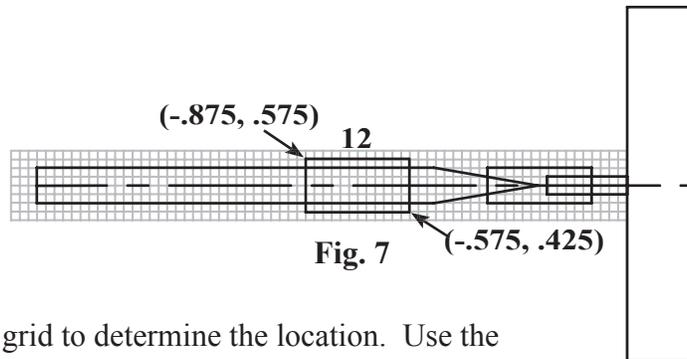
(-.875, .575)

12

(-.575, .425)

Fig. 7

Fit on Screen ALT-F1	Delete F5	Repaint F3	Zoom In F1	Unzoom Page Down

I. Draw Propeller Blade.

Step 1. Draw the propeller different color. Change the color to **blue**. Click the color swatch in the Secondary Menu. Click blue, number 122 and click OK.

Step 2. MAIN MENU.

Step 3. Create.

Step 4. Spline.

Step 5. Manual.
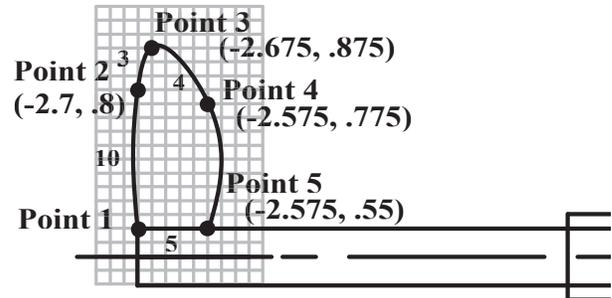
Step 6. Click the 4 points, **Fig. 8**.

Step 7. Press Escape to end the spline.

Step 8. Use **F3** to Repaint display and clear temporary markers.

Point 3
(-2.675, .875)

Point 2
(-2.7, .8)

Point 4
(-2.575, .775)

Point 5
(-2.575, .55)

Point 1

Fig. 8

J. Mirror Copy Propeller Blade.

Step 1. MAIN MENU.

Step 2. Xform.

Step 3. Mirror.

Step 4. Click the spline, **Fig. 9**.

Step 5. Done.

Step 6. Line.

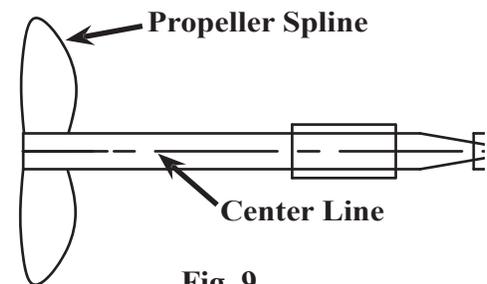Step 7. Click the **center line**, **Fig. 9**.

Step 8. Click Copy and OK.

Step 9. Click the Clear Screen Colors Tool.

Propeller Spline

Center Line

Fig. 9

K. Label Parts.

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

Step 2. MAIN MENU.

Step 3. Create.

Fit on Screen ALT-F1	Delete F5	Repaint F3	Zoom In F1	Unzoom Page Down

Step 4.   Drafting.

Step 5.   Note.

Step 6.   Lock the Caps, key-in: **MOTOR SHAFT**

Step 7.   Click **Label with Single Leader**, **Fig. 10**.
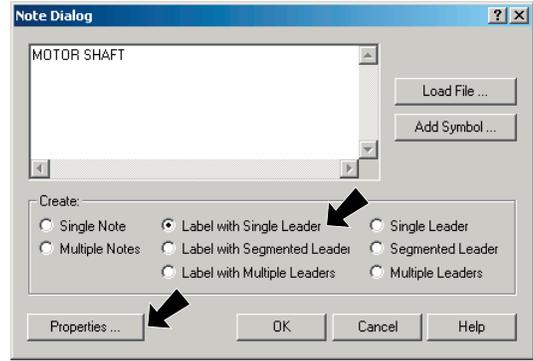
Step 8.   Click the Properties Button, **Fig. 10**.

Step 9.   Set: **Text Height .1**
              Character Width .08 and click OK, **Fig. 11**.
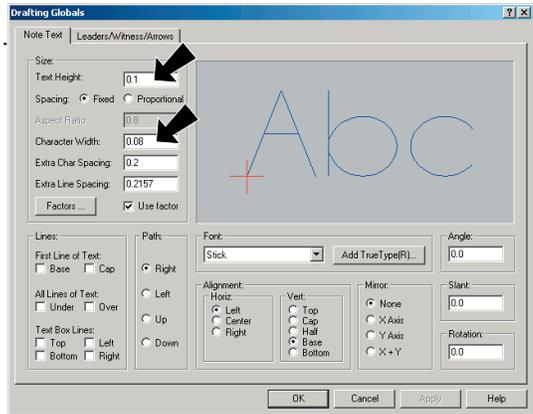
Step 10. Click OK.

Step 11. Click the top motor shaft line, **Position 1** for the
           arrowhead position, **Fig. 12**.

Step 12. Click **Position 2** for the text position.

Step 13. Note.

Step 14. Key-in: **COUPLING (RUBBER TUBE)**.

Step 15. Click **Label with Single Leader** and click OK.

Step 16. Click the top line of the Coupling, **Position 3**
           to indicate the arrowhead position, **Fig. 13.**

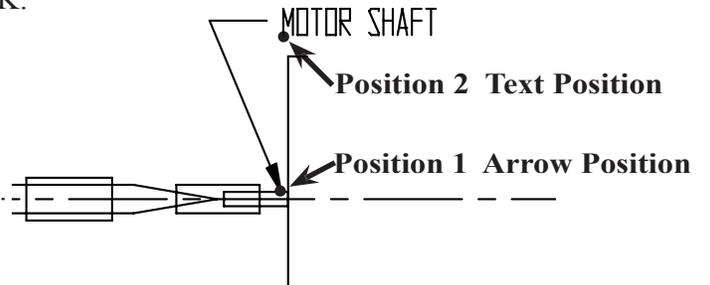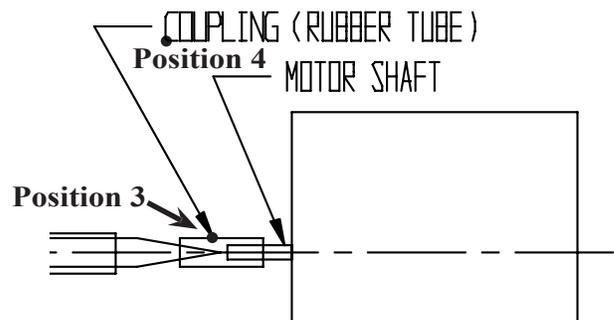Step 17. Click **Position 4** for the text position, **Fig. 13**.

Fig. 10

Fig. 11

Fig. 12

Fig. 13

| Fit on Screen ALT-F1 | Delete F5 | Repaint F3 | Zoom In F1 | Unzoom Page Down |

Step 18. Note.

Step 19. Repeat the Labeling steps and label:
        PROP SHAFT (DOWEL)
        MOTOR
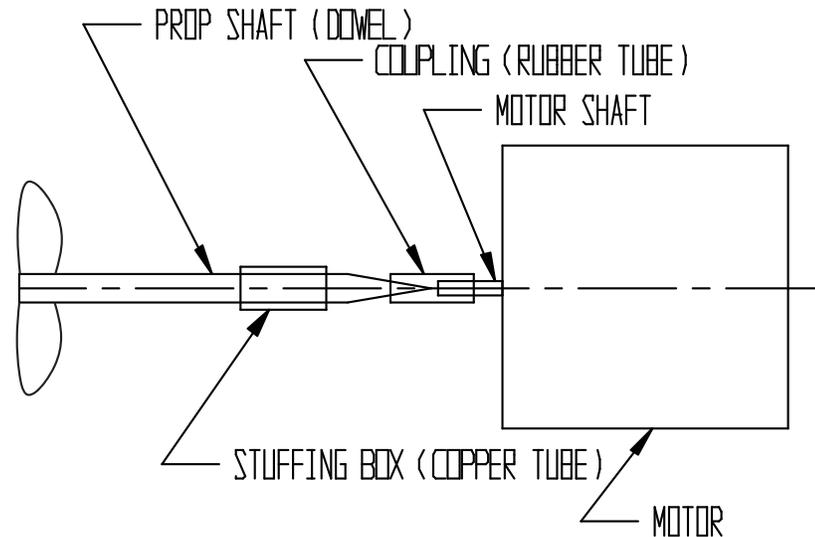   **STUFFING BOX (COPPER TUBE), Fig. 14.**

Fig. 14

I. Add Your Names And The Period To The Drawing.

Step 1. MAIN MENU.

Step 2. Create.

Step 3. Drafting.

Step 4. Note.

Step 5. Lock the Caps, key-in: DRAWN BY: FIRST AND LAST NAME AND FIRST AND LAST NAME AND PERIOD 1 (or whatever your period is) and click OK.

Step 6. Use **Page Down** key to reduce the drawing.

Step 7. Center the text at the bottom of the drawing and click.

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

Fit on Screen ALT-F1	Delete F5	Repaint F3	Zoom In F1	Unzoom Page Down