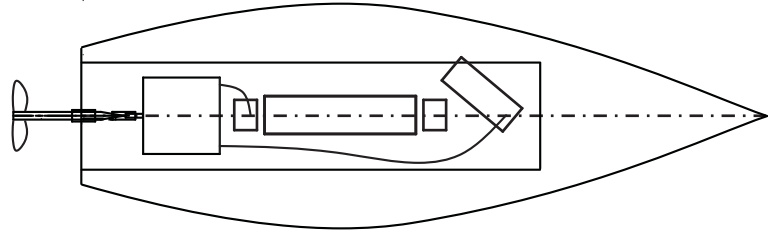


# MOTOR BOAT

## A. Create Rectangle.

Step 1. If necessary create a new Mastercam file, click File Menu > New.



Step 2. Click Create Menu > Create Rectangle.

Step 3. Key-into the ribbon bar:

9 for **Width**   
3 for **Height** , Fig. 1.

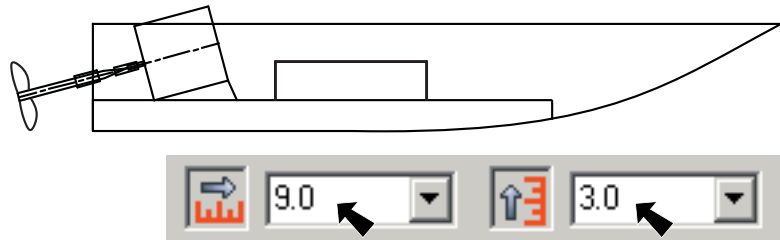



Fig. 1

Step 4. Click the down arrow in the Auto Cursor ribbon bar and click Origin  to place the rectangle, Fig. 2.

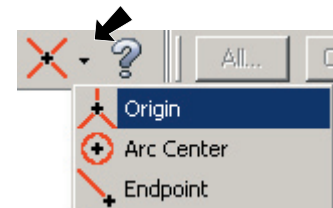


Fig. 2

Step 5. Press ESC to close the ribbon bar.

Step 6. Click Fit  or use **Alt-F1** to fit the rectangle on the screen.

Step 7. Save the drawing. Use File Menu > Save As and **motor boat** for a filename.

## B. Create Horizontal Center Line.

Step 1. Draw the **center line green** and change the **line style to center**. Click Attributes in the Status Bar at the bottom of the screen. Key-in **10** for the **green** color number.

Step 2. Click the Line Style down arrow. Select the **center line style**, 3rd line style and click OK.

Step 3. Click Create Menu > Line > Create Line Endpoint. Or click the Line Tool  in the toolbar.

Step 5. Move the cursor along the line of the left side of the rectangle, when the line changes color you are at the midpoint, click. Stretch the line across to the midpoint of the right side of the rectangle. When the line changes color, click, Fig. 3.

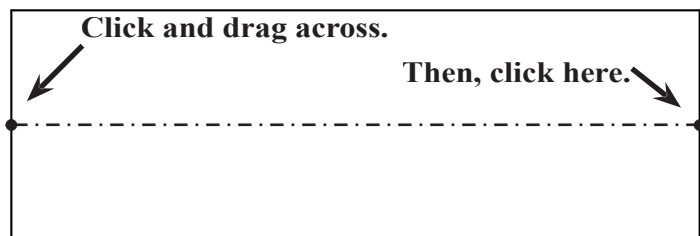


Fig. 3

Step 6. Press ESC to close the ribbon bar.

### C. Draw Top View Hull Spline.

Step 1. Set the color and line style same as the rectangle, **cyan and solid**. Use **Alt-X**, then click a line of the rectangle. Click the line again to unselect it.

Step 2. Click Create Menu > Spline > Create Manual Spline.

Step 3. Click the 3 points in **Fig. 4**. Start with **(0, 2.4)** then **(3.8, 3)** finish with **(9, 1.5)**. Use the AutoCursor ribbon bar to view the coordinates. Or key-in the coordinates and press ENTER for Z.

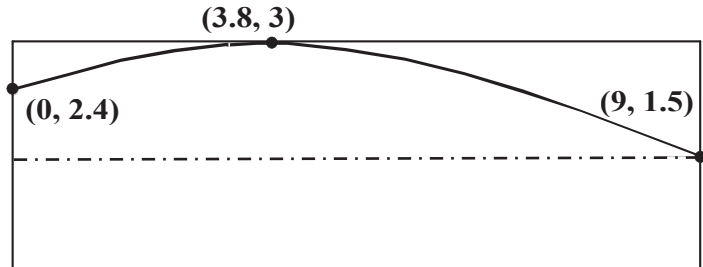


Fig. 4

Step 4. Press ENTER to end the spline.

Step 5. Save your drawing. Use **Alt-F S**.

### D. Mirror Starboard Hull Spline.

Step 1. Click Xform Menu > Xform Mirror.

Step 2. Click the spline and press ENTER, **Fig. 5**.

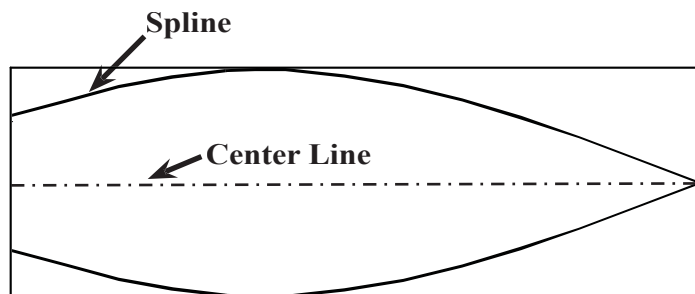





Fig. 5

Step 3. Set:

Copy   
Click the Line  button,  
**Fig. 6**.

Step 4. Click the center line, **Fig. 5**.

Step 5. Click OK .

Step 6. **Right click** the drawing area and click Clear Colors  from the menu or use **Alt-R C**.

Step 7. Save your drawing. Use **Alt-F S**.

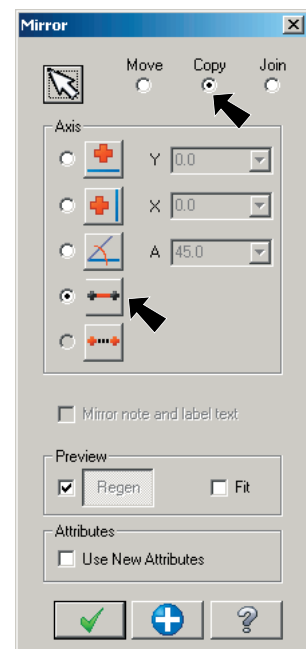


Fig. 6

## E. Create Rectangle For Side View.

Step 1. Use the **page down** key **4** or **5** times to zoom out.

Step 2. Click Create Menu > Create Rectangle.

Step 3. Key-into the ribbon bar:

**9** for Width   
**1.4** for Height  Fig. 7.



Fig. 7

Step 4. Key-into the AutoCursor ribbon bar:

**0** for X  
**-3** for Y and press  
**ENTER** two times, Fig.

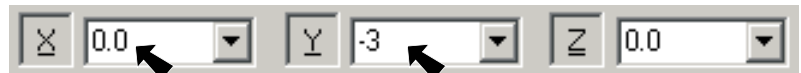


Fig. 8

8.

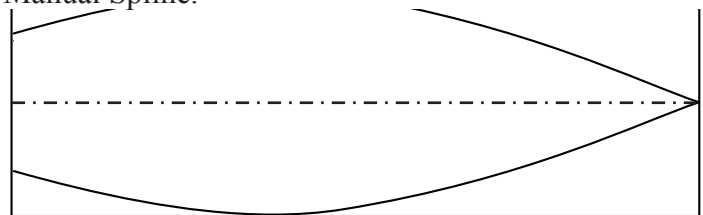
Step 5. Press ESC to close the ribbon bar.

Step 6. Click Fit  or use **Alt-F1** to fit the drawing on the screen.

## F. Draw Side View Hull Spline.

Step 2. Click Create Menu > Spline > Create Manual Spline.

Step 3. Click the 3 points in Fig. 9. Start with **(3.4, -3)** then **(7, -2.6)** finish with **(9, -1.6)**. Use the AutoCursor ribbon bar to view the coordinates. Or key-in the coordinates and press ENTER for Z.



(9, -1.6)

Step 4. Press ENTER to end the spline.




(3.4, -3)

Fig. 9

Step 5. Save your drawing. Use **Alt-F S**.

## G. Delete And Trim Hull Lines.

Step 1. Lines 1, 2, 3 and 4 are no longer needed. Use Delete button  or **F5**. Click the 4 lines and press **F5**, Fig. 10.

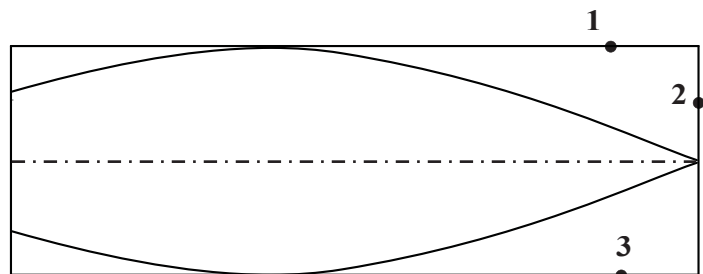



Fig. 10

Step 2. Click Edit Menu > Trim/Break > Trim/Break.

Step 3. Click the Trim 1 Entity button  in the ribbon bar.

Step 4. Trim three lines. Click the line to trim at Position 1, then trim to the spline at Position 2, **Fig. 11**. Repeat at the other two lines.

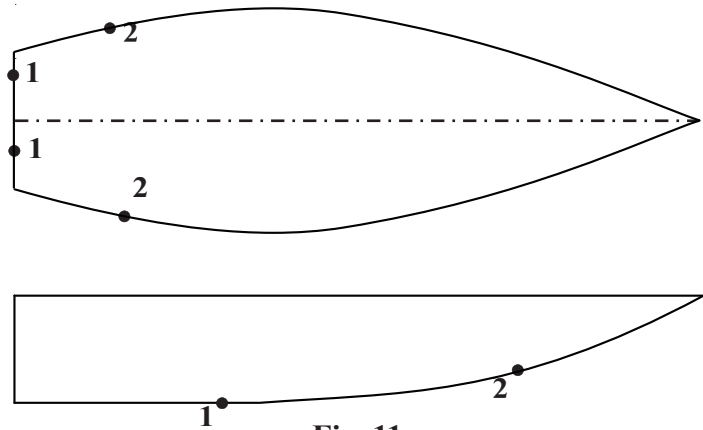


Fig. 11

Step 5. Press ESC to close the ribbon bar.




### H. Wood Base.

Step 1. Draw the wood base **tangerine**. Click the color swatch in the Status Bar at the bottom of the screen. Key-in **94** for **tangerine** color number and press ENTER.

Step 2. Click Create Menu > Create Rectangle.



Step 3. Key-into the ribbon bar:

**6** for **Width**   
**1.4** for **Height**   
**Lock the Width.** Click the Width button  to lock. The field turn red when locked, **Fig. 13**.

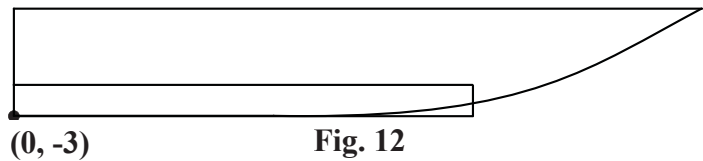


Fig. 12



Fig. 13

Step 4. Key-into the AutoCursor ribbon bar:

**0** for **X**  
**.8** for **Y** and press **ENTER** two times, **Fig. 14** and **12**.



Fig. 14

Step 5. Click Apply button  in the ribbon bar.

Step 6. Key-in **.4** for **Height** in the ribbon bar, **Fig. 15**.

Step 7. Key-into the AutoCursor ribbon bar:

**0** for **X**  
**-3** for **Y**  
and press **ENTER** two times, **Fig. 16** and **12**.



Fig. 15



Fig. 16

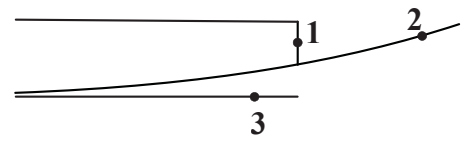
Step 8. Press ESC to close the ribbon bar.

### I. Trim Wood Base And Delete Line.

Step 1. Click Edit Menu > Trim/Break > Trim/Break.

Step 2. Click the Trim 1 Entity button  in the ribbon bar.

Step 3. Trim Line 1 in the Side View, **Fig. 17**. Click the line to trim at Position 1, then trim to the spline at Position .2.



**Fig. 17**

Step 4. Delete Line 3. Use Delete button  or **F5**. Click Line 3 and press **F5**, **Fig. 17**.

Step 5. Save your drawing. Use **Alt-F S**.

### J. Merge Power Train.

Step 1. Click File Menu > File Merge/Pattern.



**Fig. 18**

Step 2. Click your **power train** file and click Open .

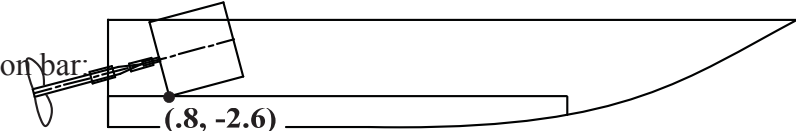
Step 3. Click the Select button  in the ribbon bar, **Fig. 18**.



Step 4. Set **Rotation to 0**  in the ribbon bar, **Fig. 18**.

Step 5. Key-into the AutoCursor ribbon bar:

**.8 for X**  
**1 for Y** and press  
**ENTER** two times,  
**Fig. 20 and 19**.



**Fig. 19**



**Fig. 20**

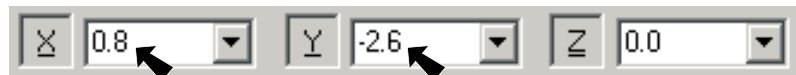
Step 6. Click **Ignore associated drafting entity** and click OK.

Step 7. Click Apply button  in the ribbon bar.

Step 8. Set **Rotation to 15**  in the ribbon bar.

Step 9. Key-into the AutoCursor ribbon bar:

**.8 for X**  
**-2.6 for Y** and press  
**ENTER** two times, **Fig. 21 and 19**.



**Fig. 21**

Step 10. Click Apply button  in the ribbon bar.

Step 11. Delete all the Labels, **Fig. 22**. Use Delete button  or **F5**.

## K. Battery.

Step 1. Draw the battery **yellow**. Click the color swatch in the Status Bar at the bottom of the screen. Click **yellow, number 14** and click OK.

Step 2. Click Create Menu > Create Rectangle.

Step 3. Key-into the ribbon bar:

**2** for Width 

**.5** for Height 

**Lock BOTH the Width and Height buttons.** Click the buttons to lock. The field turn red when locked, **Fig. 23.**

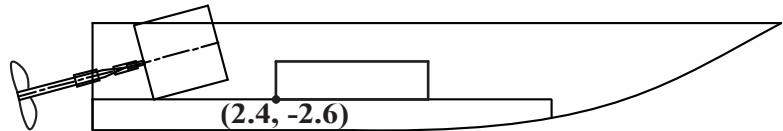
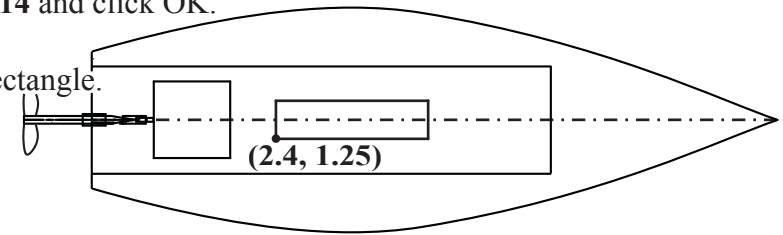


Fig. 22



Fig. 23

Step 4. Key-into the AutoCursor ribbon bar:

**2.4** for X

**1.25** for Y and press

**ENTER** two times, **Fig. 24** and **22.**



Fig. 24

Step 5. Click Apply button  in the ribbon bar.

Step 6. Key-into the AutoCursor ribbon bar:

**2.4** for X

**-2.6** for Y and press

**ENTER** two times, **Fig. 25** and **22.**



Fig. 25

Step 7. Press ESC to close the ribbon bar.

Step 8. Save your drawing. Use **Alt-F S**.

## L. Set Grid And Snap.

Step 1. Change the **Grid and Snap** to **.1**. Use **Alt-G**.

Step 2. Set: **X and Y Spacing** to **.1**, **Fig. 26.**

Step 3. Click OK .

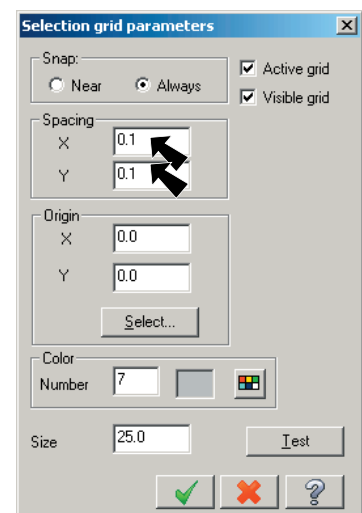


Fig. 26

### M. L-Brackets.

Step 1. Draw the **L-brackets light purple**. Click the color swatch in the Status Bar at the bottom of the screen. Key-in **50 for the light purple** color number and press ENTER.

Step 2. Use the **Page Up** key several times to zoom-in around the base wood in the Top View.

Step 3. Click Create Menu > Create Rectangle.

Step 4. Draw the two rectangles in **Fig. 27**. Use the grid to determine the location of the rectangles.

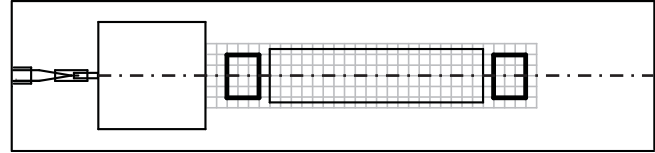


Fig. 27

Step 5. Click Apply button  in the ribbon bar.

### N. Switch.

Step 1. Draw the **switch green**. Click the color swatch in the Status Bar at the bottom of the screen. Key-in **34 for green** color number and press ENTER.

Step 2. Click Create Menu > Create Rectangle.

Step 3. Draw the rectangle in **Fig. 28**. Use the grid to determine the location of the rectangles.

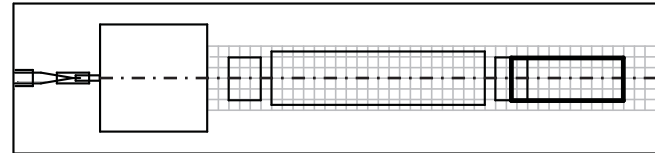


Fig. 28

Step 4. Save your drawing. Use **Alt-F S**.

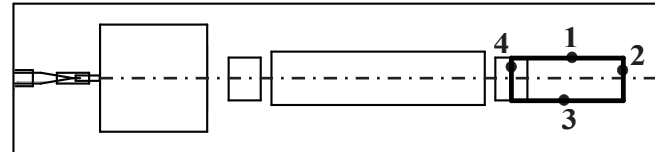


Fig. 29

### O. Rotate Switch.

Step 1. Click Xform Menu > Xform Rotate.

Step 2. Click the lines of the rectangle that make up the switch, Lines 1, 2, 3 and 4 and press ENTER, **Fig. 29**.

Step 3. Set:

**Move** 

**1** for Number of Steps 

Click the **Define Center Point**  button, **Fig. 30**.

Step 4. Click the point **(5.6, 1.5)** for the point to rotate about, **Fig. 31**.

Step 5. Set **-40 for Rotation Angle**  and click OK , **Fig. 30**.

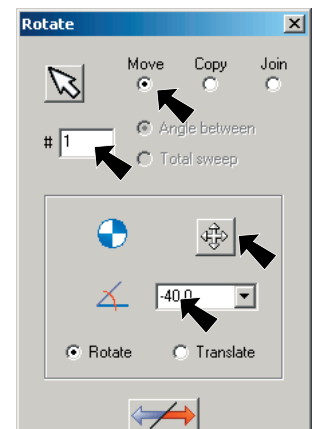



Fig. 30

Step 6. **Right click** the drawing area and click **Clear Colors**  from the menu or use **Alt-R C**.

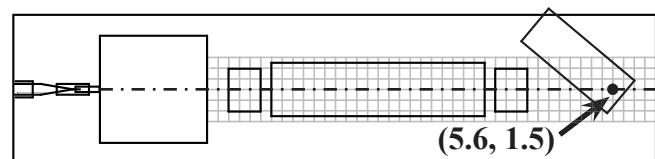


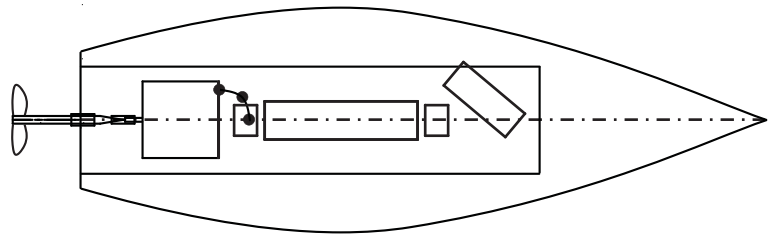
Fig. 31

### **P. Draw Wire Using Spline.**

Step 1. Draw the wire **red**. Click the color swatch in the Status Bar at the bottom of the screen. Key-in **12 for red** color number and press ENTER.

Step 2. Click Create Menu > Spline > Create Manual Spline.

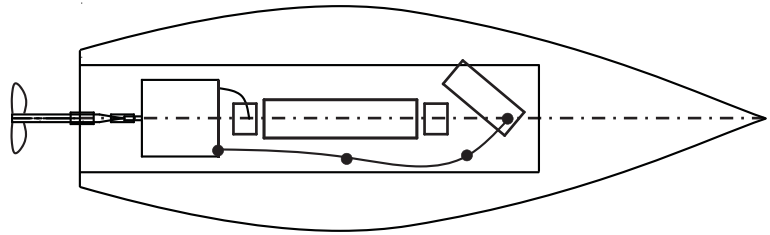
Step 3. Click the 3 points in **Fig. 32** to draw a spline from the motor to the switch.



**Fig. 32**

Step 4. Press ENTER to end the spline.

Step 5. Repeat above spline procedure and draw the other wire from the motor to the battery terminal, **Fig. 33**.




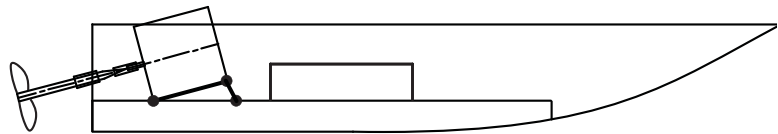
**Fig. 33**

### **Q. Wedge For Motor.**

Step 1. Click Fit  or use **Alt-F1** to fit the drawing on the screen.

Step 2. Draw the wedge **light gray**. Click the color swatch in the Secondary Menu. Click **light gray number 7** and click OK.

Step 3. Click Create Menu > Line > Create Line Endpoint. Or click the Line Tool  in the toolbar.



**Fig. 34**

Step 4. In the Side View, draw lines to create a wedge under the motor between the 3 points, **Fig. 34**.

Step 5. Press ESC to close the ribbon bar.

### **R. Add Your Name and Period To Drawing.**

Step 1. Click Create Menu > Drafting > Create Note to add your names and period to the drawing.

Step 2. Save your drawing. Use **Alt-F S**.



## S. Merge Motor Mount Pattern and Sheetmetal Patterns Files.

Step 1. Click File Menu > File Merge/Pattern.

Step 2. Click your **motor mount pattern** file and click Open .


Step 3. Click the Select button  in the ribbon bar, Fig. 35.



Fig. 35

Step 4. Set **Rotation to 0**  in the ribbon bar, Fig. 35.

Step 5. Key-into the AutoCursor ribbon bar:

**5.7 for X**

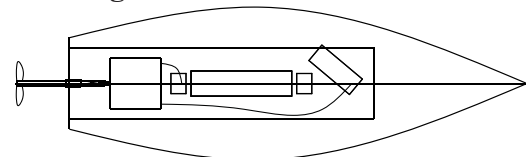
**-1 for Y** and press

**ENTER two times**, Fig. 36 and 37.



Fig. 36

Step 6. Click **Ignore associated drafting entity** and click OK.



Step 7. Click OK button  in the ribbon bar.

Step 8. Click File Merge/Pattern button  in the toolbar.

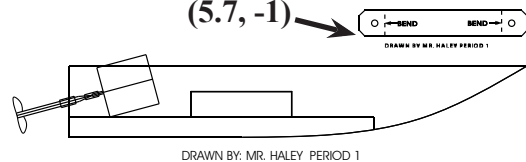


Fig. 37

Step 9. Click your **sheetmetal patterns** file and click Open .

Step 10. Click the Select button  in the ribbon bar.

Step 11. Key-into the AutoCursor ribbon bar:

**9.2 for X**

**-1.7 for Y** and press

**ENTER two times**, Fig. 38 and 39.

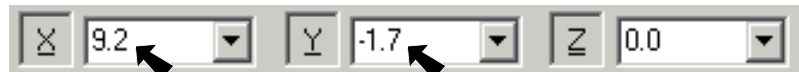



Fig. 38

Step 12. Click **Ignore associated drafting entity** and click OK.

Step 13. Click Apply button  in the ribbon bar.

Step 14. Click Fit  or use **Alt-F1** to fit the drawing on the screen.

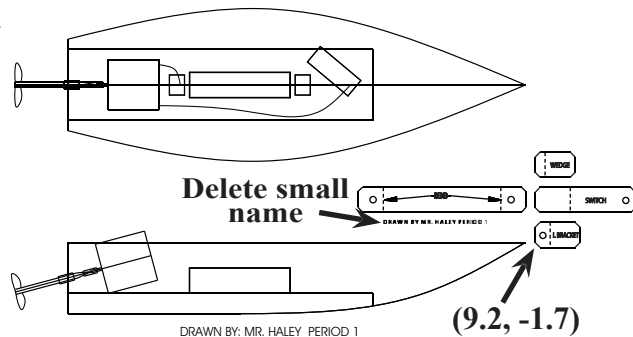


Fig. 39

Step 15. Delete your small names and period.

Use Delete button  or **F5**. Click the 4 lines and press **F5**, Fig. 39.

Step 16. Save your drawing. Use **Alt-F S**.