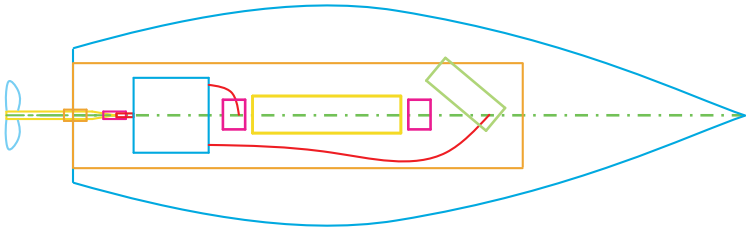
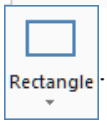
Motor Boat



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**



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

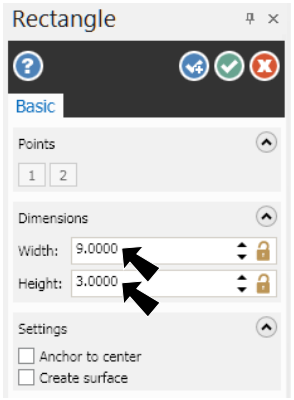


Fig. 1

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

B. Save As "MOTOR BOAT"

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

Step 2. Key-in **MOTOR BOAT** for the filename and press ENTER.

Fig. 2

C. Set Line Attributes Center Line.

Step 1. Change **line style to center**. **Right click** in the graphics window and on the Mini Toolbar click **Line Style** drop down arrow and select **center line**, **Fig. 3**.

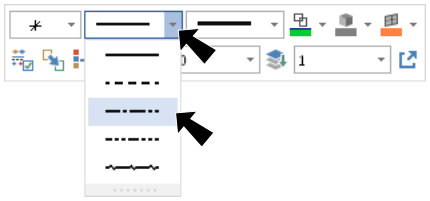


Fig. 3

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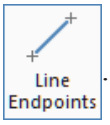
http://www.cudacountry.net email:cudacountry@hotmail.com

D. Create Horizontal Center Line.

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

.

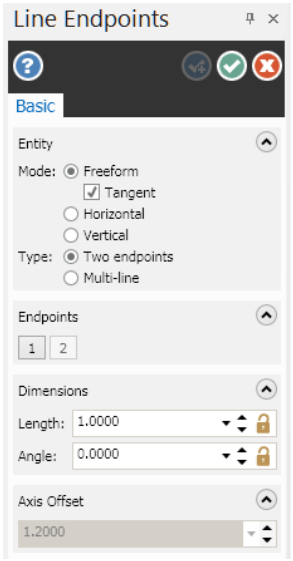


Fig. 4

Step 2. In the Line Endpoints function panel:
Sketch a horizontal line across rectangle from midpoint of line, **Fig 5**

Click OK  .

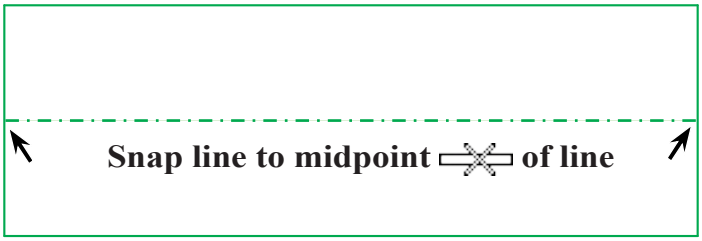
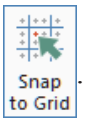


Fig. 5

E. Set Grid and Snap .2.

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

and **Snap to Grid** 

.

Step 2. Click the **Dialog Box Launcher** (Alt-G), **Fig. 6**.

Step 3. In the Grid Settings dialog box:
under Spacing, **Fig. 7**
X and Y Spacing .2
Click OK  .

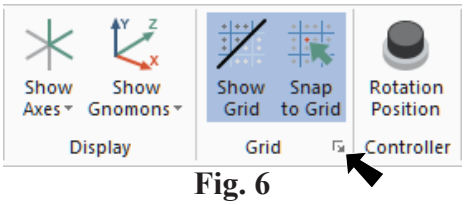


Fig. 6

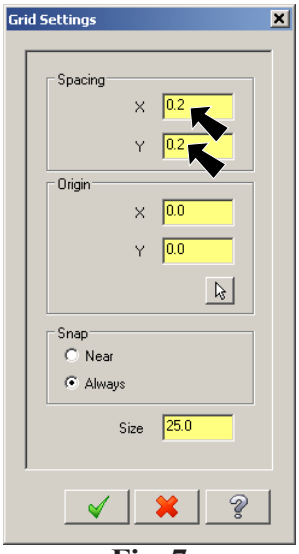


Fig. 7

F. Set Attributes-Red/Solid Line.

Step 1. Sketch **hull spline cyan** and change **line style back to solid**.
Right click in the graphics window and on the Mini Toolbar click **Line Style** drop down arrow and select **solid style** and click **Wire-frame Color**  drop down arrow and select **cyan**, **Fig. 8**.

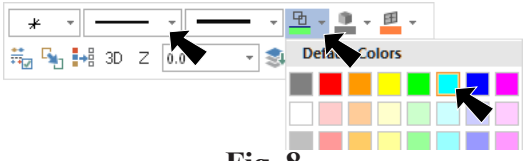


Fig. 8

G. Sketch Top View Hull Spline.

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

Step 2. In the Spline function panel:

Press **spacebar** to activate Fast Point
Key-in coordinates in **Fig. 9**
Press ENTER after each coordinate

Or use tracking in Status Bar to determine spline points

Click OK.

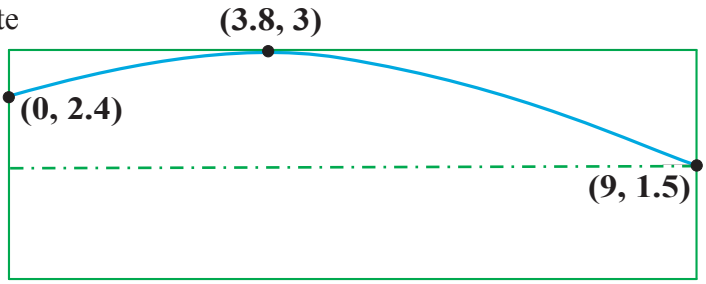


Fig. 9

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

H. Mirror Starboard Hull Spline.

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

Step 2. Click **spline** and click **End Selection** End Selection (**ENTER**), **Fig. 10**.

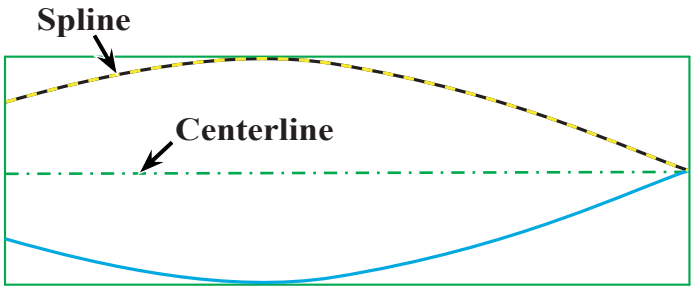


Fig. 10

Step 3. In Mirror dialog box:

Select **Copy**, **Fig. 11**
Click **Line**
Click **centerline**, **Fig. 10**
Click OK.

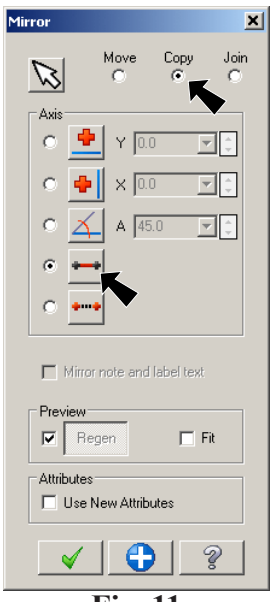


Fig. 11

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

I. Create Rectangle For Side View.

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

Step 2. In the Rectangle function panel:
under Dimensions, **Fig. 12**
Width 9
Height 1.4 and press ENTER

Press **spacebar** to activate Fast Point
Key-in **0**, **-3** 0,-3 and press ENTER **twice**
Click OK .

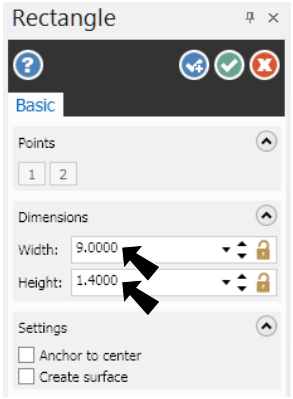


Fig. 12

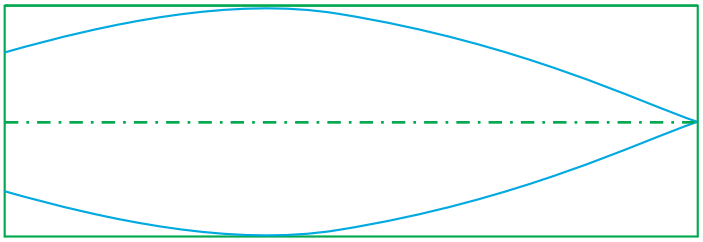


Fig. 13

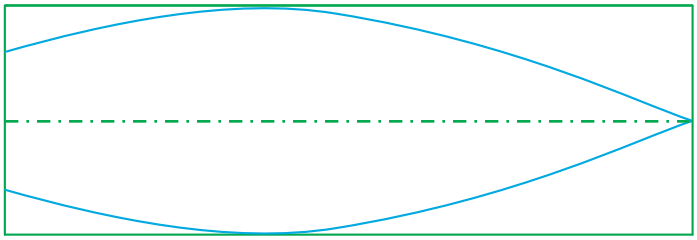
J. Sketch Side View Hull Spline.

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

Step 2. In the Spline function panel:

Press **spacebar** to activate Fast Point
Key-in coordinates, **Fig. 14**
Press ENTER after each coordinate

Or use the tracking in Status Bar
to determine spline points.
Use **Page Up** key to zoom in
Click OK .



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

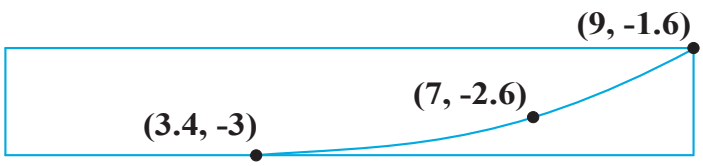


Fig. 14

K. Delete Rectangle Lines.

Step 1. Lines 1, 2, 3 and 4 are no longer needed, **Fig. 15**. Click to select lines to delete and press Delete key.

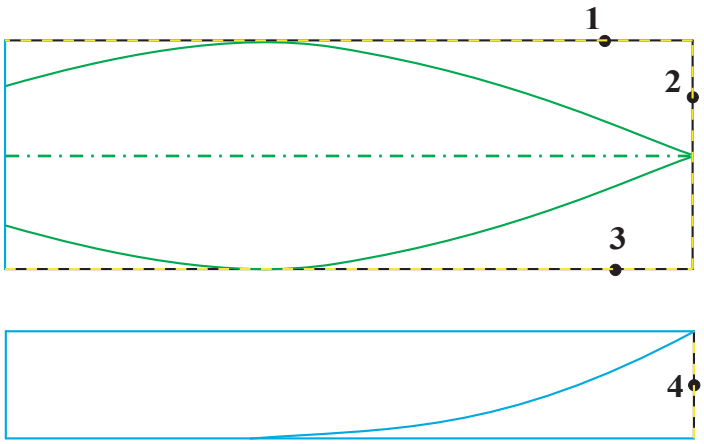
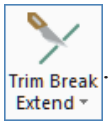


Fig. 15

L. Trim Hull Lines.

Step 1. On the Wireframe tab WIREFRAME click **Trim Break Extend** 

Step 2. In the Trim Break Extend function panel:
under Type, **Fig. 16**
select **Trim 1 entity**
Trim three lines, **Fig. 17**. Click the line to trim at Position 1, then trim to the spline at Position 2. Repeat at the other two lines.
Click OK when done.

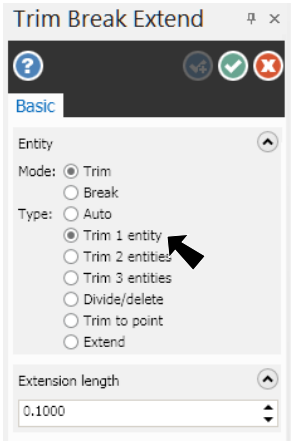


Fig. 16

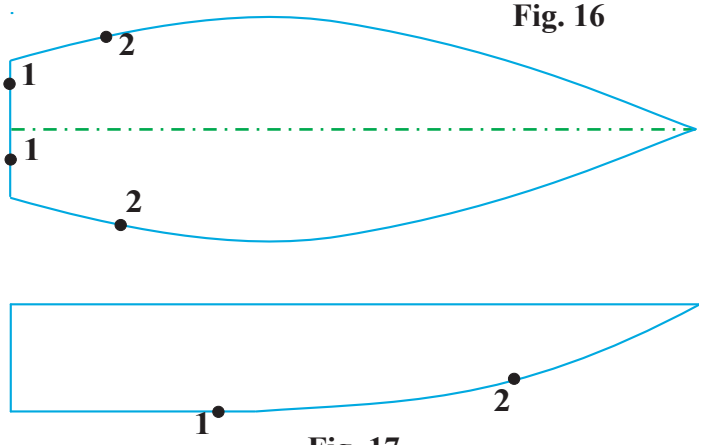


Fig. 17

M. Wood Base.

Step 1. Sketch wood base **tangerine**. **Right click** in the graphics window and on the Mini Toolbar click **Wireframe Color** drop down arrow and select **tangerine**, **Fig. 18**.

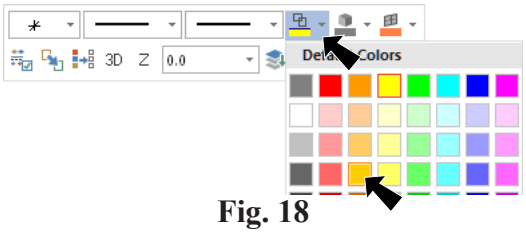


Fig. 18

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

Step 3. In the Rectangle function panel:

under Dimensions, **Fig. 19**

Lock both Width and Height

Width 6

Height 1.4 and press ENTER

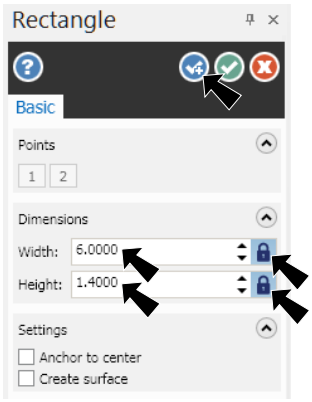


Fig. 19

Press **spacebar** to activate AutoCursor Fast Point

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

under Dimensions, **Fig. 20**

Width 6

Height .4 and press ENTER

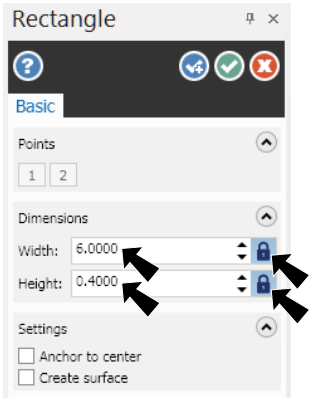


Fig. 20

Press **spacebar** to activate Fast Point

Key-in **0**, **-3** 0,-3 and press ENTER **twice**

Click OK .

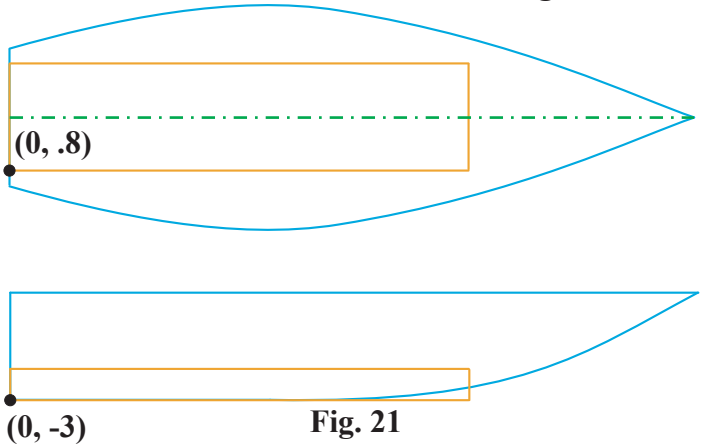
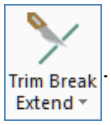


Fig. 21

N. Trim Wood Base and Delete Line.

Step 1. On the Wireframe tab WIREFRAME click **Trim Break Extend**



Step 2. In the Trim Break Extend function panel:
under Type, **Fig. 22**
select **Trim 1 entity**
Trim Line 1 in Side View, **Fig. 23**
To trim, click line to trim at Position 1, then trim to spline 2.
Click OK when done.

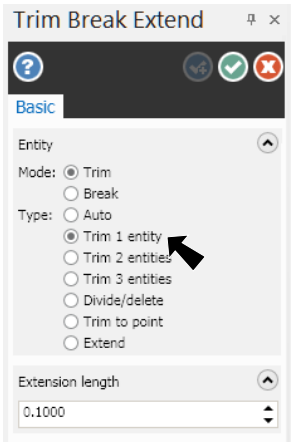


Fig. 22

Step 3. Delete **Line 3**. Click Line 3 and press **Delete** key, **Fig. 23**.

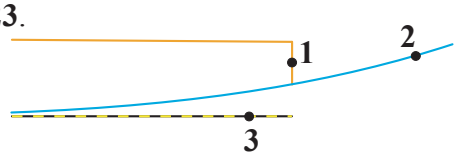


Fig. 23

O. Merge Power Train.

Step 1. Click File Menu > Merge.

Step 2. In the Open dialog box:
Select **POWER TRAIN** file and click Open.

Step 3. In the Rectangle function panel:
Scale 1, **Fig. 24**
Rotation 0 and press ENTER
Press **spacebar** to activate Fast Point

Key-in **.8**, **1** .8,1 and press ENTER **twice**

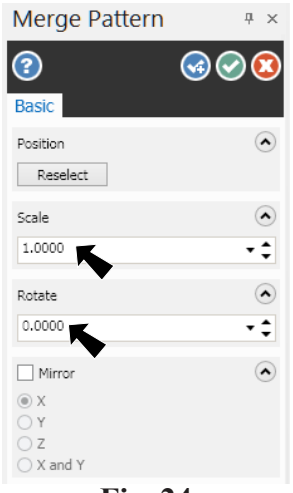


Fig. 24

Step 4. Back in the Rectangle function panel:
Rotation 15 and press ENTER, **Fig. 25**
Press **spacebar** to activate Fast Point

Key-in **.8**, **-2.6** .8,-2.6 and press ENTER **twice**
Click OK .

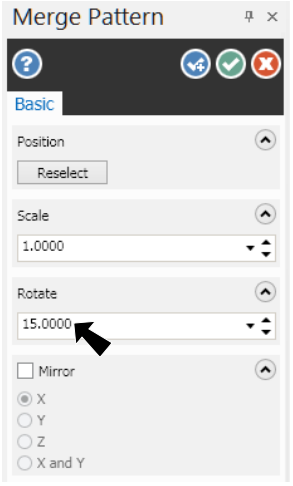


Fig. 25

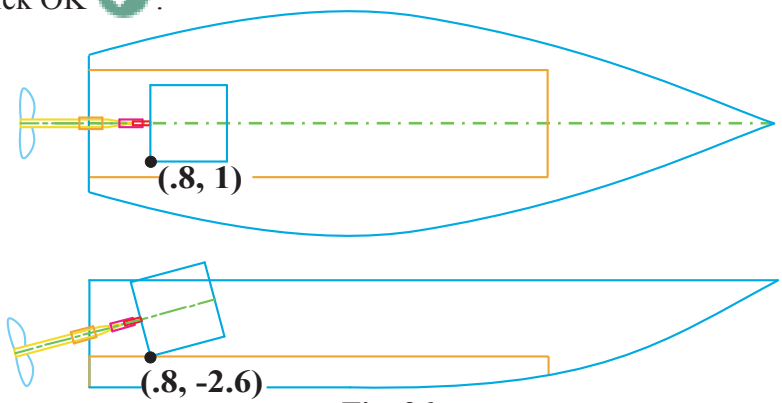


Fig. 26

P. Battery.

Step 1. Sketch battery **yellow**. **Right click** in the graphics window and on the Mini Toolbar click **Wireframe Color** drop down arrow and select **yellow**, **Fig. 27**.

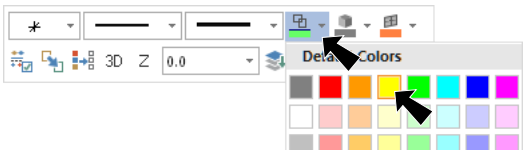


Fig. 27

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

Step 3. In the Rectangle function panel:
under Dimensions, **Fig. 28**
Lock both Width and Height
Width 2
Height .5 and press ENTER

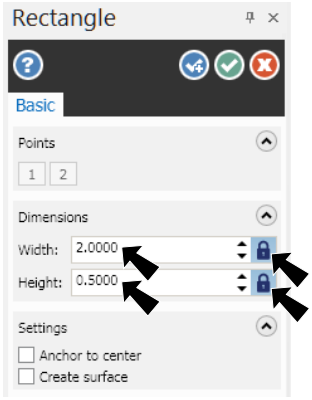


Fig. 28

Press **spacebar** to activate AutoCursor Fast Point

Key-in **2.4**, **1.25** 2.4,1.25 and press ENTER **twice**

Press **spacebar** to activate Fast Point

Key-in **2.4**, **-2.6** 2.4,-2.6 and press ENTER **twice**

Click OK .

Q. Set Grid and Snap .1.

Step 1. Use **Alt-G** to display Grid dialog box, **Fig. 30**
Set **X and Y Spacing .1**
Click OK .

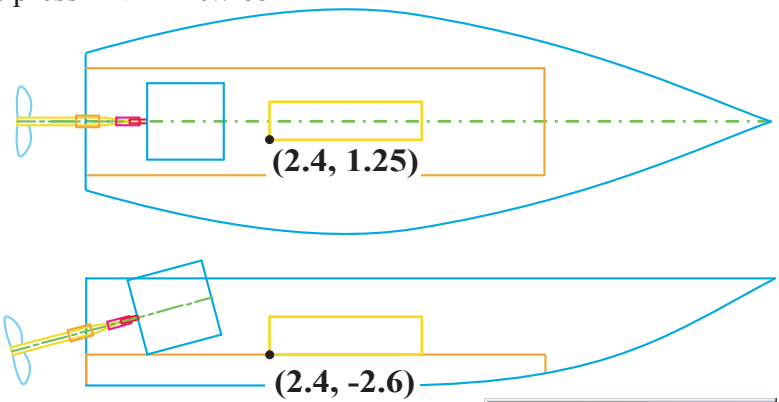


Fig. 29

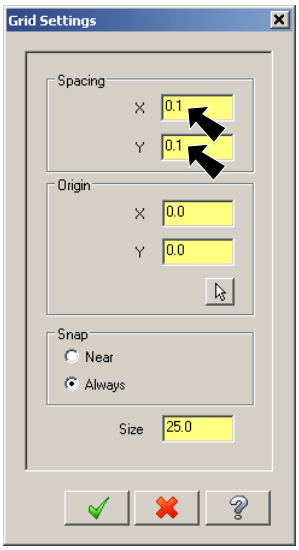


Fig. 30

R. L-Brackets.

Step 1. Sketch **L-Brackets magenta**. **Right click** in the graphics window and on the Mini Toolbar click **Wireframe Color** drop down arrow and select **magenta**, **Fig. 31**.

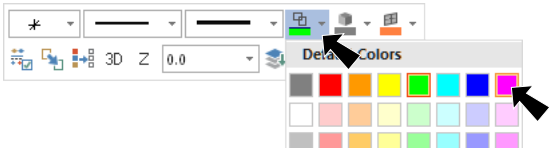


Fig. 31

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

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

Step 4. In the Rectangle function panel:
Sketch the **two rectangles** in **Fig. 32**
Use grid to determine location of rectangles
Click **OK and Create New Operation** after **each** rectangle.

S. Switch.

Step 1. Sketch **switch light green**. **Right click** in the graphics window and on the Mini Toolbar click **Wireframe Color** drop down arrow and select **light green**, **Fig. 33**.

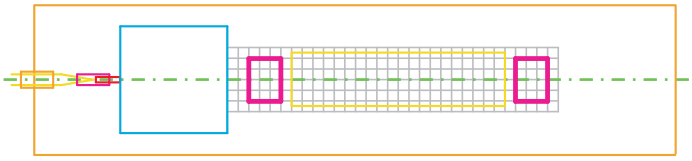


Fig. 32

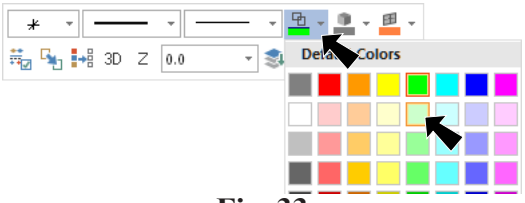


Fig. 33

Step 2. In the Rectangle function panel:
Sketch rectangle in **Fig. 34**
Use grid to determine location of rectangle
Click OK .

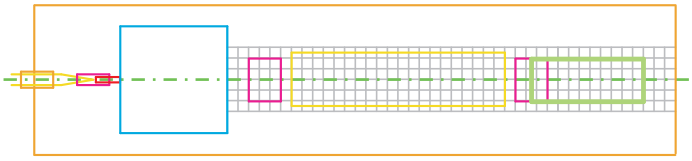


Fig. 34

T. Rotate Switch.

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

Step 2. **Shift click** a line of switch rectangle to chain select rectangle and click End Selection (ENTER), **Fig. 35**.

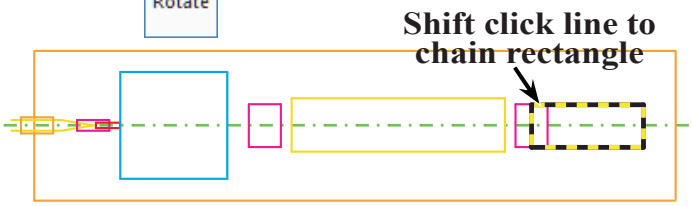


Fig. 35

Step 3. In the Rotate dialog box:

Select **Move** **Fig. 36**

Number of Steps **1**

Rotation Angle **-40**

Click **Define Center Point**

Press **spacebar** to activate AutoCursor Fast Point

Key-in **5.6, 1.5** 5.6,1.5 and press ENTER

Or use the tracking in Status Bar to locate coordinates **(5.6, 1.5)** for the point to rotate about, **Fig. 37**.

Click OK.

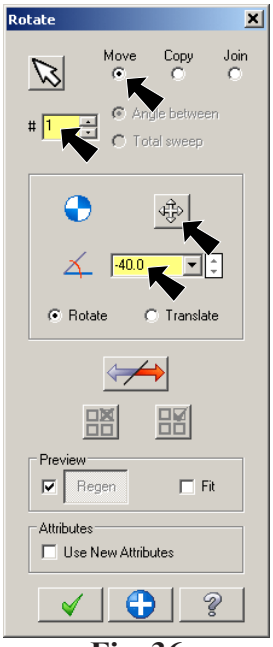


Fig. 36

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

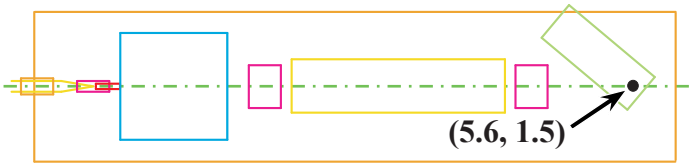


Fig. 37

U. Sketch Wire Using Spline.

Step 1. Sketch wire **red**. **Right click** in the graphics window and on the Mini Toolbar click **Wireframe Color** drop down arrow and select **red**, **Fig. 38**.

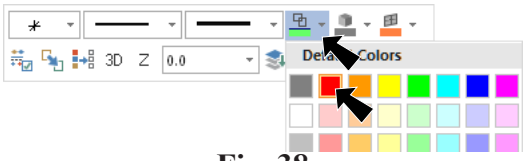


Fig. 38

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

Step 3. In the Spline function panel:
Click the 3 points to sketch a spline from motor to battery terminal, **Fig. 39**
Click **OK and Create New Operation**
Sketch second spline for another wire from motor to switch, **Fig. 40**
Click OK.

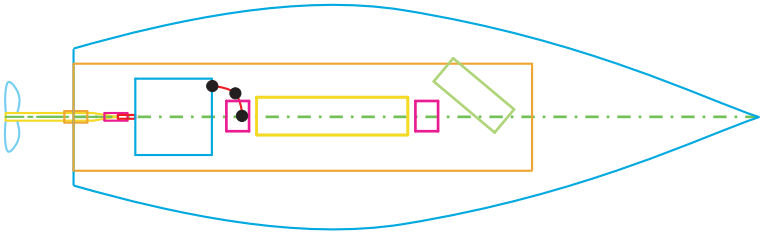


Fig. 39

V. Wedge For Motor.

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

Step 2. Sketch the wedge **light gray**. **Right click** in the graphics window and on the Mini Toolbar click **Wireframe Color** drop down arrow and select **light gray**, **Fig. 41**.

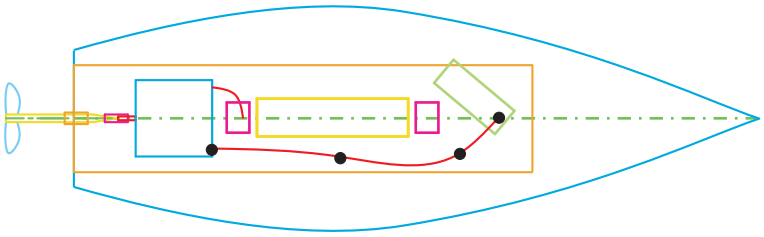


Fig. 40

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

Step 4. In the Line Endpoints function panel:
select **Multi-line**
Sketch lines, **Fig 42**
Click OK when done.

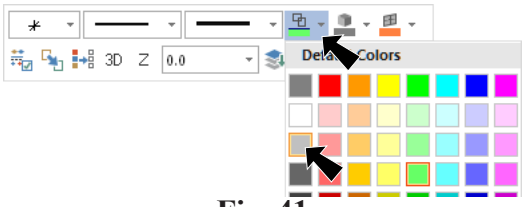


Fig. 41

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

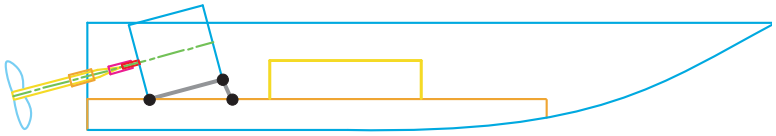


Fig. 42