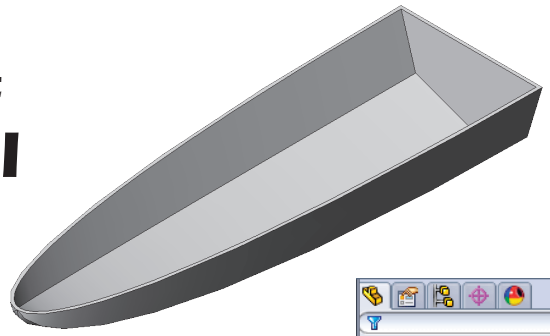
Chapter 1

Boat Hull



A. Sketch.

Step 1. Click File Menu > New, click **Part** and OK.

Step 2. Click **Front Plane** in the Feature Manager and click **Sketch** from the Content toolbar, **Fig. 1**.

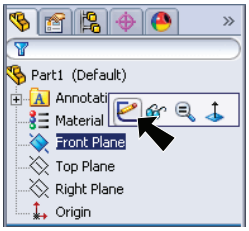


Fig. 1

Step 3. Click **Point** on the Sketch toolbar.

Step 4. Draw point directly above the Origin, **Fig. 2**. Use the inferencing line, the dotted line that appears when you draw the point.

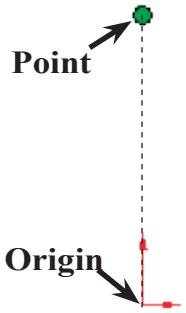


Fig. 2

Step 5. Click **Centerline** **(S)** in the **Line flyout**.

Step 6. Starting from the Origin, draw a centerline up to the point, **Fig. 3**.

Step 7. Click **Smart Dimension** **(S)** on the Sketch toolbar.

Step 8. Add the dimensions as shown in **Fig. 4**. To Smart dimension click the centerline then move the cursor out away from the line and click. Key-in **1.4** and press ENTER. Arrange the dimension as **Fig. 4**.

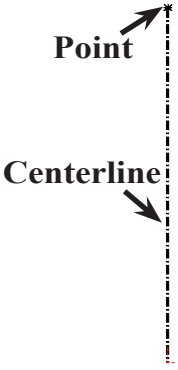


Fig. 3

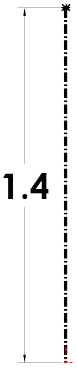


Fig. 4

Step 9. Click **Exit Sketch** on the Sketch toolbar.

B. Save as "HULL".

Step 1. Click File Menu > Save As.

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

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C. Create Plane.

Step 1. Click **Isometric** on the Standard Views toolbar. (**Ctrl-7**)

Step 2. Click **Front Plane** in the Feature Manager, **Fig. 5**.

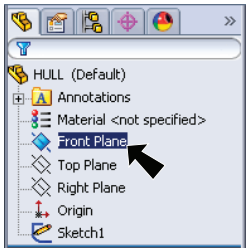


Fig. 5

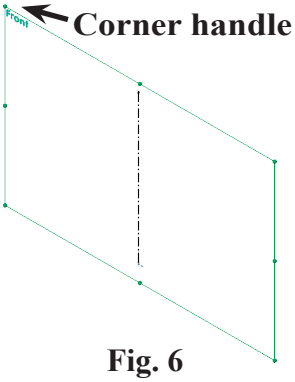


Fig. 6

Step 3. Use **Z key** on keyboard to zoom out to see handles of plane.

Step 4. Drag the corner handles of plane to resize plane to fit around the sketch, **Fig. 6**.

Step 5. **Ctrl drag** edge of Front plane in drawing area towards right side of sketch and release, **Fig. 7**. To Ctrl drag, hold down Ctrl and drag plane to right.

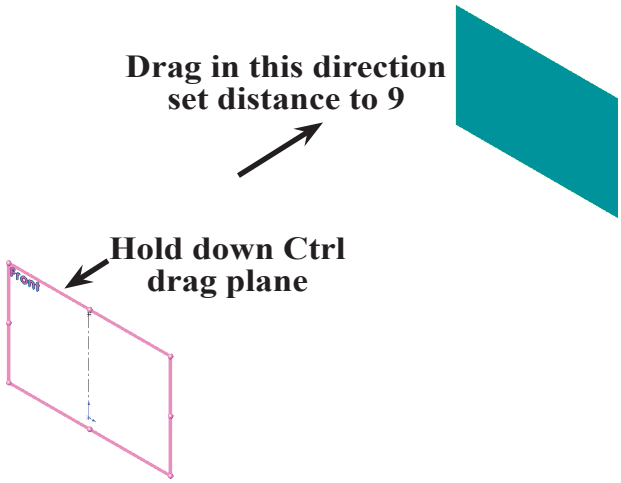


Fig. 7

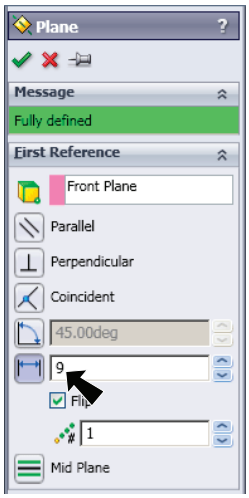


Fig. 8

Step 6. Key-in **9 for Distance** in the Property Manager, **Fig. 8** and click OK .

Step 7. Click Zoom to Fit (**F**) on the View toolbar.

D. Rename Plane1 to Back Plane.

Step 1. Click **Plane1** in the Feature Manager.

Step 2. Press **F2** key on keyboard, change Plane1 name to **Back Plane** and press ENTER, **Fig. 9**.

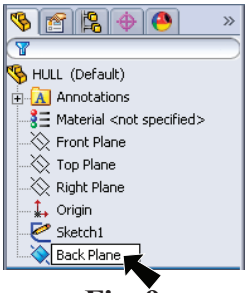


Fig. 9

Step 3. Save. Use **Ctrl-S**.

E. Copy Sketch to Back Plane.

Step 1. Click **Sketch1** in the Feature Manager, **Fig. 10** and copy. Use **Ctrl-C** to copy sketch.

Step 2. Click **Back Plane** in the Feature Manager, **Fig. 11** and paste sketch. Use **Ctrl-V** to paste sketch, **Fig. 12** and **Fig. 13**.

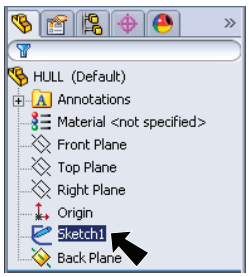


Fig. 10

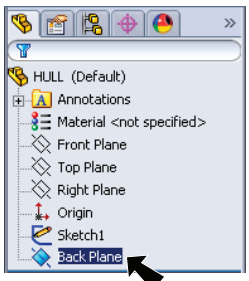


Fig. 11

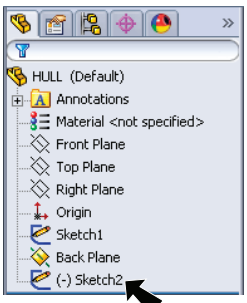
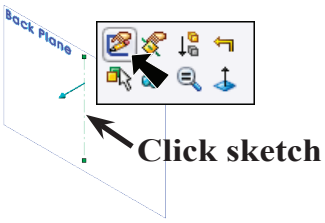


Fig. 12

F. Edit Sketch2.

Step 1. Click **Sketch2** (pasted sketch) in the drawing and click **Edit Sketch** on the Content menu, **Fig. 13**.



Step 2. Click **Normal To** on the Standard Views toolbar. (**Ctrl-8**)

Step 3. Click the centerline to select it, **Fig. 14**.

Fig. 13

Step 4. Click **Dynamic Mirror** on the Sketch toolbar or Tools Menu > Sketch Tools > Dynamic Mirror, **Fig. 14**. Symmetry symbols appear at both ends of the centerline. Geometry drawn on one side of mirror line will mirror onto the other side.

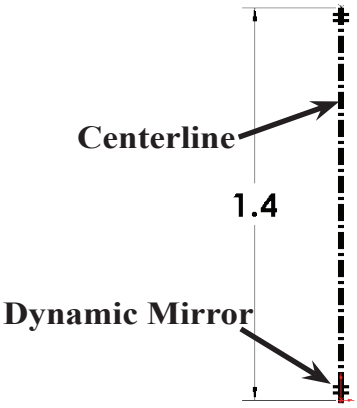


Fig. 14

Step 5. Click **Line** (**L**) on the Sketch toolbar.

Step 6. Draw three lines on one side of the dynamic mirror centerline. Starting at the Origin , **Fig. 15**. Keep the top line horizontal by using the inferencing line, the dotted line that appears when you draw the lines.

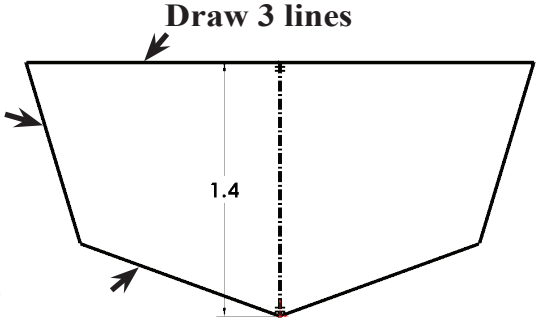


Fig. 15

Step 7. Click **Fully Defined Sketch** (**D**) on the Sketch toolbar and OK in the Property Manager.

Step 8. Dimension as shown in **Fig. 16**. To dimension, double click the dimension, key-in dimension and press ENTER.

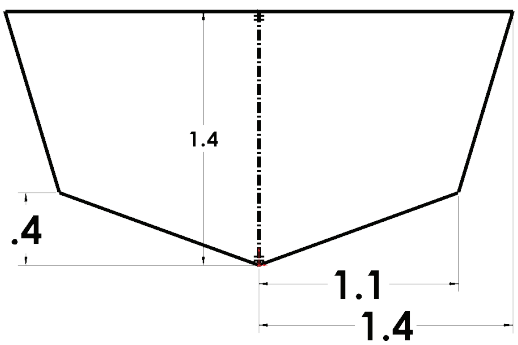


Fig. 16

Step 9. Click **Exit Sketch**

on the Sketch toolbar.

Step 10. Save. Use **Ctrl-S**.

G. Hide Back Plane.

Step 1. Click **Back Plane** in the Feature Manager and click **Hide** on Content menu, **Fig. 17**.

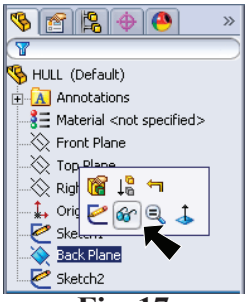
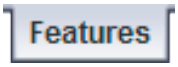


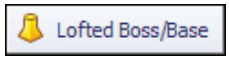
Fig. 17

H. Loft.

Step 1. Click **Isometric** on the Standard Views toolbar. (**Ctrl-7**)

Step 2. Click **Features** 

on the Command Manager toolbar.

Step 3. Click **Lofted Boss/Base** 

on the Features toolbar.

Step 4. In the Loft Property Manager set:

under **Profiles**

click **Point 1** in Sketch1, **Fig. 19**

click **Position 1 on the top line** in Sketch2

expand Start/End Constraints, **Fig. 18**

under Start/End Constraints:

set **Start constraint:**

Normal to Profile

set **Start Tangent Length: 1.9**

set **End constraint:**

Normal to Profile

set **End Tangent Length: 1.7**

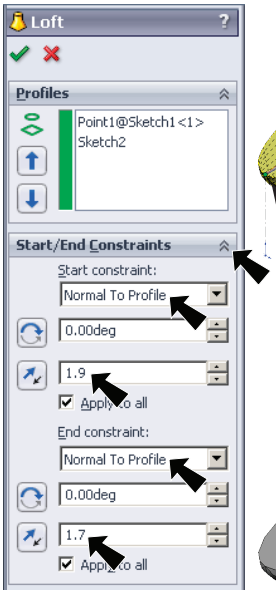


Fig. 18

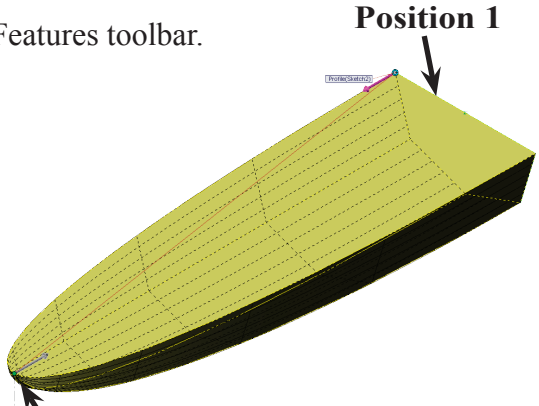


Fig. 19

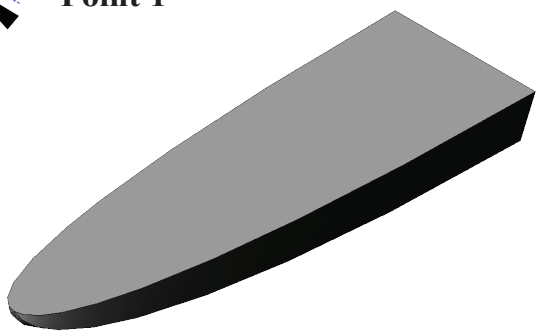


Fig. 20

Click OK in the Property Manager, **Fig. 20**.

Step 5. Save. Use **Ctrl-S**.

I. Shell.

Step 1. Click the **top face** of the hull, **Fig. 21**.

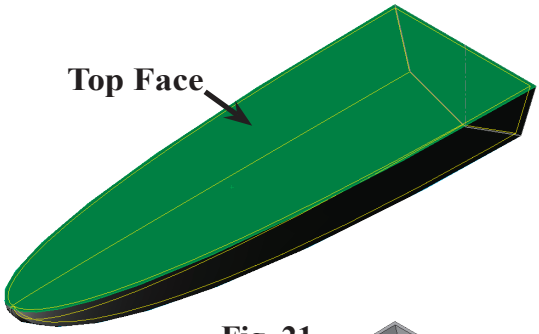


Fig. 21

Step 2. Click **Shell**

on the Features toolbar.

Step 3. In the Shell Property Manager set:

Distance

to **.06**
Fig. 22
check **Show preview**
click OK , **Fig. 23**.

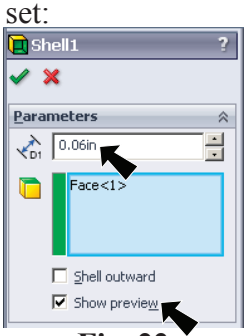


Fig. 22

Step 4. Save. Use **Ctrl-S**.

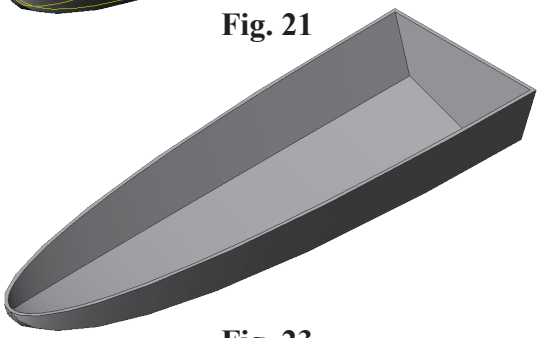


Fig. 23

J. Material PS Medium/High.

Step 1. **Right click Material** in the Feature Manager and click **Edit Material** , **Fig. 24**.

Step 2. **Expand Plastics** (click the +) in the material tree and select **PS Medium/High**, **Fig. 25**.

Step 3. Click **Apply** and **Close**, **Fig. 26**.

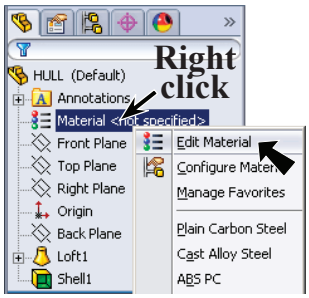


Fig. 24

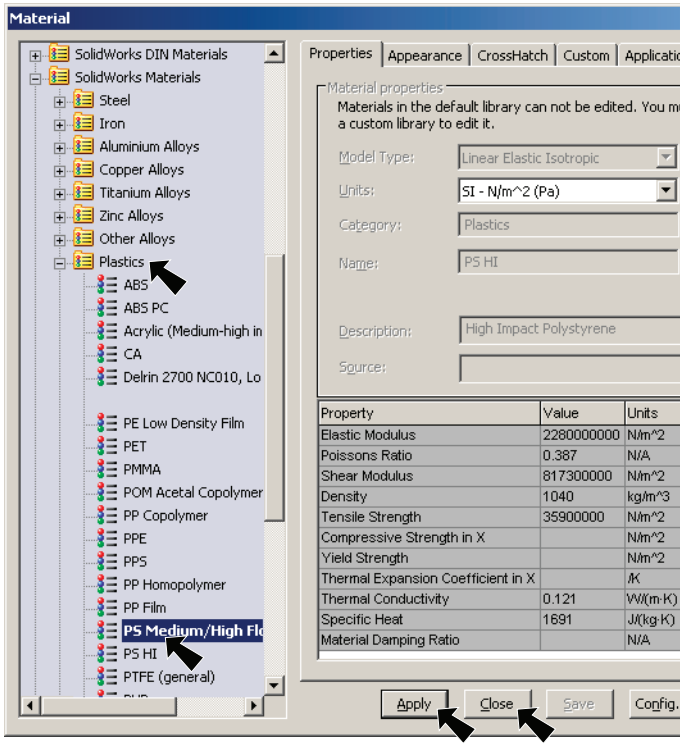


Fig. 25

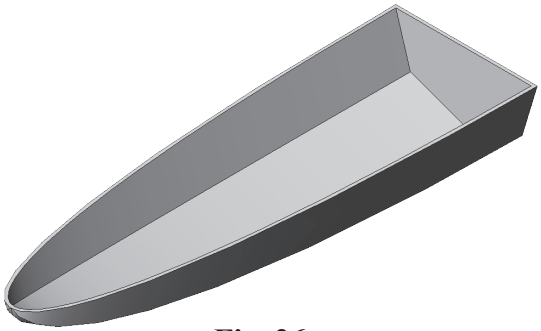


Fig. 26