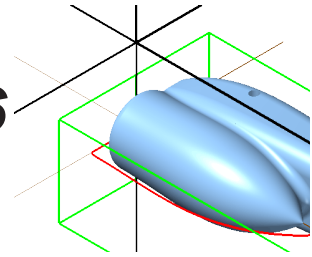



SolidWorks 12 to Mastercam X6 2012



A. Open File in Mastercam X6.

Step 1. If necessary, save your **body** file in SolidWorks.

Step 2. In Mastercam X5, click File Menu > Open.

Step 3. In the Open dialog box set **Files of type** to **SolidWorks Files**, select your BODY RAIL E file, **Fig. 1**. Click OK  **Fig. 2**.

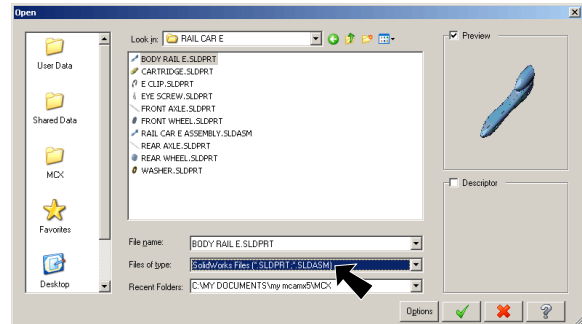


Fig. 1

Step 4. Change to the Isometric View. Use  or **Alt-7**.

Step 5. Click Fit  or use **Alt-F1** to fit.

B. Confirm Units are Metric.

Step 1. In the bottom right corner of the display, confirm units are **Metric**, **Fig. 3**.

C. Save Your File.

Step 1. Click File Menu > Save As.

Step 2. Key-in **RAIL BODY E** for the filename and press ENTER.

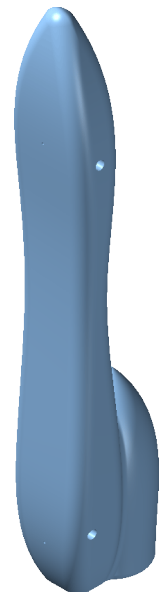


Fig. 2

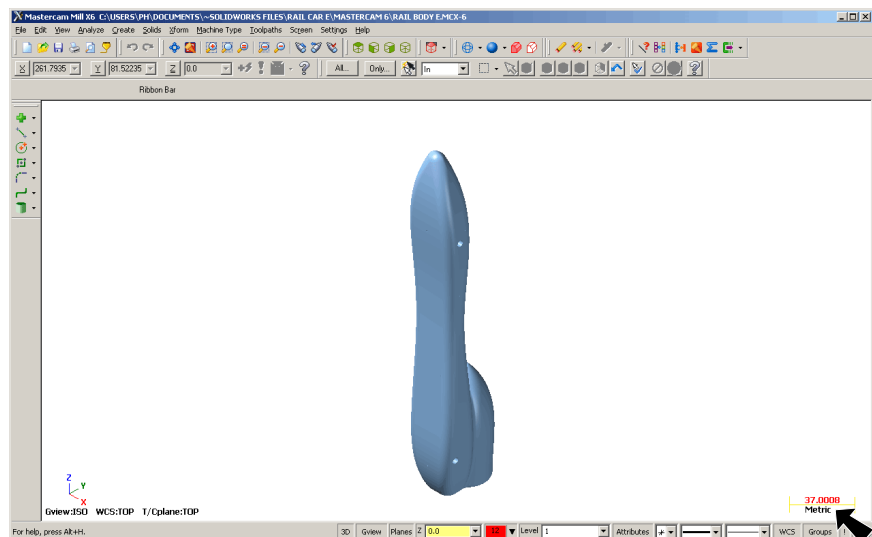


Fig. 3

D. Rotate Body Around Axes.

Step 1. Click the down arrow of the Set Planes button



in the toolbar and click **Top (WCS)**, Fig 4.







Fig. 4

Step 2. Click Xform Menu > Rotate.

Step 3. Click the solid body to select it and **press ENTER**, Fig. 5. The solid will change color with selected.



Fig. 5

Step 4. Set: **Move** 
1 for Number of Steps # 
180 for Rotation Angle 
 Click **Apply** , Fig. 6.

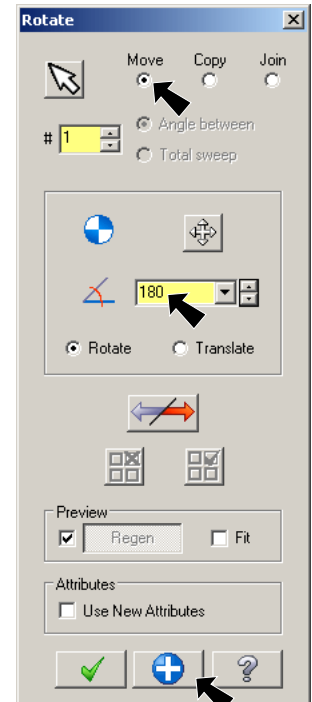


Fig. 6

Step 5. Click the down arrow of the Set Planes button






in the toolbar and click **Front (WCS)**, Fig 17.

Step 6. Click the solid body again to select it and **press ENTER**, Fig. 8.



Fig. 8

Step 7. Set: **Move** 
-90 for Rotation Angle 
 Fig. 9
 Click **OK**  in the Rotate dialog box.

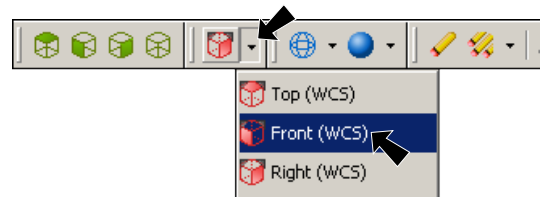



Fig. 7

Step 8. Click **Fit**  or use **Alt-F1**.

Step 9. **Right click** the drawing area and click **Clear Color**  from the menu or use **Alt-R C**.

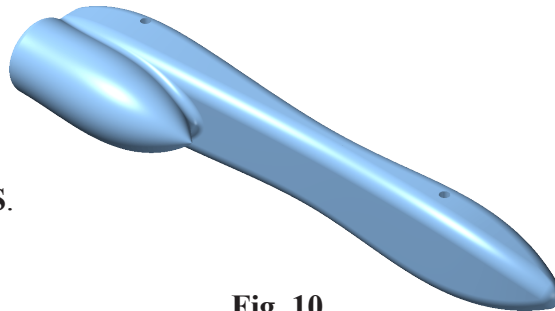


Fig. 10

Step 10. Save . Use **Alt-F S**.

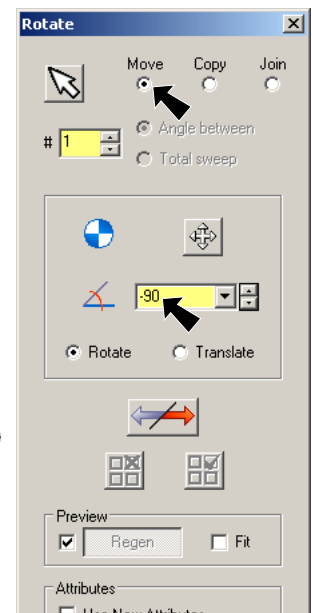



Fig. 9

E. Add Levels.

- Step 1. Display Level Manager. Use **Alt-Z**.
- Step 2. Press **Tab** key to move to the Name Field and key-in **SOLID**, Fig. 11.
- Step 3. Press **Shift-Tab** key (hold down the Shift key and press Tab key) to move back to the Number Field and key-in **2**, Fig. 12.
- Step 4. Press Tab key to move to the Name Field and key-in **WIREFRAME**, Fig. 12.
- Step 5. Continue and create **CONTAINMENT** Level as shown here and Fig. 13
- 1 **SOLID**
 - 2 **WIREFRAME**
 - 3 **CONTAINMENT**
- Step 6. Click the **2** in Number column to make **Level 2 WIREFRAME** active and click OK  , Fig. 13.

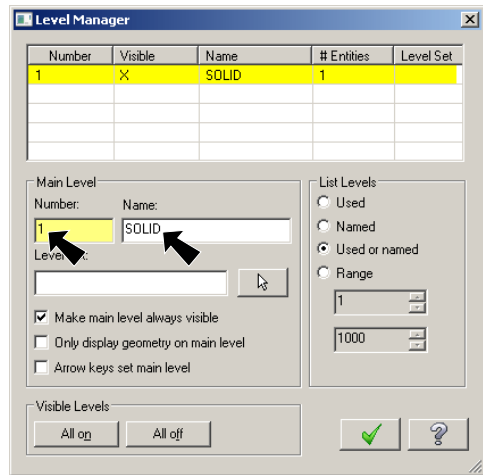


Fig. 11

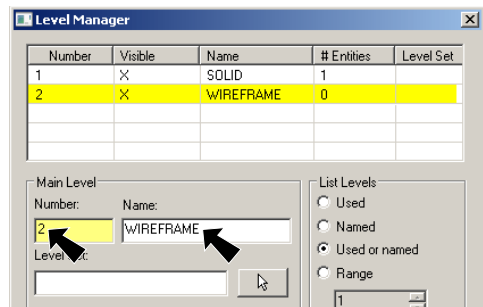


Fig. 12

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

F. Create Bounding Box.

- Step 1. Draw the bounding box **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 > Bounding Box.

- Step 3. Set: check **Lines Arcs** uncheck **Center Point**, Fig. 14

Click OK  , Fig. 15.

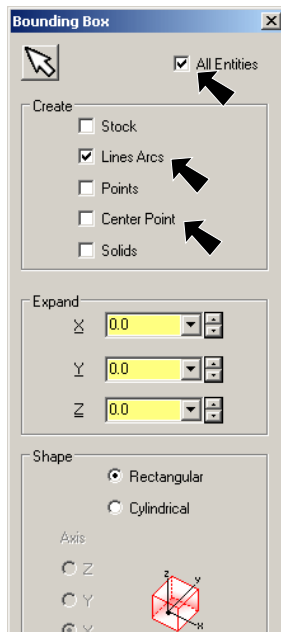


Fig. 14

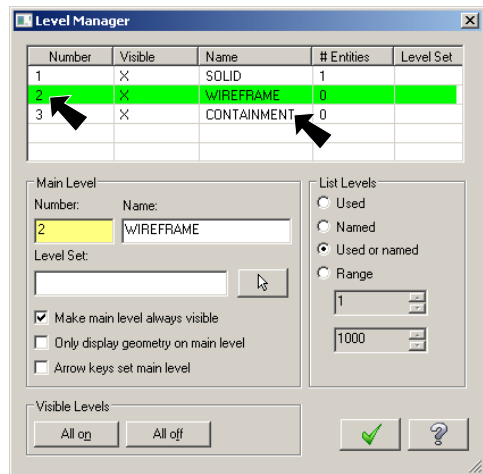


Fig. 13

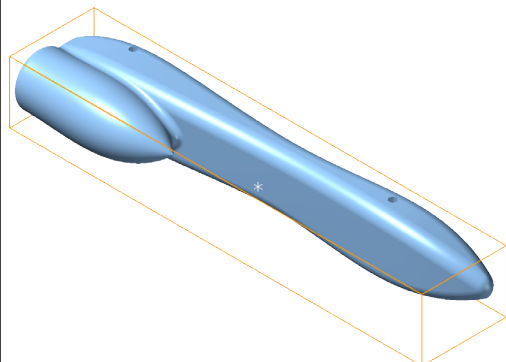







Fig. 15


G. Create Rectangular Shapes.

Step 1. Draw the **rectangular shape green**. Click the color swatch in the Status Bar at the bottom of the screen. Key-in **10** for **green** color number and press ENTER.

Step 2. Click Create Menu > Rectangular Shapes.

Step 3. Set: **Base Point** 
305 for **Width** 
42 for **Height** 
 Click the **Anchor point**  in the middle of the left side, Fig. 16.

Click the down arrow in the Auto Cursor ribbon bar and click **Midpoint** , Fig. 17.

Click the **bottom back line** of the bounding box wireframe, Fig. 18. Click OK  to close the dialog box.

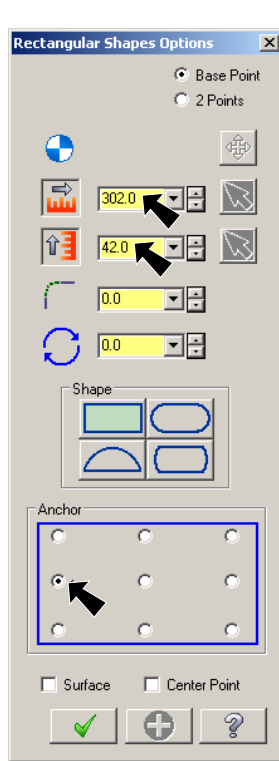


Fig. 16

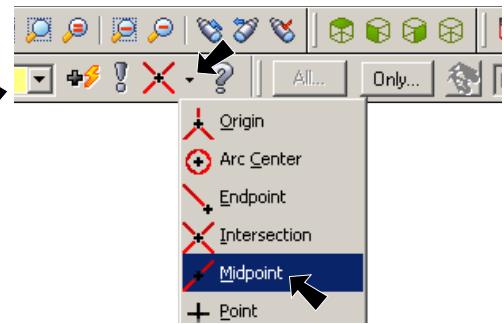


Fig. 17

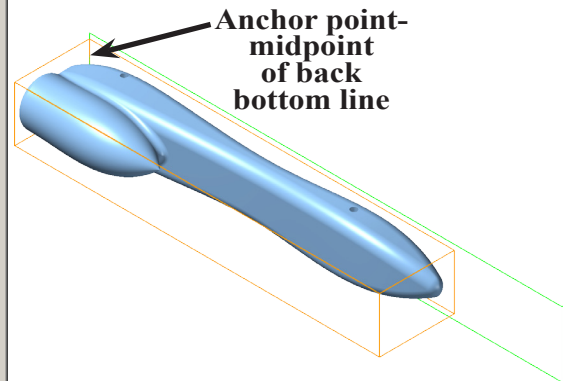


Fig. 18

H. Delete Tangerine Bounding Box.

Step 1. Click the All  in the General Selection ribbon bar, Fig. 19.

Step 2. Click **Color** button in the Select All dialog box, Fig. 20.

Step 3. Click to place a **check** in **Tangerine (94)** check box, Fig. 20.

Step 4. Click OK .

Step 5. Press **Delete** key on the keyboard, Fig. 21.

Step 6. Click Repaint  or use **F3** to redraw.



Fig. 19

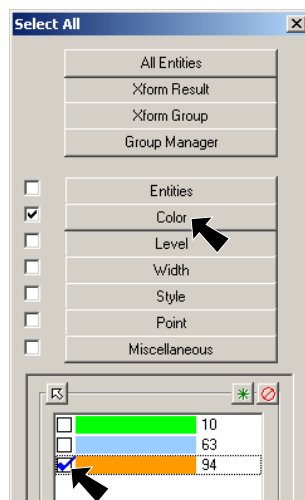


Fig. 20

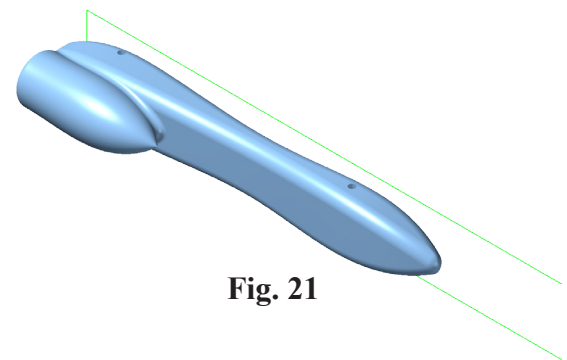


Fig. 21

I. Create 3D Wireframe.

Step 1. Click the down arrow of the Set Planes button

 in the toolbar and click **Top (WCS)**, Fig 22.

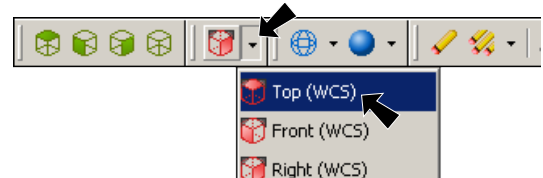


Fig. 22

Step 2. Click Xform Menu > Translate.

Step 3. **Shift click** a line of the rectangle to chain rectangle, Fig. 23 and **press ENTER**. To Shift click, hold down the Shift key and click a line of rectangle.

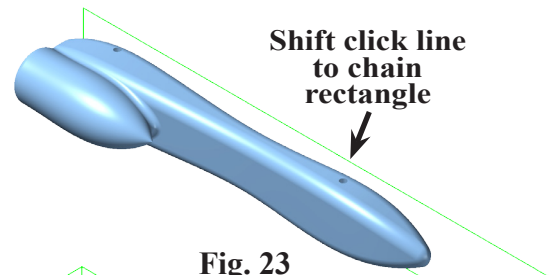


Fig. 23

Step 4. Set: **Join**  **Y to -70** , Fig. 24.

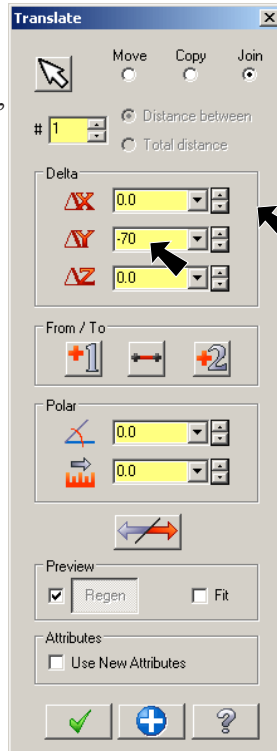


Fig. 24

Step 5. Click OK  to close the Translate dialog box, Fig. 25.

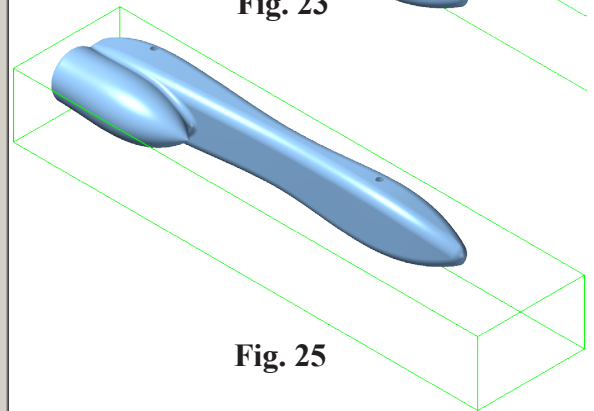




Fig. 25


Step 6. **Right click** the drawing area and click Clear Colors from the menu.


J. Copy Line.

Step 1. Click the **back rear vertical line** of the wireframe, Fig. 26.

Step 2. Click Xform Menu > Translate.

Step 3. Set: **Copy**  **Y to -34** , Fig. 27 and **press ENTER**.

Step 4. Click OK  to close the Translate dialog box.

Step 5. **Right click** the drawing area and click Clear Colors  from the menu or use **Alt-R C**.

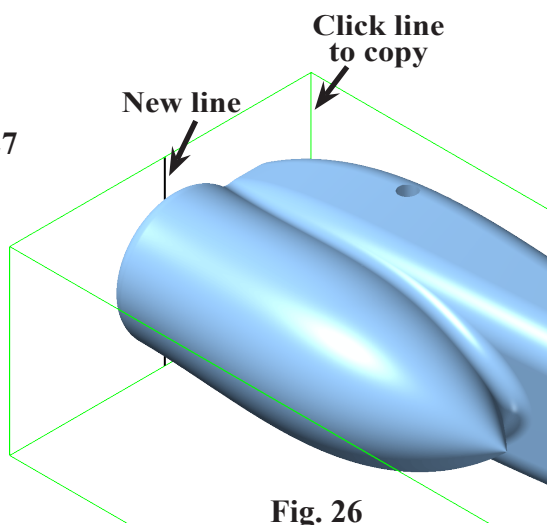


Fig. 26

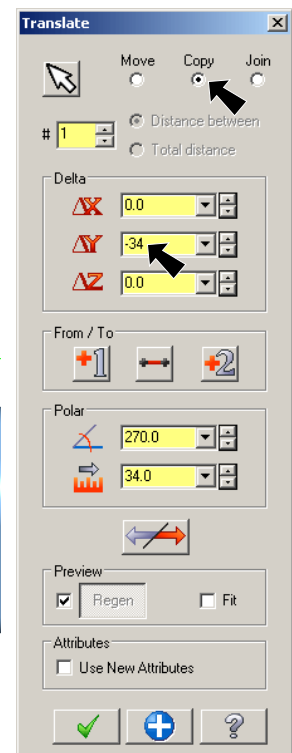


Fig. 27

K. Create Line Across Cartridge Hole.

- Step 1. Draw **line yellow**. Click the color swatch in the Status Bar at the bottom of the screen. Key-in **14** for **yellow** color number and press ENTER.
- Step 2. Hold down middle mouse button (wheel) and drag to **rotate view** to view back of body as shown in **Fig. 28**. Use Page Up key to zoom in.
- Step 3. Click Create Menu > Line > Endpoint.
- Step 4. Draw a line across the cartridge hole. To draw line, snap cursor to side edge of hole at center on both sides of hole, **Fig. 28**.
- Step 5. Press **Escape** to fix line and close the ribbon bar.

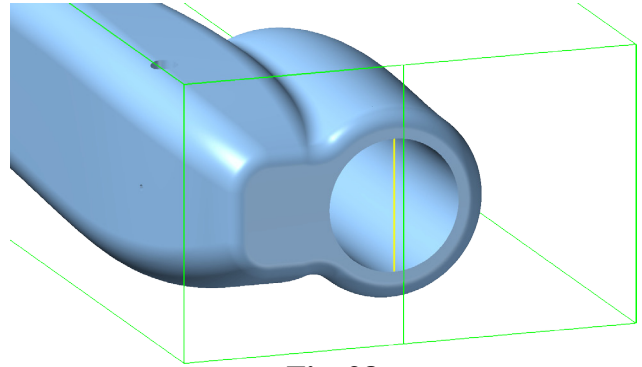


Fig. 28

L. Xform Green Wireframe to Center Cartridge Hole.

- Step 1. **Turn off shading**, use Alt-S.

- Step 2. Click the All in the General Selection ribbon bar, **Fig. 29**.

- Step 3. Click **Color** button in the Select All dialog box, **Fig. 30**.

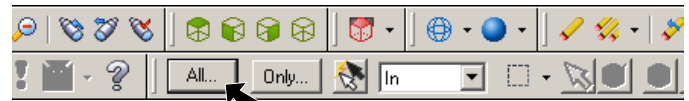



Fig. 29

- Step 4. Click to place a **check** in **Green (94)** check box and click OK , **Fig. 30**.

- Step 5. Click Xform Menu > Translate.

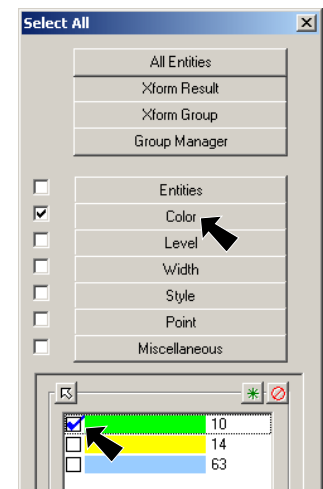




Fig. 30

Step 6. Set: **Move**  click **Select FROM point button** , **Fig. 31.**

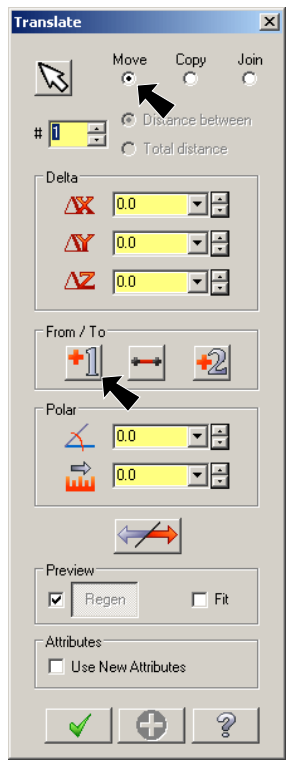



Fig. 31

Step 7. Click the down arrow in the Auto Cursor ribbon bar and **right click Midpoint** , **Fig. 32.**

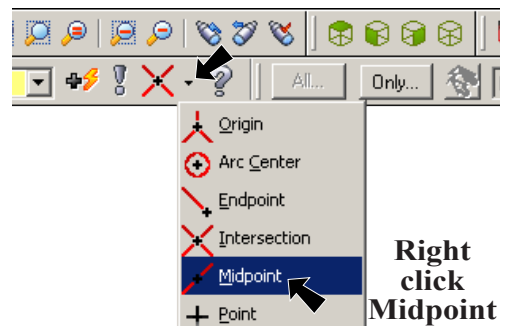


Fig. 32

Step 8. Click **copied rear line**, **Fig. 33.**

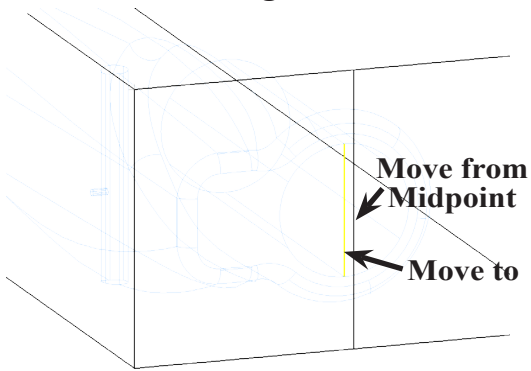



Fig. 33

Step 9. Click the new yellow line.

Step 10. Click **OK**  to close the Translate dialog box, **Fig. 31.**

Step 11. Click **Repaint**  or use **F3** to redraw.

Step 12. **Right click** the drawing area and click **Clear Colors** from the menu.

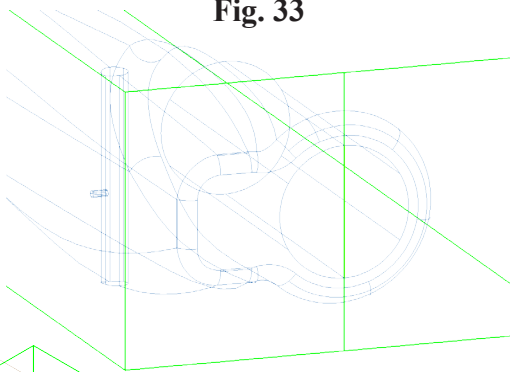


Fig. 34

Step 13. **Save** . Use **Alt-F S**.

M. Move to Origin.

Step 1. **Turn on shading**, use **Alt-S**.

Step 2. Change to the **Isometric View**. Use  or **Alt-7**.

Step 3. Display the origin. Use **F9** to show the axes, **Fig. 35.**

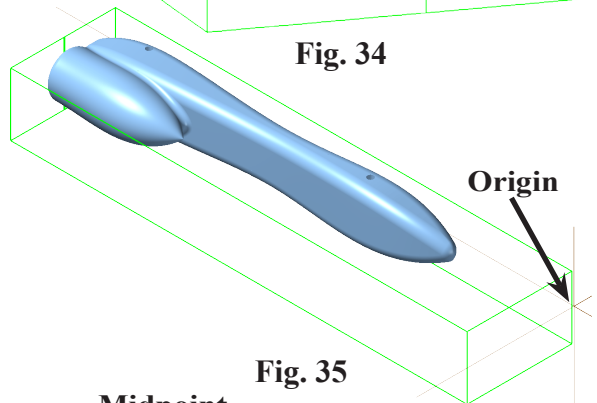



Fig. 35

Step 4. Click **Xform Menu > Move to Origin**.

Step 5. Click the down arrow in the Auto Cursor ribbon bar and click **Midpoint** , **Fig. 32.**

Step 6. Click **copied rear line**, **Fig. 36.**

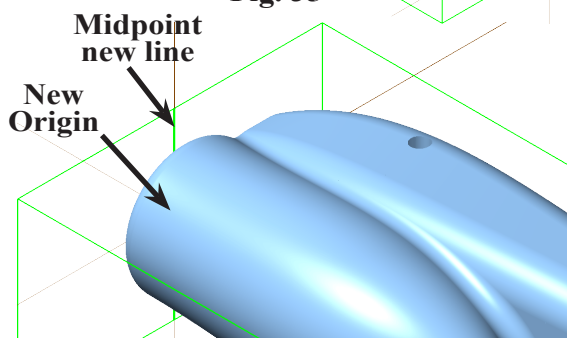


Fig. 36

Step 7. Click **Fit**  or use **Alt-F1** to fit.


Step 8. **Right click** the drawing area and click Clear Colors  from the menu or use **Alt-R C**.

Step 9. Note: **center of cartridge hole** as new position of origin.

Step 10. Toggle axes off. Use **F9**.

N. Containment Level Active.

Step 1. Display Level Manager. Use **Alt-Z**.

Step 2. Click the **3** in the Number column to make **Level 3 CONTAINMENT** active, **Fig. 37**. Click OK  when done.

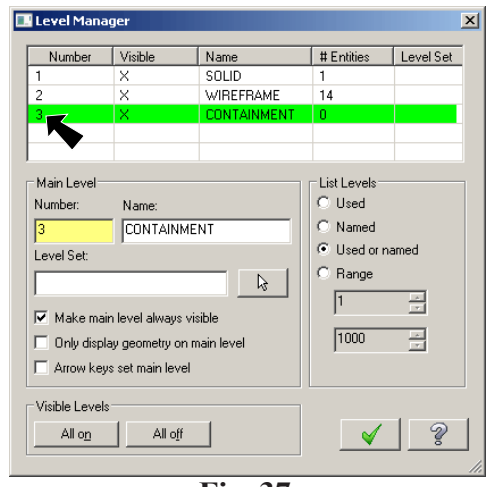


Fig. 37

O. Create Containment.

Step 1. Change to the **Top View**. Use  or **Alt-1**.

Step 2. Click Fit  or use **Alt-F1** to fit.

Step 3. Draw the containment **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 4. Click Create Menu > Silhouette Boundary.

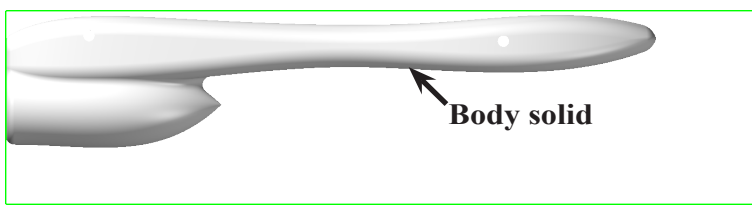


Fig. 38

Step 5. Click the **solid body**, **Fig. 38** and **ENTER** to except selection.

Step 6. Check **Arc Fit**, **Fig. 39** and click OK , **Fig. 40**.

Step 7. Click Create Menu > Line > Endpoint. **Alt C L E**

Step 8. Draw a **vertical line down from front end of the solid body**, **Fig. 40**. Press **ENTER**. Click OK  in ribbon bar.

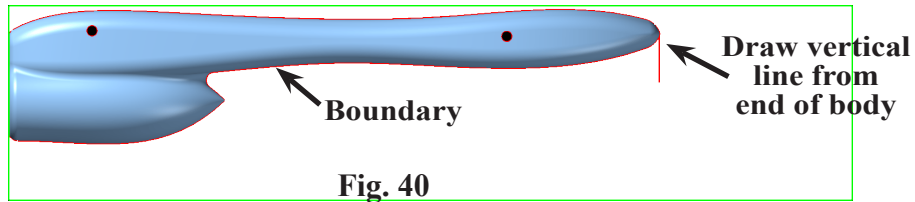


Fig. 40

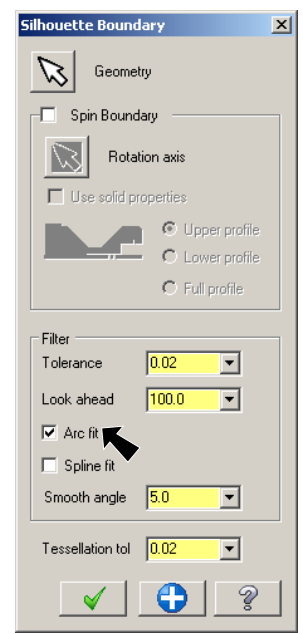


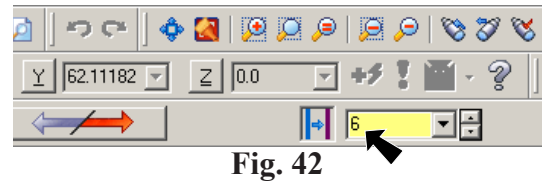
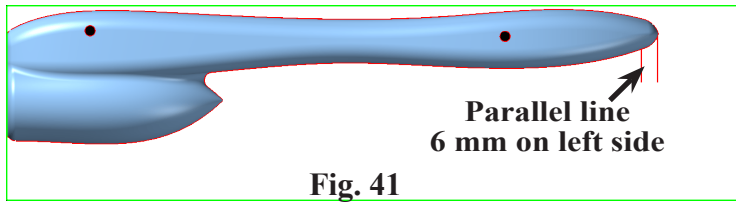


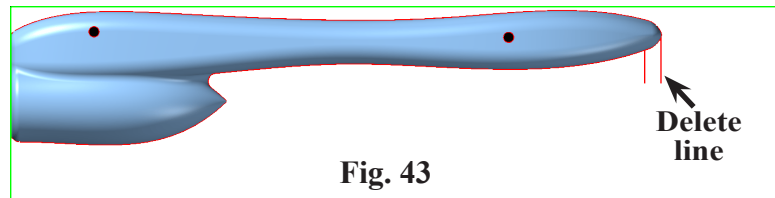
Fig. 39

Step 9. Click Create Menu > Line > Parallel. **Alt C L A**

Step 10. Click the **vertical line** and **click left side of line**, **Fig. 41**. Key-in **6** for **Distance**  in the ribbon bar, **Fig. 42** and press **ENTER**. Click **OK**  in ribbon bar.



Step 11. **Delete first vertical line**, **Fig. 43**. Select line and press Delete key.

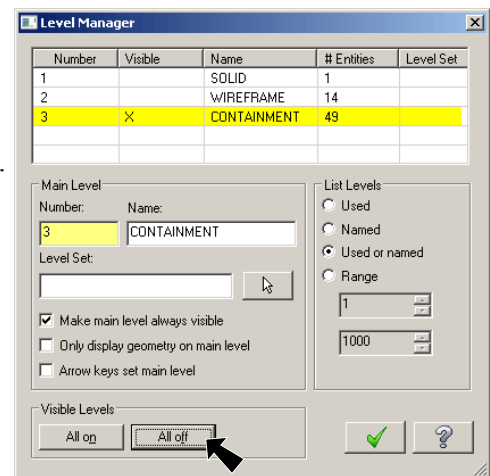


Step 12. Save . Use **Alt-F S**.

P. Turn off Levels.

Step 1. Display Level Manager. Use **Alt-Z**.

Step 2. **Turn off SOLID and WIREFRAME levels**. Click **All off** button. Click **OK**  when done, **Fig. 44**.



Q. Offset Containment.

Step 1. Delete the two circles. To delete, Shift click both circles to chain both circles and press the Delete key, Fig. 45.

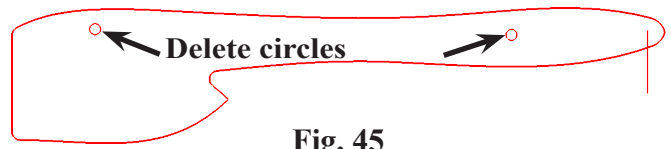




Fig. 45

Step 2. Click Xform Menu > Offset Contour.

Step 3. Click Partial button  (P) in the Chaining dialog box, Fig. 46.

Step 4. Click left end of top arc (under the cartridge hole), Curve 1, Fig. 47. The chain should point to the right across the top. Click Reverse  if pointing in wrong direction, Fig. 46.

Step 5. Click right end of same arc, Curve 2, just before line, Fig. 47. Click OK  in the Chaining dialog box, Fig. 46.

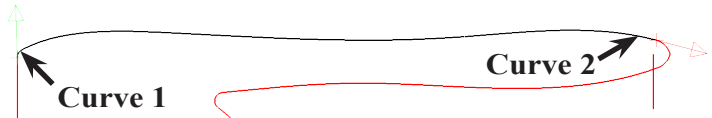


Fig. 47

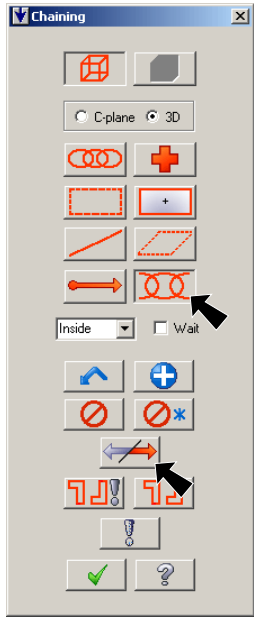


Fig. 46

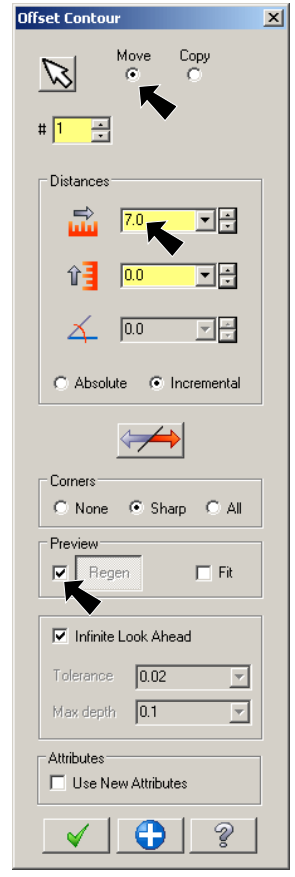




Fig. 48

Step 6. Set: Move 
Distance to 7 , Fig. 48

Check Preview Regen. The offset should be above the geometry, Fig. 49. If the offset is on the wrong side - click Reverse .
Click Apply .

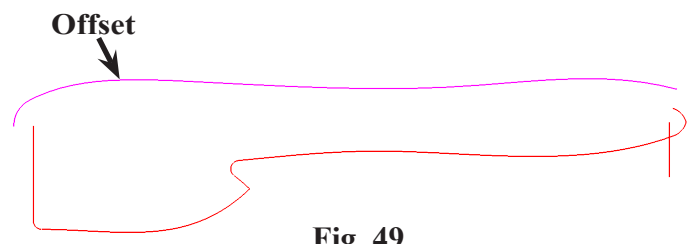



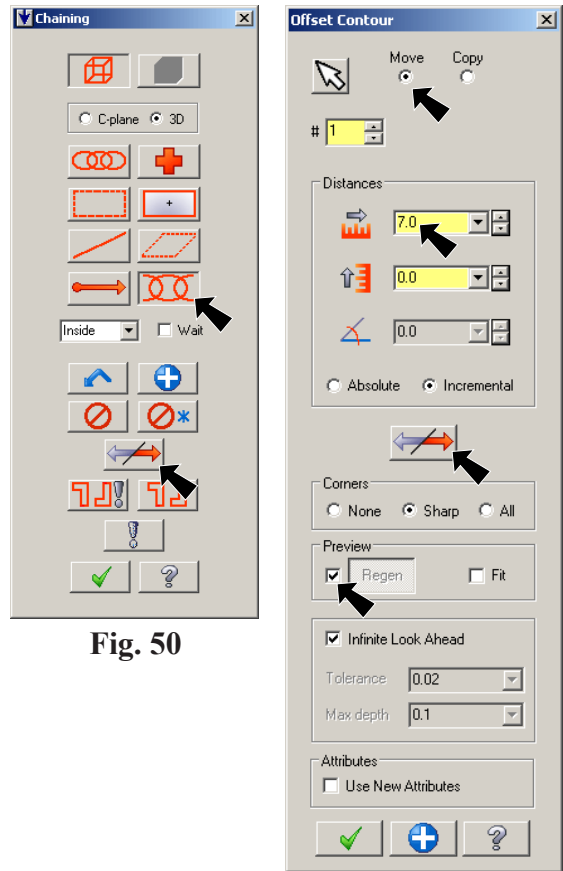
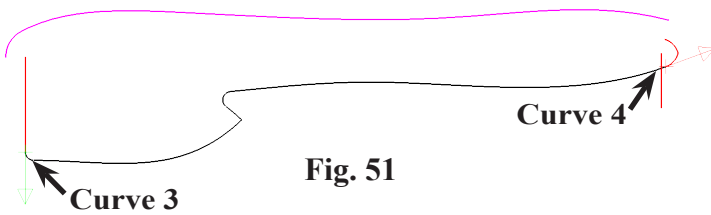





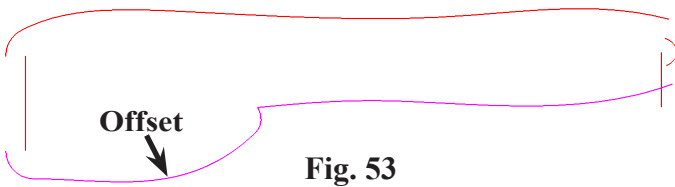


Fig. 49

- Step 7. Click **Partial** button  (P) in the Chaining dialog box, **Fig. 50**.
- Step 8. Click left end of bottom arc (above cartridge hole), **Curve 3**, **Fig. 51**. The chain should point to the right across the bottom. Click **Reverse**  if pointing in wrong direction, **Fig. 50**.
- Step 9. Click right end of same arc, **Curve 4**, just before line, **Fig. 51**. Click **OK**  in the Chaining dialog box, **Fig. 50**.



- Step 10. Set: **Move**  **Distance to 7** , **Fig. 52**.
- Click **Reverse** . The offset should be below the geometry, **Fig. 53**. If the offset is on the wrong side - click **Reverse** .
- Click **OK** .

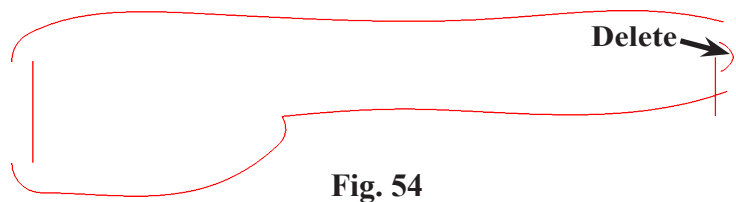


- Step 11. **Right click** the drawing area and click **Clear Colors**  from the menu or use **Alt-R C**.

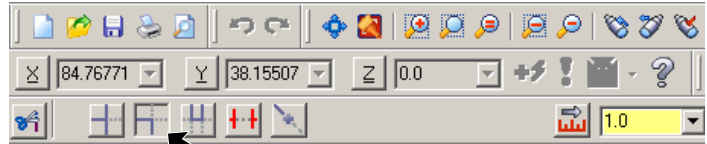
Step 12. Save . Use **Alt-F S**.


R. Trim Lines.

Step 1. **Delete the curve(s)** at front of body. To delete, **shift click** curve to chain and press the Delete key, **Fig. 54**.



Step 2. Click Edit Menu > Trim/Break > Trim/Break/Extend. **Alt E T T**



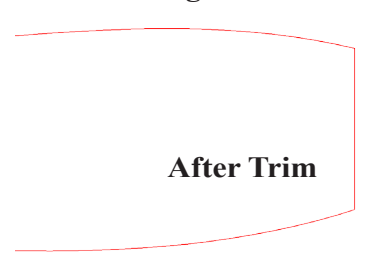
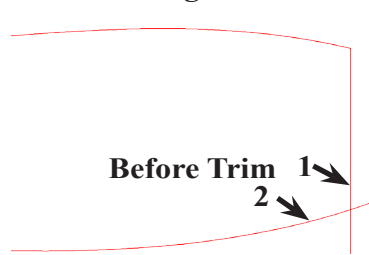
Step 3. Click **Trim 2 Entity** button  (2) in the ribbon bar, **Fig. 55**.



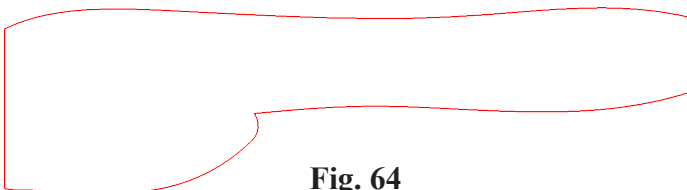
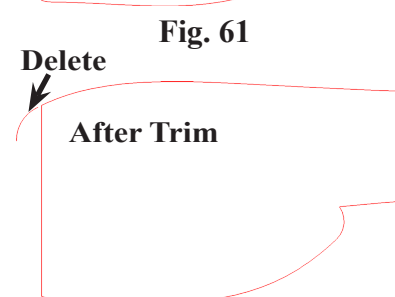
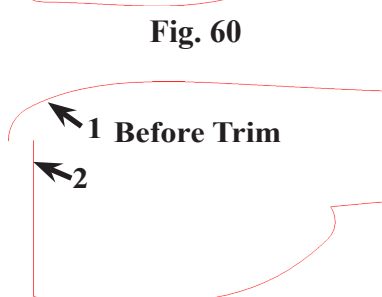
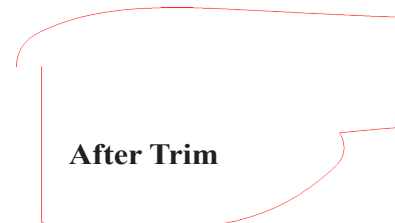
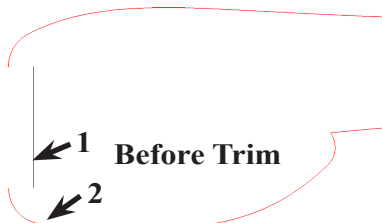
Step 4. Trim and extend entities. To trim, click entity on side you want to keep, **Position 1** and **Position 2**, **Fig. 56** and **Fig. 57**. Trim at each intersection. Be sure to click curve close to the expected intersection.




Step 5. Click OK  in ribbon bar when done.




Step 6. Delete the remaining curve at rear of body, **Fig. 63**. To delete, **shift click** curve to chain and press the Delete key.



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

S. Turn On Levels.

Step 1. Display Level Manager. Use **Alt-Z**.

Step 2. Turn on SOLID and WIREFRAME levels. To turn on levels, click **All on** button. Click **OK**  when done, **Fig. 65**.

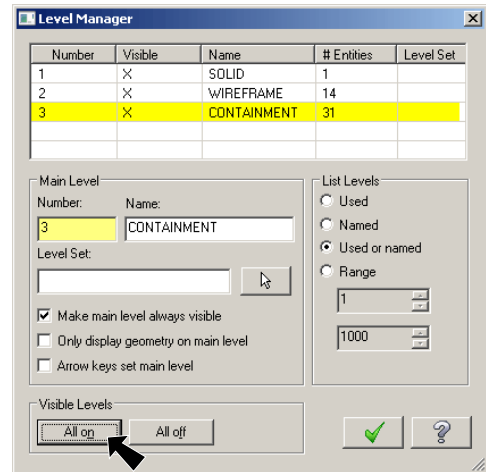



Fig. 65

T. Create WCS LEFT CUT.

Step 1. Change to the Isometric View. Use  or **Alt-7**.

Step 2. Click **WCS** in the Status Bar at the bottom of the screen and **View Manager** from the menu, **Fig. 66**.

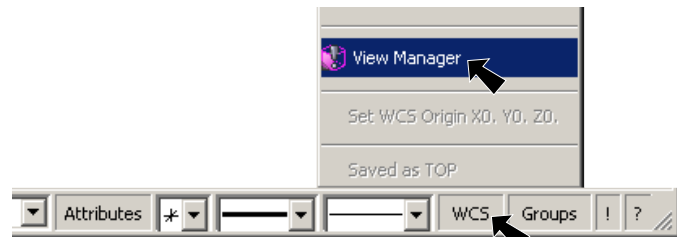


Fig. 66

Step 3. With the Top View selected, click **Copy** button in the View Manager dialog, **Fig. 67**.

Step 4. Rename COPY OF TOP

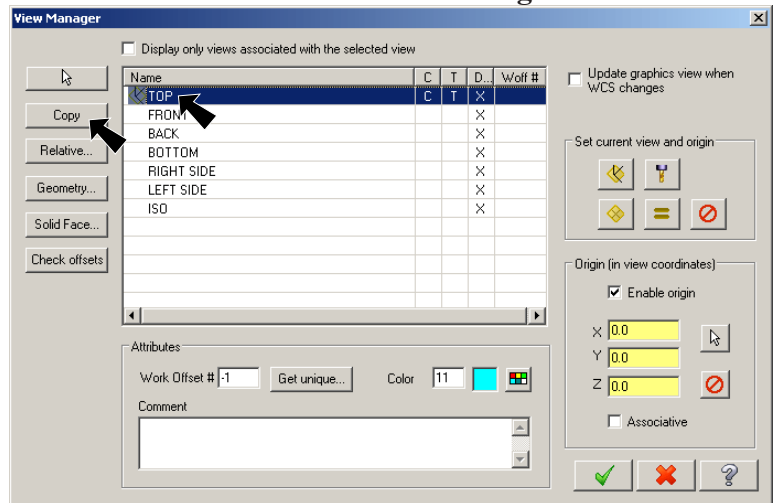


Fig. 67

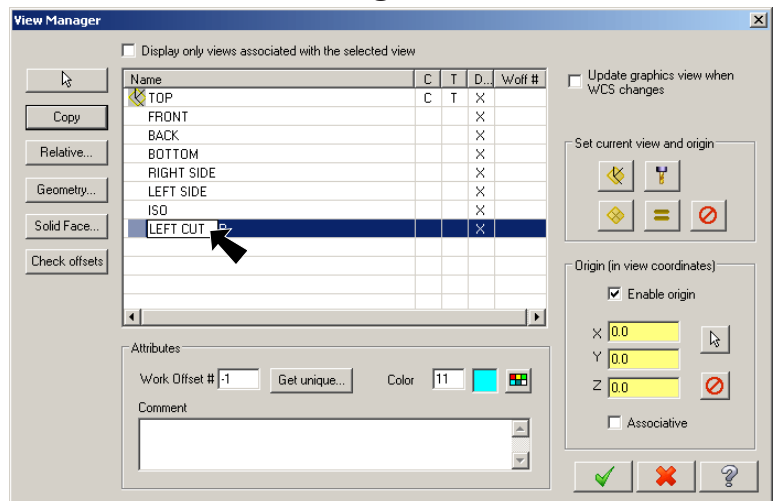



Fig. 68

to **LEFT CUT**. To rename, slowly click the view name and key-in the new name, **Fig. 68**.

- Step 5. Set:
Origin X to 0
Origin Y to 0
Origin Z to 34, Fig. 69.

- Step 6. Click the **Set All** button , **Fig. 69**.

- Step 7. Click OK .

- Step 8. Confirm the origin. Use **F9** to show the axes, **Fig. 70**.

- Step 9. Save . Use **Alt-F S**.

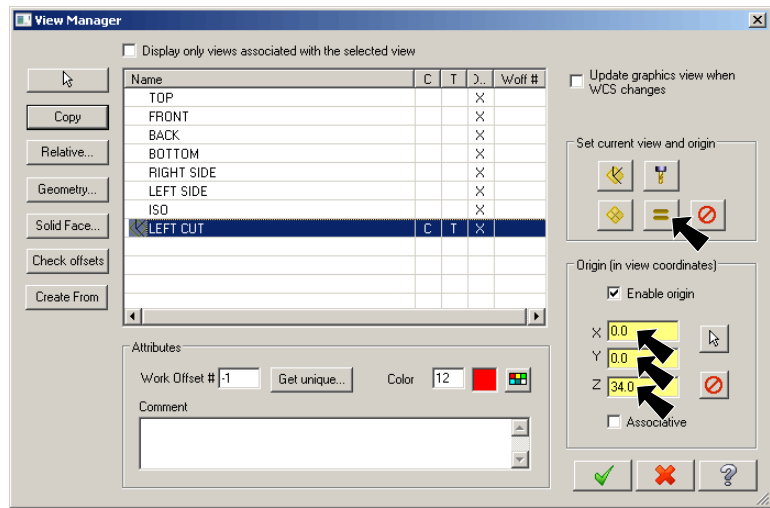


Fig. 69

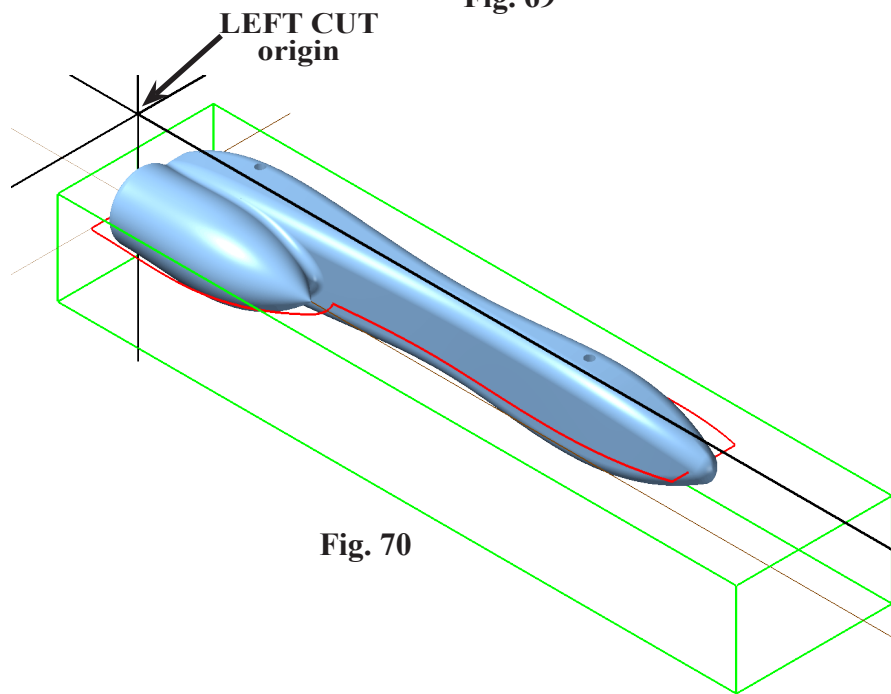


Fig. 70