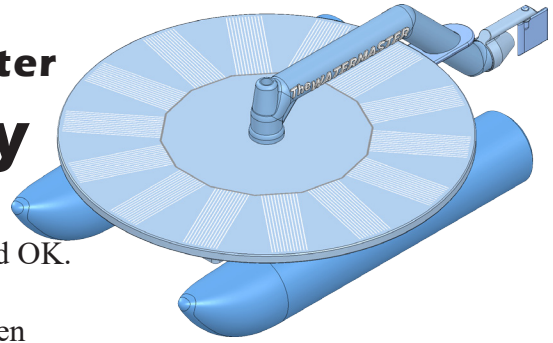


The Watermaster Assembly





A. Insert Deck and Solar Panel.

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

Step 2. Select your **DECK** file and click Open from the Open dialog box.

Step 3. In the Begin Assembly Property Manager set:


click **Keep Visible** , **Fig. 1**

Click OK  in the Property Manager. This will place Deck origin at the assembly origin and fix the position so Deck cannot move. This fixed component should have a **(f)** before its name in the Feature Manager  (f) DECK<1> .

Step 4. Click **Browse** in the Property Manager, **Fig. 1**.

Step 5. Select your **SOLAR PANEL** file and click Open.

Step 6. Click approximately where Solar Panel is positioned in **Fig. 2**.

Step 7. Click OK  in the Property Manager when done.

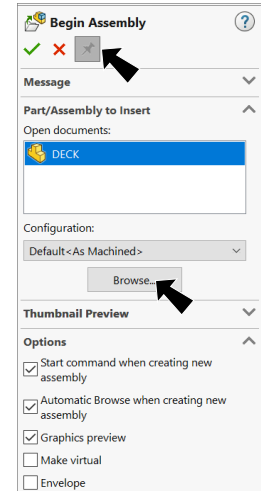


Fig. 1

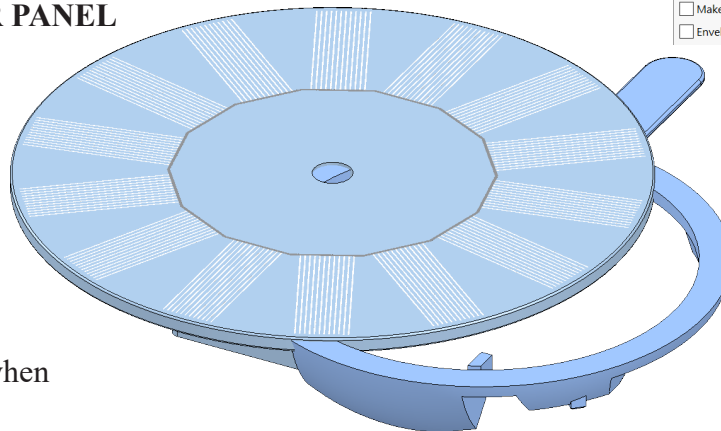



Fig. 2

B. Save as "WATERMASTER ASSEMBLY".

Step 1. Click File Menu > Save As.

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

C. Mate: Solar Panel.

Step 1. Click **Mate**  on the Assembly toolbar.

Step 2. Click the **top face of the Deck**, **hide top face of Solar Panel** and click **bottom face of Solar Panel** **Fig. 3**. To hide face, hover cursor over face and press **Alt** key.

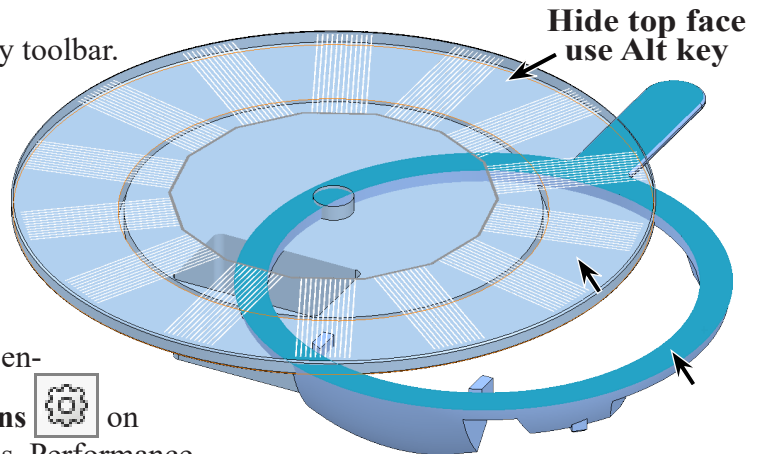



Fig. 3

Tip: If **Alt** key does not hide face, turn off enhanced graphics performance. Click **Options**  on the Standard toolbar. Under System Options, Performance, **uncheck Enhanced Graphics Performance**.

Step 3. Click Add/Finish Mate  to add a **Coincident** mate.

Step 4. Click **cylindrical face of Deck** and **cylindrical face of Solar Panel**, **Fig. 4**.

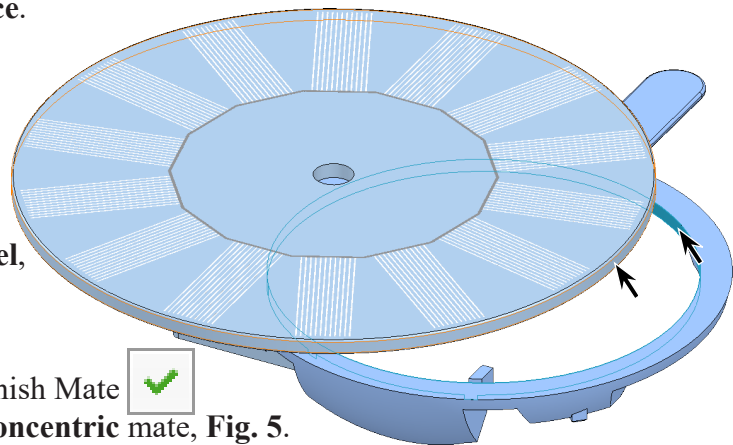


Fig. 4


Step 5. Check **Lock Rotation** and Add/Finish Mate  in Mate pop-up toolbar to add a **Concentric** mate, **Fig. 5**.




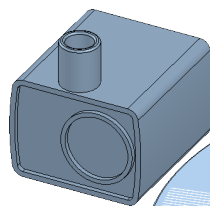
Fig. 5

Step 6. Click **OK**  in the Property Manager.

Step 7. Save  (**Ctrl-S**).

D. Insert Pump.

Step 1. **Hide SOLAR PANEL**  part, **Fig. 6**. To hide, move the cursor over the component in graphics area and press **Tab** key to hide. The Solar Panel will stay hidden to the very end of assembly.



Hide Solar Panel
Tab key

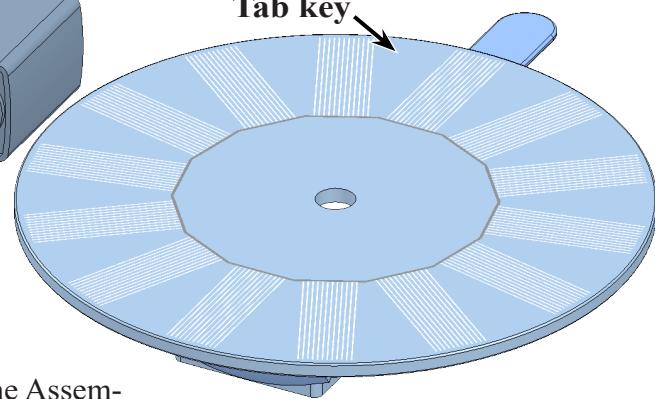



Fig. 6

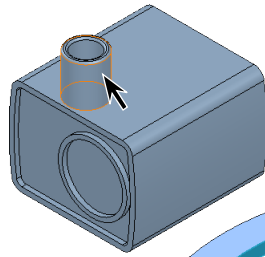
Step 2. Click **Insert Components**  on the Assembly toolbar.


Step 3. Click **PUMP** file and click **Open** from the Open dialog box.

Step 4. Click to place Pump, **Fig. 6**.

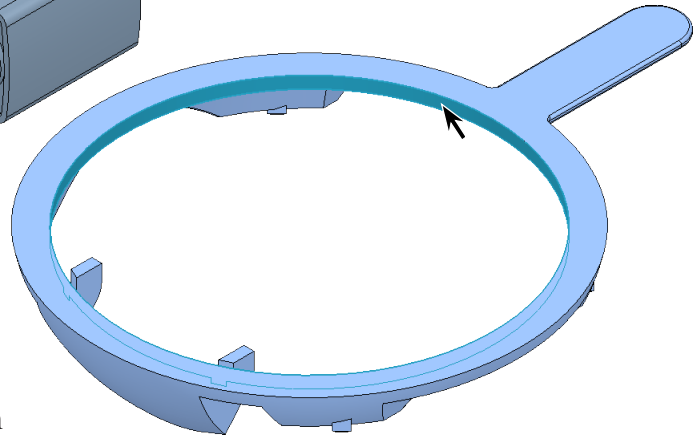
E. Mate: Pump.

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



Step 2. Click **Mate**  on the Assembly toolbar.

Step 3. Click **cylindrical face of Deck** and **cylindrical face of Pump**, Fig. 7.





Step 4. Check **Lock Rotation** and Add/Finish Mate  in Mate pop-up toolbar to add a **Concentric** mate, Fig. 8.

Fig. 7



Step 5. Click **top face of the Deck** and **top face of Pump** Fig. 9.

Fig. 8

Step 6. Click Add/Finish Mate  to add a **Coincident** mate.

Step 7. Click OK  in the Property Manager.

Step 8. Save  (Ctrl-S).

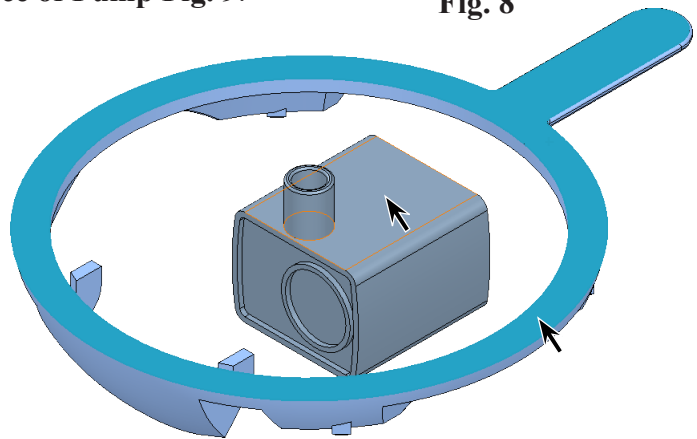


Fig. 9

F. Insert Out Pipe.

Step 1. Click **Insert Components**  on the Assembly toolbar.

Step 2. Click **OUT PIPE** file and click Open from the Open dialog box.

Step 3. Click to place Out Pipe, Fig. 10.

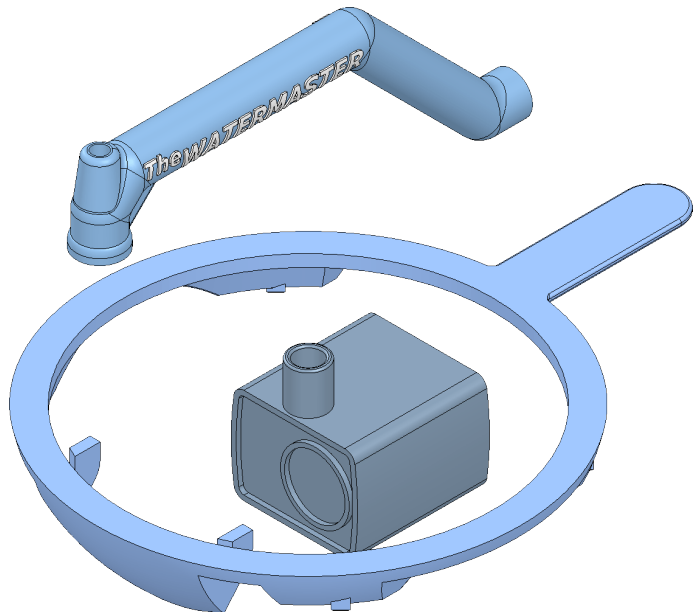






Fig. 10




G. Mate: Out Pipe.

Step 1. Click **Mate**  on the Assembly toolbar.

Step 2. Click **cylindrical face of input on Pipe** and **cylindrical face of output on Pump**, Fig. 11.

Step 3. Check **Lock Rotation** and Add/Finish Mate  in Mate pop-up toolbar to add a **Concentric** mate, Fig. 12.

Step 4. Expand the flyout Feature Manager design tree, click **Top Plane** . Expand **OUT PIPE** and click **Top Plane** , Fig. 13.

Step 5. Click **Distance**  in Mate pop-up, Fig. 14. Set **distance 4** and press ENTER. The **Pipe** should be above Pump, Fig. 15. If positioned in opposite direction, click **Flip Dimension**  in the Mate pop-up. Click Add/Finish Mate  to add Distance mate.

Step 6. Click OK  in the Property Manager.

Step 7. Save  (Ctrl-S).

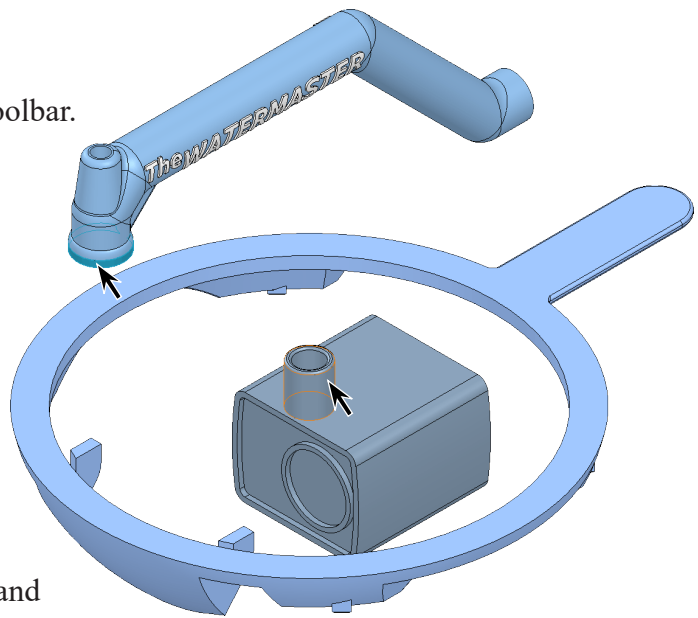


Fig. 11



Fig. 12

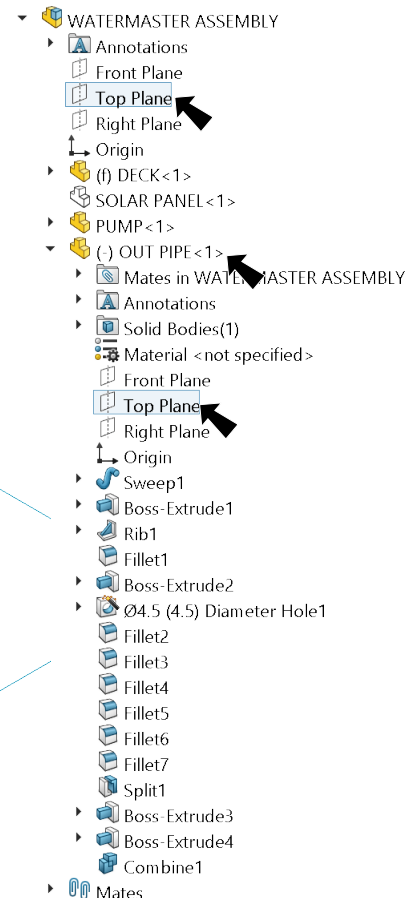


Fig. 13



Fig. 14

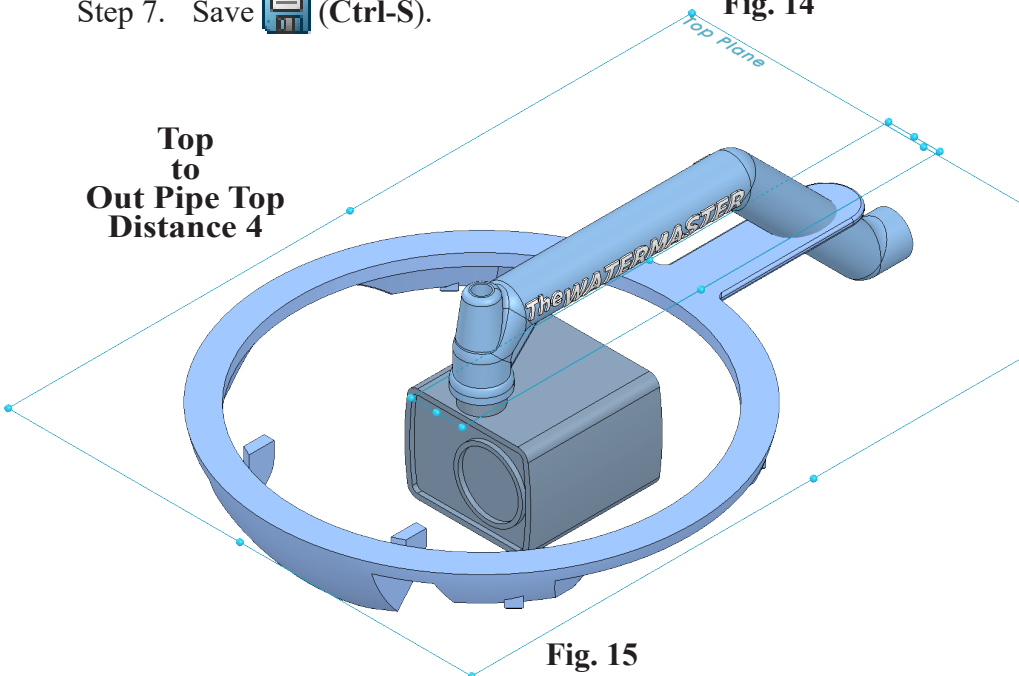



Fig. 15

H. Indent Pipe into Deck.

Step 1. Click **Deck**  part in the Feature Manager and click **Edit Part**  on the context toolbar, **Fig. 16**.

Step 2. Click Insert Menu > Features > Indent.

Step 3. In the Indent Property Manager:
 under Selections, **Fig. 17**
 Target body:
 click **Deck**, **Fig. 18**
 Tool body region:
 click **Out Pipe**
 check **Cut**
 under Parameters
Clearance .2
 click OK .

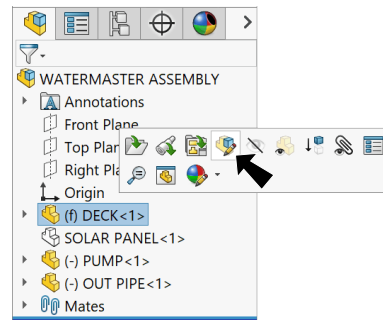


Fig. 16

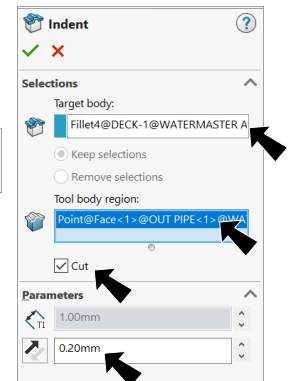


Fig. 17

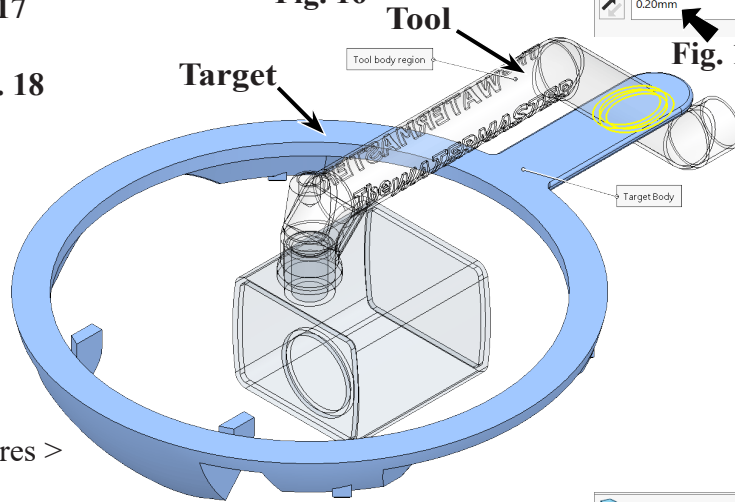



Fig. 18

I. Delete Body.

Step 1. Click Insert Menu > Features > Delete/Keep Body.

Step 2. In the Delete/Keep Body Property Manager:
 under Type, **Fig. 19**
 select **Keep Bodies**
 under Bodies to keep
 click **body of Deck outside of Pipe**, **Fig. 20**
 click OK .

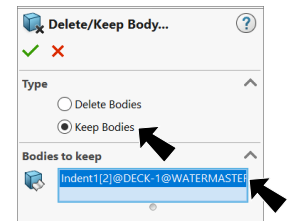


Fig. 19

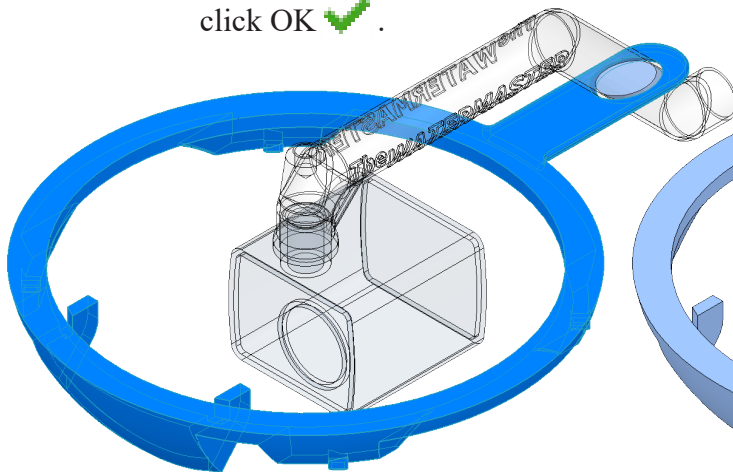


Fig. 20

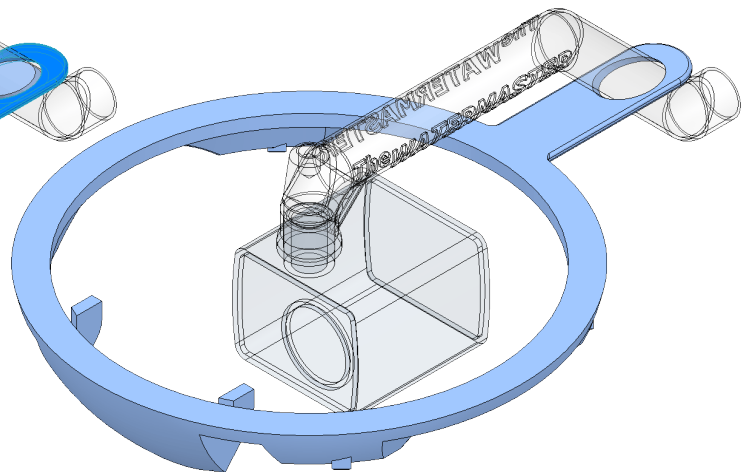
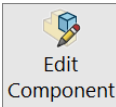


Fig. 21

Step 3. Click **Edit Component**  on the Features toolbar to exit.

Step 4. Save All  (Alt-F L). File Menu > Save All.

J. Insert Nozzle.

Step 1. Click **Right**  on the Standard Views toolbar. (Ctrl-4)

Step 2. Click **Insert Components**  on the Assembly toolbar.

Step 3. Click **NOZZLE** file and click Open from the Open dialog box.

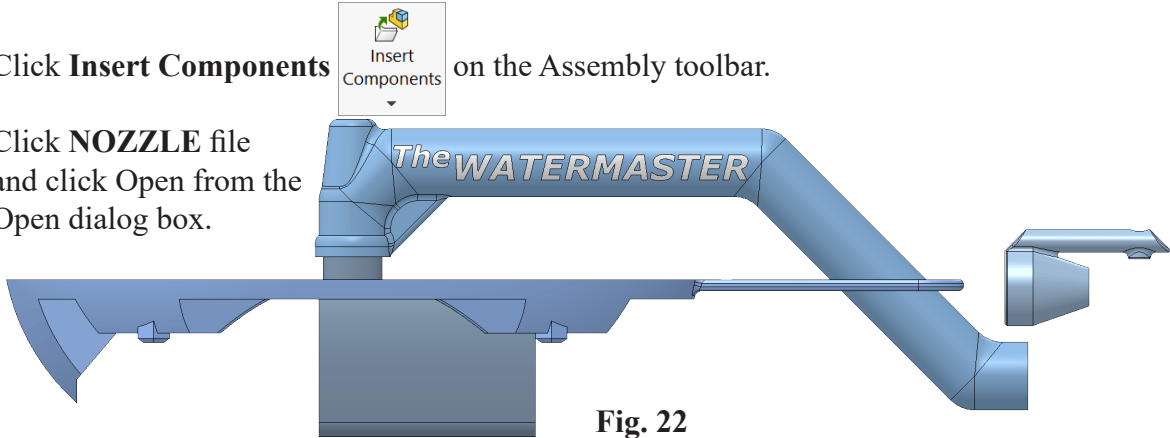


Fig. 22

Step 4. Click to place Nozzle, Fig. 22.

K. Mate: Nozzle.

Step 1. Click **Mate**  on the Assembly toolbar.

Step 2. Click **cylindrical face of output on Pipe** and **cylindrical face of Nozzle**, Fig. 23.

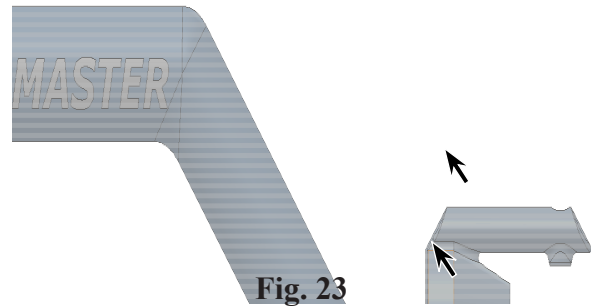


Fig. 23


Step 3. Check **Lock Rotation** and Add/Finish Mate  in Mate pop-up toolbar to add a **Concentric** mate, Fig. 24.



Fig. 24

Step 4. Expand the flyout Feature Manager design tree, click **Front Plane** . Expand **NOZZLE** and click **Front Plane** , Fig. 25.

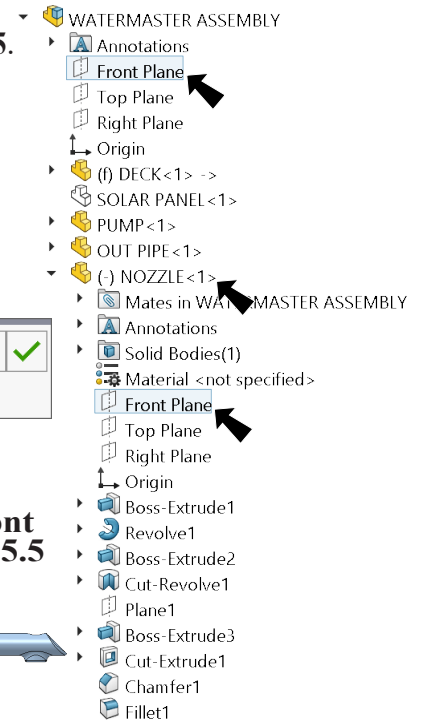


Fig. 25




Step 5. Click **Distance**  in Mate pop-up, Fig. 26. Set distance **115.5** and press ENTER. The **Nozzle** should be on end of Pipe, Fig. 27. If positioned in opposite direction, click **Flip Dimension**  in the Mate pop-up. Click Add/Finish Mate  to add Distance mate.



Fig. 26

Step 6. Click OK  in the Property Manager.

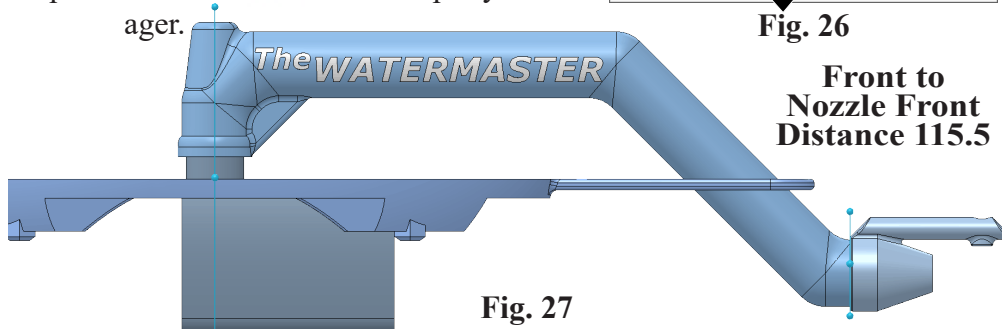


Fig. 27

Front to
Nozzle Front
Distance 115.5

L. Insert Rudder.

Step 1. Click **Insert Components**  on the Assembly toolbar.

Step 2. Select **RUDDER** file and place, **Fig. 28**.

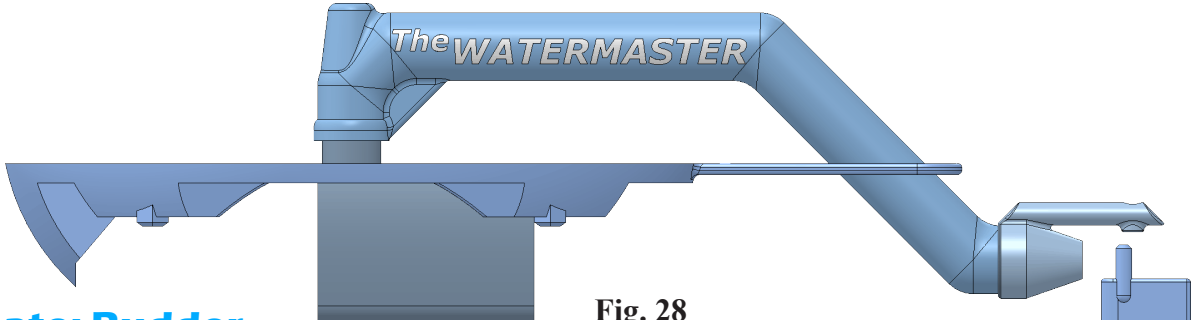



Fig. 28

M. Mate: Rudder.

Step 1. Click **Mate**  on the Assembly toolbar.

Step 2. Click a **cylindrical face of Rudder mount in Nozzle** and **cylindrical face shaft of Rudder**, **Fig. 29**.

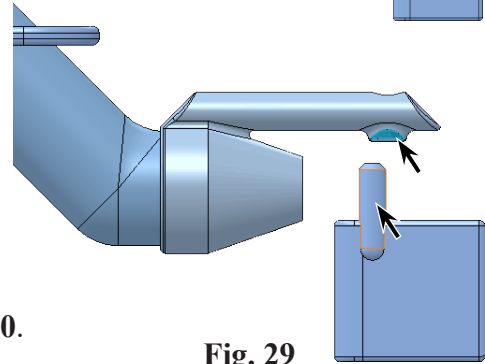


Fig. 29


Step 3. Check **Lock Rotation** and Add/Finish Mate  in Mate pop-up toolbar to add a **Concentric** mate, **Fig. 30**.



Fig. 30

Step 4. Expand the flyout Feature Manager design tree, click **Top Plane** . Expand **RUDDER** and click **Top Plane** , **Fig. 31**.




Step 5. Click **Distance**  in Mate pop-up, **Fig. 32**. Set **distance 12.3** and press ENTER. The **Rudder** should be below Nozzle arm, **Fig. 33**. If positioned in opposite direction, click **Flip Dimension**  in the Mate pop-up. Click Add/Finish Mate  to add Distance mate.



Fig. 32

Step 6. Click OK  in the Property Manager.

Step 7. Save  (Ctrl-S).

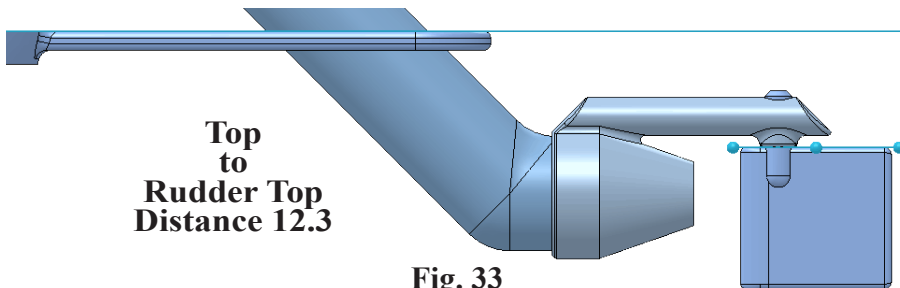


Fig. 33

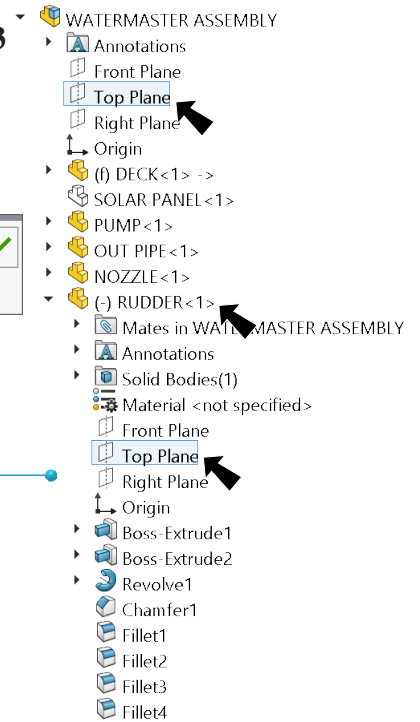



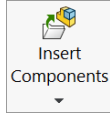
Fig. 31

N. Insert In Pipe.

Step 1. Rotate view to underside, **Fig. 34**. To rotate view, click **Isometric**  on the Standard Views toolbar (**Ctrl-7**), then **Shift** click the **Z** axis of the

Reference Triad  twice.

Step 2. Click **Insert Components**



on the Assembly toolbar.

Step 3. Select **IN PIPE** file and place, **Fig. 34**.

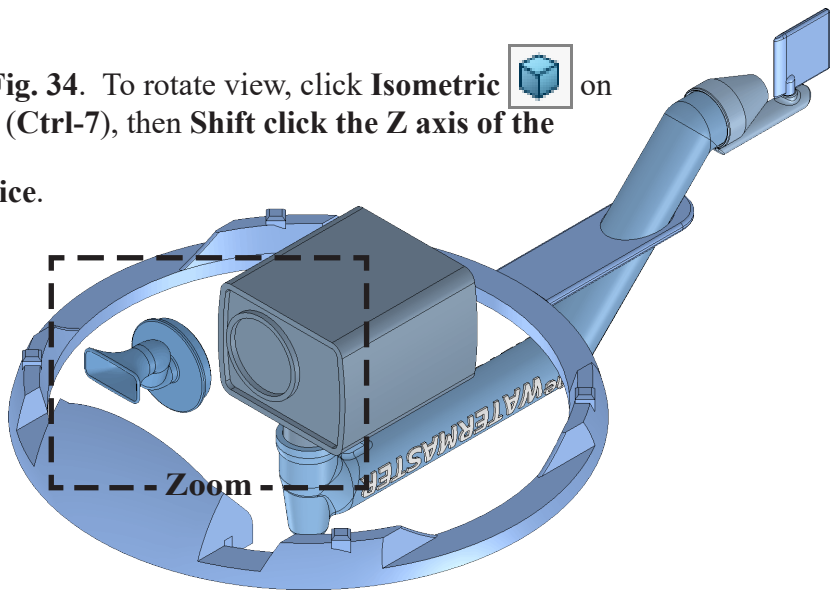
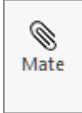


Fig. 34

O. Mate: In Pipe.

Step 1. Zoom in In Pipe and Pump, **Fig. 34**.

Step 2. Click **Mate**  on the Assembly toolbar.

Step 3. Click a **cylindrical face of Extrude2** in In Pipe and a **cylindrical face of Extrude4** in Pump, **Fig. 35**.

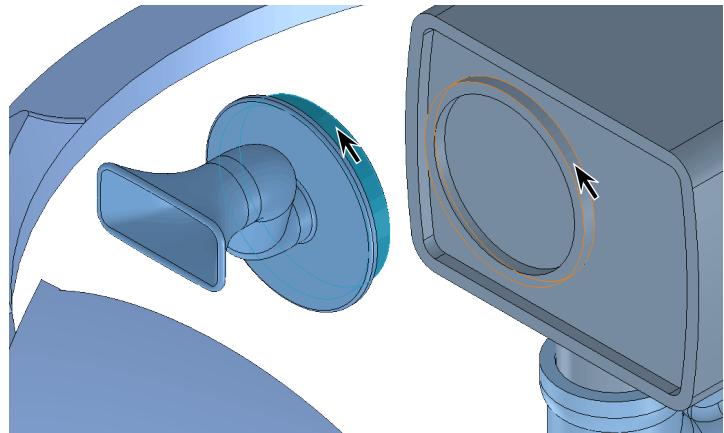


Fig. 35


Step 4. Check **Lock Rotation** and Add/Finish Mate  in Mate pop-up toolbar to add a **Concentric** mate, **Fig. 36**.



Fig. 36

Step 5. Click **front face of the Pump**, **hide front face of In Pipe** and click **rear face of In Pipe** **Fig. 37**. To hide face, hover cursor over face and press **Alt** key.

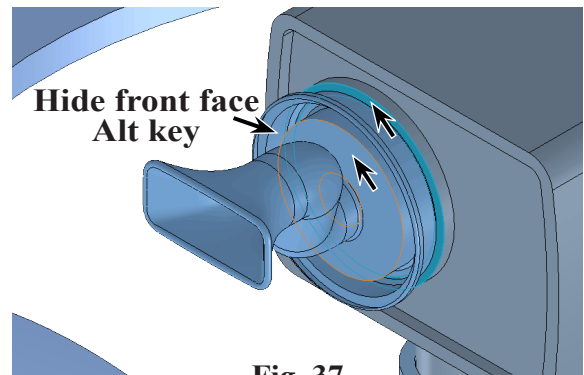


Fig. 37

Step 6. Click Add/Finish Mate  to add a **Coincident** mate.

Step 7. Click **OK**  in the Property Manager.

Step 8. Save  (**Ctrl-S**).

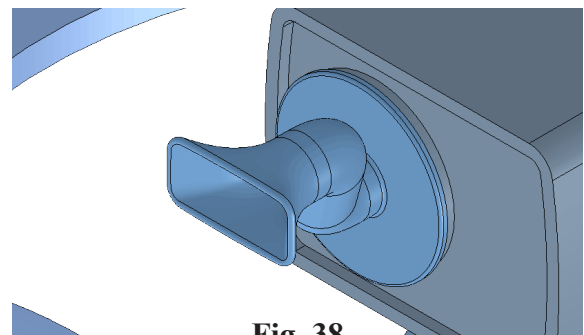
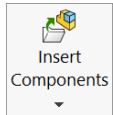


Fig. 38

P. Insert Pontoon.

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

Step 2. Click **Insert Components**



on the Assembly toolbar.

Step 3. Select **PONTOON** file and place, **Fig. 39**.

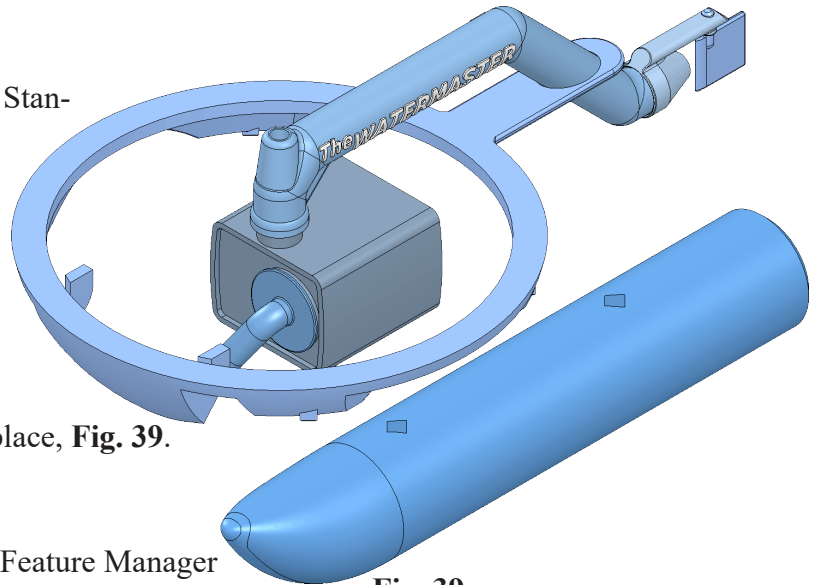




Fig. 39

Q. Mate: Pontoon.

Step 1. Click **Front Plane**  in the Feature Manager and **Mate**  on the context toolbar, **Fig. 40**.

Step 2. Expand the flyout Feature Manager design tree, expand **PONTOON** and click **Front Plane** , **Fig. 41**.

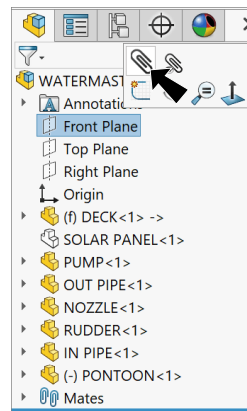



Fig. 40

Step 3. Click **Distance**  in Mate pop-up, **Fig. 42**. Set **distance 85.5** and press ENTER. The Pontoon should be somewhat centered on the Assembly, **Fig. 43**. If positioned in opposite direction, click



Flip Dimension  in the Mate pop-up. Click **Add/Finish Mate**  to add Distance mate.



Fig. 42

Front to Pontoon Front Distance 85.5

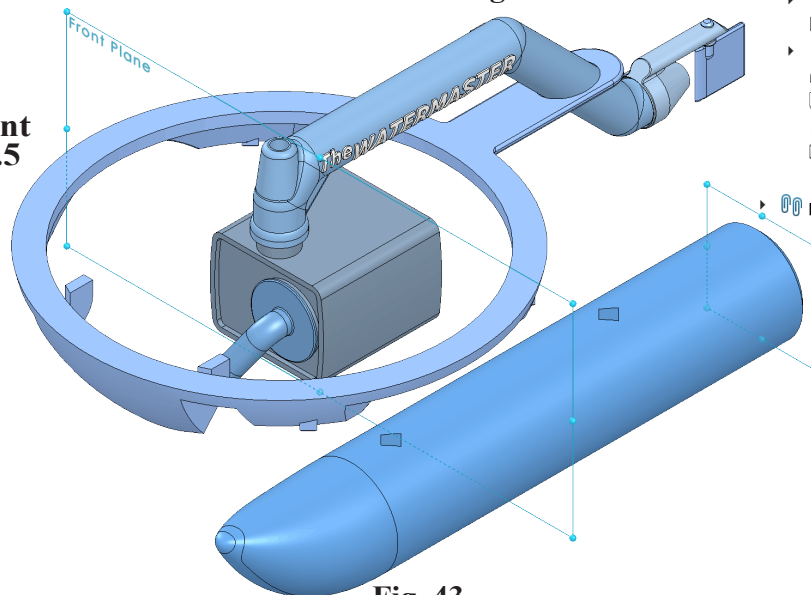


Fig. 43

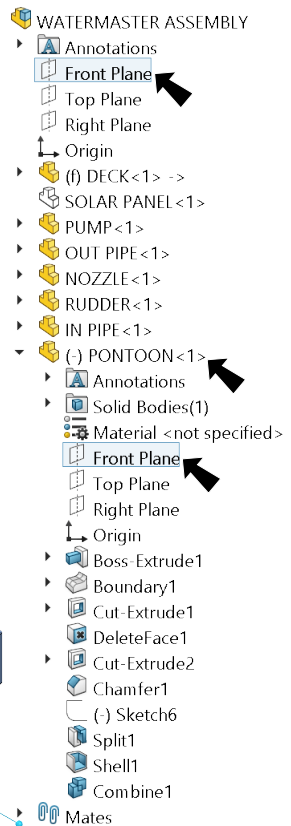




Fig. 41

Step 4. Expand the flyout Feature Manager design tree and **Right Plane** , expand **PONTOON** and click **Right Plane** , Fig. 44.




Step 5. Click **Distance**  in Mate pop-up, Fig. 45. Set distance **45** and press ENTER. The **Pontoon** should be under the port side of the Deck, Fig. 46. If positioned in opposite direction, click **Flip Dimension**  in the Mate pop-up. Click Add/Finish Mate  to add Distance mate.



Fig. 45

Right to Pontoon Right Distance 45

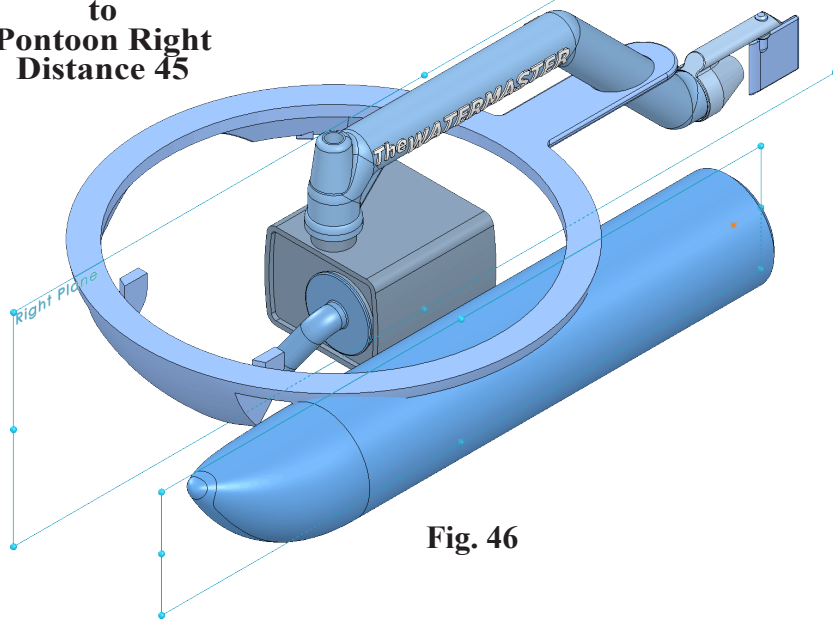


Fig. 46

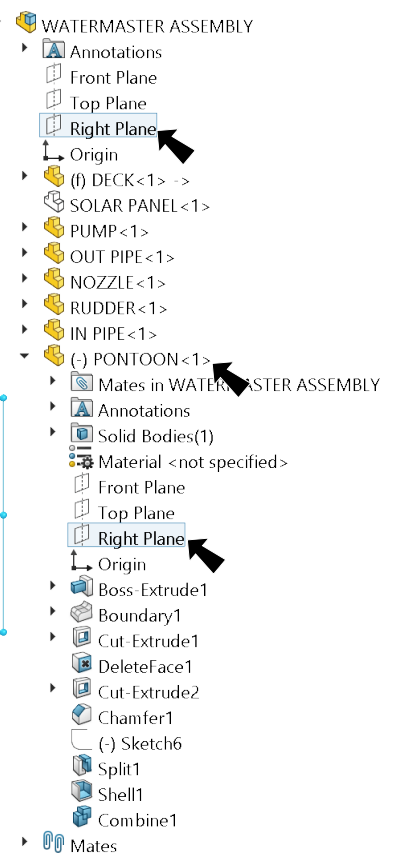







Fig. 44

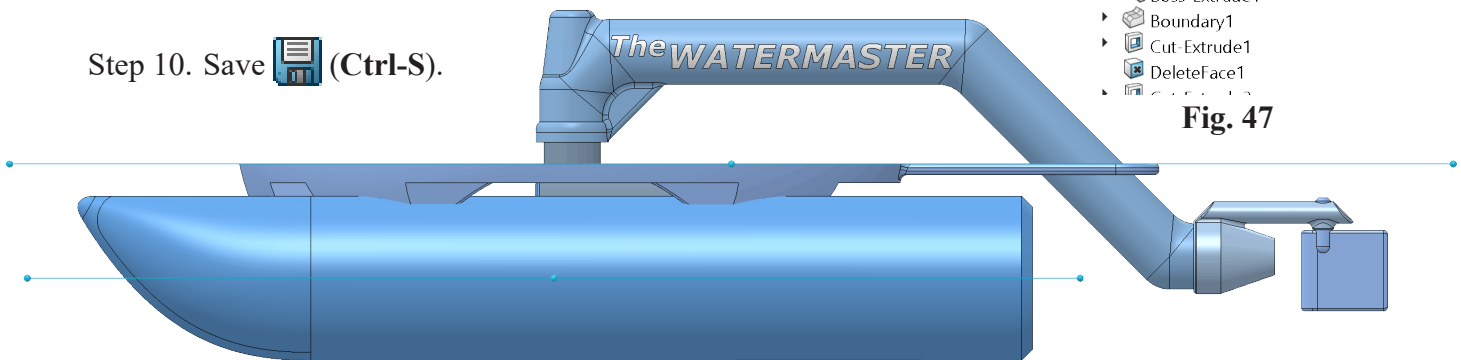
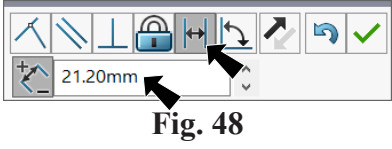
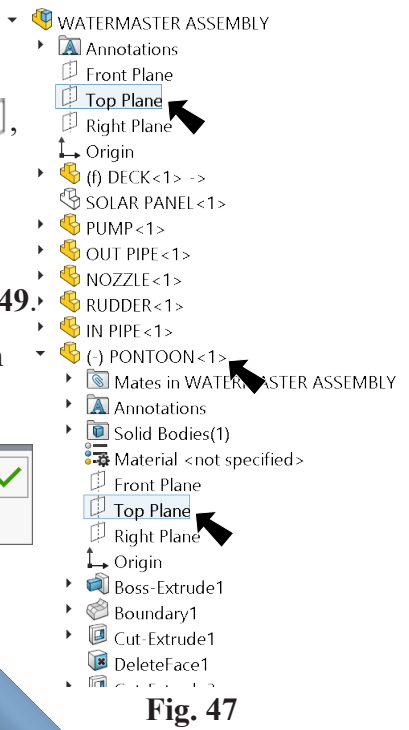
Step 6. Click **Right**  on the Standard Views toolbar. (Ctrl-4)

Step 7. Expand the flyout Feature Manager design tree and **Top Plane** , expand **PONTOON** and click **Top Plane** , Fig. 47.



Step 8. Click **Distance**  in Mate pop-up, Fig. 48. Set distance **21.2** and press ENTER. The Pontoon should be under the Deck, Fig. 49. If positioned in opposite direction, click **Flip Dimension**  in the Mate pop-up. Click Add/Finish Mate  to add Distance mate.

Step 9. Click OK  in the Property Manager.

Step 10. Save  (Ctrl-S).



R. Edit Deck Boss-Extrude3.

Step 1. Click **Deck**  part in the Feature Manager and click **Edit Part**  on the context toolbar, **Fig. 50**.

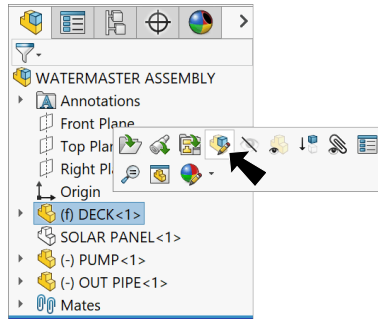



Fig. 50

Step 2. Expand **Deck** in the Feature Manager, click **Boss-Extrude3** in the Feature Manager and click **Edit Feature**  in the content toolbar, **Fig. 51**.

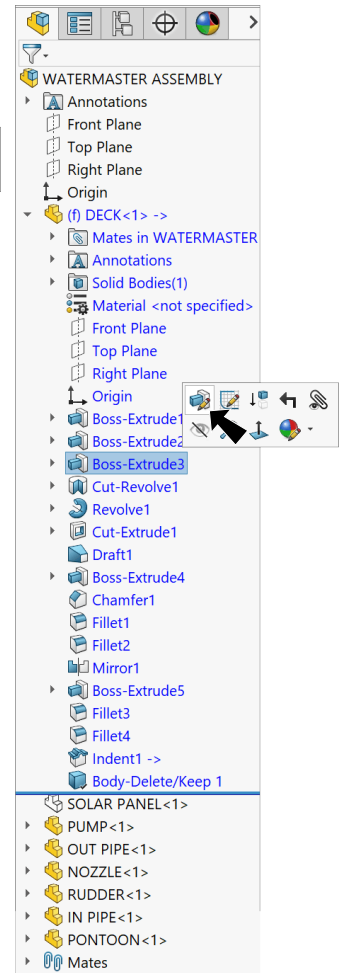




Fig. 51

Step 3. In the Boss-Extrude3 Property Manager set: under **Direction 1**, **Fig. 52**
 End Condition **Up To Surface**
 in the Face/Plane  box click the **cylindrical face of Pontoon**, **Fig. 53**
 click OK .

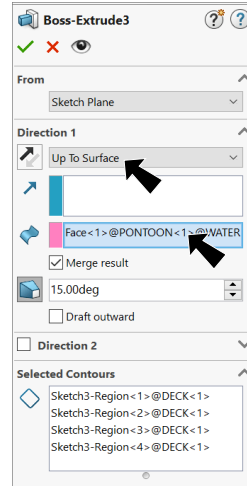


Fig. 52

Step 4. Click **Edit Component**  on the Features toolbar to exit.

Step 5. Save All  (**Alt-F L**). File Menu > Save All.

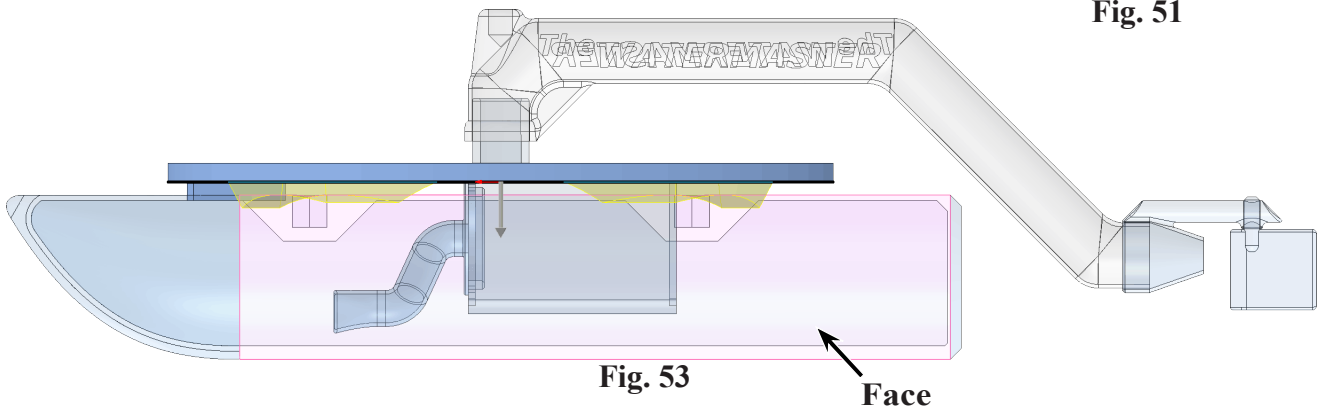


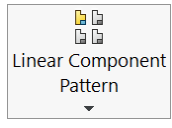
Fig. 53

S. Mirror Pontoon.

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

Step 2. **Ctrl click Right Plane**  and **Pontoon**  in the Feature Manager to select both, **Fig. 54**.

Step 3. Click **Mirror Components**  in the **Linear Component Pattern** flyout



on the Features toolbar.

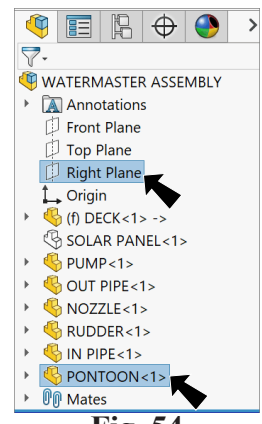


Fig. 54

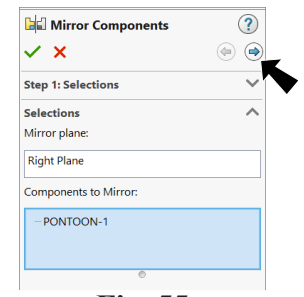



Fig. 55

Step 4. In the Mirror Property Manager:
 Step 1: Selections, **Fig. 55**
 all were preselected
 click **Next** 

Step 5. Still in Mirror Property Manager:
 Step 2: Set Orientation, **Fig. 56**
 under Mirror type

select **X mirrored and flipped, Y mirrored** 
 click **OK** .

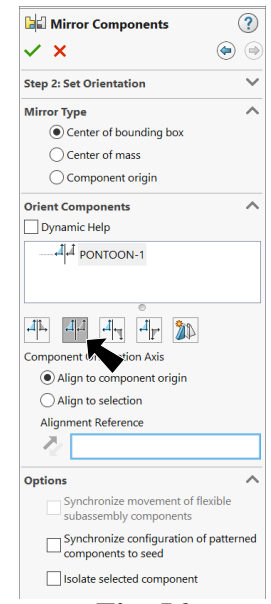


Fig. 56

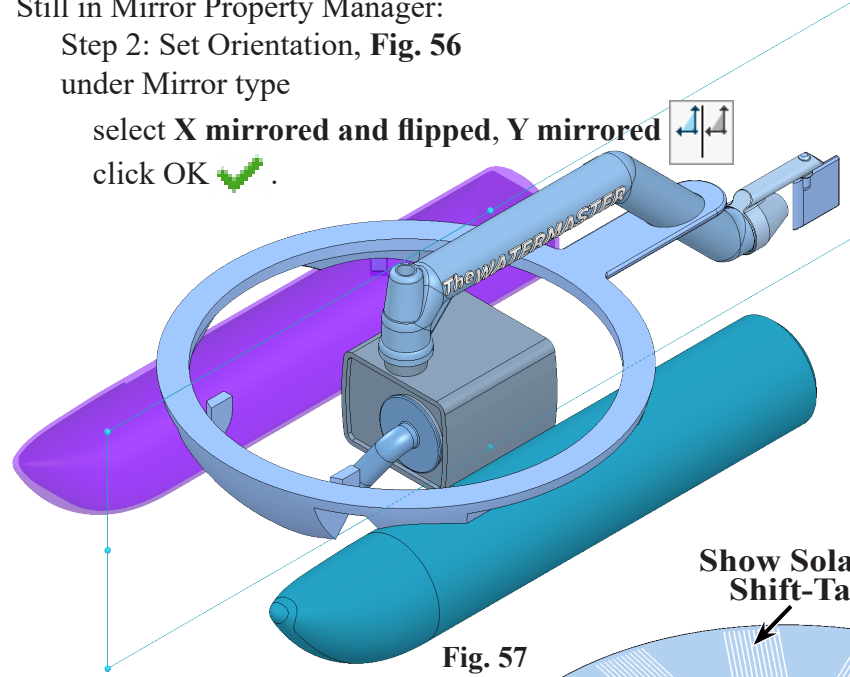



Fig. 57

Step 6. **Show SOLAR PANEL**  part, **Fig. 58**. To show, move cursor over the component in graphics area and press **Shift - Tab**.

Show Solar Panel
Shift-Tab key

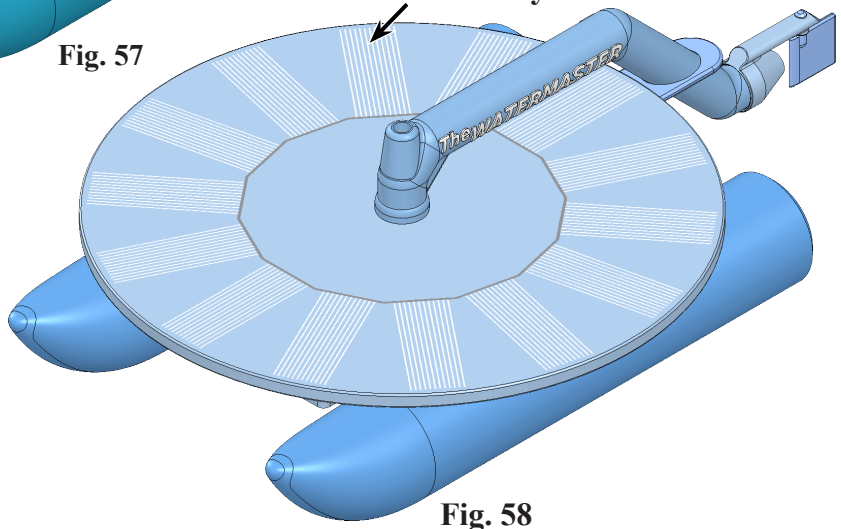


Fig. 58

Step 7. Save  (Ctrl-S).