2-Way and 3-Way Diverter Valve and Check Valve
Installation and Operation Instructions

Diverter Valve
The Pentair Water Pool and Spa® user adjustable diverter valve is designed to be used a DIVERTER valve, NOT a BACKWASH valve.

The FullFloXF™ 2-Way and 3-Way Diverter valves can be operated by hand or with a motorized valve actuator (such as the CVA-24 by Pentair Water Pool and Spa®). 3-Way Diverter valves are used to divert incoming water flow (from pump, etc.) applied at the INLET port to either of the different branches of the system plumbing (filter, heater, solar collectors, skimmer, etc.). 2-Way Diverter and Check valves are used to block the flow of water in one direction only. The 2-Way and 3-Way Diverter valves can also be used to regulate (limit) water flow coming out of the valve by adjusting the diverter mechanism covering a portion of the OUTLET port. All Diverter valves should ONLY be used with the Diverter mechanism regulating or shutting off flow on the down stream (OUTLET) side of the flow.

Plumbing
The Diverter and Check valves are sized for use with 2-1/2” or 3” CPVC/PVC pipe fittings. 2-1/2” pipe can be plumbed directly into the valve port’s socket, 3” plumbing requires an appropriate 3” (coupling or 90° elbow) slipped over the valve port’s spigot. Can also be used with any size PVC plumbing with appropriate adapters

Note: Be cautious that no glue enters the inside of the valve body past the ports. The recommended pipe glue to use is, WELD-ON® 724 CPVC, GRAY or glue types such as WELD-ON® 790™ MULTI-PURPOSE SOLVENT CEMENT.
Valve Handle Operation

To reposition the valve handle:
- Rotate the handle to the desired “OFF” position. The diverter valve handle OFF indicator, represents the current position of the valve’s internal diverter seal which will stop the flow of water. The valve handle stop-pins determine the position of the diverter valve’s internal seal to stop or allow water flow. Note: When a motorized valve actuator is installed, stop-pins are not required.

Handle Stop-Pins Positions

The two movable stop-pins can be set to allow the valve handle’s position to completely stop the flow of water, regulate a limited flow, or allow the maximum flow.

To set the stop-pins:
- Insert the stop-pins in the pin holes according to the corresponding “degree indicator” displayed on top of the handle. The stop-pin positions can be set to 180°, L90° (left-side) and R90° (right side). Repositioning of either stop-pins allows the handle to be set to any desired percentage of water flow.

3-Way Diverter Valve:

Example: Stop-pins set to 180° - Inlet is Port 3 with flow directed out of Port 1 or Port 2 depending on the handle position.
Diverter Valve Top Cover Removal and Installation

To remove the diverter valve top cover (see Figure 3):
1. Remove the valve handle lock screw and handle from the valve shaft.
2. Using a No. 2 Philips screwdriver, remove the twelve (12) cover screws. Set the screws aside.
3. When removing the cover: Do not insert a screwdriver blade between the valve body and the top cover to pry open.
   Temporarily install the handle and thumb screw to aid lifting the cover and diverter shaft out and off the valve body.
   Be careful not to drop or lose the cover o-ring.

To install the diverter valve top cover (see Figure 4 and 5):
1. Lubricate the cover o-ring with silicon o-ring grease and place it on the cover flange. Install the cover and diverter shaft in reverse order of removal from the valve body. If the diverter shaft was removed from the cover, make sure the two o-ring (spacer goes between o-rings) are in place and lubricated with silicon o-ring grease.
2. Align the notch (on cover) and tab (on valve body) this will position the top cover molded name “INLET” over the center or “common” port as shown in Figure 3. Make sure the cover and valve body screw holes are aligned.
3. Install the twelve (12) cover screws. Using a No. 2 Phillips screwdriver, torque the screws sequentially to 36 lb*in (4.1 N*m).
   using the crisscross tightening sequence shown in Figure 4.
4. Mount the handle onto the diverter shaft (the handle is keyed to fit on the shaft in only one position).
5. Install the handle lock screw and finger tighten to secure in place.
6. Manually verify that the diverter valve rotates smoothly in both directions.
Note: If reorienting the valve cover is necessary, the locating tab on valve body (fig. 5) must be removed (use file or wire cutters) to allow reorienting the valve cover to an alternate position.

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**Diverter Valve Parts List**

<table>
<thead>
<tr>
<th>Item No.</th>
<th>Part Number</th>
<th>Description</th>
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<tbody>
<tr>
<td>1</td>
<td>2710742</td>
<td>SCREW HANDLE LOCK</td>
</tr>
<tr>
<td>2</td>
<td>2710722</td>
<td>PIN HANDLE STOP</td>
</tr>
<tr>
<td>3</td>
<td>2701162</td>
<td>HANDLE</td>
</tr>
<tr>
<td>4</td>
<td>2710772</td>
<td>SCREW KIT (12 SCREWS/KIT)</td>
</tr>
<tr>
<td>5</td>
<td>2701152</td>
<td>DIVERTER VALVE COVER</td>
</tr>
<tr>
<td>6</td>
<td>2701162</td>
<td>O-RING, 2-248 BUNA-N 70 SHORE A (1 REQ'D)</td>
</tr>
<tr>
<td>7</td>
<td>2701732</td>
<td>O-RING, SPACER (1 REQ'D)</td>
</tr>
<tr>
<td>8</td>
<td>192039</td>
<td>O-RING, 2-116 BUNA-N 70 SHORE A (2 REQ'D)</td>
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<tr>
<td>9</td>
<td>2701062</td>
<td>DIVERTER SHAFT ASSEMBLY</td>
</tr>
<tr>
<td>10</td>
<td>2701072</td>
<td>DIVERTER ASSY SOLAR 3-WAY VALVE WITH DRAIN DOWN CHECK VALVE</td>
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</tbody>
</table>

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**Figure 3.** Typical “Common” Port 3

**Figure 4.** Diverter valve cover screws (Tightening Sequence) Torque: 36 lb*in (4.1 N*m)

**Figure 5.**
Check Valve

The Pentair Water Pool and Spa® straight and 90° body check valve is designed for use with return and intake water flow. A clear top cover is provided for easy viewing of water flow direction.

The 3” check valve can be used with 2-1/2” or 3” pipe. The 2-1/2” pipe slip-fits into the valve ports (see Figure 1). The 3” pipe is connected to the valve using a 3” pipe coupler, a 45° elbow or a 90° elbow. Note: Be sure no glue enters the inside of the valve body past the ports. The recommended pipe glue to use is, WELD-ON® 724 CPVC, GRAY or WELD-ON® 790™ MULTI-PURPOSE SOLVENT CEMENT.

Check Valve (2-1/2” Socket x 3” Spigot)

Check Valve Top Cover - Removal and Installation (see Figure 6 and 7)

To remove the check valve top cover:
1. Mark the position of the check valve flapper or direction of arrow on cover. Use a No. 2 Philips screwdriver to remove the twelve (12) screws. Set the cover screws aside.
2. When removing the cover: Do not insert a screw driver blade between the valve body and the top cover to pry open. If cover is stuck use a mallet or wooden dowel and tap lightly on the side of the cover (not on screw bosses) to loosen cover. Be careful not to drop or lose the cover o-ring.

To install the check valve top cover (see Figure 6 and 7)
1. Make sure the cover o-ring is lubricated with silicon o-ring grease and installed on the cover flange. Mount the check valve cover on top of the body with the flapper oriented in same position as when removed. Align the notch (on cover) and tab (on valve body), see Figure 7.
2. Make sure the cover and valve body screw holes are aligned.
3. Install the twelve (12) cover screws. Using a No. 2 Phillips screwdriver, torque screws sequentially to 36 lb*in (4.1 N*m). using the tightening sequence shown in Figure 6. Verify that the check valve flapper is oriented in the proper direction.

Check Valve Parts List

<table>
<thead>
<tr>
<th>Item No.</th>
<th>Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>270119Z</td>
<td>CHECK VALVE FLAPPER REPLACEMENT KIT (INCLUDES ITEMS 2 &amp; 3)</td>
</tr>
<tr>
<td>2</td>
<td>271077Z</td>
<td>SCREW KIT (12 SCREWS/KIT)</td>
</tr>
<tr>
<td>3</td>
<td>270116Z</td>
<td>O-RING 2-248 BUNA-N 70 SHORE A (1 REQ'D)</td>
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</tbody>
</table>
Head Loss Curves

263056 & 263057 Diverter Valve's Head Loss
Port 3 to Port 2 Flow

263056 & 263057 Diverter Valve Head Loss
Port 1 to Port 2 Flow

263059 Isolator Valve Head Loss
Head Loss Curves

263068 90 Deg Isolator Valve Head Loss

263060 Check Valve Head Loss

263077 90 Deg Check Valve Head Loss

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P/N 270154 Rev. B 1/24/12