Drawings and Part Numbers
Front Cover and Drive Assembly

<table>
<thead>
<tr>
<th>Drawing No.</th>
<th>Order No.</th>
<th>Description</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>V3175-01</td>
<td>WS1 Front Cover ASY</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>V3107-01</td>
<td>WS1 Motor</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>V3106-01</td>
<td>WS1 Drive Bracket &amp; Spring Clip</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>V3108-09BOARD</td>
<td>WS1 PC Board with Battery REPLACE</td>
<td>1</td>
</tr>
<tr>
<td>5</td>
<td>V3110</td>
<td>WS1 Drive Gear 12x36</td>
<td>3</td>
</tr>
<tr>
<td>6</td>
<td>V3109</td>
<td>WS1 Drive Gear Cover</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>V3002</td>
<td>WS1 Drive ASY</td>
<td>*</td>
</tr>
<tr>
<td>Not Shown</td>
<td>V3186</td>
<td>WS1 AC Adapter 110V-12V</td>
<td>1</td>
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<tr>
<td>Not Shown</td>
<td>V3186</td>
<td>WS1 AC ADAPTER 110V-12V</td>
<td>1</td>
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<tr>
<td>Not Shown</td>
<td>V3186EU</td>
<td>WS1 AC ADAPTER 220-240V-12Y EU</td>
<td>1</td>
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<tr>
<td>Not Shown</td>
<td>V3186UK</td>
<td>WS1 AC ADAPTER 220-240V-12V UK</td>
<td>1</td>
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<tr>
<td></td>
<td>V3186-01</td>
<td>WS1 AC ADAPTER CORD ONLY</td>
<td></td>
</tr>
</tbody>
</table>

* Drawing number parts 2 through 6 may be purchased as a complete assembly, part V3002.

---

When replacing the battery, align positives and push down to fully seat.

Battery Fully Seated

Correct Battery Orientation

Battery replacement is 3 volt lithium coin cell type 2032.
WS1 Drive Cap Assembly, Downflow Piston, Upflow Piston, Regenerant Piston and Spacer Stack Assembly

<table>
<thead>
<tr>
<th>Drawing No.</th>
<th>Order No.</th>
<th>Description</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>V3005</td>
<td>WS1 Spacer Stack Assembly</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>V3004</td>
<td>Drive Cap ASY</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>V3178</td>
<td>WS1 Drive Back Plate</td>
<td>1</td>
</tr>
<tr>
<td>4a</td>
<td>V3011*</td>
<td>WS1 Piston Downflow ASY</td>
<td>1</td>
</tr>
<tr>
<td>4b</td>
<td>V3011-01*</td>
<td>WS1 Piston Upflow ASY</td>
<td>1</td>
</tr>
<tr>
<td>5</td>
<td>V3174</td>
<td>WS1 Regenerant Piston</td>
<td>1</td>
</tr>
<tr>
<td>6</td>
<td>V3135</td>
<td>O-ring 228</td>
<td>1</td>
</tr>
<tr>
<td>7</td>
<td>V3180</td>
<td>O-ring 337</td>
<td>1</td>
</tr>
<tr>
<td>8</td>
<td>V3105</td>
<td>O-ring 215 (Distributor Tube)</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>V3001</td>
<td>WS1 Body ASY Downflow</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>V3001-02</td>
<td>WS1 Mixing Valve Body ASY</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>V3001UP</td>
<td>WS1 Body ASY Upflow</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>V3001-02UP</td>
<td>WS1 Mixing Valve Body Upflow ASY</td>
<td>1</td>
</tr>
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</table>

*V3011 is labeled with DN and V3011-01 is labeled with UP.

Note: The regenerant piston is not used in backwash only applications.
### WS1.25 Drive Cap Assembly, Downflow Piston, Regenerant Piston and Spacer Stack Assembly

<table>
<thead>
<tr>
<th>Drawing No.</th>
<th>Order No.</th>
<th>Description</th>
<th>Quantity</th>
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<tbody>
<tr>
<td>1</td>
<td>V3430</td>
<td>WS1.5 Spacer Stack Assembly</td>
<td>1</td>
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<td>2</td>
<td>V3004</td>
<td>Drive Cap ASY</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>V3178</td>
<td>WS1 Drive Back Plate</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>V3407</td>
<td>WS1.5 Piston Downflow ASY</td>
<td>1</td>
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<tr>
<td>5</td>
<td>V3174</td>
<td>WS1 Regenerant Piston</td>
<td>1</td>
</tr>
<tr>
<td>6</td>
<td>V3135</td>
<td>O-ring 228</td>
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</tr>
<tr>
<td>7</td>
<td>V3180</td>
<td>O-ring 337</td>
<td>1</td>
</tr>
<tr>
<td>8</td>
<td>V3358</td>
<td>O-ring 219 (Distributor Tube Opening 1.32&quot;)</td>
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<tr>
<td></td>
<td>V3357</td>
<td>O-ring 218 (Distributor Tube Opening 32mm)</td>
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<tr>
<td>Not Shown</td>
<td>V3020</td>
<td>WS1.25 Body ASY Downflow (Distributor Tube Opening 1.32&quot;)</td>
<td>1</td>
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<tr>
<td></td>
<td>V3020-01</td>
<td>WS1.25 Mixing Valve Body Downflow ASY (Distributor Tube Opening 1.32&quot;)</td>
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<tr>
<td></td>
<td>V3020-02</td>
<td>WS1.25 Body ASY Downflow (Distributor Tube Opening 32mm)</td>
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<tr>
<td></td>
<td>V3020-03</td>
<td>WS1.25 Mixing Valve Body Downflow ASY (Distributor Tube Opening 32mm)</td>
<td></td>
</tr>
</tbody>
</table>

Note: The regenerant piston is not used in backwash only applications.

---

*Grey Plug on all WS1.25 bodies

*Grey Ring

*Grey Distributor O-ring retainer

*Only for valves that have a 32mm Distributor Tube Opening
### Injector Cap, Injector Screen, Injector, Plug and O-Ring

<table>
<thead>
<tr>
<th>Drawing No.</th>
<th>Order No.</th>
<th>Description</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>V3176</td>
<td>INJECTOR CAP</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>V3152</td>
<td>O-RING 135</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>V3177-01</td>
<td>INJECTOR SCREEN CAGE</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>V3010-1Z</td>
<td>WS1 INJECTOR ASY Z PLUG</td>
<td>1</td>
</tr>
<tr>
<td>5</td>
<td>V3010-1A</td>
<td>WS1 INJECTOR ASY A BLACK</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>V3010-1B</td>
<td>WS1 INJECTOR ASY B BROWN</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>V3010-1C</td>
<td>WS1 INJECTOR ASY C VIOLET</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>V3010-1D</td>
<td>WS1 INJECTOR ASY D RED</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>V3010-1E</td>
<td>WS1 INJECTOR ASY E WHITE</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>V3010-1F</td>
<td>WS1 INJECTOR ASY F BLUE</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>V3010-1G</td>
<td>WS1 INJECTOR ASY G YELLOW</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>V3010-1H</td>
<td>WS1 INJECTOR ASY H GREEN</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>V3010-1I</td>
<td>WS1 INJECTOR ASY I ORANGE</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>V3010-1J</td>
<td>WS1 INJECTOR ASY J LIGHT BLUE</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>V3010-1K</td>
<td>WS1 INJECTOR ASY K LIGHT GREEN</td>
<td></td>
</tr>
<tr>
<td>Not Shown</td>
<td>V3170</td>
<td>O-RING 011</td>
<td>*</td>
</tr>
<tr>
<td>Not Shown</td>
<td>V3171</td>
<td>O-RING 013</td>
<td>*</td>
</tr>
</tbody>
</table>

*The injector plug and the injector each contain one 011 (lower) and 013 (upper) o-ring.

**Note:** For upflow piston, injector is located in the up hole and injector plug is in the other hole. WS1 upflow bodies are identified by having the DN markings removed. For a filter that only backwashes injector plugs are located in both holes.
# Refill Flow Control Assembly and Refill Port Plug

<table>
<thead>
<tr>
<th>Drawing No.</th>
<th>Order No.</th>
<th>Description</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>V3195-01</td>
<td>WS1 Refill Port Plug Asy</td>
<td>This part is required for backwash only systems</td>
</tr>
<tr>
<td>2</td>
<td>H4615</td>
<td>Elbow Locking Clip</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>JCP-P-6</td>
<td>Polytube insert 3/8&quot;</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>JCPG-6PBLK</td>
<td>Nut 3/8&quot;</td>
<td>1</td>
</tr>
<tr>
<td>5</td>
<td>H4613</td>
<td>Elbow Cap 3/8&quot;</td>
<td>1</td>
</tr>
<tr>
<td>6</td>
<td>V3163</td>
<td>O-ring 019</td>
<td>1</td>
</tr>
<tr>
<td>7</td>
<td>V3165-01*</td>
<td>WS1 RFC Retainer Asy</td>
<td>1</td>
</tr>
<tr>
<td>8</td>
<td>V3182</td>
<td>WS1 RFC</td>
<td>1</td>
</tr>
<tr>
<td>9</td>
<td>V3330-01</td>
<td>WS1 Brine Elbow Asy w/RFC 3/8&quot;</td>
<td>1</td>
</tr>
<tr>
<td>Not Shown</td>
<td>V3552</td>
<td>WS1 Brine Elbow Asy w/RFC 1/2&quot;</td>
<td>1</td>
</tr>
<tr>
<td>Not Shown</td>
<td>H4650</td>
<td>Elbow 3/4&quot; with nut and insert</td>
<td>Option</td>
</tr>
</tbody>
</table>

*Assembly includes V3182 WS1 RFC.

---

Proper RFC orientation directs refill water flow towards the washer face with rounded edge and text.
### Drain Line – 3/4"

<table>
<thead>
<tr>
<th>Drawing No.</th>
<th>Order No.</th>
<th>Description</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>H4615</td>
<td>Elbow Locking Clip</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>PKP10TS8-BULK</td>
<td>Polytube insert 5/8</td>
<td>Option</td>
</tr>
<tr>
<td>3</td>
<td>V3192</td>
<td>WSI Nut ¾ Drain Elbow</td>
<td>Option</td>
</tr>
<tr>
<td>4*</td>
<td>V3158-01</td>
<td>WSI Drain Elbow ¾ Male</td>
<td>1</td>
</tr>
<tr>
<td>5</td>
<td>V3163</td>
<td>O-ring 019</td>
<td>1</td>
</tr>
<tr>
<td>6*</td>
<td>V3159-01</td>
<td>WSI DLFC Retainer ASY</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>V3162-007</td>
<td>WSI DLFC 0.7 gpm for ¾</td>
<td></td>
</tr>
<tr>
<td></td>
<td>V3162-010</td>
<td>WSI DLFC 1.0 gpm for ¾</td>
<td></td>
</tr>
<tr>
<td></td>
<td>V3162-013</td>
<td>WSI DLFC 1.3 gpm for ¾</td>
<td></td>
</tr>
<tr>
<td></td>
<td>V3162-017</td>
<td>WSI DLFC 1.7 gpm for ¾</td>
<td></td>
</tr>
<tr>
<td></td>
<td>V3162-022</td>
<td>WSI DLFC 2.2 gpm for ¾</td>
<td></td>
</tr>
<tr>
<td></td>
<td>V3162-027</td>
<td>WSI DLFC 2.7 gpm for ¾</td>
<td></td>
</tr>
<tr>
<td></td>
<td>V3162-032</td>
<td>WSI DLFC 3.2 gpm for ¾</td>
<td></td>
</tr>
<tr>
<td></td>
<td>V3162-042</td>
<td>WSI DLFC 4.2 gpm for ¾</td>
<td></td>
</tr>
<tr>
<td></td>
<td>V3162-053</td>
<td>WSI DLFC 5.3 gpm for ¾</td>
<td></td>
</tr>
<tr>
<td></td>
<td>V3162-065</td>
<td>WSI DLFC 6.5 gpm for ¾</td>
<td></td>
</tr>
<tr>
<td></td>
<td>V3162-075</td>
<td>WSI DLFC 7.5 gpm for ¾</td>
<td></td>
</tr>
<tr>
<td></td>
<td>V3162-090</td>
<td>WSI DLFC 9.0 gpm for ¾</td>
<td></td>
</tr>
<tr>
<td></td>
<td>V3162-100</td>
<td>WSI DLFC 10.0 gpm for ¾</td>
<td></td>
</tr>
</tbody>
</table>

*4 and 6 can be ordered as a complete assembly - V3331 WSI Drain Elbow and Retainer Asy

Valves are shipped without drain line flow control (DLFC) - install DLFC before using. Valves are shipped without ¾ nut for drain elbow (polytube installation only) and 5/8" polytube insert (polytube installation only).

Proper DLFC orientation directs water flow towards the washer face with rounded edge.
### Drain Line – 1”

<table>
<thead>
<tr>
<th>Drawing No.</th>
<th>Order No.</th>
<th>Description</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>H4615</td>
<td>Elbow Locking Clip</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>V3008-02</td>
<td>WS1 Drain FTG 1 Straight</td>
<td>1</td>
</tr>
<tr>
<td>3*</td>
<td>V3166</td>
<td>WS1 Drain FTG Body 1</td>
<td>1</td>
</tr>
<tr>
<td>4*</td>
<td>V3167</td>
<td>WS1 Drain FTG Adapter 1</td>
<td>1</td>
</tr>
<tr>
<td>5*</td>
<td>V3163</td>
<td>O-ring 019</td>
<td>1</td>
</tr>
<tr>
<td>6*</td>
<td>V3150</td>
<td>WS1 Split Ring</td>
<td>1</td>
</tr>
<tr>
<td>7*</td>
<td>V3151</td>
<td>WS1 Nut 1” QC</td>
<td>1</td>
</tr>
<tr>
<td>8*</td>
<td>V3105</td>
<td>O-ring 215</td>
<td>1</td>
</tr>
<tr>
<td>9</td>
<td>V3190-090</td>
<td>WS1 DLFC 9.0 gpm for 1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>V3190-100</td>
<td>WS1 DLFC 10.0 gpm for 1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>V3190-110</td>
<td>WS1 DLFC 11.0 gpm for 1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>V3190-120</td>
<td>WS1 DLFC 12.0 gpm for 1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>V3190-130</td>
<td>WS1 DLFC 13.0 gpm for 1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>V3190-140</td>
<td>WS1 DLFC 14.0 gpm for 1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>V3190-150</td>
<td>WS1 DLFC 15.0 gpm for 1</td>
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<td>V3190-200</td>
<td>WS1 DLFC 20.0 gpm for 1</td>
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<td>V3190-250</td>
<td>WS1 DLFC 25.0 gpm for 1</td>
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</tr>
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</table>

*Can be ordered as a set. Order number V3008-02, description: WS1 Drain FTG 1 Straight.*

---

Proper DLFC orientation directs water flow towards the washer face with rounded edge.
## Water Meter, Meter Plug and Mixing Valve

<table>
<thead>
<tr>
<th>Drawing No.</th>
<th>Order No.</th>
<th>Description</th>
<th>Quantity</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>V3151</td>
<td>WS1 Nut 1&quot; QC</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>V3003*</td>
<td>WS1 Meter ASY</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>V3118-01</td>
<td>WS1 Turbine ASY</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>V3105</td>
<td>0-ring 215</td>
<td>1</td>
</tr>
<tr>
<td>5</td>
<td>V3003-01</td>
<td>WS1 Meter Plug ASY</td>
<td>1</td>
</tr>
<tr>
<td>6</td>
<td>V3013</td>
<td>Mixing Valve</td>
<td>Optional</td>
</tr>
</tbody>
</table>

*Order number V3003 includes V3118-01 WS1 Turbine Asy and V3105 O-ring 215.

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**THIS WATER METER SHOULD NOT BE USED AS THE PRIMARY MONITORING DEVICE FOR CRITICAL HEALTH EFFECT APPLICATIONS.**
Installation Fitting Assemblies

Order No: V3007
Description: WS1 Fitting 1" PVC Male NPT Elbow Assembly

<table>
<thead>
<tr>
<th>Drawing No.</th>
<th>Order No.</th>
<th>Description</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>V3151</td>
<td>WS1 Nut 1&quot; Quick Connect</td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td>V3150</td>
<td>WS1 Split Ring</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>V3105</td>
<td>O-Ring 215</td>
<td>2</td>
</tr>
<tr>
<td>4</td>
<td>V3149</td>
<td>WS1 Fitting 1 PVC Male NPT Elbow</td>
<td>2</td>
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Order No: V3007-01
Description: WS1 Fitting 5/8" & 1" PVC Solvent 90° ASY

<table>
<thead>
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<th>Order No.</th>
<th>Description</th>
<th>Quantity</th>
</tr>
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<tbody>
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<td>V3151</td>
<td>WS1 Nut 1&quot; Quick Connect</td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td>V3150</td>
<td>WS1 Split Ring</td>
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<td>3</td>
<td>V3105</td>
<td>O-Ring 215</td>
<td>2</td>
</tr>
<tr>
<td>4</td>
<td>V3189</td>
<td>WS1 Fitting 5/8 &amp; 1 PVC Solvent 90</td>
<td>2</td>
</tr>
</tbody>
</table>

Order No: V3007-02
Description: WS1 Fitting 1" Brass Sweat Assembly

<table>
<thead>
<tr>
<th>Drawing No.</th>
<th>Order No.</th>
<th>Description</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>V3151</td>
<td>WS1 Nut 1&quot; Quick Connect</td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td>V3150</td>
<td>WS1 Split Ring</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>V3105</td>
<td>O-Ring 215</td>
<td>2</td>
</tr>
<tr>
<td>4</td>
<td>V3188</td>
<td>WS1 Fitting 1 Brass Sweat Assembly</td>
<td>2</td>
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</table>

Order No: V3007-03
Description: WS1 Fitting 5/8" Brass Sweat Assembly

<table>
<thead>
<tr>
<th>Drawing No.</th>
<th>Order No.</th>
<th>Description</th>
<th>Quantity</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>V3151</td>
<td>WS1 Nut 1&quot; Quick Connect</td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td>V3150</td>
<td>WS1 Split Ring</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>V3105</td>
<td>O-Ring 215</td>
<td>2</td>
</tr>
<tr>
<td>4</td>
<td>V3188-01</td>
<td>WS1 Fitting 5/8 Brass Sweat</td>
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</table>

Order No: V3007-04
Description: WS1 Fitting 1" Plastic Male NPT Assembly

<table>
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<tr>
<th>Drawing No.</th>
<th>Order No.</th>
<th>Description</th>
<th>Quantity</th>
</tr>
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<tr>
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<td>2</td>
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<tr>
<td>2</td>
<td>V3150</td>
<td>WS1 Split Ring</td>
<td>2</td>
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<tr>
<td>3</td>
<td>V3105</td>
<td>O-Ring 215</td>
<td>2</td>
</tr>
<tr>
<td>4</td>
<td>V3164</td>
<td>WS1 Fitting 1&quot; Plastic Male NPT</td>
<td>2</td>
</tr>
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</table>

Order No: V3007-05
Description: WS1 Fitting 1-1/2" Plastic Male Assembly

<table>
<thead>
<tr>
<th>Drawing No.</th>
<th>Order No.</th>
<th>Description</th>
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<tbody>
<tr>
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<td>V3151</td>
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<tr>
<td>2</td>
<td>V3150</td>
<td>WS1 Split Ring</td>
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<tr>
<td>3</td>
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<td>O-Ring 215</td>
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<tr>
<td>4</td>
<td>V3317</td>
<td>WS1 Fitting 1-1/2&quot; Plastic Male NPT</td>
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</table>
### Installation Fitting Assemblies

#### Order No: V3007-06
**Description:** WS1 Fitting 1" Plastic Male BSPT Assembly

<table>
<thead>
<tr>
<th>Drawing No.</th>
<th>Order No.</th>
<th>Description</th>
<th>Quantity</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>V3151</td>
<td>WS1 Nut 1&quot; Quick Connect</td>
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<tr>
<td>2</td>
<td>V3150</td>
<td>WS1 Split Ring</td>
<td>2</td>
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<tr>
<td>3</td>
<td>V3105</td>
<td>O-Ring 215</td>
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</tr>
<tr>
<td>4</td>
<td>V3316</td>
<td>WS1 Fitting 1&quot; Plastic Male BSPT</td>
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</tr>
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#### Order No: V3007-07
**Description:** WS1 Fitting 1/2" & 3/8" PVC Solvent Assembly

<table>
<thead>
<tr>
<th>Drawing No.</th>
<th>Order No.</th>
<th>Description</th>
<th>Quantity</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>V3151</td>
<td>WS1 Nut 1&quot; Quick Connect</td>
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<td>O-Ring 215</td>
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<tr>
<td>4</td>
<td>V3332</td>
<td>WS1 Fitting 1/2&quot; &amp; 3/8&quot; PVC Solvent</td>
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#### Order No: V3007-08
**Description:** WS1 Fitting 1-1/4" Plastic Male BSPT Assembly

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<th>Drawing No.</th>
<th>Order No.</th>
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<tbody>
<tr>
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#### Order No: V3007-09
**Description:** WS1 Fitting 1/2" & 3/8" Brass Sweat Assembly

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<thead>
<tr>
<th>Drawing No.</th>
<th>Order No.</th>
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<th>Quantity</th>
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</thead>
<tbody>
<tr>
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<td>WS1 Nut 1&quot; Quick Connect</td>
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<td>2</td>
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<td>WS1 Split Ring</td>
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#### Order No: V3007-10
**Description:** WS1 Fitting 3/4" PEX Assembly

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<tr>
<th>Drawing No.</th>
<th>Order No.</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>V3151</td>
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<tr>
<td>2</td>
<td>V3150</td>
<td>WS1 Split Ring</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>V3105</td>
<td>O-Ring 215</td>
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<td>4</td>
<td>V3535</td>
<td>WS1 Fitting 3/4&quot; PEX</td>
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#### Order No: V3007-11
**Description:** WS1 Fitting 1" PEX Assembly

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<th>Drawing No.</th>
<th>Order No.</th>
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<tbody>
<tr>
<td>1</td>
<td>V3151</td>
<td>WS1 Nut 1&quot; Quick Connect</td>
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<tr>
<td>2</td>
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<td>WS1 Split Ring</td>
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<td>3</td>
<td>V3105</td>
<td>O-Ring 215</td>
<td>2</td>
</tr>
<tr>
<td>4</td>
<td>V3535</td>
<td>WS1 Fitting 1&quot; PEX</td>
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</table>
Bypass Valve

<table>
<thead>
<tr>
<th>Drawing No.</th>
<th>Order No.</th>
<th>Description</th>
<th>Quantity</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>V3151</td>
<td>WS1 Nut 1&quot; Quick Connect</td>
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<td>WS1 Split Ring</td>
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<tr>
<td>3</td>
<td>V3105</td>
<td>O-Ring 215</td>
<td>2</td>
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<tr>
<td>4</td>
<td>V3145</td>
<td>WS1 Bypass 1&quot; Rotor</td>
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<tr>
<td>5</td>
<td>V3146</td>
<td>WS1 Bypass Cap</td>
<td>2</td>
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<tr>
<td>6</td>
<td>V3147</td>
<td>WS1 Bypass Handle</td>
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<tr>
<td>7</td>
<td>V3148</td>
<td>WS1 Bypass Rotor Seal Retainer</td>
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<tr>
<td>8</td>
<td>V3152</td>
<td>O-ring 135</td>
<td>2</td>
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<tr>
<td>9</td>
<td>V3155</td>
<td>O-ring 112</td>
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<tr>
<td>10</td>
<td>V3156</td>
<td>O-ring 214</td>
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</table>

(Not Shown) Order No. V3191-01, Description: WS1 Bypass Vertical Adapter Assembly

<table>
<thead>
<tr>
<th>Order No.</th>
<th>Description</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>V3151</td>
<td>WS1 Nut 1&quot; Quick Connect</td>
<td>2</td>
</tr>
<tr>
<td>V3150</td>
<td>WS1 Split Ring</td>
<td>2</td>
</tr>
<tr>
<td>V3105</td>
<td>O-Ring 215</td>
<td>2</td>
</tr>
<tr>
<td>V3191</td>
<td>WS1 Bypass Vertical Adapter</td>
<td>2</td>
</tr>
</tbody>
</table>
WS1 Wrench
(Order No. V3193-01)

Although no tools are necessary to assemble or disassemble the valve, the WS1 wrench (shown in various positions on the valve) may be purchased to aid in assembly or disassembly.
Service Instructions

Drive Assembly

Remove the valve cover to access the drive assembly.

Disconnect the power source plug (black wire) from the PC board prior to disconnecting the motor or water meter plugs from the PC board. The power source plug connects to the four-pin jack. The motor plug connects to the two-pin jack on the left-hand side of the PC board. The water meter plug (gray wire) connects to the three-pin jack on the far right-hand side of the PC board.

The PC board can be removed separately from the drive bracket but it is not recommended. Do not attempt to remove the display panel from the PC board. Handle the board by the edges. To remove the PC board from the drive bracket, unplug the power, water meter and motor plugs from the PC board. Lift the middle latch along the top of the drive bracket while pulling outward on the top of the PC board. The drive bracket has two plastic pins that fit into the holes on the lower edge of the PC board. Once the PC board is tilted about 45° from the drive bracket it can be lifted off of these pins. To reinstall the PC board, position the lower edge of the PC board so that the holes in the PC board line up with the plastic pins. Push the top of the PC board towards the valve until it snaps under the middle latch, weave the power and water meter wires into the holders and reconnect the motor, water meter and power plugs.

The drive bracket must be removed to access the drive cap assembly and pistons or the drive gear cover. It is not necessary to remove the PC board from the drive bracket to remove the drive bracket. To remove the drive bracket start by removing the plugs for the power source and the water meter. Unweave the wires from the side holders. Two tabs on the top of the drive back plate hold the drive bracket in place. Simultaneously lift the two tabs and gently ease the top of the drive bracket forward. The lower edge of the drive bracket has two notches that rest on the drive back plate. Lift up and outward on the drive bracket to disengage the notches.

To reassemble, seat the bottom of the drive bracket so the notches are engaged at the bottom of the drive back plate. Push the top of the drive bracket toward the two latches. The drive bracket may have to be lifted slightly to let the threaded piston rod pass through the hole in the drive bracket. Maintain a slight engaging force on top of the drive bracket while deflecting the bracket slightly to the left by pressing on the side of the upper right corner. This helps the drive gears mesh with the drive cap assembly. The drive bracket is properly seated when it snaps under the latches on the drive back plate. If resistance is felt before latching, then notches are not fully engaged, the piston rod is not in hole, the wires are jammed between the drive bracket and drive back plate, or the gear is not engaging the drive cap assembly.

To inspect the drive gears, the drive gear cover needs to be removed. Before trying to remove the gear cover, the drive bracket must be removed from the drive back plate. (Refer to the instructions above regarding removing the drive bracket from the drive back plate. The drive gear cover can be removed from the drive bracket without removing the motor or the PC board.) The drive gear cover is held in place on the drive bracket by three clips. The largest of the three clips is always orientated to the bottom of the drive bracket. With the PC board facing up, push in and down on the large clip on the drive gear cover. Handle the cover and the gears carefully so that the gears do not fall off of the pegs in the cover.

Replace broken or damaged drive gears. Do not lubricate any of the gears. Avoid getting any foreign matter on the reflective coating because dirt or oils may interfere with pulse counting.

The drive gear cover only fits on one way, with the large clip orientated towards the bottom. If all three clips are outside of the gear shroud on the drive bracket the drive gear cover slips easily into place.

The drive bracket does not need to be removed from the drive plate if the motor needs to be removed. To remove the motor, disconnect the power and motor plugs from the jacks on the PC board. Move the spring clip loop to the right and hold. Rotate the motor at least a ¼ turn in either direction so the wires are vertical (up & down) before gently pulling on the wire connectors to remove the motor. Pulling directly on the wires without rotating the motor may break the wires off the motor.
Replace the motor if necessary. Do not lubricate the motor or the gears. To reinstall the motor, move the spring clip loop to the right and hold. Gently turn the motor while inserting so that the gear on the motor meshes with the gears under the drive gear cover. Release the spring clip loop and continue to rotate the motor until the wires are horizontal and the motor housing engages the small plastic bulge inside the drive bracket motor retainer. Reconnect the motor plug to the two-pronged jack on the lower left hand side of the PCB board. If the motor will not easily engage with the drive gears when reinstalling, lift and slightly rotate the motor before reinserting. Reconnect the power plug.

Replace the valve cover. After completing any valve maintenance, press and hold NEXT and REGEN buttons for 3 seconds or unplug power source jack (black wire) and plug back in. This resets the electronics and establishes the service piston position. The display should flash all wording, then flash the soft ware version (e.g. 181) and then reset the valve to the service position.

**Drive Cap Assembly, Main Piston and Regenerant Piston**

The drive assembly must be removed to access the drive cap assembly. The drive cap assembly must be removed to access the piston(s). The drive cap assembly is threaded into the control valve body and seals with an o-ring. To remove the drive cap assembly, use the special wrench or insert a ¼" to ½" flat blade screwdriver into one of the slots around the top 2" of the drive cap assembly so it engages the notches molded into the drive back plate around the top 2" of the piston cavity. See Figure 5. The notches are visible through the holes. Lever the screwdriver so the drive cap assembly turns counter clockwise. Once loosened, unscrew the drive cap assembly by hand and pull straight out.

![Figure 5](image)

The drive cap assembly contains the drive cap, the main drive gear, drive cap spline, piston rod and various other parts that should not be disassembled in the field. The only replaceable part on the drive cap assembly is the o-ring. Attached to the drive cap assembly is the main piston (downflow or upflow) and if a regenerant is used, a regenerant piston.
The regenerant piston (the small diameter one behind the main piston) is removed from the main piston by pressing sideways and unsnapping it from its latch. Chemically clean in dilute sodium bisulfite or vinegar, or replace the regenerant piston if needed. To remove the main downflow or upflow piston fully extend the piston rod and then unsnap the main piston from its latch by pressing on the side with the number. Chemically clean in dilute sodium bisulfite or vinegar, or replace the main piston.

Reattach the main piston to the drive cap assembly. Reattach the regenerant piston (if needed) to the main piston. Do not lubricate the piston rod, main piston or regenerant piston. Lubricant will adversely affect the clear lip seals. Reinsert the drive cap assembly and piston into the spacer stack assembly and hand tighten the drive cap assembly. Continue to tighten the drive cap assembly using a screwdriver as a ratchet until the black o-ring on the spacer stack assembly is no longer visible through the drain port. Excessive force can break the notches molded into the drive back plate. Make certain that the main drive gear still turns freely. The exact position of the piston is not important as long as the main drive gear turns freely.

Reattach the drive assembly to the control valve and connect all plugs. After completing any valve maintenance, press and hold NEXT and REGEN buttons for 3 seconds or unplug power source jack (black wire) and plug back in. This resets the electronics and establishes the service piston position. The display should flash all wording, then flash the soft ware version (e.g. 181) and then reset the valve to the service position.

Note: Refer to Figure 6 to identify the main piston.

Spacer Stack Assembly
(Refer to Figure 6 for WS1 & WS1.25 spacer stack identification.)

To access the spacer stack assembly remove the drive assembly, drive cap assembly and piston. The spacer stack assembly can be removed easily without tools by using thumb and forefinger. Inspect the black o-rings and clear lip seals for wear or damage. Replace the entire stack if necessary. Do not disassemble the WS1 or WS1.25 stack.

The spacer stack assembly may be chemically cleaned (dilute sodium bisulfite or vinegar) or wiped with a soft cloth.

The spacer stack assembly can be pushed in to the control valve body bore by hand. Since the spacer stack assembly can be compressed it is easier to use a blunt object (5/8" to 1-1/8" in diameter) to push the center of the assembly into the control valve body. The assembly is properly seated when at least four threads are exposed (approximately 5/8"). Do not force the spacer stack assembly in. The control valve body bore interior can be lubricated with silicone to allow for easy insertion of the entire stack. Do not use silicone or any other type of lubricant on the clear lip seals or the piston.

Reattach the drive cap assembly and piston(s) and the drive assembly.

After completing any valve maintenance, press and hold NEXT and REGEN buttons for 3 seconds or unplug power source jack (black wire) and plug back in. This resets the electronics and establishes the service piston position. The display should flash all wording, then flash the soft ware version (e.g. 181) and then reset the valve to the service position.

Injector Cap, Screen, Injector Plug and Injector

Unscrew the injector cap and lift off. Loosen cap with special plastic wrench or pliers if necessary. Attached to the injector cap is a screen. Remove the screen and clean if fouled.

The plug and/or injector can be pried out with a small screwdriver. The plug can be wiped clean. If the plug leaks replace the entire plug. The injector consists of a throat and a nozzle. Chemically clean the injector with vinegar or sodium bisulfite. The holes can be blown out with air. Both pieces have small diameter holes that control the flow rates of water to insure that the proper concentration of regenerant is used. Sharp objects, which can score the plastic, should not be used to clean the injector. Scoring the injector or increasing the diameter of the hole could change the operating parameters of the injector. Push the plug(s) and/or injectors firmly in place, replace the screen and hand tighten the injector cap.
Two holes are labeled DN and UP. Check for compliance. See Table.

### Compliance Table

<table>
<thead>
<tr>
<th>Application</th>
<th>Injector and/or Plug(s)</th>
<th>Main Piston</th>
<th>Regenerant Piston</th>
<th>Stack</th>
<th>Body</th>
</tr>
</thead>
<tbody>
<tr>
<td>WS1 Downflow Softener or Regenerating Filter</td>
<td>Injector in “DN” hole, Plug in “UP” hole</td>
<td>V3011</td>
<td>V3174</td>
<td>V3005</td>
<td>V3001 or V3001-02 (Mixing)</td>
</tr>
<tr>
<td>WS1 Backwash Only Filter</td>
<td>Plug in “DN” and “UP” holes, Install Refill Port Plug</td>
<td>V3011</td>
<td>None</td>
<td>V3005</td>
<td>V3001 or V3001-02 (Mixing)</td>
</tr>
<tr>
<td>WS1 Upflow Softener</td>
<td>Injector in “UP” hole, Plug in unlabeled hole</td>
<td>V3011-01</td>
<td>V3174</td>
<td>V3005</td>
<td>V3001UP or V3001-02UP (Mixing)</td>
</tr>
<tr>
<td>WS1.25 Downflow Softener or Regenerating Filter (1.32” Distributor)</td>
<td>Injector in “DN” hole, Plug in “UP” hole</td>
<td>V3407</td>
<td>V3174</td>
<td>V3430</td>
<td>V3020 or V3020-01 (Mixing)</td>
</tr>
<tr>
<td>WS1.25 Backwash Only Filter (1.32” Distributor)</td>
<td>Plug in “DN” and “UP” holes, Install Refill Port Plug</td>
<td>V3407</td>
<td>None</td>
<td>V3430</td>
<td>V3020 or V3020-01 (Mixing)</td>
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<tr>
<td>WS1.25 Downflow Softener or Regenerating Filter (32mm Distributor)</td>
<td>Injector in “DN” hole, Plug in “UP” hole</td>
<td>V3407</td>
<td>V3174</td>
<td>V3430</td>
<td>V3020-02 or V3020-03 (Mixing)</td>
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<td>WS1.25 Backwash Only Filter (32mm Distributor)</td>
<td>Plug in “DN” and “UP” holes, Install Refill Port Plug</td>
<td>V3407</td>
<td>None</td>
<td>V3430</td>
<td>V3020-02 or V3020-03 (Mixing)</td>
</tr>
</tbody>
</table>

### Refill Flow Control Assembly or Refill Port Plug

To clean or replace the refill flow control, pull out the elbow-locking clip and then pull straight up on the elbow. Replace the elbow locking clip in the slot so that it is not misplaced. Twist to remove the white flow control retainer. The flow control can be removed by prying upward through the side slots of the retainer with a small flat blade screwdriver.

Chemically clean the flow control or the white flow control retainer using dilute sodium bisulfite or vinegar. Do not use a wire brush. If necessary, replace the flow control, o-ring on the flow control retainer, or the o-ring on the elbow.

Reseat the flow control so the rounded end is visible in the flow control. Reseat the white flow control retainer by pushing the retainer into the elbow until the o-ring seats. Remove locking clip, push down on elbow to reseat and insert locking clip.

Do not use Vaseline, oils, or other unacceptable lubricants on o-rings. A silicone lubricant may be used on the o-ring on the elbow or the white retainer.

### Water Meter or Meter Plug

The water meter assembly is connected to the PC board by a wire. If the entire water meter assembly is to be replaced, remove the control valve cover and disconnect the power source and water meter plugs from the PC board. Unlatch the drive assembly and lean it forward. Unthread the water meter wire from the side of the drive assembly and through the drive back plate. To reinstall, retread the water meter wire through the drive back plate and the side of the drive assembly. Reattach the drive assembly and the water meter and power plugs.

**THIS WATER METER SHOULD NOT BE USED AS THE PRIMARY MONITORING DEVICE FOR CRITICAL HEALTH EFFECT APPLICATIONS.**

If no water meter wire is visible, then a plug is installed, not a water meter.

The water meter wire does not need to be removed from the PC board if the water meter is only being inspected and cleaned. To remove the water meter assembly, unscrew the meter cap on the left side of the control valve. Pliers may be used to unscrew the nut if necessary.

With the nut removed, a slot at the top of the water meter is visible. Twist a flat blade screwdriver in the slot between the control valve body and the meter. When the meter is part way out it is easy to remove the water meter from the housing. Once the water meter is removed from the control valve body, gently pull forward on the turbine to remove it from the shaft.
Do not use a wire brush to clean the turbine. Wipe with a clean cloth or chemically clean in dilute sodium bisulfite or vinegar. The turbine can be immersed in the chemical. Do not immerse electronics. If the turbine is scored or damaged or the bearings on the turbine are worn, replace the turbine.

Do not lubricate the turbine shaft. The turbine shaft bearings are prelubricated. Do not use Vaseline, oils, or other unacceptable lubricants on the o-ring. A silicone lubricant may be used on the black o-ring.

Snap the turbine on the shaft and reinsert the water meter into the side slot. Hand tighten the nut. Do not use a pipe wrench to tighten nut.

**Mixing Valve**

To clean or replace the mixing valve, unthread the mixing valve from the valve body. Chemically clean the mixing valve with a dilute sodium bisulfite or vinegar solution. Do not use Vaseline, oils, or other unacceptable lubricants on o-rings. A silicone lubricant may be used on the o-ring. Before replacing the mixing valve in the valve body turn the knob clockwise so that the mixing valve is in the open position. Failure to do this may cause damage to the mixing valve when it is screwed in to the valve body.

To adjust the blended water, close the mixing valve. Open a water faucet to the desired flow rate. Open the mixing valve until the desired hardness is reached. Close the faucet.

**Bypass Valve**

The working parts of the bypass valve are the rotor assemblies that are contained under the bypass valve caps. Before working on the rotors, make sure the system is depressurized. Turn the red arrow shaped handles towards the center of the bypass valve and back several times to ensure rotor is turning freely.

The nuts and caps are designed to be unscrewed or tightened by hand. If necessary a pliers can be used to unscrew the nut or cap. Do not use a pipe wrench to tighten or loosen nuts or caps. Do not place screwdriver in slots on caps and/or tap with a hammer. To access the rotor, unscrew the cap and lift the cap, rotor and handle out as one unit. Twisting the unit as you pull it out will help to remove it more easily. There are three o-rings: one under the rotor cap, one on the rotor stem and the rotor seal. Replace worn o-rings. Clean rotor. Reinstall rotor.

When reinstalling the red arrow handles be sure that:
1. The handle pointers are lined up with the control valve body arrows, and the rotor seal o-ring and retainer on both rotors face to the right when being viewed from the front of the control valve; or
2. Arrows point toward each other in the bypass position.

Since the handles can be pulled off, they could be accidentally reinstalled 180° from their correct orientation. To install the red arrow handles correctly, keep the handles pointed in the same direction as the arrows engraved on the control valve body while tightening the bypass valve caps.

After completing any valve maintenance, press and hold NEXT and REGEN buttons for 3 seconds or unplug power source jack (black wire) and plug back in. This resets the electronics and establishes the service piston position. The display should flash all wording, then flash the software version (e.g. 181) and then reset the valve to the service position.
# Table 15
## Troubleshooting Procedures

<table>
<thead>
<tr>
<th>Problem</th>
<th>Possible Cause</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Timer does not display time of day</td>
<td>a. AC Adapter unplugged</td>
<td>a. Connect power</td>
</tr>
<tr>
<td></td>
<td>b. No electric power at outlet</td>
<td>b. Repair outlet or use working outlet</td>
</tr>
<tr>
<td></td>
<td>c. Defective AC Adapter</td>
<td>c. Replace AC Adapter</td>
</tr>
<tr>
<td></td>
<td>d. Defective PC board</td>
<td>d. Replace PC board</td>
</tr>
<tr>
<td>2. Timer does not display correct time of day</td>
<td>a. Switched outlet</td>
<td>a. Use uninterrupted outlet</td>
</tr>
<tr>
<td></td>
<td>b. Power outage</td>
<td>b. If power outage is for more than 8 hours, reset time of day. If power outage is for less than 8 hours, reset time of day and replace battery.</td>
</tr>
<tr>
<td></td>
<td>c. Defective PC board</td>
<td>c. Replace PC board</td>
</tr>
<tr>
<td>3. No softening/filtering display when water is flowing</td>
<td>a. Bypass valve in bypass position</td>
<td>a. Put bypass valve in service position</td>
</tr>
<tr>
<td></td>
<td>b. Meter connection disconnected</td>
<td>b. Connect meter to PC board</td>
</tr>
<tr>
<td></td>
<td>c. Restricted/stalled meter turbine</td>
<td>c. Remove meter and check for rotation or foreign material</td>
</tr>
<tr>
<td></td>
<td>d. Defective meter</td>
<td>d. Replace meter</td>
</tr>
<tr>
<td></td>
<td>e. Defective PC board</td>
<td>e. Replace PC board</td>
</tr>
<tr>
<td>4. Control valve regenerates at wrong time of day</td>
<td>a. Power outages</td>
<td>a. If power outage is for more than 8 hours, reset time of day. If power outage is for less than 8 hours, reset time of day and replace battery.</td>
</tr>
<tr>
<td></td>
<td>b. Time of day not set correctly</td>
<td>b. Reset to correct time of day.</td>
</tr>
<tr>
<td></td>
<td>c. Time of regeneration incorrect</td>
<td>c. Reset regeneration time</td>
</tr>
<tr>
<td></td>
<td>d. Control valve set at “on 0” (immediate regeneration)</td>
<td>d. Check control valve set-up procedure regeneration time option</td>
</tr>
<tr>
<td></td>
<td>e. Control valve set at NORMAL + on 0</td>
<td>e. Check control valve set-up procedure regeneration time option</td>
</tr>
<tr>
<td>5. ERROR followed by code number</td>
<td>a. Control valve has just been serviced</td>
<td>a. Press NEXT and REGEN for 3 seconds or unplug power source jack (black wire) and plug back in to reset control valve</td>
</tr>
<tr>
<td>Error Code 1001 - Unable to recognize start of regeneration</td>
<td>b. Foreign matter is lodged in control valve</td>
<td>b. Check piston and spacer stack assembly for foreign matter</td>
</tr>
<tr>
<td>Error Code 1002 – Unexpected stall</td>
<td>c. High drive forces on piston</td>
<td>c. Replace piston(s) and spacer stack assembly</td>
</tr>
<tr>
<td>Error Code 1003 – Motor ran too long, timed out trying to reach next cycle position</td>
<td>d. Control valve piston not in home position</td>
<td>d. Press NEXT and REGEN for 3 seconds or unplug power source jack (black wire) and plug back in to reset control valve</td>
</tr>
<tr>
<td>Error Code 1004 - Motor ran too long, timed out trying to reach home position</td>
<td>e. Motor not inserted fully to engage pinion, motor wires broken or disconnected, motor failure</td>
<td>e. Check motor and wiring. Replace motor if necessary</td>
</tr>
<tr>
<td>If other Error Codes display contact the factory.</td>
<td>f. Drive gear label dirty or damaged, missing or broken gear</td>
<td>f. Replace or clean drive gear</td>
</tr>
<tr>
<td></td>
<td>g. Drive bracket incorrectly aligned to back plate</td>
<td>g. Reseat drive bracket properly</td>
</tr>
<tr>
<td></td>
<td>h. PC board is damaged or defective</td>
<td>h. Replace PC board</td>
</tr>
<tr>
<td></td>
<td>i. PC board incorrectly aligned to drive bracket</td>
<td>i. Ensure PC board is correctly snapped on to drive bracket</td>
</tr>
<tr>
<td>Problem</td>
<td>Possible Cause</td>
<td>Solution</td>
</tr>
<tr>
<td>----------------------------------------------</td>
<td>----------------------------------------</td>
<td>--------------------------------------</td>
</tr>
<tr>
<td></td>
<td>b. No electric power at outlet</td>
<td>b. Repair outlet or use working outlet</td>
</tr>
<tr>
<td></td>
<td>c. Defective AC Adapter</td>
<td>c. Replace AC Adapter</td>
</tr>
<tr>
<td></td>
<td>d. Defective PC board</td>
<td>d. Replace PC board</td>
</tr>
<tr>
<td></td>
<td>e. Broken drive gear or drive cap assembly</td>
<td>e. Replace drive gear or drive cap assembly</td>
</tr>
<tr>
<td></td>
<td>f. Broken piston retainer</td>
<td>f. Replace drive cap assembly</td>
</tr>
<tr>
<td></td>
<td>g. Broken main or regenerant piston</td>
<td>g. Replace main or regenerant piston</td>
</tr>
<tr>
<td>7. Control valve does not regenerate</td>
<td>a. AC Adapter unplugged</td>
<td>a. Connect AC Adapter</td>
</tr>
<tr>
<td>automatically when REGEN button is depressed</td>
<td>b. No electric power at outlet</td>
<td>b. Repair outlet or use working outlet</td>
</tr>
<tr>
<td></td>
<td>c. Broken drive gear or drive cap assembly</td>
<td>c. Replace drive gear or drive cap assembly</td>
</tr>
<tr>
<td></td>
<td>d. Defective PC board</td>
<td>d. Replace PC board</td>
</tr>
<tr>
<td>8. Control valve does not regenerate</td>
<td>a. By-pass valve in bypass position</td>
<td>a. Put bypass valve in normal operation position</td>
</tr>
<tr>
<td>automatically but does when REGEN button is depressed</td>
<td>b. Meter connection disconnected</td>
<td>b. Connect meter to PC board</td>
</tr>
<tr>
<td></td>
<td>c. Restricted/stalled meter turbine</td>
<td>c. Remove meter and check for rotation or foreign matter</td>
</tr>
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<td></td>
<td>d. Defective meter</td>
<td>d. Replace meter</td>
</tr>
<tr>
<td></td>
<td>e. Defective PC board</td>
<td>e. Replace PC board</td>
</tr>
<tr>
<td></td>
<td>f. Set-up error</td>
<td>f. Check control valve set-up procedure</td>
</tr>
<tr>
<td>9. Time of day flashes on and off</td>
<td>a. Power outage</td>
<td>a. Reset the time of day. If due to a power outage less than 8 hours, reset time of day and replace battery.</td>
</tr>
</tbody>
</table>
Figure 6
WS1 & WS1.25 Identification

**WS1 with 1.050" Distributor Tube Opening Identification**

![Diagram of WS1 with 1.050" Distributor Tube Opening Identification]

- **Black Plug**
- **Spacer Color:** Grey
- **1.25"**

**Note:** The WS1 downflow piston is a solid amber color. The WS1 upflow piston is black and amber.

**WS1.25 with 1.32" Distributor Tube Opening Identification**

![Diagram of WS1.25 with 1.32" Distributor Tube Opening Identification]

- **Grey Plug**
- **Spacer Color:** Black
- **1.5"**

**WS1.25 with 32mm Distributor Tube Opening Identification**

![Diagram of WS1.25 with 32mm Distributor Tube Opening Identification]

- **Grey Plug**
- **Grey Ring**
- **Spacer Color:** Black
- **1.5"**

**Grey Distributor O-ring Retainer**