



Blaster Soft System Owner's Manual



CANADIAN ADDRESS

92 Commerce Park Dr. Unit #2
Barrie, ON L4N 8W8
Canada

www.waterdepot.com

IMPORTANT:

Do not make any adjustments to these units, they are factory set.

Should you encounter problems with the performance of the Blaster, then you should call for service.

Your dealer is trained in testing water and setting your machines according to the recommendation of the manufacturer.

Failure to provide proper service when required may void your warranty or modify the ability of the Blaster to treat your water.

Table of Content

Table of content.....	3
Instructions.....	4
Installation Fitting Assemblies	5
Bypass Valve Operation	6
Consumer Valve Programming Setup	7
Factory settings.....	8
User Display	9
Blaster Soft Set Up.....	10
Installation Flow Diagram	11
Wiring Diagram	12
CD Cell Cleaning.....	15
Wiring.....	16
Platinum Drawings and Part Numbers.....	17
Front Cover and Drive Assembly.....	18
Drive Cap Assembly, Downflow Piston, Upflow Piston, Regenerant Piston and Spacer Stack Assembly.....	19
Drive Cap Assembly, Downflow Piston, Regerant Piston and Spacer Stack Assembly ..	20
Injector Cap, Injector Screen, Injector, Plug and O-Ring.....	21
Refill Flow Control Assembly and Refill Port Plug.....	22
Drain Line – 3/4"	23
Water Meter, meter Plug and Mixing Valve.....	24
Installation Fitting Assemblies	25
Bypass Valve	26
WS1 Wrench	27
Trouble Shooting	28



Instructions

The control valve, fittings and/or bypass are designed to accommodate minor plumbing misalignments but are not designed to support the weight of a system or the plumbing.

Do not use Vaseline, oils, other hydrocarbon lubricants or spray silicone anywhere. A silicon lubricant may be used on black o-rings but is not necessary. **Avoid any type of lubricants, including silicone, on red or clear lip seals.**

The nuts and caps are designed to be unscrewed or tightened by hand or with the special plastic wrench. 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.

Do not use pipe dope or other sealant on threads. Teflon tape must be used on the threads of the 1" NPT elbow or the 1/4" NPT connection and on the threads for the drain line connection. Teflon tape is not necessary on the nut connection or caps because of o-ring seals.

After completing any valve maintenance involving the drive assembly or the drive cap assembly and pistons, press and hold NEXT and REGEN buttons for 3 seconds or unplug power source jack from the printed circuit board (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. 154) and then reset the valve to the service position.

All plumbing should be done in accordance with local plumbing codes. The pipe size for the drain line should be a minimum of 1/2". Backwash flow rates in excess of 7 gpm or length in excess of 20 feet require 3/4" drain line.

Solder joints near the drain must be done prior to connecting the drain line flow control fitting. Leave at least 6" between the drain line control fitting and solder joints when soldering pipes that are connected on the drain line control fitting. Failure to do this could cause interior damage to the drain line flow control fitting.

When assembling the installation-fitting package (inlet and outlet), connect the fitting to the plumbing system first and then attach the nut, split ring and o-ring. Heat from soldering or solvent cements may damage the nut, split ring or o-ring. Solder joints should be cool and solvent cements should be set before installing the nut, split ring and o-ring. Avoid getting primer and solvent cement on any part of the o-rings, split rings, and bypass valve or control valve.

Plug into an electrical outlet. Note: All electrical connections must be connected according to local codes. (Be certain the outlet is uninterrupted.)

Install grounding strap on metal pipes, one end on inlet (copper) and other end to outlet (copper).

Note: No Chlorine should come into contact with the media. If chlorinating well, system must be in bypass position (see page #6)

Installation Fitting Assemblies

The installation fittings connect to the control valve or the bypass valve using nuts that **ONLY REQUIRE HAND TIGHTENING**. Hand tighten nut connections between control valve and installation fittings, control valve and bypass valve, and bypass valve and installation fittings allow for easy serviceability. Do not use a pipe wrench to tighten nuts on installation fittings. Hand tighten only.

Split ring retainer design holds the nut on and allows load to be spread over the entire nut surface area reducing the chance for leakage. The split ring design, incorporated into the installation fittings allows approximately 2 degrees off axis alignment to the plumbing system. The installation fittings are designed to accommodate minor plumbing misalignments but are not designed to support the weight of a system of the plumbing.

When assembling the installation fitting package, connect the fitting to the plumbing system first and then attach the nut, split ring and o-ring. Heat from soldering or solvent cements may damage the nut, split ring or o-ring. Solder joints should be cool and solvent cements should be set before installing the nut, split ring and o-ring. Avoid getting primer and solvent cement on any part of the o-rings. Split rings, bypass valve or control valve. Solvent cements and primers should be used in accordance with the manufacturer's instructions.

Slip the nut onto the fitting first, then the split ring second and the o-ring last. **HAND TIGHTEN THE NUT**. If the fitting is leaking, tightening the nut will not stop the leak. Remove the nut, remove the fitting, and check for damage or misalignment of the o-ring.

Do not use pipe dope or other sealant on threads. Teflon tape must be used on the threads of the 1" NPT elbow and the ¼" NPT connection and on the threads for the drain line connection. Teflon tape is not necessary on the nut connection or caps because of the o-ring seals.

Bypass Valve **See page 6 for diagram and operation layout**

The bypass valve easily connects to the control valve body using nuts that only require hand tightening. Hand tighten nut connections between control valve and fittings, control valve and bypass valve, and bypass valve and installation fittings allow for easy serviceability. The split ring retainer design holds the nut on and allows load to be spread over the entire nut surface area reducing the chance for leakage. The split ring design, incorporated into the bypass, allows approximately 2 degrees off axis alignment to the plumbing system. The bypass is designed to accommodate minor plumbing misalignments but is not designed to support the weight of a system of the plumbing.

Avoid getting primer and solvent cements on any part of the o-rings or split rings, bypass valve or control valve. Do not use pipe dope or other sealant on threads. Teflon tape is not necessary on the caps because of o-rings seals.

Do not use Vaseline, oils, or other unacceptable lubricants on o-rings. A silicon lubricant may be used on black o-rings. All seals are self-lubricating E.PPM. for long life lubricating qualities.

Note: Quick connect 1" nut will fit around a ¾" copper elbow (for ease of installation).

Important: See page 15 for installation of Air Injector and Off Air Tank.

BYPASS VALVE OPERATION

Figure 1

NORMAL OPERATION

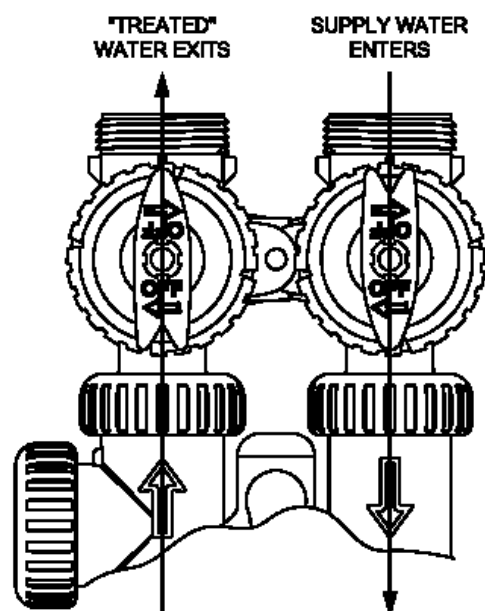


Figure 2

BYPASS OPERATION

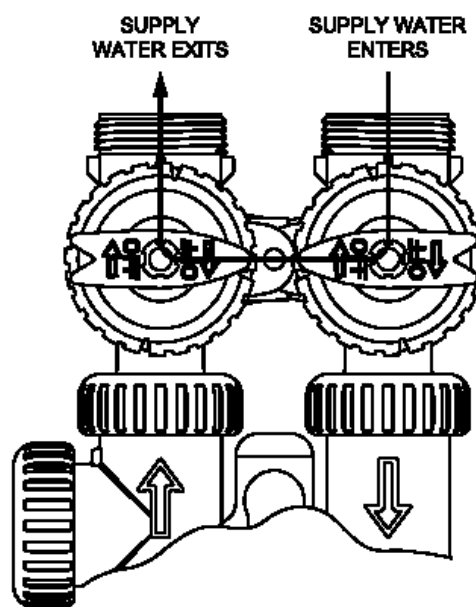


Figure 3

DIAGNOSTIC MODE

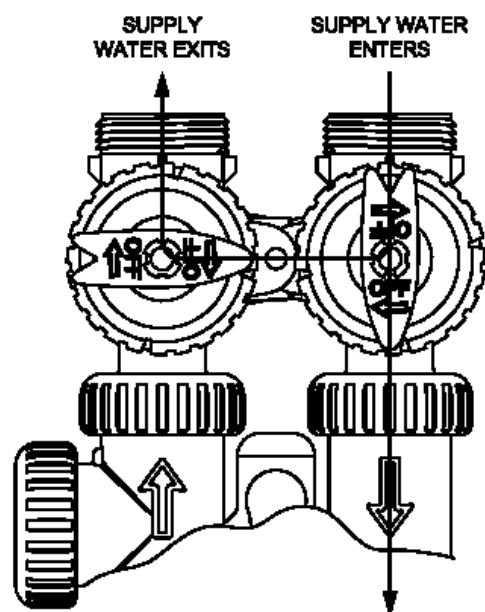
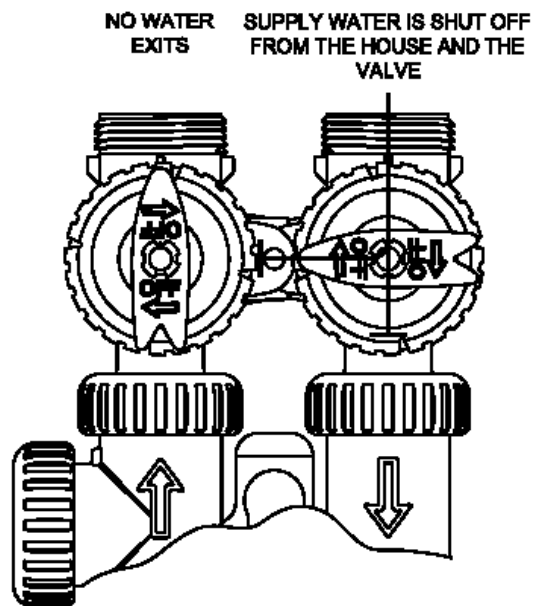


Figure 4

SHUT OFF MODE



Consumer Valve Programming Set Up

GENERAL OPERATION

When the system is operating on of
Two displays will be shown: time of
day or days until the next regeneration.
Pressing UP or DOWN will toggle
Between the two choices.

TO SET TIME OF DAY

In the event of a power outage, time
of day needs to be reset. All other
information will be stored in memory
no matter how long the power outage.
Please complete the steps as shown to
The right. To access this mode, press
SET HOUR.

1. Accessed by pressing SET HOUR.
2. Adjust to the nearest hour using UP or DOWN. An arrow points to PM during p.m. hours.
3. Press SET HOUR to complete and return to normal operation.

TO SET TIME OF REGENERATION

For initial set-up or to make adjustments,
Please complete the steps as shown to
the right. Access the mode by pressing
SET HOUR and UP simultaneously for
3 seconds.

1. Accessed by pressing SET HOUR and UP simultaneously for 3 seconds.
2. Adjust time of regeneration hour using the UP or DOWN. An arrow points to PM during p.m. hours. Simultaneously press SET HOUR and DOWN to return to normal operation.

The user can initiate manual regeneration. The user has the option to request the manual regeneration at the delayed regeneration time or to have the regeneration occur immediately. Simultaneously press the UP + DOWN buttons to start regeneration at the next delayed regeneration time. If regeneration is to occur today an arrow will point to regeneration. For immediate regeneration, simultaneously press and hold the UP + DOWN buttons for three seconds.

When in regeneration step through the different regeneration cycles by simultaneously pressing the UP + DOWN buttons.

User Please Note: Please do not attempt to go further into valve programming other than time of day or regeneration unless you have a full and comprehensive understanding of all program features. Incorrect settings are not a warranty issue and any service call or resetting of valve will be at the user's expense and may result in labor service charges.

Factory Setup of Blastersoft

Blastersoft setup of valve:

- | | |
|---------------------|------------------|
| 1) Fill cycle | 9.5 lbs. of salt |
| 2) Softening | 120 minutes |
| 3) Backwash cycle | 10 Minutes |
| 4) Brine cycle | 60 minutes |
| 5) Rinse cycle | 4 minutes |
| 6) Ozone draw cycle | 30 minutes |

Setting the relay: On time

First relay at: 75 minutes

Second relay (Off): 28 minutes

DAY OVERRIDE IS SET FOR 3 DAYS

Reminder:

The unit must go off every 3rd day if you want to remove Sulphur and Iron etc. You can custom change anything you want but make sure the relay does not come on during the Rinse Cycle or it will shut off the Ozone unit. Always add a few more minutes to the time before Ozone and shorten the time on the second relay etc. to keep from water entering the ozone unit or shutting off prematurely.

Black wire = COM+

Red wire = RLY

REVISED: JUNE 2015

User Displays

General Operation

When the system is operating one of two displays will be shown. Pressing UP or DOWN button will alternate between the displays. One of the displays is always the current time of day (to the nearest hour). The second display is the days remaining until next regeneration. If the days' remaining is equal to one, a regeneration will occur at the next preset regeneration time. The user can scroll between displays as desired.

If the system has called for a regeneration that will occur at the present time of regeneration, the arrow will point to Regen.

Regeneration Mode

Typically a system is set to regenerate at a time of low water usage. An example of a time with low water usage is when a household is asleep. If there is a demand for water when the system is regenerating, untreated water will be used.

When the system begins to regenerate, the display will change to indicate the cycle of the regeneration process (see Table 3) that is occurring and an arrow will also point to Regen. The system will run through the steps automatically and will reset itself provide treated water when the regeneration is completed.

Manual Regeneration

Sometimes there is need to regenerate the system, sooner than when the system calls for it, usually referred to as a manual regeneration. There may be a period of heavy water usage because of guests or a heavy laundry day.

To initiate a manual regeneration at the preset delayed regeneration time, simultaneously press UP-DOWN buttons together and release. The arrow will point to the word Regen if a regeneration is expected "tonight". To cancel the regeneration simultaneously press UP + DOWN buttons and release.

To initiate a manual regeneration immediately, simultaneously press UP + DOWN buttons together for three seconds. The system will begin to regenerate immediately. The request cannot be cancelled. Note: For softeners, if brine tank does not contain salt, fill with salt and wait at least two hours before regenerating.

Set Time of Day

STEP 1U – Press SET HOUR

STEP 2U – Current: Set the clock to the closest hour by using the UP and DOWN button. An arrow points to PM after 12. After a power outage, the time of day will need to be reset. Press SET HOUR to exit.

Power Loss

If the power goes out current timer of day will need to be reset. If the power goes out while the system is regenerating, the cycle picks up where it was interrupted when the power returns. Note: The display will flash if a power outage has occurred.

Error Message

If "E1," "E2" or "E3" appears on the display contact the help. This indicates that the valve did not function properly.

BLASTER SOFT SET UP

NOTE: The Blaster Soft come factory set, only to be changed by trained/qualified technicians. Changes may be necessary should the water quality change.

First Stage of Settings

Instructions	Description
1. Set time clock	As per normal operation
2. Press NEXT and DOWN (or Minus Button) together	Board will go to the next setting
3. Press NEXT and DOWN together a second time	Screen will flash this is the correct setting
4. Press NEXT	ALR will flash... press plus or minus button until it says OFF
5. Press NEXT	dp will flash... press plus or minus button until it says OFF
6. Press NEXT	Should read "Fill"... press plus or minus button until fill is displayed on the screen
7. Press NEXT	Should read "Backwash"... press plus or minus button until backwash is displayed on screen
8. Press NEXT	Should read "Brine Down"... press plus or minus button until Brine Down is displayed on screen
9. Press NEXT	Should read "Rinse"... (this is just before ozone draw)press plus or minus button until Rinse is displayed on screen
10. Press NEXT	Should read "Brine Down"... press plus or minus button until Brine Down is displayed on screen
11. Press NEXT	Should read "End"... press Next until End is displayed on screen
12. Press NEXT	Screen will go back to clock setting

Second Stage of Settings

Instructions	Description
1. Press NEXT and DOWN (or minus button) together	Should flash "Filtering or Softening"... press plus or minus button until Softening is displayed on screen
2. Press NEXT	Should flash " Fill"...Set at 9.5 lbs (or higher if iron count is high)
3. Press NEXT	Should flash "Backwash" ... Set between 8 and 12 minutes
4. Press NEXT	Should flash "Brine Draw Down"... Set for 60 minutes
5. Press NEXT	Should flash "Rinse"... Set for 4 to 6 minutes
6. Press NEXT	Should flash "Brine Down"... Set for 30 up to 60 minutes
7. Press NEXT	Should flash "Capacity"... (unit size) usually set for 30,000 grains
8. Press NEXT	Should flash "Auto"... press plus or minus buttons until Auto is displayed on screen
9. Press NEXT	Should flash "Normal"... press plus or minus buttons until Normal is displayed on screen
10. Press NEXT	Should flash "Relay" ... Set for "ON" (NOTE: This can be set in time or gallons, set for time)
11. Press NEXT	Screen Should flash... Set the time you want the ozone to come on, you this by adding all the cycles together. Add fill time, backwash time, brine draw time, and rinse time. You may need to put the unit through a manual regeneration to see each time, write them down and add them up. For example if you have 84 minutes in time before your ozone brine draw set it for 2 more minutes = 86 minutes
12. Press NEXT	Screen should flash... Set length of Ozone between 30 to 60 minutes
13. Press NEXT	Should flash "Call"...leave OFF
14. Press NEXT	Screen will go back to clock setting

- NOW ADJUST REGENS... EXAMPLE BAD WATER 10 Minute backwash (our example) and 60 minutes brine... now you may want it to go off every day...or every second day.... So follow this instruction
- Press...Next and PLUS (+)... at the same time. "hardness "NA" will flash
- Press... NEXT..."regen" day will flash.... Press the plus (+) or minus (-) for the day to regen... if bad water set it at 1... this means every day it will go off.
- Press, NEXT... back to clock setting.

NOTE: Your Blaster ozone draw time setting does not work on cycles, it works on time. This bases of design is simple, however do not set the relay too soon, it is better to be 2 to 3 minutes longer than actual cycles add up to. If you make it too short and the valve is in rinse the ozone will come on but won't shut off when brine draw starts. Lastly, when the unit has finished all the cycles and goes back to service mode the ozone will automatically shut off.

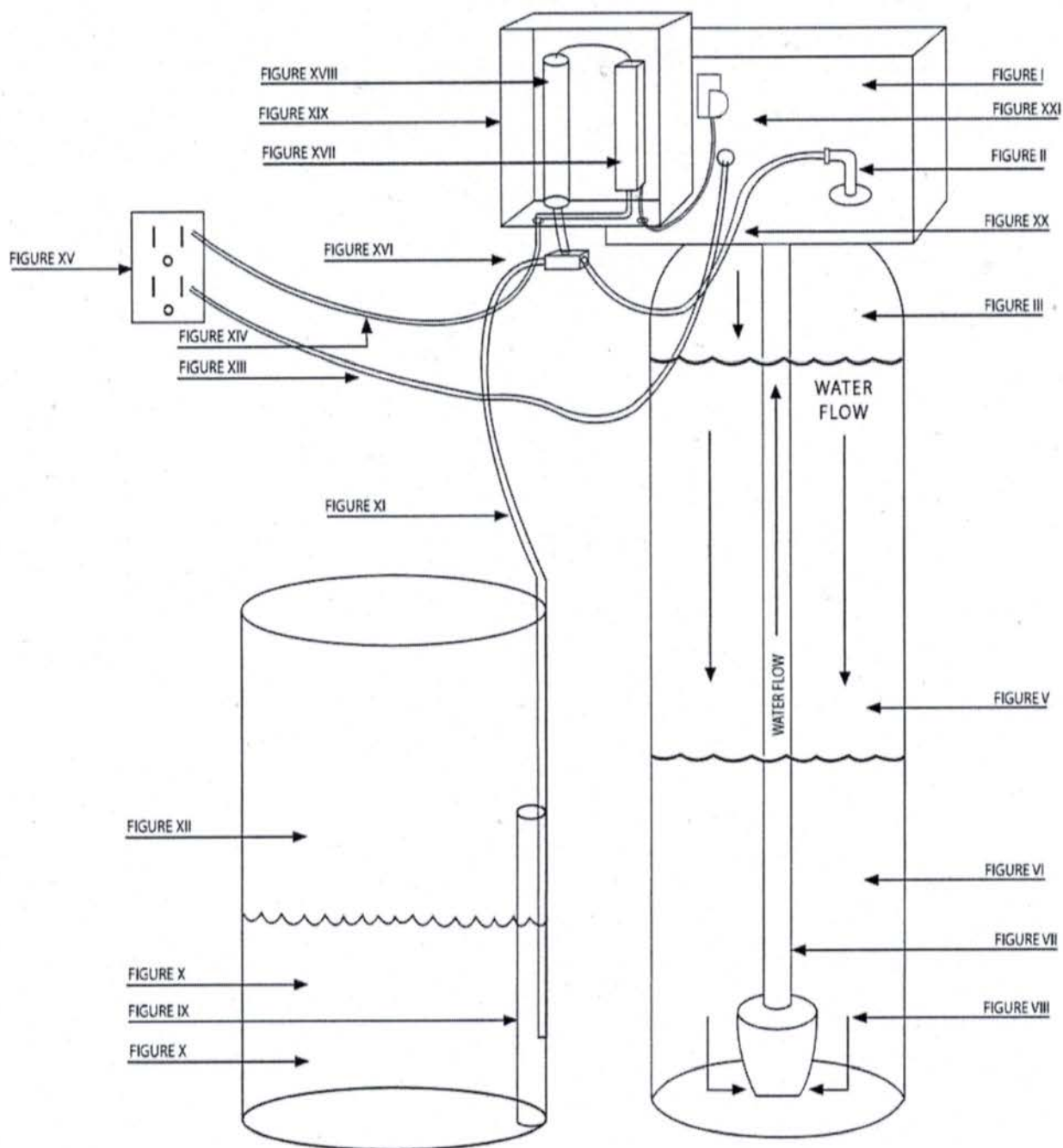


FIGURE LEGEND

Figure I WATER SOFTENER VALVE
 Figure II BRINE DRAW
 Figure III OZONE AIR POCKET
 Figure IV WATER FLOW
 Figure V WATER TANK
 Figure VI MEDIA
 Figure VII RISER TUBE
 Figure VIII WATER FLOW
 Figure IX FLOAT TUBE
 Figure X FLOAT

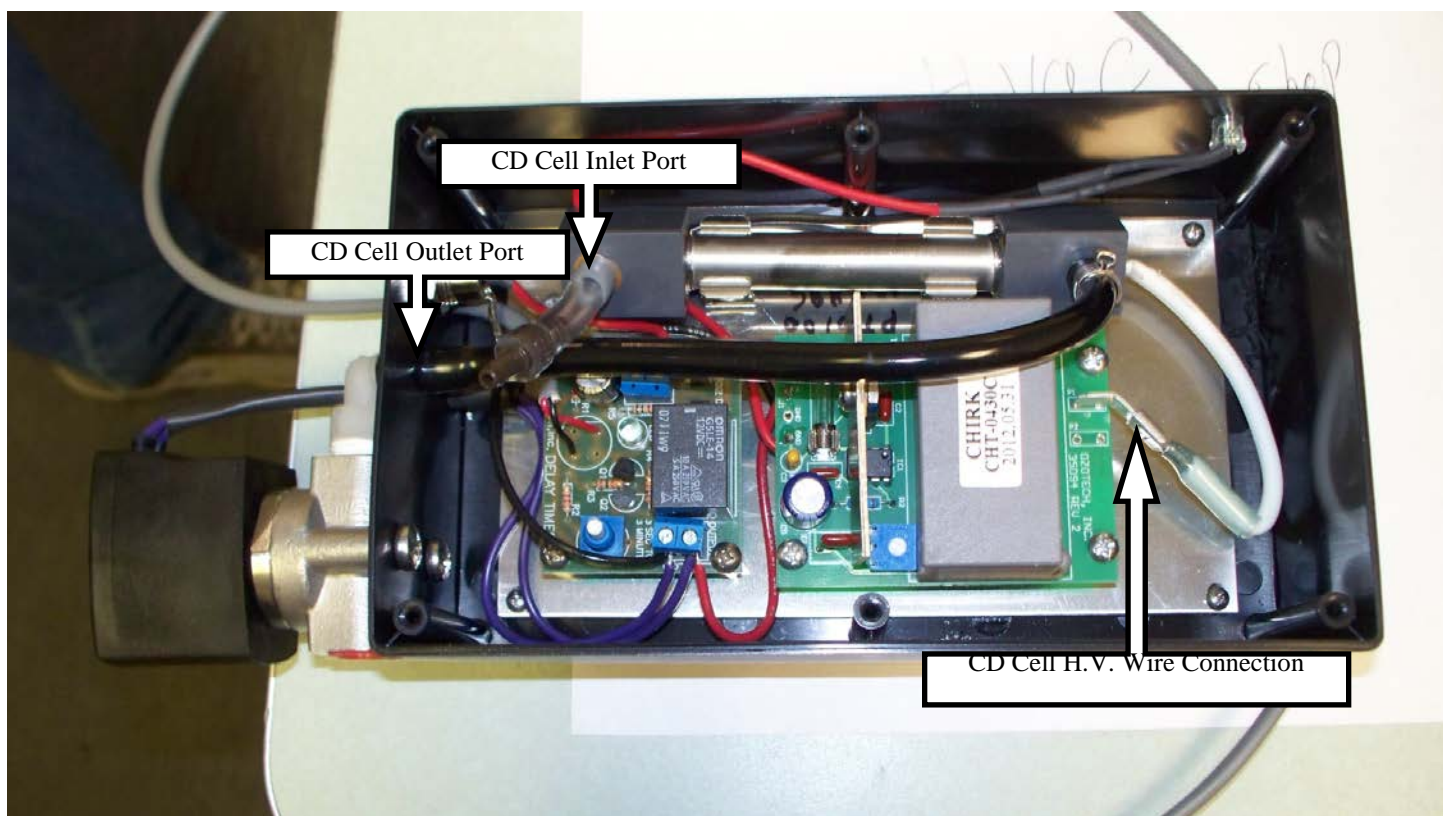
Figure XI TUBE
 Figure XII SALT BRINE TANK
 Figure XIII ELECTRICAL CORD
 Figure XIV ELECTRICAL CORD
 Figure XV ELECTRICAL RECEPTION
 Figure XVI SALENOID VALVE
 Figure XVII VACUUM SWITCH or DC RELAY
 Figure XVIII OZONE GENERATOR
 Figure XIX OZONE GENERATOR VALVE
 Figure XX BRINE TUBE

Figure XXI RELAY SWITCH IN SOFTENER



Example: Brine Line Installation

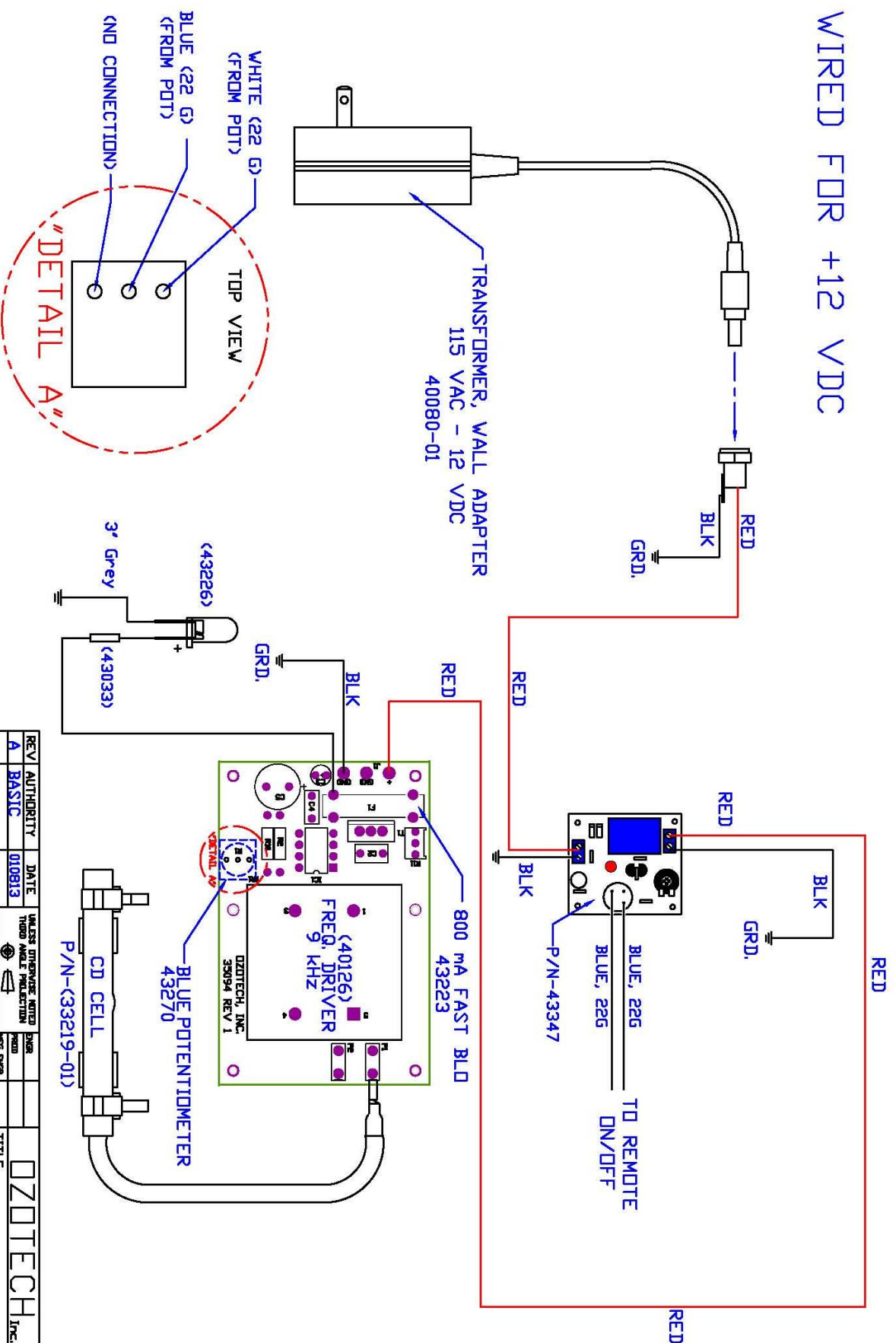




To Clean the CD Cell:

- 1.) Remove the CD Cell outlet tubing at the locations shown above.
- 2.) Disconnect the CD Cell H.V. wire from the frequency driver.
- 3.) Disconnect the CD Cell from its grounding clips and remove from generator.
- 4.) Run warm water through the inlet tubing until the water from the outlet tubing runs clear and free of particulates.
- 5.) Use compressed air to completely dry the interior and exterior of the CD Cell prior to re-installing.
- 6.) Re-install the CD Cell in reverse order of steps 1-4

WIRED FOR +12 VDC



NOTE: TUNE THE DRIVER BOARD TO 600mA
(ALL WIRES ARE 22 GAUGE)

[illegible]

Platinum Drawings and Part Numbers

Front Cover and Drive Assembly

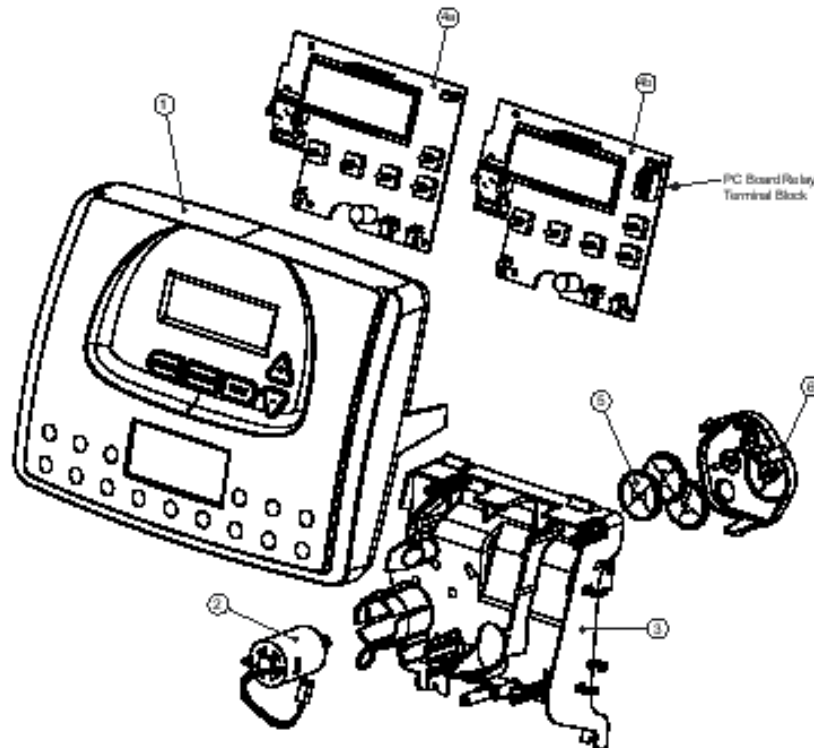
Drawing No.	Order No.	Description	Quantity
1	CLK V334201	WD1HS Front Cover Assembly	1
2	CLK V310701	WD1 Motor	1
3	CLK V310601	WD1 Drive Bracket & Spring Clip	1
4a	CLK V3353HS	WD1HS PC Board No Relay	1
4b	CLK V3353HR	WD1HR PC Board w/Relay	
5	CLK V3110	WD1 Drive Gear 12x36	3
6	CLK V3109	WD1 Drive Gear Cover	1
Not Shown	CLK V3186	WD1 AC ADAPTER 110V-12V	1
	CLK V3186EU	WD1 AC ADAPTER 220-240V-12V EU	
	CLK V3186UK	WD1 AC ADAPTER 220-240V-12V UK	
	CLK V318601	WD1 AC ADAPTER CORD ONLY	

Relay Specifications: To insure proper fit and correct operation the following relay and relay socket manufactured by Idec or the exact equivalent should be used.

	Idec Model and Description
Relay Socket	SH3B-05C 3 pole finger safe rail mount socket
Relay	RH2LB-U-AC12V 12vac, DPDT magnetic latching relay

The relay supplies 2 sets of dry contacts for user applications. The wiring of these contacts is application specific.

Wiring For Correct On/Off Operation	
PC Board Relay Terminal Block	Relay Socket
Top	#13
Center	#12 and #14
Bottom	#9

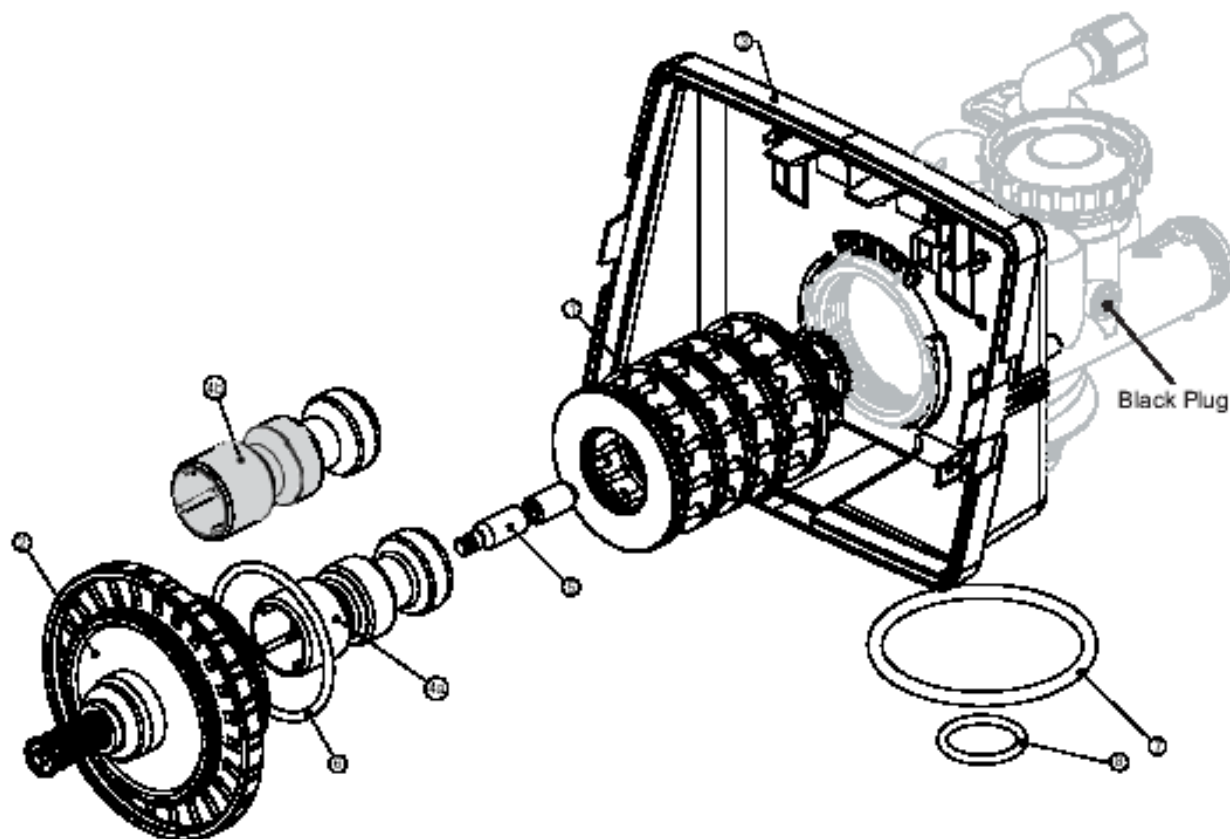


Drive Cap Assembly, Downflow Piston, Upflow Piston, Regenerant Piston and Spacer Stack Assembly

Drawing No.	Order No.	Description	Quantity
1	CLK V3005	WD1 Spacer Stack Assembly	1
2	CLK V3004	Drive Cap ASY	1
3	CLK V3343	WD1HS Drive Back Plate	1
4a	CLK V3011*	WD1 Piston Downflow ASY	1
4b	CLK V301101*	WD1 Piston Upflow ASY	
5	CLK V3174	WD1 Regenerant Piston	1
6	CLK V3135	O-ring 228	1
7	CLK V3180	O-ring 337	1
8	CLK V3105	O-ring 215 (Distributor Tube)	1
Not Shown	CLK V3001	WD1 Body ASY Downflow	1
	CLK V300102	WD1 Mixing Valve Body ASY	
	CLK V3001UP	WD1 Body ASY Upflow	
	CLK V300102UP	WD1 Mixing Valve Body Upflow ASY	

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

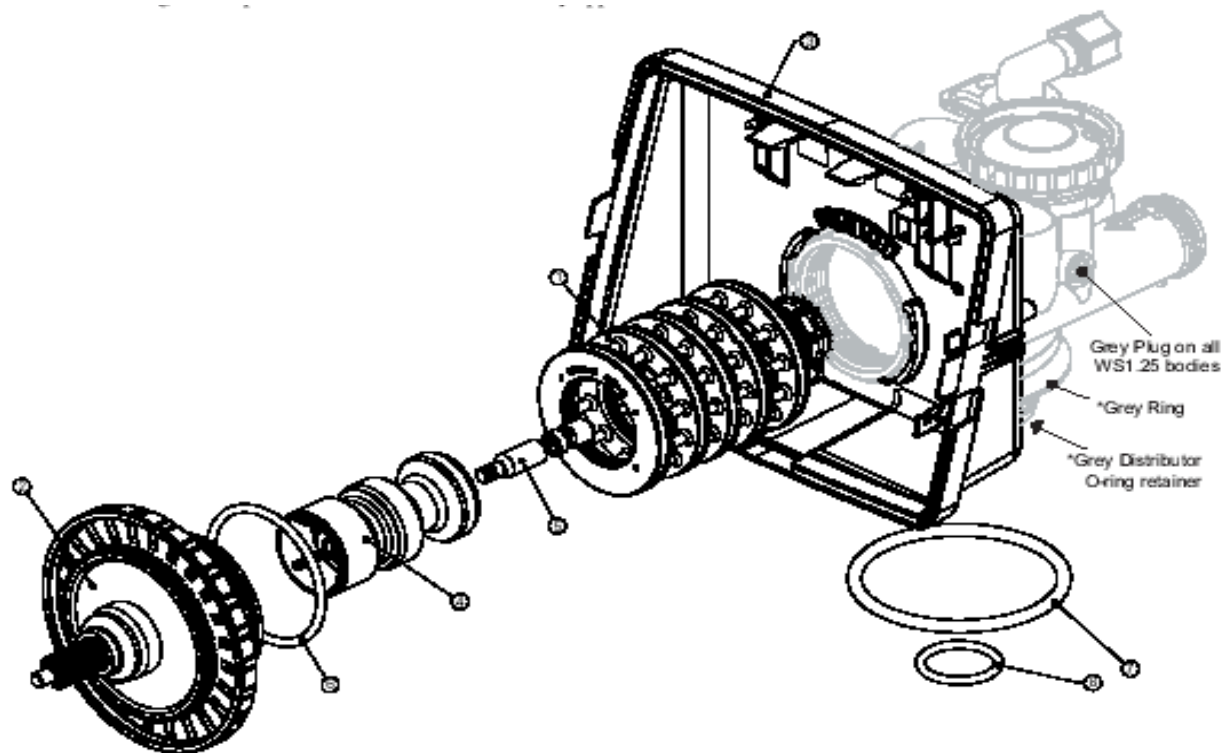
Note: The regenerant piston is not used in backwash only applications.



Drive Cap Assembly, Downflow Piston, Regenerant Piston and Spacer Stack Assembly

Drawing No.	Order No.	Description	Quantity
1	CLK V3430	WD1.5 Spacer Stack Assembly	1
2	CLK V3004	Drive Cap ASY	1
3	CLK V3343	WD1HS Drive Back Plate	1
4	CLK V3407	WD1.5 Piston Downflow ASY	1
5	CLK V3174	WD1 Regenerant Piston	1
6	CLK V3135	O-ring 228	1
7	CLK V3180	O-ring 337	1
8	CLK V3358	O-ring 219 (Distributor Tube Opening 1.32")	1
	CLK V3357	O-ring 218 (Distributor Tube Opening 32mm)	
Not Shown	CLK V3020	WD1.25 Body ASY Downflow (Distributor Tube Opening 1.32")	1
	CLK V302001	WD1.25 Mixing Valve Body Downflow ASY (Distributor Tube Opening 1.32")	
	CLK V302002	WD1.25 Body ASY Downflow (Distributor Tube Opening 32mm)	
	CLK V302003	WD1.25 Mixing Valve Body Downflow ASY (Distributor Tube Opening 32mm)	

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



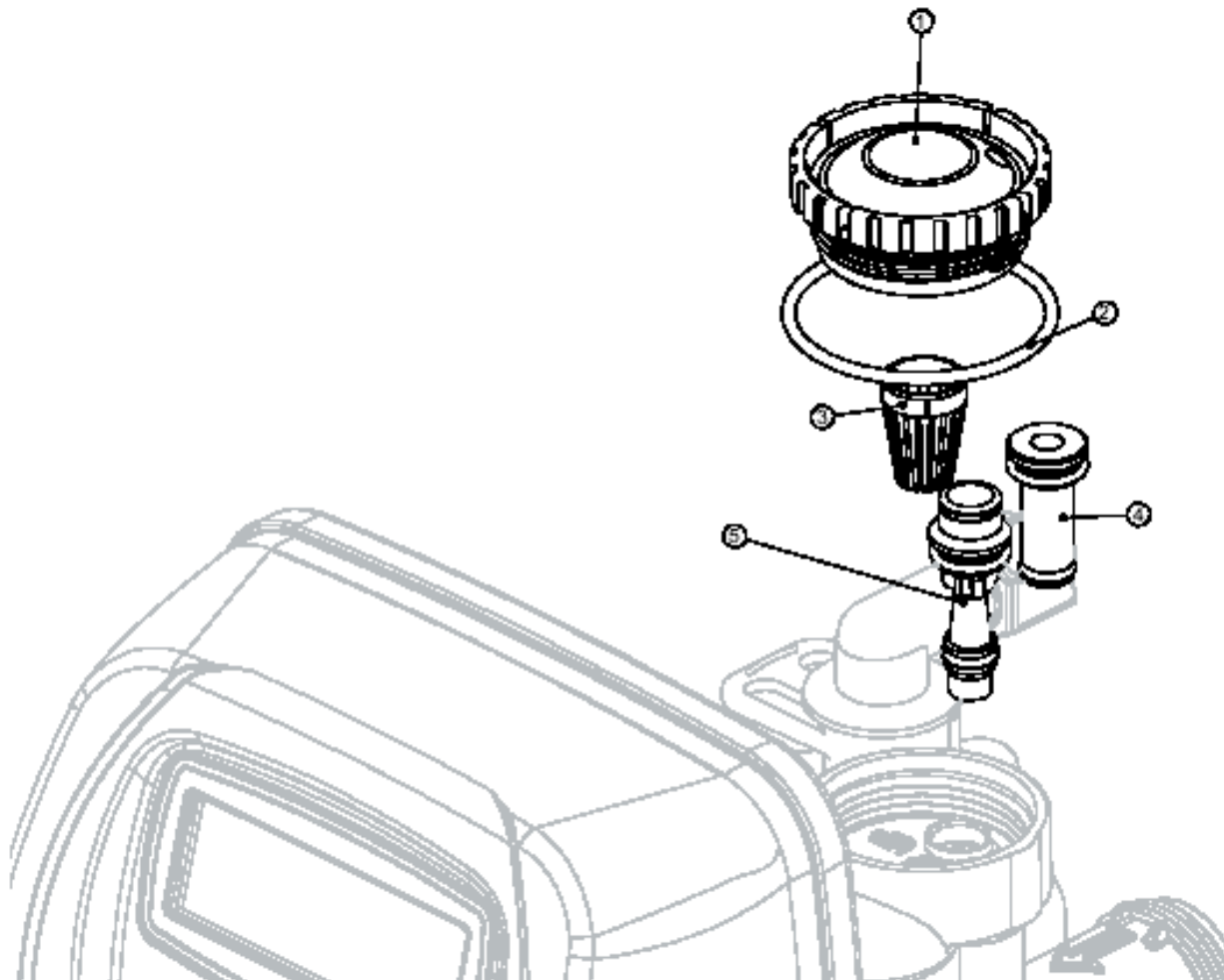
*Only for valves that have a 32mm Distributor Tube Opening

Injector Cap, Injector Screen, Injector, Plug and O-Ring

Drawing No.	Order No.	Description	Quantity
1	CLK V3176	Injector Cap	1
2	CLK V3152	O-ring 135	1
3	CLK V3177	Injector Screen	1
4	CLK V30101Z	WD1 Injector ASY Z Plug	1
5	CLK V30101A	WD1 INJECTOR ASY A BLACK	1
	CLK V30101B	WD1 INJECTOR ASY B BROWN	
	CLK V30101C	WD1 INJECTOR ASY C VIOLET	
	CLK V30101D	WD1 INJECTOR ASY D RED	
	CLK V30101E	WD1 INJECTOR ASY E WHITE	
	CLK V30101F	WD1 INJECTOR ASY F BLUE	
	CLK V30101G	WD1 INJECTOR ASY G YELLOW	
	CLK V30101H	WD1 INJECTOR ASY H GREEN	
	CLK V30101I	WD1 INJECTOR ASY I ORANGE	
	CLK V30101J	WD1 INJECTOR ASY J LIGHT BLUE	
	CLK V30101K	WD1 INJECTOR ASY K LIGHT GREEN	
Not Shown	CLK V3170	O-ring 011	*
Not Shown	CLK V3171	O-ring 013	*

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

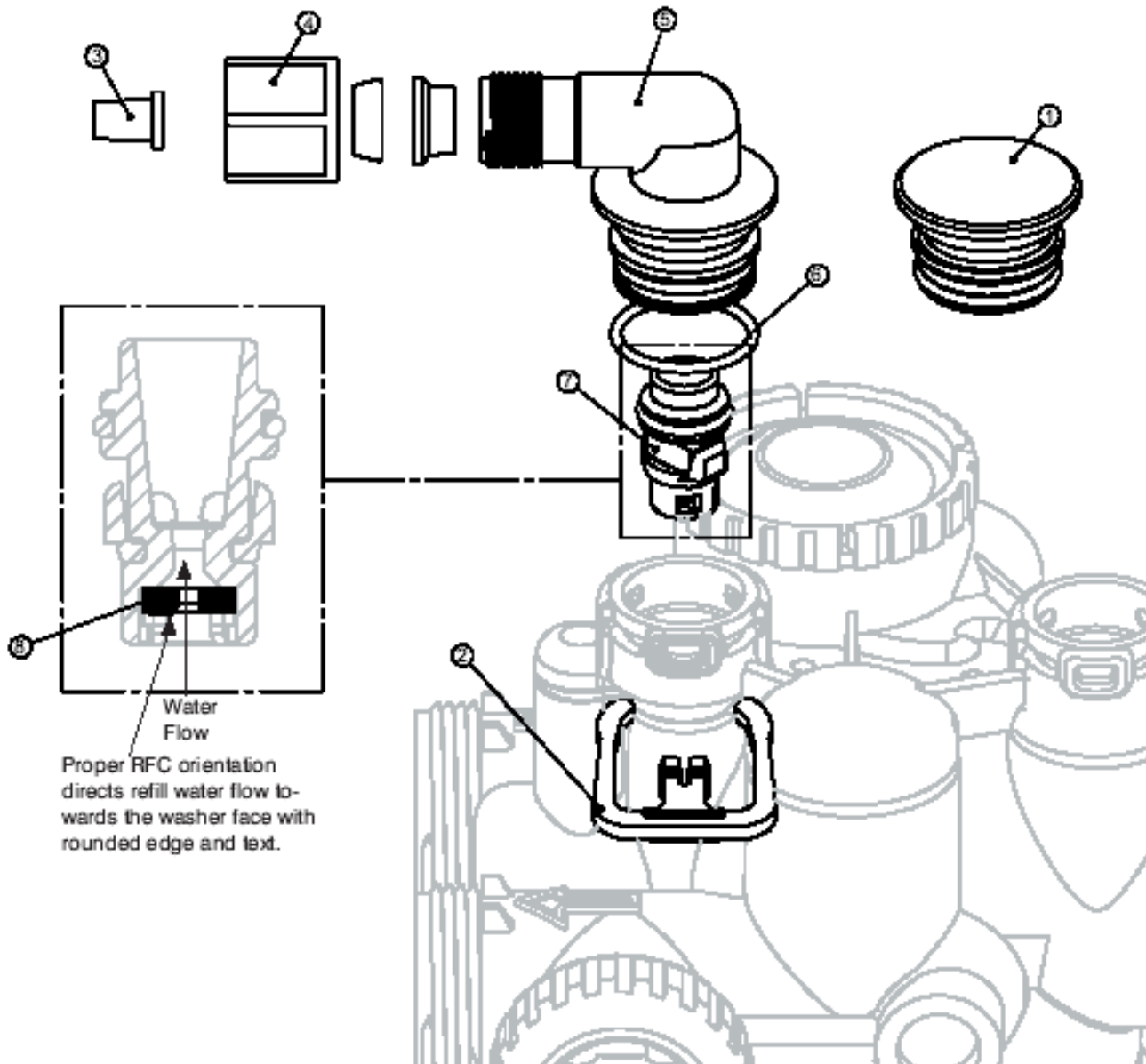
Note: For upflow position, injector is located in the up hole and injector plug is in the other hole. WS1HR&HS upflow bodies are identified by having the DN marking removed. For a filter that only backwashes, injector plugs are located in both holes.



Refill Flow Control Assembly and Refill Port Plug

Drawing No.	Order No.	Description	Quantity
1	CLK V319501	WD1 Refill Port Plug ASY	This part is required for backwash only systems
2	CLK H4615	Elbow Locking Clip	1
3	CLK JCPP6	Polytube insert 3/8"	1
4	CLK JCPG6PBLK	Nut 3/8"	1
5	CLK H4613	Elbow Cap 3/8"	1
6	CLK V3163	O-ring 019	1
7	CLK V316501*	WD1 RFC Retainer ASY	1
8	CLK V3182	WD1 RFC	1
Not Shown	CLK H4650	Elbow 1/2" with nut and insert	Option

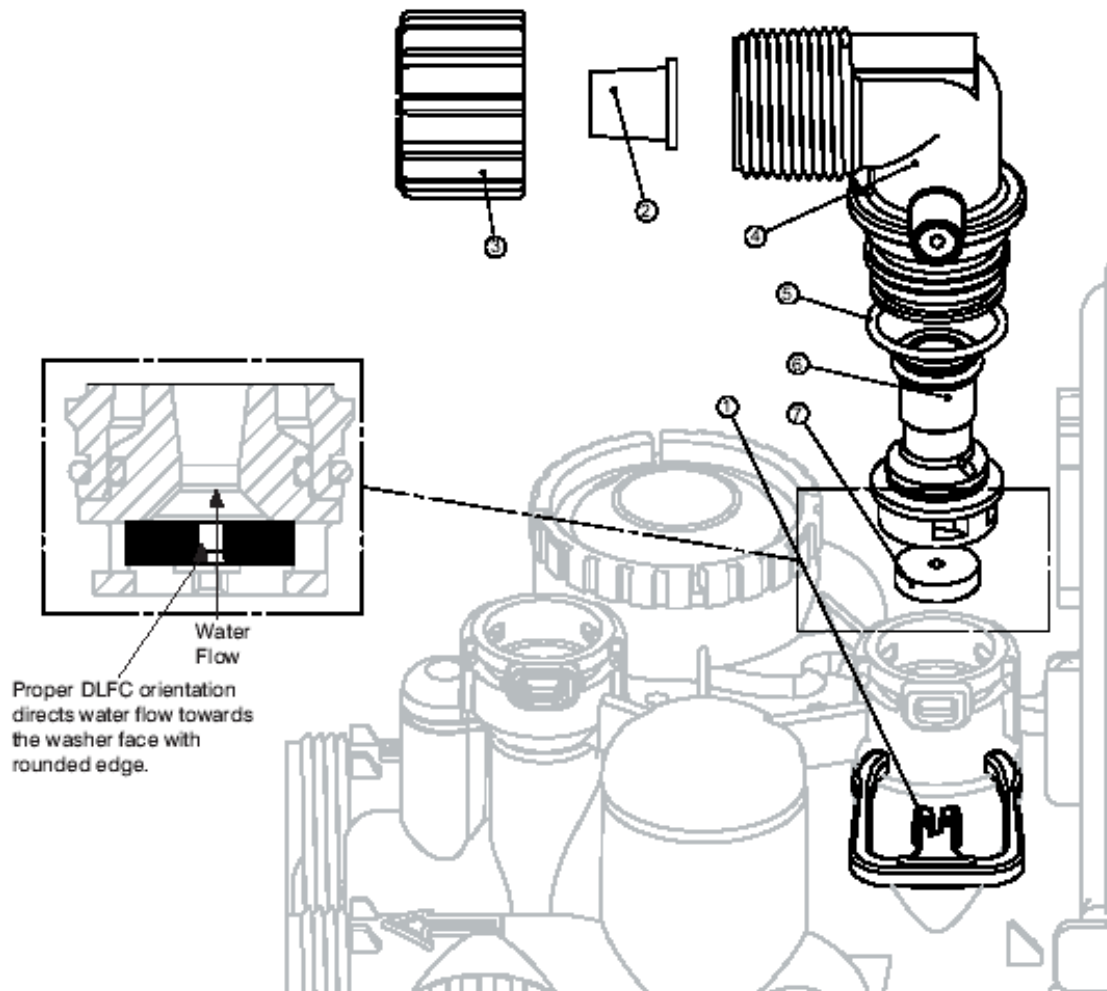
*Assembly includes WD1 RFC.



Drain Line – 3/4"

Drawing No.	Order No.	Description	Quantity
1	CLK H4615	Elbow Locking Clip	1
2	CLK PKP10TS8BU	Polytube insert 5/8	Option
3	CLK V3192	WD1 Nut 3/4 Drain Elbow	Option
4	CLK V315801	WD1 Drain Elbow 3/4 Male ASY	1
5	CLK V3163	O-ring 019	1
6	CLK V315901	WD1 DLFC Retainer ASY	1
7	CLK V3162007	WD1 DLFC 0.7 gpm for 3/4	One DLFC must be used if 3/4" fitting is used
	CLK V3162010	WD1 DLFC 1.0 gpm for 3/4	
	CLK V3162013	WD1 DLFC 1.3 gpm for 3/4	
	CLK V3162017	WD1 DLFC 1.7 gpm for 3/4	
	CLK V3162022	WD1 DLFC 2.2 gpm for 3/4	
	CLK V3162027	WD1 DLFC 2.7 gpm for 3/4	
	CLK V3162032	WD1 DLFC 3.2 gpm for 3/4	
	CLK V3162042	WD1 DLFC 4.2 gpm for 3/4	
	CLK V3162053	WD1 DLFC 5.3 gpm for 3/4	
	CLK V3162065	WD1 DLFC 6.5 gpm for 3/4	
	CLK V3162075	WD1 DLFC 7.5 gpm for 3/4	
	CLK V3162090	WD1 DLFC 9.0 gpm for 3/4	
	CLK V3162100	WD1 DLFC 10.0 gpm for 3/4	

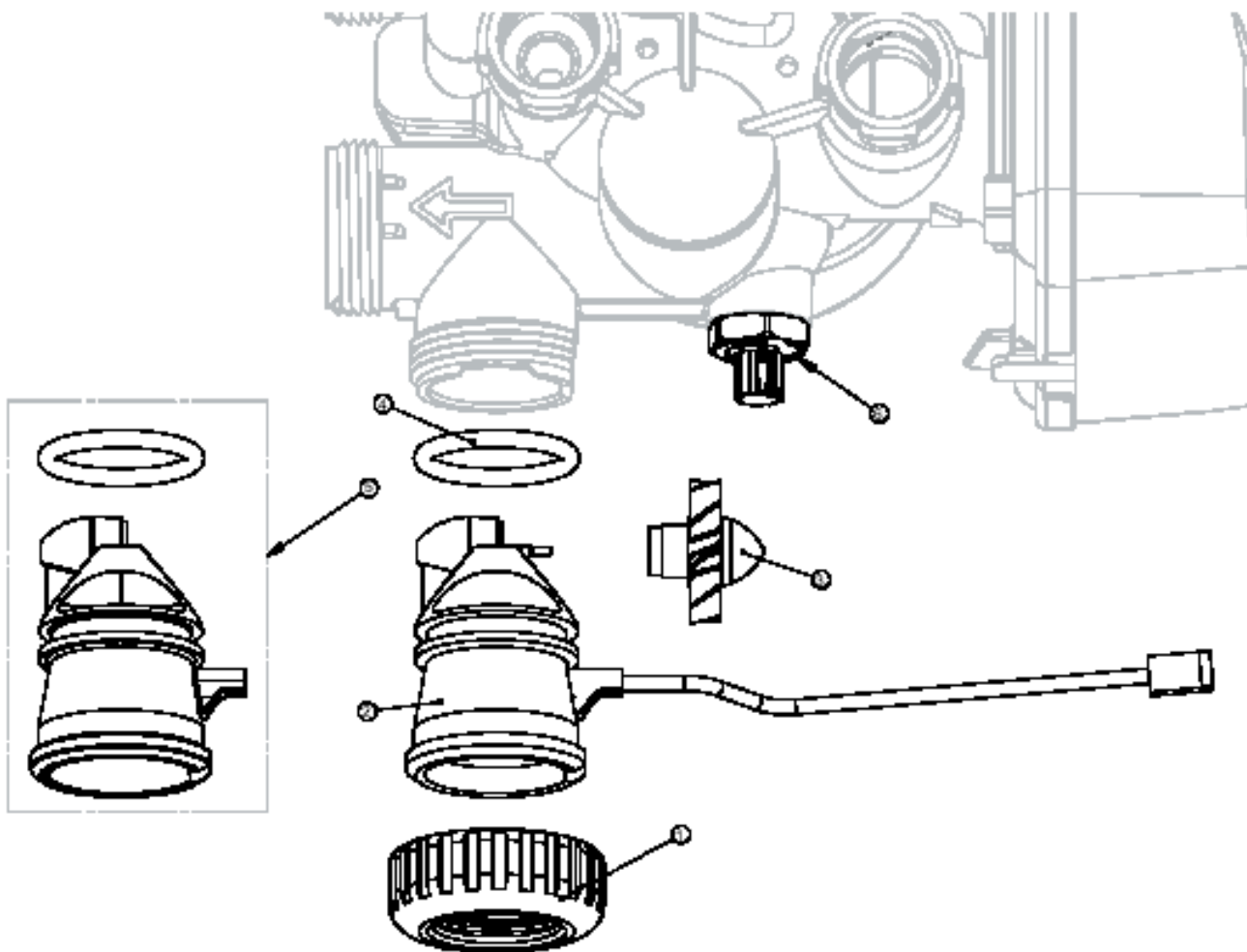
Valves are shipped without drain line . ow control (DLFC) - install DLFC before using. Valves are shipped without 3/4" nut for drain elbow (polytube installation only) and 5/8" polytube insert (polytube installation only).



Water Meter, Meter Plug and Mixing Valve

Drawing No.	Order No.	Description	Quantity
1	CLK V3151	WD1 Nut 1" QC	1
2	CLK V3003*	WD1 Meter ASY	1
3	CLK V311801	WD1 Turbine ASY	1
4	CLK V3105	O-ring 215	1
5	CLK V300301	WD1 Meter Plug ASY	1
6	CLK V3013	Mixing Valve	Optional

*Order number V3003 includes CLK V311801 WS1 Turbine ASY and V3105 O-ring 215.

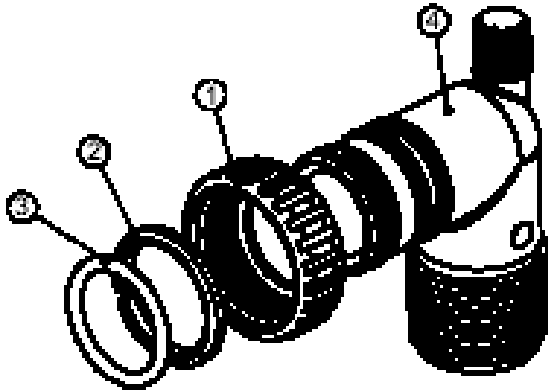


Installation Fitting Assemblies

Order No: **CLK V3007**

Description: **WD1 Fitting 1" PVC Male NPT Elbow Assembly**

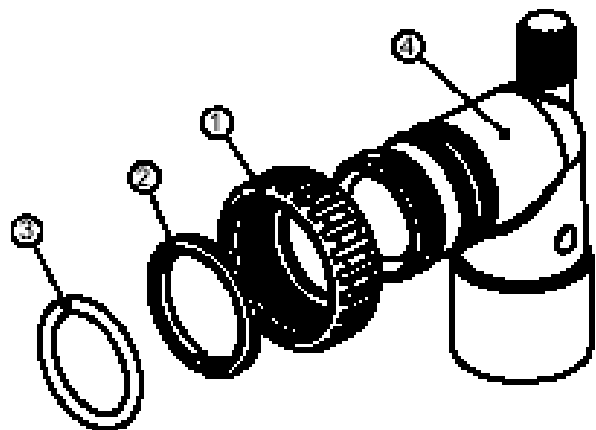
Drawing No.	Order No.	Description	Quantity
1	CLK V3151	WD1 Nut 1" Quick Connect	2
2	CLK V3150	WD1 Split Ring	2
3	CLK V3105	O-Ring 215	2
4	CLK V3149	WD1 Fitting 1 PVC Male NPT Elbow	2



Order No: **CLK V300701**

Description: **WD1 Fitting ¾" & 1" PVC Solvent 90° ASY**

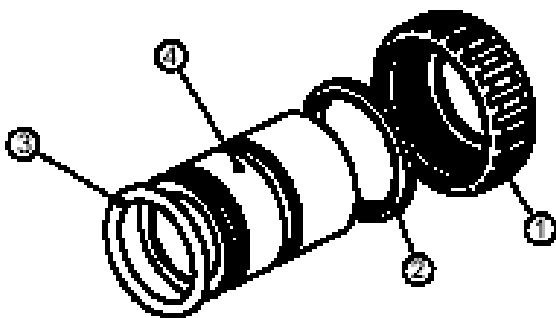
Drawing No.	Order No.	Description	Quantity
1	CLK V3151	WD1 Nut 1" Quick Connect	2
2	CLK V3150	WD1 Split Ring	2
3	CLK V3105	O-Ring 215	2
4	CLK V3189	WD1 Fitting ¾&1 PVC Solvent 90	2



Order No: **CLK V300702**

Description: **WD1 Fitting 1" Brass Sweat Assembly**

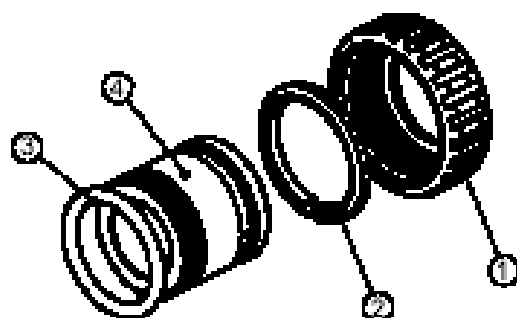
Drawing No.	Order No.	Description	Quantity
1	CLK V3151	WD1 Nut 1" Quick Connect	2
2	CLK V3150	WD1 Split Ring	2
3	CLK V3105	O-Ring 215	2
4	CLK V3188	WD1 Fitting 1 Brass Sweat Assy	2



Order No: **CLK V300703**

Description: **WD1 Fitting ¾" Brass Sweat Assembly**

Drawing No.	Order No.	Description	Quantity
1	CLK V3151	WD1 Nut 1" Quick Connect	2
2	CLK V3150	WD1 Split Ring	2
3	CLK V3105	O-Ring 215	2
4	CLK V318801	WD1 Fitting ¾ Brass Sweat	2

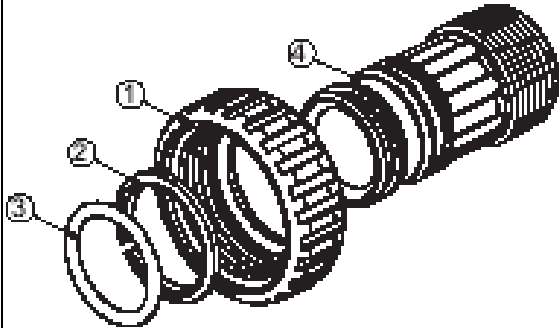


Installation Fitting Assemblies

Order No: **CLK V300704**

Description: **WD1 Fitting 1" Plastic Male NPT Assembly**

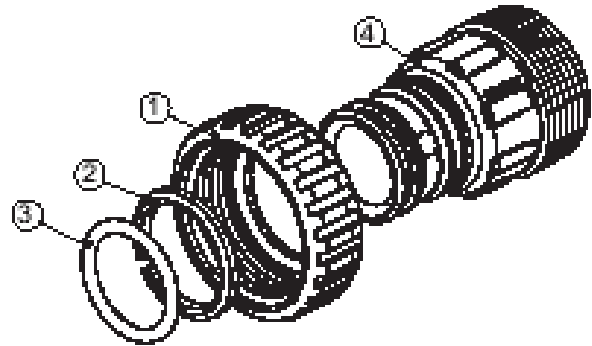
Drawing No.	Order No.	Description	Quantity
1	CLK V3151	WD1 Nut 1" Quick Connect	2
2	CLK V3150	WD1 Split Ring	2
3	CLK V3105	O-Ring 215	2
4	CLK V3164	WD1 Fitting 1" Plastic Male NPT	2



Order No: **CLK V300705**

Description: **WD1 Fitting 1-1/4" Plastic Male Assembly**

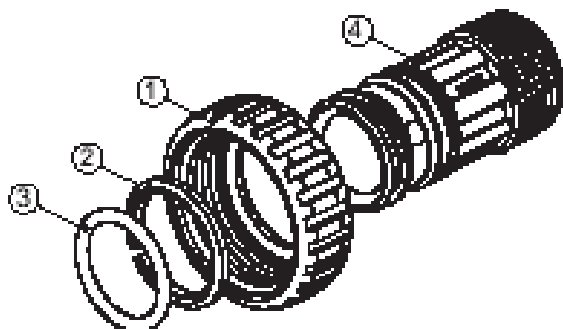
Drawing No.	Order No.	Description	Quantity
1	CLK V3151	WD1 Nut 1" Quick Connect	2
2	CLK V3150	WD1 Split Ring	2
3	CLK V3105	O-Ring 215	2
4	CLK V3317	WD1 Fitting 1- 1/4 Plastic Male NPT	2



Order No: **CLK V300704**

Description: **WD1 Fitting 1" Plastic Male NPT Assembly**

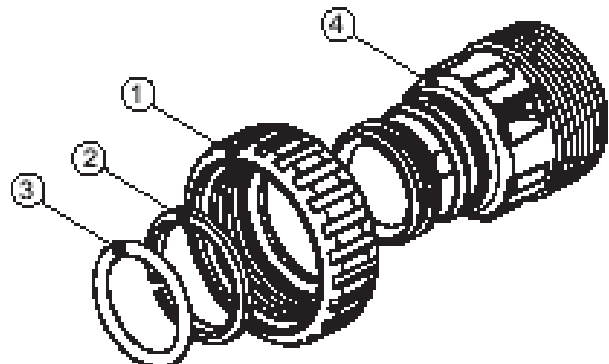
Drawing No.	Order No.	Description	Quantity
1	CLK V3151	WD1 Nut 1" Quick Connect	2
2	CLK V3150	WD1 Split Ring	2
3	CLK V3105	O-Ring 215	2
4	CLK V3164	WD1 Fitting 1" Plastic Male NPT	2



Order No: **CLK V300705**

Description: **WD1 Fitting 1-1/4" Plastic Male Assembly**

Drawing No.	Order No.	Description	Quantity
1	CLK V3151	WD1 Nut 1" Quick Connect	2
2	CLK V3150	WD1 Split Ring	2
3	CLK V3105	O-Ring 215	2
4	CLK V3317	WD1 Fitting 1- 1/4 Plastic Male NPT	2

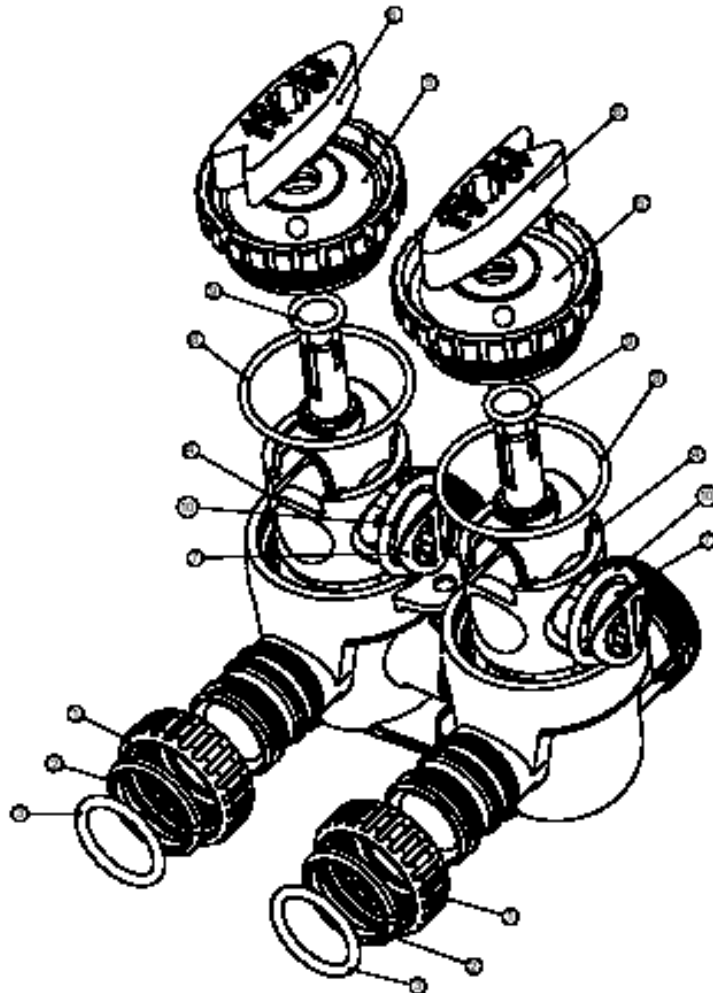


Bypass Valve

Drawing No.	Order No.	Description	Quantity
1	CLK V3151	WD1 Nut 1" Quick Connect	2
2	CLK V3150	WD1 Split Ring	2
3	CLK V3105	O-Ring 215	2
4	CLK V3145	WD1 Bypass 1" Rotor	2
5	CLK V3146	WD1 Bypass Cap	2
6	CLK V3147	WD1 Bypass Handle	2
7	CLK V3148	WD1 Bypass Rotor Seal Retainer	2
8	CLK V3152	O-ring 135	2
9	CLK V3155	O-ring 112	2
10	CLK V3156	O-ring 214	2

(Not Shown) Order No. CLK V319101, Description: WS1 Bypass Vertical Adapter Assembly

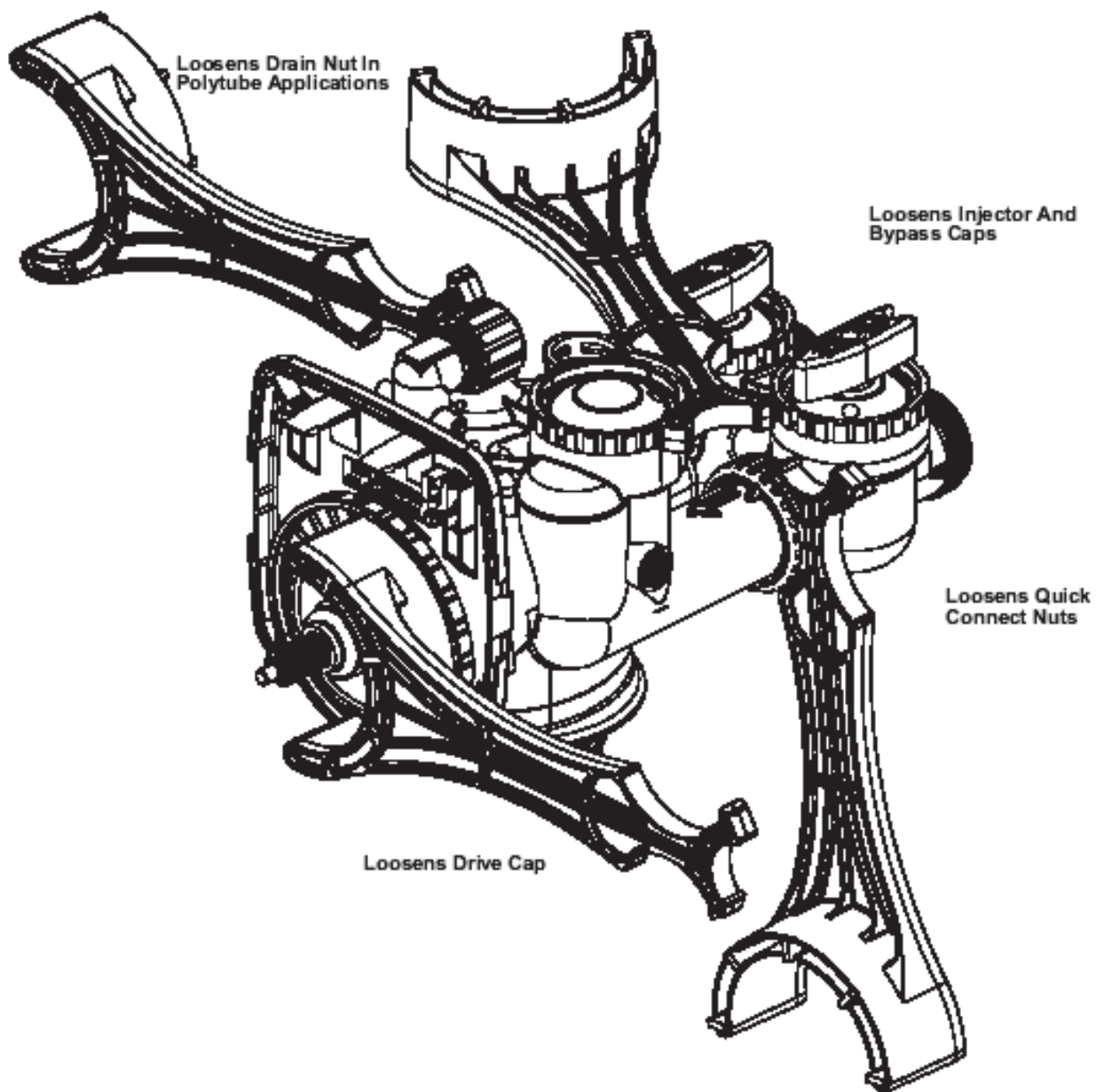
Order No.	Description	Quantity
CLK V3151	WD1 Nut 1" Quick Connect	2
CLK V3150	WD1 Split Ring	2
CLK V3105	O-Ring 215	2
CLK V3191	WD1 Bypass Vertical Adapter	2



WS1 Wrench

(Order No. CLK V319301)

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.



Trouble Shooting

Problem	Follow up	Action
Sulphur coming through	Check the amount of sulphur you are trying to remove...it may be too much to remove or low PH	Set to everyday regeneration, 60 min draw
Iron coming through	Same as above, ph of 6.8 or lower may require a ph filter	Same as above
Unit regenerating in afternoon	Settings are incorrect	Go to unit set for 2 am setting
Not removing sulphur or iron	Listen to back wash	<ol style="list-style-type: none"> 1) Check for obstruction in backwash, Check flow restrictor, Regenerate more often 2) Check the ozone generator is working 3) Clean the ozone tube

Overview

Most service should be around the following:

- 1) Ozone is working
- 2) Brine draw is working...sucking
- 3) Board is set right
- 4) Increase the ozone draw, backwash etc.
- 5) Check chemistry of water
- 6) PH should be 6.8 or higher
- 7) Obstruction in drain line
- 8) Did not install the back flow check valve
- 9) Setting for ozone to come properly programmed
- 10) By Pass is not open
- 11) Too much iron or sulphur for unit

Error board flashing see manual for setting.

Troubleshooting

TC control valves do not have meters so shaded areas are not applicable for TC control valves

Problem	Possible Cause	Solution
1. No Display on PC Board	a. No power at electric outlet	a. Repair outlet or use working outlet
	b. Control valve Power Adapter not plugged into outlet or power cord end not connected to PC board connection	b. Plug Power Adapter into outlet or connect power cord end to PC Board connection
	c. Improper power supply	c. Verify proper voltage is being delivered to PC Board
	d. Defective Power Adapter	d. Replace Power Adapter
	e. Defective PC Board	e. Replace PC Board
2. PC Board does not display correct time of day	a. Power Adapter plugged into electric outlet controlled by light switch	a. Use uninterrupted outlet
	b. Tripped breaker switch and/or tripped GFI	b. Reset breaker switch and/ or GFI switch
	c. Power outage	c. Reset time of day. If PC Board has battery back up present the battery may be depleted. See Front Cover and Drive Assembly drawing for instructions.
	d. Defective PC Board	d. Replace PC Board
3. Display does not indicate that water is flowing. Refer to user instructions for how the display indicates water is flowing	a. Bypass valve in bypass position	a. Turn bypass handles to place bypass in service position
	b. Meter is not connected to meter connection on PC Board	b. Connect meter to three pin connection labeled METER on PC Board
	c. Restricted/ stalled meter turbine	c. Remove meter and check for rotation or foreign material
	d. Meter wire not installed securely into three pin connector	d. Verify meter cable wires are installed securely into three pin connector labeled METER
	e. Defective meter	e. Replace meter
	f. Defective PC Board	f. Replace PC Board
4. Control valve regenerates at wrong time of day	a. Power outage	a. Reset time of day. If PC Board has battery back up present the battery may be depleted. See Front Cover and Drive Assembly drawing for instructions.
	b. Time of day not set correctly	b. Reset to correct time of day
	c. Time of regeneration set incorrectly	c. Reset regeneration time
	d. Control valve set at "on 0" (immediate regeneration)	d. Check programming setting and reset to NORMAL (for a delayed regen time)
	e. Control valve set at "NORMAL + on 0" (delayed and/ or immediate)	e. Check programming setting and reset to NORMAL (for a delayed regen time)
5. Time of day flashes on and off	a. Power outage	a. Reset time of day. If PC Board has battery back up present the battery may be depleted. See Front Cover and Drive Assembly drawing for instructions.
6. Control valve does not regenerate automatically when the correct button(s) is depressed and held. For TC valves the buttons are ▲&▼. For all other valves the button is REGEN	a. Broken drive gear or drive cap assembly	a. Replace drive gear or drive cap assembly
	b. Broken Piston Rod	b. Replace piston rod
	c. Defective PC Board	c. Defective PC Board
7. Control valve does not regenerate automatically but does when the correct button(s) is depressed and held. For TC valves the buttons are ▲&▼. For all other valves the button is REGEN	a. Bypass valve in bypass position	a. Turn bypass handles to place bypass in service position
	b. Meter is not connected to meter connection on PC Board	b. Connect meter to three pin connection labeled METER on PC Board
	c. Restricted/ stalled meter turbine	c. Remove meter and check for rotation or foreign material
	d. Incorrect programming	d. Check for programming error
	e. Meter wire not installed securely into three pin connector	e. Verify meter cable wires are installed securely into three pin connector labeled METER
	f. Defective meter	f. Replace meter
	g. Defective PC Board	g. Replace PC Board

Problem	Possible Cause	Solution
8. Hard or untreated water is being delivered	a. Bypass valve is open or faulty	a. Fully close bypass valve or replace
	b. Media is exhausted due to high water usage	b. Check program settings or diagnostics for abnormal water usage
	c. Meter not registering	c. Remove meter and check for rotation or foreign material
	d. Water quality fluctuation	d. Test water and adjust program values accordingly
	e. No regenerant or low level of regenerant in regenerant tank	e. Add proper regenerant to tank
	f. Control fails to draw in regenerant	f. Refer to Trouble Shooting Guide number 12
	g. Insufficient regenerant level in regenerant tank	g. Check refill setting in programming. Check refill flow control for restrictions or debris and clean or replace
	h. Damaged seal/stack assembly	h. Replace seal/stack assembly
	i. Control valve body type and piston type mix matched	i. Verify proper control valve body type and piston type match
	j. Fouled media bed	j. Replace media bed
9. Control valve uses too much regenerant	a. Improper refill setting	a. Check refill setting
	b. Improper program settings	b. Check program setting to make sure they are specific to the water quality and application needs
	c. Control valve regenerates frequently	c. Check for leaking fixtures that may be exhausting capacity or system is undersized
10. Residual regenerant being delivered to service	a. Low water pressure	a. Check incoming water pressure – water pressure must remain at minimum of 25 psi
	b. Incorrect injector size	b. Replace injector with correct size for the application
	c. Restricted drain line	c. Check drain line for restrictions or debris and clean
11. Excessive water in regenerant tank	a. Improper program settings	a. Check refill setting
	b. Plugged injector	b. Remove injector and clean or replace
	c. Drive cap assembly not tightened in properly	c. Re-tighten the drive cap assembly
	d. Damaged seal/ stack assembly	d. Replace seal/ stack
	e. Restricted or kinked drain line	e. Check drain line for restrictions or debris and or un-kink drain line
	f. Plugged backwash flow controller	f. Remove backwash flow controller and clean or replace
	g. Missing refill flow controller	g. Replace refill flow controller
12. Control valve fails to draw in regenerant	a. Injector is plugged	a. Remove injector and clean or replace
	b. Faulty regenerant piston	b. Replace regenerant piston
	c. Regenerant line connection leak	c. Inspect regenerant line for air leak
	d. Drain line restriction or debris cause excess back pressure	d. Inspect drain line and clean to correct restriction
	e. Drain line too long or too high	e. Shorten length and or height
	f. Low water pressure	f. Check incoming water pressure – water pressure must remain at minimum of 25 psi

Problem	Possible Cause	Solution
13. Water running to drain	a. Power outage during regeneration	a. Upon power being restored control will finish the remaining regeneration time. Reset time of day. If PC Board has battery back up present the battery may be depleted. See Front Cover and Drive Assembly drawing for instructions.
	b. Damaged seal/ stack assembly	b. Replace seal/ stack assembly
	c. Piston assembly failure	c. Replace piston assembly
	d. Drive cap assembly not tightened in properly	d. Re-tighten the drive cap assembly
14. E1, Err – 1001, Err – 101 = Control unable to sense motor movement	a. Motor not inserted full to engage pinion, motor wires broken or disconnected	a. Disconnect power, make sure motor is fully engaged, check for broken wires, make sure two pin connector on motor is connected to the two pin connection on the PC Board labeled MOTOR. Press NEXT and REGEN buttons for 3 seconds to resynchronize software with piston position or disconnect power supply from PC Board for 5 seconds and then reconnect.
	b. PC Board not properly snapped into drive bracket	b. Properly snap PC Board into drive bracket and then Press NEXT and REGEN buttons for 3 seconds to resynchronize software with piston position or disconnect power supply from PC Board for 5 seconds and then reconnect.
	c. Missing reduction gears	c. Replace missing gears
15. E2, Err – 1002, Err – 102 = Control valve motor ran too short and was unable to find the next cycle position and stalled	a. Foreign material is lodged in control valve	a. Open up control valve and pull out piston assembly and seal/ stack assembly for inspection. Press NEXT and REGEN buttons for 3 seconds to resynchronize software with piston position or disconnect power supply from PC Board for 5 seconds and then reconnect.
	b. Mechanical binding	b. Check piston and seal/ stack assembly, check reduction gears, check drive bracket and main drive gear interface. Press NEXT and REGEN buttons for 3 seconds to resynchronize software with piston position or disconnect power supply from PC Board for 5 seconds and then reconnect.
	c. Main drive gear too tight	c. Loosen main drive gear. Press NEXT and REGEN buttons for 3 seconds to resynchronize software with piston position or disconnect power supply from PC Board for 5 seconds and then reconnect.
	d. Improper voltage being delivered to PC Board	d. Verify that proper voltage is being supplied. Press NEXT and REGEN buttons for 3 seconds to resynchronize software with piston position or disconnect power supply from PC Board for 5 seconds and then reconnect.

Problem	Possible Cause	Solution
16. E3, Err – 1003, Err – 103 = Control valve motor ran too long and was unable to find the next cycle position	a. Motor failure during a regeneration	a. Check motor connections then Press NEXT and REGEN buttons for 3 s seconds to resynchronize software with piston position or disconnect power supply from PC Board for 5 seconds and then reconnect.
	b. Foreign matter built up on piston and stack assemblies creating friction and drag enough to time out motor	b. Replace piston and stack assemblies. Press NEXT and REGEN buttons for 3 seconds to resynchronize software with piston position or disconnect power supply from PC Board for 5 seconds and then reconnect.
	c. Drive bracket not snapped in properly and out enough that reduction gears and drive gear do not interface	c. Snap drive bracket in properly then Press NEXT and REGEN buttons for 3 seconds to resynchronize software with piston position or disconnect power supply from PC Board for 5 seconds and then reconnect.
17. E4, Err – 1004, Err – 104 = Control valve motor ran too long and timed out trying to reach home position	a. Drive bracket not snapped in properly and out enough that reduction gears and drive gear do not interface	a. Snap drive bracket in properly then Press NEXT and REGEN buttons for 3 seconds to resynchronize software with piston position or disconnect power supply from PC Board for 5 seconds and then reconnect.
18. Err -1006, Err – 106, Err - 116 = MAV/ SEPS/ NHBP/ AUX MAV valve motor ran too long and unable to find the proper park position Motorized Alternating Valve = MAV Separate Source = SEPS No Hard Water Bypass = NHBP Auxiliary MAV = AUX MAV	a. Control valve programmed for ALT A or b, nHbP, SEPS, or AUX MAV with out having a MAV or NHBP valve attached to operate that function	a. Press NEXT and REGEN buttons for 3 seconds to resynchronize software with piston position or disconnect power supply from PC Board for 5 seconds and then reconnect. Then re-program valve to proper setting
	b. MAV/ NHBP motor wire not connected to PC Board	b. Connect MAV/ NHBP motor to PC Board two pin connection labeled DRIVE. Press NEXT and REGEN buttons for 3 seconds to resynchronize software with piston position or disconnect power supply from PC Board for 5 seconds and then reconnect.
	c. MAV/ NHBP motor not fully engaged with reduction gears	c. Properly insert motor into casing, do not force into casing Press NEXT and REGEN buttons for 3 seconds to resynchronize software with piston position or disconnect power supply from PC Board for 5 seconds and then reconnect.
	d. Foreign matter built up on piston and stack assemblies creating friction and drag enough to time out motor	d. Replace piston and stack assemblies. Press NEXT and REGEN buttons for 3 seconds to resynchronize software with piston position or disconnect power supply from PC Board for 5 seconds and then reconnect.
19. Err – 1007, Err – 107, Err - 117 = MAV/ SEPS/ NHBP/ AUX MAV valve motor ran too short (stalled) while looking for proper park position Motorized Alternating Valve = MAV Separate Source = SEPS No Hard Water Bypass = NHBP Auxiliary MAV = AUX MAV	a. Foreign material is lodged in MAV/ NHBP valve	a. Open up MAV/ NHBP valve and check piston and seal/ stack assembly for foreign material. Press NEXT and REGEN buttons for 3 seconds to resynchronize software with piston position or disconnect power supply from PC Board for 5 seconds and then reconnect.
	b. Mechanical binding	b. Check piston and seal/ stack assembly, check reduction gears, drive gear interface, and check MAV/ NHBP black drive pinion on motor for being jammed into motor body. Press NEXT and REGEN buttons for 3 seconds to resynchronize software with piston position or disconnect power supply from PC Board for 5 seconds and then reconnect.