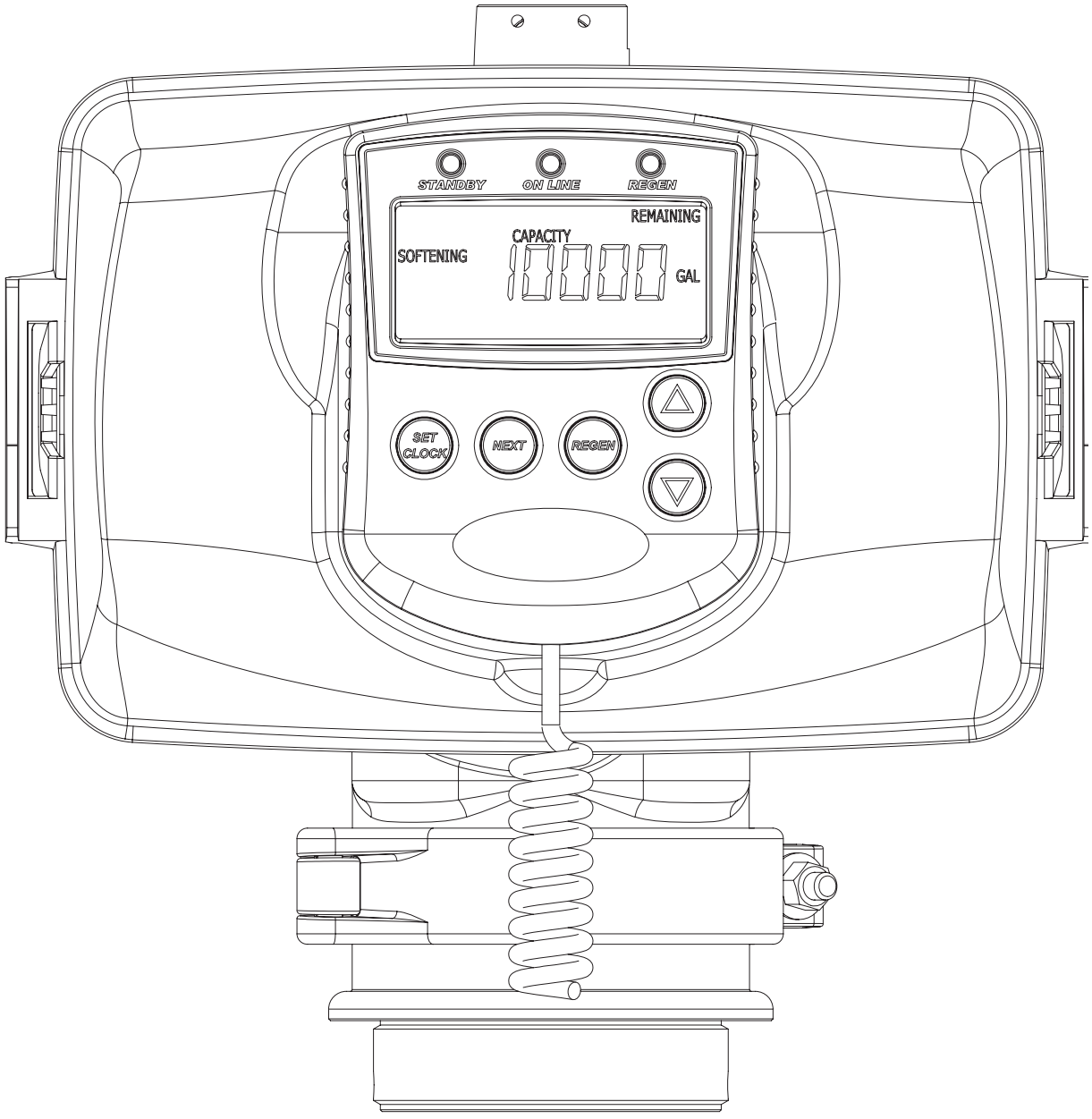
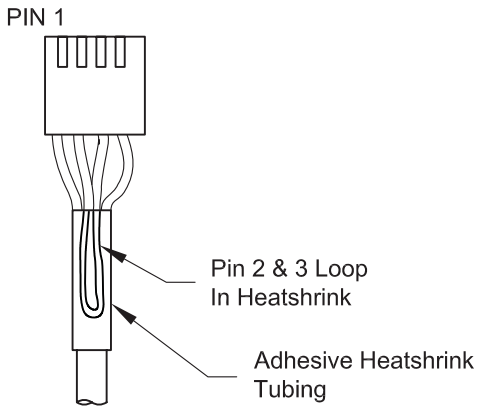
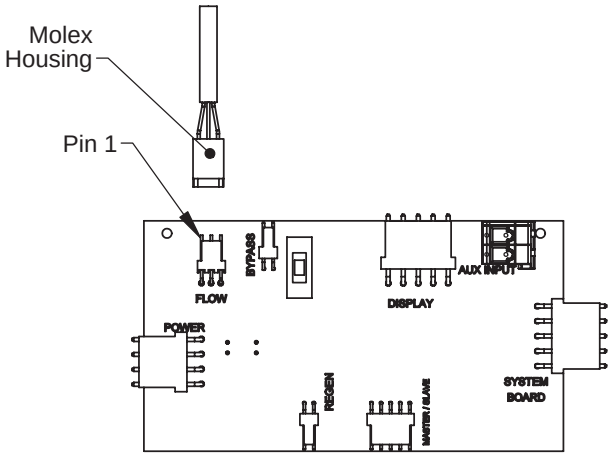
Water Specialist 2H
Control Valve Manual



AC Adapter for European Use

1. 220-240 VAC 50Hz input, 24.0 VAC 750mA output.
2. Cable should be one unshielded pair of 22AWG, UV resistant UL2464 compliant wire.
3. Connector details:
   a. Terminate end with one Molex white housing, P/N 09-50-8043 and four Molex pins, P/N 08-50-0108.
   b. Pin 1 = 24.0 VAC White
      Pin 2 = Jumper to Pin 3
      Pin 3 = Jumper to Pin 2
      Pin 4 = 24.0 VAC Black



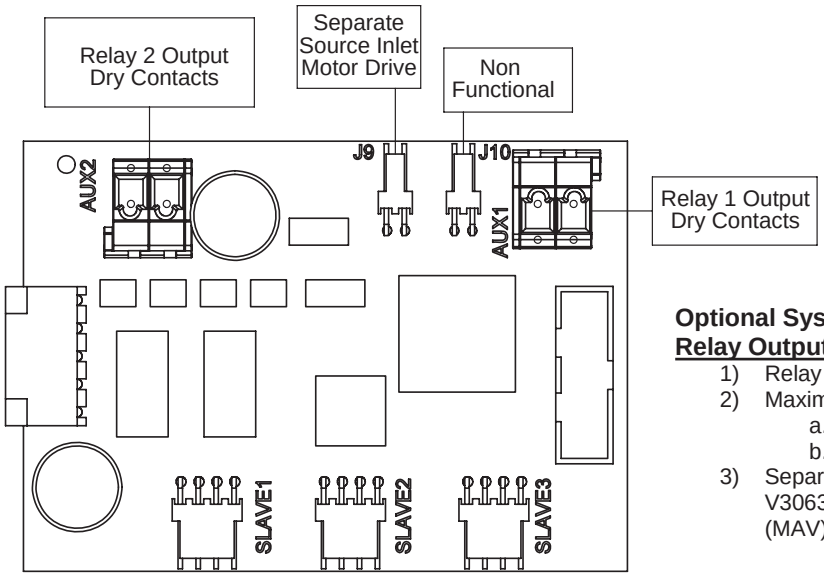


<u>Custom Meter Wiring:</u>

1) Terminate end with a Molex series 2695 housing, part number 22-01-3037 and (3) Molex series 41572 (or 40445) pins, part number 08-65-0805 (or 97-00-44).

2) Auxilliary meter must be able to operate on 5VDC
   Pin 1 = +5VDC,
   Pin 2 (Center) = Signal
   Pin 3 = Ground

3) Acceptable pulse input is .1 – 999 pulses/gallon, or .4 –519 pulses / liter.

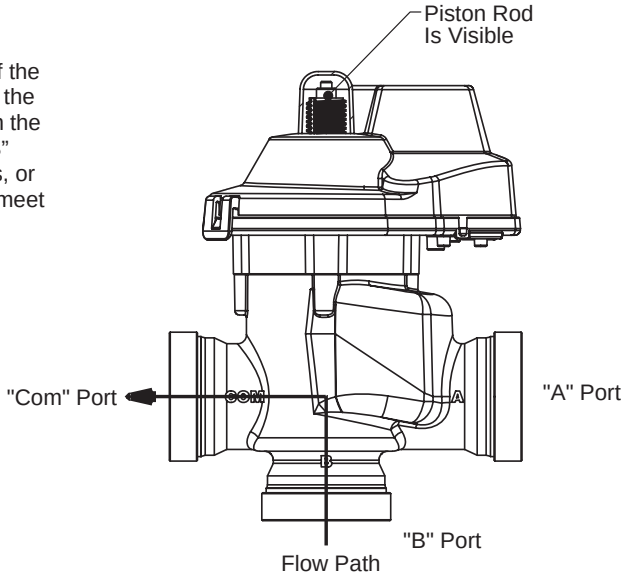


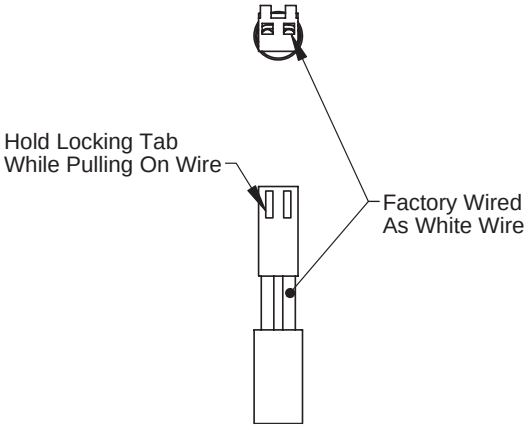
Optional System Board, Required For
Relay Output And Separate Source Inlet

1) Relay outputs 1 & 2 are N.O. SPST dry contacts.
2) Maximum power through relays to be:
   a. 1A, 30 VDC
   b. 1A, 30 VAC
3) Separate source inlet drives require connection to a V3063 or V3063BSPT motorized alternating valve (MAV).

Motorized Drive Operation

Viewing the piston rod through the clear dome is a visual indicator of the drives current positon. On the WS2 motorized bypass drive viewing the rod indicates that the unit is in service. Viewing the rod as shown on the MAV indicates that the common port is currently connected to the “B” port. If the rod is not visible the unit is offline in the case of a bypass, or connected to the “A” port of a MAV. This drive logic is reversible to meet specific plumbing applications by reversing the polarity of the drive motor wiring harness as shown below.

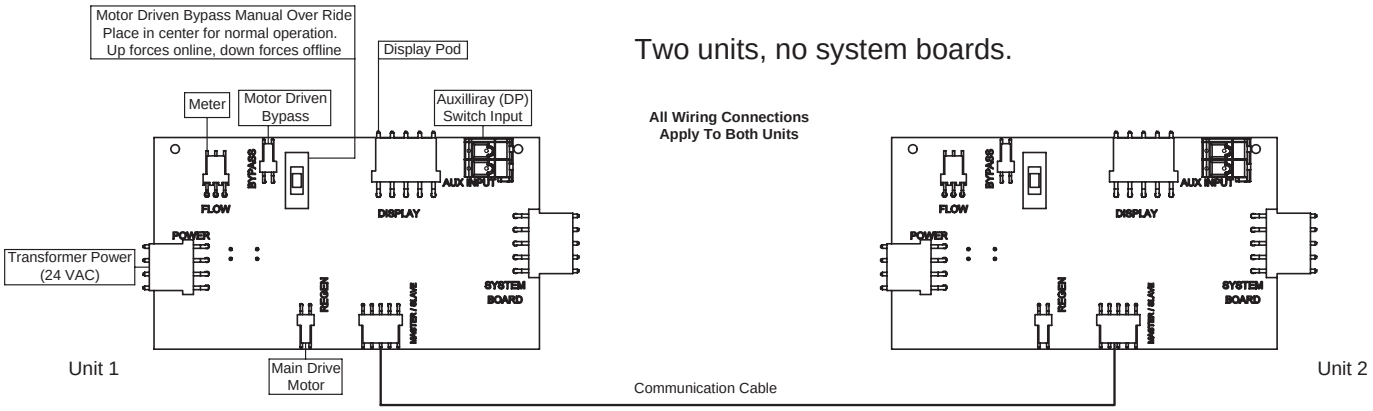




Reversing Motorized Drive Direction

WS2 motorized bypass and MAV drives are factory wired with the white wire on the right when viewing the wiring harness as shown, reversing the wires reverses the logic of the drive. The wires can be removed from the housing by holding down the locking tab in the small window while applying light pressure to the wire, being careful not to disengage the wire from its crimped on connector. The wires can then be re-inserted, being sure the locking tab re-engages in the window.

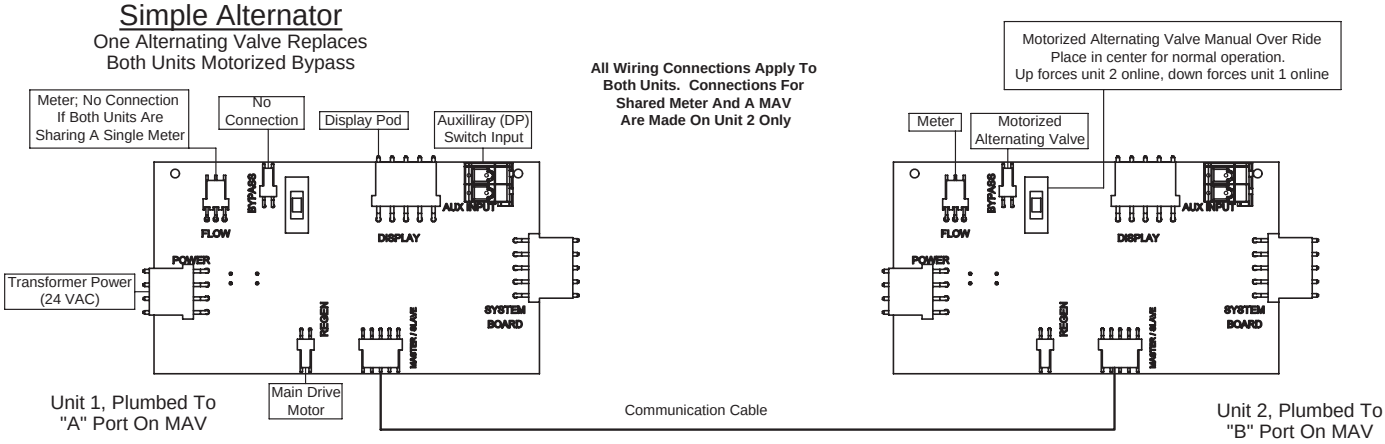
Wiring Diagram Examples, 2 Unit Systems



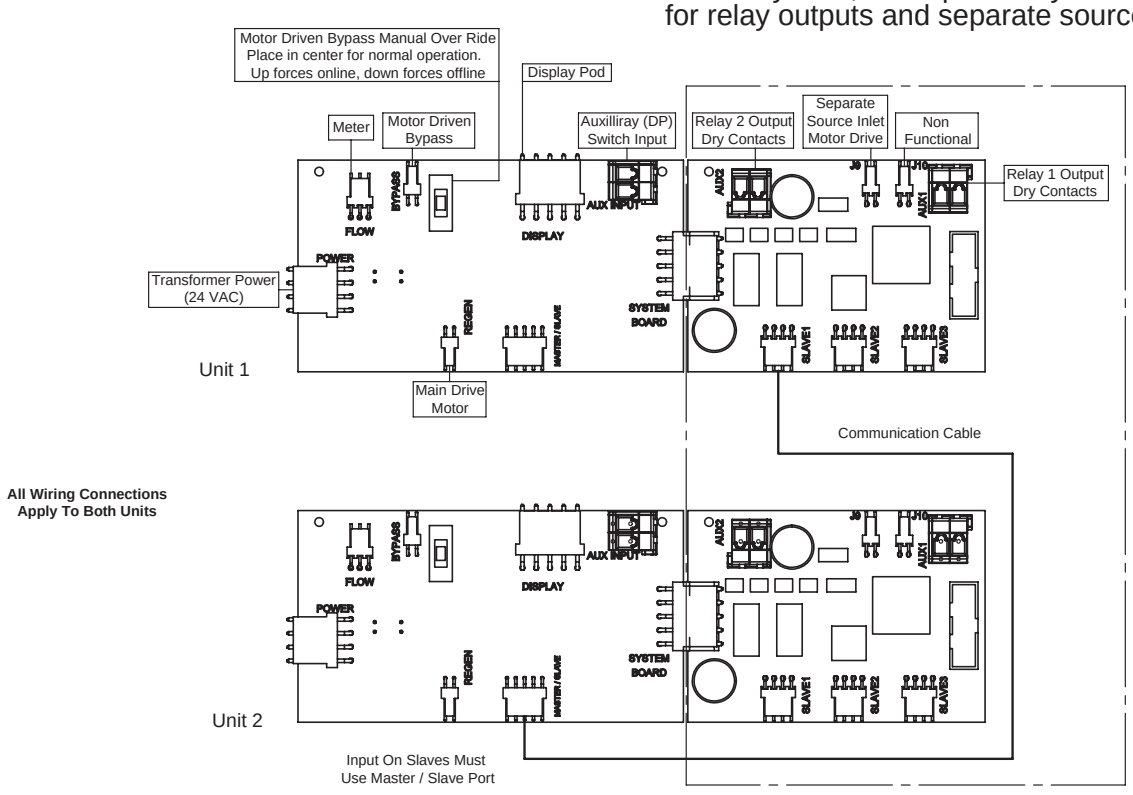
Two units, no system boards.

Simple Alternator

One Alternating Valve Replaces Both Units Motorized Bypass

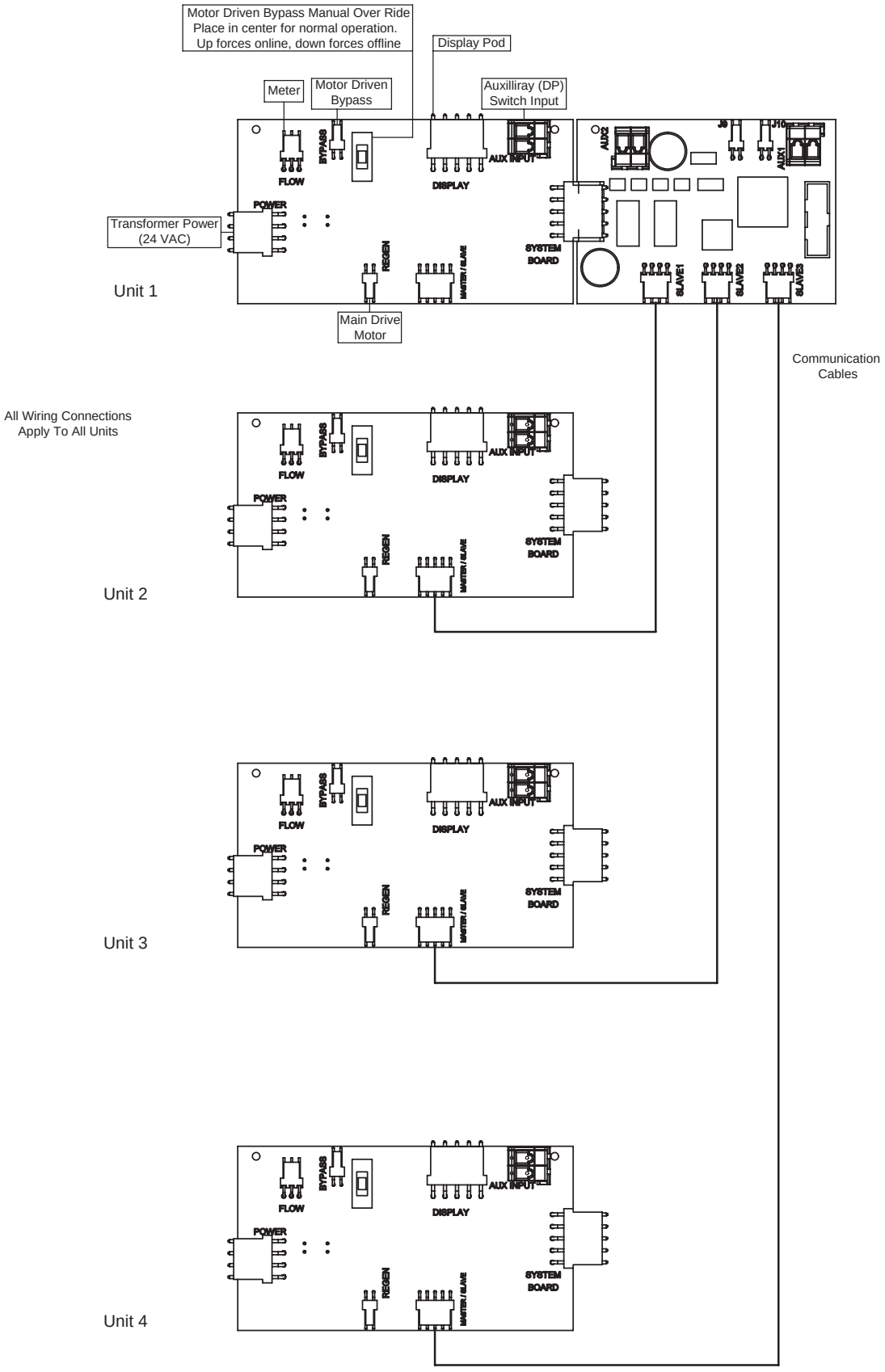


Two unit system, with optional system boards for relay outputs and separate source inlet



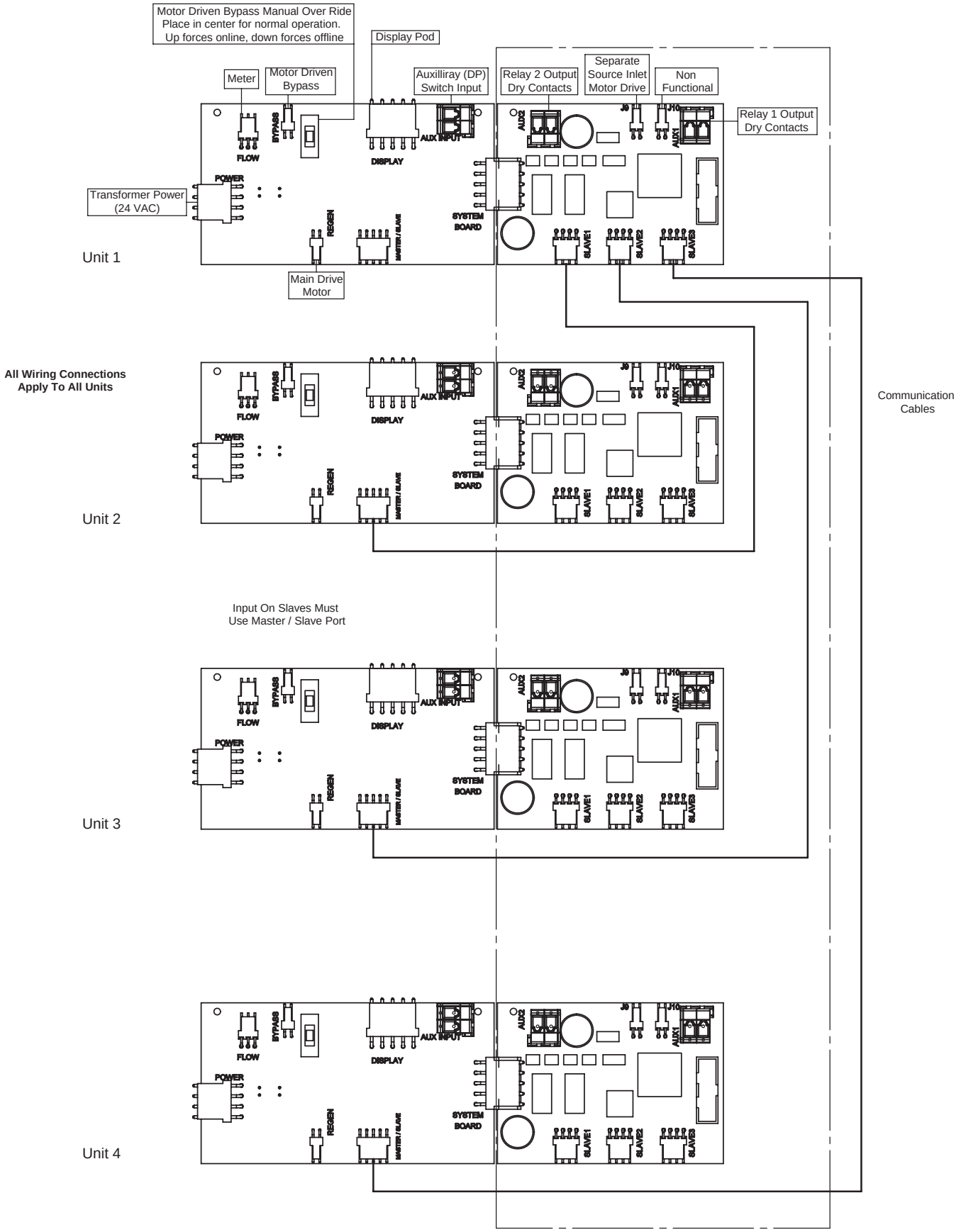
Wiring Diagrams

3 & 4 unit systems with no optional system boards
(4 unit shown)



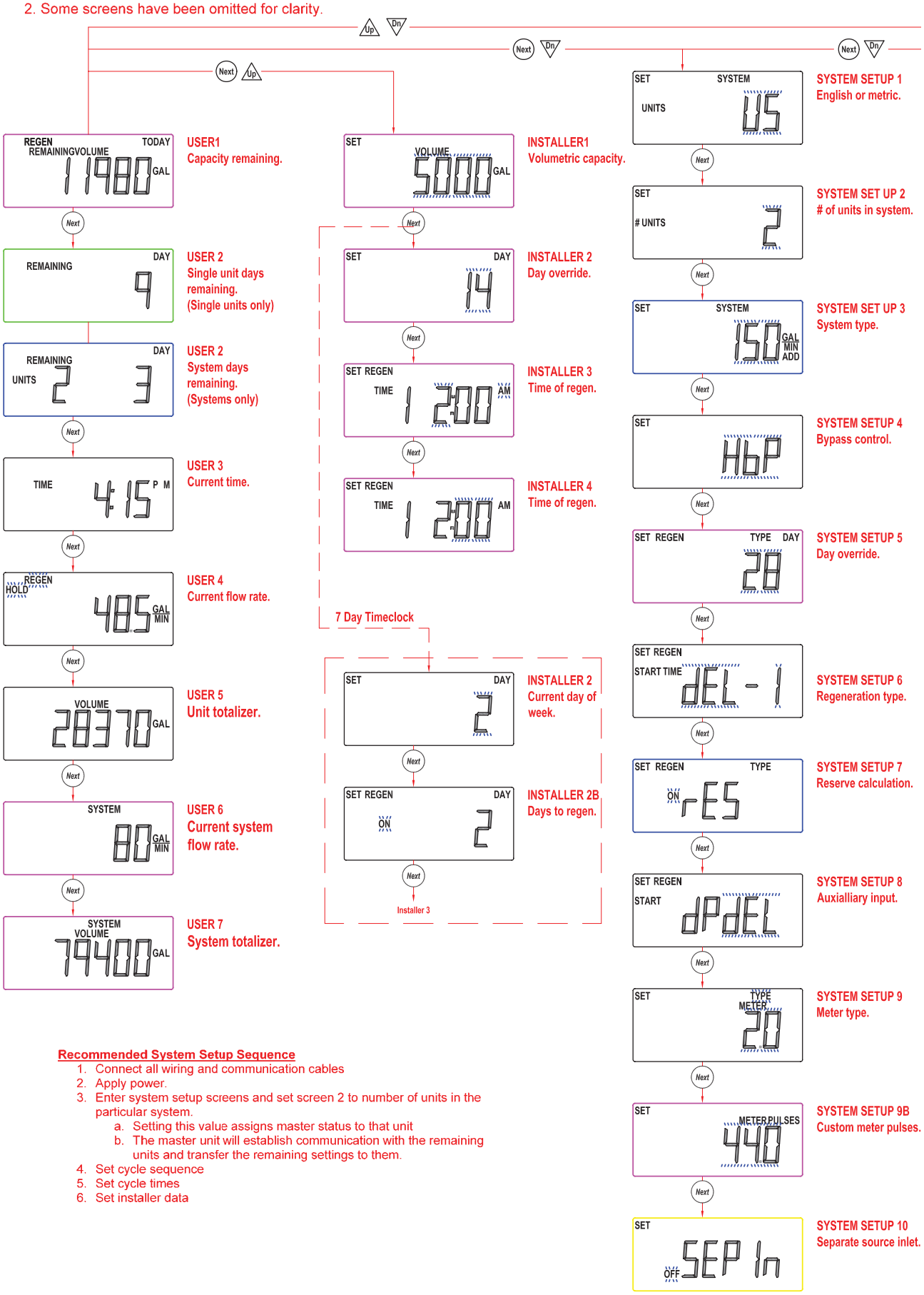
Wiring Diagrams

3 & 4 unit systems with optional system boards for relay outputs and separate source inlet (4 unit shown)



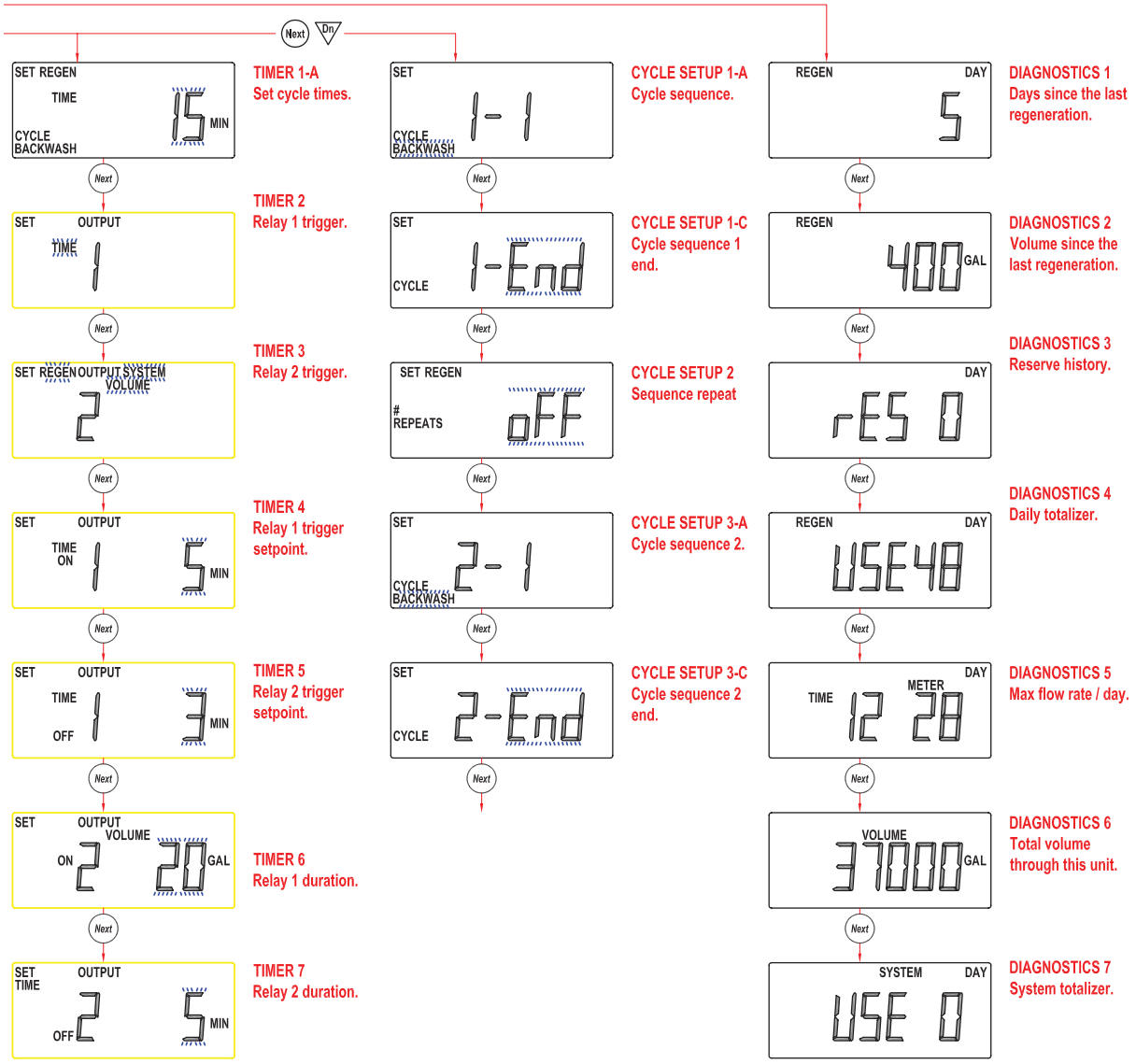
WS2 Programming Screen Quick Reference

1. Individual screen descriptions and settings are detailed on the following pages.
2. Some screens have been omitted for clarity.



Recommended System Setup Sequence

1. Connect all wiring and communication cables
2. Apply power.
3. Enter system setup screens and set screen 2 to number of units in the particular system.
   a. Setting this value assigns master status to that unit
   b. The master unit will establish communication with the remaining units and transfer the remaining settings to them.
4. Set cycle sequence
5. Set cycle times
6. Set installer data



STANDBY — Standby LED
Used to signal a unit not in service or regeneration. LED will flash 1/sec. if flow is detected while off line or 2/sec. if the bypass manual over ride switch is forcing the bypass offline.

ON LINE — On Line LED
Used to signal a unit currenly in service. LED will flash 2/sec. if the bypass manual over ride switch is forcing the bypass online.

REGEN — Regen LED
Used to signal a unit currently in regen.

All LED's are off while in any programming mode

Set Clock — Set clock from USER 1 & 2. Set remaining salt from USER 3. Exit & save from setup or program screens.

Next — Move to the next display

Up / Dn — Change variable being displayed

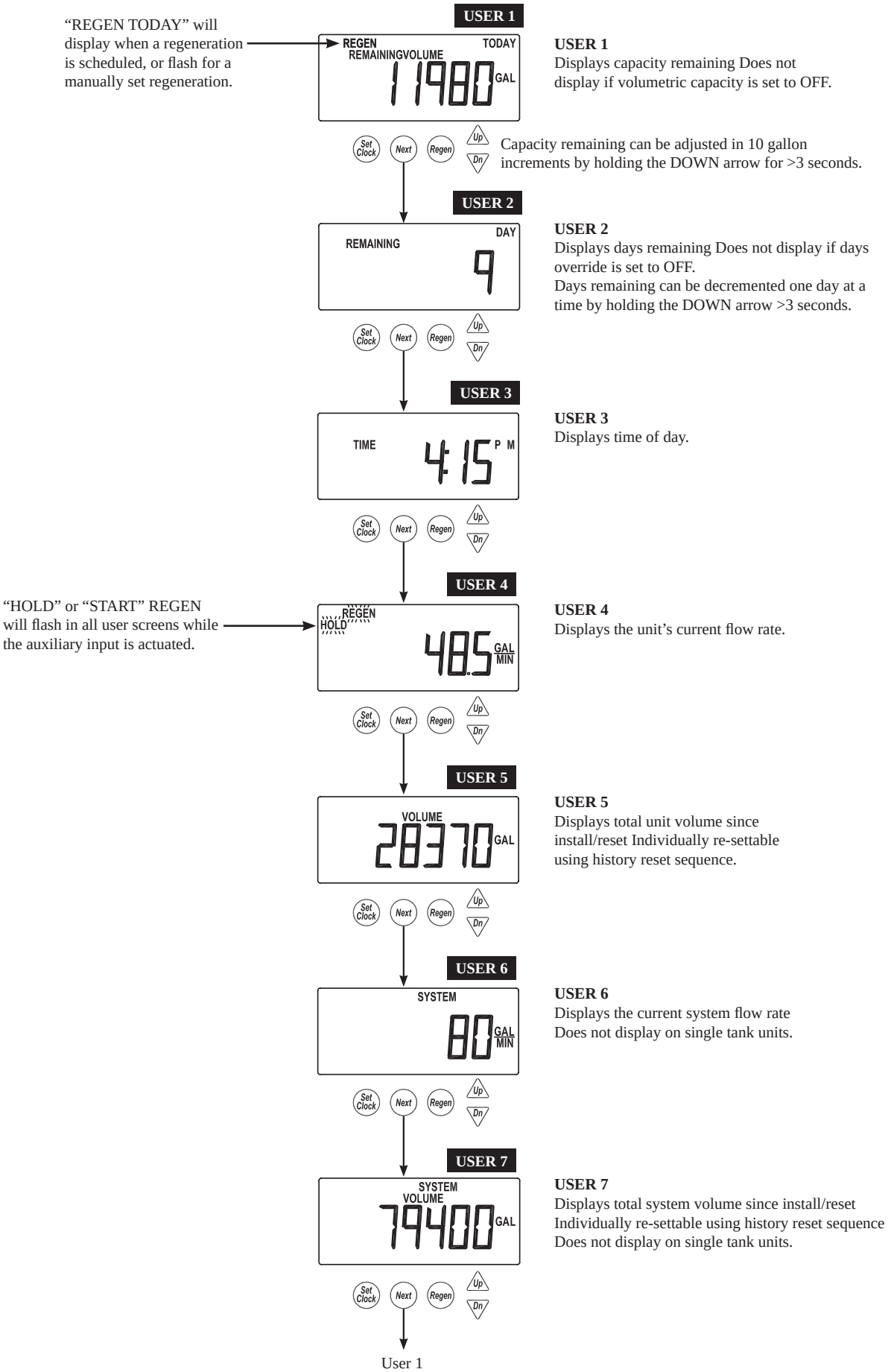
Regen — Toggles scheduled regen time on/off. Holding for >3 sec. starts immediate regen (immediate regen is the only option if set to immediately regenerate upon 0 gallons). Moves back one display while in program mode.

Next + Regen — Reset
Holding for >3 seconds initiates a reset. The software version is shown and the piston returns to the "home" position, re-synchronizing the valve.

Set Clock + Regen — History Reset
Holding the Set Clock & Regen buttons for >3 seconds initiates a totalizer or history reset.

Dn + Next + Up + Set Clock — Key sequence to lock and unlock software.

Typical User Screens



USER 1
Displays capacity remaining Does not display if volumetric capacity is set to OFF.

USER 2
Displays days remaining Does not display if days override is set to OFF.
Days remaining can be decremented one day at a time by holding the DOWN arrow >3 seconds.

USER 3
Displays time of day.

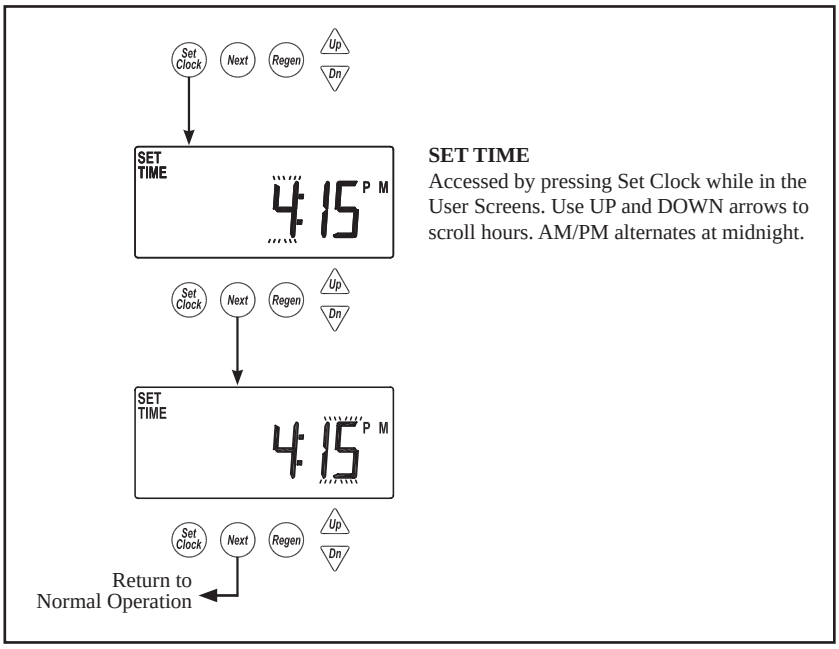
USER 4
Displays the unit's current flow rate.

USER 5
Displays total unit volume since install/reset Individually re-settable using history reset sequence.

USER 6
Displays the current system flow rate
Does not display on single tank units.

USER 7
Displays total system volume since install/reset
Individually re-settable using history reset sequence
Does not display on single tank units.

Setting Time of Day



SET TIME
Accessed by pressing Set Clock while in the User Screens. Use UP and DOWN arrows to scroll hours. AM/PM alternates at midnight.

UNIT COUNT ERROR
Error and the slave's unit number will flash when it is not detected. Pressing any button will return the user to the #units set up screen to correct the value.

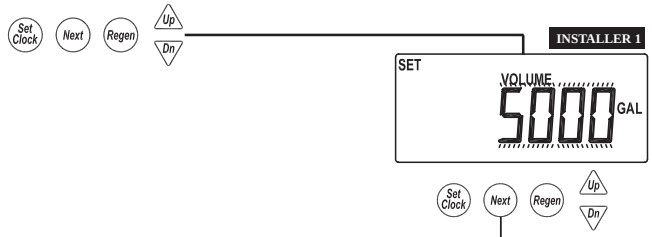
ERROR SCREEN
Error and its code alternate. The unit returns to home and flashes its 3 LEDs. The unit continues to try and function, but must be reset to correct the error screen.

Automatically toggles.

Installer Setup Screens

Accessed by pressing NEXT and UP simultaneously for >3 seconds.

Returns to normal operation after 5 minutes.

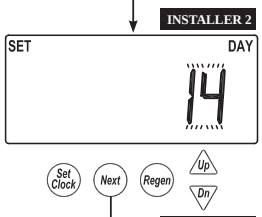


INSTALLER 1
Set volumetric capacity or OFF. OFF will not be an option if the day control is set to OFF.

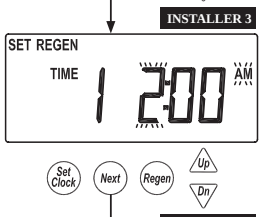
X1000 Indicator Illuminates At 10,000 Gallons

Units	Range	Increments
US (GAL)	10-10,000 10,000-100.00 x 1000 100.00-999.00 x 1000	10 100 1000
SI (L)	38-38,000 38,000-380.00 x 1000 380.00-3796.2 x 1000	38 38 3800

Set current day and regen days when set as a 7 day time clock or hybrid in System Setup 1.

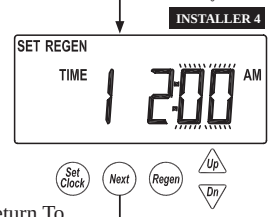


INSTALLER 2
Set day override. 1-28 days between regenerations, or if set to 7 day time clock, see 7 day setup below. OFF will display if selected in Day Control screen.

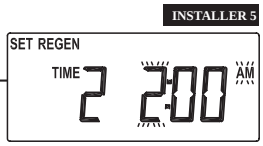


INSTALLER 3
Select time of regen. Use up and down arrows to scroll hours. AM/PM alternates at midnight. “on0” will be displayed on units with no time dependent regen control.

(“1” only shows if set for multiple regens.)



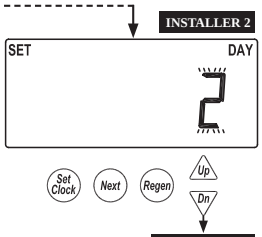
INSTALLER 4
Select time of regen. Use up and down arrows to scroll minutes.



INSTALLER 5
Select time of 2nd regen (if configured as a multiple regenerating unit.)

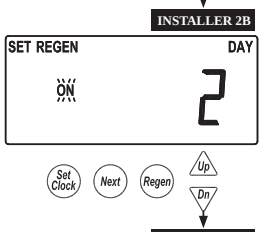
Return To Normal Operation.

7 Day Option

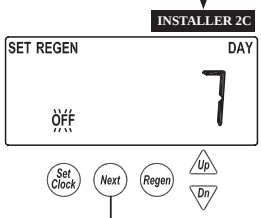


INSTALLER 2
7 day time clock option.
Set current day of the week:

1 = Sunday
2 = Monday
3 = Tuesday
4 = Wednesday
5 = Thursday
6 = Friday
7 = Saturday



INSTALLER 2B
Scroll through days 1-7 using the UP and DOWN arrows. Pressing the Set Clock will toggle regen ON or OFF for that day. (i.e., regen on Monday.)



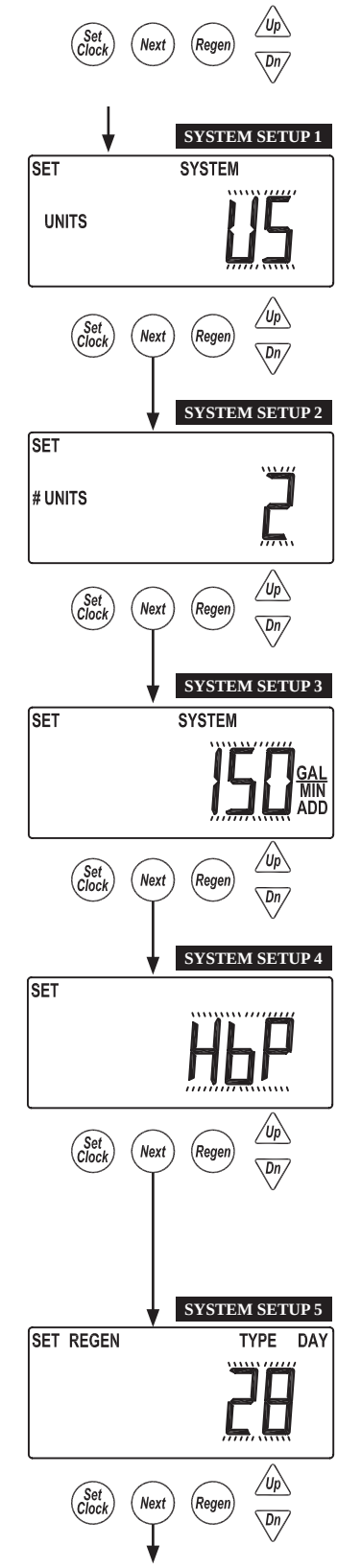
INSTALLER 2C
(i.e., no regeneration on Saturday.)

Installer 3

System Setup Screens

Returns to normal operation after 5 minutes

Accessed by pressing NEXT and DOWN simultaneously for >3 seconds.



SYSTEM SETUP 1
Select country.
US or SI.
This sets the use of a 12 or 24 hour clock and the display of gallons or liters.

SYSTEM SETUP 2
Select the total number of units, from 1-4, in a system. This screen will only allow 1 or 2 if a system board is not installed.

SYSTEM SETUP 3
Select unit flow rate unit add point.

1. If set to 0, all units are online unless one is regenerating.
2. If greater than 0, the system acts as a stage by flow adding units as flow capacity increases.
3. If set to ALT the system acts as an alternator system, keeping one unit off line at all times.

The screen will not display if set to 1 unit.

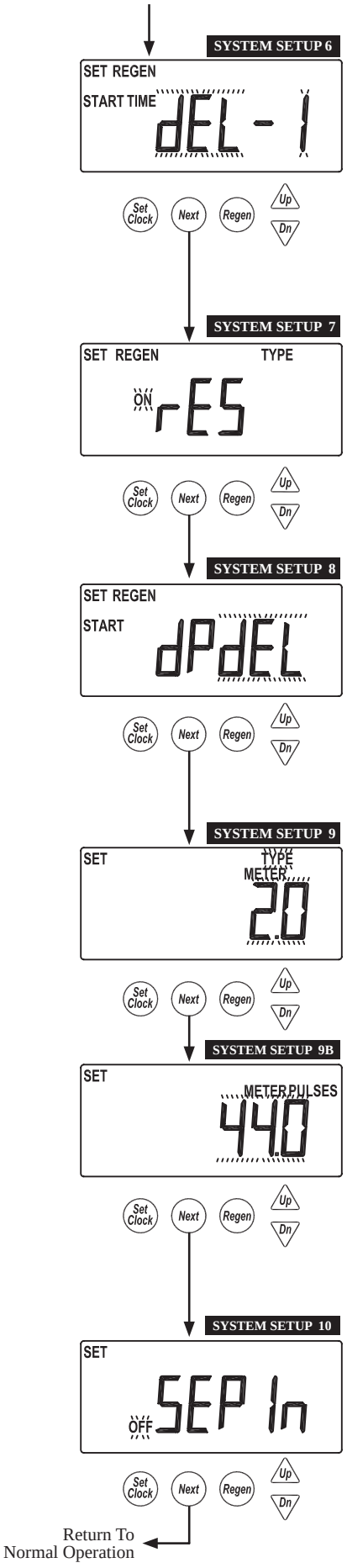
Units	Range	Increments
US (GAL)	0-500	1
SI (L)	0-1896	4

SYSTEM SETUP 4
Single units have a selection of hard water bypass, no hard water bypass or relay operation. When the units starts a regen, HbP will allow hard water bypass, noHbp and RELAY will not allow hard water bypass. Systems will allow setting noHbP or RELAY & 2 unit alternators have an additional selection of ALT-A. Setting noHbP requires a motor driven bypass, ALT-A requires a motor driven alternator valve on the controlling unit and RELAY relys on external valving for noHbP control.

SYSTEM SETUP 5
Select day control type.
Time clock 1-28 day; Time clock 7 day; or OFF.
When volumetric capacity is set, volume regeneration can be combined with time clock control. OFF will not be an option if volumetric capacity is OFF.

continued on Page 15

System Setup Screens (continued)



SYSTEM SETUP 6
Select regeneration type.
Delayed (dEL-1)
Delayed, 2 regenerations per day (dEL-2)
Delayed, 3 regenerations per day (dEL-3)
Delayed, 4 regenerations per day (dEL-4)
On 0
Delayed with multiple regenerations allowed per day would be used either to reduce the reserve volume, or to accommodate a small system relative to the treatment demand.

SYSTEM SETUP 7
Select reserve calculation ON or OFF.
OFF will schedule a regen when the volumetric capacity reaches 0. This screen will not display for "on0" units or systems.

SYSTEM SETUP 8
Set auxiliary initiated regen.
START TIME REGEN: regeneration will start immediately after 2 cumulative minutes of switch closure.
START TIME REGEN dEL: regeneration will start at the delayed time after 2 cumulative minutes of switch closure.
START REGEN: regeneration will start immediately upon switch closure.
START REGEN dEL: regeneration will start at the delayed time upon switch closure.
HOLD REGEN: regeneration will not be allowed as long as there is switch closure.

SYSTEM SETUP 9
Select meter type or pulses.
2.0 meter (type)
1.5 meter (type)
System Pulses

SYSTEM SETUP 9B
Select meter type pulses.
Screen does not show if Pulses or System Pulses is not selected in the previous screen.

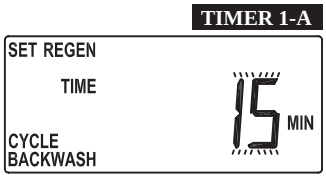
	Pulses/ Unit Flow	
Units	Range	Increments
US (Pulse/Gal)	0.1 - 30.0 30.0 - 999.0	0.1 1.0
SI (Pulse/L)	0.4 - 114.0 114.0 - 519.4	0.4 3.8

SYSTEM SETUP 10
Separate source inlet. This screen will not display if a system board is not installed.

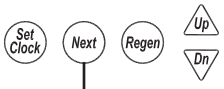
Timer Screens

Returns to normal operation after 5 minutes.

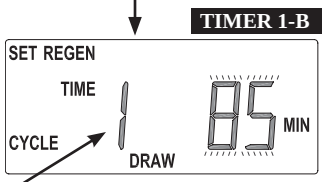
Accessed by pressing NEXT and DOWN simultaneously for >3 seconds, then by pressing NEXT and DOWN simultaneously again for >3 seconds.



TIMER 1-A
Select time of cycle 1.

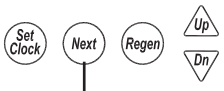


A NEXT & DN reset from this screen unlocks the setup screens.

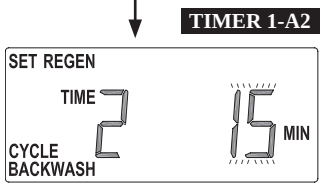


TIMER 1-B
Select time of cycle 2.

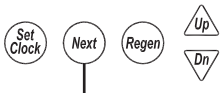
"1" is displayed if set for more than one sequence

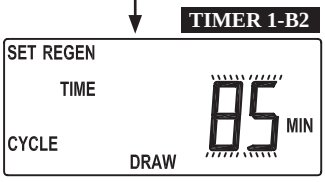


The following screens only show if the unit is programmed for multiple regenerations in the Cycle Setup 2 screen.

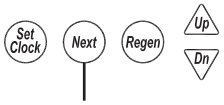


TIMER 1-A2
Select time of alternate regen, cycle 1.





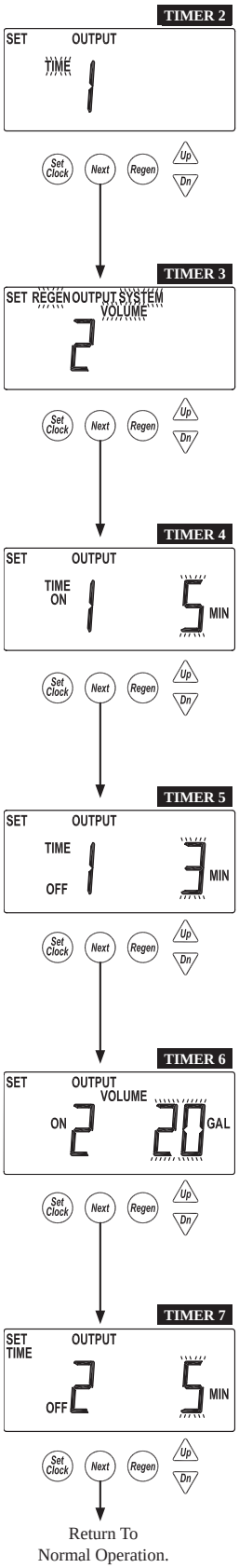
TIMER 1-B2
Select time of alternate regen, cycle 2.



Cycle	Units	Range	Increments
Backwash	Minutes	1-30 30-95	1 5
Draw	Minutes	1-30 30-100 100-180	1 5 10
Slow Rinse	Minutes	1-30 30-95	1 5
Rinse	Minutes	1-30 30-95	1 5
Fill	Minutes	0.1-10.0 10.0-30.0 30.0-99.0	0.1 0.2 1.0
Hold	Minutes	1-30 30-100 100-480	0.1 2.0 10.0

continued on Page 17

Timer Screens (continued)



TIMER 2
Set output 1.
These settings will only be allowed with the system board installed.
Time: Relay is turned on after specified time from the start of regen and is left on for a specified time.
Cycle: Relay is turned on after the start of a specified cycle and is left on for a specified time.
Volume: Relay is turned on, during service flow only, every specified number of volume units and is left on for a specified time.
Volume & Regen: Relay is turned on every specified number of volume units, and is left on for a specified time.
STbY: Relay would be used to control external valving, closing for unit regeneration, or when it would be offline in system operation.
REGEN: Relay closes when the unit is in regen.
Err: Relay closes when the unit is in any error mode.

TIMER 3
Set output 2.
These settings will only be allowed with the system board installed.
Time: Relay is turned on after specified time from the start of regen and is left on for a specified time.
Cycle: Relay is turned on after the start of a specified cycle and is left on for a specified time.
Volume: Relay is turned on, during service flow only, every specified number of volume units and is left on for a specified time.
Volume & Regen: Relay is turned on every specified number of volume units and is left on for a specified time.
STbY: Relay would be used to control external valving, closing for unit regeneration, or when it would be offline in system operation.
REGEN: Relay closes when the unit is in regen.
Err: Relay closes when the unit is in any error mode.

TIMER 4
Select output 1, On trigger set point, per units previously selected.
This screen will not display if the unit does not have a system board, or if STbY was selected as the trigger.
Time: Time after the start of a regen before switch is closed.
Cycle: Select a cycle which will close output 1.
Volume: Volume of water interval during service between switch closures.
Timer 4 and 6 screens will not display if display if STbY, REGEN or Err are selected in TIMER 2 and TIMER 3.

TIMER 5
Select output 1 On duration before turning OFF. This screen will not display if the unit does not have a system board.

TIMER 6
Select output 2, On trigger set point, per units previously selected.
This screen will not display if the unit does not have a system board, or if STby was selected as the trigger
Time: Time after the start of a regen before switch is closed.
Cycle: Select a cycle which will close output 2.
Volume: Volume of water interval during service between switch closures.

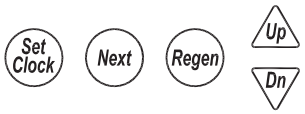
TIMER 7
Select output 2 On duration before turning OFF.
This screen will not display if the unit does not have a system board.

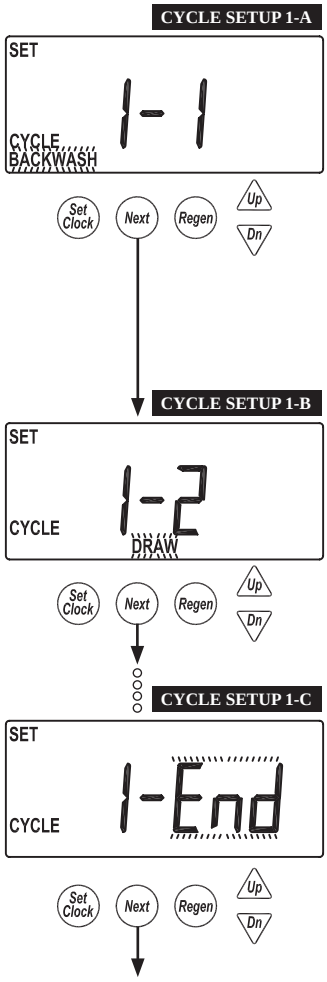
Relay Trigger Settings			
Trigger	**Units**	**Range**	**Increments**
Time	Minutes	:01-20:00	:01
Cycle			Slow Rinse
Volume	Gallons	1-200 200-1000 100-10000	1 5 10
Volume	Liters	1-760 760-13800 13800-38000	4 19 38
Relay Duration Settings			
Trigger	**Units**	**Range**	**Increments**
Time	Minutes	:01-20:00	:01

Cycle Setup Screens

Returns to normal operation after 5 minutes.

Accessed by pressing NEXT and DOWN simultaneously for >3 seconds,
then by pressing NEXT and DOWN simultaneously again for >3 seconds,
then by pressing NEXT and DOWN simultaneously for >3 seconds a third time.





CYCLE SETUP 1-A
Select first cycle.

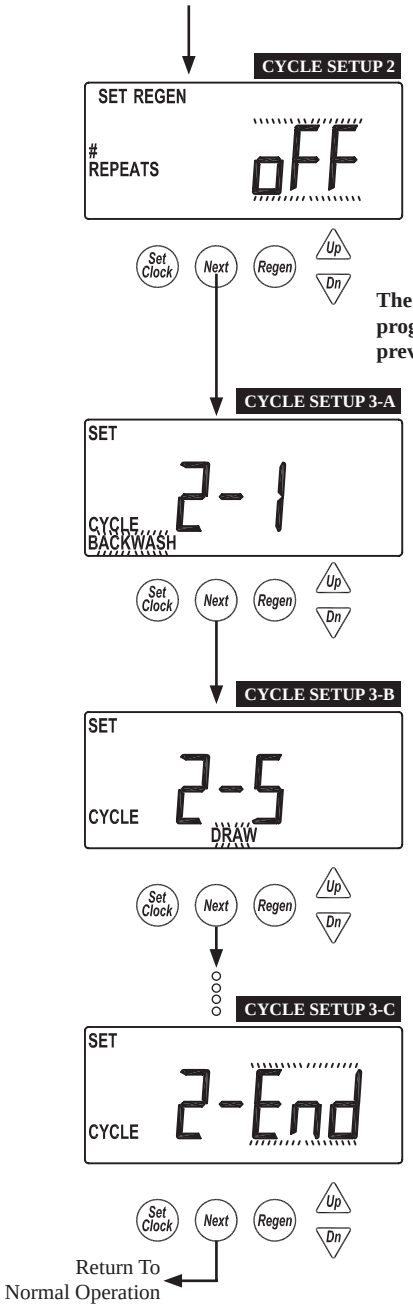
Cycle #	Cycle Default
1	Backwash
2	Draw
3	2nd Backwash
4	Rinse
5	Fill
6	End

CYCLE SETUP 1-B
Select second cycle.

CYCLE SETUP 1-C
After cycles are configured, an END is added.
(9 cycles maximum.)

continued on Page 19

Cycle Setup Screens (continued)



CYCLE SETUP 2
Select regeneration repeats, 1-10 or OFF.
Repeats regeneration cycle sequence 1 a selected number of times before regenerating a single time with sequence 2.

The following screens only show if the unit is programmed for multiple regenerations in the previous screen.

CYCLE SETUP 3-A
Select first cycle of “alternate” regeneration sequence.

CYCLE SETUP 3-B
Select second cycle of ‘alternate’ regeneration sequence.

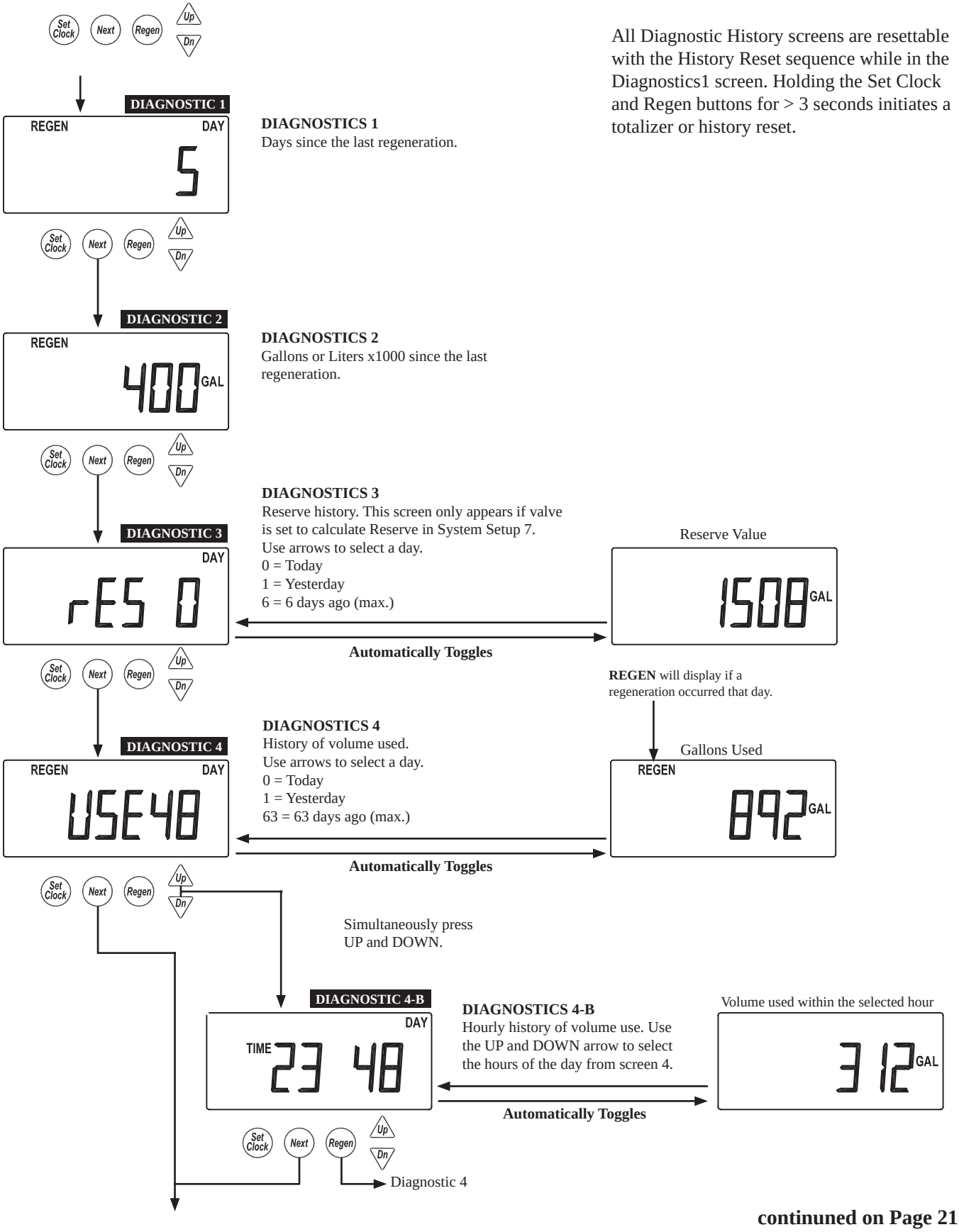
CYCLE SETUP 3-C
After cycles are configured, an END is added. (9 cycles maximum.)

Diagnostic Screens

Accessed by pressing UP and DOWN simultaneously for >3 seconds.

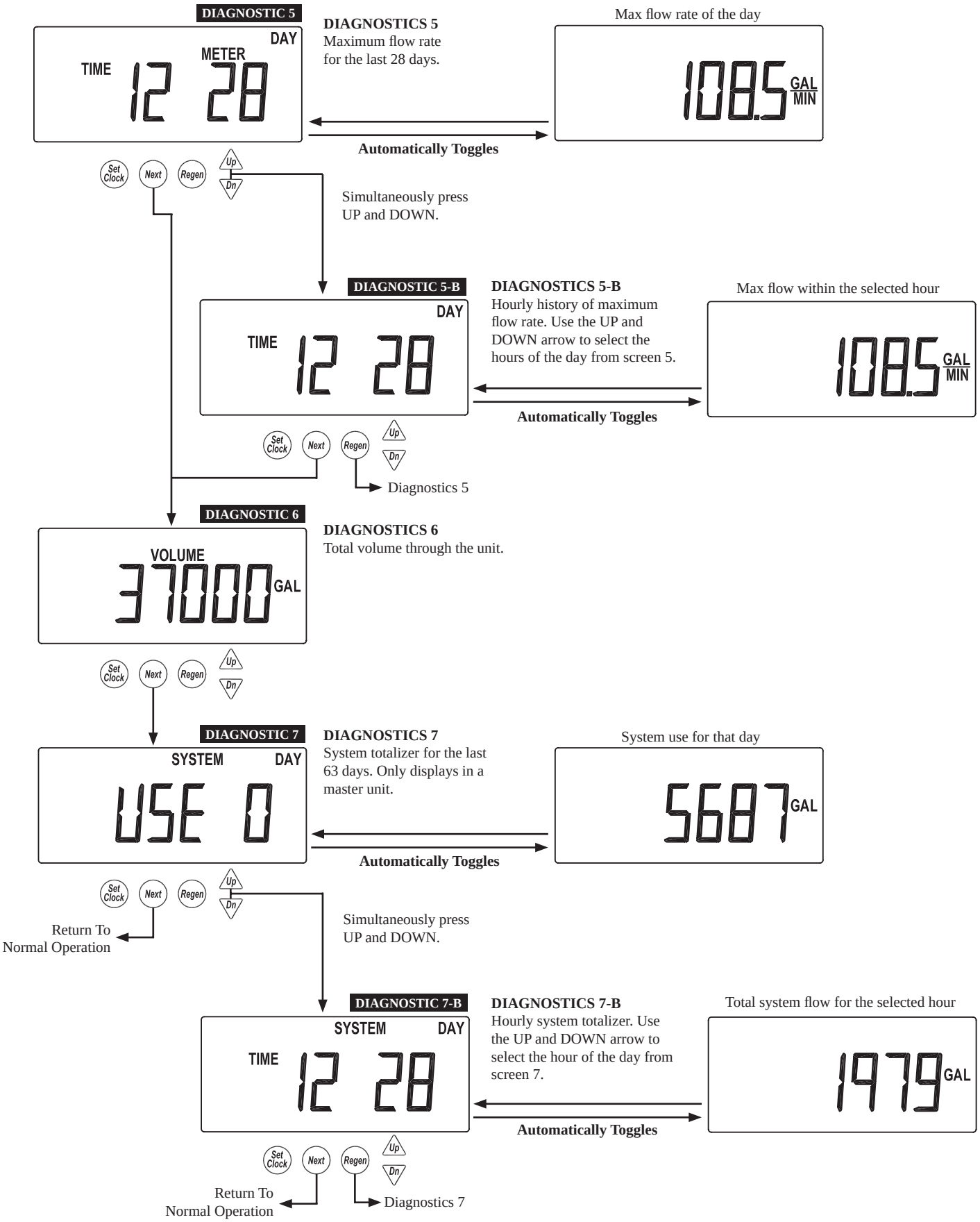
Returns to normal operation after 5 minutes.

All Diagnostic History screens are resettable with the History Reset sequence while in the Diagnostics1 screen. Holding the Set Clock and Regen buttons for > 3 seconds initiates a totalizer or history reset.



continued on Page 21

Diagnostic Screens (continued)

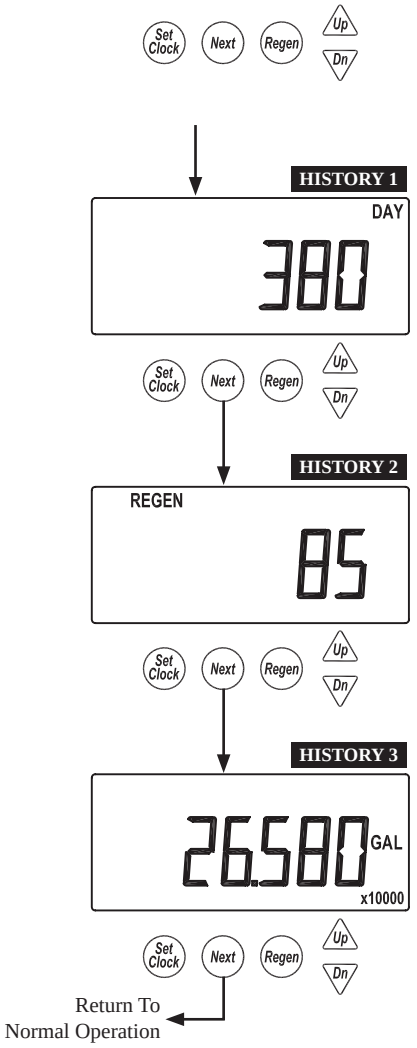


Valve History

Returns to normal operation after 5 minutes.

Non-Resettable

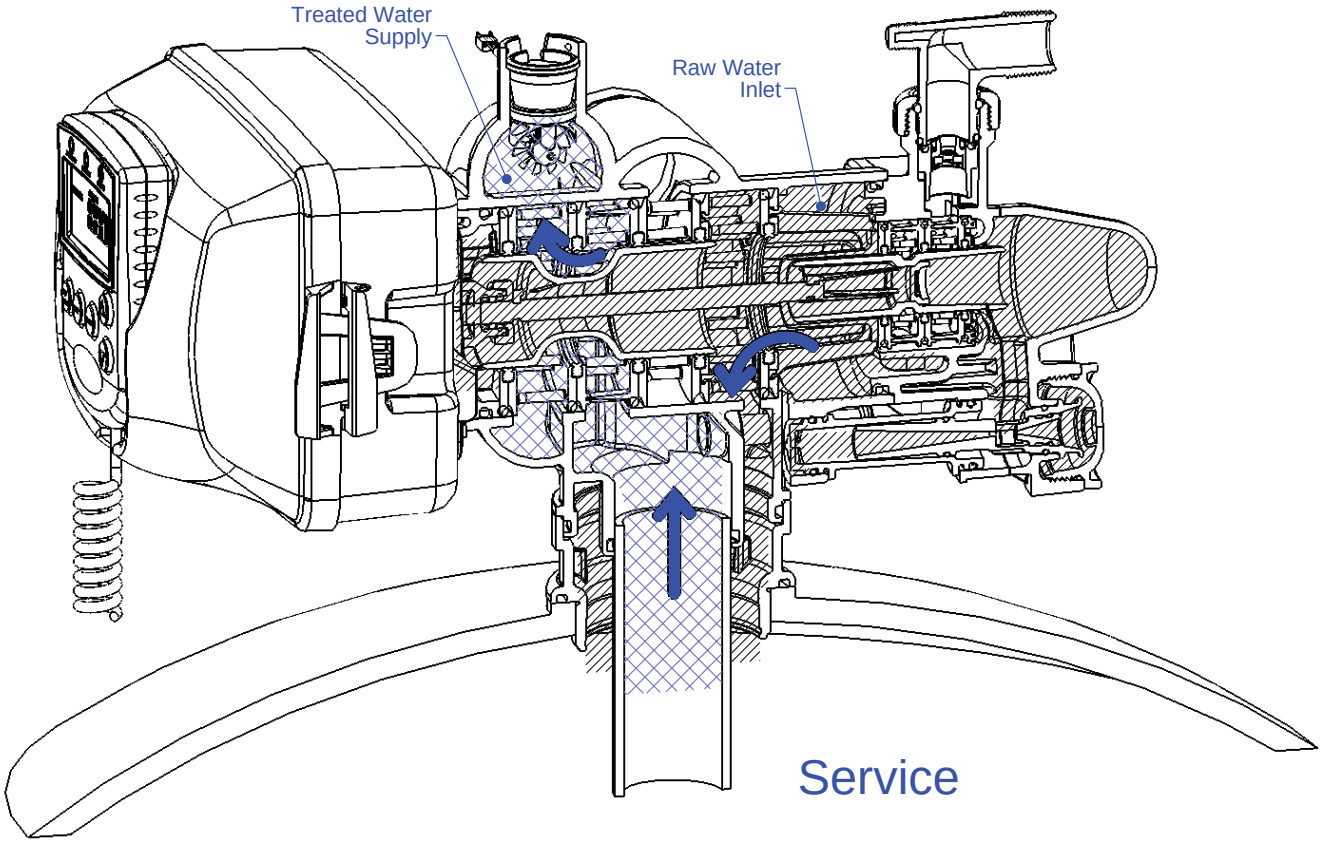
Accessed by pressing UP and DOWN simultaneously for >3 seconds, then by pressing UP and DOWN simultaneously again for >3 seconds.

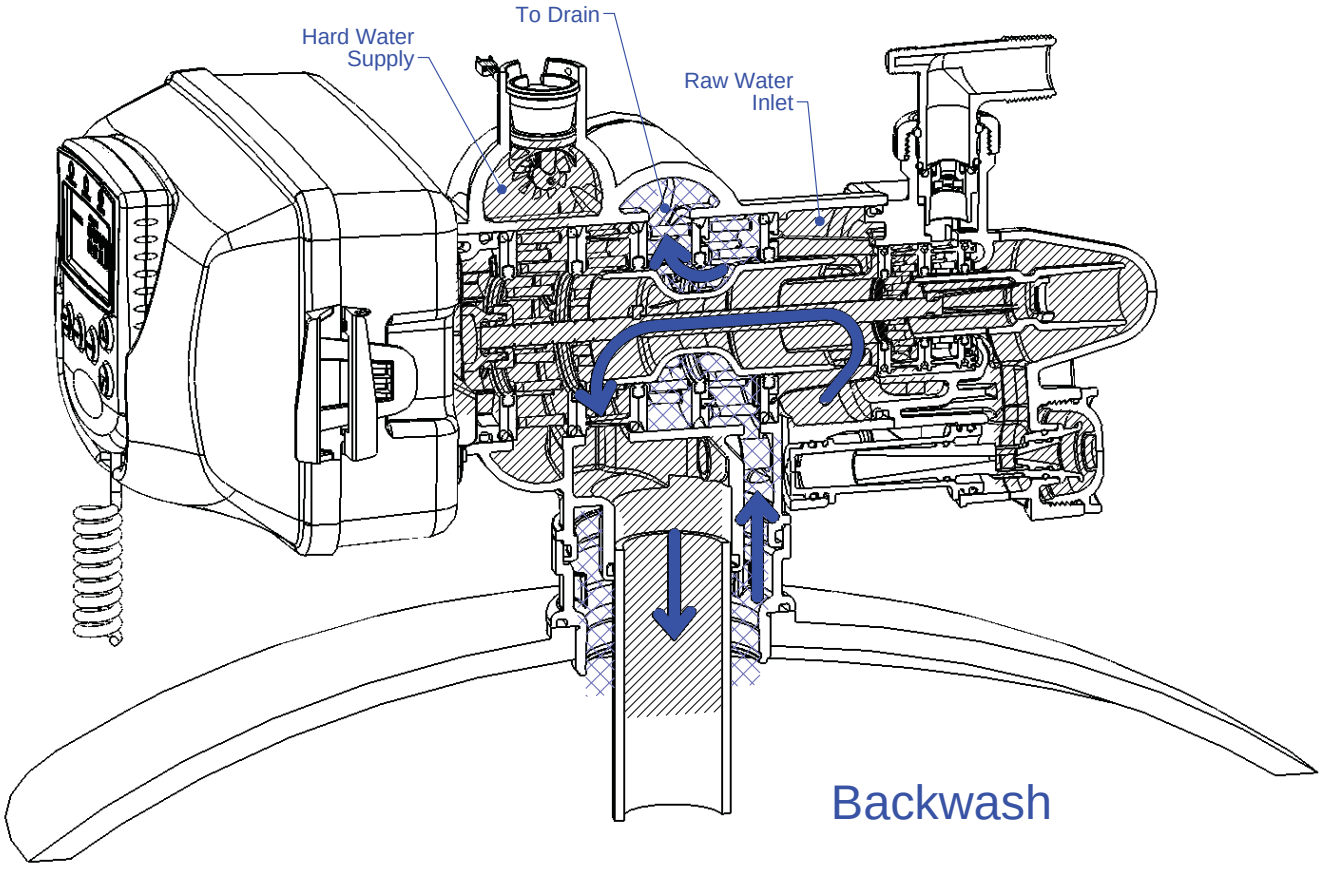


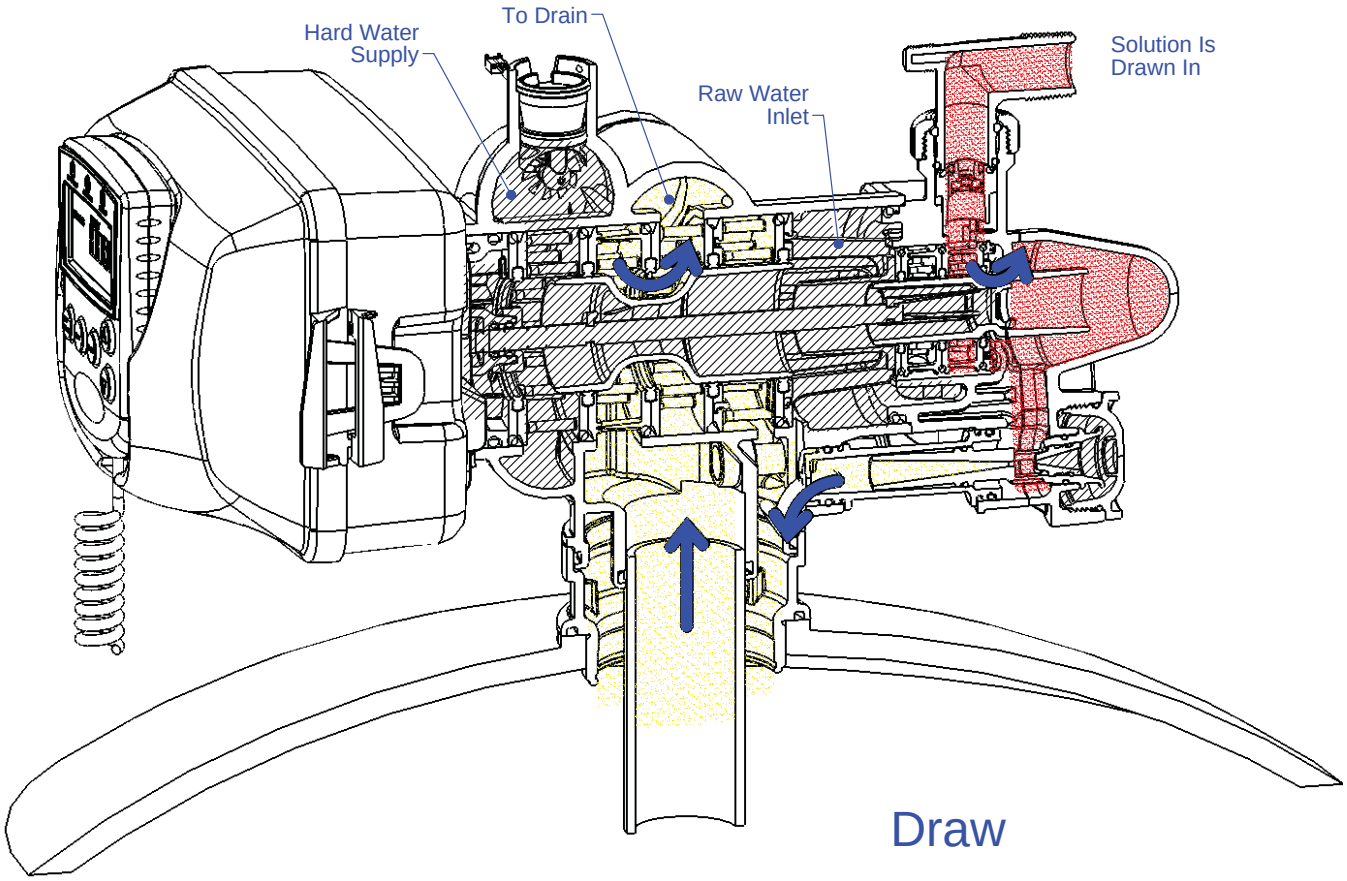
HISTORY 1
Total days since startup.
Time only accumulates while the unit is plugged in.

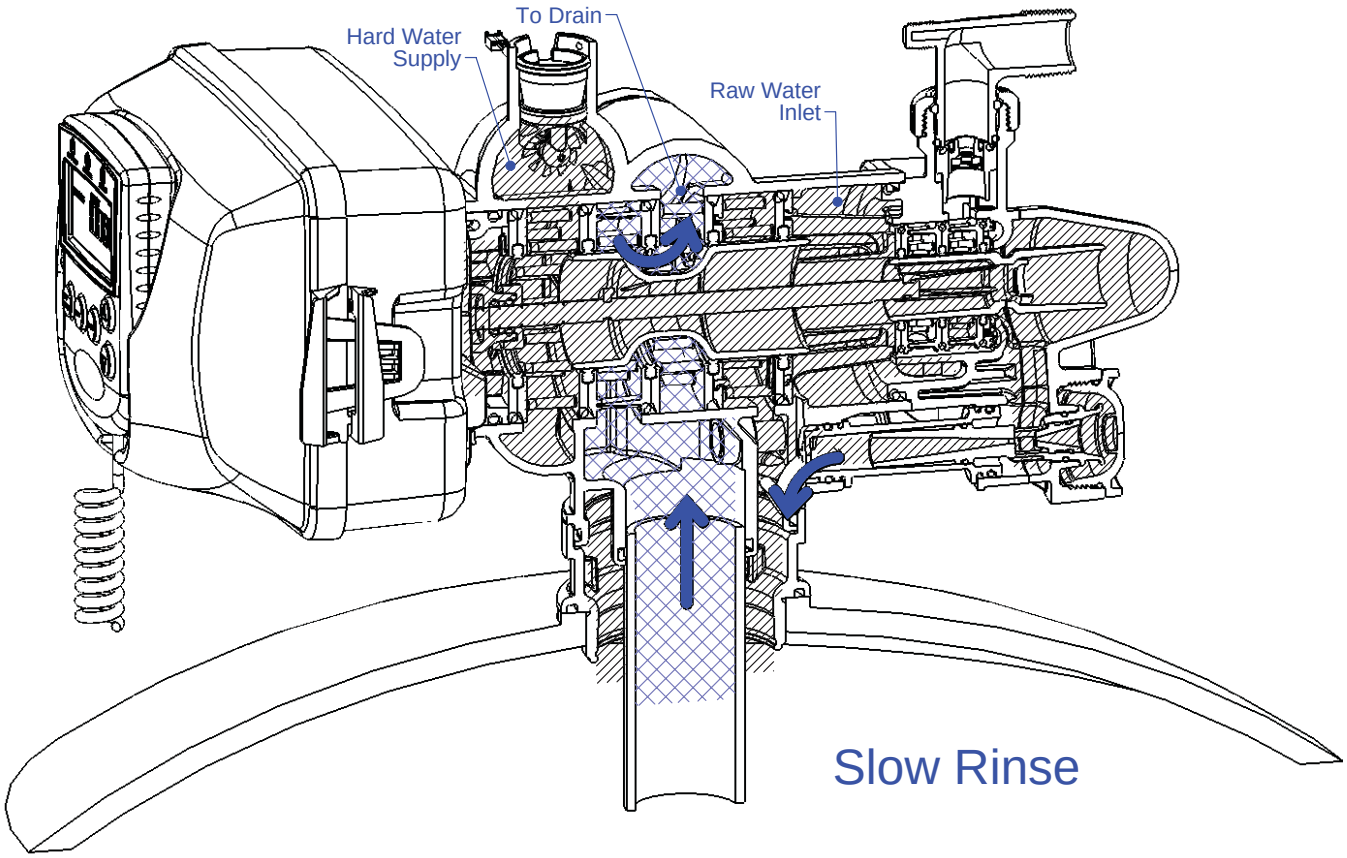
HISTORY 2
Total regenerations since startup.

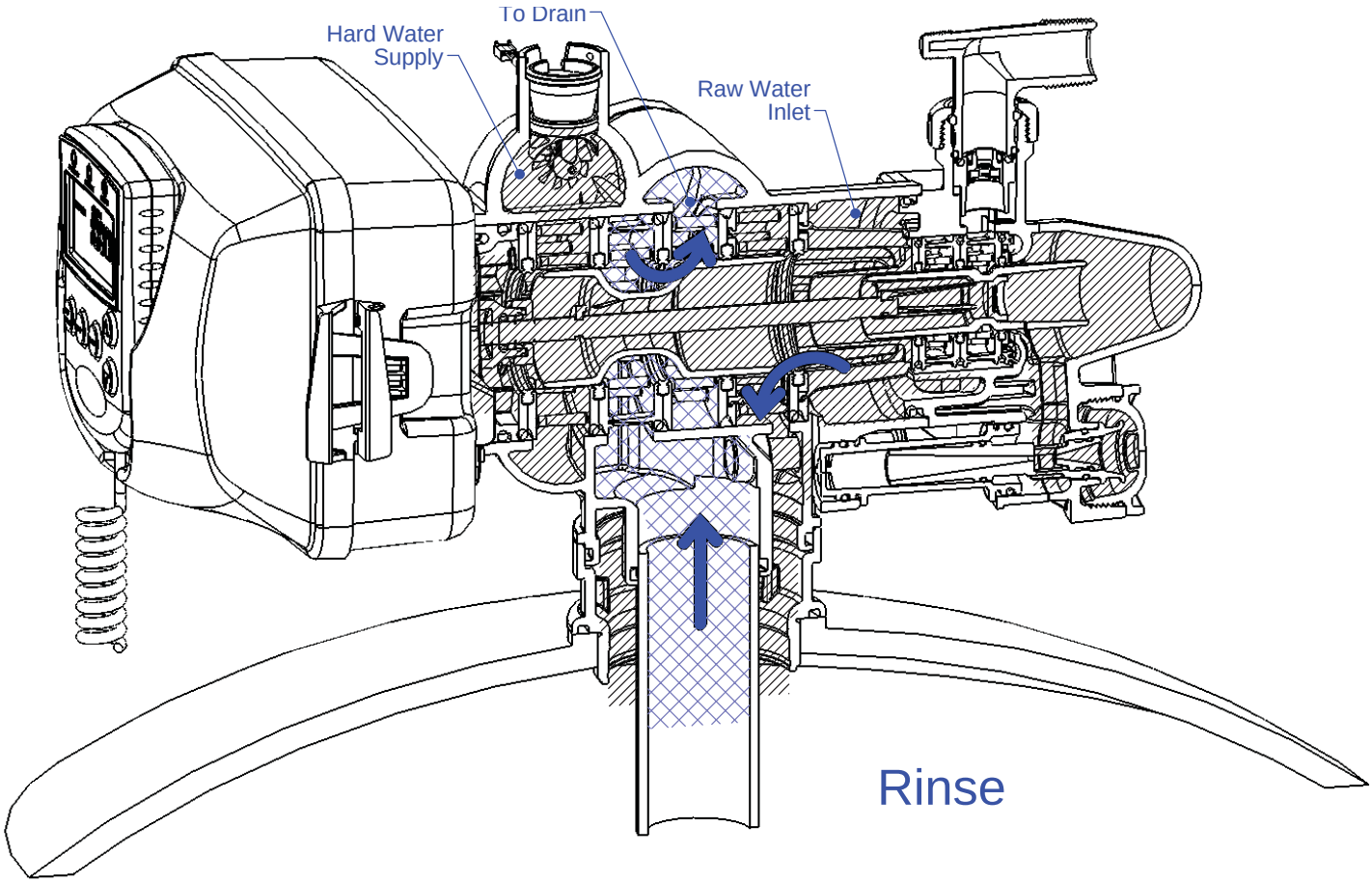
HISTORY 3
Total volume since startup.

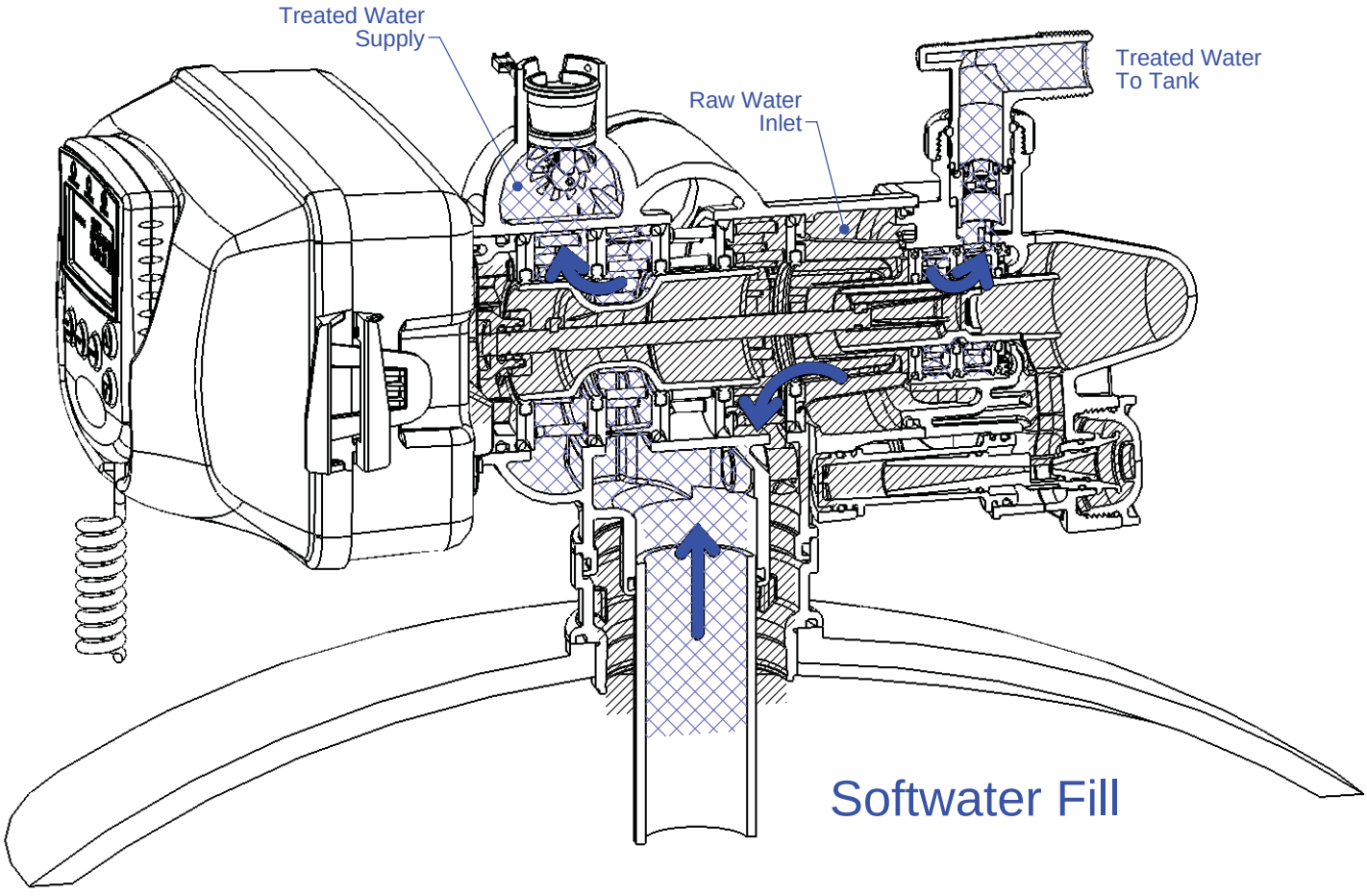

Treated Water
Supply
Raw Water
Inlet
Service


To Drain
Hard Water
Supply
Raw Water
Inlet
Backwash


Hard Water Supply
To Drain
Raw Water Inlet
Solution Is Drawn In
Draw

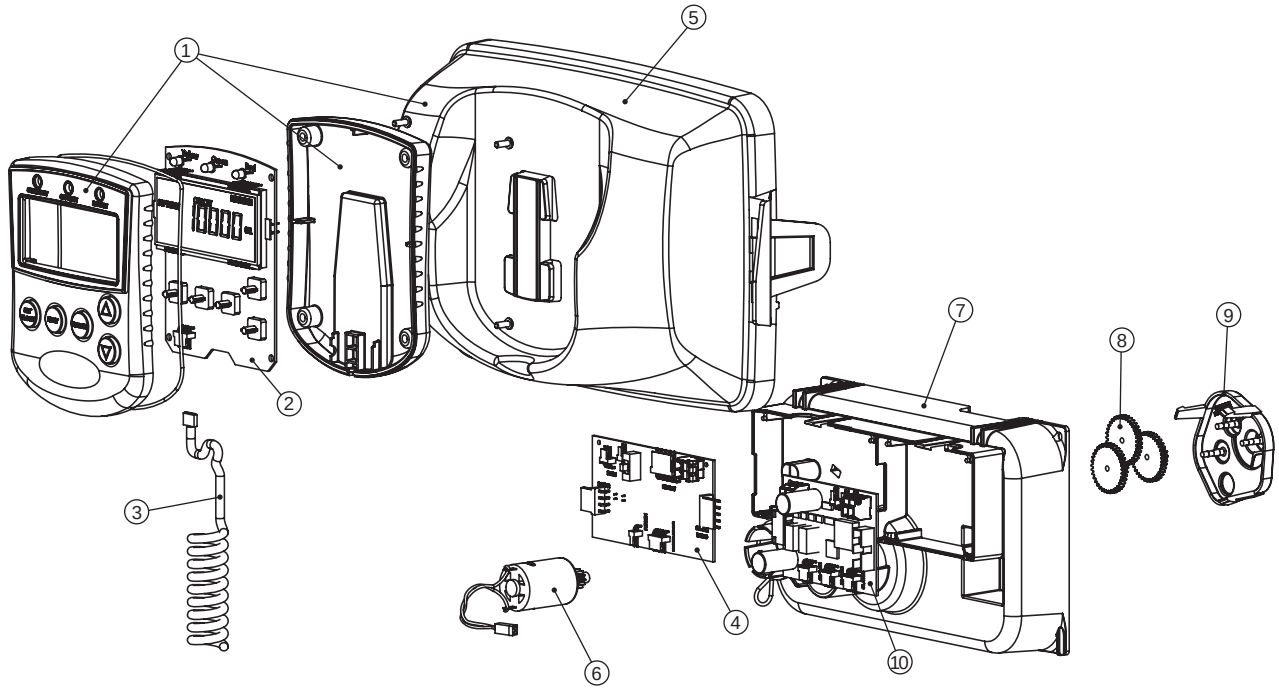

Hard Water Supply
To Drain
Raw Water Inlet
Slow Rinse


To Drain
Hard Water Supply
Raw Water Inlet
Rinse


Treated Water Supply
Raw Water Inlet
Treated Water To Tank
Softwater Fill

Front Cover and Drive Assembly

Drawing No.	Order No.	Description	Quantity
1	V3068	WS2 POD ASY	1
2	V3241-01	WS2 PC BOARD DISPLAY	1
3	V3248	WS2 CABLE DISPLAY POD	1
4	V3242-01	WS2 PC BOARD VALVE	1
5	V3224-01R	WS2 COVER ASY PLATINUM	1
6	V3107-01	WS1 MOTOR ASY	1
7	V3226-01	WS2 DRIVE BRACKET ASY	1
8	V3110	WS1 DRIVE GEAR 12X36	3
9	V3109	WS1 DRIVE GEAR COVER	1
Not Shown	V3461	WS2 AC ADAPTER 24V	1
Not Shown	V3461EU	WS2 AC ADAPTER 24V EU	
Not Shown	V3461UK	WS2 AC ADAPTER 24V UK	
10	V3243-01	WS2 PC BOARD SYSTEM	Optional
Not Shown	V3475-12	WS2 SYS CONNECT CORD 12 FT RED	Optional
Not Shown	V3475-24	WS2 SYS CONNECT CORD 24 FT BL	Optional
Not Shown	V3475-36	WS2 SYS CONNECT CORD 36 FT YEL	Optional



Drive Cap Assembly, Downflow Piston, Regenerant Piston, Spacer Stack Assembly, Drive Back Plate, Main Body and Meter

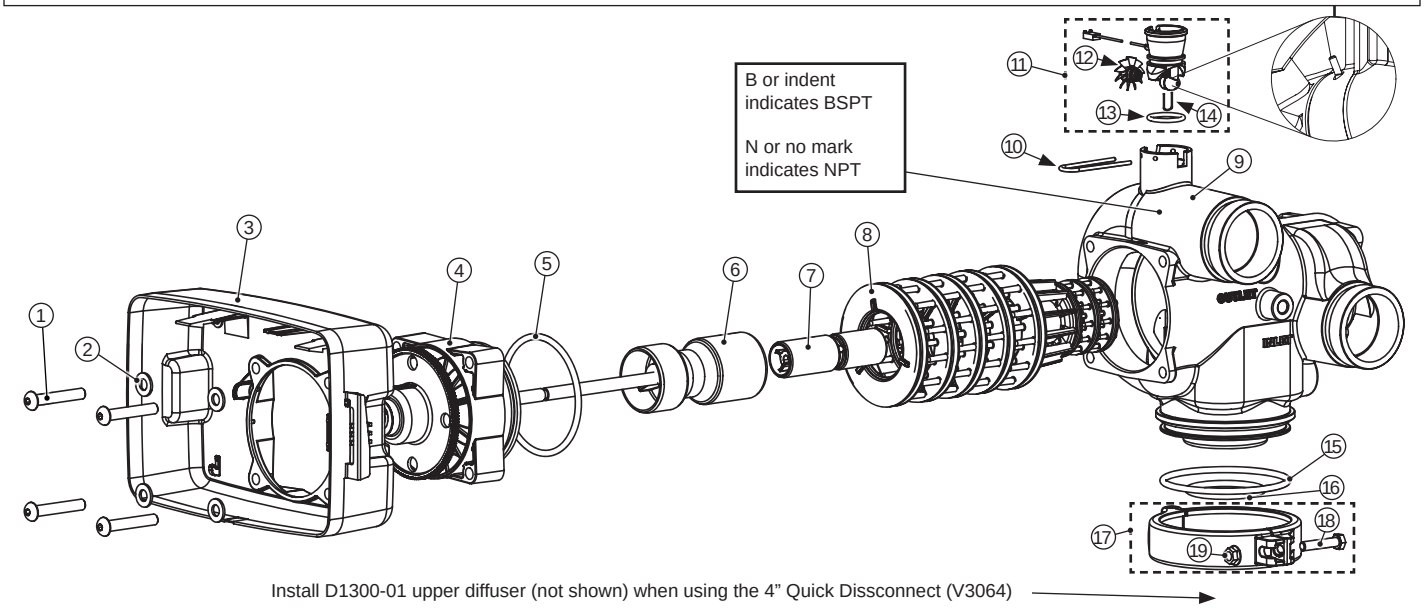
Drawing No.	Order No.	Description	Quantity
1	V3274	WS2 SCREW BTNSKT HD SS3/8-16X2	4
2	V3291	WS2 WASHER SS 3/8	4
3	V3225	WS2 BACK PLATE	1
4	V3066	WS2 DRIVE ASY	1
5	V3289	O-RING 344	1
6	V3204-01	WS2 PISTON	1
7	V3238-01	WS2 BRINE PISTON	1
8	V3065	WS2 STACK ASY	1
Not Shown	V3468	WS2 PLUG 1/4 HEX NPT (included when ordering V3201-03)	2
	V3465	WS2 PLUG 1/4 HEX BSPT (included when ordering V3201BSPT-03)	
9	V3201-03	WS2 BODY W/V3468 PLUG	1
	V3201BSPT-03	WS2 BSPT BODY W/V3465 PLUG	
10	V3223	WS15/WS2 METER CLIP	1
11	V3003-02	WS1.5/2H METER COMMERCIAL ASY	1
12	V3118-03	WS1.5/2 TURBINE ASY	1
13	V3105	O-RING 215	1
14	V3501	WS1.5/2 TURBINE CLIP	1
15	V3279	O-RING 346	1
16	V3280	O-RING 332 FOR VALVE BODIES WITH NPT THREADS	1
	V3452	O-RING 230 FOR VALVE BODIES WITH BSPT THREADS	
17	V3054**	WS2 4 IN BASE CLAMP ASY	1
18	V3276	WS2 BOLT HEX SS 5/16-18X1-3/4	1
19	V3269	WS2 NUT 5/16-18 SS HEX	1
Not Shown	D1300-01	TOP BAFFLE DFSR CLACK 2/63MM	1

**V3054 WS2 4 IN BASE CLAMP ASY includes a V3276 WS2 BOLT HEX SS 5/16-18X1-3/4 and V3269 WS2 NUT 5/16-18 SS HEX.

In 2007, a u-shaped retaining clip (V3501) was added to commercial meter assemblies to hold the turbine assembly in place. If V3501 is present, service or replace the turbine by:

1. Removing bend from the two exposed tips of the retaining clip and remove clip.
2. Service or replace the V3118-03 WS1.5/2 Turbine Assembly and place back on the turbine shaft.
3. Insert the V3501 WS1.5/2 Turbine Clip and rebend the exposed tips.

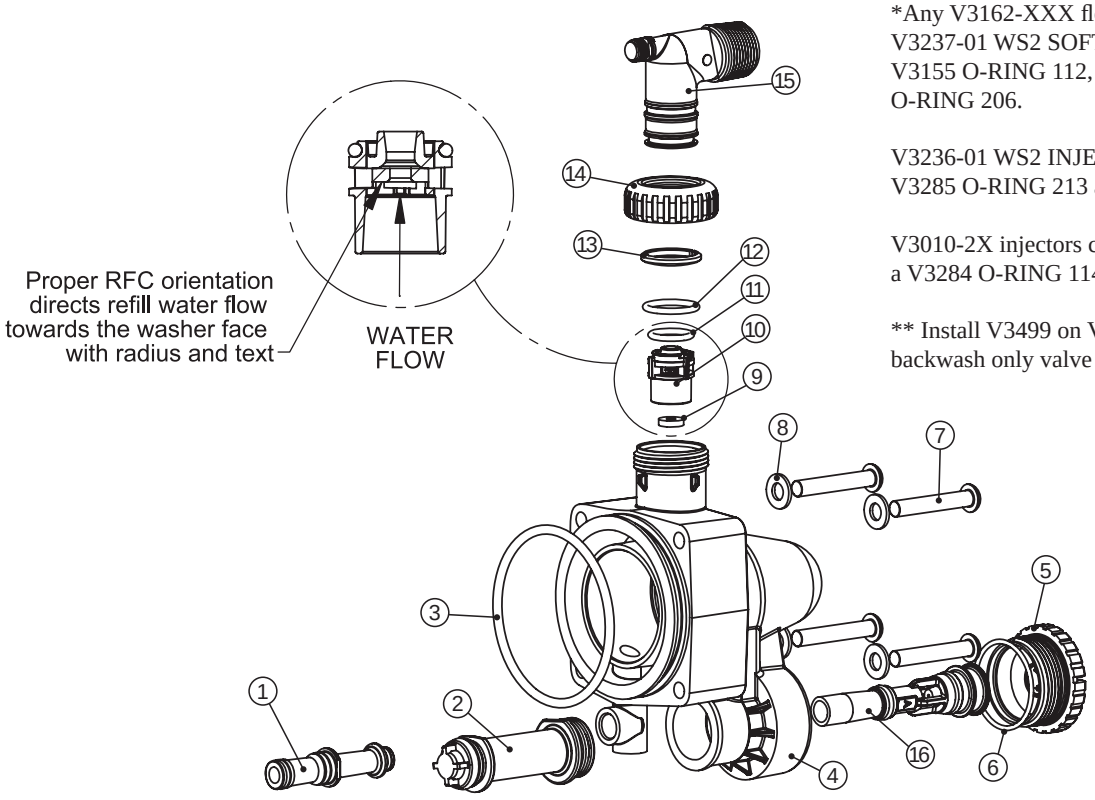
The V3118-03 has a groove to line up with the V3501 WS1.5/2 Turbine Clip. If the meter assembly does not have two holes in the bottom to insert the clip, use a V3118-01 Turbine Assembly or replace the entire meter.



Install D1300-01 upper diffuser (not shown) when using the 4" Quick Dissconnect (V3064)

Brine Valve Body and Injector Components

Drawing No.	Order No.	Description	Quantity
1	V3237-01	WS2 SOFTFILL TUBE ASY	1
2	V3236-01	WS2 INJECTOR TUBE ASY	1
3	V3289	O-RING 344	1
4	V3067	WS2 BRINE BODY ASY	1
5	V3477	WS2 INJECTOR CAP	1
6	V3152	O-RING 135	1
7	V3275	WS2 SCREW BSHD SS 3/8-16X2-1/4	4
8	V3291	WS2 WASHER SS 3/8	4
9	V3162-022*	WS1 DLFC 022 FOR 3/4	1
10	V3231	WS2 REFILL FLOW CNTRL RETAINER	1
11	V3277	O-RING 211	1
12	V3105	O-RING 215	1
13	V3150	WS1 SPLIT RING	1
14	V3151	WS1 NUT 1 QC	1
15	V3149	WS1 FTG 1 PVC MALE NPT ELBOW	1
Not Shown	V3189	WS1 FTG 3/4&1 PVC SLVNT 90	Optional
16	V3010-2A	WS2 INJECTOR ASY A	1
	V3010-2B	WS2 INJECTOR ASY B	
	V3010-2C	WS2 INJECTOR ASY C	
	V3010-2D	WS2 INJECTOR ASY D	
	V3010-2E	WS2 INJECTOR ASY E	
	V3010-2F	WS2 INJECTOR ASY F	
	V3010-2G	WS2 INJECTOR ASY G	
Not Shown	V3499**	WS2 FITTING CAP 1 IN THREADED	1



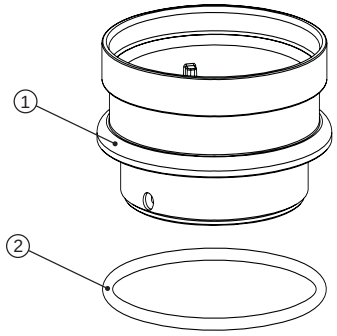
*Any V3162-XXX flow control may be used. V3237-01 WS2 SOFTFILL TUBE ASY contains a V3155 O-RING 112, V3287 O-RING 110 and a V3288 O-RING 206.

V3236-01 WS2 INJECTOR TUBE ASY contains a V3285 O-RING 213 and a V3286 O-RING 216.

V3010-2X injectors contains a V3283 O-RING 117 and a V3284 O-RING 114.

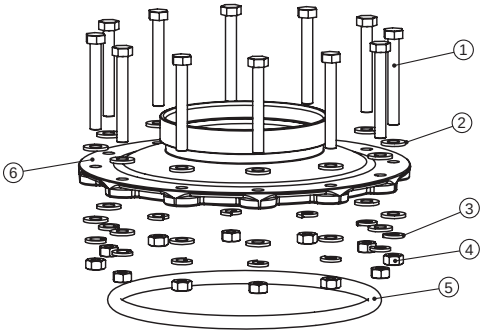
** Install V3499 on V3149 if valve is to be set up as a backwash only valve

V3064 WS2H/2L 4 INCH BASE ASY



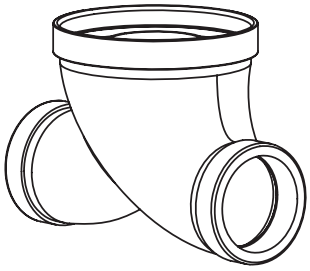
Drawing No.	Order No.	Description	Quantity
1	V3202-01	WS2 BASE	1
2	V3281	O-RING 348	1

V3055 WS2H/2L FLANGE BASE ASY

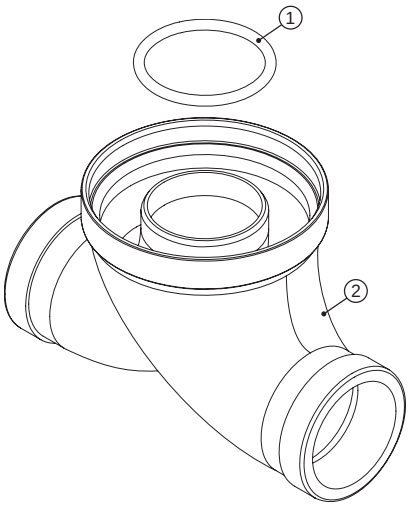


Drawing No.	Order No.	Description	Quantity
1	V3444	WS2 SCREW HEXCAP 5/16-18X2.5SS	12
2	V3293	WS2 WASHER SS 5/16 FLAT	24
3	V3445	WS2 WASHER SPLIT LOCK 5/16 SS	12
4	V3447	WS2 NUT HEX 5/16-8 FULL SS	12
5	COR60FL	O RING 6 FLANGE ADAPTER(PARK)	1
6	V3261-01	WS2 FLANGE BASE	1

V3260-02 WS2 SIDE MOUNT BASE NPT



V3260BSPT-02 WS2 SIDE MOUNT BASE BSPT ASY



Drawing No.	Order No.	Description	Quantity
1	V3280	O-RING 332	1
2	V3260BSPT-01	WS2 SIDE MOUNT BASE BSPT	1

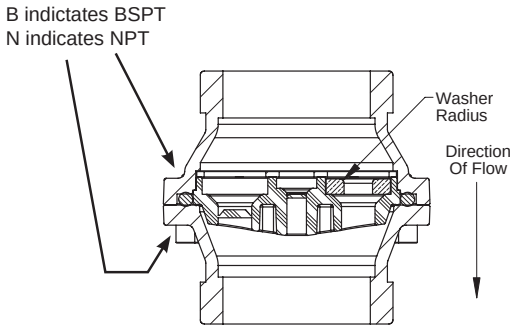
When using a side mount base with 2H BSPT valves replace distributor pilot o-ring V3452 O-RING 230 with V3280 O-RING 332. See exploded view of 2H valve in WS2H manual for specific location of distributor pilot o-ring.

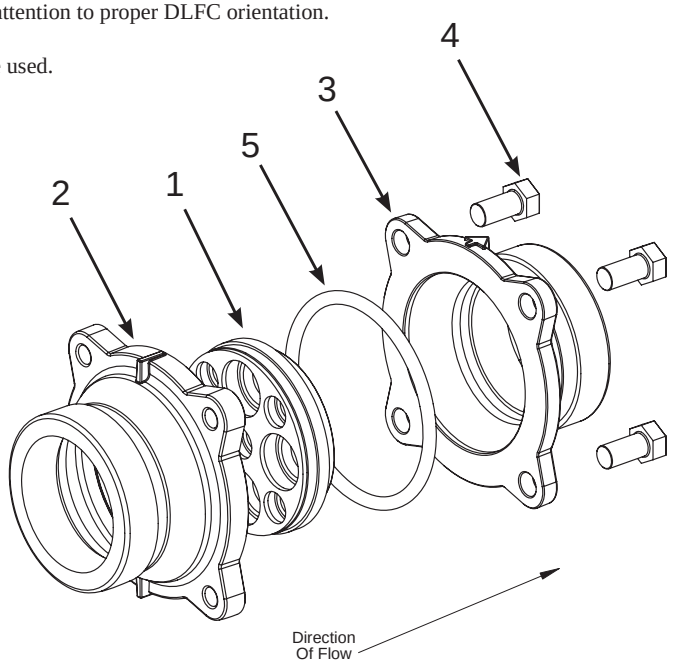
V3051 WS2 DLFC ASY NPT and V3051BSPT WS2 DLFC ASY BSPT

Drawing No.	Order No.	Description	Quantity
1	V3052	WS2 DLFC Retainer ASY	1
2	V3245	WS2 DLFC FLANGE INLET NPT	1
	V3245BSPT	WS2 DLFC FLANGE INLET BSPT	
3	V3246	WS2 DLFC FLANGE OUTLET NPT	1
	V3246BSPT	WS2 DLFC FLANGE OUTLET BSPT	
4	V3273	BOLT HEX HD S/S HCS 3/8-16X3/4	4
5	V3278	O-ring 338	1
Not Shown	V3162-007	WS1 DLFC 0.7 gpm for 3/4	Install One or More DLFC's. Up to 5 of the V3162-XXX may be installed in the small holes. Up to 4 of the V3190-XXX may be installed in the large holes.
	V3162-010	WS1 DLFC 1.0 gpm for 3/4	
	V3162-013	WS1 DLFC 1.3 gpm for 3/4	
	V3162-017	WS1 DLFC 1.7 gpm for 3/4	
	V3162-022	WS1 DLFC 2.2 gpm for 3/4	
	V3162-027	WS1 DLFC 2.7 gpm for ¾	
	V3162-032	WS1 DLFC 3.2 f gpm or 3/4	
	V3162-042	WS1 DLFC 4.2 gpm for 3/4	
	V3162-053	WS1 DLFC 5.3 gpm for 3/4	
	V3162-065	WS1 DLFC 6.5 gpm for 3/4	
	V3162-075	WS1 DLFC 7.5 gpm for 3/4	
	V3162-090	WS1 DLFC 9.0 gpm for 3/4	
	V3162-100	WS1 DLFC 10.0 gpm for 3/4	
	V3190-090	WS1 DLFC 9.0 gpm for 1	
	V3190-100	WS1 DLFC 10.0 gpm for 1	
	V3190-110	WS1 DLFC 11.0 gpm for 1	
	V3190-130	WS1 DLFC 13.0 gpm for 1	
	V3190-150	WS1 DLFC 15.0 gpm for 1	
	V3190-170	WS1 DLFC 17.0 gpm for 1	
	V3190-200	WS1 DLFC 20.0 gpm for 1	
	V3190-250	WS1 DLFC 25.0 gpm for 1	

Assemblies are shipped without drain line flow control (DLFC). Assembly instructions:

1. Determine the desired flowrate. Select a combination of V3162-XXX's and V3190-XXX's to arrive at the desired flow rate. Up to five of the smaller V3162-XXX's may be used. Up to four of the larger V3190-XXX's may be used.
2. Using a drill or punch remove the desired knockout(s) in V3052.
3. Smooth hole(s).
4. Install appropriate size(s) of drain line flow control washers. Pay close attention to proper DLFC orientation.
5. Assemble. Properly orientate the V3052 in the direction of flow.
6. Inlet and outlet threads are 2" NPT. Couplings for iron pipe may also be used.



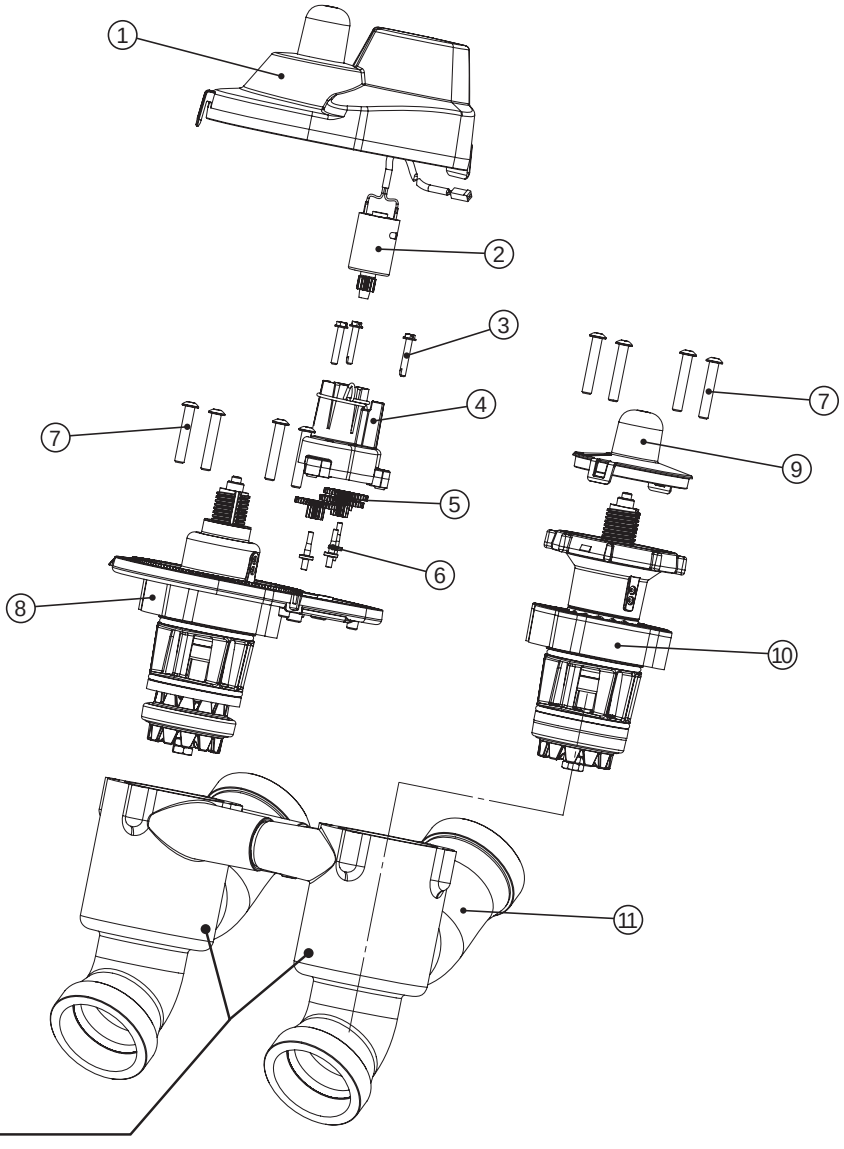


V3060 WS2 BYPASS AUTO NPT, V3060BSPT WS2 BYPASS AUTO BSPT, V3061BSPT WS2 BYPASS MANUAL BSPT and V3061 WS2 BYPASS MANUAL NPT

Drawing No.	Order No.	Description	Quantity	
			V3060	V3061
1	V3056	WS1.5&2ALT/2BYPASS AUTO CVRASY	1	N/A
2	V3476	WS MOTOR ASY 8 FT	1	N/A
3	V3272	WS2 SCREW 8X1 SS HEX SELF TAP	3	N/A
4	V3262-01	WS1.5&2ALT/2BY REDUCGEARCVRASY	1	N/A
5	V3110	WS1 DRIVE GEAR 12X36	3	N/A
6	V3264	WS2 BYPASS REDUCTION GEAR AXLE	3	N/A
7	V3292	WS2 SCREW BSHD SS 1/4-20X1-1/2	8	8
8	V3059	WS1.5&2ALT/2BYPAS AUTODRIVEASY	1	N/A
9	V3268	WS2 BYPASS COVER DOME MANUAL	1	2
10	V3058	WS2 BYPASS MANUAL DRIVE ASY	1	2
11	V3057	WS2 BYPASS BODY ASY NPT	1	1
	V3057BSPT	WS2 BYPASS BODY ASY BSPT		
Not Shown	V3053	WS2 2-1/2 GROOVELOCK CLAMP ASY	2	2

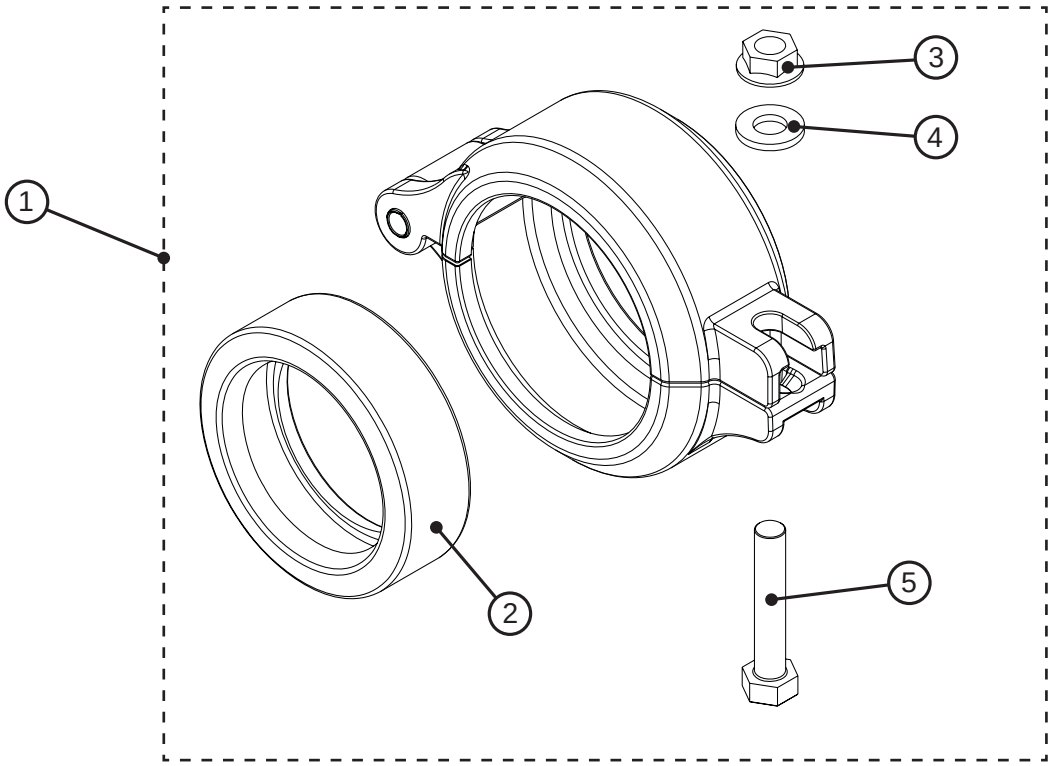
Treated water is used for refill whether or not an auto or manual bypass is installed to either the inlet or outlet of a control valve. The Auto Drive Assembly may be connected to the inlet or outlet of the control valve to achieve no hard water bypass. If the Auto Drive Assembly is connected to the control valve:

- inlet then all regeneration cycles occur with treated water.
- outlet then all regeneration cycles except for refill occur with untreated water.



V3053 WS2 2-1/2 GROOVELOCK CLAMP ASY

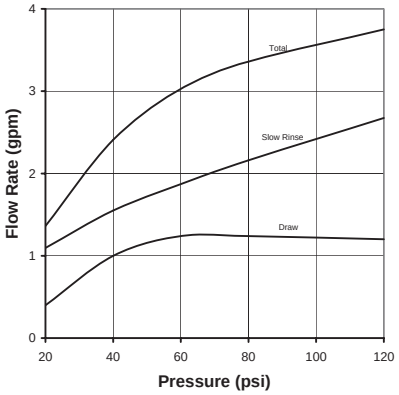
Drawing No.	Order No.	Description	Quantity
1	V3053	WS2 2-1/2 GROOVELOCK CLAMP ASY	1
2	V3290	WS2 GROOVE LOCK SEAL 2.5	1
3	V3269	WS2 NUT 5/16-18 SS HEX	1
4	V3293	WS2 WASHER SS 5/16 FLAT	1
5	V3276	WS2 BOLT HEX SS 5/16-18X1-3/4	1
Not Shown	S3086	SILICONE LUBRICANT	1



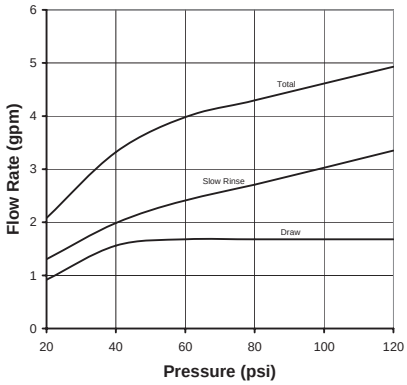
Error Codes

Error	Description	Possible Cause
1001	Encoder on main board is not registering pulses	Drive motor is not engaged with mating gear
		Faulty drive motor or wiring
		Reflectors on reduction gear are dirty or damaged
		Circuit board is not properly engaged with drive bracket
		Faulty encoder / main board
1002	Unexpected stall	Debris jamming piston
		Faulty drive motor
		Faulty drive component creating drag
1003	Run time to long	Main drive gear not properly engaged
		Motor pinion slipping on shaft
		Faulty motor or wiring
15003	Bypass motor runtime to long	Missing engagement between bypass drive motor and main gear
		Bypass drive motor not connected to main board
		Faulty bypass drive motor or wiring
15010	Bypass runtime to short while trying to drive offline	Debris jamming drive
		Faulty drive component creating drag
15011	Bypass runtime to short while trying to drive online	Debris jamming drive
		Faulty drive component creating drag
17000	Separate source inlet drive runtime to long	Missing engagement between separate source drive motor and main gear
		Separate source drive motor not connected to system board
		Faulty separate source drive motor or wiring
17002	Separate source inlet drive error	Debris in separate source valve
		Faulty drive component creating drag
# Units	Master has lost communication with another unit	Faulty communication cable
		Other unit has lost power or is in error mode
		More than one unit is programmed as master

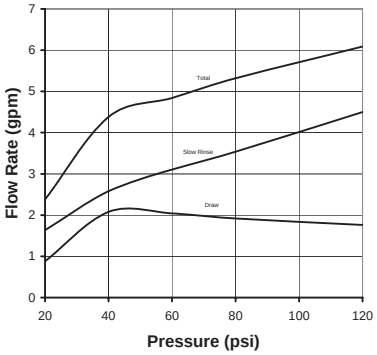
Order No. V3010-2A US Units



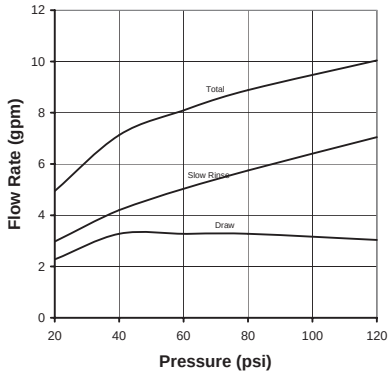
Order No. V3010-2B US Units



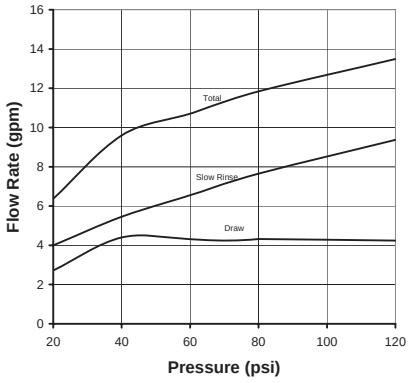
Order No. V3010-2C US Units



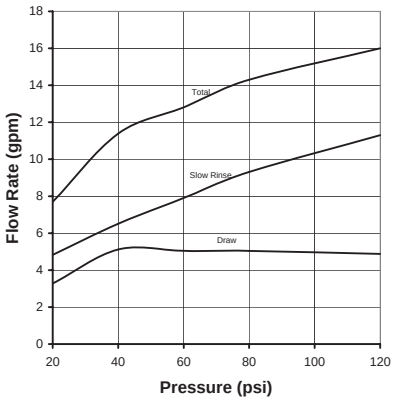
Order No. V3010-2D US Units



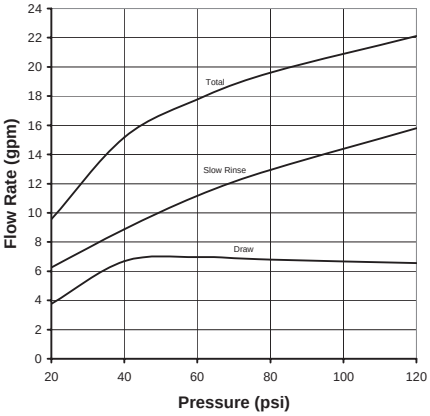
Order No. V3010-2E US Units



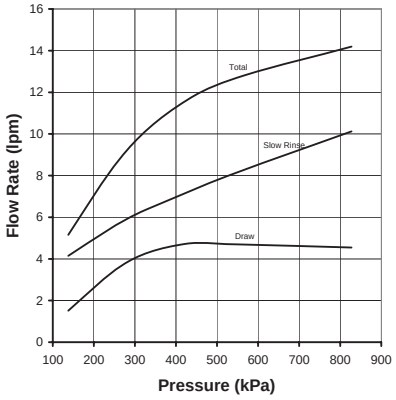
Order No. V3010-2F US Units



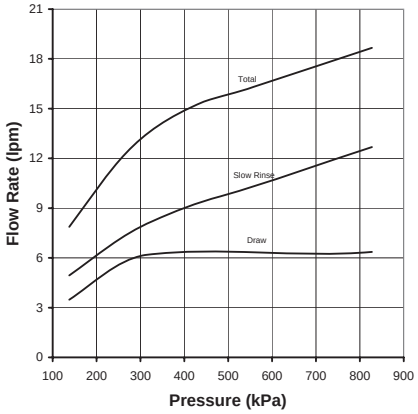
Order No. V3010-2G US Units



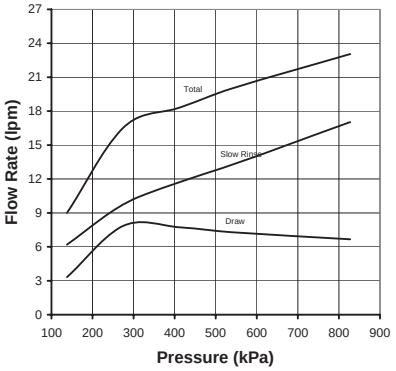
Order No. V3010-2A Metric Units



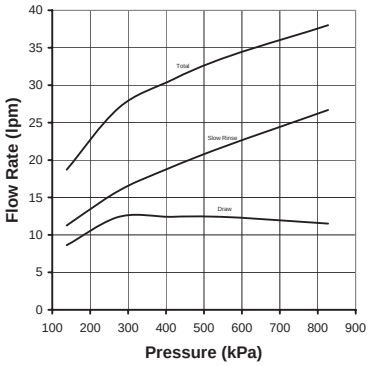
Order No. V3010-2B Metric Units



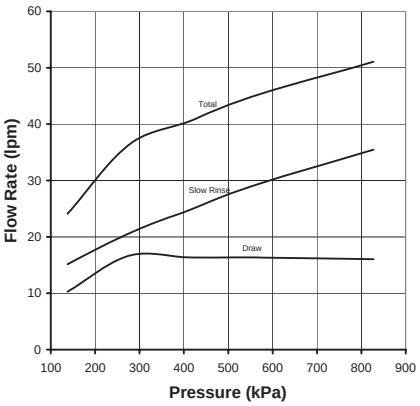
Order No. V3010-2C Metric Units



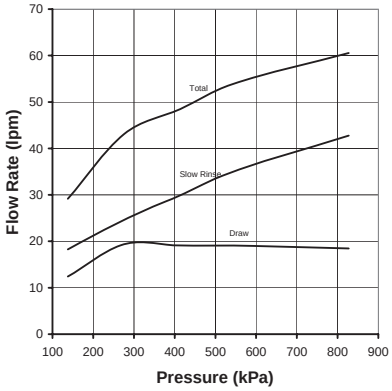
Order No. V3010-2D Metric Units



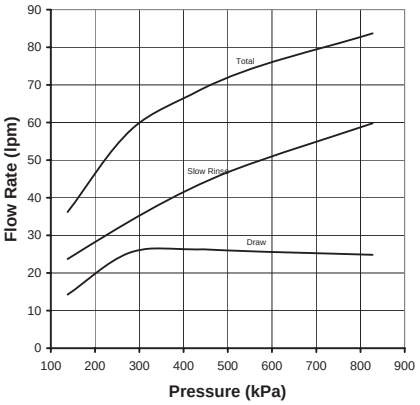
Order No. V3010-2E Metric Units



Order No. V3010-2F Metric Units



Order No. V3010-2G Metric Units



Revision History:

06/21/07

PAGE 3:
2) Maximum power through relays
a. **1**A, 30 VDC
b. **1**A, 30 VAC

PAGE 29:
V3260BSPT-02 WS2 SIDE MOUNT BASE BSPT ASY
Added drawing and table

PAGE 31:
6 V3264 WS2 BYPASS REDUCTION GEAR **AXLE** 3 N/A

06/25/07

PAGE 29:
V3260-0**2** WS2 SIDE MOUNT BASE NPT

09/06/07

PAGE 27:
Update Tubine Asy. part# V3118-03 and Turbine Asy. drawing

U.S. Patents: 6,402,944; 6,444,127; and 6,776,901