AQUA MAGIC Plus

Owner and Operational Manual

Model: _____

Serial Number: _____

Install Date: _____

Installed By: _____

Service Phone: _____

Sold By: _____

Please read this manual carefully before proceeding with installation. Your failure to follow any of these instructions or operating parameters may lead to personal injury or damage to the equipment and/or personal property. Do not use this Iron Filter system with water that is microbiologically unsafe or of unknown quality, without adequate disinfection before or after the system. This water treatment system contains replaceable treatment components critical for effective performance. It is the user's responsibility to periodically test the product water to verify the system is performing satisfactorily. Failure to properly maintain this water treatment system may cause a health risk.

Save this manual for future reference

FRAKCO

Aqua Magic Guardian Series
10.16.2024 SB

Table of Contents

This owner's manual is designed to assist owners and installers with the operation, maintenance and installation of your new water filter. Detailed instructions on general operating conditions, installation instructions, start-up, and programming are included. A troubleshooting guide, service instructions and parts diagrams are also included to assist with future needs.

Please contact the dealer who installed the system if you need professional assistance in service of your water filter.

Guardian General Specifications

Inlet/Outlet.....1”
Cycles.....2
Valve Material .....Noryl©

Operating Pressures

Minimum/Maximum .....40 - 80psi
Optimal Range.....40 - 60psi
***Pump output must meet or exceed backwash rate.**

Operating Temperatures

Minimum/Maximum .....40° - 110°F

Flow Rate

Guardian 150 Series .....5 - 9 gpm
Guardian 250 Series .....9 - 14 gpm

Dimensions

Drain Line .....¾” or 1” NPT
Electrical Current Draw and Voltage.....120V/15VDC

* Operating outside of the optimum pressure range may affect system functionality. Contact your dealer for more information.
** Guardian Series not to be used with micro-biologically unsafe water sources

Pre-Installation Check List

(All electrical and plumbing should be done in accordance to all local codes)

Guardian Series is acceptable for indoor use only

Water Quality: Sand and sediment are often problems in rural water supplies. They may plug the filter and restrict water flow through the media bed. Well and/or pump problems affecting the operation of the filter and repairs are not covered under warranty.
Water Pressure: A minimum of 40 pounds of water pressure (psi) is required for operation. Maximum pressure is 80 psi.
Water Temperature: Filter water temperature must not exceed 110°F or be subject to freezing.
Existing Plumbing: Must be free from build-up. If plumbing is blocked, it must be replaced or additional equipment may be needed ahead of filter.
Electrical: All electrical connections must be connected per local codes.
Drain Line: Filter should be located near drain. Do not use overhead drain lines as possible back pressure may occur.
Bypass Valves: Always allow for installation of a bypass valve.

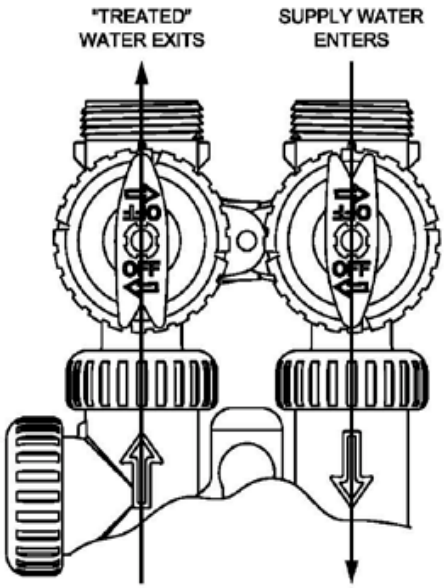
Start-Up Instructions

***For optimal results, the filter media should be soaked for 12 hours prior to installation.**

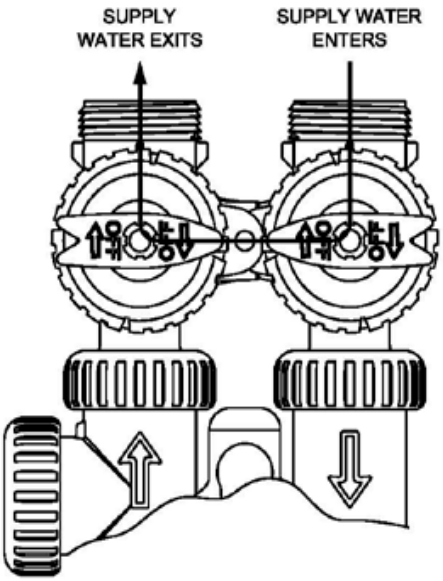
1. Complete all plumbing connections; inlet, outlet, and drain line.
2. Place bypass in bypass position. Turn on main water supply and open a cold filtered faucet to clear lines of air or obstructions.
3. Plug unit into a 120-volt outlet. Valve will move to service position once connection is made.
4. Start a backwash cycle by holding the “REGEN” button down until valve movement is heard.
5. Slowly open inlet valve on bypass until it is fully in open position. Allow water to run to the drain until clear.
6. Allow system to continue going through all the cycles.
7. Filter is ready for use after first regeneration cycle is complete.

BYPASS VALVE OPERATION

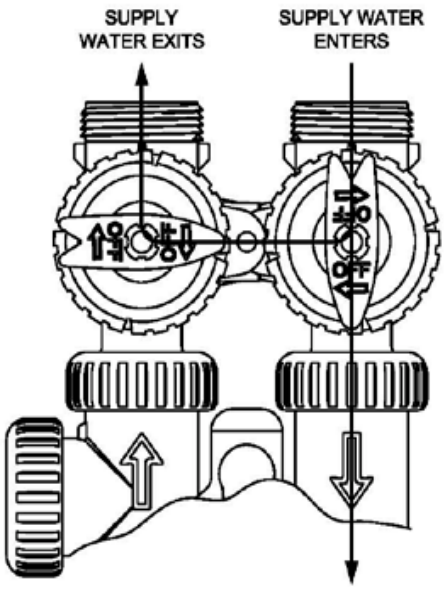
NORMAL OPERATION



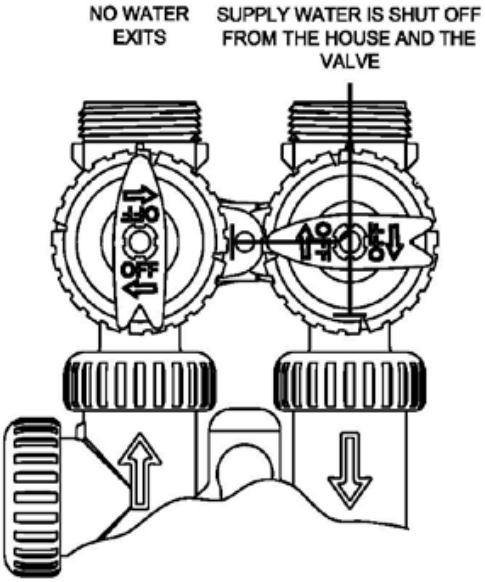
BYPASS OPERATION



DIAGNOSTIC MODE



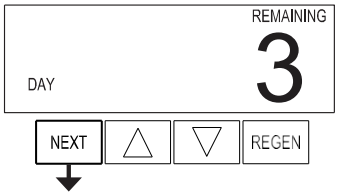
SHUT OFF MODE



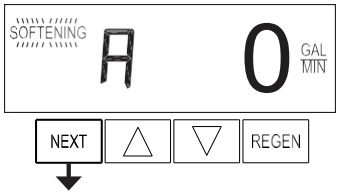
User Displays

General Operation

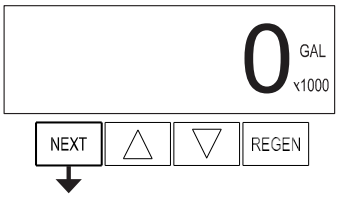
When the system is operating, one of four displays may be shown. Pressing NEXT will alternate between the displays shown below.



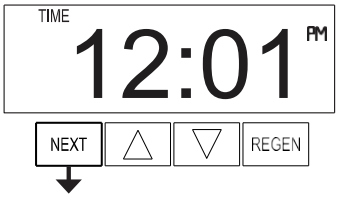
User 1
Displays number of days to next regeneration.



User 2
Flow Rate. Displays present flow rate.

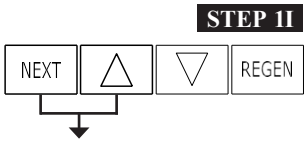


User 3
Displays total volume in gallons since last reset.

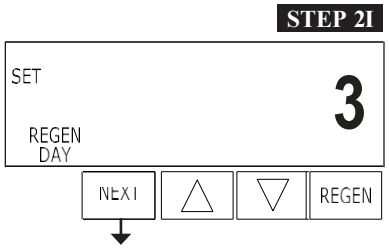


User 4
Shows current time.

Installer Display Settings

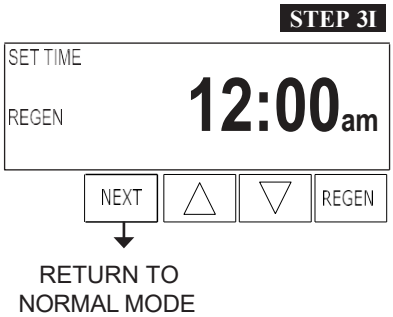


STEP 1| - Press NEXT and ▲ simultaneously for 3 seconds. Press NEXT to advance through the programming settings.



STEP 2| – Day Override: Sets the number of days between regenerations. Set Day Override using : ▲ or ▼

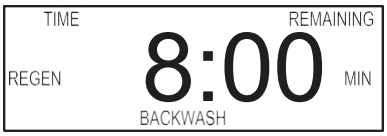
- number of days between regeneration (1 to 28). Reference charts below.
- Backwash frequency based on incoming water quality



STEP 3| – Regeneration Time (hour): Set the hour of day for regeneration using ▲ or ▼. AM/PM toggles after 12. The default time is 12:00 a.m. as most water softeners regenerate at 2:00am. Regeneration should occur during a period of low water usage. Press REGEN to return to previous step.

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.

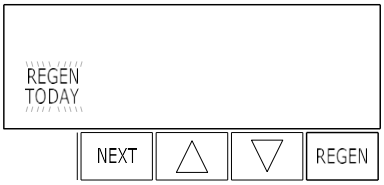


When the system begins to regenerate, the display will change to include information about the step of the regeneration process and the time remaining for that step to be completed. The system runs through the steps automatically and will reset itself to provide treated water when the regeneration has been completed.

Manual Regeneration

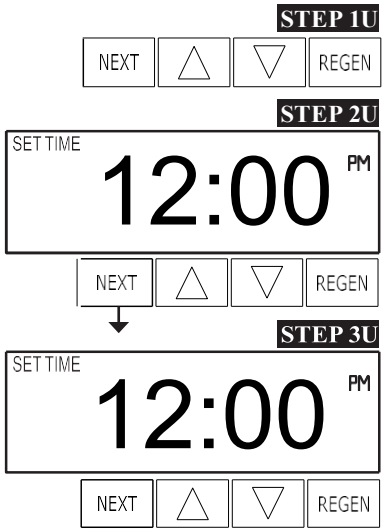
Sometimes there is a need to regenerate the system sooner than when the system calls for it, usually referred to as manual regeneration. There may be a period of heavy water usage because of guests or a heavy laundry day.

REGEN TODAY will Flash if a regeneration is expected "Tonight."



To initiate a manual regeneration at the preset delayed regeneration time, press and release REGEN. The words "REGEN TODAY" will flash on the display to indicate that the system will regenerate at the preset delayed regeneration time. If you pressed REGEN in error, pressing the button again will cancel the request.

To initiate a manual regeneration immediately, press and hold REGEN for three seconds. The system will begin to regenerate immediately. The request cannot be cancelled.



Set Time of Day

The user can also set the time of day. Time of day should only need to be set after power outages lasting more than 8 hours, if the battery has been depleted and a power outage occurs, or when daylight saving time begins or ends. If a power outage lasting more than 8 hours occurs, the time of day will flash on and off which indicates the time of day should be reset. If a power outage lasts less than 8 hours and the time of day flashes on and off, the time of day should be reset and the battery replaced.

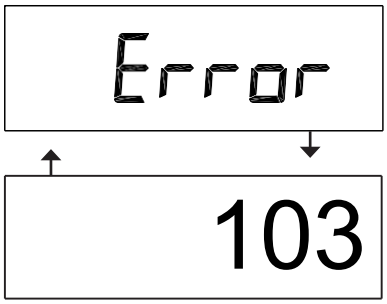
STEP 1U – Press and hold ▲ until the time starts to change.

STEP 2U - Current Time (hour): Set the hour of the day using ▲ or ▼. AM/PM toggles after 12. Press NEXT to go to step 3U.

STEP 3U - Current Time (minutes): Set the minutes of the day using ▲ or ▼. Press NEXT to exit Set Clock. Press REGEN to return to previous step.

Error Message

If the word "ERROR" and a number are alternately flashing on the display contact the OEM for help. This indicates that the valve was not able to function properly.



Front Cover and Drive Assembly

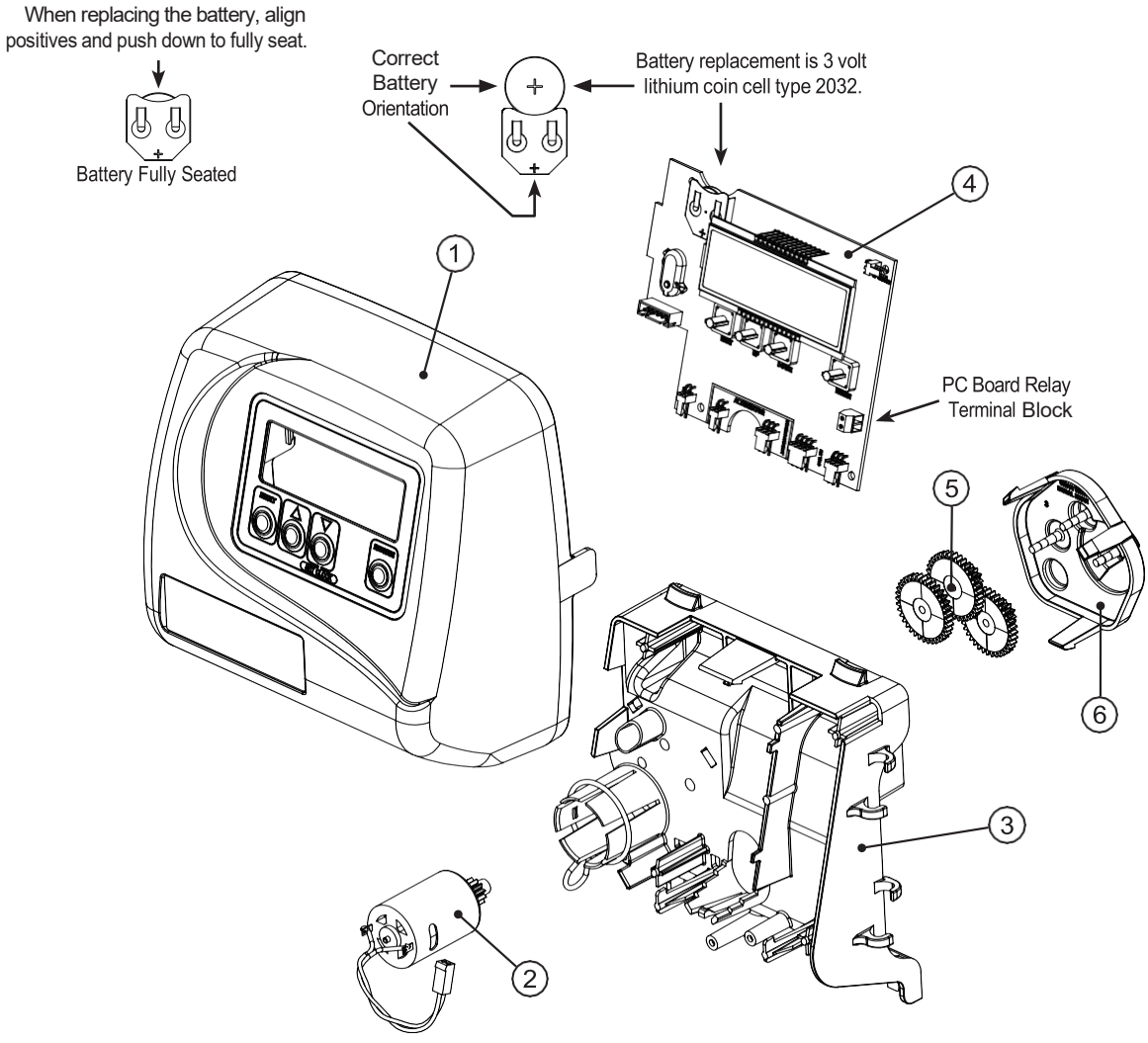
Drawing No.	Order No.	Description	Quantity
1	V3175EE-01	Front Cover Assembly	1
2	V3107-01	Motor	1
3	V3002-B	Drive Bracket & Spring Clip	1
4	V3408EE-04BOARD	Thru/2EE PCB 5 Digit Replacement	1
5	V3110	Drive Gear 12x36	3
6	V3109	Drive Gear Cover	1
Not Shown	V3186	AC Adapter 120V/15VCD	1
	V3178	Drive Back Plate	

Refer to Control Valve Service Manual for other drawings and part numbers.

AC Adapter	U.S.	International
Supply Voltage	120 V AC	230V AC
Supply Frequency	60 Hz	50 Hz
Output Voltage	15 V DC	15 V DC
Output Current	500 mA	500 mA

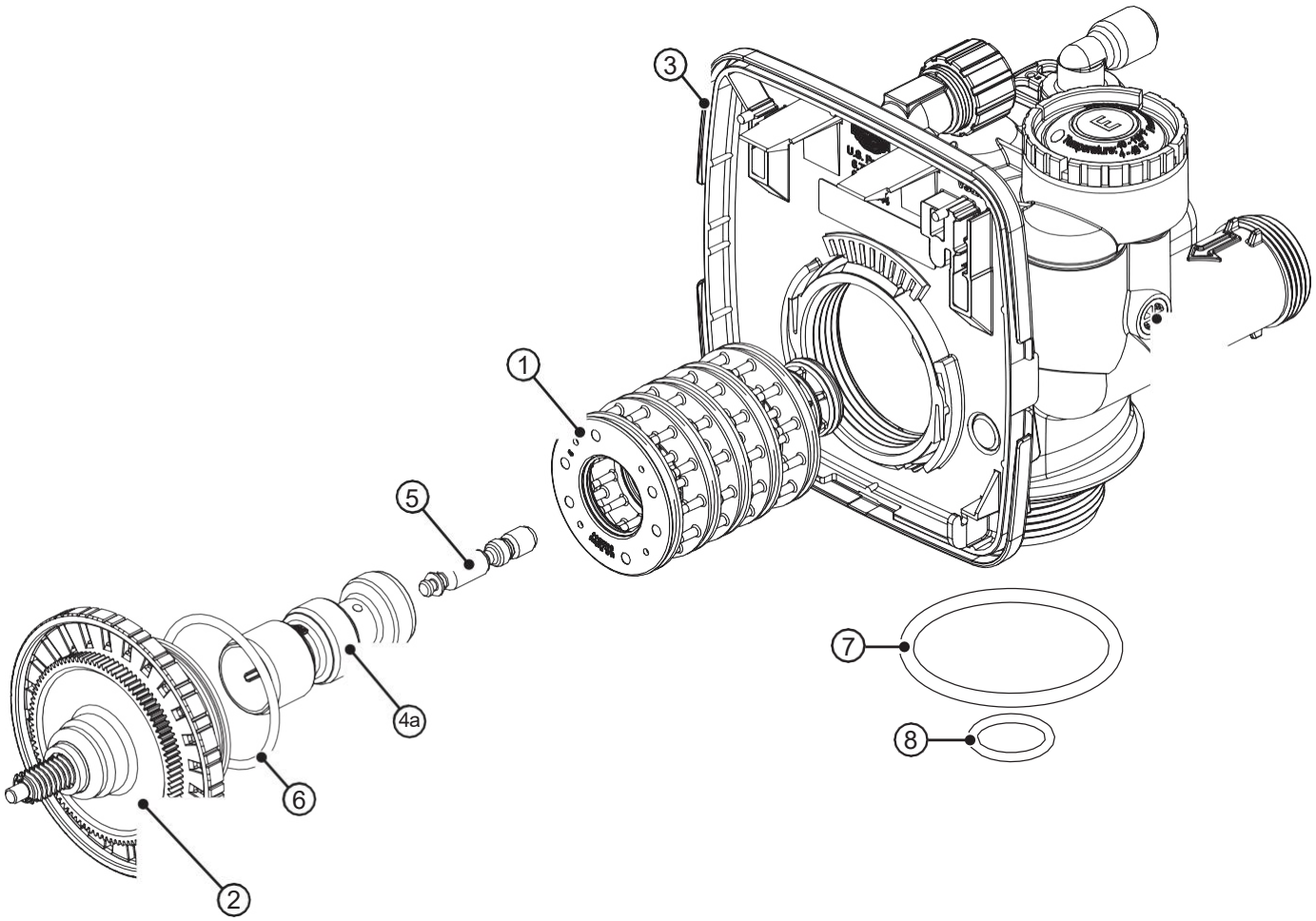
Relay Specifications: 12V DC Relay with a coil resistance not less than 80 ohms. If mounting relay under the cover check for proper mounting dimensions on the backplate.

Wiring for Correct On/Off Operation	
PC Board Relay Terminal Block	Relay
RLY 1	Coil -
+ COM	Coil +



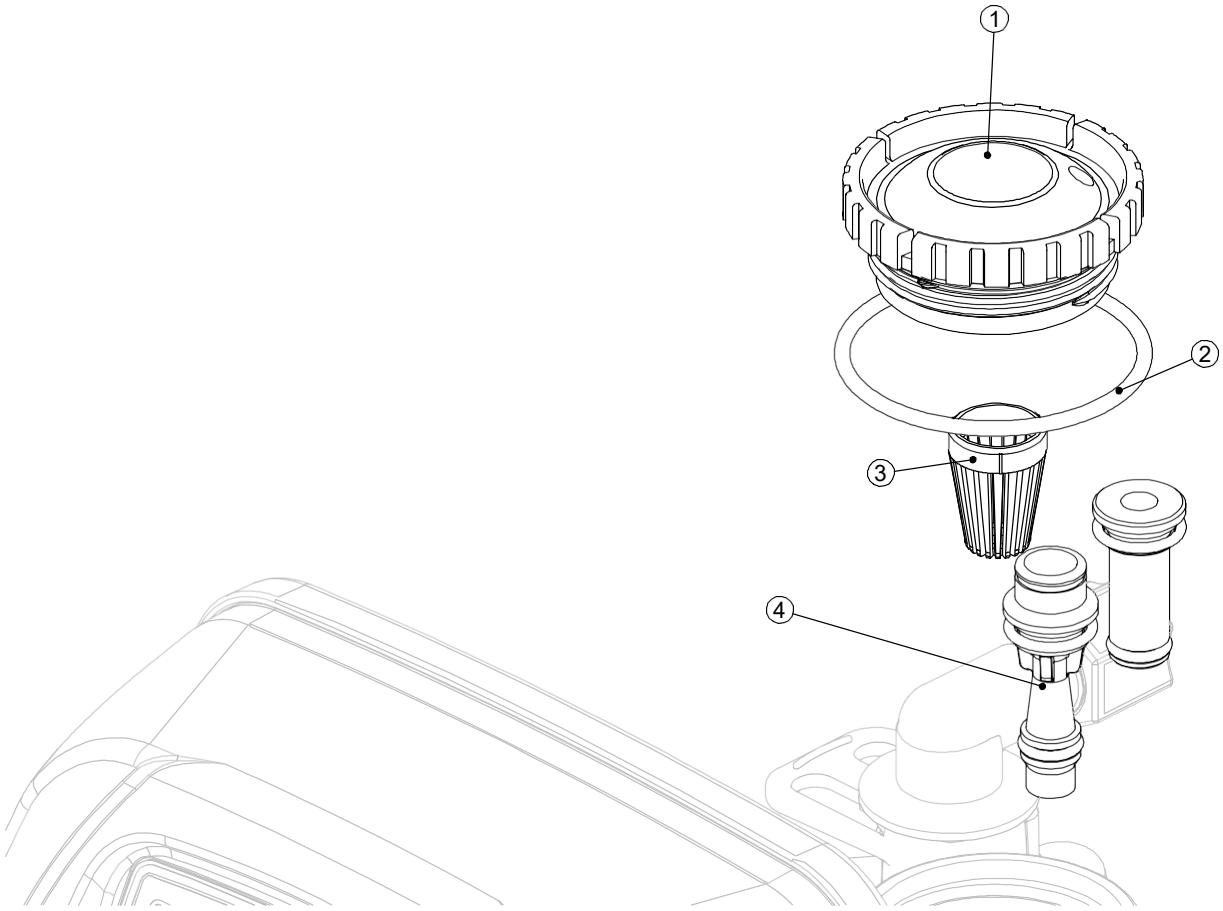
Drive Cap Assembly, Downflow Piston, Upflow Piston, Regenerant Piston and Spacer Stack Assembly

Drawing No.	Order No.	Description	Quantity
1	V3005-02	Spacer Stack Assembly	1
2	V3004	Drive Cap ASY	1
3	Back Plate	Refer to Programming and Cover Drawing Manual	1
4	V3011	Piston Downflow ASY	1
5	V3174	Regenerant Piston	1
6	V3135	O-ring 228	1
7	V3180	O-ring 337	1
8	V3105	O-ring 215 (Distributor Tube)	1
Not Shown	V3001	Body ASY Downflow	1



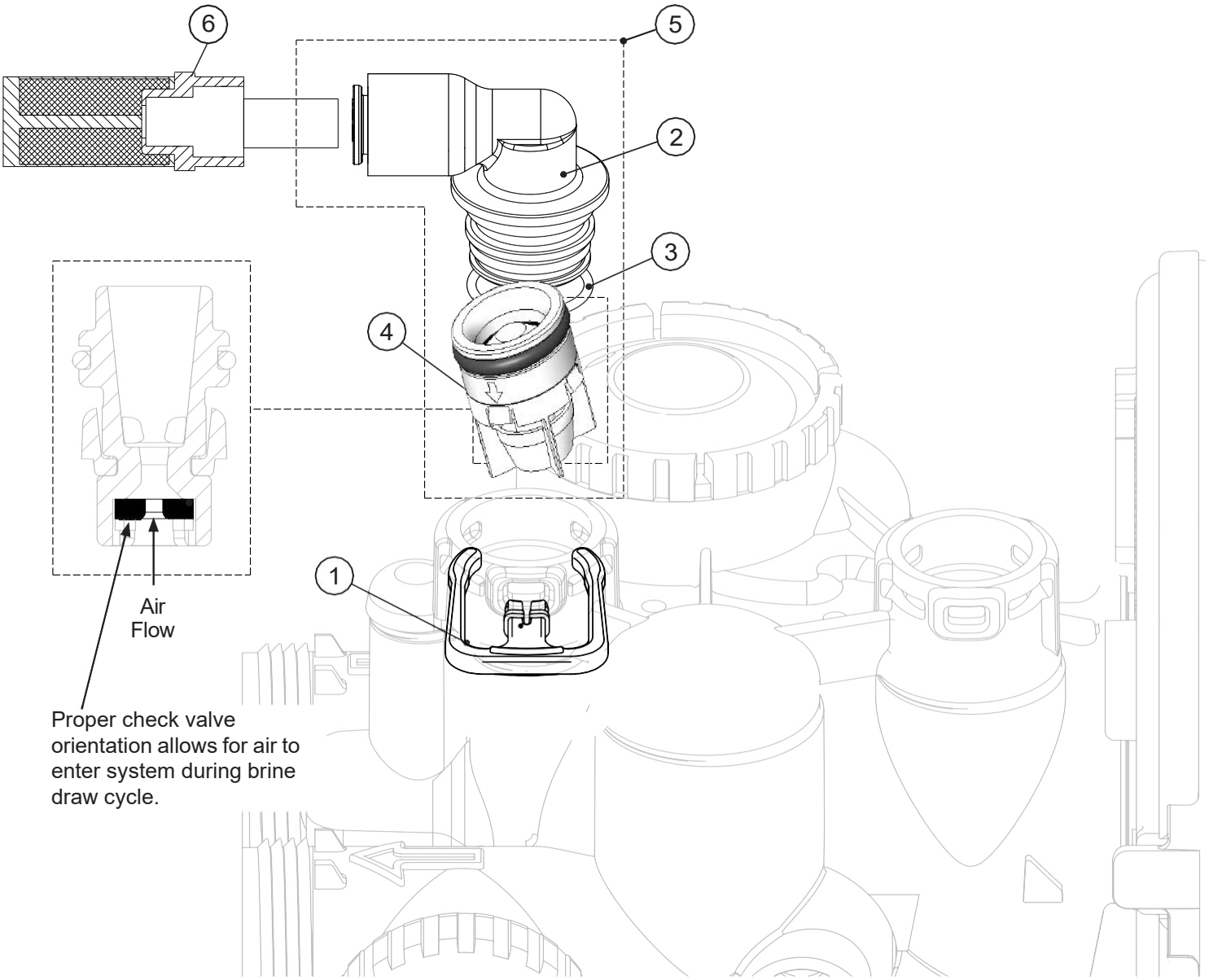
Injector Cap, Injector Screen, Injector, Plug and O-Ring

Drawing No.	Order No.	Description	Quantity
1	V3176	Injector Cap	1
2	V3152	O-Ring 135	1
3	V3177-01	Injector Screen Cage	1
4	V3010-1X	Injector Asy (Specify Tank Size)	1



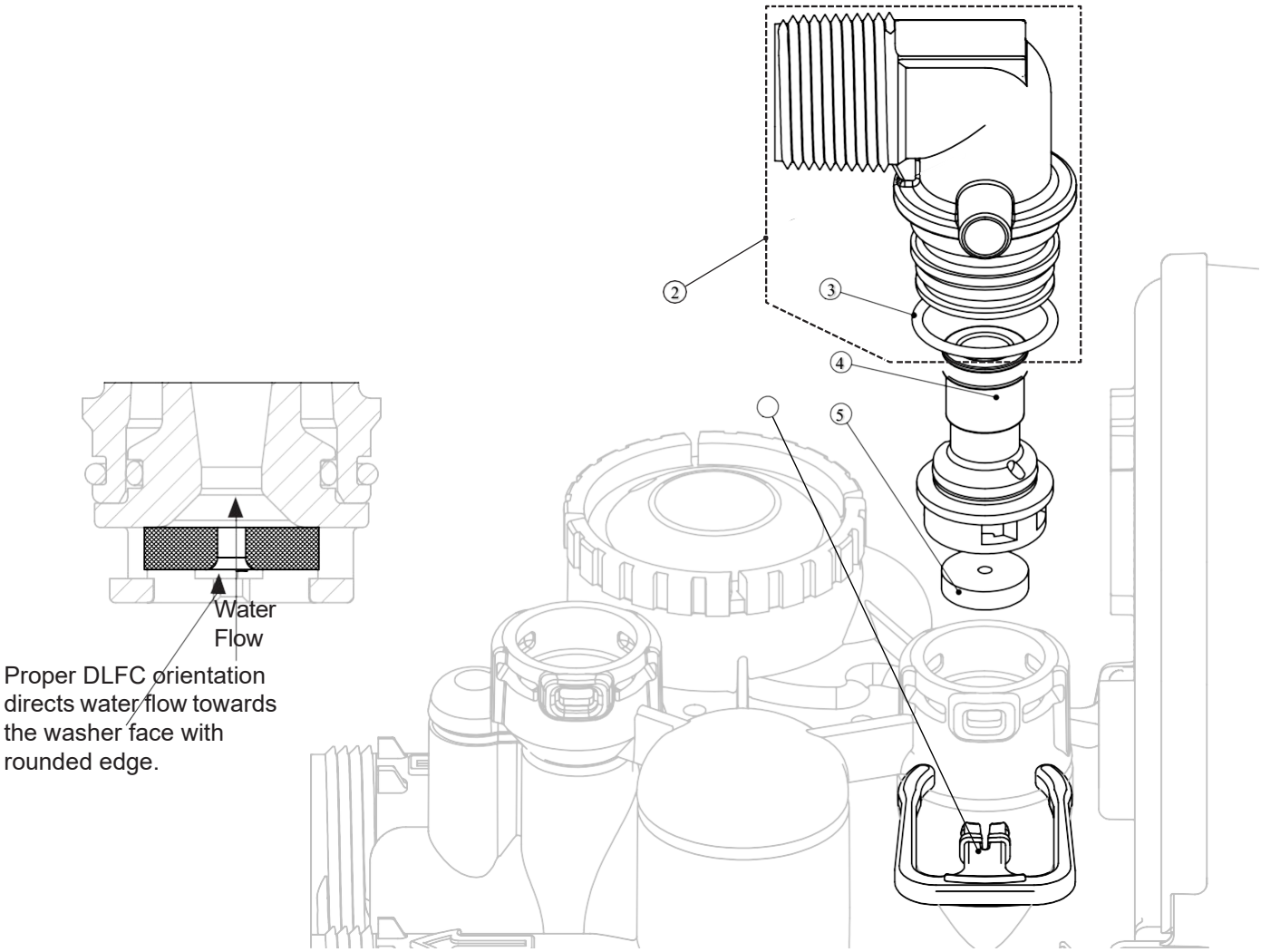
Refill Control and Check Valve

Drawing No.	Order No.	Description	Quantity
1	H4615	Elbow Locking Clip	1
2	V4144	Elbow 3/8” Liquifit	1
3	V3163	0-ring 019	1
4	NeoOV15	15 MM Check Valve	1
5	V4144-01CV	Elbow 3/8 Liquifit Asy w/CV	1
6	ABPUS1	Brine Screen with Tube	1



Drain Line – 3/4”

Drawing No.	Order No.	Description	Quantity
1	H4615	Elbow Locking Clip	1
2	V3962	Drain Elbow ¾ Male	1
3	V3163	O-ring 019	1
4	V3159-01	DLFC Retainer ASY	1
5	V3162-xxx	DLFC Based Upon tank and media used	One DLFC must be used if ¾ fitting is used

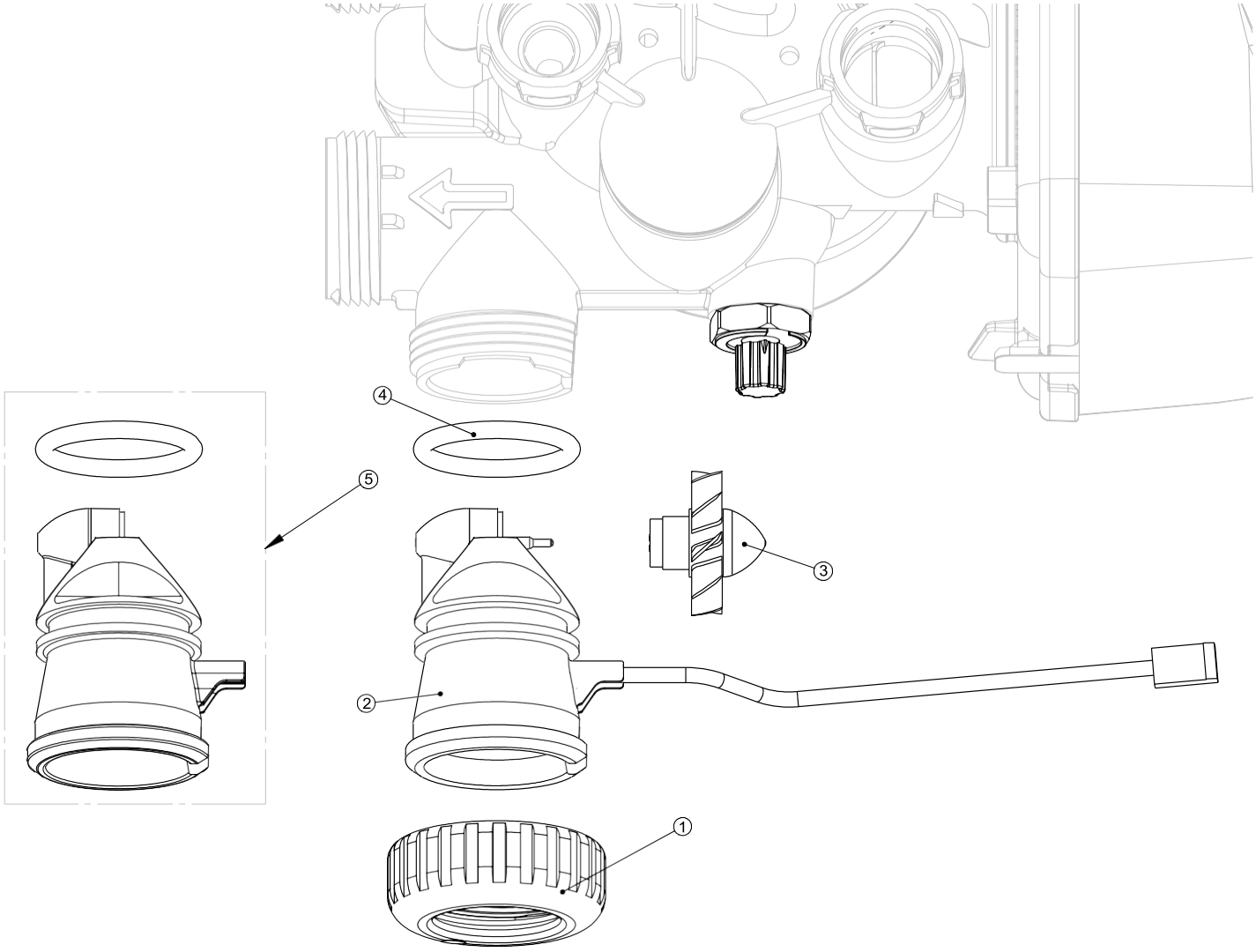


Water Meter, Meter Plug and Mixing Valve

Drawing No.	Order No.	Description	Quantity
1	V3151	Nut 1” QC	1
2	V3003-05	Meter ASY	1
3	V3118-01	Turbine ASY	1
4	V3105	O-ring 215	1
5	V3003-01	Meter Plug ASY	1

Order number V3003-05 includes V3118-01 AM1 Turbine ASY and V3105 O-ring 215.

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

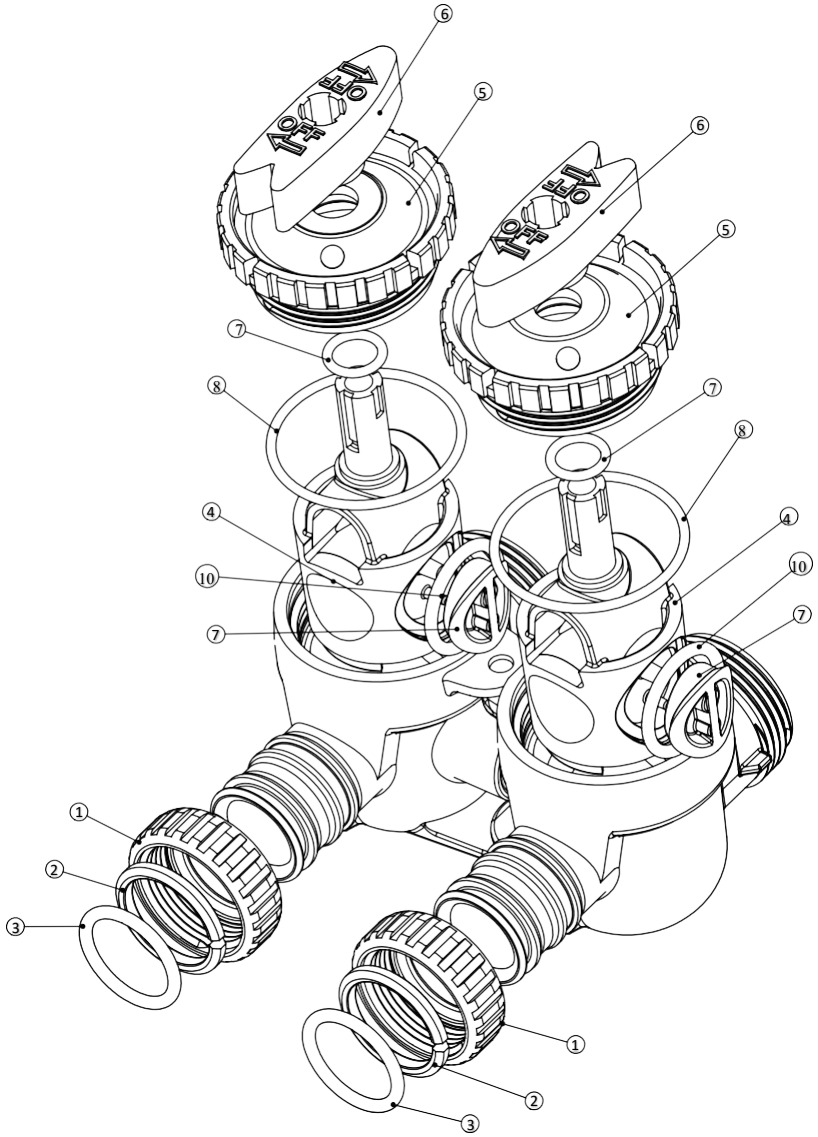


Bypass Valve

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

(Not Shown) Order No. V3191-01, Description: AM1 Bypass Vertical Adapter Assembly

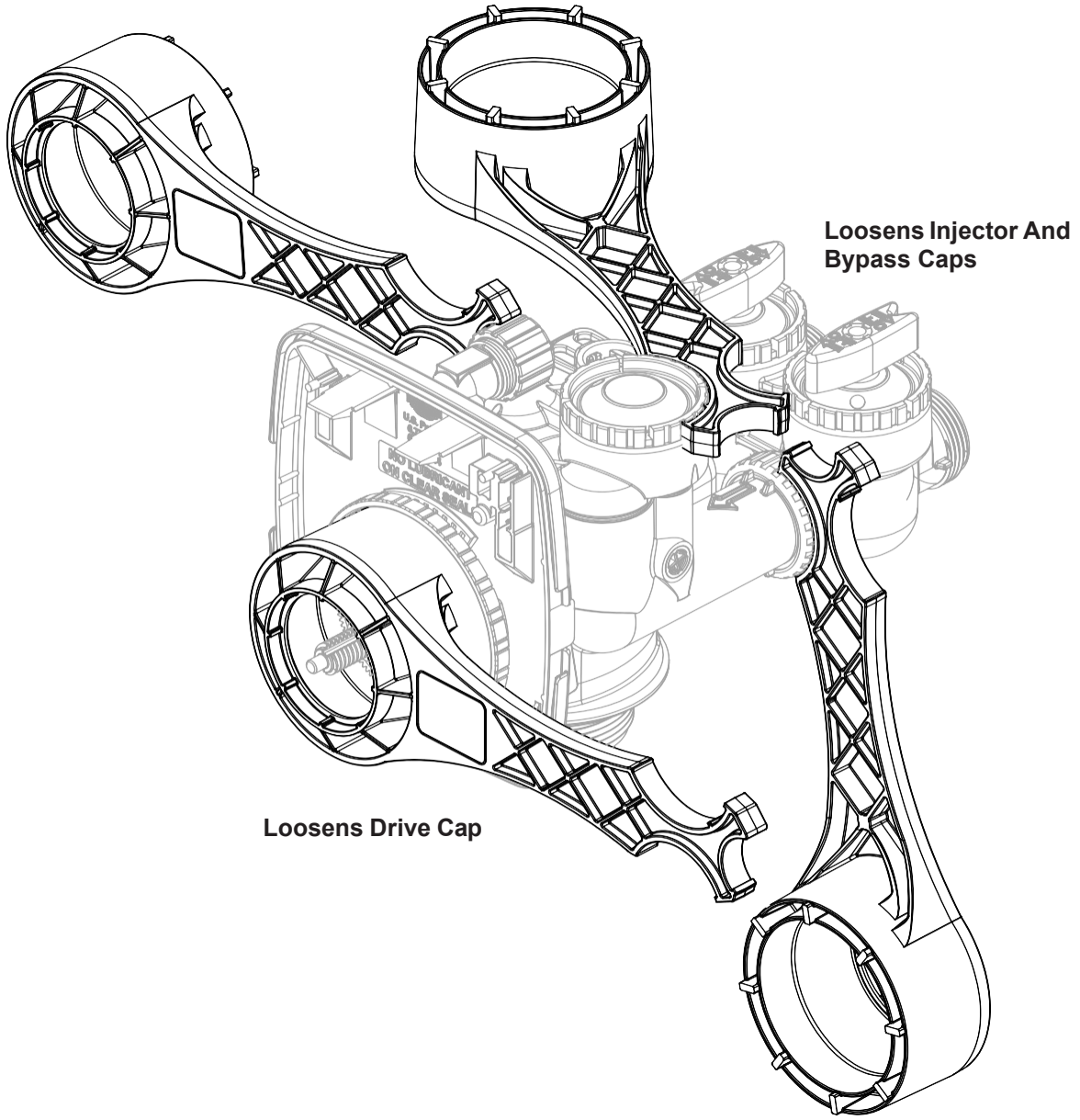
Order No.	Description	Quantity
V3151	Nut 1” Quick Connect	2
V3150	Split Ring	2
V3105	O-Ring 215	2
V3191	Bypass Vertical Adapter	2



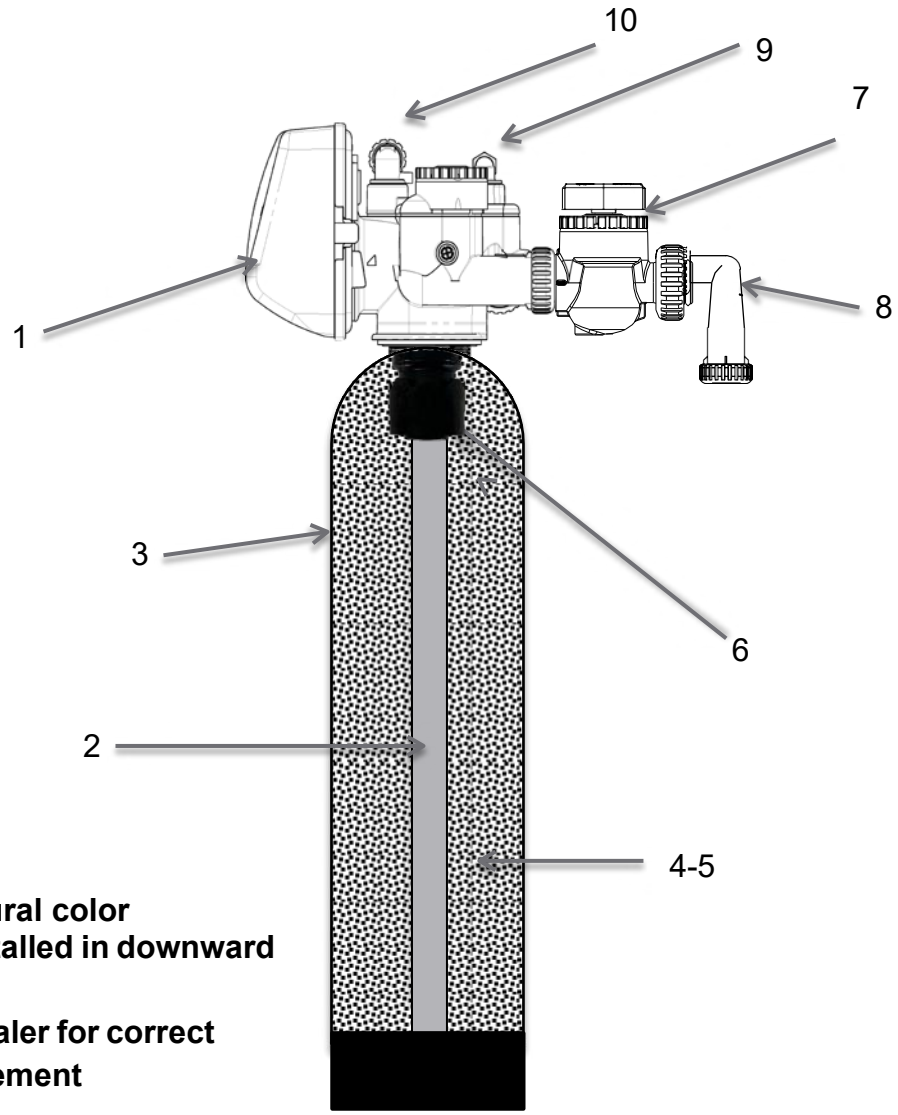
Service Spanner Wrench

(Order No. V3193-02)

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.



Item	Quantity	Part Number	Description
1	1	CIOX-V1EEDTF	CIOX Valve
2	1	ENDT	Distributor Tube
3	1	EN104 * VT	Vortech Mineral Tank
		EN1354 * VT	Vortech Mineral Tank
4-5	1.5/2.5	***	Filter Media
6	1	D1047	Air Blocker
7	1	V3006	Bypass Assembly
8	1	V3191-01CV	Elbow Assembly with CV**
9	1	V4144-01CV	Brine Elbow with CV
10	1	V3962	Drain Assembly



***Black or natural color**
****Must be installed in downward position**
*****Consult dealer for correct media replacement**

Troubleshooting

Problem	Cause	Solution
1. Blank or unreadable LCD display	A. Transformer unplugged	A. Connect to Power
	B. Defective transformer	B. Check to ensure 12 volt motor, replace transformer
	C. No electric power at outlet	C. Repair outlet or switch to working outlet
	D. Check battery in valve	D. Replace battery if less than 3 volts
	E. PC board is defective	E. Replace PC Board
2. Control valve stalled in regeneration	A. Broken drive gear or drive cap assembly	A. Replace drive gear or drive cap assembly
	B. Broken regenerant piston	B. Replace regenerant piston
	C. Broken main piston	C. Replace main piston
	D. Motor not operating correctly	D. Replace motor
	E. Defective transformer	E. Check to ensure 12 volt motor, replace transformer
	F. No power to unit	F. Ensure working outlet
3. Control valve regenerates at wrong time of day	A. Power outages	A. Reset time of day, replace lithium coin type battery on circuit board
	B. Time of day not set correctly	B. Reset time of day
	C. Control valve is programmed incorrectly	C. Check control valve programming procedure
4. Odor/Color noticed on outlet of filter	A. Perform water analysis	A. Increase regeneration time. a. Exceeding flow rate specification
	B. Determine if filter media needs replacing	B. Replace filter media
5. Reduction of water pressure	A. Determine if filter media needs replacing	A. Replace filter media

Water Treatment System Warranty

This quality FRAKCO Iron Filter is designed and built to provide many years of satisfactory performance under normal use. FRAKCO, INC. pledges to the original owner that for sixty months, all non-wearable items of the above-described water treatment system proven to be defective due to workmanship and/or materials will be replaced or repaired. FRAKCO also pledges that the fiberglass media tank is covered under this warranty for ten years if owned by the original purchaser. Our pledge does not apply if the damage is caused by defective installation; water pressure in excess of eighty pounds per square inch; water temperature in excess of 110° F.; misuse; unauthorized alterations; freezing; accident; fire; neglect; or damage caused by shipping.

To obtain service under this warranty, notify FRAKCO, INC in writing of any defects in workmanship within thirty days of the appearance of such defects. Such written notice must include the date of purchase, the part number, and a description of the defect. Upon receiving such notice and determining that the defect is covered by this warranty, FRAKCO, INC. will replace or repair the defective item. Replacement of a defective item will be at FRAKCO'S factory in Luverne, MN, and the purchaser must ship the defective item at its own expense to FRAKCO'S factory. Replacement items will be shipped by FRAKCO F.O.B. Luverne, Minnesota, with a shipping carton furnished. In the event certain models or colors of the replacement item are out of stock, FRAKCO, INC. may, after notifying the purchaser, furnish another model or color of the replacement item. The factory will not pay for service charges and will not perform any repair or service functions other than at its home office.

Please follow the enclosed instructions and local codes in installing your water treatment system. Failure to do so will void this warranty. Nothing in the warranty may be construed as involving the factory in the relationship between Dealer and Owner.

This warranty gives the purchaser specific legal rights. The purchase may also have implied warranty rights. In the event of a problem with warranty service or performance, the purchaser may be able to go to a Small Claims Court, a State Court, or a Federal District Court. This warranty complies with the 1975 Federal Warranty Law.

Model No. _____ Serial No._____

Date Installed _____ Dealer _____

Address_____

MANUFACTURED BY: FRAKCO, INC.
500 N BLUE MOUND AVE
LUVERNE, MINNESOTA 56156
WWW.FRAKCO.COM