



Installation Instructions & Owner's Manual

Evolve Series®

Water Filters



For Models:

- EVFE
- EVS
- EAG
- EACG
- EVBF
- EVBF-AN
- EVT
- EVT1

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YOUR WATER TEST

Hardness _____ gpg
Iron _____ ppm
pH _____ number
*Nitrates _____ ppm
Manganese _____ ppm
Sulphur _____ yes/no
Total Dissolved Solids _____

*Over 10 ppm may be harmful for human consumption.
Water conditioners do not remove nitrates or coliform bacteria,
this requires specialized equipment.

Look for our
Evolve
instructional
videos on

YouTube

Your Evolve Series water filters are precision built, high quality products. These units will deliver filtered water for many years to come, when installed and operated properly. Please study this manual carefully and understand the cautions and notes before installing. This manual should be kept for future reference. If you have any questions regarding your water conditioner, contact your local dealer or the manufacturer at the following:

1900 Prospect Court • Appleton, WI 54914
Phone: 920-739-9401 • Fax: 920-739-9406

PRE-INSTALLATION INSTRUCTIONS FOR DEALERS

The manufacturer has preset the water treatment unit's sequence of cycles and cycle times.

The dealer should read this page and guide the installer regarding day override, time of regeneration, service alarm and buzzer alarm settings before installation.

For the installer, the following must be used:

- Program Installer Settings ... Day Override, Time of Regeneration, Service Alarms and Buzzer Alarm.
- Read Normal Operating Displays
- Set Time of Day
- Read Power Loss & Error Display

For the homeowner, please read sections on Bypass Valve and Operating Displays and Maintenance.

During operation, the normal user display is *time of day* and *gallons per minute*.

Flow Rate, Vacation Mode, Capacity Remaining and Days to a Regeneration are optional displays but are not normally used (see Operating Displays and Maintenance Section for more details). Each of these can be viewed by pressing **NEXT** to scroll through them. When stepping through any programming, if no buttons are pressed within 5 minutes, the display returns to a normal user display. Any changes made prior to the 5 minute time out are incorporated. To quickly exit any Programming, Installer Settings, etc., press **SET CLOCK**. Any changes made prior to the exit are incorporated.

If desired, two regenerations within 24 hours are possible with a return to the preset program.

To do a *double regeneration*:

1. Press the **REGEN** button once. "REGEN TODAY" will flash on the display.
2. Press and hold the **REGEN** button for three seconds until a regeneration begins.

Once the valve has completed the immediate regeneration, the valve will regenerate one more time at the preset.

BYPASS VALVE

The bypass valve is typically used to isolate the control valve from the plumbing system's water pressure in order to perform control valve repairs or maintenance. The 1" full flow bypass valve incorporates four positions, including a diagnostic position that allows a service technician to have pressure to test a system while providing untreated bypass water to the building. Be sure to install bypass valve onto main control valve, before beginning plumbing. Or, make provisions in the plumbing system for a bypass. The bypass body and rotors are glass-filled Noryl® and the nuts and caps are glass-filled polypropylene. All seals are self-lubricating EPDM to help prevent valve seizing after long periods of non-use. Internal "O" Rings can easily be replaced if service is required.

The bypass consists of two interchangeable plug valves that are operated independently by red arrow shaped handles. The handles identify the direction of flow. The plug valves enable the bypass valve to operate in four positions.

1. **NORMAL OPERATION POSITION:** The inlet and outlet handles point in the direction of flow indicated by the engraved arrows on the control valve. Water flows through the control valve for normal operation of a water softener or filter. During the regeneration cycle this position provides regeneration water to the unit, while also providing untreated water to the distribution system (**Fig. 1**).
 2. **BYPASS POSITION:** The inlet and outlet handles point to the center of the bypass. The system is isolated from the water pressure in the plumbing system. Untreated water is supplied to the building (**Fig. 2**).
 3. **DIAGNOSTIC POSITION:** The inlet handle points toward the control valve and the outlet handle points to the center of bypass valve. Untreated supply water is allowed to flow to the system and to the building, while not allowing water to exit from the system to the building (**Fig. 3**). This allows the service technician to test the unit and perform other functions without disrupting the water going to the building.
- NOTE:** The system must be rinsed before returning the bypass valve to the normal position.
4. **SHUT OFF POSITION:** The inlet handle points to the center of the bypass valve and the outlet handle points away from the control valve. The water is shut off to the building. The water treatment system will depressurize upon opening a tap in the building. A negative pressure in the building combined with the unit being in regeneration could cause a siphoning to the building. If water is available on the outlet side of the unit, it is an indication of water bypassing the system (**Fig. 4**) (i.e. a plumbing cross-connection somewhere in the building).

NORMAL OPERATION POSITION

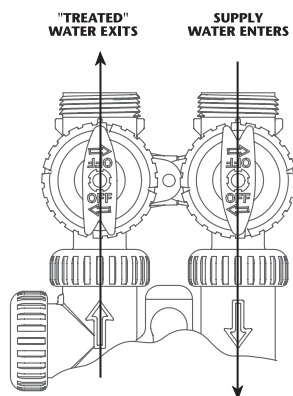


FIGURE 1

BYPASS POSITION

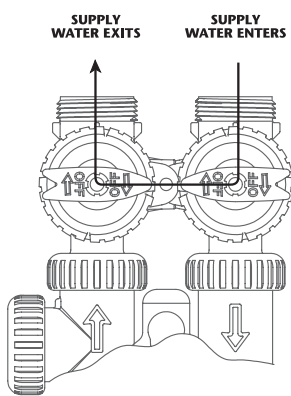


FIGURE 2

DIAGNOSTIC POSITION

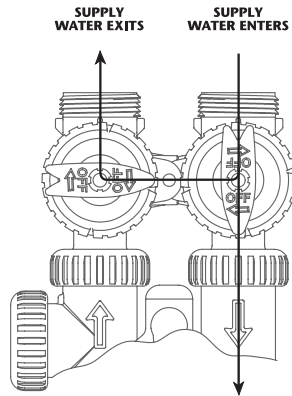


FIGURE 3

SHUT OFF POSITION

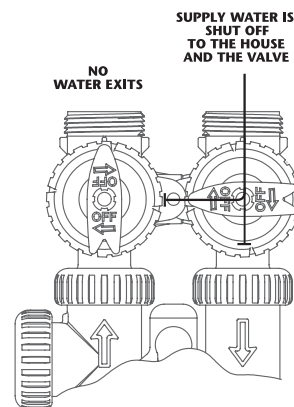


FIGURE 4

INSTALLATION

GENERAL INSTALLATION & SERVICE WARNINGS

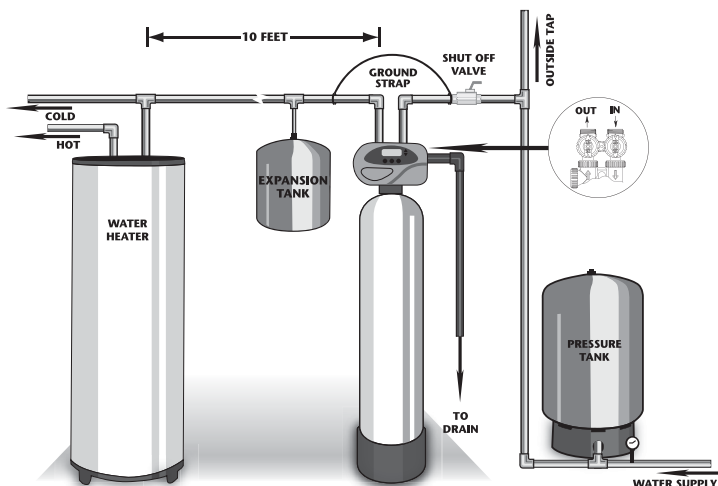
The control valve, fittings and/or bypass are designed to accommodate minor plumbing misalignments. There is a small amount of "give" to properly connect the piping, but the water softener is not designed to support the weight of the plumbing.

Do not use Vaseline, oils, other hydrocarbon lubricants or spray silicone anywhere. A silicone 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.*

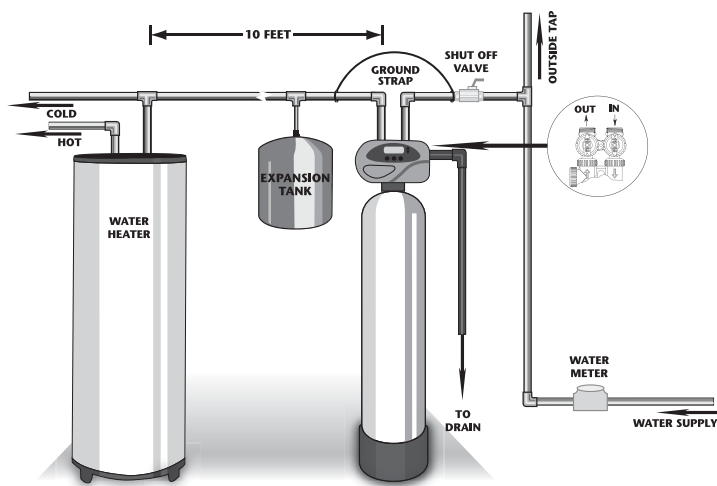
Do not use pipe dope or other sealants on threads. Teflon® tape must be used on the threads of the 1" NPT inlet and outlet, the brine line connection at the control valve, and on the threads for the drain line connection. Teflon® tape is not used on the nut connections or caps because "O" Ring seals are used. The nuts and caps are designed to be unscrewed or tightened by hand or with the special plastic Service Wrench, #CV3193-02. If necessary pliers can be used to unscrew the nut or cap. Do not use a pipe wrench to tighten nuts or caps. *Do not place screwdriver in slots on caps and/or tap with a hammer.*

SITE REQUIREMENTS

- Water pressure – 25-100 psi
- Water temperature – 33-100°F (0.5-37.7°C)
- Electrical – 115/120V, 60Hz uninterrupted outlet
- Current draw is 0.5 amperes
- The plug-in transformer is for dry locations only
- The tank should be on a firm level surface



WELL WATER INSTALLATION



MUNICIPAL INSTALLATION

1. The distance between the drain and the water conditioner should be as short as possible (see step 7)
2. It is not recommended to install any water conditioner with less than 10 feet of piping between its outlet and the inlet of a water heater.



CAUTION: To protect the unit in the event of a hot water heater backup, the manufacturer recommends the use of an expansion tank on the outlet side of the unit.

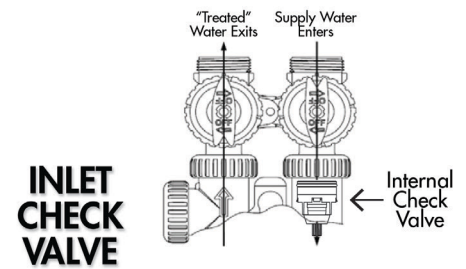
3. Do not locate unit where it or its connections (including the drain and overflow lines) will ever be subjected to room temperatures under 33°F.
4. Do not subject the tank to any vacuum, as this may cause an "implosion" and could result in leaking. If there is a possibility a vacuum could occur, please make provision for a vacuum breaker in the installation.
5. **INLET/OUTLET PLUMBING:** Be sure to install Bypass Valve onto main control valve before beginning plumbing. Make provisions to bypass outside hydrant and cold hard water lines at this time. Install an inlet shutoff valve and plumb to the unit's bypass valve inlet located at the right rear as you face the unit. There are a variety of installation fittings available. They are listed under Installation Fitting Assemblies section of this manual. 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 solder flux, primer, and solvent cement on any part of the "O" Rings, split rings, bypass valve or control valve. If the building's electrical system is grounded to the plumbing, install a copper grounding strap from the inlet to the outlet pipe. Plumbing must be done in accordance with all applicable local codes.

INSTALLATION

When installing an air regenerating filter the customer may experience, under certain conditions, small amounts of air (cloudy water) at the taps. This is normal. On rare occasions, this may result in "shots of air" at a particular fixture. By installing a loop or "U" on the outlet side of the unit, this will act as an air trap and improve this situation.

An internal check valve is located inside the inlet on air filtration units (**see diagram at right**). This check valve holds the air in the system, preventing its escape from the tank. Plumbing codes may require the installation of a thermal expansion tank on the outlet side of the system to prevent a water heater backup condition.

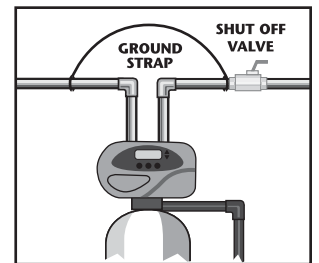
Note Internal Check Valve on the Inlet of the Control



Air Filtration Systems Only

Provisions should be made to bypass outside hydrants that are not to have filtered water. It is also advisable to install hose bibs on the inlet and outside of the filter for future testing and service of the equipment. Where heavy sediment from the well is observed, it is advisable to install a cartridge or bag-style filter immediately upstream from the filter. A nominal micron rating of 50 to 100 is recommended. The purpose of this is to protect the control valve of any debris from the well. If desired, a cartridge filter may be used after the system as a polishing filter.

6. **INSTALLING GROUND:** To maintain an electrical ground in metal plumbing of a home's cold water piping (such as a copper plumbing system), install a ground clamp or jumper wiring. If replacing an existing filter, also replace the ground clamps/wire. If removing a filter, replace the piping with the same type of piping as the original to assure plumbing integrity and grounding.
7. **DRAIN LINE:** First, be sure that the drain can handle the backwash rate of the system. Solder joints near the valve must be done prior to connecting the drain line flow control fitting. Leave at least 6" between the drain line flow control fitting and solder joints. Failure to do this could cause interior damage to the flow control.



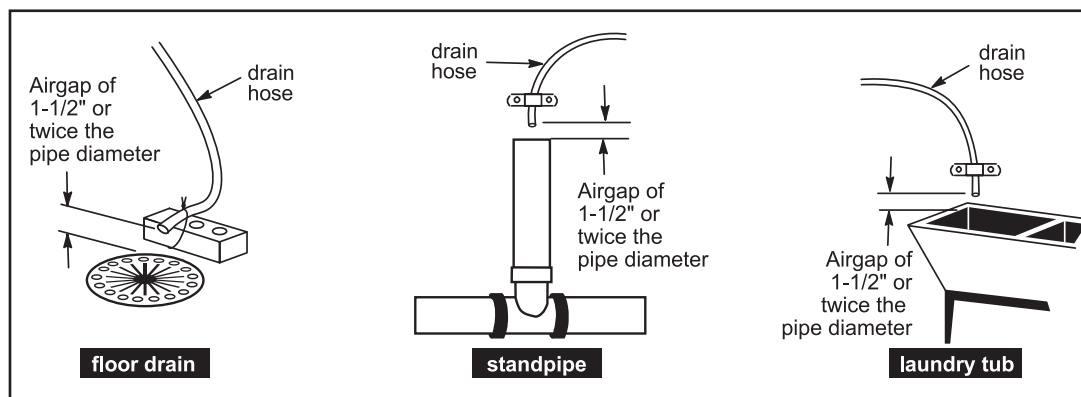
Backwash of an automatic filter can be directed into a septic tank in most cases, but because of the higher volume of water discharged, care should be taken. The backwash discharge can be directed to a subsurface drainage system or other safe location. Remember to follow all local codes.

When installing the drain line on any backwashing filter, especially filters that utilize air as the regenerant, hard piping such as PVC, Schedule 80 Plastic or copper is recommended. Remove the drain line nut (if included) and discard. A 3/4" NPT connection on the elbow is provided. **During backwash, high volumes of water (more than a softener) and air can be expelled. This release of air can cause a thrashing or movement of the drain line causing it to dislodge from the drain, resulting in water damage. In order to prevent this, it is recommended to use other means of securing the drain line to the floor, wall or ceiling to avoid this thrashing of piping.** Our patent pending Backwash Air cycle greatly reduces the chance of this occurring but should not be the only means of protection.

Where the drain line is elevated but empties into a drain below the level of the control valve, form a 7" loop at the discharge end of the line so that the bottom of the loop is level with the drain connection on the control valve. This will provide an adequate anti-siphon trap. Piping the drain line overhead <10 ft is normally not a problem. Be sure adequate pressure is available (40-60 psi is recommended). Where the drain empties into an overhead sewer line, a sink-type trap must be used. Run drain to its discharge point in accordance with plumbing codes. Pay special attention to codes for air gaps and anti-siphon devices.



CAUTION: Never insert a drain line into a drain, sewer line, or trap. Always allow an air gap of 1-1/2" or twice the pipe diameter, whichever is greater, between the drain line and the wastewater to prevent the possibility of sewage being back-siphoned into the unit.

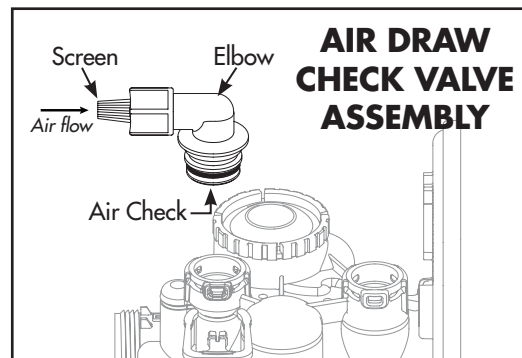


TYPICAL DRAIN LINE INSTALLATIONS

INSTALLATION

8. **CHECK VALVE (AIR FILTRATION SYSTEMS ONLY):** All air systems include an internal check valve and screen assembly as part of the air draw system (*see diagram at right*). This check valve, screen, and elbow are exclusive to the air system and are not to be confused or interchanged with a brine elbow used on a softener. The gray color of the elbow indicates use with an air system vs. a black elbow which indicates use with a water softener.

NOTE: Under certain conditions (finished basements, utility room, etc.) it may be advisable to disconnect the screen and run a 3/8" line close to a drain, in case of check valve failure and water leakage.



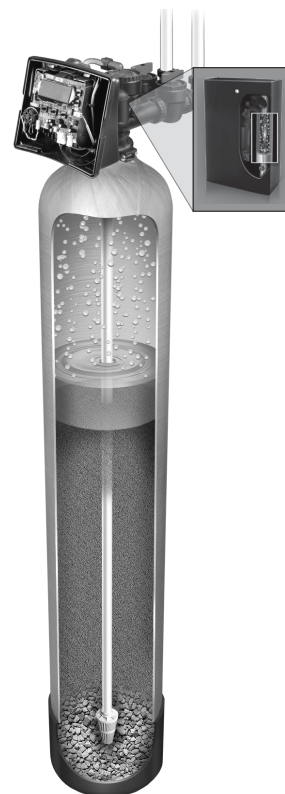
CAUTION: Check valve may be under pressure and can result in sudden release of part, causing injury.

In order to replace or remove the check valve from the control valve, it is necessary to relieve the pressure from the system. Place filter into by-pass mode (Fig. 2 Page 4) and release pressure by manually stepping through an entire regeneration sequence. This will adequately release the pressure on the system so the check valve can be serviced.

After servicing, replace part, secure the check valve assembly with the red clip. Open by-pass to the normal service position (Fig. 1 Page 4).

9. **OZONE GENERATOR KIT (OPTIONAL):** In situations where additional cleaning is needed due to high levels of iron or sulfur bacteria, an optional Ozone Generator (part # OZ-1-A) may be beneficial. This optional device produces ozone, a powerful cleaning agent which is used to help reduce service calls due to nuisance bacteria*. Please refer to the OZ-1-A Installation Instruction guide or consult with your local dealer or distributor for more information.

**Nuisance bacteria refers to iron and sulfate reducing bacteria which is harmless to human health. This bacteria can cause slime, taste, and odor issues.*



PROGRAMMING PROCEDURES:

1. Set time of day:

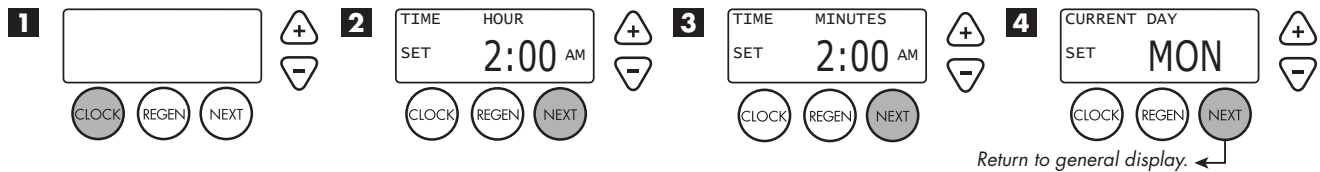
Time of day should only need to be set after extended power outages or when daylight saving time begins or ends. If an extended power outage occurs, the time of day will flash on and off indicating that the time should be reset.

STEP 1 – Press **SET CLOCK**.

STEP 2 – **CURRENT TIME (HOUR)**: Set the hour of the day using **+** or **-** buttons. AM/PM toggles after 12. Press **NEXT** to go to step 3.

STEP 3 – **CURRENT TIME (MINUTES)**: Set the minutes using **+** or **-** buttons. If it is desired to back up to the previous step press **REGEN** button once. Press **NEXT** to go to step 4.

STEP 4 – **CURRENT DAY**: Set the day of the week using **+** or **-** buttons. Pressing **NEXT** will exit **SET CLOCK** and return to the general operating display.



2. Programming:

NOTE: The manufacturer has preset the unit so that the gallons between regenerations will be automatically calculated after the hardness is entered. Press **NEXT** to cycle to the next step or **REGEN** to return to the previous step.

STEP 1 – Press **NEXT** and **+** simultaneously for 3 seconds.

STEP 2 – **DAYS BETWEEN REGENERATION (DAY OVERRIDE)**: The manufacturer has factory set 3 DAYS or 1000 GALLONS USED as the default. This is the maximum number of days between regenerations. If this is set to "OFF", regeneration initiation is based solely on gallons used. If any number is set (allowable range from 1 to 28), a regeneration initiation will be called for on that day even if a sufficient number of gallons were not used to call for a regeneration.

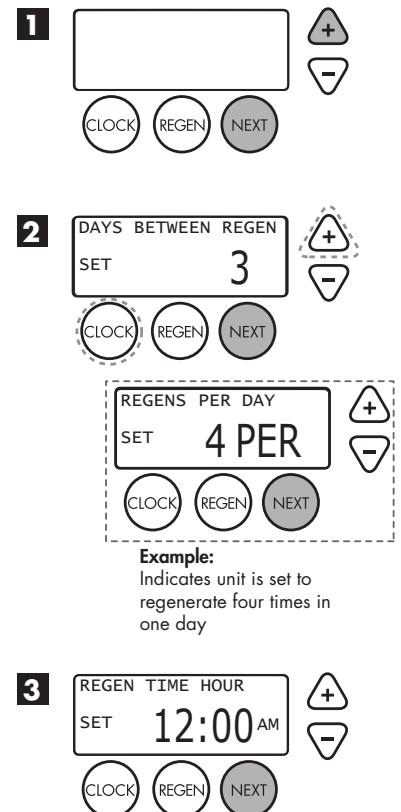
Set Day Override using **+** or **-** buttons (3 is recommended):

- set number of days between regeneration (1 to 28); or
- set to "OFF"

NOTE: This valve has the capability of regenerating up to six times in one day. This can be observed by pressing the **CLOCK** and **+** buttons simultaneously (on the DAYS BETWEEN REGEN screen), then using **+** or **-** buttons to toggle the correct number of regenerations per day as desired (see example to right). Press **NEXT** to set the times per day or select "OFF" to return to Days Between Regen. These settings are typically used in commercial settings.

STEP 3 – **REGENERATION HOUR**: The manufacturer has factory set 12:00 A.M. as the default. This is the hour of day for regeneration and can be reset by using **+** or **-** buttons. "AM/PM" toggles after 12. The default time is 12:00 a.m. (recommended for a normal household).

Press **NEXT** to go to step 5. Press **REGEN** to return to the previous step.



PROGRAMMING PROCEDURES:

STEP 4 – REGENERATION MINUTES: Set the minutes using **+** or **–** buttons.

STEP 5 – SERVICE ALARM GALLONS: The manufacturer has factory set “OFF” as the default. This feature is used to signal service into the future. This is typically set by the installing dealer to warn homeowner that service is required after a preset number of gallons have been consumed. If the feature is active, a specific gallon amount will appear.

Press **NEXT** three times to advance past this screen.

STEP 6 – SERVICE ALARM TIME: The manufacturer has factory set “OFF” as the default. This feature is used to signal service into the future. This is typically set by the installing dealer to warn homeowner that service is required after a period of time has passed. If the feature is active, a specific number of days will appear.

Press **NEXT** three times to advance past this screen.

STEP 7 – ALARM BUZZER: The manufacturer has factory set “ON” as the default. An alarm will sound after a regeneration warning the owner of possible valve errors or other issues. This alarm is a short 0.5 second burst every 3 seconds. Turn the alarm “OFF” or “ON” using the **+** or **–** buttons. Press **NEXT**.

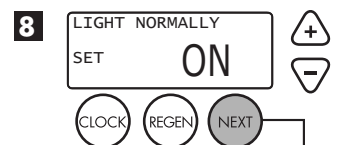
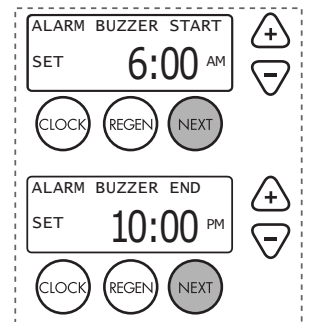
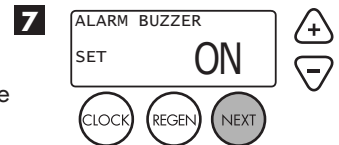
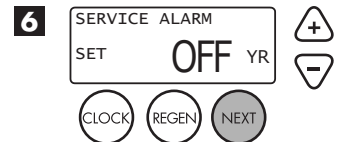
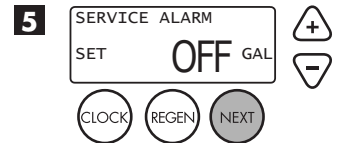
NOTE: This feature allows you to program the time in which the alarm buzzer will sound, permitting the installer to pick a time when the owner will be home or awake to hear it. This option will not be viewed if feature is turned “OFF.”

Setting Alarm Buzzer Start Time: Press **+** or **–** button to select the correct hour the buzzer is to start sounding. Be sure to also set AM or PM as necessary. (Default is set to 6:00 a.m.) Press **NEXT**.

Setting Alarm Buzzer End Time: Press **+** or **–** button to select the correct hour the buzzer is to stop sounding in the day. Be sure to also set AM or PM as necessary. (Default is set to 10:00 p.m.) Press **NEXT**.

STEP 8 – DISPLAY BACKLIGHT: The manufacturer has factory set “ON” as the default. Turn the light “OFF” or “ON” using the **+** or **–** buttons. “OFF” will turn display backlight off after five minutes of keypad inactivity.

Press **NEXT** to exit installer programming.



Return to general display. ←

STARTUP INSTRUCTIONS

FLUSHING OF SYSTEM:

To flush the system of any debris and air after installation is complete, please perform the following steps:

1. Rotate bypass handles to the bypass mode (**see Fig. 2 of page 4**).
2. Turn on inlet water and check for leaks in the newly installed plumbing.
3. Fully open a cold water faucet, preferable at a laundry sink or bathtub without an aerator.
4. Wait two to three minutes or until water runs clear, then turn water off and follow start-up instructions.

System regeneration sequence is in the following order. Some sequence differences may be noticed depending upon local conditions. (If it is desired to change this sequence, please refer to the Dealer Manual or contact the manufacturer.)

Sequencing for Various Filters:

Air Filters (Iron & Sulfur)

1. Backwash Air
2. Backwash
3. Regenerant Draw Down (Air draw)
4. Return to service

Backwashing Filters (Carbon & Turbidex)

1. Backwash
2. Rinse
3. Backwash
4. Rinse
5. Return to service

Acid Neutralizers (Calcite & Corosex)

1. Backwash
2. Filtering
3. Rinse
4. Backwash
5. Filtering
6. Rinse
7. Return to service

Inch Worm Feature:

Air filter units are programmed with the backwash air cycle feature (nicknamed "inch worm"). This unique feature allows for small movements or "inching" of the piston towards the backwash cycle. As the piston approaches this cycle, the backwash port opens slightly with each advancement, allowing air to escape to drain. This cycle is twelve very small mini steps of the piston which take place twenty seconds apart. Usually midway between the twelve positions, the air begins to be released very slowly to the drain in normal operating conditions.

When first starting up an air sulfur or air iron, it is advised to step through these positions and go to the normal backwash cycle in order to fill the unit.

To Advance in Backwash Air Cycle:

1. Pushing the **NEXT** button will advance to each of the twelve mini steps within the backwash air cycle. While there are usually twelve steps to this cycle, the valve may make two or three movements for each step. Wait for these movements to complete before pressing **NEXT** again.
2. Pushing and holding the **REGEN** button for three seconds while in the Backwash Air cycle will skip the remaining mini steps and proceed to the next cycle of regeneration which is usually Backwash.

The system is now ready for filling with water and for testing for Air Filters.

NOTE: The "filling" sequence below represents the start-up procedure for Air Filters.

Please reference "Sequence for Various Filters" for proper regeneration sequence (**shown above**).

1. Place the bypass valve into the bypass mode (**Fig. 2 on page 4**).
2. Press and hold the **REGEN** button until the motor starts. Release button. Put the valve into "BACKWASH" position. (*Please see note above.*) Unplug the transformer so that the valve will not cycle to the next position. Open the inlet handle of the bypass valve very slightly allowing water to fill the tank slowly in order to expel air.



CAUTION: If water flows too rapidly, there will be a loss of media to the drain. Certain medias such as carbon, or other dry medias, should not be backwashed immediately for extended periods of time. These medias need to "soak" in the water for a 24-hour period prior to full backwash conditions.

Dry media exposed to water too quickly in backwash will result in media plugging the drain and valve assembly.

3. After the water is flowing steadily to the drain, clear and without the presence of air, slowly open the inlet valve. Restore power and momentarily press the **REGEN** button to advance the control to the "REGENERANT DRAW DOWN" position.
4. With the bypass still in the diagnostic mode (**Fig. 3 on page 4**), there should be a slow flow to the drain.
5. Press **REGEN** button in sequence until display returns to "TIME." Place bypass valve in the normal operating mode (**Fig. 1 on page 4**) by opening the outlet bypass handle.

6. CONDITIONING OF MEDIA:

To flush any remaining debris and air from the system again:

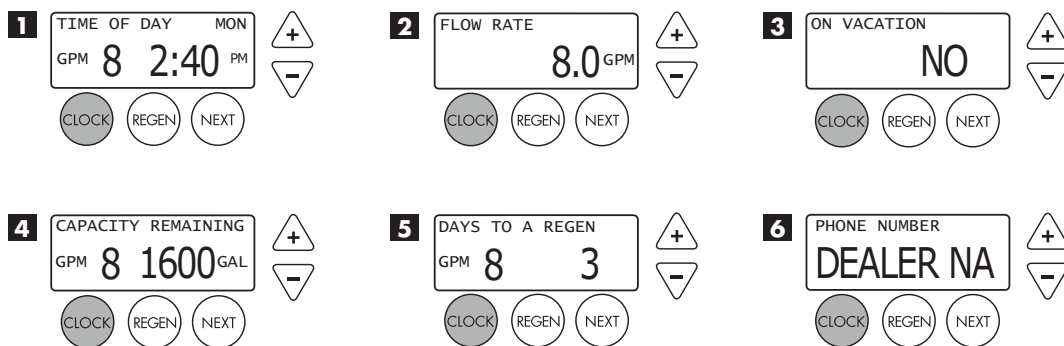
1. Full open a cold water faucet, preferably at a laundry sink or bathtub without an aerator.
 2. Wait two to three minutes or until water runs clear, then turn water off.
 3. Turn on hot water and check for air, then turn water off after air is discharged.
7. Place unit into regeneration and allow to complete a full cycle. Upon completion, unit will deliver treated water.

OPERATING DISPLAYS AND MAINTENANCE

The air sulfur and air iron filter systems look and function much like any backwashing whole house filter; however, unlike these conventional filters, they use air as a regenerant. This atmospheric air (containing oxygen) helps convert iron or hydrogen sulfide into particles. These filters capture the particles of iron or hydrogen sulfide gas within the filter media. Your dealer has recommended the proper media depending on your local water conditions. In some cases where an acidic water condition (low pH) is present, the media may need to be periodically replenished if using this filter to raise the pH to an acceptable level. Consult dealer for this service. The system is prefactory set to regenerate every (3) three days at midnight. The frequency and start time of backwash/regeneration is adjustable to meet local operating conditions and contaminant levels. Total backwash and recharge time is normally one half hour.

1. **GENERAL OPERATION:** When the system is operating, one of five displays may be shown and will alternate with the installing dealer's name and phone number for future service. Pressing **NEXT** will alternate between the displays.
 1. **CURRENT TIME OF DAY** and GPM
 2. **FLOW RATE** which is the current treated water flow rate through the system in Gallons Per Minute
 3. **VACATION MODE** allows the system to be "shut down" when there will be no water usage for an extended period of time
 4. **CAPACITY REMAINING** which is the gallons that will be treated before the system signals a regeneration cycle
 5. **DAYS TO A REGEN** is the number of days left before the system goes through a regeneration cycle, based on the days override value
 6. **DEALER NAME AND PHONE NUMBER** is the dealer information to call when service is needed (this screen will only appear if set by dealer)

The user can scroll between the displays as desired.



If the system has called for a regeneration that will occur at the preset time of regeneration, the words "REGEN TODAY" will appear on the display.

If a water meter is installed, "GPM" flashes on the display when water is being treated, indicating gallons per minute going through the system.

2. **VACATION MODE:** This feature may be used to "shut down" the system for a period of time by preventing the unit from regenerating. The manufacturer has factory set "OFF" as the default. Turn feature "OFF" or "ON" using the **+** or **-** buttons. When turned "ON", the unit will remain in Vacation Mode until it is exited. There are two ways that a unit can exit Vacation Mode:

Manually: The user may manually exit Vacation Mode by changing the setting from "ON" to "OFF". Once switched off, a delayed regeneration will queue for that night. Vacation mode may also be manually exited by holding the REGEN button to force an immediate regeneration.

Automatically: The unit will automatically exit Vacation Mode once water usage has resumed. After fifty gallons of water is used, the unit will set to resume normal operation and a delayed regeneration will queue for that night.

NOTE: In some instances, if a regeneration has been queued and the unit is taken out of Vacation Mode (Manually or Automatically), the unit will trigger an immediate regeneration instead of a delayed regeneration. For example, if the unit's maximum Days Between Regeneration is reached while the unit is in Vacation Mode, an immediate regeneration will trigger as soon as the unit is taken out of Vacation Mode.



CAUTION: Depending on the severity of water conditions and the length of no water usage, it may not be recommended to use this feature. Please contact dealer or manufacturer for more information.

OPERATING DISPLAYS AND MAINTENANCE

3. **REGENERATION MODE:** Typically a system is set to regenerate at a time of no water usage. If there is a demand for water when the system is regenerating, untreated water will be delivered. When the system begins to regenerate, the display will 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.

REGENERATION MODE

BACKWASH

8:22

4. **MANUAL REGENERATION:** Sometimes there is a need to regenerate before the control valve calls for it. This may be needed if a period of heavy water use is anticipated.

- To initiate a manual regeneration *at the next preset regeneration time*, press and release **REGEN**. The words "REGEN TODAY" will flash on the display to indicate that the system will regenerate at the next regeneration time. *If you pressed the **REGEN** button in error, pressing the button again will cancel the command.*
- To initiate a manual regeneration *immediately*, press and hold the **REGEN** button for three seconds. The system will begin to regenerate immediately. ***This command cannot be cancelled.***

MANUAL REGENERATION

REGEN TODAY and TIME OF DAY will flash alternately if a regeneration is expected tonight.

REGEN TODAY MON
GPM 8 2:40 PM

CLOCK REGEN NEXT



Once a manual regeneration is initiated, the unit will enter the first regeneration cycle. Once the unit advances to its first position and subsequent positions thereafter, (see Start Up Instructions on page 9 for regeneration sequence) the water filter will deliver water, but it will be untreated.

5. **POWER LOSS AND BATTERY REPLACEMENT:** If an extended power outage occurs, the control valve will retain the time of day settings until the board's battery is depleted. Once the battery is depleted, the display will appear dark and absent of any information. If this occurs, following these steps will determine if the problem is a low battery or a board failure.

To determine if the battery is depleted:

1. Remove valve cover. Disconnect power from PC Board at the four pin connector at the bottom of the board.
2. Remove battery. Reference the Parts Breakdown section of this manual for location.
3. Wait five minutes for board to de-energize.
4. With the battery out, re-connect the power supply to the board. The board's display should begin to show information.

This indicates that the board is operating correctly. If the display does not work, call installing dealer for service.

5. To replace with new battery, unplug transformer from outlet. Install a 3 volt Lithium Coin Cell type 2032 battery, available at most stores. Plug unit back into outlet.

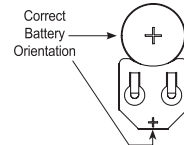
It is important to replace the battery with the valve unplugged to avoid causing a short and potentially ruining the board.

6. Reset the time of day (see programming procedures) and initiate regeneration (see operating displays and maintenance), ***If these procedures do not remedy the problem, please consult the installing dealer for service.***

6. **AUDIBLE ALARM:** This control valve is equipped with an audible alarm and visual alarm. This alarm is set by the installing dealer and is used to warn the owner of possible valve errors or other issues.

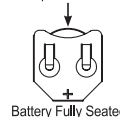
To turn off alarm: If the audible alarm sounds, press any button on the face of the control valve to turn off and call the dealer for service.

BATTERY REPLACEMENT



Battery replacement is 3 volt lithium coin cell type 2032.

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



Battery Fully Seated

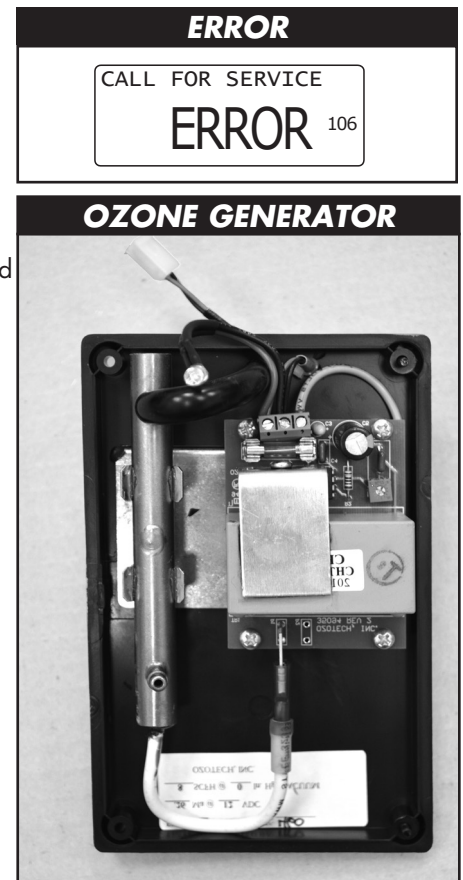
OPERATING DISPLAYS AND MAINTENANCE

7. **ERROR MESSAGE:** If the word "ERROR" appears and flashes alternately with the dealer name and phone number, record the ERROR number and contact your servicing dealer promptly. This indicates that the control valve was not able to function properly.
8. **OZONE GENERATOR AND MAINTENANCE (Optional Feature):** In severe cases where nuisance bacteria* conditions exist, the dealer may have installed an ozone generator (Part #OZ1-A). These bacteria are harmless to human health, however they can produce a slime and occasionally a taste and odor problem that can be a "nuisance". The ozone generator produces a small amount of ozone which is introduced to the tank during the regeneration cycle. This ozone will reduce the slime build up that can occur within the system and also reduce the associated taste and odors.

The ozone generator cell is a serviceable item and may need cleaning. With the ozone monitor turned on, the "service ozone" indicator will appear on the screen of the valve, which signals the cell needs servicing.

Please refer to the ozone generator manual for cleaning instructions; this maintenance should be performed by the servicing dealer. Contact dealer for more information.

**Nuisance bacteria refers to iron and sulfate reducing bacteria which is harmless to human health, however can cause slime, and taste and odor issues.*



REPLACEMENT MINERAL INSTRUCTIONS FOR ACID NEUTRALIZERS

Acid Neutralizers raise the pH of mildly acidic water. The raising of pH utilizes a sacrificial mineral that will need replenishment every 6 to 12 months. Typically the media should not be below the halfway point in the tank. In order to check the mineral height and before adding mineral to the system, please follow these instructions.

For Automatic Backwash Filters With Dome Hole

1. Check the media height by shining a flashlight through the tank to see the height of the mineral. If the level is not visible, the top fill plug will have to be removed (if available) to measure the height. **The media tank should only be two-thirds full (see diagram).** Proceed to step 2.
2. To remove top fill plug, turn off the source of the water and open a conditioned water tap to relieve the water pressure on the system. Place unit into the bypass mode. Unscrew the top fill plug.

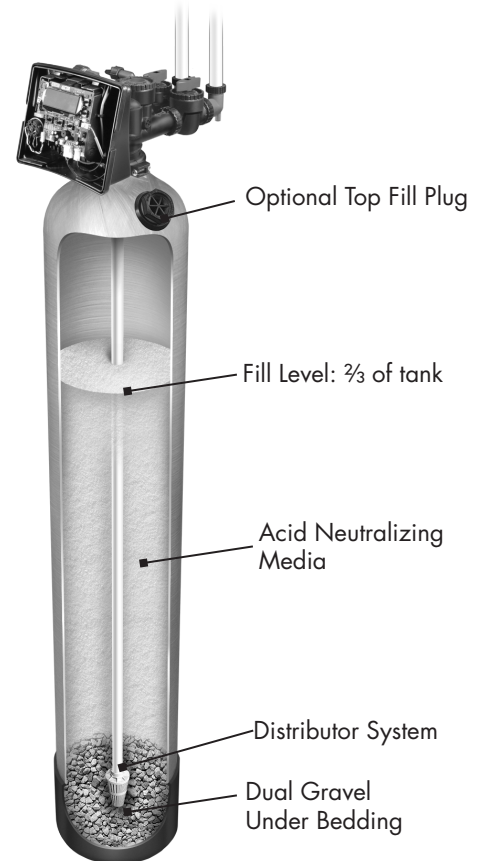


CAUTION: Never unscrew top fill plug unless pressure is fully released from system. Serious injury and/or flooding can occur.

3. Siphon out some water from the tank through the dome hole. This will allow room when adding the media.
4. Add the appropriate amount of replacement media through the dome hole (top fill plug). Make sure you add the correct amount and type of media (calcite or calcite/corosex mix). If needed, siphon out more water as the media will displace the water inside the tank. Pay close attention to media level when filling (see diagram).

Do not overfill. The additional media added should not be higher than two-thirds of the tank height when measuring from the bottom (see diagram). Once the right height has been achieved, replace top fill plug. Grease "O" ring if necessary using only silicone grease. Do not use petroleum based grease such as Vaseline. Tighten appropriately.

5. Leaving controller in the bypass position, turn on water source and refer to the start-up instructions of the controller and complete the procedure.
6. Once start up is complete, please check the top fill plug for any leaking.



REPLACEMENT MINERAL INSTRUCTIONS FOR ACID NEUTRALIZERS

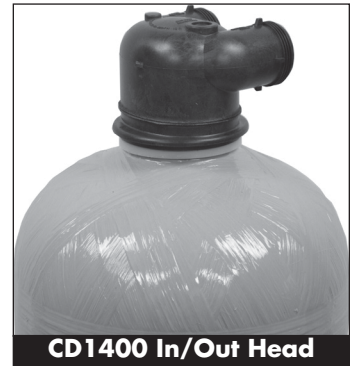
For Acid Neutralizers With the CD1400 In/Out Head Without an Optional Fill Plug

1. Check the media height by shining a flashlight through the tank to see the height of the mineral. If the level is not visible, and to fill the tank, the CD1400 In/Out head will need to be removed.
2. Before removing the head, turn off the water source, open a conditioned water tap to relieve the water pressure, and then place the unit into bypass mode (see Fig. 2 on page 4).



CAUTION: Never unscrew in/out head unless pressure is fully released from system. Serious injury and/or flooding can occur.

3. Unscrew the In/Out head from the tank, disconnecting it from the bypass.
4. Measure media height with ruler.
5. Add appropriate amount of media (calcite or calcite/corosex mix) to no higher than 2/3rds of the tank full. It may be necessary to siphon out water from the tank as the media will displace it. Take caution to ensure that no media enters the distributor tube when filling.
6. Re-attach the In/Out Head onto the tank. Apply grease to the "o" rings that seal the tank and the distributor. Only use silicone grease. Never use petroleum based grease such as Vaseline.
7. Re-attach the bypass to the controller.
8. With the controller in the bypass position, open the water source.
9. Open the bypass valve to the normal operating position (see page 4). Inspect valve for any leaks.
10. Open a conditioned water tap and flush until clear.



CD1400 In/Out Head

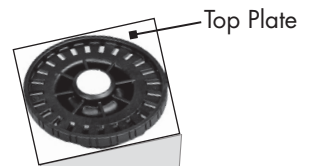
For Acid Neutralizers With the CD1220 In/Out Head With Fill Port

1. Check the media height by shining a flashlight through the tank to see the height of the mineral. If the level is not visible, and to fill the tank, the CD1220 In/Out head top plate will need to be removed.
2. Before removing the top plate turn off the water source, open a conditioned water tap to relieve the water pressure, and then place the unit into bypass mode (see Fig. 2 on page 4).



CAUTION: Never unscrew top fill plug unless pressure is fully released from system. Serious injury and/or flooding can occur.

3. Unscrew the In/Out top plate head from the controller. Remove the top screen located in the controller.
4. Measure media height with ruler.
5. Add appropriate amount of media (calcite or calcite/corosex mix) to no higher than 2/3rds of the tank full through the in/out fill port. It may be necessary to siphon out water from the tank as the media will displace it. Take caution to ensure that no media enters the distributor tube when filling.
6. Replace the screen. Re-attach the In/Out top plate. Apply grease to the "o" rings that seals the top plate to the head. Only use silicone grease. Never use petroleum based grease such as Vaseline.
7. With the controller in the bypass position, open the water source.
8. Open the bypass valve to the normal operating position (see page 4). Inspect valve for any leaks.
9. Open a conditioned water tap and flush until clear.



Top Plate



CD1220-01 In/Out Head

TROUBLESHOOTING GUIDE

PROBLEM	CAUSE	CORRECTION
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
	F. Depleted battery	F. See Operating Display and Maintenance section
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 timeclock 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
	D. Cover installed incorrectly	D. Reinstall cover

PROBLEM	CAUSE	CORRECTION
7. Control valve does not regenerate automatically but does when the correct button(s) is depressed and held. For timeclock 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
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 Troubleshooting 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, damaged, or restricted injector	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. Retighten 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 unkink 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

TROUBLESHOOTING GUIDE

PROBLEM	CAUSE	CORRECTION
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
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. Retighten 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.

TROUBLESHOOTING GUIDE

PROBLEM	CAUSE	CORRECTION
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 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 reprogram 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.

TROUBLESHOOTING GUIDE

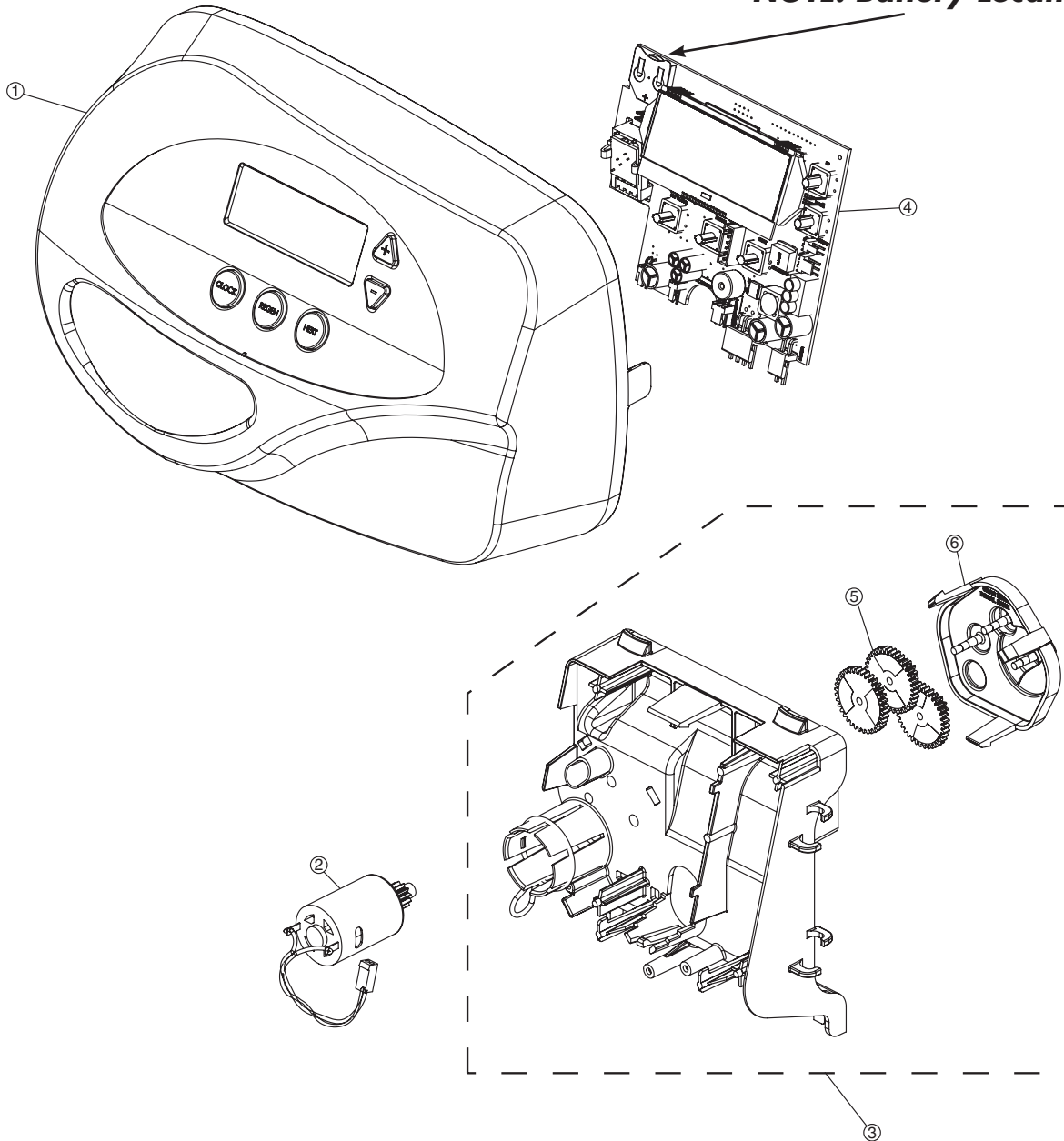
PROBLEM	CAUSE	CORRECTION
20. Err – 109	A. Invalid motor state detected	A. Replace PC board
21. Err – 201	A. Invalid regeneration cycle step detected	A. Replace PC board
22. Err – 204 = Leak detected	A. Occurs when dP input is active for “ALARM” and the input is closed. The alarm buzzer will activate and the screen will display the error.	A. Check for low flow leak. 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 to clear error.
23. Err – 400* Memory Errors <i>*(All 400 errors pertain to memory related errors)</i>	A. Depleted Battery	A. See Operating Display and Maintenance section
	B. Defective PC Board	B. Replace PC board

REPLACEMENT PARTS

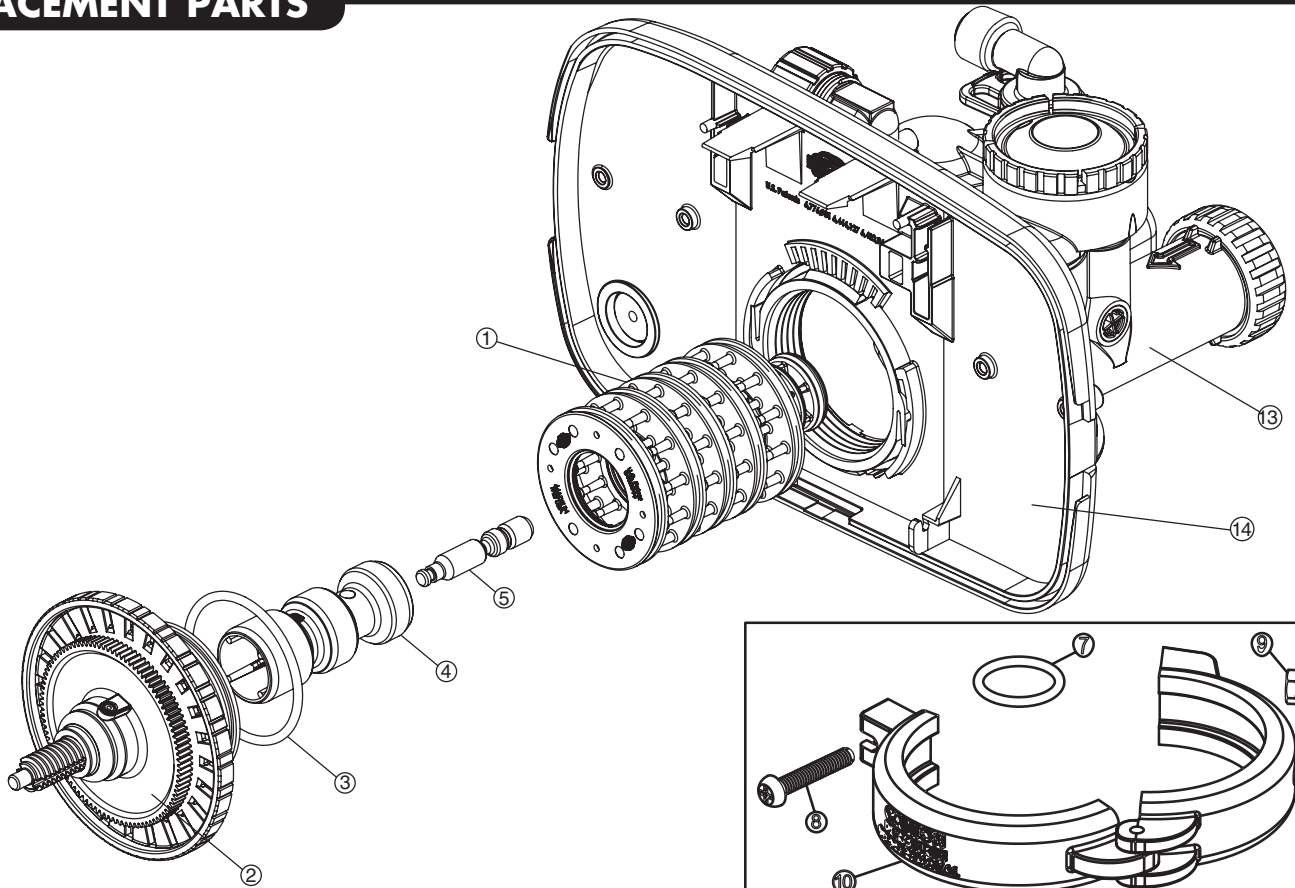
FRONT COVER AND DRIVE ASSEMBLY

Item No.	Part No.	Description	Qty.
1	CV3367-01-A	Black cover	1
	CV3367-01-WR-A	Gray cover	1
2	CV3107-1	Motor	1
3	CV3002A	Drive assembly (Includes #5 and #6)	1
4	CV4022WU	Evolve PC Board	1
5	CV3110	Drive gear, 12 x 36	3
6	CV3109	Drive gear cover	1
not shown	CV3526	Transformer, 110V-15V, DC (used on chlorine generator models)	1
	CV3186	Transformer, 110V-12V, AC (standard)	1
	CV3684-WR-GLD	Optional weather cover	1

NOTE: Battery Location

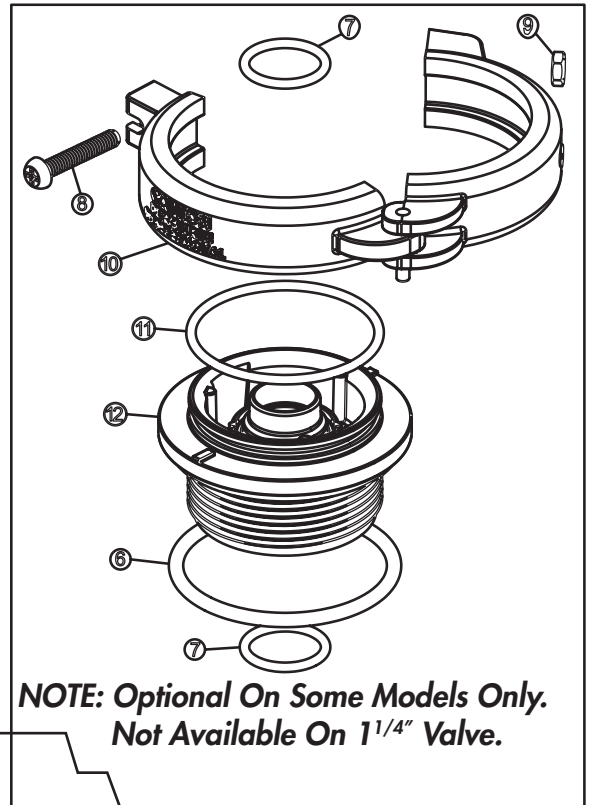


REPLACEMENT PARTS



PISTON ASSEMBLY

Item No.	Part No.	Description	Qty.
1	CV3005	1" spacer stack assembly	1
	CV3430	1.25" spacer stack assembly	1
2	CV3004	Drive cap assembly	1
3	CV3135	O-ring 228	1
4	CV3011	1" piston assembly downflow	1
	CV3011-01	1" piston assembly upflow	1
	CV3407	1.25" piston assembly downflow	1
5	CV3174	Regenerant piston	1
6	CV3180	O-ring 337	1
7	CV3105	O-ring 215	1
8	CV3556	Screw, 1/4-20x1-1/2 18-8SS	1
9	CCI-00318337	Nut, 1/4-20 HEX 18-8SS	1
10	CV3016	QC2 clamp assembly (includes screw & nut)	1
11	CV3452	O-ring 230	1
12	CV3015	WS1 QC2 Tank adapter assembly (includes O-rings)	1
13	CV3001-04	1" body assembly downflow	1
	CV3001-04UP	1" body assembly upflow	1
13	CV3001	1" body assembly downflow	1
	CV3001UP	1" body assembly upflow	1
	CV3020	1.25" body assembly downflow	1
14	CV3541	Drive backplate	1
Not Shown	CD1225-05	Top basket softener (optional)	1
Not Shown	CD1249WR	Top basket filter	1
Not Shown	OV32DN32	Internal check valve	1

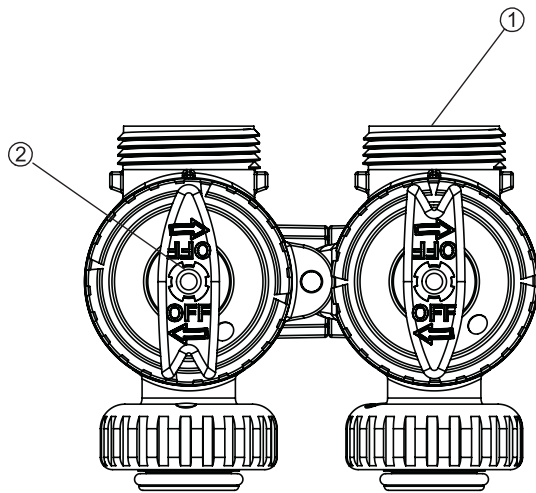


**NOTE: Optional On Some Models Only.
Not Available On 1^{1/4}" Valve.**

Optional on some models only

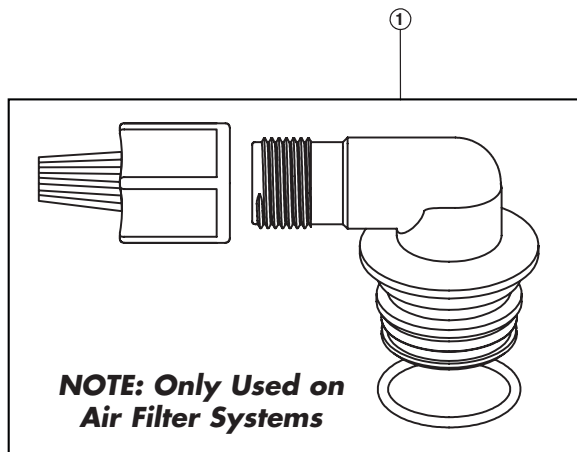
For Air Filter Systems Only

REPLACEMENT PARTS



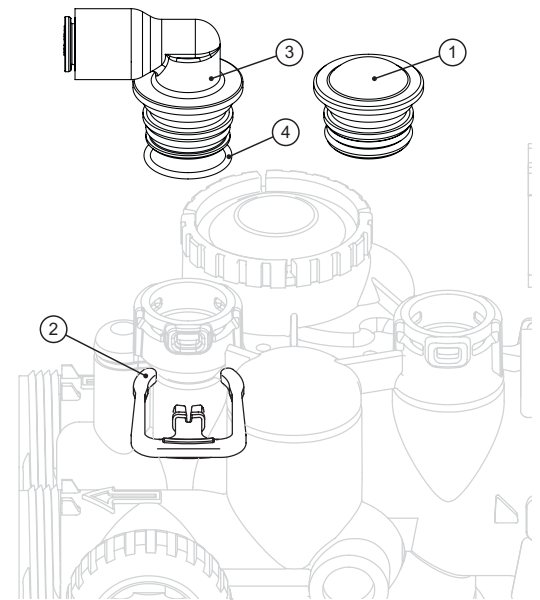
BYPASS VALVE

Item No.	Part No.	Description	Qty.
1	CV3006	Bypass assembly	1
2	CV3147	Bypass handles	2



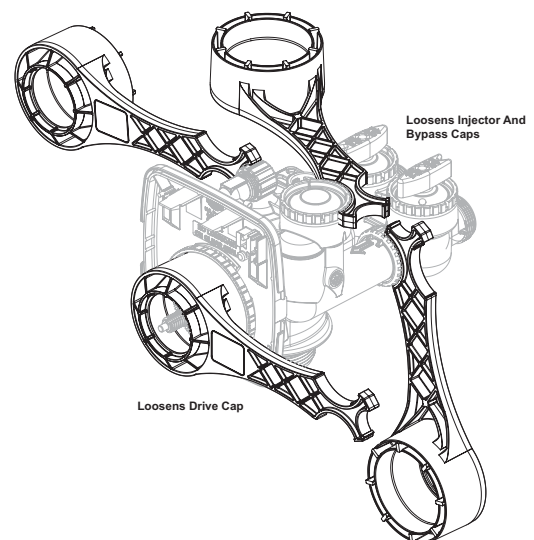
CHECK VALVE ASSEMBLY

Item No.	Part No.	Description	Qty.
1	CH4642-WR-A	Air check valve assembly	1



BRINE ELBOW ASSEMBLY

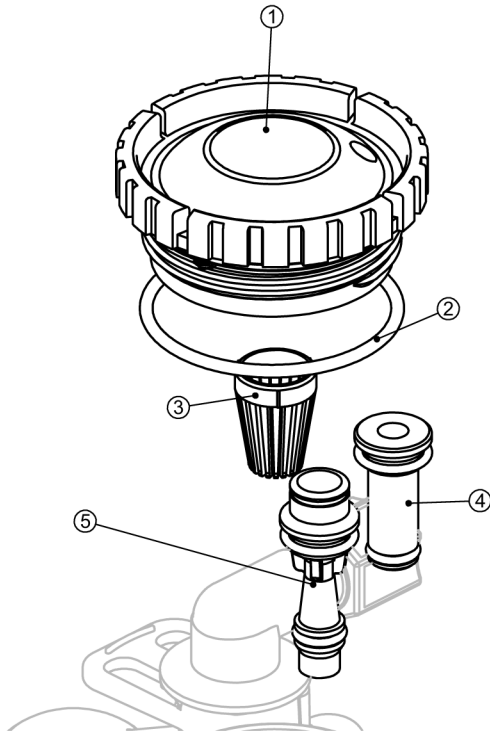
Item No.	Part No.	Description	Qty.
1	CV3195-01	Refill port plug assembly	1
2	CH4615	Elbow locking clip	1
3	CV4144	3/8" Elbow, Parker fitting	1
4	CV3163	O-ring 019	1



SERVICE WRENCH - CV3193-02

Although no tools are necessary to assemble or disassemble the valve, the *Service Wrench*, (shown in various positions on the valve) is available to aid in assembly or disassembly.

REPLACEMENT PARTS



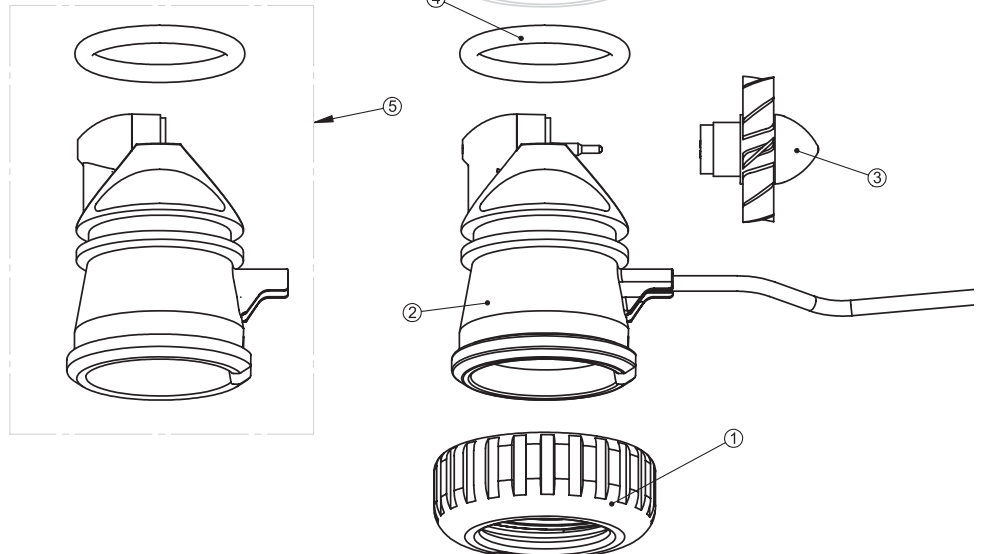
INJECTOR ASSEMBLIES

Item No.	Part No.	Description	Qty.
1	CV3176	Injector cap	1
2	CV3152	O-ring 135	1
3	CV3177-01	Injector screen	1
4	CV3010-1Z	Injector assembly plug	1
5	CV3010-1A	A injector assembly, BLACK	1
	CV3010-1B	B injector assembly, BROWN	
	CV3010-1C	C injector assembly, VIOLET	
	CV3010-1D	D injector assembly, RED	
	CV3010-1E	E injector assembly, WHITE	
	CV3010-1F	F injector assembly, BLUE	
	CV3010-1G	G injector assembly, YELLOW	
	CV3010-1H	H injector assembly, GREEN	
	CV3010-1I	I injector assembly, ORANGE	
	CV3010-1J	J injector assembly, LIGHT BLUE	
	CV3010-1K	K injector assembly, LIGHT GREEN	
not shown	CV3170	O-ring 011, lower	*
not shown	CV3171	O-ring 013, upper	*

*The injector plug and the injector each use one lower and one upper o-ring

WATER METER AND METER PLUG

Item No.	Part No.	Description	Qty.
1	CV3151	Nut, 1" QC	1
2	CV3003	Meter assembly, includes items 3 & 4	1
3	CV3118-01	Turbine assembly	1
4	CV3105	O-ring 215	1
5	CV3003-01	Meter plug assembly	1



REPLACEMENT PARTS

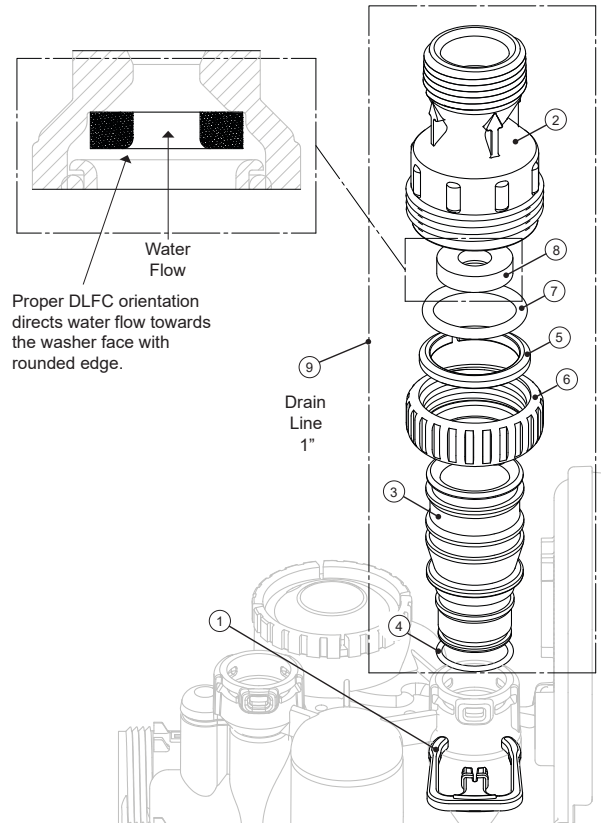
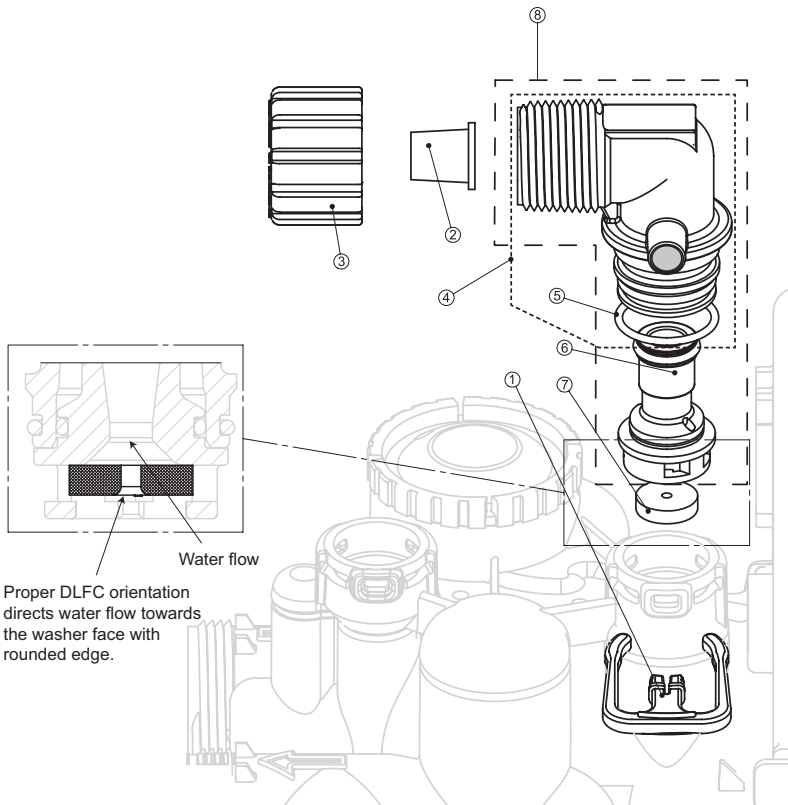
DRAIN LINE ASSEMBLY 3/4"

Item No.	Part No.	Description	Qty.
1	CH4615	Elbow locking clip	1
2	CPKP10TS8-BULK	Optional insert, 5/8" tube	1
3	CV3192	Optional nut, 3/4" drain elbow	1
4	CV3158-02	Drain elbow, 3/4" NPT with O-ring	1
5	CV3163	O-ring 019	1
6	CV3159-01	DLFC retainer assembly	1
7	CV3162-007	0.7 DLFC for 3/4" elbow	1
	CV3162-010	1.0 DLFC for 3/4" elbow	
	CV3162-013	1.3 DLFC for 3/4" elbow	
	CV3162-017	1.7 DLFC for 3/4" elbow	
	CV3162-022	2.2 DLFC for 3/4" elbow	
	CV3162-027	2.7 DLFC for 3/4" elbow	
	CV3162-032	3.2 DLFC for 3/4" elbow	
	CV3162-042	4.2 DLFC for 3/4" elbow	
	CV3162-053	5.3 DLFC for 3/4" elbow	
	CV3162-065	6.5 DLFC for 3/4" elbow	
	CV3162-075	7.5 DLFC for 3/4" elbow	
8	CV3331	Drain elbow and retainer assembly	

Items 2 and 3, nut and insert are only used with 1/2" I.D. by 5/8" O.D. polytubing. For other piping material, the 3/4" NPT is used.

DRAIN LINE ASSEMBLY 1"

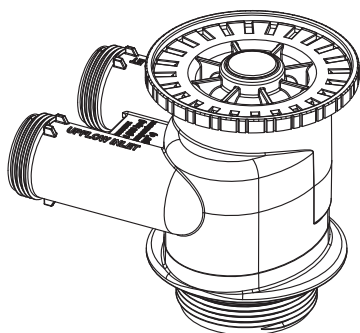
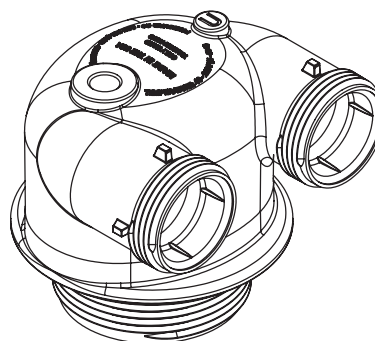
Item No.	Part No.	Description	Qty.
1	CH4615	Elbow locking clip	1
2	CV3166	Drain FTG body 1	1
	CV3166-01	FTG flow control body 1	
3	CV3167	Drain FTG adapter 1	1
4	CV3163	O-ring 019	1
5	CV3150	Split ring	1
6	CV3151	Nut 1" QC	1
7	CV3105	O-ring 215	
8	CV3190-090	9.0 gpm DLFC for 1" elbow	One DLFC must be used if 1" fitting is used
	CV3190-100	10.0 gpm DLFC for 1" elbow	
	CV3190-110	11.0 gpm DLFC for 1" elbow	
	CV3190-130	13.0 gpm DLFC for 1" elbow	
	CV3190-150	15.0 gpm DLFC for 1" elbow	
	CV3190-170	17.0 gpm DLFC for 1" elbow	
	CV3190-200	20.0 gpm DLFC for 1" elbow	
	CV3190-250	25.0 gpm DLFC for 1" elbow	
9	CV3008-04	FTG Drain 1" Strt No/Sil	1



REPLACEMENT PARTS

IN/OUT HEAD

Item No.	Part No.	Description	Qty.
1	CD1400	1191 In/Out Head	1

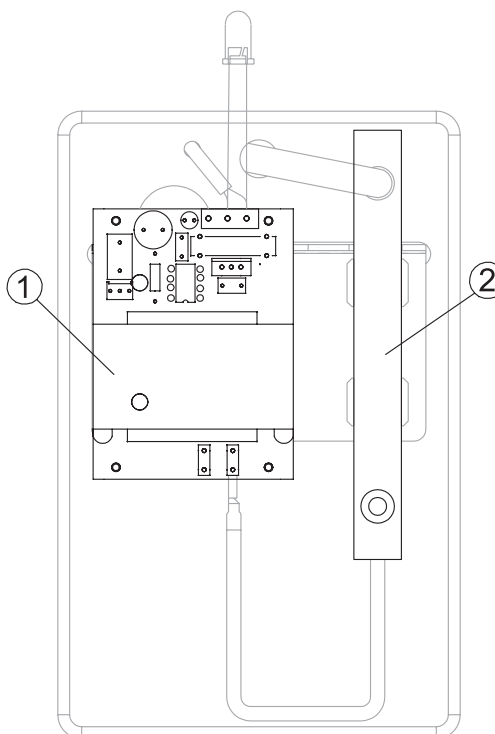


IN/OUT HEAD W/FILL PORT

Item No.	Part No.	Description	Qty.
1	CD1220-01	1190 In/Out Head W/Port	1

OZONE GENERATOR

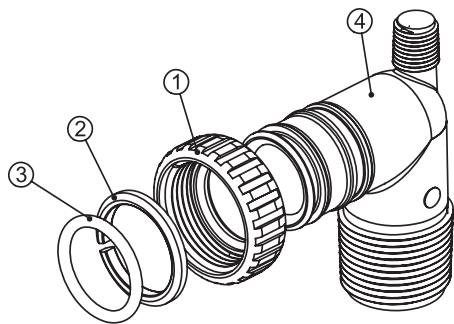
Item No.	Part No.	Description	Qty.
	OZ1-A-WR	Ozone Kit Assembly	1
1	F800MAL250VP	Fuse	1
2	OZ33217-C	Ozone Cell	1
	CJCPG-6PBLK	3/8" Compression Nut	1



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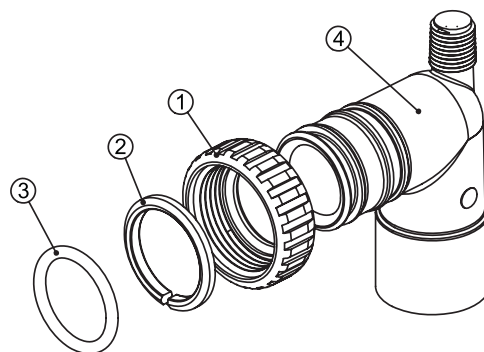
INSTALLATION FITTING ASSEMBLIES

NOTE: Not all available fittings are displayed below. Contact manufacturer for optional fittings.



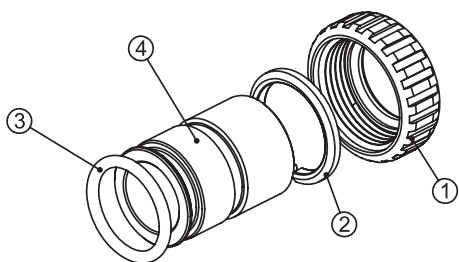
1" PVC MALE NPT ELBOW

Item No.	Part No.	Description	Qty.
	CV3007	1" PVC male NPT elbow assembly	2
1	CV3151	Nut, 1" quick connect	2
2	CV3150	Split ring	2
3	CV3105	O-ring 215	2
4	CV3149	Fitting	2



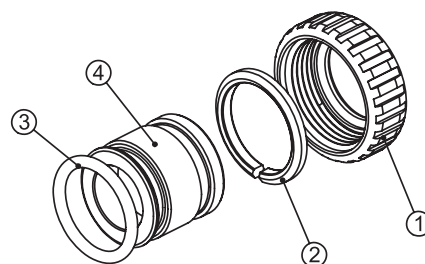
3/4" & 1" PVC SOLVENT ELBOW

Item No.	Part No.	Description	Qty.
	CV3007-01	3/4" & 1" PVC solvent elbow assembly	2
1	CV3151	Nut, 1" quick connect	2
2	CV3150	Split ring	2
3	CV3105	O-ring 215	2
4	CV3189	Fitting	2



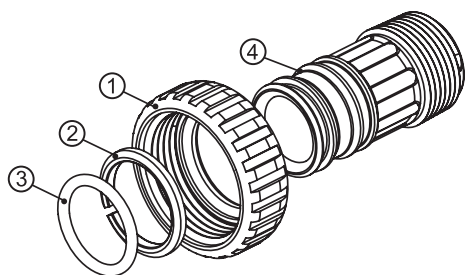
1" BRASS SWEAT

Item No.	Part No.	Description	Qty.
	CV3007-02	1" brass sweat assembly	2
1	CV3151	Nut, 1" quick connect	2
2	CV3150	Split ring	2
3	CV3105	O-ring 215	2
4	CV3188	Fitting	2



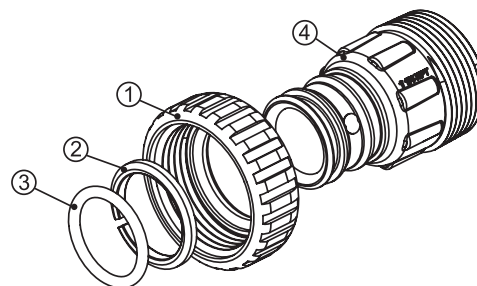
3/4" BRASS SWEAT

Item No.	Part No.	Description	Qty.
	CV3007-03	3/4" brass sweat assembly	2
1	CV3151	Nut, 1" quick connect	2
2	CV3150	Split ring	2
3	CV3105	O-ring 215	2
4	CV3188-01	Fitting	2



1" PLASTIC MALE NPT

Item No.	Part No.	Description	Qty.
	CV3007-04	1" plastic male NPT assembly	2
1	CV3151	Nut, 1" quick connect	2
2	CV3150	Split ring	2
3	CV3105	O-ring 215	2
4	CV3164	Fitting	2

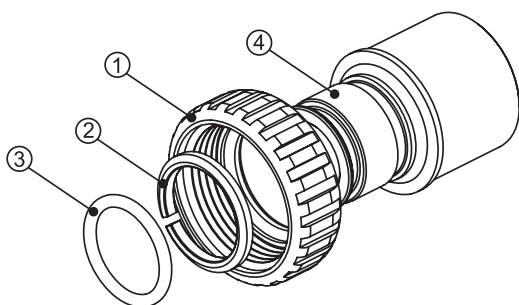


1-1/4" PLASTIC MALE

Item No.	Part No.	Description	Qty.
	CV3007-05	1-1/4" plastic male assembly	2
1	CV3151	Nut, 1" quick connect	2
2	CV3150	Split ring	2
3	CV3105	O-ring 215	2
4	CV3317	Fitting	2

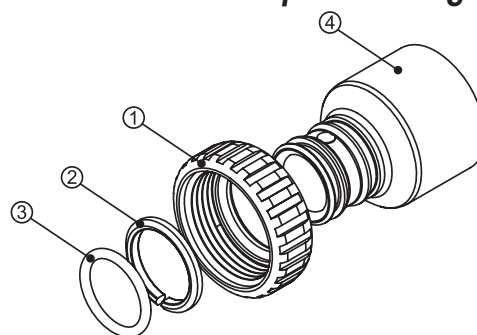
INSTALLATION FITTING ASSEMBLIES

NOTE: Not all available fittings are displayed below. Contact manufacturer for optional fittings.



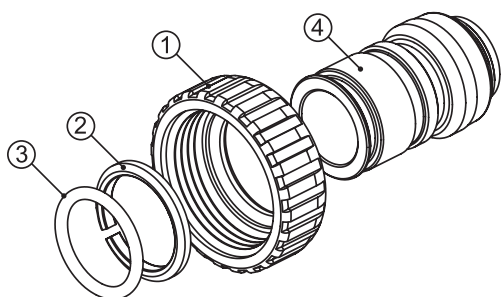
1-1/4" & 1-1/2" BRASS SWEAT

Item No.	Part No.	Description	Qty.
	CV3007-09	1-1/4 & 1-1/2" brass sweat assembly	2
1	CV3151	Nut, 1" quick connect	2
2	CV3150	Split ring	2
3	CV3105	O-ring 215	2
4	CV3375	Fitting	2



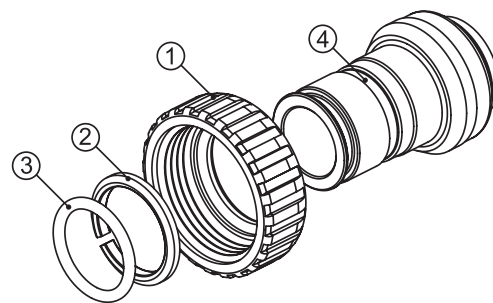
1-1/4" & 1-1/2" PVC SOLVENT

Item No.	Part No.	Description	Qty.
	CV3007-07	1-1/4" & 1-1/2" PVC solvent assembly	2
1	CV3151	Nut, 1" quick connect	2
2	CV3150	Split ring	2
3	CV3105	O-ring 215	2
4	CV3352	Fitting	2



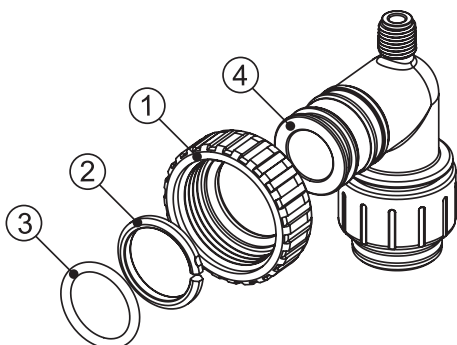
3/4" BRASS SHARK BITE

Item No.	Part No.	Description	Qty.
	CV3007-12	3/4" brass Shark Bite assembly	2
1	CV3151	Nut, 1" quick connect	2
2	CV3150	Split ring	2
3	CV3105	O-ring 215	2
4	CV3628	Fitting	2



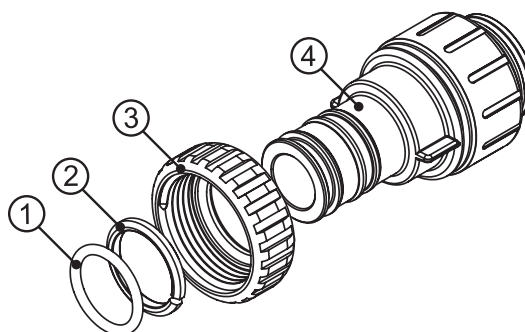
1" BRASS SHARK BITE

Item No.	Part No.	Description	Qty.
	CV3007-13	1" brass Shark Bite assembly	2
1	CV3151	Nut, 1" quick connect	2
2	CV3150	Split ring	2
3	CV3105	O-ring 215	2
4	CV3629	Fitting	2



3/4" JOHN GUEST ELBOW

Item No.	Part No.	Description	Qty.
	CV3007-15	3/4" John Guest elbow assembly	2
1	CV3151	Nut, 1" quick connect	2
2	CV3150	Split ring	2
3	CV3105	O-ring 215	2
4	CV3790	Fitting	2



1" JOHN GUEST

Item No.	Part No.	Description	Qty.
	CV3007-17	1" John Guest assembly	2
1	CV3151	Nut, 1" quick connect	2
2	CV3150	Split ring	2
3	CV3105	O-ring 215	2
4	CV4045	Fitting	2

AIR FILTER SPECIFICATIONS:

Sulfur (EVS) and Iron Air (EVFE) Filters

MODEL	EVS-1054	EVS-1248	EVS-1354	EVFE-1054	EVFE-1248	EVFE-1354
Mineral Type	Catalytic Carbon	Catalytic Carbon	Catalytic Carbon	Birm	Birm	Birm
Amount (Cu. Ft.)	1.0	1.5	2.0	1.0	1.5	2.0
Gravel Amount/Size (No. 1)	14 lb 1/4 x 1/8	21 lb 1/4 x 1/8	21 lb 1/4 x 1/8	14 lb 1/4 x 1/8	21 lb 1/4 x 1/8	21 lb 1/4 x 1/8
Gravel Amount/Size (No. 2)	7 lb #20	7 lb #20	7 lb #20	7 lb #20	7 lb #20	7 lb #20
Continuous Flow (GPM)	5.0	6.0	7.0	5.0	6.0	7.0
¹ Peak Flow (GPM)	20.0	22.0	22.0	18.0	19.0	19.0
Backwash Flow (GPM)	5.3	7.5	9.0	5.3	9.0	10.0
² Iron Removal	1.0	1.0	1.0	5.0	5.0	5.0
³ Hydrogen Sulfide Removal	5.0	5.0	5.0	1.0	1.0	1.0
pH Range	Greater than 7.0	Greater than 7.0	Greater than 7.0	6.8 to 9.0	6.8 to 9.0	6.8 to 9.0
Total Dimensions	10"W x 62"H	12"W x 56"H	13"W x 62"H	10"W x 62"H	12"W x 56"H	13"W x 62"H
Weight Filled (Lbs.)	99	129	⁴ 150	106	139	⁴ 164

NOTE: The EVS and EVFE are approved for use in the State of Wisconsin.

¹ Not tested at peak flow rate. Water quality may vary.

² Iron removal may vary for hydrogen sulfide systems, depending on local conditions.

³ Hydrogen sulfide removal may vary for iron systems, depending on local conditions.

⁴ Units ship with media separate.

Air CAT (EAG/EACG) Filters

MODEL	EAG-1054	EAG-1248	EAG-1354	EACG-1054AN	EACG-1248AN	EACG-1354AN
Mineral Type	Greensand Plus	Greensand Plus	Greensand Plus	Greensand Plus: 0.5	Greensand Plus: 0.75	Greensand Plus: 1.0
¹ Amount (Cu. Ft.)	1.0	1.5	2.0	Calcite: 0.5	Calcite: 0.75	Calcite: 1.0
Gravel Amount/Size (No. 1)	14 lb 1/4 x 1/8	21 lb 1/4 x 1/8	21 lb 1/4 x 1/8	14 lb 1/4 x 1/8	21 lb 1/4 x 1/8	21 lb 1/4 x 1/8
Gravel Amount/Size (No. 2)	7 lb #20	7 lb #20	7 lb #20	7 lb #20	7 lb #20	7 lb #20
Garnet Amount (Lbs)	13.0	19.0	22.0	13.0	19.0	22.0
Continuous Flow (GPM)	3.0	3.0	5.0	3.0	3.0	5.0
² Peak Flow (GPM)	6.0	8.0	10.0	6.0	8.0	10.0
Backwash Flow (GPM)	6.5	9.0	11.0	6.5	9.0	11.0
³ Iron Removal	4.0	4.0	4.0	4.0	4.0	4.0
⁴ Hydrogen Sulfide Removal	0.5	0.5	0.5	0.5	0.5	0.5
pH Range	Greater than 6.8	Greater than 6.8	Greater than 6.8	Greater than 6.3	Greater than 6.3	Greater than 6.3
Total Dimensions	10"W x 62"H	12"W x 56"H	13"W x 62"H	10"W x 62"H	12"W x 56"H	13"W x 62"H
Weight Filled (Lbs.)	169	233	⁵ 286	169	233	⁵ 286

¹ Amount of acid neutralizing media may vary depending on local conditions.

² Not tested at peak flow rate. Water quality may vary.

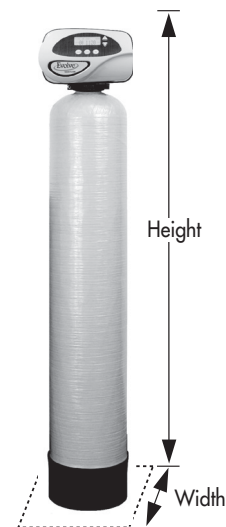
³ Iron removal may vary, depending on local conditions.

⁴ Hydrogen sulfide removal may vary, depending on local conditions.

⁵ Units ship with media separate.

Cycle Times and Usage

MODEL	EVS-1054		EVS-1248		EVS-1354		EVFE-1054		EVFE-1248		EVFE-1354	
	MIN.	GAL.	MIN.	GAL.	MIN.	GAL.	MIN.	GAL.	MIN.	GAL.	MIN.	GAL.
Backwash Air	4	16	4	23	4	27	4	16	4	23	4	27
Backwash	10	50	10	80	10	100	10	50	10	80	10	100
Regenerant Draw	60	25	60	40	60	50	60	25	60	40	60	50
Total	74	91	74	143	74	177	74	91	74	143	74	177



FILTER SPECIFICATIONS:

Acid Neutralizers (EVBF-AN/EVAN)

MODEL	EVBF-1044AN	EVBF-1054AN	EVBF-1354AN
Mineral Type Amount (Cu. Ft.)	Calcite or Mix 1.0	Calcite or Mix 1.5	Calcite or Mix 2.5
Gravel Amount/Size (No. 1)	14 lb 1/4 x 1/8	14 lb 1/4 x 1/8	21 lb 1/4 x 1/8
Gravel Amount/Size (No. 2)	7 lb #20	7 lb #20	7 lb #20
Continuous Flow (GPM)	4.8	4.8	6.9
Peak Flow (GPM)	11.0	11.0	16.0
Backwash Flow (GPM)	5.3	5.3	7.5
Total Dimensions	10"W x 52"H	10"W x 62"H	13"W x 62"H
Weight: Unfilled/Media (Lbs)	63/90	66/135	84/225

EVAN-1044	EVAN-1054	EVAN-1354
Calcite or Mix 1.0	Calcite or Mix 1.5	Calcite or Mix 2.5
14 lb 1/4 x 1/8 7 lb #20	14 lb 1/4 x 1/8 7 lb #20	21 lb 1/4 x 1/8 7 lb #20
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
10"W x 50"H	10"W x 60"H	13"W x 60"H
63/90	66/135	84/225

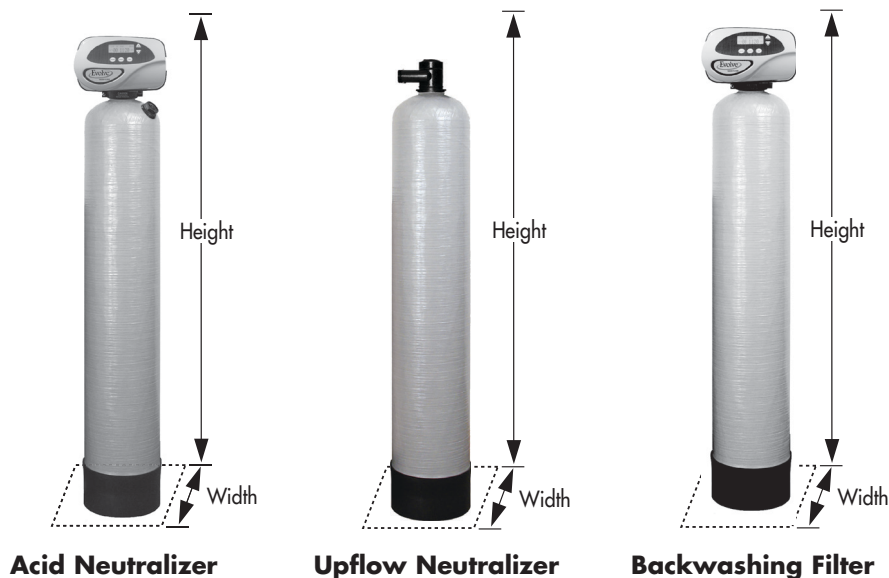
Backwashing Filters (EVBF)

MODEL	EVBF-1044	EVBF-1054	EVBF-1354
Mineral Type Amount (Cu. Ft.)	Carbon 1.0	Carbon 1.5	Carbon 2.5
Gravel Amount/Size (No. 1)	14 lb 1/4 x 1/8	14 lb 1/4 x 1/8	21 lb 1/4 x 1/8
Gravel Amount/Size (No. 2)	7 lb #20	7 lb #20	7 lb #20
Continuous Flow (GPM)	3.0	5.0	7.0
Peak Flow (GPM)	8.0	9.0	12.0
Backwash Flow (GPM)	5.3	5.3	7.5
Total Dimensions	10"W x 52"H	10"W x 62"H	13"W x 62"H
Weight: Unfilled/Media (Lbs)	63/33	66/50	84/83

EVBF-1044	EVBF-1054	EVBF-1354
Turbidex 1.0	Turbidex 1.5	Turbidex 2.5
14 lb 1/4 x 1/8 7 lb #20	14 lb 1/4 x 1/8 7 lb #20	21 lb 1/4 x 1/8 7 lb #20
6.0	7.0	11.0
10.0	11.0	18.0
8.0	8.0	14.0
10"W x 52"H	10"W x 62"H	13"W x 62"H
63/50	66/75	84/125

Cycle Times and Usage

MODEL	EVBF-1044 CARBON		EVBF-1054 CARBON		EVBF-1354 CARBON		EVBF-1044 TURBIDEX		EVBF-1054 TURBIDEX		EVBF-1354 TURBIDEX	
	MIN.	GAL.	MIN.	GAL.	MIN.	GAL.	MIN.	GAL.	MIN.	GAL.	MIN.	GAL.
Backwash	5	26.5	5	26.5	5	37.5	5	45	5	45	5	65
Rinse	1	5.3	1	5.3	1	7.5	1	9	1	9	1	13
Backwash	5	26.5	5	26.5	5	37.5	5	45	5	45	5	65
Rinse	1	5.3	2	10.6	2	15	1	9	2	18	2	26
Total	12	63.6	13	68.9	13	97.5	12	108	13	117	13	169





Evolve Series® Water Filter Limited Warranty

Congratulations. You have purchased one of the finest water treatment systems available. In the unlikely event of a problem due to defects in material and workmanship, Water-Right® proudly warrants our Evolve Series® water filters to the original owner, at original installation location, when installed in accordance with Water-Right specifications from the date of original installation as follows:

For the LIFETIME of the original owner: Media tank, except for damages due to freezing, high pressure (120 PSI and above), extreme temperature (100° F and above) or a vacuum on the system.

For a period of FIVE YEARS: Complete valve.

For a period of ONE YEAR: All other parts and components.

Any part found defective within the terms of this warranty will be repaired or replaced by the dealer at the manufacturer's discretion. You pay only freight from our factory and local dealer charges. To obtain local warranty service, contact original dealer. If original dealer is unknown, contact Water-Right for authorized service dealer in your area. If no authorized dealer is located in your area, please ship defective part or component freight prepaid to:

Water-Right, Inc.
1900 Prospect Ct.
Appleton, Wisconsin 54914

Water-Right, at its discretion, will repair or replace the part or component at its expense and return part freight collect.

The above provisions of the warranty are valid as long as the unit is connected in compliance with local plumbing codes and in an equivalent manner and condition of the original installation and is owned by the original owner.

This warranty does not cover expendable or misapplied medias, or damages due to accident, fire, flood, freezing, or any other Act of God. Water-Right is not responsible for damages due to change in water conditions, misapplication, misuse, neglect, vacuum, oxidizing agents, alteration, or lack of maintenance. No responsibility is assumed for loss of use of the unit, inconvenience, loss or damage to real or personal property or any incidental or consequential damages. Furthermore, we assume no liability and extend no warranties, express or implied, for the use of this product with a non-potable water source. **To the extent permitted by law, Water-Right disclaims all implied warranties, including without limitation warranties of merchantability and fitness for particular purpose; to the extent required by law, any such implied warranties are limited in duration to the period specified above for the specified components.**

Some states do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

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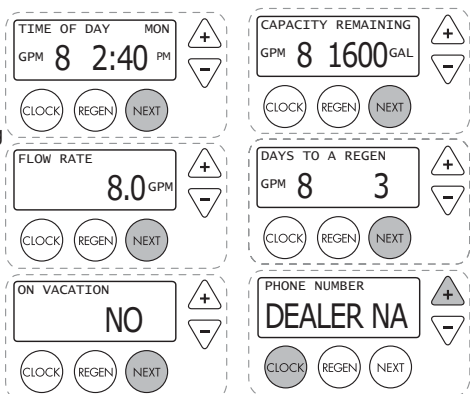
QUICK REFERENCE GUIDE:

GENERAL OPERATION

When the system is operating, one of six displays will be shown:

1. time of day/gpm
2. flow rate
3. vacation mode
4. capacity remaining
5. days to a regen
6. dealer name and phone number

Pressing **NEXT** will toggle between the six choices.



MANUAL REGENERATION

NOTE: For softeners, if brine tank does not contain salt, fill with salt and wait at least two hours before regeneration. If you need to initiate a manual regeneration, either immediately, or the same night at the preprogrammed time for regeneration (typically 2:00 AM), complete the following steps.

For Immediate Regeneration:

Press and hold **REGEN** until valve motor starts (typically 3 seconds).

For Regeneration the same night:

Press and release **REGEN** (notice that flashing "REGEN TODAY" appears).

REGEN TODAY and TIME OF DAY will flash alternately if a regeneration is expected tonight.



ERROR

If the display toggles between "Error" and an error code (i.e. a number), call a service technician and report the error code.

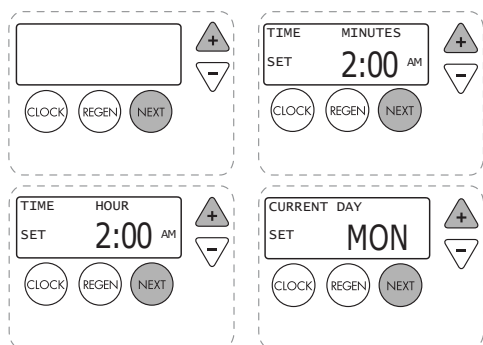
CALL FOR SERVICE

ERROR 106

TO SET TIME OF DAY

In the event of a prolonged power outage, time of day flashes, indicating that this needs to be reset. All other information will be stored in memory no matter how long the power outage.

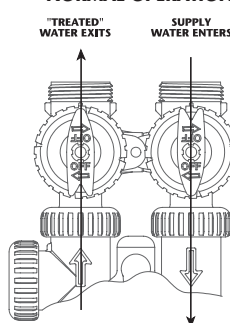
1. Accessed by pressing **SET CLOCK**
2. Adjust hours with **+** and **-** buttons, AM/PM toggles at 12
3. Press **NEXT**
4. Adjust minutes with **+** and **-** buttons
5. Press **NEXT**
6. Adjust current day with **+** and **-** buttons
7. Press **NEXT** to complete and return to normal operation



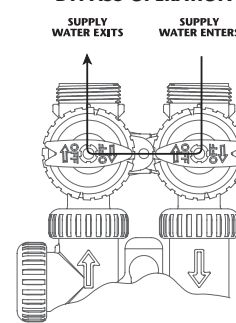
BYPASS VALVE OPERATION

To shut off water to the system, position arrow handles as shown in the bypass operation diagram below. If your valve doesn't look like the diagram below, contact your service technician for instructions on how to shut off water.

NORMAL OPERATION



BYPASS OPERATION

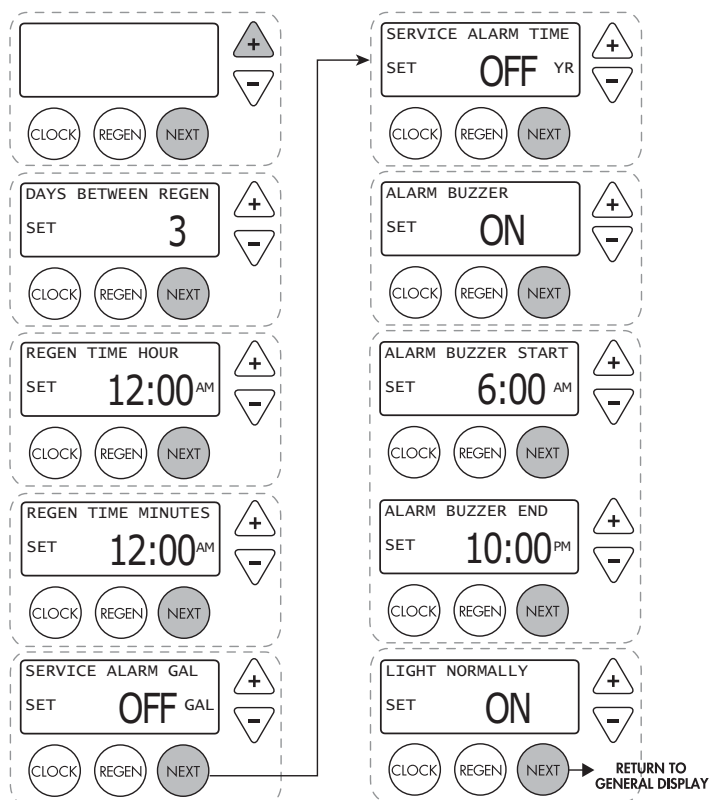


QUICK REFERENCE GUIDE:

ADJUST DAYS BETWEEN REGENERATION, TIME OF REGENERATION, AND ALARM BUZZER

For initial set-up or to make adjustments, please complete the following steps.

1. Accessed by pressing **NEXT** and **+** button simultaneously
2. Adjust days between regenerations using **+** and **-** buttons
3. Press **NEXT**
4. Adjust time of regeneration hour with **+** and **-** buttons, AM/PM toggles at 12.
5. Press **NEXT**
6. Adjust time of regeneration minutes with **+** and **-** buttons
7. Press **NEXT**
8. Turn service alarm time ON with **+** and **-** buttons. Default is OFF.
9. Press **NEXT** twice
10. Turn service alarm gallons ON with **+** and **-** buttons. Default is OFF.
11. Press **NEXT** twice
12. Turn alarm buzzer ON or OFF with **+** and **-** buttons.
13. Press **NEXT**
14. Adjust alarm buzzer start time with **+** and **-** buttons.
15. Press **NEXT**
16. Adjust alarm buzzer end time with **+** and **-** buttons.
17. Press **NEXT**
18. Turn display backlight ON or OFF with **+** and **-** buttons. Default is ON.
19. Press **NEXT** to complete and return to normal operation.





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