Care and Use Manual
Tank Series Appliances

Information Provided for the Proper Set-Up, Installation and Start-Up of the following Appliances:

- ☐ **EWS Series of Whole Home Filtration and Physical Conditioning:**
  EWS-1054, EWS-1354, EWS-1354-HF, EWS1354-11/2”
- ☐ **CWL Series of Whole Home Filtration:**
  CWL-1035 LTD, CWL-1054, CWL-1354, CWL-1354-HF, CWL-1354-11/2”
- ☐ **Iron Removal Series:**
  EWS-1054-P, EWS-1354-11/2”-P

ALL PRODUCT PROUDLY MANUFACTURED AND ASSEMBLED IN THE USA

To the Installer: Please Read and Leave this Owner’s Manual with the Unit or the Consumer

To the Consumer: Retain this Care & Use Manual for Product Registration and Future Reference

IF YOU ONLY READ ONE PAGE IN THIS MANUAL - THIS IS IT !!!
INSTALLATION SUMMARY - 12 STEPS

Step 1:
Locate the following: Main Water Supply Line, Drain Access, Electrical Outlet and Clearances.

Step 2:
Check the incoming Water Pressure. Install a pressure regulator (PRV) if the water pressure exceeds or can surge above 75 PSI.

Step 3:
Place the tank where you want to install the unit, making sure the tank is level and on a firm base, noting the clearances necessary to complete the installation. Can go anywhere, see details.

Step 4:
Since handling and moving the unit may loosen the valve head - make sure to Check and Tighten Valve Head on the Tank. Hand Tighten the Valve Head in a Clockwise Direction. Make sure tank cover, if applicable does not interfere or cut into the connection.

Step 5:
Identify Water Main Supply and plumb inlet (supply) and outlet (filtered) into the unit following the directional arrows molded onto the valve body. Plumb the unit with the bypass and the male yoke included, or for larger valved units, a bypass must be plumbed. Do not cross-connect or plumb backwards. See detailed installation schematics and the helpful information in this manual.

Step 6:
Connect a backwash drain line (1/2” or 3/4”) based on application and an air gap.

Step 7:
Partially Open Inlet Valve Only. Fill Tank Slowly. Once tank is filled, completely open inlet valve. Keep outlet valve closed. (Larger valved units, keep plumbed bypass valve closed).

Step 8:
Plug the unit into an electrical outlet. Be sure the outlet is dedicated and unswitched.
An outlet that cannot be turned “on” or “off.”

Step 9:
Set the time of day on the valve display.

Step 10:
Backwash and Flush the system properly until the drain water runs clear.

Step 11:
Open Outlet Valve slowly (Larger valved units, keep plumbed bypass valve closed).

Step 12:
Run hot/cold water throughout the home (at every tap) to flush pipes and water heaters to prepare unit for usage. You are done.

GENERAL INFORMATION AND PRE-INSTALLATION CHECKLIST

Verify: All components are included with the unit and were not damaged in shipping.
Caution: Do not attempt to install any system using defective or damaged components. Do not install any system that has been misapplied.
Warning: When drilling or cutting, use protective eyewear to prevent possible eye injury due to flying objects. When using an open flame and/or hot materials, take the necessary precautions for you and the environment to prevent burns, burning and/or fires.

■ **Water Pressure and Flow Rate:**
A minimum of 35 PSI (40 PSI for Iron units) and 8 GPM (12 GPM for 1354 Iron units) is required for backwash valve to operate effectively. Water pressure not to exceed or to surge in excess of a maximum of 75 PSI for the system. Unsure of pressure or it's ability to surge? A pressure reducing valve (PRV) becomes an insurance policy and is recommended for this and many other products that limit high pressure in your home.

■**Water Temperature Range:**
Feed water temperature not to exceed 110°F or be allowed to go below 40°F. Protect unit from exceeding high temperatures and never allow unit, its' drain line and any water to freeze.

■**Electrical:**
An uninterrupted alternating current (A/C) supply is required. Please make sure your voltage supply is compatible with your unit before installation.

■**Existing Plumbing:**
Condition of existing plumbing should be free from lime and iron buildup. Piping that is built up heavily and clogged with lime and/or iron should be replaced. Problem with iron? Our separate iron filter unit should be installed ahead of any other unit. Old galvinized or combinations of plumbing materials can cause water issues and conditions.

■**Location of Tank, Drain and Electrical:**
Units can be installed, almost anywhere. Inside or outside. However, use your common sense. Valves may be water resistant, not water proof. Protect any system from the elements. Review issues on water flow rates and pressure, and environmental and water temperature ranges. The tank should have access to the supply water, provide filtered water to the home, be located close to a clean working drain, have an electrical outlet available, and be connected according to all local plumbing codes.

■**By-Pass Valves:**
Always provide for the installation of a bypass valve, if unit (with larger valves) is not equipped with one.

■**Drain Connection:**
Nominal drain line and drain size on 1054/1354 (non-iron) units should be a minimum of 1/2". Backwash flow rates of 7 GPM (1354 units) with drain line exceeding 20' in length require 3/4" line and drain. Larger valves require 3/4" line and drain. Install, non-restrictive, check valve in drain line, if drain water is expected to flow over 5' above the height of the drain port. Never restrict the backwash drain water flow.Teflon tape is the only sealant to be used on the drain fitting.

All plumbing should be done in accordance with all local plumbing codes.

Unsure of the specifics?
All the information that you may need is in this product manual and available on the web.
Identify the unit you are installing and follow the detailed, Set-Up, Installation and Start-Up of that unit.
WARNING: IMPROPER INSTALLATION WILL RESULT IN THE VOIDING OF ANY WARRANTY.

Set-Up and Installation:

CWL-1035 LTD, CWL-1054, CWL-1354; EWS-1054, EWS-1354

DIMENSIONS OF UNITS TO BE INSTALLED:

CWL-1054: or EWS-1054:
Service Line Size: 3/4" - 1"
Flow Rate: up to 15 gpm
Drain Line Size: min: 1/2"

Installed Dimensions:
Height: 62 1/2"; Width: 10"
Dry Weight: est: 105 lbs.
Inlet/Outlet Height: 56 1/4"
Drain Port Height: 57 1/2"

Plumbing Clearances:
Minimum of 18" from front of unit to back wall for plumbing

Drain Flow: up to 4 gpm
Discharge:up to 18-26 gallons

Bypass and male threaded 1" MNPT yoke (included) must be installed with valve

CWL-1354: or EWS-1354:
Service Line Size: 3/4" - 1"
Flow Rate: up to 15 gpm
Drain Line Size: min: 1/2"**

Installed Dimensions:
Height: 63"; Width: 13"
Dry Weight: est: 135 lbs.
Inlet/Outlet Height: 56 3/4"
Drain Port Height: 58"

Plumbing Clearances:
Minimum of 18" from front of unit to back wall for plumbing

Drain Flow: up to 7 gpm
Discharge:up to 22-38 gallons

Bypass and male threaded 1" MNPT yoke (included) must be installed with valve

1 - PREPARE FOR INSTALLATION:

■**Check the Following:** Main Water Supply Line, Drain Access, Electrical Outlet, and Clearances to comlepte the install.

Location of Tank: Units can be installed, almost anywhere. Inside or outside. However, use your common sense. Valves may be water resistant, not water proof. Protect any system from the elements. Review issues on water flow rates and pressure, and environmental and water temperature ranges. The tank should have access to the supply water, provide filtered water to the home, be located close to a clean working drain, have an electrical outlet available, and be connected according to all local plumbing codes.

Water Temperature Range: Feed water temperature not to exceed 110°F or be allowed to go below 40°F. Protect unit from exceeding high temperatures and direct sunlight, and never allow unit, the drain line and any water to freeze.

Electrical: An uninterrupted alternating current (A/C) supply is required. The system is ideally located within 4-6 feet of a 110 volt outlet to allow the unit to be plugged in. A 24 volt motor and transformer is available for longer electrical runs (use 10-2 regular lamp gauge wire). The 24 volt transformer must be located inside.

Existing Plumbing: Condition of existing plumbing should be free from lime and iron buildup. Piping that is built up heavily and clogged with lime and/or iron should be replaced. Problem with iron? Our separate iron filter unit should be installed ahead of any other unit. Old galvinized or combinations of plumbing materials can cause water issues and conditions.

Drain Connection: Nominal drain line and drain size should be a minimum of 1/2". **Backwash flow rates of 7 GPM (1354 units) with drain line exceeding 20' in length require 3/4" line and drain. Install, non-restrictive, check valve in drain line, if drain water is expected to flow over 5' above the height of the drain port. Never restrict the backwash drain water flow.Teflon tape is the only sealant to be used on the drain fitting.

■**Check Incoming Water Pressure and Flow Rates:** A minimum of 35 PSI and 8 GPM is required for backwash valve to operate effectively. Water pressure not to exceed or to surge in excess of a maximum of 75 PSI for the system. Unsure of pressure or it's ability to surge? A pressure reducing valve (PRV), or limiting pressure to 75 PSI is recommended for this and many other kitchen and bath products in your home. Automatic valve is rated for 100 PSI and the tank is rated for 150 PSI, however the overall system with various connections has limitations to excessive pressure. Water pressure measuring 75 PSI during the day may surge to over 100 PSI at night when the automatic backwash occurs.

Install (often required by code) a pressure regulator (PRV) if the water pressure exceeds or can surge above 75 PSI.

2 - UNBOX UNIT: CHECK TANK AND VALVE AND LOCATE BYPASS AND MALE YOKE:

1) PLACE THE TANK WHERE YOU WANT TO INSTALL THE UNIT.

•Make sure the tank is level and on a firm base. Black bases on tanks are glued-on and self-leveling. If necessary, lift tank - tap base to floor - on the bottom side, in order to level unit. Take note of the clearances necessary to complete the installation.

2) CHECK AND TIGHTEN VALVE HEAD ON THE TANK.

•Hand Tighten the Valve Head in a Clockwise Direction. Make sure the stainless tank cover or plastic dome (1354 units) does not interfere or cut into the connections. Stainless covers are non-functional, if "dinged" in handling, turn to good side.

3) CONNECT BYPASS VALVE AND MALE YOKE TO VALVE HEAD.

•Make sure bypass valves are facing up. Keep bypass valve level (horizontal). Do not put, upward or downward, pressure on bypass valve, this will not allow nipples and o-rings to seat squarely and completely.

3 - PLUMBING LINE CONNECTIONS:

1) IDENTIFY THE MAIN WATER SUPPLY.

- Do Not Assume. You may have to perform "the old bucket test" to determine where the water is coming from.
- Make sure the whole facility is on the line. Some cold water lines (kitchen, island, wet bar sinks, refrigerators, ice-makers) may have been plumbed separately, if previously plumbed for softened (salts) water. You may have to recapture those lines by replumbing that manifold. Or, capture the main water supply before the bypassed or "looped" away lines, usually found at, or after, the main water shut off. However, some plumbing designs prevent this ideal installation. A sink (point of use) filtration unit can be used for that missed location.
- Hose bibs are unnecessary to capture unless required by consumer. Irrigation (which should tee-off prior to the home's main water supply) uses a lot of water and this connection should be discouraged. It puts an unnecessary burden on the unit and the media.

2) USING THE CONNECTED BYPASS VALVE AND 1" MALE NPT YOKE.

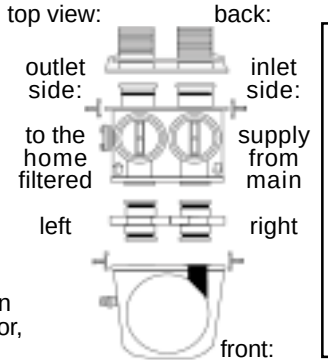
3) PLUMB INLET (supply) AND OUTLET (filtered) INTO THE UNIT.

- Follow the directional arrows molded onto the valve body and bypass. See pictures below for; top/front/back and left/right views to prevent plumbing the unit backwards. Teflon tape is the only sealant to used on any of our fittings.
- NO Heat, No Torch; Leave at least 12" between the male yoke and any solder joints. Failure to do this could cause interior damage. Consider flexible stainless (1"FNPT x 1"FNPT (3/4" if your application) and at least 18" in length) connected to copper male adapters, or some other applicable connection - no heat, saves time, neat install, if applicable/code to your application.

4) WARNING: ONCE PLUMBED, <u>DO NOT TURN ON WATER</u>, UNTIL YOU BEGIN START-UP PROCEDURES.

Note: If, recirculating pump on water heater, unplug pump before turning off water supply. Prevents damage to the pump motor.

Outlet (filtered) Side:
left side view of valve and drain port with included drain adaptor, bypass and male yoke



Yoke 1" MNPT

Dual Port Bypass

O-Ring Connect

Valve Head

Must use dual-port, full flow, noryl bypass with 1" MNPT yoke.

- Shuts off water to/from the unit
- No additional plumbing for media replacement or maintenance
- Less costly plumbing installation, easier start-ups, non-corrosive

Inlet (supply) Side:
right side view of valve with included bypass and male yoke

4 - DRAIN CONNECTIONS:

1) LOCATE DRAIN PORT ON THE LEFT (OUTLET) SIDE OF THE VALVE HEAD.

- Inserted into drain port is a flow control housing. The flow control housing (male o-ringed insert x 1/2"FNPT) is a plastic disc, held in by a retainer clip. The flow control housing has a flow washer which determines the flow rate in gpm from drain line.

2) DO NOT OVERTIGTHEN CONNECTIONS. IMPORTANT TO READ THE FOLLOWING:

- Nominal drain line and drain size should be a minimum of 1/2". **Backwash flow rates of 7 GPM (1354 units) with drain line exceeding 20' in length require 3/4" line and drain. Install, non-restrictive, check valve in drain line, if drain water is expected to flow over 5' above the height of the drain port. Never restrict the backwash drain water flow.
- Care must be taken when screwing in any connection to the flow control housing, not to crush piece and distort the flow washer, crucial to the effective backwashing of the system. A drain adapter or hose barb has been supplied and is only loosely connected. You may use this or any other applicable adaptor or connector depending on your drain line.
- Flexible tubing, poly tubing or any hose must be clamped (do not overtighten) and do not allow any tubing to kink.
- Hard piping of drain line: NO Heat, NO Torch, leave at least 12" between drain port and any solder joints - remember to use a union (a quick disconnect feature) for future servicing applications. Therefore, the system will require no replumbing.
- Teflon tape is the only sealant to be used on any drain fitting.

3) LOCATE A SUITABLE PLACE TO DRAIN.

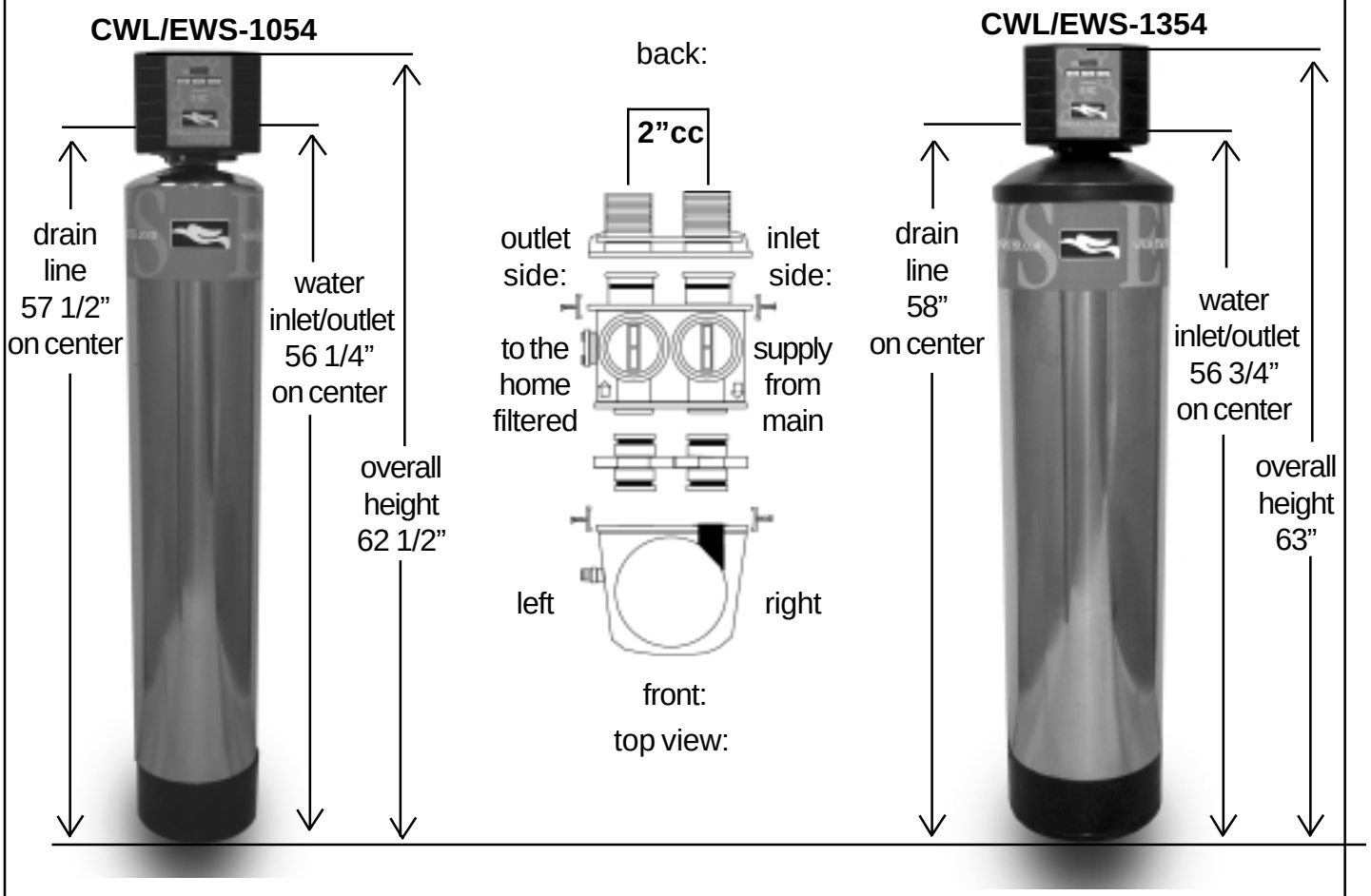
- A suitable place to drain the backwash water must be available. Usually, into a drain or trap, or outside that has sufficient percolation. You can be flexible or creative. Do not connect the backwash line to an air conditioning drain line. Do not freeze.
- Air gap must be used, if connecting to a drain line or sewer trap, to prevent possible back siphoning into the tank.
- Backwash is a mechanical way of turning over the filtration media. <u>The discharge is only water and not a brine</u>. The water discharge can go anywhere, may be used, or recycled, and does not have the legal restrictions or issues of brine discharge.

5 - GO TO SYSTEM START-UP PROCEDURES

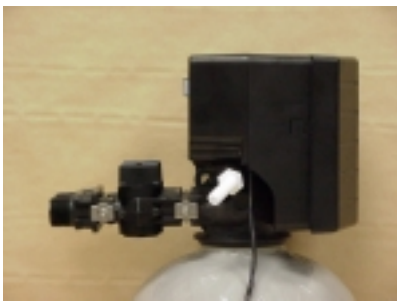
Set-Up and Installation Schematic:

CWL-1054, CWL-1354; EWS-1054, EWS-1354

DIMENSIONS OF UNITS TO BE INSTALLED:



EWS-1354 comes with adaptor that allows for installation of valve on 13x54 tank and adds 1/2"
Due to tank and base variances overall dimensions +/- 1"



Outlet (filtered) Side:

left side view of valve with included bypass, drain adaptor, and 1" MNPT yoke

Inlet (supply) Side:

right side view of valve with included bypass and 1" MNPT yoke

Must use the supplied dual-port, full flow, noryl bypass with 1" MNPT yoke.

- Shuts off water to/from the unit
- No additional plumbing for media replacement or maintenance
- Less costly plumbing installation, easier start-ups, non-corrosive

CWL-1035 LTD Not Pictured
Installed height approx 44"
valving, setup, install, and startup exactly the same as these units.

Set-Up and Installation:
CWL-1354-HF; EWS-1354-HF; EWS-1054-P

DIMENSIONS OF UNITS TO BE INSTALLED:

CWL-1354-HF: EWS-1354-HF:
Service Line Size: 1" - 11/4"
Flow Rate: up to 22 gpm
Drain Line Size: min: 1/2"**

Installed Dimensions:
Height: 63"; Width: 13"
Dry Weight: est: 155 lbs.
Inlet Height: 56 1/2"
Outlet Height: 58 1/2"
Drain Port Height: 57 1/2"

Plumbing Clearances:
Minimum of 24" from front of unit to back wall for plumbing
Height: 72" Width: 18"

Drain Flow: up to 7 gpm
Discharge:up to 22-38 gallons

Bypass needs to be plumbed

EWS-1054-P: Iron Removal
Service Line Size: 3/4" - 11/4"
Flow Rate: up to 15 gpm
Drain Line Size: min: 1/2"**

Installed Dimensions:
Height: 62 1/2"; Width: 10"
Dry Weight: est: 185
Inlet Height: 56"
Outlet Height: 58"
Drain Port Height: 57"

Plumbing Clearances:
Minimum of 24" from front of unit to back wall for plumbing
Height: 72" Width: 18"

Drain Flow: up to 7 gpm
Discharge:up to 22-38 gallons

Bypass needs to be plumbed. Iron units do not have stainless covers and may have to be assembled on site

1 - PREPARE FOR INSTALLATION:

■**Check the Following:** Main Water Supply Line, Drain Access, Electrical Outlet, and Clearances to comlepte the install.

Location of Tank: Units can be installed, almost anywhere. Inside or outside. However, use your common sense. Valves may be water resistant, not water proof. Protect any system from the elements. Review issues on water flow rates and pressure, and environmental and water temperature ranges. The tank should have access to the supply water, provide filtered water to the home, be located close to a clean working drain, have an electrical outlet available, and be connected according to all local plumbing codes.

Water Temperature Range: Feed water temperature not to exceed 110°F or be allowed to go below 40°F. Protect unit from exceeding high temperatures and direct sunlight, and never allow unit, the drain line and any water to freeze.

Electrical: An uninterrupted alternating current (A/C) supply is required. The system is ideally located within 4-6 feet of a 110 volt outlet to allow the unit to be plugged in. A 24 volt motor and transformer is available for longer electrical runs (use 10-2 regular lamp gauge wire). The 24 volt transformer must be located inside. Use set screw to secure transformer to outlet.

Existing Plumbing: Condition of existing plumbing should be free from lime and iron buildup. Piping that is built up heavily and clogged with lime and/or iron should be replaced. Problem with iron? Our separate iron filter unit should be installed ahead of any other unit. Old galvinized or combinations of plumbing materials can cause water issues and conditions.

Drain Connection: Nominal drain line and drain size should be a minimum of 1/2". **Backwash flow rates of 7 GPM (all units above) with drain line exceeding 20' in length require 3/4" line and drain. Install, non-restrictive, check valve in drain line, if drain water is expected to flow over 5' above the height of the drain port. Never restrict the backwash drain water flow. Teflon tape is the only sealant to be used on the drain fitting.

■**Check Incoming Water Pressure and Flow Rates:** A minimum of 35 PSI (40 PSI for Iron units) and 8 GPM (12 GPM for 1354 Iron units) is required for backwash valve to operate effectively. Water pressure not to exceed or to surge in excess of a maximum of 75 PSI for the system. Unsure of pressure or it's ability to surge? A pressure reducing valve (PRV), or limiting pressure to 75 PSI is recommended for this and many other kitchen and bath products in your home. Automatic valve is rated for 100 PSI and the tank is rated for 150 PSI, however the overall system with various connections has limitations to excessive pressure. Water pressure measuring 75 PSI during the day may surge to over 100 PSI at night when the automatic backwash occurs.

Install (often required by code) a pressure regulator (PRV) if the water pressure exceeds or can surge above 75 PSI.

2 - UNBOX UNIT: CHECK TANK AND VALVE:

1) PLACE THE TANK WHERE YOU WANT TO INSTALL THE UNIT.

•Make sure the tank is level and on a firm base. Black bases on tanks are glued-on and self-leveling. If necessary, lift tank - tap base to floor - on the bottom side, in order to level unit. Take note of the clearances necessary to complete the installation.

2) CHECK AND TIGHTEN VALVE HEAD ON THE TANK.

•Hand Tighten the Valve Head in a Clockwise Direction. Make sure the stainless tank cover or plastic dome (1354 units) does not interfere or cut into the connections. Stainless covers are non-functional, if "dinged" in handling, turn to good side.

3 - PLUMBING LINE CONNECTIONS:

1) IDENTIFY THE MAIN WATER SUPPLY.

- Do Not Assume. You may have to perform "the old bucket test" to determine where the water is coming from.
- Make sure the whole facility is on the line. Some cold water lines (kitchen, island, wet bar sinks, refrigerators, ice-makers) may have been plumbed separately, if previously plumbed for softened (salts) water. You may have to recapture those lines by replumbing that manifold. Or, capture the main water supply before the bypassed or "looped" away lines, usually found at, or after, a main water shut off. However, some plumbing designs prevent this ideal installation. A sink (point of use) filtration unit can be used for that missed location.
- Hose bibs are unnecessary to capture unless required by consumer. Irrigation (which should tee-off prior to the home's main water supply) uses a lot of water and this connection should be discouraged. It puts an unnecessary burden on the unit and the media.

2) PLUMB INLET (supply) AND OUTLET (filtered) INTO THE UNIT AND PLUMB BYPASS VALVE BETWEEN.

- Follow the directional arrows molded onto the valve body. See picture below for correct set-up.
- Use unions (a quick disconnect feature) at the inlet and outlet pipe, as pictured, to allow future servicing of system without cutting and replumbing
- Use Ball Valves (preferred - easy to turn on/off) at inlet/outlet pipes and bypass, as pictured for proper installation.
- NO Heat, No Torch; Leave at least 12" between the valve body and any solder joints. Solder joints prior to connecting to valve body. Failure to do this could cause interior damage. Teflon tape is the only sealant to used on any of our fittings.

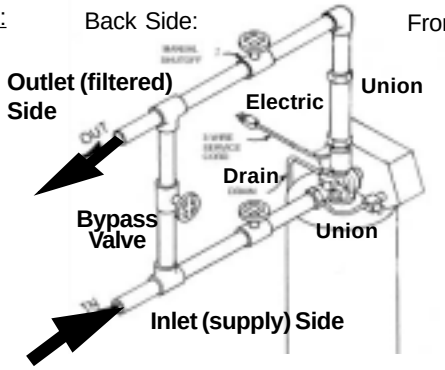
3) WARNING: ONCE PLUMBED, <u>DO NOT TURN ON WATER</u>, UNTIL YOU BEGIN START-UP PROCEDURES.

Note: If, recirculating pump on water heater, unplug pump before turning off water supply. Prevents damage to the pump motor.

<u>Materials Needed for Installation:</u>
1" pipe length to be determined
3 - 1" Ball Valves
2 - 1" Unions
See Drain Requirements

DO NOT TURN ON WATER, OPEN ANY VALVES OR PLUG IN THE ELECTRICAL UNTIL YOU GO TO THE START-UP PROCEDURES

Back Side:



Front Side:

HF - High Flow 2750 Valve

Valve Cover: Black NEMA 1 Rated for resistence to dust and moisture.

Hinged: left
Opens: from right
Controls: inside

Drain:
3/4" MNPT

Connected (included) to:
Brass Flow Control Housing with 7 GPM Flow Restrictor
3/4" FNPT x 1/2" FNPT

<u>Materials Needed for Drain:</u>
1/2" copper x male adapter
1/2" union
1/2" (min) drain line
length to be determined

4 - DRAIN CONNECTIONS:

1) LOCATE DRAIN PORT ON THE SIDE OF THE VALVE HEAD.

- Screwed onto the drain port is a brass flow control housing. The flow control housing has a flow washer which determines the flow rate in gpm from drain line.

2) DO NOT OVERTIGTHEN CONNECTIONS. IMPORTANT TO READ THE FOLLOWING:

- Nominal drain line and drain size should be a minimum of 1/2". ******Backwash flow rates of these units (7 GPM) with drain line exceeding 20' in length require 3/4" line and drain. Install, non-restrictive, check valve in drain line, if drain water is expected to flow over 5' above the height of the drain port. Never restrict the backwash drain water flow.
- Care must be taken when screwing in any connection to the flow control housing, not to crush piece and distort the flow washer, crucial to the effective backwashing of the system. You may use any applicable adaptor or connector depending on your drain line.
- Hard piping of drain line: NO Heat, NO Torch, leave at least 12" between drain port and any solder joints. Solder joints before connecting to drain port.
- Use a union (or quick disconnect feature) for future servicing applications. Therefore, the system will require no replumbing.
- Teflon tape is the only sealant to be used on any drain fitting.

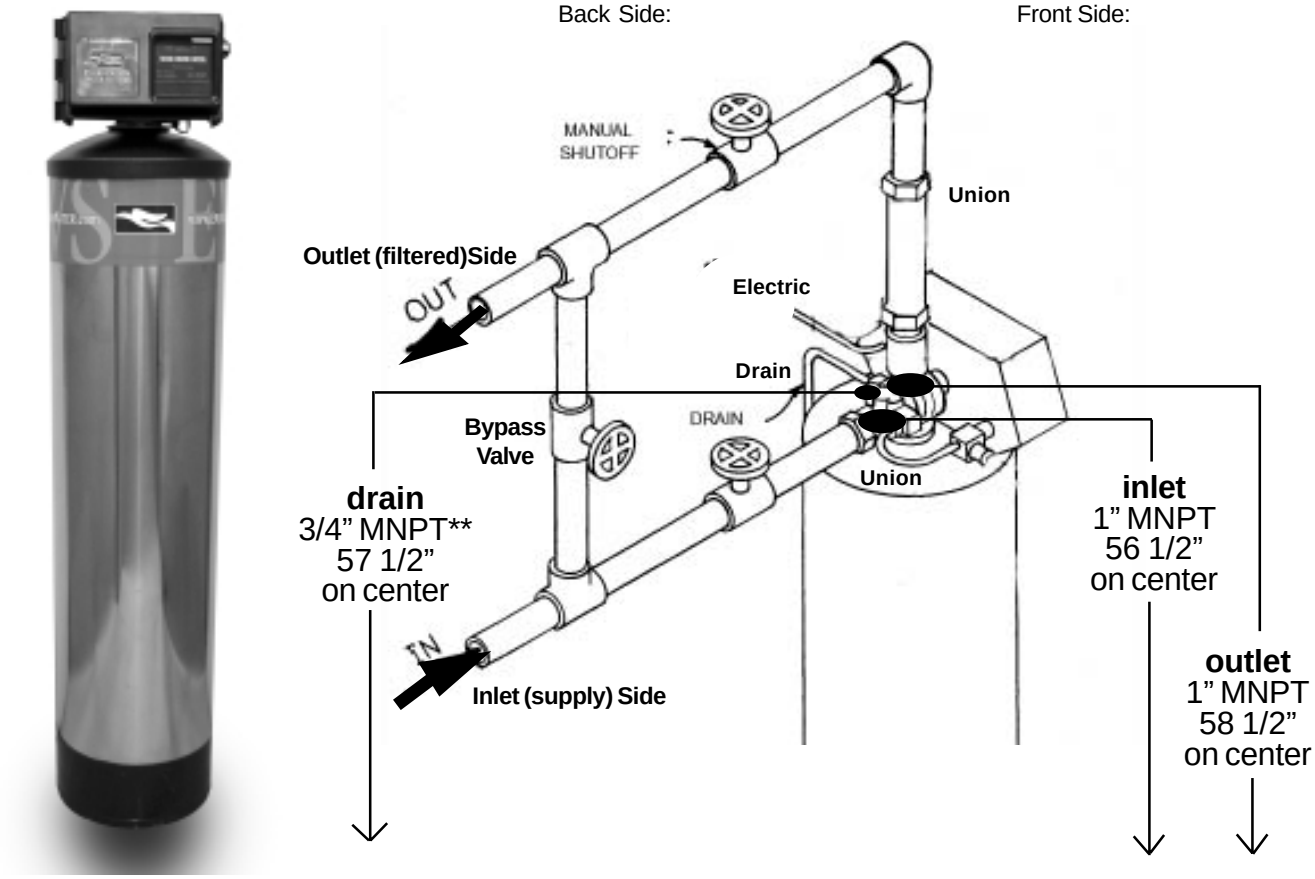
3) LOCATE A SUITABLE PLACE TO DRAIN.

- A suitable place to drain the backwash water must be available. Usually, into a drain or trap, or outside that has sufficient percolation. You can be flexible or creative. Do not connect the backwash line to an air conditioning drain line. Do not freeze.
- Air gap must be used, if connecting to a drain line or sewer trap, to prevent possible back siphoning into the tank.
- Backwash is a mechanical way of turning over the filtration media. <u>The discharge is only water and not a brine</u>. The water discharge can go anywhere, may be used, or recycled, and does not have the legal restrictions or issues of brine discharge.

5 - GO TO SYSTEM START-UP PROCEDURES

Set-Up and Installation Schematic:
CWL-1354-HF; EWS-1354-HF; EWS-1054-P

DIMENSIONS OF UNITS TO BE INSTALLED:



Due to tank and base variances overall dimensions +/- 1"

Materials Needed for Installation:
1" pipe length to be determined
Qty. 3 - 1" Ball Valves
Qty. 2 - 1" Unions
Qty. 1- Union for drain line
See Drain Requirements

HF - High Flow 2750 Valve

Valve Cover: Black
NEMA 1 Rated for resistence to dust and moisture.

Hinged: left, Opens: from right, Controls: inside

Materials Needed for Drain**:
1/2" MNPT copper x male adapter
1/2" union
1/2" (min) drain line, pipe length to be determined

Drain without Restrictor** 3/4" MNPT

**Connected (included) to:
Brass Flow Control Housing with 7 GPM Flow Restrictor
3/4" FNPT x 1/2" FNPT

Set-Up and Installation:

CWL-1354-11/2; EWS-1354-11/2; EWS-1354-11/2-P

DIMENSIONS OF UNITS TO BE INSTALLED:

CWL-1354-11/2: EWS-1354-11/2:
Service Line Size: 11/2”
Flow Rate: up to 50 gpm
Drain Line Size: min: 3/4”

Installed Dimensions:
Height: 63”; Width: 13”
Dry Weight: est: 165 lbs.
Inlet Height: 56 1/4”
Outlet Height: 57”
Drain Port Height: 57 1/2”

Plumbing Clearances:
Minimum of 24” from front of unit to back wall for plumbing
Height: 63” Width: 24”

Drain Flow: up to 10 gpm
Discharge:up to 35-50 gallons

Bypass needs to be plumbed

EWS-1354-11/2-P Iron Removal
Service Line Size: 11/2”
Flow Rate: up to 35 gpm
Drain Line Size: min: 3/4”

Installed Dimensions:
Height: 63”; Width: 13”
Dry Weight: est: 255 lbs
Inlet Height: 56 1/4”
Outlet Height: 57”
Drain Port Height: 57 1/2”

Plumbing Clearances:
Minimum of 24” from front of unit to back wall for plumbing
Height: 63” Width: 24”

Drain Flow: up to 10 gpm
Discharge:up to 35-50 gallons

Bypass needs to be plumbed
Iron units do not have stainless covers and may need to be assembled on site

1 - PREPARE FOR INSTALLATION:

■**Check the Following:** Main Water Supply Line, Drain Access, Electrical Outlet, and Clearances to comlepte the install.

Location of Tank: Units can be installed, almost anywhere. Inside or outside. However, use your common sense. Valves may be water resistant, not water proof. Protect any system from the elements. Review issues on water flow rates and pressure, and environmental and water temperature ranges. The tank should have access to the supply water, provide filtered water to the home, be located close to a clean working drain, have an electrical outlet available, and be connected according to all local plumbing codes.

Water Temperature Range: Feed water temperature not to exceed 110°F or be allowed to go below 40°F. Protect unit from exceeding high temperatures and direct sunlight, and never allow unit, the drain line and any water to freeze.

Electrical: An uninterrupted alternating current (A/C) supply is required. The system is ideally located within 4-6 feet of a 110 volt outlet to allow the unit to be plugged in. A 24 volt motor and transformer is available for longer electrical runs (use 10-2 regular lamp gauge wire). The 24 volt transformer must be located inside. Use set screw to secure transformer to outlet.

Existing Plumbing: Condition of existing plumbing should be free from lime and iron buildup. Piping that is built up heavily and clogged with lime and/or iron should be replaced. Problem with iron? Our separate iron filter unit should be installed ahead of any other unit. Old galvinized or combinations of plumbing materials can cause water issues and conditions.

Drain Connection: Nominal drain line and drain size should be a minimum of 3/4”. Backwash flow rates of 10 GPM (all units above) with drain line exceeding 20’ in length require 3/4” line and drain. Install, non-restrictive, check valve in drain line, if drain water is expected to flow over 5’ above the height of the drain port. Never restrict the backwash drain water flow. Teflon tape is the only sealant to be used on the drain fitting.

■**Check Incoming Water Pressure and Flow Rates:** A minimum of 35 PSI (40 PSI for Iron units) and 8 GPM (12 GPM for 1354 Iron units) is required for backwash valve to operate effectively. Water pressure not to exceed or to surge in excess of a maximum of 75 PSI for the system. Unsure of pressure or it’s ability to surge? A pressure reducing valve (PRV), or limiting pressure to 75 PSI is recommended for this and many other kitchen and bath products in your home. Automatic valve is rated for 100 PSI and the tank is rated for 150 PSI, however the overall system with various connections has limitations to excessive pressure. Water pressure measuring 75 PSI during the day may surge to over 100 PSI at night when the automatic backwash occurs.

Install (often required by code) a pressure regulator (PRV) if the water pressure exceeds or can surge above 75 PSI.

2 - UNBOX UNIT: CHECK TANK AND VALVE:

1) PLACE THE TANK WHERE YOU WANT TO INSTALL THE UNIT.

•Make sure the tank is level and on a firm base. Black bases on tanks are glued-on and self-leveling. If necessary, lift tank - tap base to floor - on the bottom side, in order to level unit. Take note of the clearances necessary to complete the installation.

2) CHECK AND TIGHTEN VALVE HEAD ON THE TANK.

•Hand Tighten the Valve Head in a Clockwise Direction. Make sure the stainless tank cover or plastic dome (1354 units) does not interfere or cut into the connections. Stainless covers are non-functional, if “dinged” in handling, turn to good side.

3 - PLUMBING LINE CONNECTIONS:

1) IDENTIFY THE MAIN WATER SUPPLY.

- Do Not Assume. You may have to perform "the old bucket test" to determine where the water is coming from.
- Make sure the whole facility is on the line. Some cold water lines (kitchen, island, wet bar sinks, refrigerators, ice-makers) may have been plumbed separately, if previously plumbed for softened (salts) water. You may have to recapture those lines by replumbing that manifold. Or, capture the main water supply before the bypassed or "looped" away lines, usually found at, or after, a main water shut off. However, some plumbing designs prevent this ideal installation. A sink (point of use) filtration unit can be used for that missed location.
- Hose bibs are unnecessary to capture unless required by consumer. Irrigation (which should tee-off prior to the home's main water supply) uses a lot of water and this connection should be discouraged. It puts an unnecessary burden on the unit and the media.

2) PLUMB INLET (supply) AND OUTLET (filtered) INTO THE UNIT AND PLUMB BYPASS VALVE BETWEEN.

- Follow the directional arrows molded onto the valve body. See picture below for correct set-up.
- Use unions (a quick disconnect feature) at the inlet and outlet pipe, as pictured, to allow future servicing of system without cutting and replumbing
- Use Ball Valves (preferred - easy to turn on/off) at inlet/outlet pipes and bypass, as pictured for proper installation.
- NO Heat, No Torch; Leave at least 12" between the valve body and any solder joints. Solder joints prior to connecting to valve body. Failure to do this could cause interior damage. Teflon tape is the only sealant to used on any of our fittings.

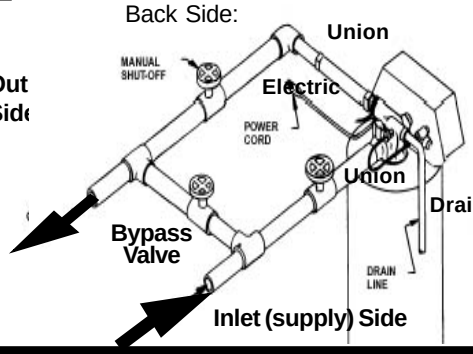
3) WARNING: ONCE PLUMBED, <u>DO NOT TURN ON WATER</u>, UNTIL YOU BEGIN START-UP PROCEDURES.

<u>Note: If, recirculating pump on water heater, unplug pump before turning off water supply. Prevents damage to the pump motor.</u>

<u>Materials Needed for Installation:</u>
11/2" pipe length to be determined
3 - 11/2" Ball Valves
2 - 11/2" Unions
See Drain Requirements

DO NOT TURN ON WATER, OPEN ANY VALVES OR PLUG IN THE ELECTRICAL UNTIL YOU GO TO THE START-UP PROCEDURES

Back Side:



Front Side:

11/2" 2850 Valve

Valve Cover: Blue NEMA 1 Rated for resistence to dust and moisture.

Hinged: left
Opens: from right
Controls: inside

Drain:
1" MNPT

Connected (included) to:
Brass Flow Control Housing with 10 GPM Flow Restrictor
1" FNPT x 3/4" FNPT

<u>Materials Needed for Drain:</u>
3/4" copper x male adapter
3/4" union
3/4" (min) drain line length to be determined

4 - DRAIN CONNECTIONS:

1) LOCATE DRAIN PORT ON THE SIDE OF THE VALVE HEAD.

- Screwed onto the drain port is a brass flow control housing. The flow control housing has a flow washer which determines the flow rate in gpm from drain line.

2) DO NOT OVERTIGTHEN CONNECTIONS. IMPORTANT TO READ THE FOLLOWING:

- Nominal drain line and drain size should be a minimum of 3/4". Backwash flow rates of these units (10 GPM) with drain line exceeding 20' in length require 3/4" line and drain. Install, non-restrictive, check valve in drain line, if drain water is expected to flow over 5' above the height of the drain port. Never restrict the backwash drain water flow.
- Care must be taken when screwing in any connection to the flow control housing, not to crush piece and distort the flow washer, crucial to the effective backwashing of the system. You may use any applicable adaptor or connector depending on your drain line.
- Hard piping of drain line: NO Heat, NO Torch, leave at least 12" between drain port and any solder joints. Solder joints before connecting to drain port.
- Use a union (or quick disconnect feature) for future servicing applications. Therefore, the system will require no replumbing.
- Teflon tape is the only sealant to be used on any drain fitting.

3) LOCATE A SUITABLE PLACE TO DRAIN.

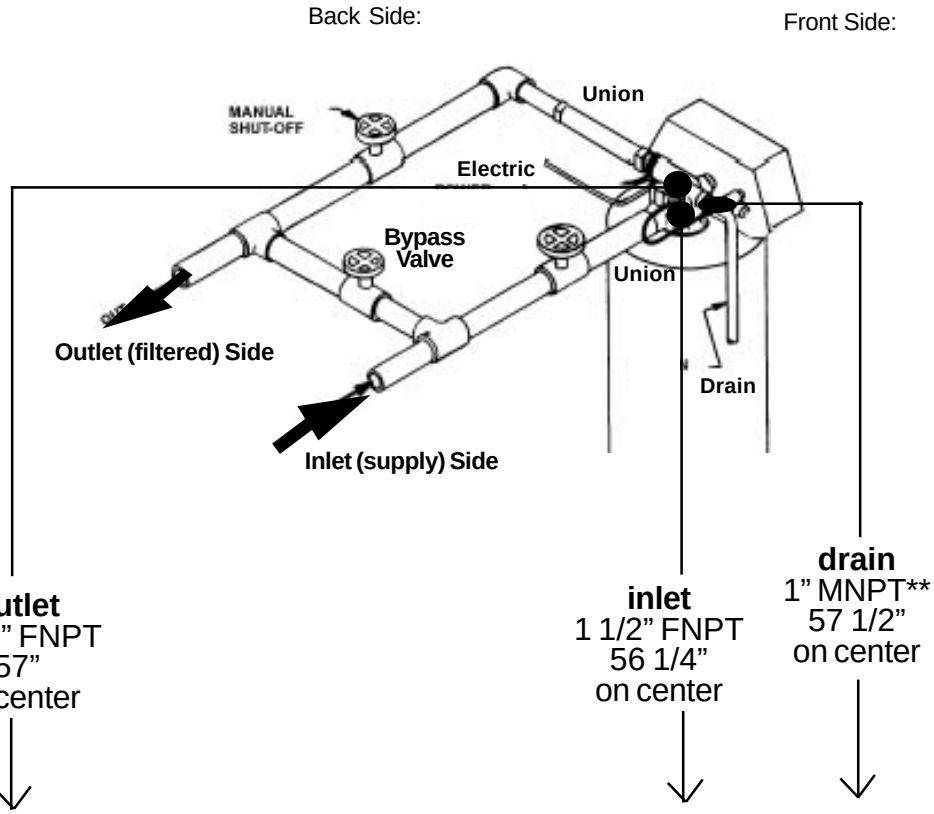
- A suitable place to drain the backwash water must be available. Usually, into a drain or trap, or outside that has sufficient percolation. You may be flexible or creative. Do not connect the backwash line to an air conditioning drain line. Do not freeze.
- Air gap must be used, if connecting to a drain line or sewer trap, to prevent possible back siphoning into the tank.
- Backwash is a mechanical way of turning over the filtration media. <u>The discharge is only water and not a brine</u>. The water discharge can go anywhere, may be used, or recycled, and does not have the legal restrictions or issues of brine discharge.

5 - GO TO SYSTEM START-UP PROCEDURES

Set-Up and Installation Schematic:

CWL-1354-11/2; EWS-1354-11/2; EWS-1354-11/2-P

DIMENSIONS OF UNITS TO BE INSTALLED:



Due to tank and base variances overall dimensions +/- 1"

Materials Needed for Installation:

1 1/2" pipe length to be determined
Qty. 3 - 1 1/2" Ball Valves
Qty. 2 - 1 1/2" Unions
Qty. 1- Union for drain line
See Drain Requirements

1 1/2" - 2850 Valve

Valve Cover: Blue
NEMA 1 Rated for resistence to dust and moisture.

Hinged: left, Opens: from right, Controls: inside

Materials Needed for Drain**:

3/4" MNPT copper x male adapter
3/4" union
3/4" (min) drain line, pipe length to be determined

Drain without Restrictor** 1" MNPT

**Connected (included) to:
Brass Flow Control Housing with 10 GPM Flow Restrictor
1" FNPT x 3/4" FNPT

Start-Up Procedure for All Units

- The tank unit(s) have now been plumbed in with the inlet, outlet and drain connections made in accordance with the manufacturer's recommendations and meets applicable plumbing codes.
- Now, it is time to fill it with water, plug the unit in, and properly start it up by following the start-up procedures below.
- These units are similar to water heaters and other point of entry product. They must be plumbed correctly and filled slowly while relieving pressure. These units are also similar to other sink filtration product. They must be flushed before beginning usage.
- **Making the connections, turning on the water and walking away is an improper installation. Period.**
- **Failure to start up unit properly may cause service issues, unhappy consumers, and will void the warranty.**

STEP 1: FILL THE TANK WITH WATER - SLOWLY!

Units:	**Units:**	**Units:**
CWL-1035, CWL-1054, CWL-1354 EWS-1054, EWS-1354	CWL-1354-HF EWS-1354-HF EWS-1054-P (Iron)	CWL-1354-11/2 EWS-1354-11/2 EWS-1354-11/2-P (Iron)
See Left Column	**See Middle Column**	**See Right Column**
You Must Use: Bypass and Male-Threaded Yoke Provided	**You Must Plumb:** Inlet/Outlet and Installed Bypass per Schematic	**You Must Plumb:** Inlet/Outlet and Installed Bypass per Schematic

STEP 1-A: PARTIALLY OPEN INLET SIDE ONLY

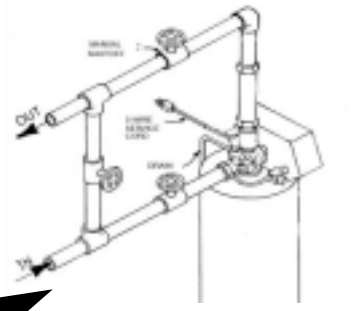
Following a slow fill procedure will make the backwash and flushing steps easier and more effective.

PARTIALLY OPEN - 1/4 TURN (as illustrated) on inlet supply side only to fill tank slowly. Keep outlet side closed

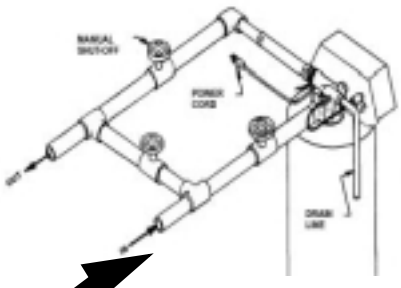
Inlet Side:

Open 1/4 turn only to slowly fill

PARTIALLY OPEN -1/4 TURN with (preferred) Ball Valve or Slowly and Partially Open Gate Valve on inlet supply side only to fill tank slowly. Keep outlet side and bypass valves closed.



Inlet Side Partially Open



Inlet Side Partially Open

Once the tank has been slowly filled, go to the next page. Follow the remaining simple procedures.

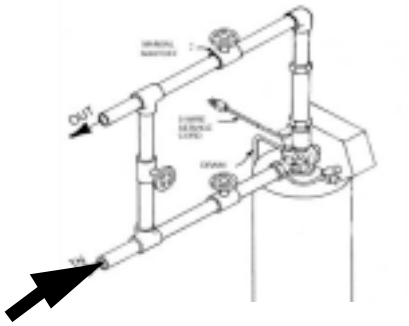
STEP 1-B: TANK IS FILLED, OPEN INLET COMPLETELY

SLOWLY OPEN - (as illustrated) on inlet supply side only.
Keep outlet side closed.

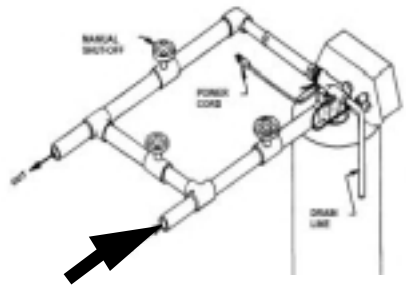
Inlet Side:

Open Position once filled

SLOWLY OPEN -Completely open (preferred) Ball Valve or Gate Valve on inlet supply side only.
Keep outlet side and bypass valves closed.



Inlet Side Open



Inlet Side Open

Tank is completely filled when sound of water stops or at a slow pace of 1-2 GPM it will take 5-10 minutes. Keep outlet side closed until later.

STEP 2: PLUG IN THE ELECTRICAL

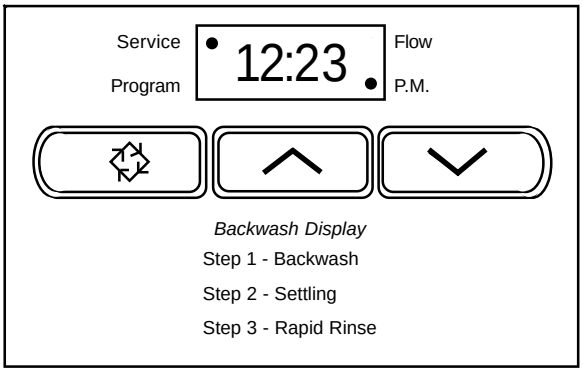
Plug the 24 volt transformer into any unswitched electrical outlet or an acceptable extension to that outlet. Be sure that if plugged into a GFI outlet that the outlet has been reset. Please inform the consumer of the need for an unswitched outlet which can not be turned off and that GFI outlets need to be occassionally checked for operation. Please follow all applicable local codes. If using an extension, make sure of a complete and secure connection. No spliced connections. Do not break into wires with fasteners or staples. Make sure transformer has a snug and secure connection to outlet (larger units must use set screws to secure transformer to outlet). Electrical is used to bring power to the digital valve, in order to keep the time and operate the automatic backwash program. Cost of this operation is similar to the cost of a radio alarm clock.

STEP 3: SET THE TIME OF DAY

"Up" and "Down" buttons

- Push either the "Up" or "Down" button once to adjust Time of Day display by one digit.
- Push and hold either the "Up" or "Down" button to adjust Time of Day display by several digits.

EXAMPLE: Current time of day would be 12:23 p.m.



Backwash Display
Step 1 - Backwash
Step 2 - Settling
Step 3 - Rapid Rinse

Note: "P.M." diode is lit, indicating it is the afternoon.

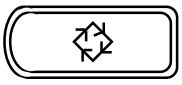
Go to the next page and follow the final procedures to backwash and flush the system.

STEP 4: BACKWASHING AND FLUSHING THE SYSTEM

The purpose of the backwash and flush procedure is to remove media dust and fines from the system instead of going into the home and to prepare the system for usage. There will be the occassional fleck or flake, however following this procedure will greatly reduce this issue.

Following the remaining procedures is a helpful way of checking the installation of the system. Is it plumbed in correctly with main supply of water to inlet, the outlet to the home and a correct drain application (and bypass, if applicable)? Pressure limited to 75 PSI, with a minimum of 35 PSI (40 PSI for Iron units) and a flow rate of at least 8 GPM (12 GPM for 1354 units)?

STEP 4-A: BACKWASH



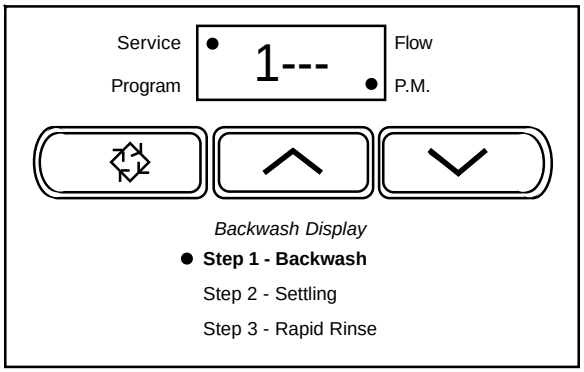
"Recycle" Button

ACTION:

■ **<u>Push and Hold</u> "Recycle" button** to start the backwash cycle until the **<u>number "1" begins flashing</u>** in the first position of the display (as illustrated on the right).

Note: It can take up to 20 seconds as valve moves into cycle

■ Allow system to go into backwash. Cycle will last for 9 minutes. Display (1 - - 9) will count down until backwash cycle is finished.



OBSERVATION:

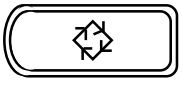
•After the initial "sputtering" you should get a good flow under pressure out of the drain line. The initial drain water is gray (fines and dust). At the end of a proper backwash procedure that drain water will clear.

•HF and 11/2" valves have greater flow characteristics and greater lift of media and make a mechanical noise as the valve piston drives into the valve body and the flushing could produce noise. This is normal. If too loud, the automatic backwash time can be re-set to a day time, instead of the quiet of the evening. See Page 18 to Re-Set the Backwash Time.

Not getting a good flow out of the drain line?

- Check to see if the drain line is undersized, restricted, or may travel too long (especially up & over). Keep it Simple.
- Check to see if the water supply lines are plumbed backwards. You will get an initial, surge then a greatly reduced flow that does not appear to be under pressure. Remember, if plumbed correctly the inlet water is under pressure.

STEP 4-B: SETTLING



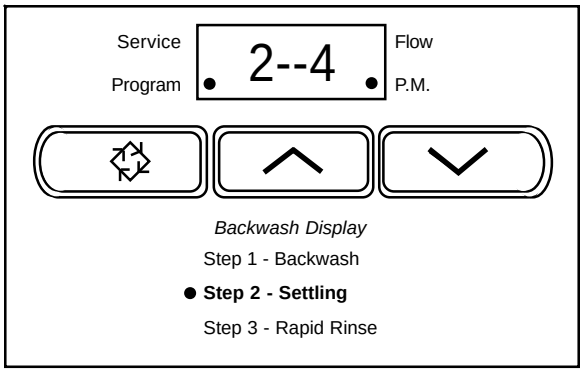
"Recycle" Button

Once backwash cycle is complete, the number "2"- - "4" will appear in the display (as illustrated on the right).

ACTION:

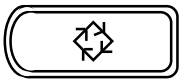
■ **<u>Push</u> "Recycle" button** until the **<u>number "3" begins flashing</u>** in the first position.

For this start up procedure, it is not necessary to complete cycle number "2". Now go to Step 4-C.

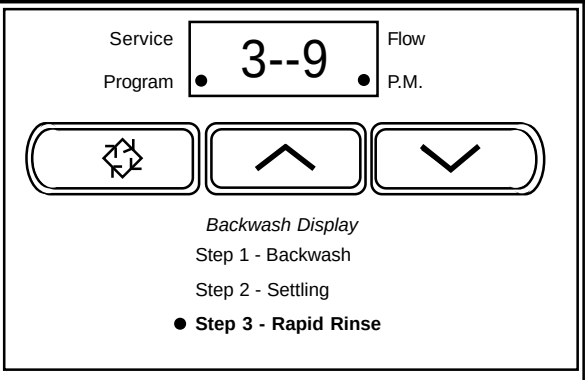


Go to the next page to conclude the backwashing and flushing the system.
You are almost finished!

STEP 4-C: RAPID RINSE - THE FINAL BACKWASH CYCLE



"Recycle" Button



ACTION:

■ **Allow system to go into rapid rinse** (it's another backwash cycle). This cycle will last for 9 minutes. Display (3 - - 9) will count down until rapid rinse cycle is finished.

Note: It can take up to 20 seconds as valve moves into cycle.

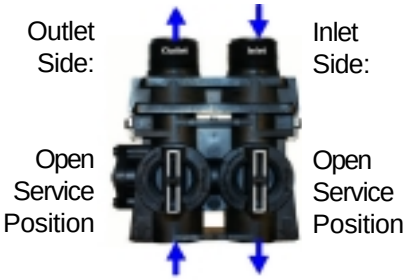
OBSERVATION:

The purpose of the manual backwash is to flush the system similar to the procedure used by smaller point of use or sink filtration units. Due to certain circumstances; ie: flow rates, PSI, weather conditions, handling, heavier media of larger units, iron units, etc., the drain water may still not run clear

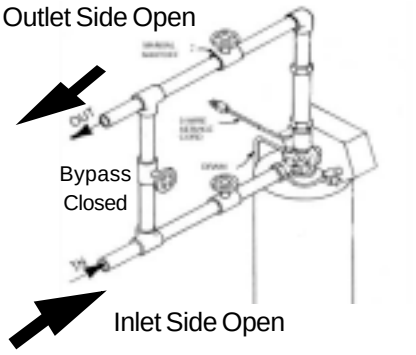
IF THE DRAIN WATER IS STILL NOT RUNNING CLEAR - REPEAT STEPS 4-A through C.

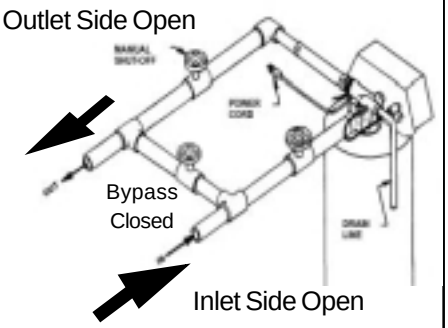
STEP 5: FINAL SERVICE POSITION

SLOWLY OPEN the outlet side the bypass valve so water will flow to the house. The system is now ready for service



SLOWLY OPEN the outlet side to the plumbed installation so water will flow to the house. Keep the bypass valve closed.The system is now ready for service



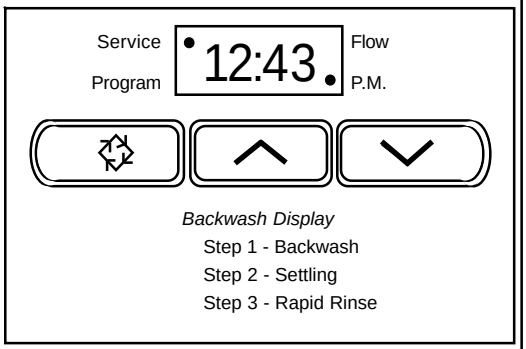


A) Inlet and Outlet Valves are Open. Ready for Service.

B) The display has returned to the "Time of Day" and "Service" mode and is ready to operate automatically.

If electricity fails, the electronic controller will keep in memory the pre-set program. Use "Up and Down" buttons to reset the correct time of day.

Note: Approx. 20 minutes have elapsed during the Backwash and Flushing Procedure in Steps 4-A through C.



STEP 6: PIPES AND HEATER FLUSH AND PREPARATION

Go into the home or facility and run all faucets, hot and cold, and one tub on the hot side only. When that tub is running cold, all the water now in the pipes and heaters are filtered. This totally prepares the home for usage immediately. See additional information in this manual on older homes and pre-existing conditions.

ON-SITE ASSEMBLY PROCEDURES

Due to the shipping weight of Iron Removal Systems and Commercial EWS/CWL Tank Units, these units must be assembled on site.

Unpack the Shipped Boxes and Identify the Following Components:

- Tank
- Riser only for Iron (-P) removal units and CWL Commercial units or Riser manifold with ICN's for EWS Commercial units. (find riser in separate box, in tank box, and/or within tank)
- Filtration Media is a pre-measured kit and will come in 2 or more boxes and will also include the following:
  - underbed (small heavy box labeled sand, underbed or pea gravel)
  - small riser cap
  - funnel
- Valve Head
- Service Manual (additional information provided with systems using 2" valves and greater)

Important to Note: All Set-Up, Installation and Start-Up Procedures must be followed after assembly.

ASSEMBLY PROCEDURES:

1) Take the empty tank and place it in your planned installed location.
2) Insert cap into the top of the riser, using the small riser cap, or tape the top of riser to prevent filling with media.
3) Place capped or taped riser into the center of the tank. The bottom of the riser has a lower screen which is placed at the bottom of the empty tank. Make sure the bottom of the riser is seated at the bottom of the tank.
4) Place funnel at top opening of the tank. This will allow an easier fill of the underbed and filtration media.
5) Load tank with small heavy box labeled underbed, sand or pea gravel. Empty box completely.
6) Load all filtration media boxes. Empty all boxes completely. Materials are black and granular. Please prevent any inhalation of media dust.
7) Lubricate the tank o-ring seal, which makes contact to the top of tank opening. Note: Use only a silicone lubricant.
8) Install the valve head by slipping upper screen (the cone at bottom of the valve head) over the top of the riser and onto the tank. Hand tighten valve head onto tank by turning clockwise.

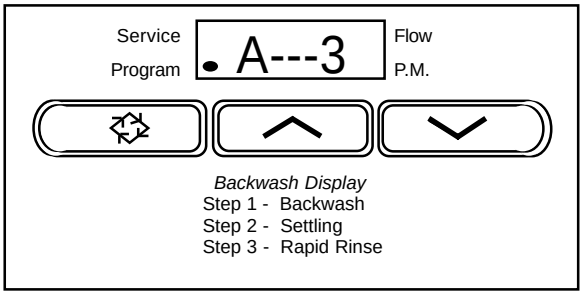
WARNING: BE CAREFUL NOT TO STRIP OR CROSS THE TANK THREADS.

8) The unit is assembled. Now - follow all instructions, pictures and schematics for proper Set-Up, Installation and Start-Up of these systems.

Units with 2" valving or greater, include a complete guide on that valving and its exact set-up and installation.Start-up remains the same; slow fill, valve settings, electrical, flushing/backwashing, and final service position.

ADJUSTING BACKWASH SETTINGS

Increasing/Decreasing Backwash Frequency



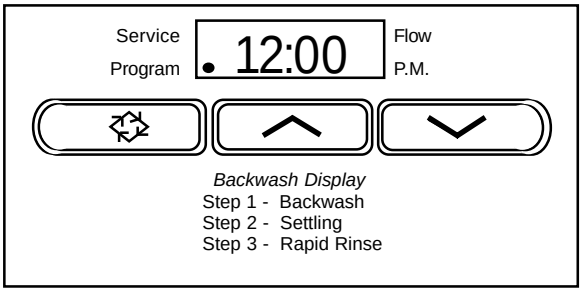
Backwash Display
Step 1 - Backwash
Step 2 - Settling
Step 3 - Rapid Rinse

Using these Controls:

Backwash Procedures and System Clock

can be found on pages 15-17

Re-Setting the Time to Start Backwash



Backwash Display
Step 1 - Backwash
Step 2 - Settling
Step 3 - Rapid Rinse

Step 1: To Enter the Programming Mode: Push and Hold, for 5 seconds, *both* the "Up" and "Down" buttons. Program light will appear in lower left corner. Follow the steps below to make your adjustments.

Step 2: Once the program mode is entered, Push the "Recycle" button until "A---3" appears in the display.
Step 3: Push "Up" or "Down" button to increase or decrease the frequency the system will backwash.

Note: 3 is the factory/normal setting, reset to 7 for vacation (minimum 2; maximum 10) Remember to re-set to 3 upon return.

Step 2: When the program mode is entered, the display reads, "12:00". ("1:00 am for Iron) This is the Time of Backwash.
Step 3: Push "Up" or "Down" button to increase or decrease to change the start of a backwash to the desired time of day.

Note: Adjust for larger valves that produce noise during backwashing. Backwash takes 30 minutes to complete cycle. System is on bypass (not filtering) during cycle. 2 or more units - must set each unit an hour apart.

Step 4: To Exit the Programming Mode: Push "Recycle" button to resume normal (Service Mode) operation.

The complete EWS, Inc./Environmental Water System
product line from sink to whole-home, available through:

Available on the Internet through Authorized Retail Web Distributors and Business-to-Business E-Commerce Distributors.

Available through Authorized Building Wholesale Supply Locations, Kitchen & Bath Showrooms and Appliance Dealers, and their Building and Plumbing Contractors throughout the United States.

EWS, INC.
Environmental Water Systems
A Complete Line of Water Filtration Product from Sink to Whole-Home

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