LANCASTER WATER TREATMENT

X FACTOR SERIES™

IRONSOFT

INSTALLATION, OPERATING AND SERVICE MANUAL

ELECTRONIC IRONSOFT WATER SOFTENER WITH THE X-FACTOR CONTROL VALVE

PROGRAMMED FOR PRE-FILL BRINING OPTION

- ☐ 7-FESLX-24B
- ☐ 7-FESLX-32B
- ☐ 7-FESLX-45B
- ☐ 7-FESLX-60B
- ☐ 7-FESLXC-24B

Congratulations on purchasing your new **Lancaster IronSoft Water Softener**. This unit is designed to give you many years of trouble free service. When installed in accordance with the following instructions and if given reasonable care, clear-soft water will be the result. For servicing and future inspection purposes, please file this booklet with your important documents.

In the event that you need assistance for servicing your Ironsoft water softener, please first contact the professional contractor who installed the system.

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JOB SPECIFICATIONS

MODEL NO. _____

INSTALLATION DATE _____

SERIAL NUMBER _____

INSTALLER NAME _____ PHONE _____

ADDRESS _____

WATER TEST AT TIME OF INSTALLATION

_____ Hardness $CaCo_3$ (gpg) Other: _____

_____ Iron (ppm) _____

_____ pH _____

SIZING INFORMATION

All Water is Softened Except:

_____ Rear Hose Bib _____ Front Hose Bib _____ Kitchen Cold _____ Toilets _____ All Cold

_____ Other _____

The average family uses 50 gallons per person daily for all water uses in the home.

_____ Daily Water Usage (Gallons/Person)

x _____ Family Size (Number of people in family)

= _____ Total Gallons Per Day

x _____ Grains Per Gallon of Hardness

(Note: Add 4 grains per gallon of hardness for each ppm iron for total compensated hardness)

* Use the total compensated hardness number for hardness setting on page 8

= _____ Total Grains of Compensated Hardness per Day

PRE-INSTALLATION REVIEW

WATER QUALITY: If sand or sediment is present in the water supply, a sediment filter should be installed ahead of the water softener. Your water softener has been designed to adequately reduce compensated hardness from levels up to 100 grains per gallon. Ferrous bicarbonate (clear water) and/or ferric hydroxide (red water) iron levels up to 10 ppm can also be reduced. Ferrous iron is dissolved in water and not visible to the eye in a freshly drawn sample. After standing in contact with air, the ferrous iron will become oxidized to the ferric state and start to precipitate as a reddish brown floc. It can be seen and may cause discolored water. In some cases, additional treatment equipment may be needed to treat water having special characteristics, such as: excessive ferric hydroxide iron, iron bacteria, low pH, tastes and odors, etc. Consult your dealer if you have any questions. **This water softener is not to be used for treating water that is microbiologically unsafe or of unknown quality without adequate disinfection before or after treatment.**

WATER PRESSURE: A minimum of 20 pounds of water pressure (psi) is required for regeneration. Maximum 100 psi. CAUTION: the softener cannot be subject to a vacuum due to loss of pressure (such as a water main break or submersible well pump check valve failure).

WATER TEMPERATURE: The range of water temperature is 35°F to 100°F. DO NOT install any water softener with less than 10 feet of piping between its outlet and the inlet of a water heater.

AMBIENT TEMPERATURE: DO NOT locate softener where it or its connections (including the drain and overflow lines) will ever be subject to room temperatures under 33°F.

ELECTRICITY: An uninterrupted 120 volt 60Hz source is required. *Make sure electrical source is not on a timer or switch.* All electrical connections must be connected according to local codes. The plug-in transformer is for dry locations only. Surge protection is recommended with all electrical connections.

DRAIN: All plumbing should be done in accordance with local plumbing codes. The distance between the drain and the water softener should be as short as possible. The pipe size for the drain line should be a minimum of 1/2” (inside diameter of pipe).

SOFTENING: It is recommended that the softener be installed to soften both the hot and cold water supply. A separate hard water faucet may be plumbed for drinking purposes if desired. Outside faucets should be left on hard water.

BYPASS: A bypass valve (optional accessory) should be installed so that water will be available if it should be necessary to shut off the pressure in order to service the softener.

GENERAL INSTALLATION AND SERVICE WARNINGS

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

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

The nuts and caps are designed to be unscrewed or tightened by hand or with the special plastic wrench (V3193). If necessary, pliers can be used to unscrew the nut or cap. Do not use a pipe wrench to tighten or loosen nuts or caps. Do not place a screw driver in the slots on caps and/or tap with a hammer.

Do not use pipe dope or other sealants on threads. Use Teflon tape on the threaded inlet, outlet and drain fittings. Teflon tape is not necessary on the nut connection or caps because of o-rings seals.

After completing any valve maintenance involving the drive assembly or the drive cap assembly and pistons, unplug power source jack from the printed circuit board (black wire) and plug back in or press and hold NEXT and REGEN buttons for 3 seconds. This resets the electronics and establishes the service piston position. The display should flash the software version and then reset the valve to the service position.

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

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

Install grounding strap on metal pipes.

This water softener is not to be used for treating water that is microbiologically unsafe or of unknown quality without adequate disinfection before or after treatment.

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 X-Factor bypass valve is particularly unique in the water treatment industry due to its versatility and state of the art design features. The 1" full flow bypass valve incorporates four positions, including a diagnostic position that allows service personal to work on a pressurized system while still providing untreated bypassed water to the facility or residence. Its completely non-metallic, all-plastic design allows for easy access and serviceability without the need for tools.

The bypass body and rotors are glass filled Noryl® (or equivalent) 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 flow direction of the water. The plug valves enable the bypass valve to operate in four positions.

OPERATION:

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 during normal operation and this position also allows the control valve to isolate the media bed during the regeneration cycle. *(see figure 1)*

2. Bypass Position: The inlet and outlet handles point to the center of the bypass, the control valve is isolated from the water pressure contained in the plumbing system. Untreated water is supplied to the plumbing system. *(see figure 2)*

3. Diagnostic Position: The inlet handle points in the direction of flow and the outlet handle points to the center of bypass valve, system water pressure is allowed to the control valve and the plumbing system while not allowing water to exit from the control valve to the plumbing. *(see figure 3)*

4. Shut Off Position: The inlet handle points to the center of the bypass valve and the outlet handle points in the direction of flow, the water is shut off to the plumbing system. If water is available on the outlet side of the softener it is an indication of water bypass around the system (i.e. a plumbing connection somewhere in the building bypasses the system). *(see figure 4)*

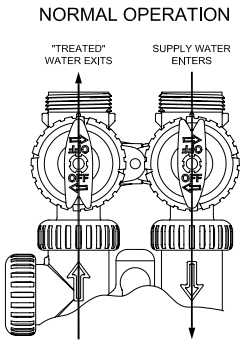


figure 1

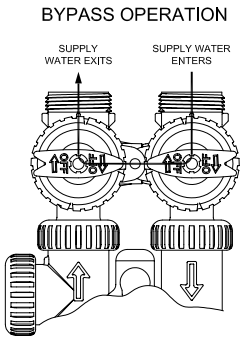


figure 2

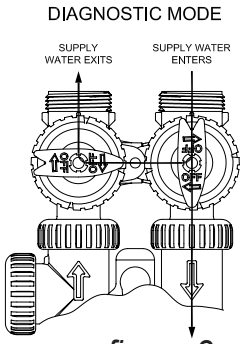


figure 3

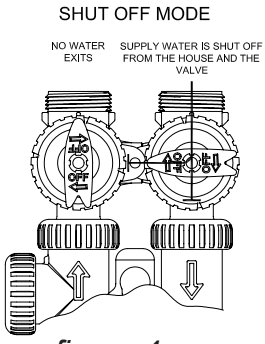


figure 4

The working parts of the bypass valve are the rotor assemblies that are contained under the bypass valve caps. Before working on the rotors, make sure the system is depressurized. Turn the red arrow shaped handles towards the center of the bypass valve and back several times to ensure rotor is turning freely.

The nuts and caps are designed to be unscrewed or tightened by hand. If necessary a pliers or the service spanner wrench can be used to unscrew the nut or cap. Do not use a pipe wrench to tighten or loosen nuts or caps. Do not place screwdriver in slots on caps and/or tap with a hammer.

Refer to page 16 for bypass valve parts diagram and service spanner wrench information.

To access the rotor, unscrew the cap and lift the cap, rotor and handle out as one unit. Twisting the unit as you pull it out will help to remove it more easily. There are three o-rings: one under the rotor cap, one on the rotor stem and the rotor seal. Replace worn o-rings. Clean rotor. Reinstall rotor.

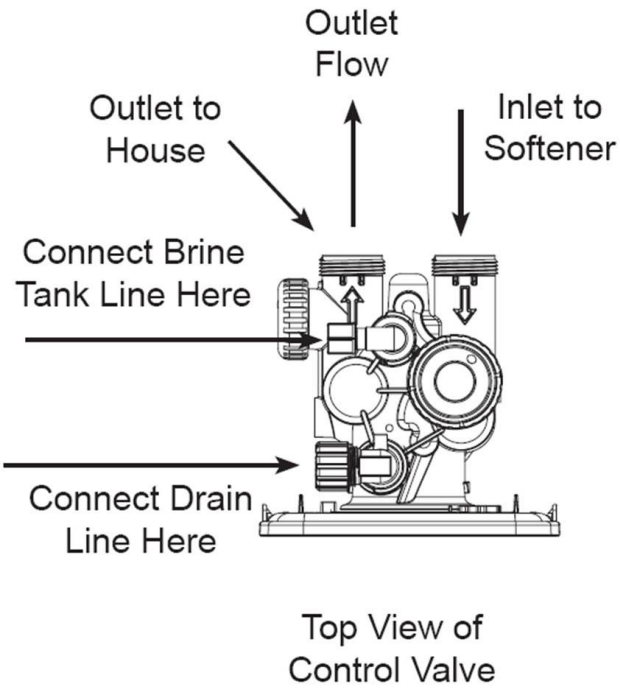
When reinstalling the red arrow handles be sure that:

1. The handle pointers are lined up with the control valve body arrows, and the rotor seal o-ring and retainer on both rotors face to the right when being viewed from the front of the control valve; or
2. Arrows point toward each other in the bypass position.

Since the handles can be pulled off, they could be accidentally reinstalled 180° from their correct orientation. To install the red arrow handles correctly, keep the handles pointed in the same direction as the arrows engraved on the control valve body while tightening the bypass valve caps.

INSTALLATION INSTRUCTIONS

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



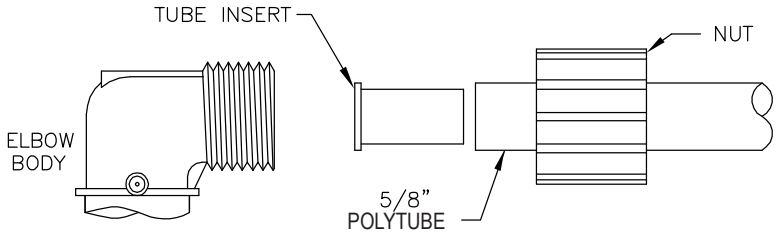
Top View of
Control Valve

1. Place the softener where you want to install it, making sure it is on a clean, level and firm base.

2. Do all necessary plumbing (inlet to inlet, outlet to outlet, and drain line to drain). The control valve, fittings and/or bypass are designed to accommodate minor plumbing misalignments but are not designed to support the weight of a system or the plumbing.

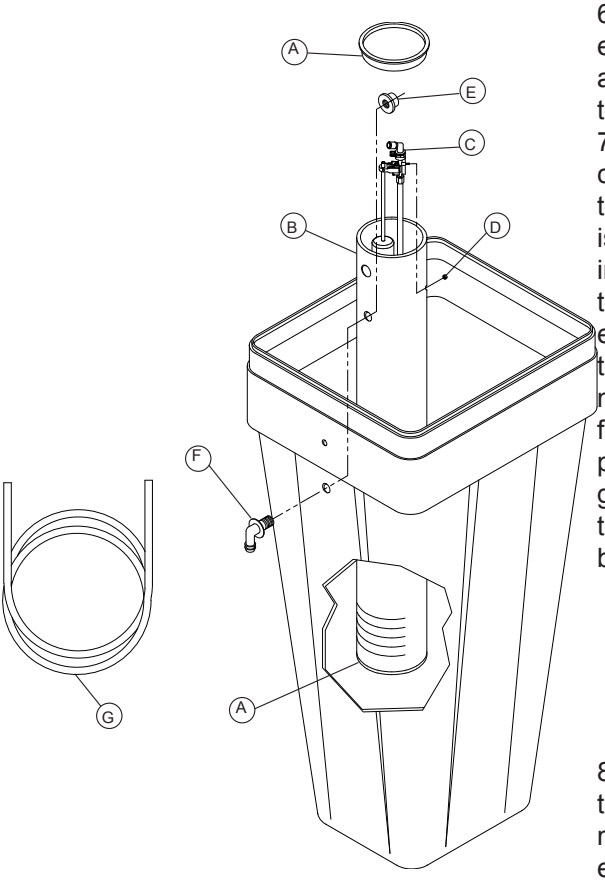
3. When assembling the installation fitting package (inlet and outlet), connect the fitting to the plumbing system first and then attach the nut, split ring and o-ring. Heat from soldering or solvent cements may damage the nut, split ring or o-ring. Solder joint should be cool and solvent cements should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

4. A jumper ground wire should be installed between the inlet and outlet pipe whenever the metallic continuity of a water distribution piping system is interrupted. Install grounding strap on metal pipes.



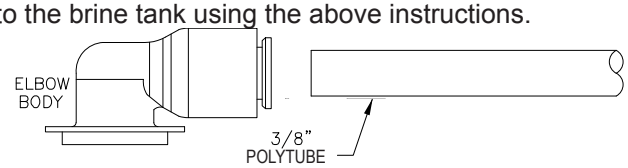
DRAIN LINE FITTING CONNECTION USING 5/8" POLY TUBE

5. The drain connection may be made using either 5/8” polytube (see below) or a 3/4” female adapter. The polytube insert is shipped attached to the drain line elbow’s locking clip. Press the insert into the drain line tubing (tubing not provided). Loosen the nut of the drain line elbow. Press the 5/8” polytube with insert into the drain line elbow until it seats on the back of the fitting. Tighten the nut. If soldering, joints near the drain must be done prior to connecting the drain line flow control fitting. Leave at least 6” between the drain line control fitting and solder joints when soldering pipes that are connected on the drain line control fitting. Failure to do this could cause interior damage to the drain line flow control fitting. Never insert a drain line into a drain, sewer line, or trap. Always allow an air gap between the drain line and the wastewater to prevent the possibility of sewage being back-siphoned into the softener.



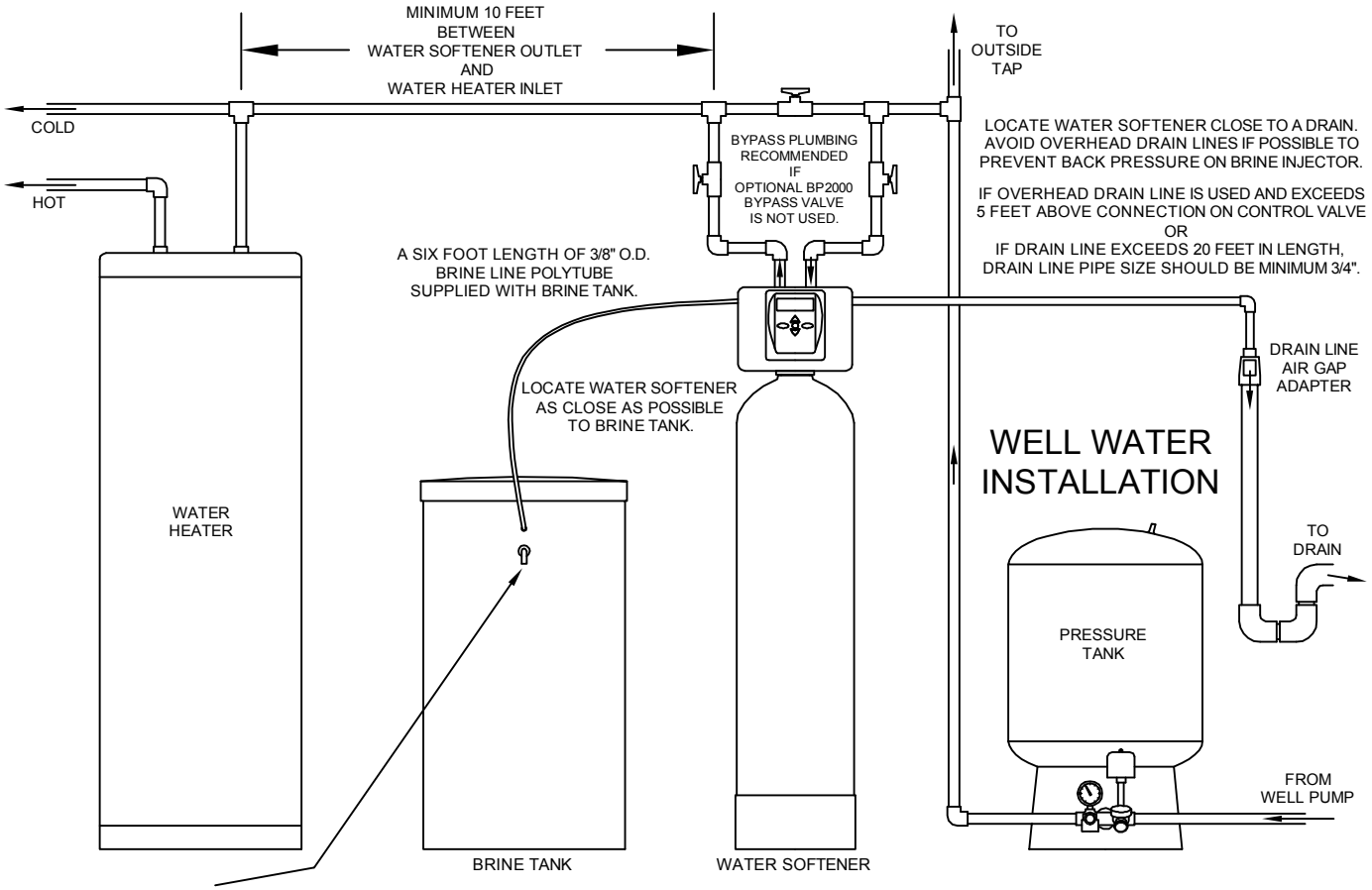
6. The brine refill flow control assembly is installed in an easy to access refill elbow located on top of the control valve. The refill flow control assembly is attached to the control valve with a locking clip. The locking clip allows the elbow to rotate 270 degrees so the outlet can be oriented towards the brine tank.

7. Connect the brine line polytubing found with the brine tank to the brine connection on the control valve. The control valve has a standard refill elbow to which a 3/8" flexible tube can be connected, see below. One polytube insert is shipped on the brine line elbow's locking clip. Remove this white polytube insert and replace the locking clip. The second polytube insert is taped to the top of the brine well cap in the brine tank. Press the polytube inserts into each end of the provided brine tubing, press the polytube with insert into the nut on the brine fitting. Tighten nut securely to create a pressure tight connection. The nut, gripper and retainer sleeve is a three-piece assembly that can come apart from the elbow body. Parts must be reassembled exactly as shown to function properly. If the nut is completely removed from the body, slip the nut, plastic gripper and retainer sleeve on to the tube then tighten on to the fitting. Make sure the floor is clean beneath the brine tank and that it is level and smooth. Install brine tubing to the brine tank using the above instructions.



BRINE LINE FITTING CONNECTIONS

8. A 1/2" (inside diameter, not provided) gravity drain line should be connected to the overflow fitting on the side of the brine tank. This overflow is in case of a malfunction in the brine shut off. If the unit is installed where water may flow in the event of an overflow and cause water damage, connect a length of flexible tubing and run to a drain below the level of the overflow. **(Do not connect the tubing to the drain line on the control valve. Do not run tubing above overflow height at any point.)**



OVERFLOW GRAVITY DRAIN - ONLY USED IN CASE OF MALFUNCTION IN THE BRINE SHUTOFF. DO NOT CONNECT TO CONTROL VALVE DRAIN LINE.
IF UNIT IS INSTALLED WHERE OVERFLOW COULD CAUSE WATER DAMAGE, CONNECT TUBING AND RUN TO FLOOR DRAIN. DO NOT RUN TUBING ABOVE OVERFLOW HEIGHT.