



710 Orange St., Ashland, Ohio 44805
(419) 289-1500 (800) 462-3790

INSTALLATION INSTRUCTIONS

Electronic Demand (with ISOBAR® Control Valve)

For Models:

ECD16P	ECD16TP
ECD24P	ECD24TP
ECD32P	ECD32TP
EDS16P	EDS16TP
EDS24P	EDS24TP
EDS32P	EDS32TP
EDS48P	EDS48TP
EDS64P	EDS64TP

All models are with a 3/4" by-pass. For a 1" by-pass add 10B to the suffix of the model number (i.e. ECD16P10B).



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General Specifications²

	CA-16P CA-16TP CD-16P CD-16TP ECD-16P ECD-16TP	CA-24P CA-24TP CD-24P CD-24TP* ECD-24P ECD-24TP	CA-32P CA-32TP CD-32P CD-32TP* ECD-32P ECD-32TP
Grains Capacity / lbs. Salt per regeneration	16,000 / 12 14,000 / 6	25,000 / 12 18,100 / 6	31,400 / 15 29,200 / 12 21,800 / 6
Maximum Raw Water Hardness (grains)	40	50	75
Maximum Clear Iron / Manganese (ppm)	2**	3**	5**
Cation 32 Exchange resin (cu. ft.)	0.5	0.75	1
Mineral Tank (polyglass)	8 x 35	8 x 35	10 x 35
Brine Tank (polyethylene w/grid)	18 x 33	18 x 33	18 x 33
Service Flow Rate (gpm)	6	7	8
Backwash Flow Rate (gpm)	1.5	1.61	1.96
Pressure drop @ rated service flow	15/6	12/7	13/8
Space Required (DxWxH inches)	14 x 20 x 44	14 x 20 x 44	14 x 20 x 44
Approximate Shipping Weight (pounds)	65	88	100

*CD-24TP and CD-32TP have been tested and certified to WQA S-100 for specific claims as verified and substantiated by test data.

**WQA did not certify these products for iron/manganese reduction.

Min/Max working pressure: 20/125 psig. Min/Max operating temp: 33/120°F.

	AS-16P AS-16TP DS-16P DS-16TP EDS-16P EDS-16TP	AS-24P* AS-24TP* DS-24P* DS-24TP* ¹ EDS-24P EDS-24TP	AS-32P* AS-32TP* DS-32P* DS-32TP* ¹ EDS-32P EDS-32TP	AS-48TP* ¹ DS-48TP* ¹ EDS-48P EDS-48TP	AS-64TP* ¹ DS-64TP* ¹ EDS-64P EDS-64TP
Grains Capacity / lbs. Salt per regeneration	16,000 / 12 14,000 / 6	25,000 / 12 18,100 / 6	31,400 / 15 29,200 / 12 21,800 / 6	47,100 / 22.5 43,700 / 18 32,700 / 9	62,700 / 30 58,300 / 24 43,600 / 12
Maximum Raw Water Hardness (grains)	40	50	75	100	100
Maximum Clear Iron / Manganese (ppm)	2***	3***	5***	5***	5***
Cation 32 Exchange Resin (cu ft)	0.5	0.75	1	1.5	2
Mineral Tank (polyglass)	8 x 35	8 x 44	9 x 48	10 x 54	12 x 52
Brine Tank (polyethylene w/ grid)	18 x 33	18 x 33	18 x 33	18 x 33	18 x 33
Service Flow Rate (gpm)*	6	7	8	8.7	9.8
Backwash Flow Rate (gpm)	1.5	1.61	1.96	2.4	3.5
Pressure drop @ rated service flow	15/6**	10/7; 12/7**	11/8; 13/8**	15/8.7**	15/9.8**
Space Required (DxWxH inches)	18 x 25 x 42	18 x 26 x 51	18 x 27 x 55	18 x 28 x 61	18 x 30 x 59
Approximate Shipping Weight (pounds)	65	88	100	133	164

*AS-24P, AS-24TP, DS-24P, DS-24TP, AS-32P, AS-32TP, DS-32P, DS-32TP, AS-48TP, DS-48TP, AS-64TP and DS-64TP have been tested and certified to WQA S-100 for specific claims as verified and substantiated by test data.

**Pressure drop at rated flow for TP models.

***WQA did not certify these products for iron/manganese reduction.

Min/Max working pressure: 20/125 psig. Min/Max operating temp: 33/120°F.

All models are with a 3/4" by-pass. For a 1" by-pass add 10B to the suffix of the model number. ie AS -24TP10B.

¹AS-32P10B, AS-48TP10B, AS-64TP10B, DS-24TP10B, DS-32TP10B, DS-48TP10B and DS-64TP10B have been tested and certified to WQA S-100 for specific claims as verified and substantiated by test data.

²The softener is equipped with a .5 gpm brine flow control orifice. To obtain the low salt setting, the flow control orifice must be replaced with a .125 gpm. Contact Water Soft.

Please note these specifications before proceeding

Operating Pressure Range: 20 - 125 PSIG

Operating Temperature Range: 33° - 120°F

Inlet / Outlet Pipe Size: 3/4" FNPT (1" FNPT Optional)

Please read the entire Owner's Manual and Instructions before installation.

This Owner's Manual must stay with the unit.

IMPORTANT SAFETY INFORMATION. READ ALL INSTRUCTIONS BEFORE USING.

WARNING READ CAREFULLY THE PRODUCT INSTALLATION, OPERATING AND MAINTENANCE MANUAL. FAILURE TO FOLLOW THE INSTRUCTIONS AND WARNINGS IN THE MANUAL MAY RESULT IN SERIOUS OR FATAL INJURY AND/OR PROPERTY DAMAGE, AND WILL VOID THE PRODUCT WARRANTY. THIS PRODUCT MUST BE INSTALLED BY A QUALIFIED PROFESSIONAL. FOLLOW ALL APPLICABLE LOCAL AND STATE CODES AND REGULATIONS, IN THE ABSENCE OF SUCH CODES, FOLLOW THE CURRENT EDITIONS OF THE NATIONAL PLUMBING CODE AND NATIONAL ELECTRIC CODE, AS APPLICABLE.



THIS IS THE SAFETY ALERT SYMBOL. IT IS USED TO ALERT YOU TO POTENTIAL PERSONAL INJURY AND OTHER HAZARDS. OBEY ALL SAFETY MESSAGES THAT FOLLOW THIS SYMBOL TO REDUCE THE RISK OF PERSONAL INJURY AS WELL AS PROPERTY DAMAGE.

WARNING This Product, like most Products under pressure, may over time corrode, weaken and burst or explode, causing serious or fatal injury, leaking or flooding and/or property damage. To minimize risk, a licensed professional must install and periodically inspect and service the Product. A drip pan connected to an adequate drain must be installed if leaking or flooding could cause property damage. Do not locate in an area where leakage of the tank or connections could cause property damage to the area adjacent to the appliance or to lower floors of the structure.

WARNING Chlorine & Aggressive Water: The water quality can significantly influence the life of this Product. You should test for corrosive elements, acidity, total solids and other relevant contaminants, including chlorine and treat your water appropriately to insure satisfactory performance and prevent premature failure.

WARNING Install or store where Product will not be exposed to temperatures below freezing or above 100°F, do not expose to any type of weather. Water freezing in the system will break it. Do not attempt to treat water over 100°F. Do not install in direct sun light. Excessive sun heat may cause distortion or other damage to non-metallic parts.

WARNING Use only lead-free solder and flux for all sweat-solder connections, as required by state and federal codes.

NOTE: Inspect for shipping damage and notify freight carrier or store where purchased immediately if damage is present. To avoid risk of personal injury and property damage, if the product appears to be malfunctioning or shows signs of corrosion, call a qualified professional immediately. Current copies of the Product manual can be viewed at www.amtrol.com. Use proper safety equipment when installing.

ELECTROCUTION AND EXPLOSION HAZARD! Before work is performed on the Product, turn off the power to the Product and release all pressure in the system.

WARNING This Product performs limited filtering functions as described in the Manual. It should not be used where treatment of water for health effects is desired. Do not use with water that is microbiologically unsafe or of unknown quality without adequate disinfection before or after the system. CONSULT A WATER QUALITY PROFESSIONAL TO TEST OR EVALUATE YOUR WATER AND RECOMMEND ANY OTHER NECESSARY TREATMENT FOR BACTERIA, CHEMICAL OR OTHER POSSIBLE CONTAMINANTS. Filtration media or cartridge may lose effectiveness over time and must be changed in accordance with the Product instructions in the Manual.

CAUTION As in all plumbing products and water storage vessels, bacteria can grow in this Product, especially during times of non-use. Consult your local plumbing professional regarding any steps you may wish to take to safely disinfect your home's plumbing system.

WARNING Maximum allowable inlet water pressure is 125 psig. If daytime pressure is over 80 psig, nighttime pressure may exceed the maximum. Use a pressure-reducing valve to reduce the flow if necessary. **IMPORTANT GENERAL SAFETY INFORMATION - ADDITIONAL SPECIFIC SAFETY ALERTS APPEAR IN THE FOLLOWING INSTRUCTIONS.**

WARNING CALIFORNIA PROPOSITION 65 WARNING! This product contains a chemical known by the State of California to cause cancer and to cause birth defects or other reproductive harm. (California Installer/Contractor - California law requires that this notice be given to consumer/end user of this product.) For more information: www.amtrol.com/prop65.htm

WARNING Annual maintenance must be done to purge system of precipitants and to avoid restriction or contamination of air flow. System should be purged more often if iron or organics are present.

WARNING Locate near drain adequate for the pressure relief or the momentary purge of sulfur compounds, which are trapped in the sump. The system should be installed in a dry location that provides adequate space for installation and service. As components age leaks may occur, therefore, do not locate in an area where water from the tank can cause property damage. Install where tank will not be exposed to temperature below freezing or above 100°F. Water freezing in system will break it. Do not attempt to treat water over 100°F.

NOTE: Flexible water supply connectors and flexible drain line tubing may not be allowed in your locale. Please check with local plumbing code officials prior to installation.

NOTE: Do not plug into an outlet controlled by wall switch or pull chain that could inadvertently be turned off.

How A Water Softener Works

Water hardness is derived from Calcium and Magnesium minerals that have been dissolved into water under the earth's surface. These minerals are found in limestone deposits and are the source of hard water. The amount of hardness in a given water supply is dependent upon the quantity of Calcium and Magnesium present and the length of time water has been in contact with them. This can vary dramatically from well-to-well and, for this reason, a water analysis is imperative in order to determine the proper treatment method. The degree of hardness increases as the concentration of Calcium and Magnesium "ions" increase and is measured in Grains per Gallon (gpg).

The problem of hard water in the home or business comes to light in many facets of daily use. Water spots and scum left behind on bathtubs, fixtures and showers; wear and tear on appliances; calcium build-up in hot water heaters and piping; and greater amounts of soaps and detergents being used are just a few examples.

The modern water softener is designed to reduce hardness ions and their unpleasant side effects. Special resin beads in the softener mineral tank are used to change hard water into soft water. The surfaces of these beads are covered with sodium ions. As hard water enters the mineral tank and comes into contact with the resin, an exchange of ions takes place as dissolved Calcium and Magnesium ions cling to the resin surface and sodium ions take their place, thus softening the water. This process is called Ion Exchange. Over time, the sodium ions used for the exchange process become depleted and must be replenished.

The water softener provides a Regeneration process whereby brine solution enters the mineral tank driving-off the collected hardness ions and replenishing the surface of the resin beads with more sodium ions. This process is automatically initiated by the control valve on the mineral tank. The regeneration process has five basic cycles as follows:

1. **Backwash** - The control valve directs the water flow in a reverse direction through the mineral tank, separating resin beads and flushing any accumulated particles to a waste drain.
2. **Brine & Rinse** - In the first part of this cycle, the control valve directs brine solution downward through the mineral tank, driving-off collected hardness ions and replenishing the resin beads with sodium ions. The second part of the cycle rinses hardness ions and excess brine from the mineral tank to the waste drain.
3. **Rinse** - Two additional rinse cycles, Rapid Rinse and Settle Rinse, complete the process of rinsing hardness and excess sodium to the drain.
4. **Brine Refill** - The control valve directs fresh water into the salt compartment to create new brine solution for the next scheduled regeneration.
5. **Service** - This is the normal "operating" cycle where hard water enters the mineral tank, comes into contact with the resin beads and exchanges hardness ions for sodium ions - the water then becomes "soft" and ready for use.

Installation Procedures

Pre Installation Checklist

A water test should always be performed in order to determine total water hardness in gpg (grains per gallon) and total dissolved iron in ppm (parts per million). This is critical for proper equipment selection, sizing, and determining the program for the regeneration frequency. If heavy concentrations of clear iron above 10ppm, iron coloration, iron bacteria, tannins, or sediment are present, pretreatment will be necessary. Certain states may require a licensed plumber for installation.

Note: Flexible water supply connectors and flexible drain line tubing may not be legal in your area. Please check with local plumbing code officials prior to installation.

Installation Requirements

1. A level floor position ahead of piping into the water heater.
2. Unit must be installed at least 10 ft. ahead of the inlet to a water heater to prevent damage due to thermal expansion.
3. **Do not** install the unit in an area of direct sunlight or where freezing temperatures may occur.
4. Locate the unit near an unswitched, 115 volt/60Hz grounded electrical outlet.
5. Check for distance and proper drain installation (ex. floor drain, washing machine standpipe).
6. Determine type and size of piping required for softener connection (ex. copper, galvanized, or PVC).

Note: If household plumbing is galvanized and you intend to make the installation with copper (or vice versa), obtain di-electric unions to prevent dissimilar metal corrosion.

Note: Where the drain line is elevated above the control valve or exceeds 20ft. in length to reach the drain, use 3/4in I.D. drain line tubing instead of 1/2in. I.D. Drain line tubing is not included.

Caution: Use lead free solder flux when sweat soldering copper pipe. Cover with wet rags to prevent heat damage to connections, o-rings, and control valve. If using PVC or plastic pipe, primer and solvent cements specifically recommended for use with potable water are required.

Note: All plumbing lines not requiring soft water should be connected upstream of the softener.

7. Do not locate in an area where leaking and flooding could cause property damage.

Installation Procedure

To allow for softener servicing or for times when softened water is not required, a manual bypass has been installed at the rear of the valve. The bypass valve allows hard water to manually route around the softener.

1. Position softener at desired location for installation.
2. Turn **Off** main water supply and **Open** nearest faucet to relieve pressure. **Note:** An optional 1" NPT bypass valve is available (p/n 20561C283).
3. Cut main line and install appropriate elbows, valves, and fittings and attach the bypass/control valve to the plumbing.

Caution: Arrows on the sides of the control valve body indicate proper direction of water flow. Make sure you plumb in the proper flow direction.

4. Rotate the **red handle** of the bypass valve to the bypass position.
5. Turn on main water supply line to restore water service to the home

6. Open farthest faucet to evacuate air and pressurize plumbing lines.
7. Check for leaks.

Drain Line Connection

1. Remove the drain line hose barb located on the back right side of the control valve. Wrap the threads of the hose barb with Teflon® tape. Reinstall the hose barb. Hand tighten only.
2. Install 1/2in. I.D. drain line tubing from the hose barb to an open drain. A 4in. air gap between the end of the drain line and the open drain is required to prevent wastewater backflow. Keep the drain line as short as possible. An overhead drain line can be used if necessary, but it should discharge below the control valve. Elbows or other fittings must be kept at a minimum. Be sure to follow all applicable plumbing codes when connecting to drain.

Note: Where the drain line is elevated above the control valve or exceeds 20ft. in length, 3/4in. drain line tubing should be used.

Brine Tank, Line, and Overflow Connection

1. Position the brine tank on a smooth level surface near the softener resin tank (for two tank models only) (See installation diagrams).
2. Install one end of 3/8in. O.D. by 1/4in. I.D. brine line tubing to the brine inlet fitting located on the softener control valve.
3. Remove brine tank cover.
4. Insert opposite end of brine line through outer hole in brine tank. On cabinet models, insert tubing through hole in brine well.
5. Connect brine line to compression fitting elbow above brine well.
6. Install 1/2in. I.D. drain line tubing (not included) to the overflow fitting on the brine tank located just below the brine line located on side of unit for cabinet models.
7. Run the opposite end of the overflow drain line to a suitable drain.

Caution: Do not tee this overflow line to the drain line from the control valve. This line is gravity flow and must discharge below the overflow fitting.

Note: The brine overflow is provided as a backup, in the event the safety float shut off should fail, allowing the brine tank to overflow. This drain connection would then carry the excess water to the drain and prevent flooding. Therefore no liability will or can be assumed by the manufacturer of the softener, should this occur.

Electrical Connection

1. Plug the cord from the control valve into a standard 115-volt/60Hz receptacle.

Note: Do not plug into an outlet controlled by a wall switch or pull chain that could be inadvertently turned off.

2. For your protection, this unit is equipped with a 3-prong plug and should be connected to a grounded receptacle. If the receptacle is designed to only accept 2 prongs, obtain a 3-prong plug adapter and secure the ground wire to the receptacle.

Warning: Do not remove the grounding prong! An improperly grounded unit could cause injury from electric shock!

Installation Procedures

Pressurizing the Softener

1. Pour water in brine tank until it is about 2in. above the salt grid. Do not add salt yet!
2. Slowly rotate the red handle of the bypass valve to the service position and allow the softener to fill with water.
3. Crack open the nearest faucet to evacuate air from the softener and plumbing.
4. Check for leaks.
5. Rotate the red handle on the bypass valve to the **Bypass** position.

Control Valve Checkout

We will now put the control valve through all the steps of a regeneration cycle to verify correct operation.

- Step 1 – Backwash (10 minutes)
- Step 2 – Brine/Rinse (60 minutes)
- Step 3 – Rapid/Rinse (10 minutes)
- Step 4 – Brine/Refill (varies by softener size)
 - 8 minutes – 16,000 grain softener
 - 8 minutes – 24,000 grain softener
 - 10 minutes – 32,000 grain softener
 - 16 minutes – 48,000 grain softener
 - 20 minutes – 64,000 grain softener

1. Push the Extra Cycle Button and hold it down for five seconds. The service dot will go out and the LED will display 1 --. This display indicates that the valve is moving into step 1, Backwash. When the valve has completed the move to step 1, the LED will now display 1--9. This display indicates that the valve is in regeneration step 1 and that there are 9 minutes left until the next step. Slowly move the red handle of the bypass to the service position. Allow the air to bleed slowly to the drain. When you have bled all the air and water is running to the drain, move the bypass handle completely to the service position and allow the system to backwash for 4 to 5 minutes.
2. Push the extra cycle button again. The LED will now display 2 - - . this display indicates that the valve is moving to step 2, Brine/Rinse. When the valve has completed the move to step 2, the LED will display 2-59. This indicates that the valve is in step 2 and that there are 59 minutes left in this step. At this point water should be drawing from the brine tank to the valve at about 1/3 gallons per minute. Do not proceed with installation if this does not occur (refer to troubleshooting guide). Allow the water to continue to be drawn from the tank until it stops. This should take no more than 20 minutes. About 1.5in. of water should be left in the bottom of the brine tank.
3. Push the extra cycle button again. The LED will now display 3 ---. This display indicates the valve is moving to step 3, Rapid/Rinse. When the valve has completed the move to step 3, the LED will display 3 - - 9. This indicates that the valve is in step 3 and has 9 minutes left in this step.
4. Push the extra cycle button again. The LED will display 4 -

-. This display indicates that the valve is moving into step 4, Brine/Refill. When the valve has completed the move to step 4, the LED will display 4 - 9 (for a 32,000 grain softener). This number will vary depending on the size of the softener. This indicates that the valve is in step 4 and that there are 9 minutes left in Brine/Refill. Allow the brine tank to refill completely and the valve to return to service.

Determining the Gallons of Treated Water Capacity

Before you can program your control valve, you will need to determine your softener's gallons of treated water capacity. To do this you need to know the total capacity of your softener, the compensated hardness of the water, and how many people in the family. To determine the total capacity of your softener, use the following chart:

If your softener's model number begins with ...	Your softeners total capacity is...
EDS-16 or ECD-16	16,000 grains
EDS-24 or ECD-24	24,000 grains
EDS-32 or ECD-32	32,000 grains
EDS-48	48,000 grains
EDS-64	64,000 grains

Softener Model #	EDS-48P
Number in Family	6 people
Hardness	25 gpg
Iron	1.5 ppm
Manganese	0.5 ppm

The softener's capacity is: 48,000 grains

The compensated hardness is:

$$25 \text{ hardness} + (1.5 \text{ iron} \times 4) + (0.5 \text{ manganese} \times 4) = 25 + 6 + 2 = 33 \text{ gpg compensated hardness}$$

The total capacity in gallons and reserve are:

$$\text{Total capacity} = 48,000 / 33 = 1455 \text{ gallons}$$

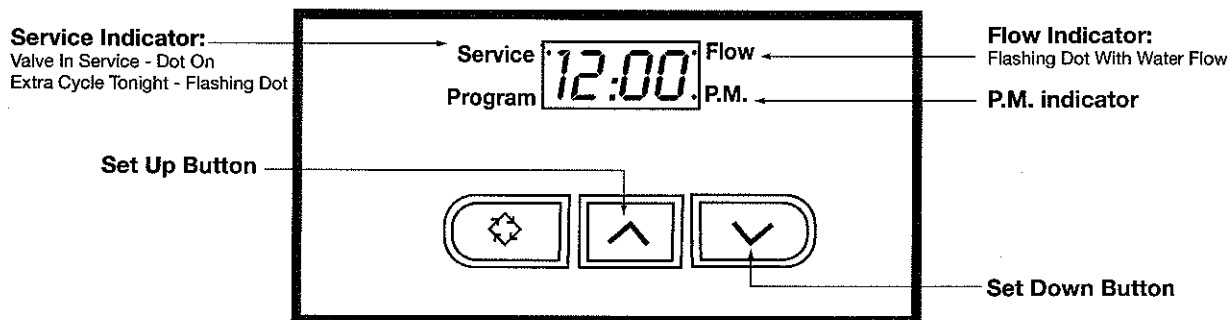
$$\text{Reserve} = 6 \text{ people} \times 75 \text{ gallons/person} = 450 \text{ gallons}$$

Therefore, the gallons of treated water capacity is:

$$1,455 - 450 = 1,005 \text{ gallons of treated water capacity}$$

Installation Procedures

Electronic Control Valve Start-Up Procedures



The control panel for your softener looks like the above picture. When you first plug it in, the service indicator dot should be lit and a time (probably incorrect) will be displayed on the LED.

1. **Set Time of Day.** Push either the Set Up Button or the Set Down Button to set the correct time of day on the LED.
2. **Enter the Control Programming Mode.** Push and hold the Set Up Button and the Set Down Button at the same time. The control will enter the programming mode and the Program Dot will light. You must push both the Set Up and Set Down Buttons exactly at once. Hold them down for 5 seconds until you see the Program Dot light up. If the time setting changes one minute and the Program Dot does not light, you did not press both buttons at once. Try again.
3. **Set the Gallons of Treated Water Capacity.** When you have entered the Control Programming Mode and the Program Dot is lit, use the Set Up Button or the Set Down Button to set the Gallons of Treated Water Capacity that you computed earlier. This setting and the actual water usage determines when the softener will regenerate.
4. **Regeneration Time.** Push the Extra Cycle Button once. The LED will display "2:00 AM." This is the factory preset regeneration time. If you want the softener to regenerate at another time, you may change the setting using the Set Up Button or the Set Down Button.
5. **Regeneration Day Override.** Push the Extra Cycle Button again. The LED will display "AOFF." You now have the chance to set the maximum number of days before a regeneration cycle must occur. The factory setting is that this feature is off. If your combined iron and manganese level is over 2.0 ppm, use the set up button until the LED displays A-7. This means the softener regenerates at least once a week to keep the bed free of iron fouling.
6. **Return to Service.** Push the Extra Cycle Button again. The LED will display the time and the Service Dot will light and stay lit.

Caution: Be sure you are back in Service and the Service Dot is continuously lit.

Start Up Procedure

Disinfection

The materials used in the construction of the modern water softener will not support the growth of bacteria. However, the conditions existing during shipment, storage, and installation are unknown and this dictates the disinfecting of a softener after installation, before it is used to treat potable water. With this in mind, your newly installed water softener should be disinfected using the recommended procedure described in this section. Ordinary chlorine bleach (not the "scented" type) is an excellent disinfection agent for this purpose. The proper dosage for your particular softener model is listed below.

Unit Capacity	Cubic Feet of-Resin	Chlorine Dosage
16,000	0.50	.6 ounces
24,000	0.75	.9 ounces
32,000	1.00	1.2 ounces
48,000	1.50	1.8 ounces
64,000	2.00	2.4 ounces

1. Measure the proper amount of chlorine bleach as shown above.
2. Pour the chlorine directly into brine well located inside brine tank or cabinet.
3. Replace the brine well cap.

Filling the Brine Tank with Salt

To obtain a high level of performance and reliability, a salt manufactured specifically for water softeners must be used. Salt of this grade is virtually free from dirt and other contaminants that would eventually cause the softener to function improperly. **Never** use block salt. A pellet type salt or solar salt is recommended. If iron is present in the raw water, the use of iron inhibiting salt is recommended. This will inhibit iron bacteria growth on the resin and subsequent fouling. The salt level will deplete gradually after each regeneration. Consequently, the salt compartment will need to be checked and replenished periodically.

Installation Procedures

1. Fill the brine tank with salt as described above.
2. Do not fill the tank any higher than the top of the brine well.
3. Replace tank lid.

Note: Always maintain the salt level above the water level.

Final Check

1. Be certain the bypass valve is in service position.
2. Make sure the electric cord is connected to an uninterrupted 115 volt outlet.
3. Check that the time of day is set.
4. Make final check for leaks!
5. Push and hold the Extra Cycle Button. This will regenerate the softener and complete the disinfection process.
6. Fill out and mail warranty card.
7. Leave this manual with the unit.

Operation, Care and Cleaning

Operation of Bypass Valve

When the **Red Handle** on bypass valve is in the "Service" position, water is directed through the water softener. Water may be bypassed by turning **Red Handle** counter-clockwise to the **Bypass** position on the bypass valve. Water to the home will bypass the softener and be "untreated".

You should manually bypass the softener if:

1. The outside lines do not bypass the water softener and water is to be used for lawn sprinkling or other similar uses.
2. Servicing the water softener.
3. A water leak from the water softener is evident.
4. "Shock Treating" water well and piping with chlorine or other disinfectant.

Start and Extra Regeneration Cycle

When starting an extra regeneration cycle, you have two options:

1. **Press and Release the Extra Cycle Button.** The Service Dot will flash and the extra cycle will take place at the scheduled time, 2 A.M.
2. **Press and Hold the Extra Cycle Button for five seconds.** The extra cycle will begin immediately.

General Care and Cleaning

1. Do not place heavy or sharp objects on water softener.
2. Use only mild soap and warm water to clean exterior of the unit. Never use harsh, abrasive cleaners.
3. Protect the water softener and drain line from freezing.
4. Reset the time of day on the control valve after any interruption of the electrical power occurs in order to keep the unit on the proper regeneration schedule. (Also reset time for daylight savings time periods)
5. Inspect and clean the brine tank when sediment appears in the bottom of the salt compartment.

6. Always keep the brine tank supplied with good quality salt, a type designed for use in water softeners.

Changing The Salt Setting

The amount of salt used per regeneration is determined by the length of Step 4 (Brine Refill) of the regeneration cycle. Every minute of brine refill puts 1/2 gallon of water in the brine tank which will dissolve 1.5 pounds of salt. Therefore, to change the salt setting, you must change the length of the brine refill.

The factory salt setting for your softener is based on 15 pounds of salt per cubic foot of softener resin (32,000 grains capacity). You can save salt by reducing the salt setting. This will also reduce the capacity of the softener. You will have to recalculate the gallons of treated water capacity and change the gallons of treated water capacity setting on the softener. The minimum salt setting recommended for your softener is based on 6 pounds of salt per cubic foot of softener resin. If you want to change to this setting, the new brine refill times and softeners total capacity are given below.:

If your softeners model number begins with...	The brine refill time for a 6 lb./cu. Ft. salt setting is ...	Your softeners new total capacity is...
EDS-16 or EDC-16	2 minutes	10,000 grains
EDS-24 or EDC-24	3 minutes	15,000 grains
EDS-32 or EDC-32	4 minutes	20,000 grains
EDS-48	6 minutes	30,000 grains
EDS-64	8 minutes	40,000 grains

Warning: Do not reduce the factory salt setting if the softener is used on residential well water unless iron inhibiting salt or another type of resin cleaner is used for every regeneration.

1. Change the softener's time setting to 12:01 PM.
2. Push and hold both the Set Up Button and the Set Down Button at the same time. The control will enter the master programming mode, the Program Dot will light, and the LED will display U-1. You must push both the Set Up and Set Down Buttons exactly at once. Hold them down for 5 seconds until you see the Program Dot light up. If the time setting changes one minute and the Program Dot does not light, you did not press both buttons at once, try again.
3. Be sure the LED displays U-1. If it changes to U-2, use the Set Down Button to put it back to U-1. Push the Extra Cycle Button eight times. Count carefully. The Led will display 4- and the minutes of brine refill time. Use the Set Up or Set Down Button to change the brine refill time per the chart above.
4. Push the Extra Cycle button 4 more times. The softener will return to service and the Service Dot will light. Be sure the Service Dot is lit before continuing.
5. Reset the time to the correct time of day.
6. You now have to shorten the suction tube in the brine tank as follows:
 - a. Remove the brine tank cover and the brine well cover.
 - b. Disconnect the brine tube from the compression fitting on the safety brine well.
 - c. Remove the nylon nut holding the safety brine valve in place from the outside of the brine well.
 - d. Remove the safety brine valve from the brine well. You

Servicing Procedures

- will see the aircheck and tube attached to the underside of the safety brine valve with a 3/8" compression nut.
- e. Loosen the compression nut and remove the aircheck and tube from the safety brine valve.
 - f. Cut 2" off the length of the aircheck tube.
 - g. Reattach the aircheck and tube to the safety brine valve and reinstall it in the brine well.
 - h. Reconnect the brine tube to the compression fitting on top of the safety brine valve.
7. You must now verify that you still have brine draw. Follow procedure explained in the "Control Valve Checkout" section of this manual. Be sure that brine is being drawn out of the brine tank. If it is not, recheck the brine connections and try again. Be sure to return the softener to service after checking the brine draw.
 8. Follow the procedure described in the "Determining the Gallons of Treated Water Capacity" section of this manual to calculate your new gallons of treated water capacity based on the new softeners total capacity from the chart above.
 9. Follow the procedure described in the "Electronic Control Valve Startup Procedures" section of this manual to reset the gallons of treated water capacity.

Electronic Softener Annual Preventative Maintenance

1. Test the water before and after the softener to verify that the softener is working properly.
2. Verify that the time is set properly.
3. Verify that the gallons of treated water capacity setting on the softener is correct based on the new raw water test you just performed.
4. Turn the handle on the bypass valve to the "Bypass" Position.
5. Push and hold the **Extra Cycle Button**. The Service Dot will go out and the softener will move to Step 1 (backwash) of the regeneration cycle. This depressurizes the softener.
6. The injector cover is located on the control valve under the brine tube connection. It is held in place by two screws. Back out the two screws and remove the injector cover. Under the cover you will see a stainless steel screen and white plastic injector nozzle. Pull out the stainless steel screen. Unscrew the white plastic injector nozzles with a wide bladed screwdriver and remove it with a needle nosed pliers. Clean the screen, injector throat, and injector nozzles and replace them. Please note any signs of iron build up in this area of the control valve. Replace the injector cover.
7. If iron buildup was evident in #6 above, you will have to disassemble and clean the entire control valve. To do this, follow the directions in the "Cleaning and Control Valve" section of this manual.
8. Remove the salt and the salt grid from the brine tank. Disconnect the brine tank and clean it thoroughly. Reconnect the brine tank and replace the salt grid.
9. Push the **Extra Cycle Button** three more times to put the softener into Step 4 (Brine Refill). You will have to wait until the piston stops moving after each time you push the button. Allow the brine tank to refill and the softener to return to service.

10. Slowly turn the bypass valve handle to the "Service" position. Check for leaks.
11. Follow the "Checking the Control Valve" section of this manual to verify that you do have brine draw and the control valve is working properly.
12. Follow the procedures described in the "Disinfection" section of this manual.
13. Refill the brine tank with salt.
14. Push and hold the **Extra Cycle Button** and allow the softener to regenerate.
15. Follow the procedures described in the "Final Check" section of this manual.

Electronic Softener Inadequate Brine Draw Service

Inadequate brine draw is a very common cause of trouble calls. The possible symptoms are: no soft water, salty water delivered to the service early in the morning after regeneration, and/or an overfull brine tank.

All the service procedures discussed below assume that the minimum water pressure is 20psi. If the water pressure to the softener drops below 20psi during brine draw, brine will not be drawn. Among the problems that can cause a very low pressure are: dry well, an irrigation system or other high water usage before the softener, or a significant leak in the underground water line leading to the house.

1. Check the level of solution in the brine tank. If the float on the safety brine valve is floating, the brine tank is too full.
2. Push and hold the **Extra Cycle Button** until the **Service Dot** is out and the piston starts to move. When the piston stops moving the LED will display 1-9. The softener is now in backwash. Push the **Extra Cycle Button** again. Wait for the piston to move until the LED displays 2-59. At this point water should be drawn out of the brine tank at about 0.3 gpm.
3. If brine draw is occurring, check the time that it takes until the water level gets down to the air check and brine draw stops. This should take no more than 20 minutes and should leave about 1.5" of water in the brine tank. If brine draw is too slow, continue with this section.
4. If brine draw is not occurring, or is too slow, disconnect the brine tube from the control valve by unscrewing the brass compress nut and removing the nut and the tube from the control valve. **Note:** Do not lose the ferrule.
5. Put your finger over the hole where the brine tube used to be. You should feel a strong suction. If you do not feel suction, proceed with number 10. If you do feel suction, proceed with number 6.
6. If you have suction at the control where but you are not drawing brine, you have a problem with the brine tube or the brine valve and safety float assembly in the brine tank. Either these parts have a vacuum leak or there is a blockage. The most likely possibility is a vacuum leak, at the compression fittings at either end of the brine tube. Reconnect the brine tube to the control valve. Be sure that the brass insert is in the tube and that the ferrule is in place. Push the tube into the fitting until it shoulders out and tighten up the compression nut tight but not too tight.
7. Disconnect the brine tube at the brine tank. Check for suction. If you have suction, carefully reconnect the tube as

Servicing Procedures

in number 6. At this point, you should have brine draw. If you do, go to number 14. If you do not have suction at the brine tank end of the brine tube, you have a vacuum leak in the brine tube or the fitting connecting it to the control valve.

8. Reconnect the brine tube at the brine tank as described in number 6 above. If you still do not have brine draw check the placement of the rubber grommets on the float for the safety brine valve in the brine well. The grommets should be about 1/2" apart and the lever on the safety brine valve should be free to move. If the grommets are spaced incorrectly, slide the lower grommet until it is about 1/2" from the upper grommet. Check for brine draw. If you don't have brine draw, go to number 14.
9. If you still do not have brine draw, you will have to change the brine valve and safety float assembly (part #40330C125). When this has been done and you have brine draw, go to number 14.
10. If you do not have suction at the control valve, turn the **Red Handle** on the bypass valve to the **Bypass** position.
11. The injector cover is located below the brine tube connection on the control valve. The cover is held in place by two screws. Back out the screws and remove the injector cover. Under the cover, you will see a stainless steel screen and a white or blue plastic injector nozzle. Pull out the stainless steel screen. Unscrew the white plastic injector nozzles with a wide bladed screwdriver. Under the nozzles are a white plastic injector throat. Unscrew this injector throat with a narrow bladed screwdriver and remove it with needle nosed pliers. Clean the screen, injector throat, and injector nozzles and replace them. Please note that any signs of iron buildup in this area of the control valve. Replace the injector cover.
12. If iron buildup was evident in #11 above, you may have to disassemble and clean the entire control valve. To do this follow the directions in the "Cleaning the Control Valve" section
13. Turn the handle on the bypass valve to the "Service" position. Verify that you are still in the **Brine Rinse** portion of the regeneration cycle. At this point, you should have suction and at the control valve. If you do not have suction, repeat number 11 above.
14. When you are sure you are drawing brine properly, push the **Extra Cycle Button** twice (wait for the piston to move). The Service Dot will light and the softener will be in Service. Push and hold the **Extra Cycle Button** to start a regeneration cycle.
15. Follow the procedures described in the "Final Check" section of this manual.

Cleaning the Control Valve of an Electronic Demand Softener

Control valves sometimes have to be disassembled and cleaned. The most common reason is that they are plugged with iron or iron bacteria. Sediment or other debris in the raw water can also get in the control valve and cause problems as can softener resin. Common symptoms of a control valve that needs cleaning are: excessive pressure drop, leaking to drain, injector nozzles and screens that keep plugging, a brine line is pressurized, or a control valve that has a bound piston.

If you are having a problem with a control valve that needs cleaning too often on a particular job, consider eliminating the cause of the problem. If your control valve is plugged with red water iron, you need to remove the iron with a Provectr® or iron filter before the

softener. An iron bacteria buildup is telling you that the system needs chlorinating. If sediment is the problem, a cartridge filter or whole house Filter Ag® filter may be the solution. Softener resin in the control valve may indicate an incorrectly sized drain line flow control.

1. Turn the red handle on the bypass valve to the **Bypass** position.
2. Disconnect the meter cable from the back of the control valve by pulling it out.
3. Push and hold the Extra Cycle Button until the Service Dot goes out. The piston will move into Step 1 (Backwash) of the regeneration cycle. This depressurizes the softener.
4. Unplug the control valve.
5. Disconnect the brine tube. **Note: Do not lose the ferrule.**
6. Disconnect the drain line.
7. Locate the clips that hold the control valve and meter to the bypass valve. Remove the screws and the clips. Pull apart the softener and bypass valve. "Walk" the softener away from the bypass valve.
8. The meter may have stayed with the softener or the bypass valve. Pull the meter loose and clean it thoroughly and set it aside to be reinstalled later.
9. The control valve screws into the resin tank. Loosen, but do not remove, the control valve from the resin tank.
10. Open the control valve front cover. You will see that the electronic board is mounted on the inside of the front cover. Unplug the cable that connects the electronic board to the powerhead. Remove the front cover by gently pulling the hinge pins from the pivot holes. Do the left side first then the right. Set the cover with the electronic board in it aside in a dry safe place.
Warning: Do not touch the electronic board with either your fingers or tools. Do not let the board get wet. Do not drop or hit the board or the cover.
11. Loosen the screws that hold the control valve back cover and remove the back cover.
12. Looking at the back of the control valve, locate the screw and washer that hold the drive yoke at the top of the piston to the drive gear in the power head. Remove this screw and washer.
13. Remove the two power head mounting screws, and remove the power head by sliding it slightly forward and lifting it off.
14. Remove the three screws that hold the end plug retainer (flat stainless steel plate). Lift off the end plug retainer.
15. The brine valve will now lift out of the brine module. Make sure that you have both of these O-rings. The bottom one in particular may remain in the brine module. If so, gently lift it out with your screwdriver or pen.
16. The injector cover is located below the brine tube connection on the control valve. The cover is held in place by two screws. Back out the screws and remove the injector cover. The same screws hold the brine module in place. Remove the brine module also. Behind the brine module are three small O-rings and the air dispenser (a small piece of white plastic). Make sure you do not lose any of these pieces.
17. Under the injector cover you will see a stainless steel screen and a plastic injector nozzle. Pull out the stainless steel screen. Unscrew the white plastic injector nozzles with

Servicing Procedures

- a wide bladed screwdriver. Under the nozzles are a white plastic injector throat. Unscrew this throat with a narrow bladed screwdriver and remove it with a needle nosed pliers.
18. Carefully unscrew the control valve and remove it from the resin tank. Try not to lift the distributor tube up in the resin. If the tube does lift up, you will have to use a hose to wash it back down.
 19. Grasp the drive yoke on the top of the piston. Pull up to remove the piston from the valve body.
 20. As you can now see, the piston moves inside a stack of rubber seals and plastic spacers. Remove them. You should have five seals and four spacers. You now have the control valve completely disassembled.
 21. Clean the control valve body and brine module completely. You may want to use a resin cleaner solution like Res Up to help you. Be sure to clean all the ports and passageways completely. You may want to get a couple of flexible brushes to use.
 22. Inspect the piston for any signs of scoring or scratches. If you see that the piston is damaged, replace it (part #20564C200).
 23. Inspect the seal and spacers for damage. Particularly look at the inside edges of the rubber seals. If there is any damage, replace them (part #20561C253).
 24. To replace the seals and spacers in the control valve body, remember all the seals and spacers are the same. Start with a seal. Be sure that the seal is all the way to the bottom of the cavity in the control valve body. Next comes a spacer. The lower spacer is the most difficult one to get all the way to the bottom of the cavity. Be sure it is seated properly. Then continue, seal, spacer, seal, spacer, etc. make sure each seal or spacer is seated properly as far down in the cavity as it will go. Be sure that you end up with a seal on top.
 25. Lubricate the piston lightly with food grade silicone grease (part #20561C550). Slide the piston down into the center of the seal and spacer stack.
 26. As you reassemble the control valve, all the O-rings should be lubricated with the same food grade silicone grease.
 27. Clean the stainless steel screen and the white plastic injector nozzles and injector throat.
 28. Lubricate and place the three small O-rings on the back of the brine module. Replace the air disperser. There are three small holes in the right side of the control valve body. The air disperser goes in the topmost of the three holes with the "bar" in towards the control valve body.
 29. Screw the injector throat back into the brine module body with a narrow bladed screwdriver. Next screw in the injector nozzle and place the screen in the hole next to the injector. Put the brine module in place on the right side of the control valve body. Make sure the three small O-rings seat properly. Put the injector cover in place. Again, make sure that the O-ring seats properly. Using the two long screws, mount the brine module and injector cover in place.
 30. Lubricate both of the O-rings on the brine valve. Place the small O-ring in the bottom of the brine valve hole in the brine module body. Place the brine valve in the hole. The shoulder of the bushing on the brine valve should be flush with the top of the brine module body.
 31. Put the end plug retainer in place on the top of the control valve. Screw it down with the three short screws. As you screw down the end plug retainer, you are compressing the stack of seals and spacers. It takes some force to do this. However, if you find yourself deforming the end plug retainer, you are using too much force. This is telling you that the seals and spacers are not all seated properly. Remove the end plug retainer, the piston, and the seals and spacers. It is likely that the lower spacer is the one that is not seated properly. Carefully replace the seals and spacers and the piston. Replace the end plug retainer and screw it down.
 32. Replace the power head and screw it down with the two medium length screws. Seat the drive yoke on the drive gear in the power head. Replace the screw and washer that hold the drive yoke in place.
 33. Lubricate the large O-ring on the base of the control valve and the distributor tube O-ring in the hole on the bottom of the control valve. Screw the control valve onto the tank. Make sure that the distributor tube seats in the hole in the bottom of the control valve. Screw the valve on tight by hand. Do not use a wrench.
 34. Reattach the meter to the softener. Make sure the O-rings are lubricated and seated. As you stand behind the control valve facing the inlet and outlet ports, the rotating part of the meter should be on the right.
 35. "Walk" the softener back into place by the bypass valve. Make sure the O-rings are lubricated and seated and screw on the clips.
 36. Reinstall the back cover of the control valve (make sure the meter cable is sticking through the hole) and tighten the screws.
 37. Reinstall the meter cable into the top of the meter by pushing it into the socket.
 38. Reinstall the front cover and plug into the electronic cable. Do not touch the electronic board.
 39. Complete all the procedures described in the "Softener Annual Maintenance" section of this manual.

Demand Softener Troubleshooting Guide

Problem	Possible Cause	Correction
1. Softener Fails to Regenerate	<ul style="list-style-type: none"> A. Electrical service to softener has been interrupted. B. Regeneration schedule is not set properly. C. Time motor is defective. D. Powerhead is defective. E. Electronics are defective. F. Power Failure G. Meter is not working properly. 	<ul style="list-style-type: none"> A. Assure permanent electrical service (check fuse plug, etc.) B. Follow the procedure in the "Setting the Regeneration Schedule" section of this manual C. Replace timer motor D. Replace powerhead E. Replace the Cover and Electronics Assembly F. Reset time of day when power is restored, manually initiate a regeneration if necessary G. Clean the meter.
2. Softener Delivers Hard Water	<ul style="list-style-type: none"> A. Bypass valve is in "Bypass" position B. No salt in brine tank C. Inadequate Brine Draw D. Gallons of Treated Water Capacity is not set properly E. Salt setting less than 11 pounds F. Hot water tank hardness G. Leak at distributor tube H. Control valve needs cleaning or service I. Fouled Resin bed J. Plugged drain line or drain line flow control K. Inlet pressure too low 	<ul style="list-style-type: none"> A. Turn bypass valve to "Service" position B. Add salt to brine tank and maintain salt level above water line C. Follow the procedures described in the "Inadequate Brine Draw Service" section of this manual D. Follow the procedure in the "Gallons of Treated Water Capacity" and "Electronic Control Valve Startup Procedure" sections of this manual E. Change salt setting to 11 pounds or more F. Flush hot water tank G. Make sure distributor tube is not cracked. Check "O" ring and tube pilot H. Follow the procedures described in the "Cleaning and Control Valve" section of this manual I. See problem #6 J. Clean drain line and drain line flow control K. Inlet pressure to the softener must be at least 20 psi
3. Softener Uses Too Much Salt	<ul style="list-style-type: none"> A. Gallons of Treated Water Capacity is not set properly B. Improper salt setting 	<ul style="list-style-type: none"> A. Follow the procedure in the "Gallons of Treated Water Capacity" and "Electronic Control Valve Startup Procedure" in this manual B. Change salt setting
4. Loss of Water Pressure	<ul style="list-style-type: none"> A. Iron build-up in line to unit B. Piping, meter or control valve inlet plugged up with debris or foreign material from scale, plumbing work, etc. C. Iron buildup or foreign material buildup in the control valve D. Iron bacteria buildup 	<ul style="list-style-type: none"> A. Clean piping, consider installing a PROTECTR® before the softener B. Clean piping. Follow the procedure described in the "Cleaning Control Valve" section of this manual. Install a sediment filter or cartridge filter before the softener. C. Follow the procedures described in the "Cleaning the Control Valve" section of this manual D. Chlorinate well and complete plumbing system with softener bypassed. Then follow the procedure described in the "Disinfection" section of this manual
5. Loss of Resin Through Drain Line	<ul style="list-style-type: none"> A. Air in water system B. Drain line flow control missing or incorrectly sized 	<ul style="list-style-type: none"> A. Check for dry well condition, drain back condition or tank air volume control not working B. Check drain line flow control
6. Loss of Resin Through Service Line	<ul style="list-style-type: none"> A. Softener plumbed backwards B. Distributor tube broken or not sealed into the control valve 	<ul style="list-style-type: none"> A. Correct softener plumbing. See installation drawings. B. Check distributor tube for cracks or damage. Check the distributor tube "O" ring and pilot in the control valve

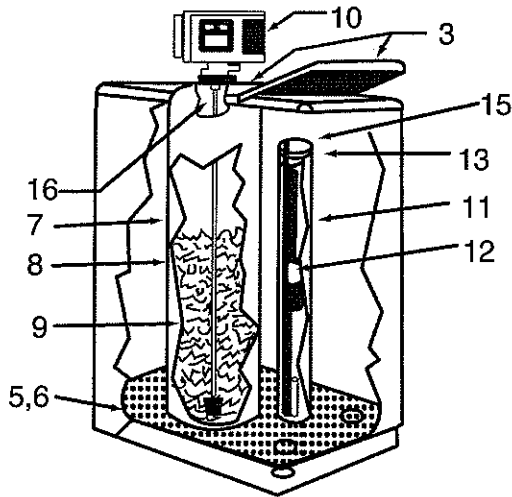
Demand Softener Troubleshooting Guide

Continued

Problem	Possible Cause	Correction
7. Iron in Conditioned Water	<p>A. Fouled resin bed</p> <p>B. Softener does not regenerate</p> <p>C. Softener does not regenerate properly</p> <p>D. Iron bacteria buildup</p>	<p>A. Regenerate softener with a resin cleaner. Increase frequency of regeneration. Check salt setting. Setting should be at the maximum for the softener.</p> <p>B. See problem #1</p> <p>C. See problem #2</p> <p>D. Chlorinate well and complete plumbing system with softener bypassed. Then follow the procedure described in the "Disinfection" section of this manual.</p>
8. Excessive water in brine tank	<p>A. Inadequate brine draw</p> <p>B. Incorrect salt setting</p> <p>C. Plugged drain line or drain line flow control</p>	<p>A. Follow procedures described in the "Inadequate Brine Draw Service" section of this manual</p> <p>B. Correct salt setting</p> <p>C. Clean drain line and drain line flow control</p>
9. Salt water in service line	<p>A. Inadequate brine draw</p> <p>B. Line pressure too low</p>	<p>A. Follow the procedures described in the "Inadequate Brine Draw Service" section of this manual</p> <p>B. Inlet pressure to the softener must be at least 20 psi</p>
10. Softener fails to draw brine	<p>A. Inadequate brine draw</p>	<p>A. Follow the procedures described in the "Inadequate Brine Draw Service" section of this manual</p>
11. Control valve cycles continuously	<p>A. Faulty powerhead</p>	<p>A. Replace powerhead</p>
12. Water flows to drain continuously	<p>A. Control valve has debris or iron buildup</p> <p>B. Faulty timer motor</p> <p>C. Faulty powerhead</p>	<p>A. Follow the procedures described in the "Cleaning the Control Valve" section of this manual</p> <p>B. Replace timer motor</p> <p>C. Replace powerhead</p>

Parts Diagrams

"ECD" Series



No. 1 consists of No.'s 2, 3, & 4
No. 14 is not shown

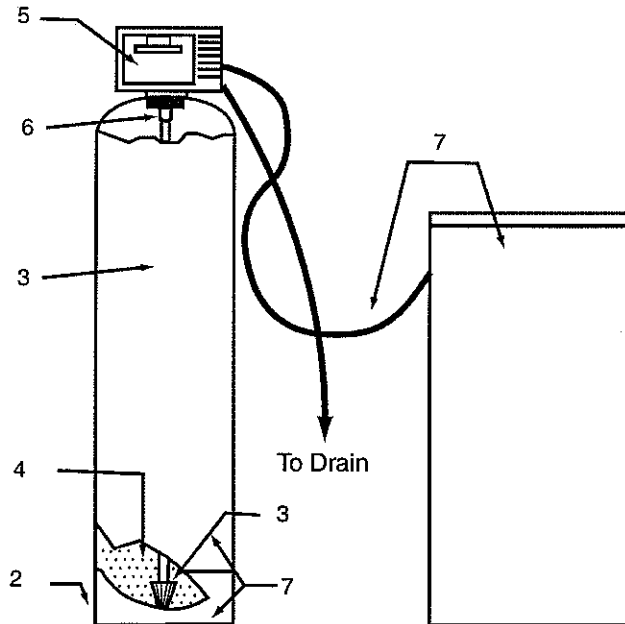
Ref No.	Part Number	Description
1	40430C000	Cabinet & Cover Ass'y
3	40460C102	Salt Lid/Cover 2 Pcs
5	40460C104	Grid For 8" Resin Tank
6	40460C105	Grid For 10" Resin Tank
7		Resin Tank - See Chart Below
8		Distributor & Tube Ass'y - See Chart
9		Cation Resin - See Chart
10		Control Valve - See Chart
11		Brine well
12		Safety brine & float assembly
13		Cap 4" brine well
14		Overflow fitting & nut
15		Brine tubing 3/8" OD x 24" long
16		Adaptor distributor tube top - see chart

See
Diagram
Of Brine Tank

Ref No.	Description	Part No. Size	ECD-16P	ECD-24P	ECD-32P
			ECD-16TP	ECD-24TP	ECD-32TP
7	Tank Resin		30835C104	30835C104	31035C103
			8"x35"	8"x35"	10"x35"
8	Distr. & Tube Assembly		330835C11	330835C11	330835C11
	Turbulator & Tube Assembly		340035C11	340035C11	340035C11
9	Cation - 32 Resin		SR050	SR075	SR100
			.5 Cu Ft	.75 Cu Ft	1 Cu Ft
10	Control Valve				
	-w/ Flow Control				
	ISOBAR® w/ 3/4" Bypass		20933C101	20933C101	20933C104
	ISOBAR® w/1" Bypass		20933C105	20933C105	20933C108

Parts Diagrams

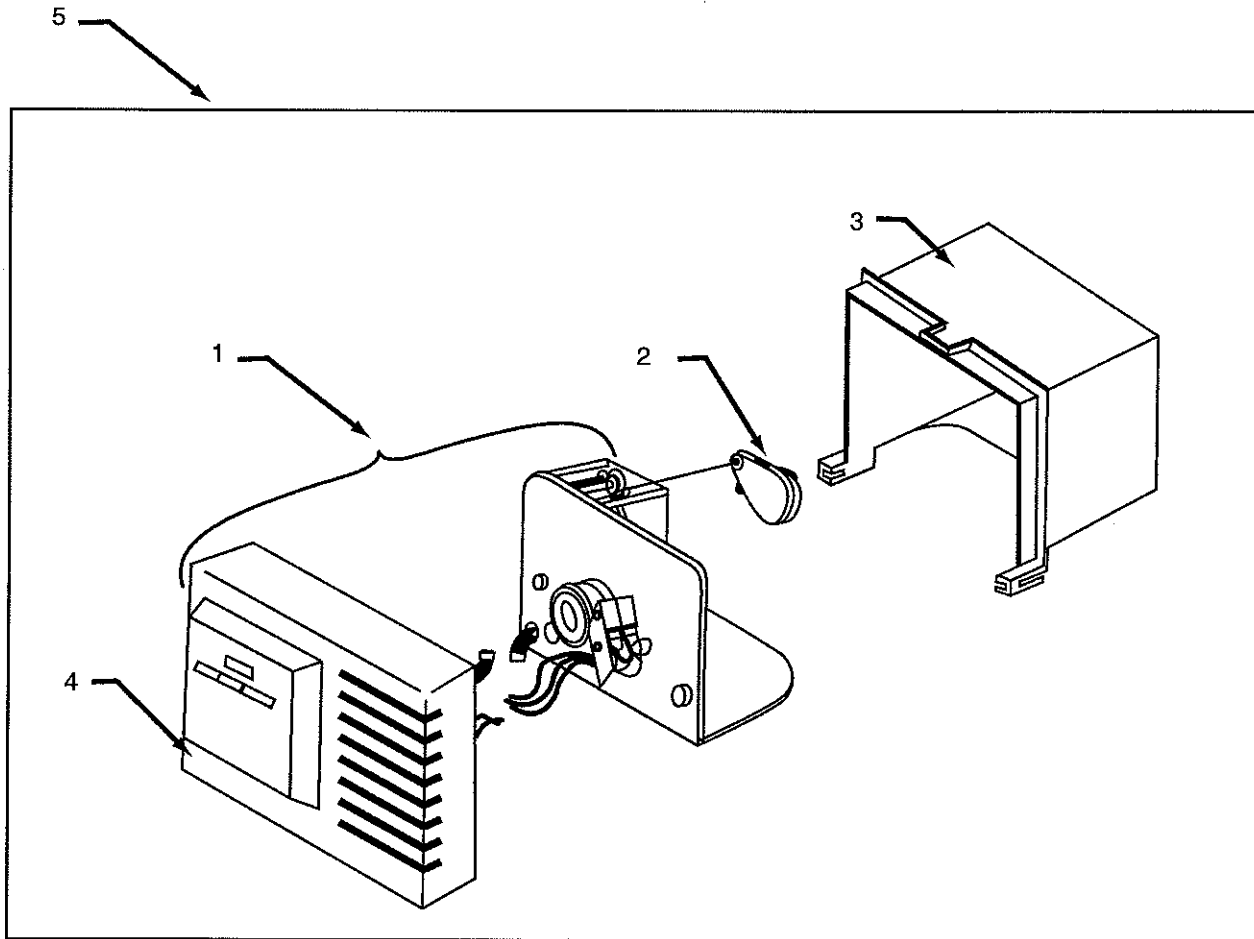
"EDS" Series Softeners



Ref No.	Description	EDS-16P	EDS-24P	EDS-32P	EDS-48P	EDS-64P
		EDS-16TP	EDS-24TP	EDS-32TP	EDS-48TP	EDS-64TP
1	Tank w/Base Part No. Size	30835C101 8"x35"	30844C101 8"x44"	30948C100 9"x48"	31054C101 10"x54"	31252C101 12"x52"
2	Base	32008C102	32008C102	32009C100	32010C102	32012C100
3	Distr. & Tube Assembly -Units with ISOBAR® Turbulator & Tube Ass'y -Units with ISOBAR® Valve -(TP Suffix) See Note 1	330835C11 340035C11	330844C11 340044C11	330948C11 340048C11	331054C11 340054C11	331252C11 340052C11
4	Cation - 32 Resin	(1) SR050 .5 Cu Ft	(1) SR075 .75 Cu Ft	(1) SR100 1 Cu Ft	(1) SR050 (1) SR100 1.5 Cu Ft	(2) SR100 2 Cu Ft
5	Control Valve -w/ Flow Control ISOBAR® w/ 3/4" Bypass ISOBAR® w/1" Bypass See Note 1	20933C101 20933C130	20933C101 20933C130	20933C112 20933C120	20933C114 20933C122	20933C115 20933C123
7	Brine Tank Ass'y	40330A000 18"x33"	40330A000 18"x33"	40330A000 18"x33"	40330A000 18"x33"	40330A000 18"x33"

Parts Diagrams

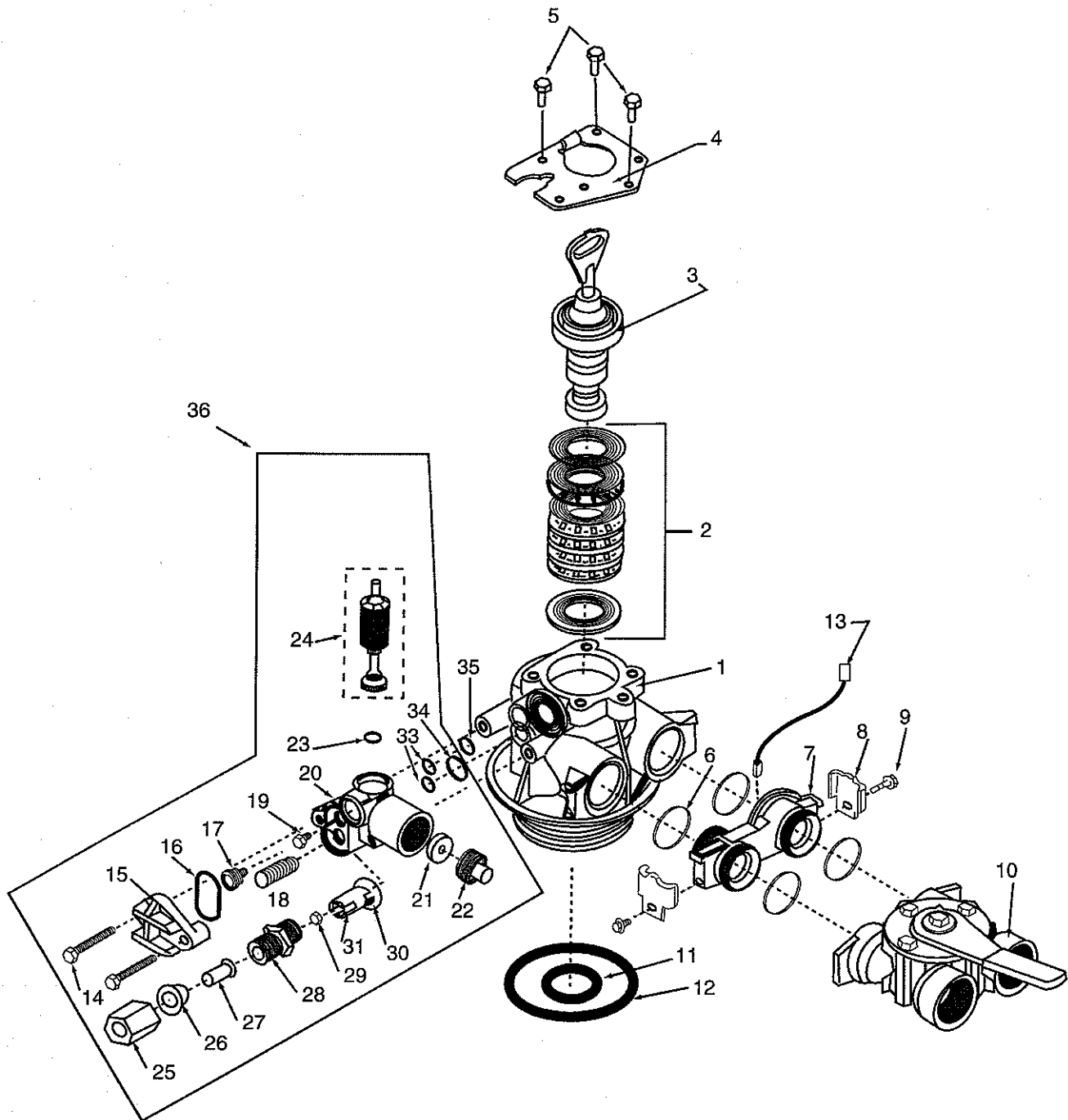
"2092" Electronic ISOBAR® Powerheads



No.	Part Number	Description
1	20933C204	Powerhead - Demand Softener Units Incl. Motor & Transformer
2	20933C203	Motor - Drive 2 RPM 24V 50/60 HZ
3	20921C205	Cover - Rear
4	20933C200	Front Cover
	20933C203	Transformer - 24VAC (not shown)
5	20933C208	Powerhead Assembly Complete

Parts Diagrams

"2092" Series Valve Electronic meter Regeneration



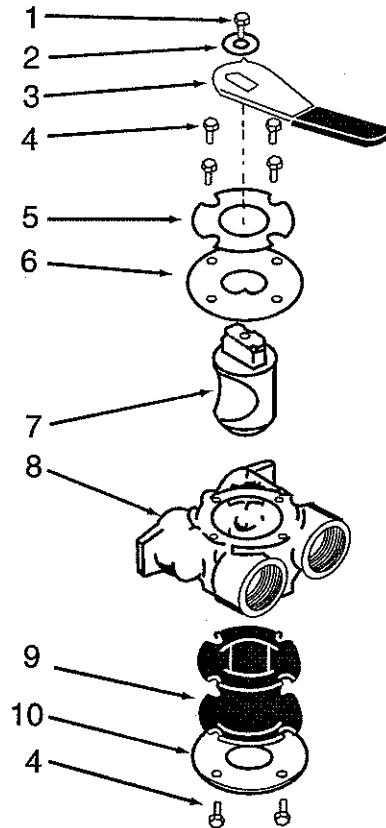
Parts Diagrams

"2092" Series Valve Electronic meter Regeneration

Ref. No.	Part Number	Part Description	Quantity Required
1	20921C202	Body - Softener	1
2	20561C253	Seal & Spacer Kit	1
3	20564C200	Piston & End Plug Ass'y	1
4	20561C249	Retainer - End Plug	1
5	20561C250	Screw - Hex Hd. 10-24 x 1/2"	3
6	20561C216	O-ring, Meter Seal	4
7	20933C201	Electronic Meter	1
8	20933C206	Clip, Meter	2
9	20933C207	Screw - 10-24 x 5/8"	2
10	20561C270	Bypass - 3/4" NPT	1
	20561C283	Bypass - 1" NPT	1
11	90076C122	O Ring - Dist. Tube	1
12	20561C205	O Ring - Valve to Tank	1
13	20933C205	Harness - Electronic Flow Meter	1
14	20561C214	Screw - Injector Mounting	2
15	20561C226	Injector Cover	1
16	20561C221	O Ring - Injector Cover	1
17	20251C205	Injector Nozzle	1
	22751C120	Injector Nozzle for 64k Only	1
18	20251C204	Injector Screen	1
19	20251C206	Injector Venturi	1
	22751C121	Injector Venturi for 64k Only	1
20	20561C222	Injector Body	1
21	20251C272	1.2 GPM Flow Control Button	1
	20251C260	1.5 GPM Flow Control Button	1
	20251C261	2.4 GPM Flow Control Button	1
	20251C266	2.0 GPM Flow Control Button	1
	20251C267	3.5 GPM Flow Control Button	1
22	20561C246	Retainer - Drain Line Flow Button	1
23	20561C220	O Ring - Brine Spacer	1
24	20561C287	Brine Valve Assembly	1
25	20251C304	Nut - Compression for Brine Line	1
26	20251C305	Ferrule - Brine Line	1
27	20251C303	Sleeve - Brine Line	1
28	20561C241	Fitting - Brine Line	1
29	20251C269	Button - .5 GPM BLFC	1
30	20561C239	O Ring - BLFC	1
31	20561C240	Retainer - Button Brine Line	1
33	20561C219	O Ring - Injector	2
34	20561C218	O Ring - Drain	1
35	20561C248	Air Dispenser	1
36	20561C259	Injector Ass'y 1.2 GPM DLFC	1
	20561C260	Injector Ass'y 1.5 GPM DLFC	1
	20561C263	Injector Ass'y 2.0 GPM DLFC	1
	20561C261	Injector Ass'y 2.4 GPM DLFC	1
	20561C266	Injector Ass'y 3.5 GPM DLFC	1

Parts Diagrams

"2092" ISOBAR® Control Valve Bypass Valve & Meter module

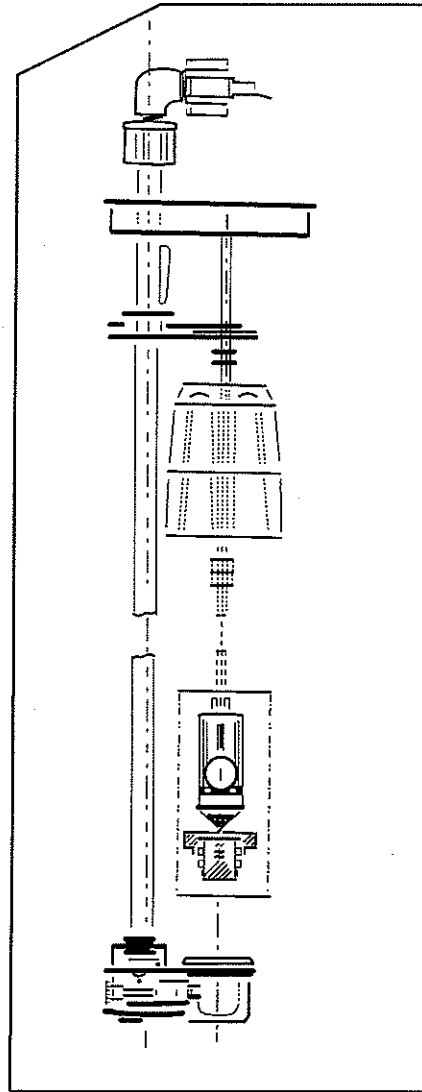
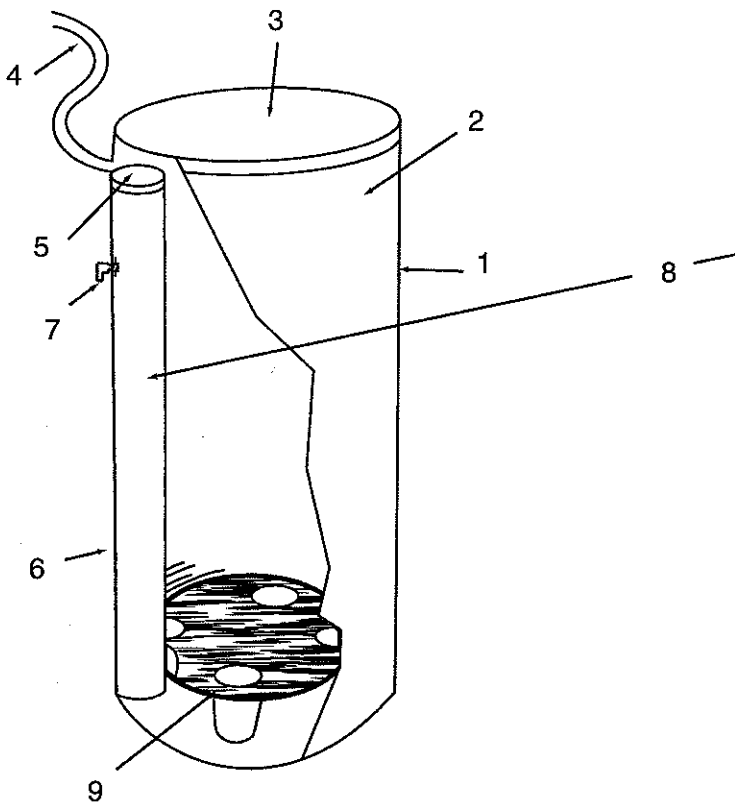


Bypass

Ref. No.	Part Number	Description
	20561C270	Bypass Assembly - 3/4" NPT
	20561C283	Bypass Assembly - 1" NPT
1	20561C271	Screw - Rd. Hd. 1/4-14 x 1/2"
2	20561C272	Washer - 1/4"
3	20561C273	Lever
4	20561C274	Screw - 10-24 x 1/2" (8 required)
5	20561C276	Label - Valve
6	20561C277	Cover - Upper
7	20561C278	Plug - Body
8	20561C279	Body - Valve 3/4"
	20561C286	Body - Valve 1"
9	20561C280	Seal - Valve
10	20561C281	Cover - Lower

Parts Diagrams

40330A00 Brine System



Brine Tank

Ref. No.	Part No.	Description
0	40330A000	Brine Tank Complete
1	40330C100	Tank & Lid Only
2	40330C101	Tank Only
3	40330C102	Lid Only
4	40330C103	Brine Tube 3/8 O.D.x4ft.
5	40330C128	Brine Well Cap
6	40330C129	Brine Well
7	40330C106	Overflow Elbow & Nut
8	40330C125	Brine Valve & Safety Float Ass'y w/well
9	40330C126	Salt Grid