

**AUTOMATIC WATER FILTRATION
with high-flow 1" valve**

Model AIF10

Automatic Iron and Hydrogen Sulfide Filter

**Installation • • Operation • • Maintenance
• • Repair Parts • •**

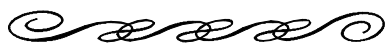
If you have questions when installing, programming, operating or maintaining this system

CALL TOLL FREE: 1-800-808-9899



Printed on recycled paper

LIMITED WARRANTY



GENERAL CONDITIONS

Damage to any part of this water conditioner because of misuse, misapplication, neglect, alteration, accident, installation or operation contrary to our printed instructions, or damage caused by any unusual force of nature such as, but not limited to, freezing, flood, hurricane, tornado, or earthquake is not covered by this warranty. In all such cases, regular parts and service charges will apply.

We assume no warranty liability in connection with this water conditioner other than specified herein. This warranty is in lieu of all other warranties, expressed or implied, including warranties of fitness for a particular purpose. We do not authorize any person or representative to assume for us any other obligations on the sale of this water conditioner.

This warranty gives you specific legal rights and you may have other rights which vary from state to state.

This water conditioner is manufactured by Ecodyne Water Conditioning, PO Box 64420, St. Paul, MN 55164-0420; customer service telephone no. 1-800-808-9899.

WARRANTY POLICY

- * ONE YEAR PARTS AND LABOR ON COMPLETE UNIT
- * THREE YEARS LIMITED ON ELECTRONIC CONTROL
- * TEN YEARS LIMITED ON MINERAL TANK, EXCLUDING MINERAL



SAFETY GUIDES

FOLLOW THE INSTALLATION INSTRUCTIONS CAREFULLY. FAILURE TO INSTALL THE CONDITIONER PROPERLY VOIDS THE WARRANTY.

BEFORE YOU BEGIN INSTALLATION, READ THIS ENTIRE MANUAL. THEN, OBTAIN ALL THE MATERIALS AND TOOLS YOU WILL NEED TO MAKE THE INSTALLATION.

CHECK LOCAL PLUMBING AND ELECTRICAL CODES. THE INSTALLATION MUST CONFORM TO THEM. Plumbing codes of Massachusetts shall be adhered to. Consult with your licensed plumber.

USE ONLY LEAD-FREE SOLDER AND FLUX FOR ALL SWEAT-SOLDER CONNECTIONS, AS REQUIRED BY STATE AND FEDERAL CODES.

USE CARE WHEN HANDLING THE CONDITIONER. DO NOT TURN UPSIDE DOWN, DROP, OR SET ON SHARP PROTRUSIONS.

DO NOT LOCATE THE CONDITIONER WHERE FREEZING TEMPERATURES OCCUR. DO NOT ATTEMPT TO TREAT WATER OVER 120°F. **FREEZING, OR HOT WATER DAMAGE VOIDS THE WARRANTY.**

AVOID INSTALLING IN DIRECT SUNLIGHT. EXCESSIVE SUN HEAT MAY CAUSE DISTORTION OR OTHER DAMAGE TO NON-METALLIC PARTS.

THE CONDITIONER REQUIRES A MINIMUM WATER FLOW OF 7 GALLONS PER MINUTE AT THE INLET. **MAXIMUM ALLOWABLE INLET WATER PRESSURE IS 125 PSI.** IF DAYTIME PRESSURE IS OVER 80 PSI, NIGHTTIME PRESSURE MAY EXCEED THE MAXIMUM. USE A PRESSURE REDUCING VALVE IF NECESSARY. (ADDING A PRESSURE REDUCING VALVE MAY REDUCE THE FLOW.)

THE CONDITIONER WORKS ON 24 VOLT-60 Hz ELECTRICAL POWER ONLY. BE SURE TO USE THE INCLUDED TRANSFORMER.

UNPLUG THE FILTER FROM ELECTRICAL POWER BEFORE REMOVING OUTER VALVE COVERS, OR IF THE POWER CABLE SHOULD BECOME DAMAGED OR FRAYED. MAKE REPAIRS AND REPLACE COVERS BEFORE PLUGGING INTO THE POWER OUTLET AGAIN.



EUROPEAN DIRECTIVE 2002/96/EC REQUIRES ALL ELECTRICAL AND ELECTRONIC EQUIPMENT TO BE DISPOSED OF ACCORDING TO WASTE ELECTRICAL AND ELECTRONIC EQUIPMENT (WEEE) REQUIREMENTS. THIS DIRECTIVE OR SIMILAR LAWS ARE IN PLACE NATIONALLY AND CAN VARY FROM REGION TO REGION. PLEASE REFER TO YOUR STATE AND LOCAL LAWS FOR PROPER DISPOSAL OF THIS EQUIPMENT.

UNPACKING / INSPECTION

The filter is shipped in one master carton and includes a potassium permanganate feeder assembly. The filter is completely assembled at the factory, except as required at installation. The filter tank is loaded with the proper quantity of manganese greensand mineral, gravel and sand.

Be sure to check the entire filter for any shipping damage or parts loss. Also note damage to the shipping cartons.

Small parts, needed to install the filter, are in a separate bag. To avoid loss of the small parts, keep them together until you are ready to use them.

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SPECIFICATIONS / DIMENSIONS

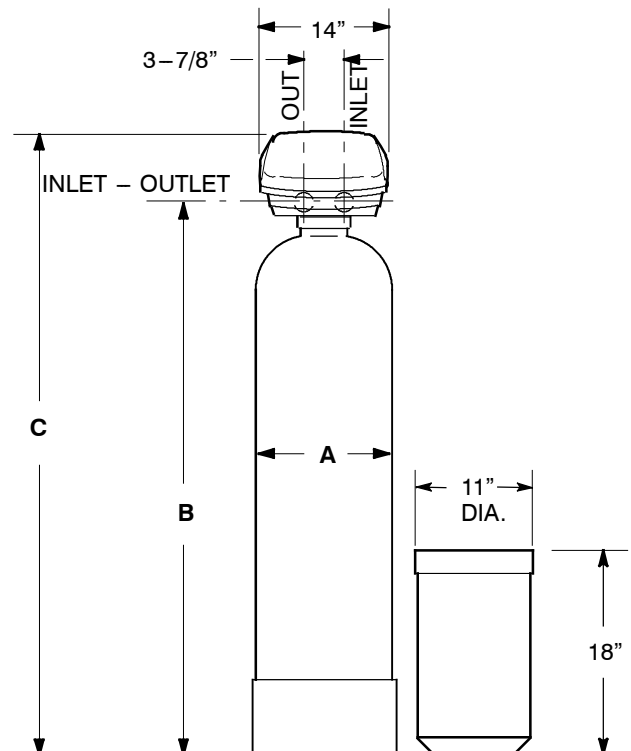
	Automatic Iron Filter - AIF10
Type of mineral	manganese treated media (MTM)
Amount of mineral (cu ft)	1.0
Amount of gravel base (lbs)	17
Amount of filter sand (lbs)	10
Inlet water pressure limits (psi)	40 - 125
Maximum water temperature (°F)	100
Minimum inlet water flow (gal/min)	7
Service flow rate (gal/min)	2 - 5
Backwash flow rate (gal/min)	5
Inlet-outlet pipe size (inch)	1
Maximum iron removal (ppm)	20
Supply water minimum pH	7.0
Capacity rating	270 gallons with 10.6 ppm hydrogen sulfide (H ₂ S) 620 gallons with 10.4 ppm ferrous iron FeSO ₄ 1900 gallons with 2.01 ppm manganese (MnSO ₄)

Well pump must be able to provide the minimum flow for 30+ minutes.

Contaminant Removal

Clear and/or Red Water Iron	Removes up to 15 ppm
Hydrogen Sulfide (rotten egg smell)	Removes up to 2 ppm
Manganese	Removes up to 5 ppm

Nominal Mineral Tank Size	10" dia. x 47" high
A	11"
B	49-3/4"
C	58-1/8"



BEFORE STARTING INSTALLATION

► WHERE TO INSTALL THE FILTER

- Place the filter as close as possible to the pressure tank (well system) or water meter (city water).
- Place the filter as close as possible to a floor drain, or other acceptable drain point (laundry tub, sump, standpipe, etc.). **The drain point must be able to discharge the backwash flow rates shown on page 4.**
- Connect the filter to the main water supply pipe BEFORE or AHEAD OF the water heater. **DO NOT RUN HOT WATER THROUGH THE FILTER.** Temperature of water passing through the filter must be less than 100°F (38°C).
- Keep outside faucets on unfiltered water to conserve filtering capacity.
- Do not install the filter in a place where it could freeze. **Damage caused by freezing is not covered by the warranty.**
- Put the filter in a place water damage is least likely to occur if a leak develops. The manufacturer will not repair or pay for water damage.
- A 120 volt electric outlet, to plug the included transformer into, is needed within 10 feet of the filter. The filter has an attached 10 foot power cable. **Be sure the electric outlet and transformer are in an inside location, to protect from wet weather.**
- If installing in an outside location, you must take the steps necessary to assure the filter, installation plumbing, wiring, etc., are as well protected from the elements, contamination, vandalism, etc., as when installed indoors.
- **Keep the filter out of direct sunlight.** The sun's heat may soften and distort plastic parts.

► TOOLS, PIPE and FITTINGS, OTHER MATERIALS YOU WILL NEED (see page 6)

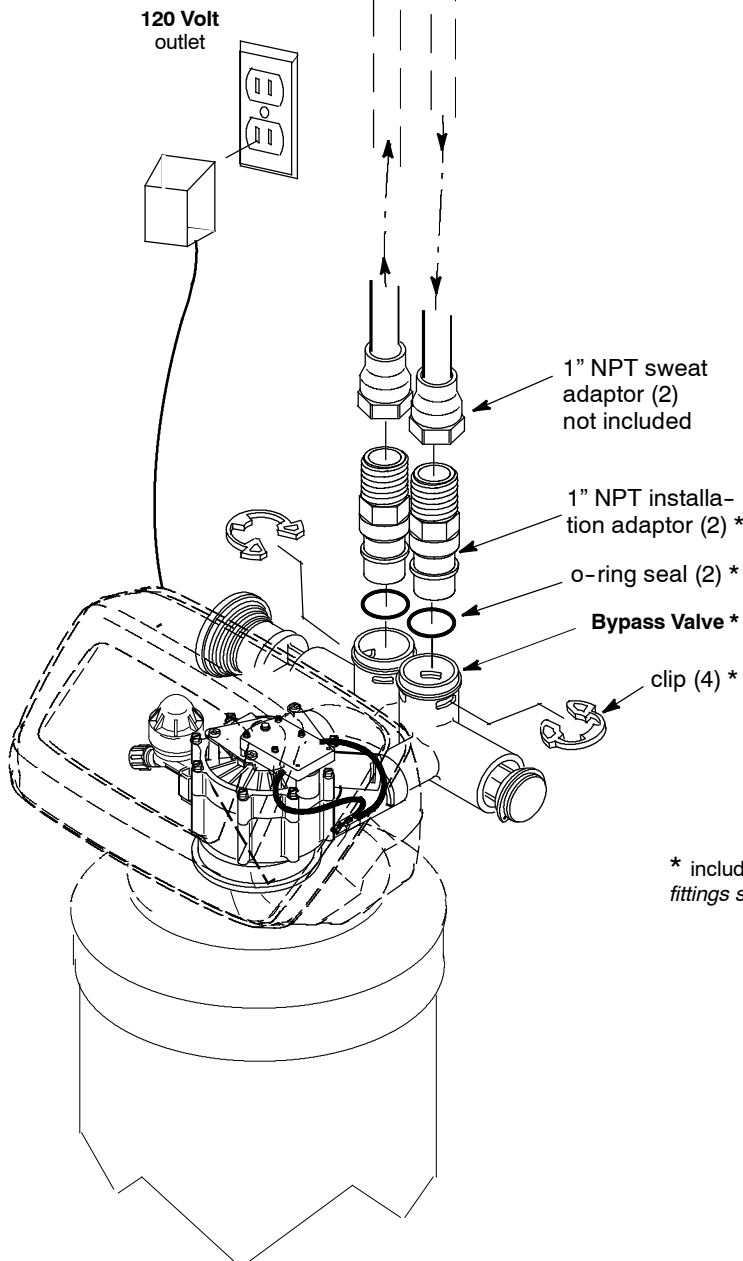
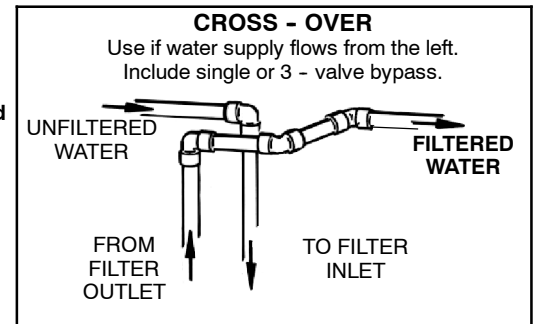
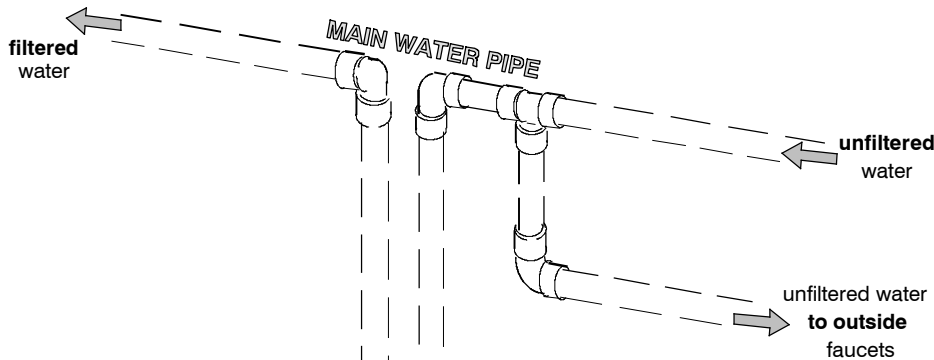
- Plastic inlet and outlet fittings included with the filter allow water flow equivalent to 1" (nominal) copper pipe. To maintain full valve flow, 1" pipes to and from the filter fittings are recommended. Connect the softener with pipe the same size as the water supply pipe, or larger. Some local codes require a minimum of 1" pipe size.
- Use copper, brass, or galvanized pipe and fittings. Some codes may also allow CPVC plastic pipe.
- ALWAYS install the included bypass valve, or 3 shut-off valves. Bypass valves let you turn off water to the filter for repairs if needed, but still have water in the house pipes.
- Drain hose (5/8" inside diameter **minimum**), with a garden hose connection on one end, is needed for the valve drain (not included with this filter). See step 5 on page 9.
- If a rigid valve drain is needed, to comply with plumbing codes, you can buy the parts needed (see page 8) to connect a 1/2 in. copper tubing drain.
- Potassium permanganate is needed for regeneration of the filter mineral. It is available from most dealers of water conditioning equipment. This filter uses from 2 to 5 ounces of potassium permanganate each regeneration.

► PLAN HOW YOU WILL INSTALL THE FILTER

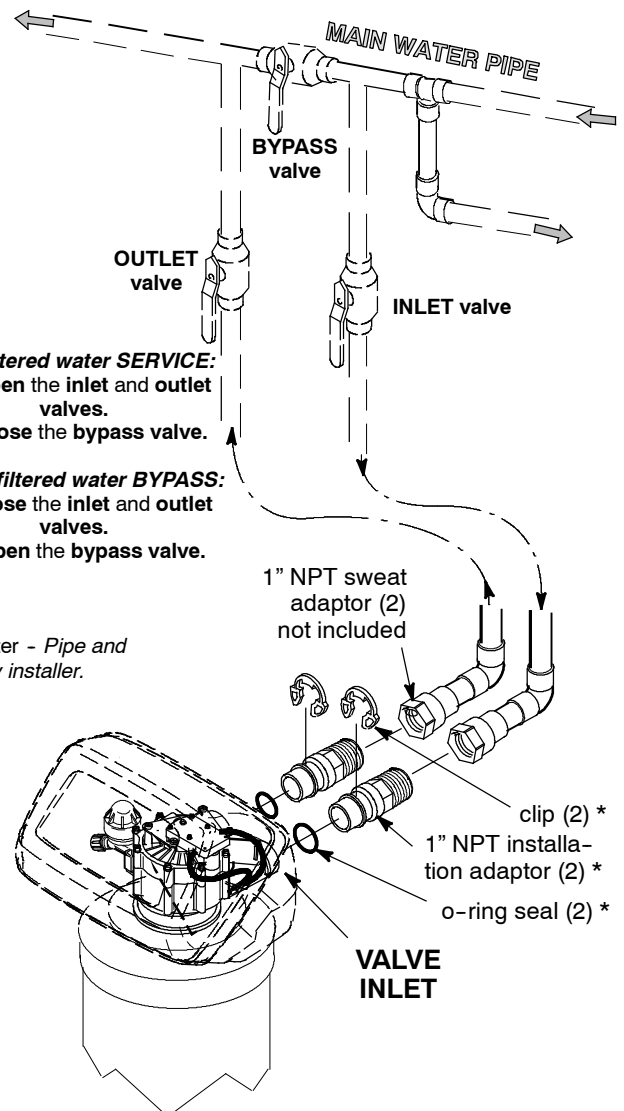
You must first decide how to run in and out pipes to the filter. Look at the house main water pipe at the point where you will connect the filter. Is the pipe soldered copper, glued plastic, or threaded brass/galvanized? What is the pipe size?

Now look at the typical installation illustration on page 6. Use it as a guide when planning your particular installation. **Be sure to direct raw, unfiltered water to the filter valve inlet fitting.** The valve is marked IN and OUT.

TYPICAL SOLDERED COPPER or CPVC INSTALLATIONS



INSTALLATION USING 3 - VALVE BYPASS



* included with filter - Pipe and fittings supplied by installer.

INSTALLATION STEPS

IMPORTANT SANITIZING PROCEDURES: Care is taken at the factory to keep your water filter clean and sanitary. Materials used to make the filter will not infect or contaminate your water supply, and will not cause bacteria to form or grow. However, during shipping, storage, installing and operating, bacteria could get into the filter. For this reason, sanitizing as follows is suggested ♦ when installing.

A. Pour about 1 ounce of the following disinfectant into the valve **inlet** fitting.

Common 5.25% household bleach (Clorox, Lincoc, Bo Peep, White Sail, Eagle, etc., brands)

B. Complete the sanitizing procedures in steps 7 and 10, pages 9 and 10.

♦ NOTE: Sanitizing is recommended by the Water Quality Association for disinfecting. On some water supplies, they suggest periodic sanitizing.

1. INSTALL BYPASS VALVE and/or PLASTIC INSTALLATION ADAPTORS:

► Push the bypass valve, with lubricated o-ring seals in place, into the valve inlet and outlet ports, Figures 1A and 1C. Be sure the o-ring sealing surface is clean.

– AND/OR –

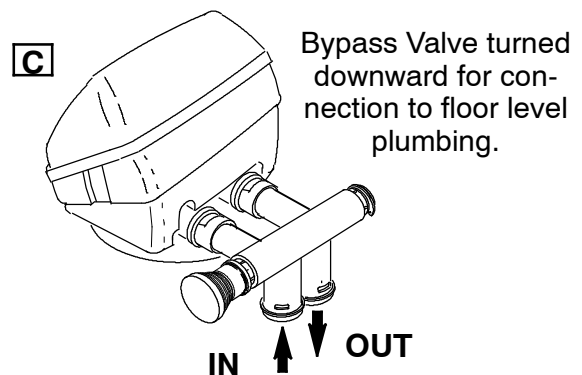
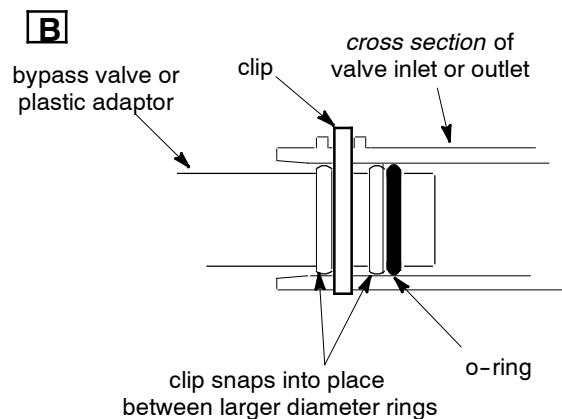
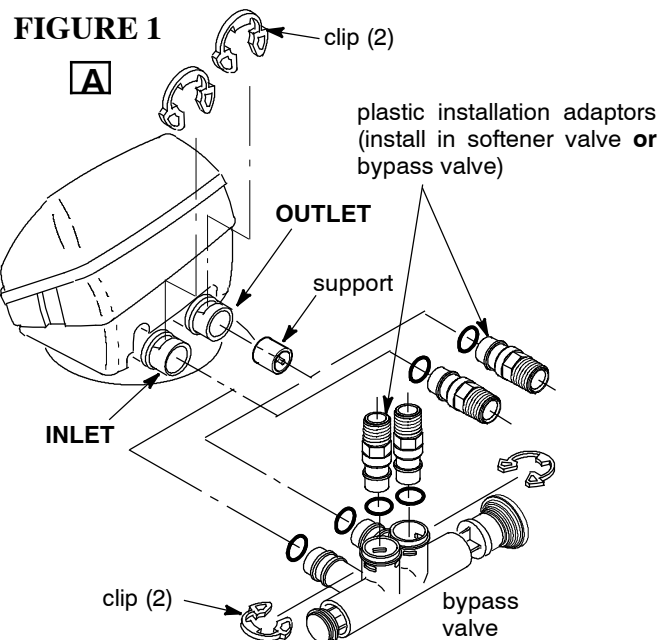
► Slide plastic installation adaptors, with lubricated o-ring seals in place, into the filter valve or bypass valve inlet and outlet ports, Figure 1A. Be sure the o-ring sealing surface is clean.

Note: **Be sure the support is in place in the valve outlet**, as shown in Figure 1A.

► Snap the two large plastic clips in place, from the top, down, Figures 1A and 1B. **Be sure they snap into place. Pull on the installation adaptors, or bypass valve, to make sure they held securely in place.**

2. MOVE THE FILTER ASSEMBLY INTO INSTALLATION POSITION:

► Be sure the installation surface is level and smooth. If needed, place the tank on a section of 3/4" thick (min.) plywood. Then, place shims under the plywood as needed to level the filter.



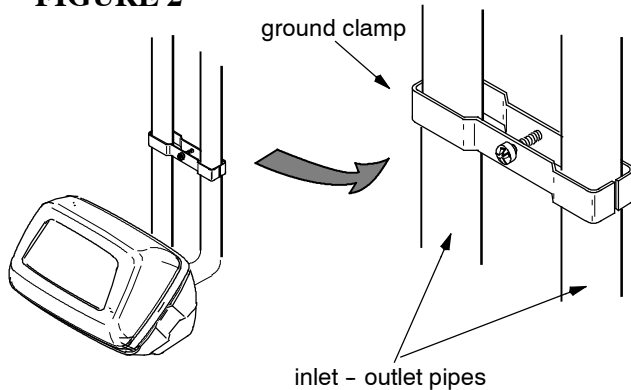
INSTALLATION STEPS

3. INSTALL GROUNDING CLAMP (IF NEEDED):

NOTE: A 3-valve bypass system maintains ground continuity.

- To maintain electrical ground continuity in the house cold water piping, if the included single bypass valve is used, install the included grounding clamp.

FIGURE 2



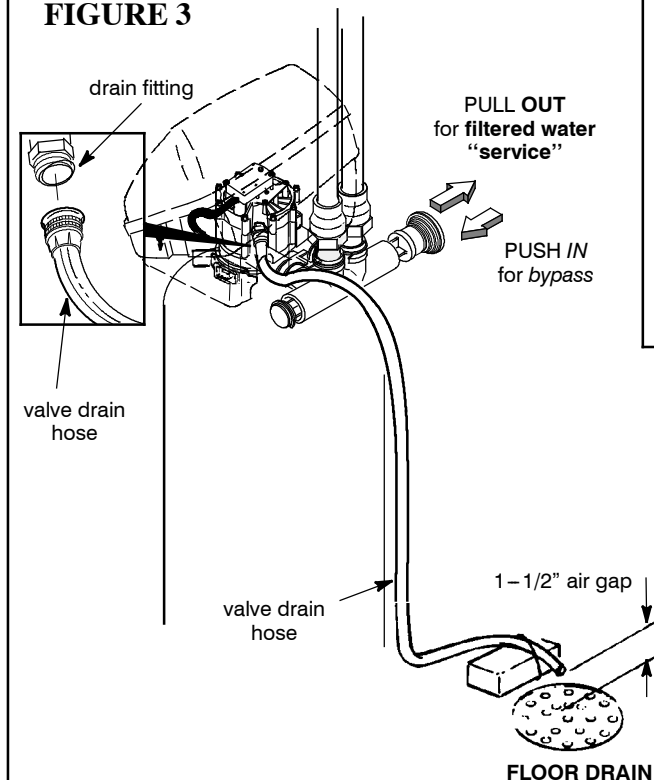
4. PLUMB IN AND OUT PIPES TO AND FROM FILTER:

CAUTIONS: Observe all of the following cautions while you connect inlet and outlet plumbing.

- Turn off the house water supply valve and open faucets to relieve pressure in the pipes.
- BE SURE RAW, UNFILTERED WATER IS DIRECTED TO THE VALVE INLET PORT.
- Be sure to use bypass valve(s).
- If making a soldered copper installation, **do all sweat soldering before connecting pipes to the filter fittings.** Torch heat will damage plastic parts.
- When turning threaded pipe fittings onto plastic fittings, use care not to cross-thread.
- Use pipe joint compound on all external pipe threads.
- Support inlet and outlet plumbing in some manner (use pipe hangers) to keep the weight off of the valve fittings.

continued

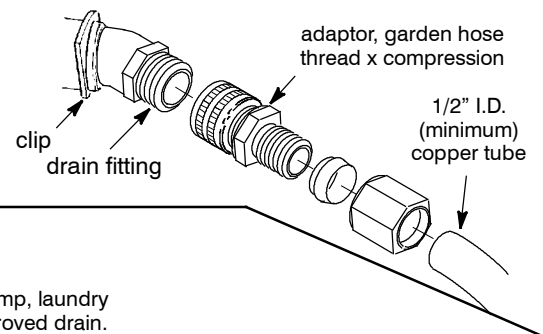
FIGURE 3



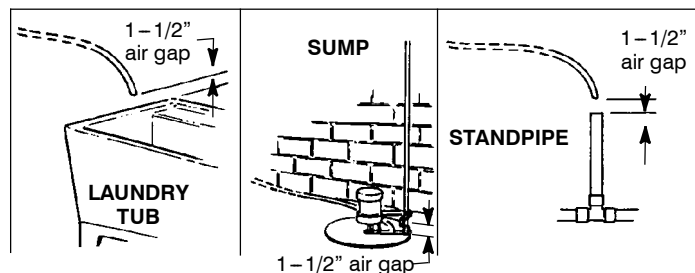
CONNECTING A RIGID VALVE DRAIN TUBE

To adapt a copper drain tube to the filter, buy a compression fitting (garden hose thread x 1/2" O.D. minimum tube) and needed tubing from your local hardware store.

FIGURE 4



To standpipe, sump, laundry tub or other approved drain.



INSTALLATION STEPS

5. CONNECT AND RUN THE VALVE DRAIN HOSE:

- ▶ Take a length of 5/8" inside diameter garden hose (not included) and attach to the valve drain fitting.
 - ▶ Locate the other end of the hose at a suitable drain point...floor drain, sump, laundry tub, etc.
- Check and comply with local codes.**

IMPORTANT: Use high quality, thick-wall hose that will not easily kink or collapse. *The filter will not backwash properly if water cannot exit this hose during regenerations.*

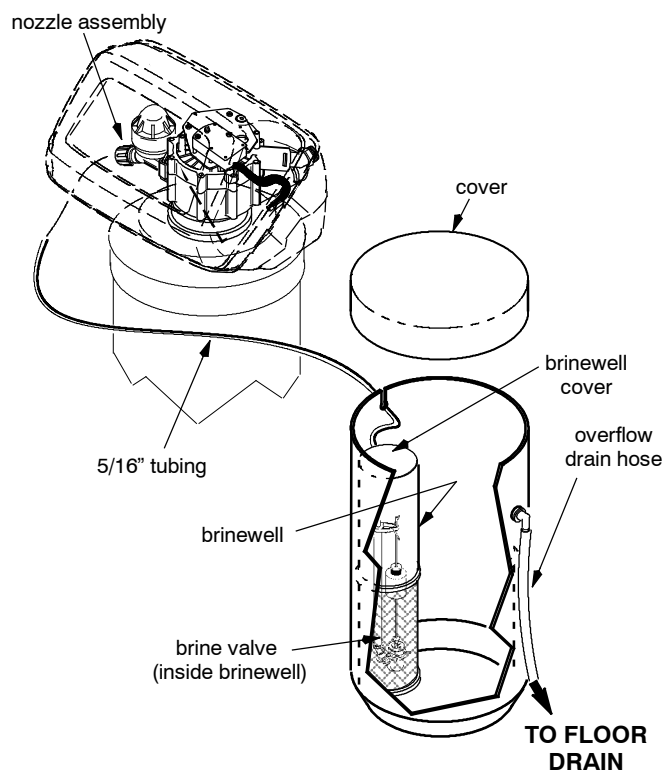
Refer to Figure 4 if codes require a rigid pipe drain run.

- ▶ Tie or wire the hose in place at the drain point. Water pressure will cause it to whip during the backwash and fast rinse cycles of regeneration. Also provide an air gap of at least 1 – 1/2" between the end of the hose and the drain point. An air gap prevents possible siphoning of sewer water, into the filter, if the sewer should back up.
- ▶ If raising the drain hose overhead is required to get to the drain point, **do not raise higher than 8' above the floor.** Elevating the hose may cause a back-pressure that could reduce backwash flow and proper mineral bed cleaning.

6. CONNECT THE POTASSIUM PERMANGANATE FEEDER (FIGURE 5):

- ▶ Run the 5/16" tubing from the brine valve, to the nozzle assembly on the filter. Use slots in the tank and both brinewells to hold tubing in place.
- ▶ Attach a length of 3/8" or 7/16" I.D. drain hose (7' included) to the hose fitting on the tank sidewall. Place the outlet of the hose over the floor drain. It is a gravity drain, and must flow downward. Provide an air gap as you did with the valve drain hose. **CAUTION: Do not omit this hose.** If the feeder tank should overfill, the drain hose carries excess potassium permanganate solution to the drain. **This solution will deeply stain anything it contacts.**
- ▶ With brinewell covers in place, pour the included 2 lbs of potassium permanganate powder into the feeder tank, then about 1/2 gallon water. Install the tank cover.

FIGURE 5



7. FLUSH PIPES, CIRCULATE DISINFECTANT, EXPEL AIR FROM FILTER, AND TEST YOUR INSTALLATION FOR WATER LEAKS:

CAUTION: To avoid water or air pressure damage to filter inner parts, be sure to do the following steps exactly as listed.

- Fully open two cold, **filtered** water faucets nearby the filter.
- Place bypass valve(s) in "**bypass**" position. On a single valve, slide the stem inward to BY-PASS...see page 8. On a 3-valve system, close the inlet and outlet valves, and open the bypass valve...see page 6.

continued

INSTALLATION STEPS

C. Fully open the house main water pipe shutoff valve. Observe a steady flow from both opened faucets.

D. Place bypass valve(s) in “**service**”, **EXACTLY** as follows. **KEEP FILTERED WATER FAUCETS OPEN.**

1. **SINGLE BYPASS VALVE:** **SLOWLY**, pull the valve stem outward to “service”, pausing several times to allow the filter to pressurize slowly.

2. **3-VALVE BYPASS:** Fully close the bypass valve and open the outlet valve. **SLOWLY**, open the inlet valve, pausing several times to allow the filter to pressurize slowly. The sanitizing bleach also circulates through the filter.

E. **After about three minutes, open a *HOT* water faucet** for one minute, or until all air is expelled, then close.

F. Close both cold water faucets.

G. Check your plumbing work for leaks and fix right away, if any are found. *Be sure to observe previous caution notes.*

H. Turn on the gas or electric supply to the water heater. Light the pilot, if applicable.

8. CONNECT TO ELECTRICAL POWER:

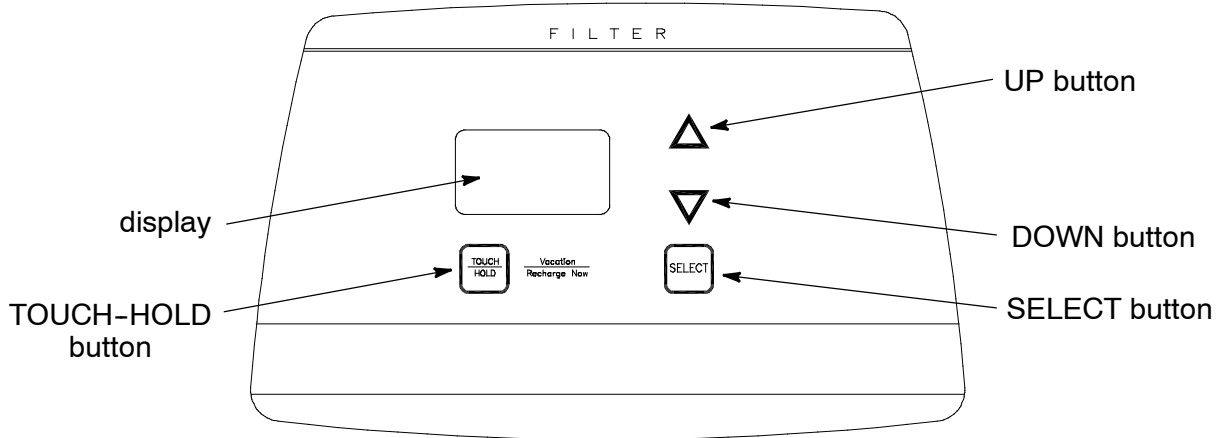
► The filter works on 120 volt, 60 Hz electric power. The included transformer changes standard 120 volt AC house power to 24 volts. **Plug the transformer into a 120 volt outlet only.** Be sure the outlet is always “live” so it can not be switched off by mistake.

9. PROGRAM THE TIMER...see page 11.

10. Wait about 20 minutes after completing step 7, allowing bleach to sanitize. Then, press and hold (for 3 seconds) the Touch–Hold button, to start an immediate regeneration. This first regeneration does several things.

- The potassium permanganate feeder fills with water.
- The mineral bed, inside the filter, is backwashed with a fast upward flow of water. Mineral “fines” (too small or broken pieces) and remaining air are flushed to the drain.
- Sanitizing bleach is purged.
- A fast downward flow of water packs the mineral bed to prepare it for iron and hydrogen sulfide removal.

PROGRAMMING THE FACEPLATE TIMER



► **TIMER SETTINGS REQUIRED**, upon installation, and after an extended power outage (see Power Outage Memory, page 20).

When the transformer is plugged into the electrical outlet, a model code and a test number (example: J1.0), begins to flash in the faceplate display. Then, 12:00 AM and PRESENT TIME begins to flash. Program the timer as follows.

► SET PRESENT TIME OF DAY

If the words *PRESENT TIME* do not show in the display, press the  SELECT button until they do.

Press the  UP or  DOWN buttons to set the present time. Up moves the display ahead; down moves the time backward. Be sure AM or PM, is correct.



Press buttons and quickly release to slowly advance the display. Hold for fast advance. This procedure applies for all following settings.

Press the  SELECT button to set present time and advance to the next set up screen.

► SET DAYS TO RECHARGE

The default setting is 3 days. This means the filter will recharge every 3 days. See the chart on the following page to determine the frequency of recharges. If a change is needed, use the  UP or  DOWN buttons to set from 1 to 99 days between recharges.



continued

PROGRAMMING THE FACEPLATE TIMER

SUGGESTED DAYS BETWEEN RECHARGES

Find the number of people living in the household, and then going across the chart, find the amount of iron (in parts per million) that is in the water supply. The number of days that shows is the number of days between recharges the filter should be set for.

Number of People	Iron (parts per million)						
	2	4	6	8	10	15	20
1	7 days	6 days	5 days	4 days	3 days	3 days	2 days
2	6 days	5 days	3 days	3 days	2 days	1 day	1 day
3	5 days	3 days	2 days	2 days	1 day	1 day	1 day
4	4 days	3 days	2 days	1 day	1 day	1 day	1 day
5	4 days	2 days	1 day	1 day	1 day	1 day	1 day
6	3 days	2 days	1 day	1 day	1 day	1 day	1 day
7	3 days	1 day	1 day	1 day	1 day	1 day	1 day
8	2 days	1 day	1 day	1 day	1 day	1 day	1 day

NOTE: If there is an iron bleed or the water supply has high turbidity (sand, silt, sediments, etc.) set the filter to regenerate more often than the table above shows.

NOTE: In some extreme iron conditions, a fill setting of 2 minutes (3 ounces of potassium permanganate used), or 3 minutes (4 oz.) could be needed for each regeneration.

NOTE: If hydrogen sulfide is present, decrease the number of days between recharges by one or more (to a minimum setting of 1 day between recharges) until contaminant is removed.

Press the  SELECT button to set and advance to the next set up screen.

► SET RECHARGE TIME

The default setting is 12:00 AM. This is a good time if you have a water softener or another filter installed, the recharge time should be offset to assure adequate water flow and pressure. For example, set the filter to start backwash at 12:00 AM, or 4:00 AM, if the water softener is set to begin recharge at 2:00 AM.

If a change is needed, use the  UP or  DOWN buttons to set time.



Press the  SELECT button to set and return to the normal run display.

THE INSTALLATION AND PROGRAMMING STEPS ARE COMPLETE

NOTE: After you have completed all preceding instructions, your house water supply is filtered immediately. However, **your water heater is filled with unfiltered water** and, as hot water is used, it will refill with filtered water. When all the water is replaced in the water heater, all water will be filtered. If you want totally filtered water immediately, drain the water heater after the regeneration initiated on page 10 is over (no water running from filter drain hose). Drain until the water runs cold. **If you do drain the water heater, use extreme care as the hot water could cause severe burns.**

GENERAL FILTER MAINTENANCE

► *ADDING POTASSIUM PERMANGANATE POWDER TO FEEDER TANK*

It is very important to always have some potassium permanganate powder in the feeder tank. If the filter goes too long without a regeneration with potassium permanganate, the filtering mineral will lose its manganese coating. Replacing the filter mineral bed can be costly. Be sure to check the feeder tank every 2 –4 weeks, and stir the potassium permanganate powder to keep it from solidifying. Refill it with powder if less than an inch remains. After filling, check the tank overflow drain hose to be sure it is over the floor drain (see step 6, page 9).

HOW LONG DOES THE POTASSIUM PERMANGANATE LAST? Using 2 ounces of powder each regeneration (at 1 minute fill setting), 6 pounds of potassium permanganate powder will last for about 48 regenerations. Divide 48 by the number of

regenerations needed each week. The answer is the approximate number of weeks the potassium permanganate should last. The 2 minute fill setting uses 3 ounces of powder, and 3 minutes uses 4 ounces.

NUMBER OF FULL WEEKS 6 LBS OF POTASSIUM PERMANGANATE POWDER LASTS			
no. of regenerations each week	FILL CYCLE MINUTES		
	1	2	3
1	48	32	24
2	24	16	12
3	16	10	8
4	12	8	6
5	9	6	4
6	8	5	4
7	6	4	3

Note: The refill container has 6 lbs of potassium permanganate powder.

► *CLEANING THE NOZZLE AND VENTURI ASSEMBLY*

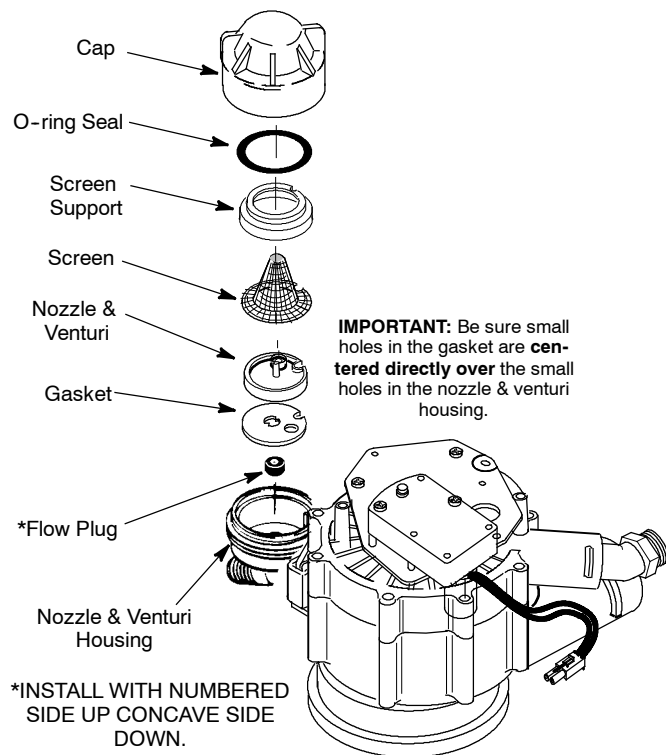
A clean nozzle and venturi is needed for the filter to work right. The nozzle/venturi creates the suction to move potassium permanganate solution from the feeder tank to the mineral tank during regeneration. It will not work if it becomes plugged with sand, silt, dirt, etc. The filter mineral will not be properly cleaned, and oxidizing capacity restored.

To get to the nozzle and venturi, remove the filter top cover. Be sure the filter is in service cycle (no water pressure at nozzle and venturi). Then, while holding the nozzle & venturi housing with one hand, turn off the cap. Lift out the screen support and screen, then the nozzle and venturi. Wash and rinse the parts in warm water until clean. If needed, use a small brush to remove iron or dirt. Also check and clean the gasket.

Carefully replace all parts in the correct order. Be sure holes in gasket align with holes in the housing. Lubricate the o-ring seal with silicone grease and place in position. Install and tighten the cap, **BY HAND ONLY. DO NOT OVER-TIGHTEN AND BREAK THE CAP OR HOUSING.**

► *PROTECT THE FILTER FROM FREEZING*

If the filter is installed where it could freeze (summer cabin, lake home, etc.), you must drain all water from it to prevent possible freeze damage.



GENERAL FILTER MAINTENANCE

► CHECKLIST BEFORE YOU CALL FOR SERVICE

PROBLEM	CAUSE	CORRECTION
FILTER WILL NOT REGENERATE	manual plumbing bypass valve(s) in bypass position	Refer to page 6, or to Figure 3, page 8 and position for filtered water "service".
	transformer unplugged at wall outlet, fuse blown/circuit breaker popped, circuit switched off	Check for loss of power and correct as needed. Reset the timer and use the RECHARGE NOW feature, page 15.
	timer set for vacation (VAC)	Press the Touch-Hold button once to return the filter to service, see page 15.
	timer not programmed for regenerations, or time to short	See pages 11 or 16 to set.
	error code shows in timer display	Refer to page 16.
	backwash flow control, drain hose restricted or plugged, backwash flow less than 5 gpm	Check drain hose. Remove drain elbow on filter valve to check flow control. See page 22 to check for correct assembly and orientation. Backwash flow should be 5 gpm or higher.
	nozzle assembly dirty	See page 13 to clean.
LOW WATER PRESSURE AT HOUSE FAUCETS	well pump pressure switch set too low	Adjust to a <i>minimum</i> of 20 psi.
	regeneration needed more often to keep filter mineral clean	See page 11 to set.
FILTERED WATER CONTAINS IRON, SEDIMENT, DIRT, ETC.	see all conditions above	
	too few regenerations programmed, or fill time setting too short	See page 11 to set.
	feeder tank out of potassium permanganate powder	See page 13 to refill.
	hot water used while filter regenerates	The water heater will refill with unfiltered bypass water. See page 12.
	possible increase in supply water iron content (common with some well water supplies)	Obtain a new water analysis and adjust the regeneration schedule and/or fill cycle time.
	leaking faucet or toilet valve	A small leak can waste hundreds of gallons of water in a few days time. Fix all plumbing leaks and always fully close faucets.

FACEPLATE TIMER FEATURES, SETTINGS AND SERVICE

NOTE: SEE PAGE 11 TO SET THE TIMER FOR THE CORRECT TIME OF DAY, DAYS OF REGENERATION AND REGENERATION TIME.

NORMAL OPERATION, TIMER DISPLAYS

During normal operation, the present time of day, and AM or PM, show in the time display area. When a regeneration begins, *RECHARGE NOW*



starts to flash in the display, along with the present time of day. *RECHARGE NOW* flashes until the regeneration is over.



feature: *RECHARGE NOW*

For times you expect to use more water than usual, use the *RECHARGE NOW* control. Press the Touch-Hold button until *RECHARGE NOW* begins to flash in the time dis-



play. A regeneration begins immediately. The filter begins to filter your water again in about 2 hours.

NOTE: Avoid using *HOT* water during the regeneration, because the water heater will refill with unfiltered water.

feature: *VACATION CONTROL*

Before going on vacation, or other long absence, press (do not hold in) the Touch-Hold button so *VAC* starts to flash in the display. The timer continues to keep time, but will regenerations not occur to waste water.



When you return, press the Touch-Hold button again to return the filter to service, and the present time in the display. *REMEMBER TO DO THIS, or the filter will not regenerate until you do.*

NOTE: To shut off the water supply to the filter, use the plumbing bypass valve(s).

feature: *POWER OUTAGE MEMORY*

If electrical power to the timer is interrupted, the "memory" built into timer circuitry keeps **all** settings for 6 hours (minimum) or more. The display is blank and the filter will not regenerate. When electrical power comes on, one of two things will happen.

1. The present time of day will show, meaning the timer memory has kept all settings.

NOTE: If the filter was regenerating when power was lost, it will now finish the cycle.

2. The display will show a time, but it will be flashing. The timer memory did **not** keep the time settings and they must be reset (page 11). The display returns to a flashing time, then begins to keep time again. If you do not reset all time settings, the filter will regenerate based on the days to recharge. However, regenerations will most likely be at the wrong time of day.

NOTES:

The flashing display is to remind you to reset the timer.

If the filter was regenerating when power was lost, the valve will return to service position without finishing the cycle. Use *RECHARGE NOW* (see above) to start another cycle if needed.

FACEPLATE TIMER FEATURES, SETTINGS AND SERVICE

feature: *ERROR CODES*

An error code could appear in the faceplate display if a problem occurs in the filter. If you see an error code, for exam-



ple Err03, instead of the present time of day, please call your local dealer for service, or see your warranty on page 2.

CODE	POSSIBLE DEFECTS
Err01	Motor, Valve Position Switch
Err03	Motor, Valve Position Switch, Wire Harness
Err04	Valve Position Switch
Err05	PWA

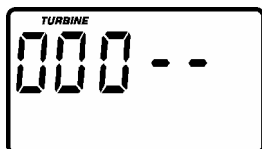
TO REMOVE AN ERROR CODE: (1) unplug transformer (2) correct defect (3) plug transformer in (4) Do the manual advance diagnostics. The error code will return within 12 minutes if the reason for the error code was not corrected.

service: *REGENERATION CYCLE TIME ADJUSTMENTS*

The default settings for fill (1 minute, 30 seconds), solution draw/rinse (80 minutes), (backwash (20 minutes), and fast rinse (5 minutes) cycles of regeneration are factory set for maximum performance of the filter. Use the following procedures to check for correct cycle times, or to change if desired. However, only trained technicians should change the time settings.

service: *ADJUSTABLE FILL TIME*

Press and hold the Select button until the display shows "000--", then press the Select button once again to advance to the Fill time adjust screen.

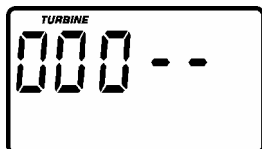


Using the Up or Down buttons adjust the fill time from 0:00 minutes to 99:50 minutes (zero to just under 1 hour and 40 minutes).

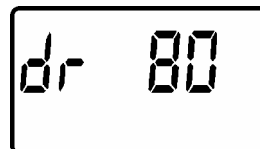


service: *ADJUSTABLE DRAW/RINSE TIME*

Press and hold the Select button until the display shows "000--", then press the Select button twice again to advance to the Draw/Brine/Rinse time adjust screen.

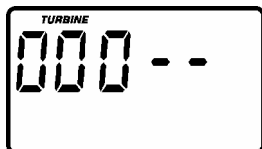


Using the Up or Down buttons adjust the brine/draw/rinse time from 0 minutes to 255 minutes (zero to 4 hours and 15 minutes).

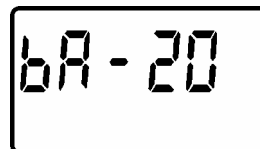


service: *ADJUSTABLE BACKWASH TIME*

Press and hold the Select button until the display shows "000--", then press the Select button three times to advance to the Backwash time adjust screen.



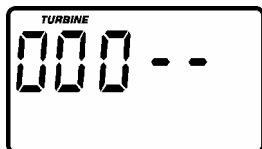
Using the Up or Down buttons adjust the backwash time from 0 minutes to 60 minutes.



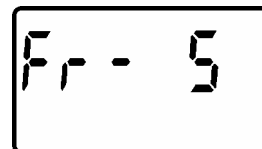
FACEPLATE TIMER FEATURES, SETTINGS AND SERVICE

service: *ADJUSTABLE FAST RINSE TIME*

Press and hold the Select button until the display shows “000—”, then press the Select button four times to advance to the Fast Rinse time adjust screen.



Using the Up or Down buttons adjust the Fast Rinse time from 0 minutes to 60 minutes.



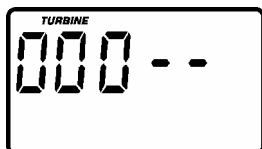
service: *MANUAL ADVANCE DIAGNOSTIC*

Use the following procedures to advance the filter valve through the regeneration cycles to check operation.

Remove top cover to observe valve rotation.

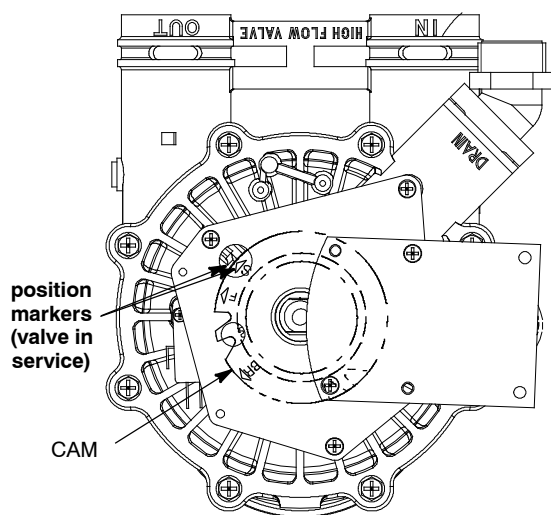
Note: Display must show time and day.

1. Press and hold the Select button until the display shows “000—”.



If valve is in service, fill, solution draw, backwash or fast rinse (see markings on cam under motor), the display will show “000—”, meaning the position switch is open.

While the valve is rotating from one cycle to another, the display will show “000—P”, meaning the position switch is closed.



2. To advance the valve, press the Touch—Hold button each time you want to move into the next cycle.

➔ Press the Touch—Hold button to move filter into fill. Look into the feeder tank to verify fill water flow.

a. If it **does not** move into fill, the valve motor is inoperative. Check all wiring and connections.

b. If water **does not** enter the feeder tank, see “Quick-Check” Troubleshooting.

➔ Press the Touch—Hold button to move filter into solution draw. A slow flow of water to the drain begins. Verify solution draw from the feeder tank.

c. If solution level in the tank does not drop, see “Quick-Check” Troubleshooting.

➔ Press the Touch—Hold button to move filter into backwash. Look for a fast flow of water from drain hose.

An obstructed flow indicates a plugged top distributor, backwash flow plug, or drain hose.

➔ Press the Touch—Hold button to move filter into fast rinse. Again look for fast drain flow.

➔ To return softener to service, press the Touch—Hold button.

Note: While in manual advance, the time display will automatically return to the present time if a button is not pressed within four minutes.

service: *MANUAL INITIATED ELECTRONICS DIAGNOSTIC*

1. Press and hold the Select button until the display shows "000--" to enter diagnostics.



The letter (P) and dash(es) indicate POSITION switch operation. The letter appearing means the switch is closed; the dash means the switch is open.



Use the Touch-Hold button to manually advance the valve into each cycle and check correct switch operation.

CORRECT SWITCH DISPLAYS	VALVE CYCLE STATUS
- -	Valve in service, fill, solution draw, backwash or fast rinse position.
- P	Valve rotating from one position to another.

While in this diagnostic screen, the following information is available and may be beneficial for various reasons. This information is retained by the computer from the first time electrical power is applied to the face plate.

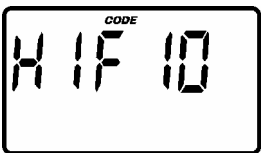
Press the Up button to display the number of days this face plate has had electrical power applied.



Press the Down button to display the number of regenerations initiated by this face plate since the model code number was entered.



2. Press the Select button and hold in 3 seconds until a model code appears in the display.

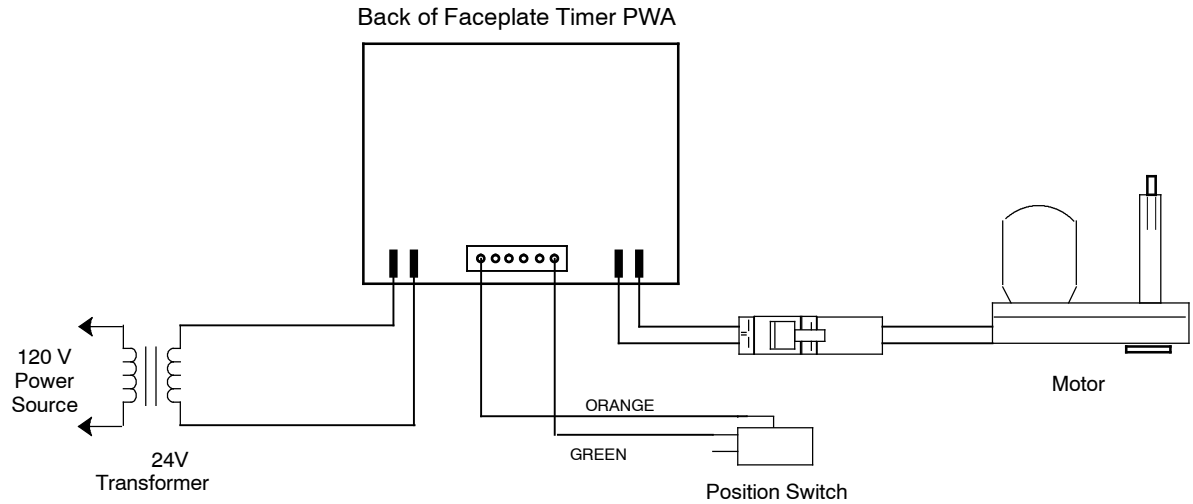


For correct filter operation, the model code number must be HIF10.

To reset the code, press the Up or Down button until the correct number shows.

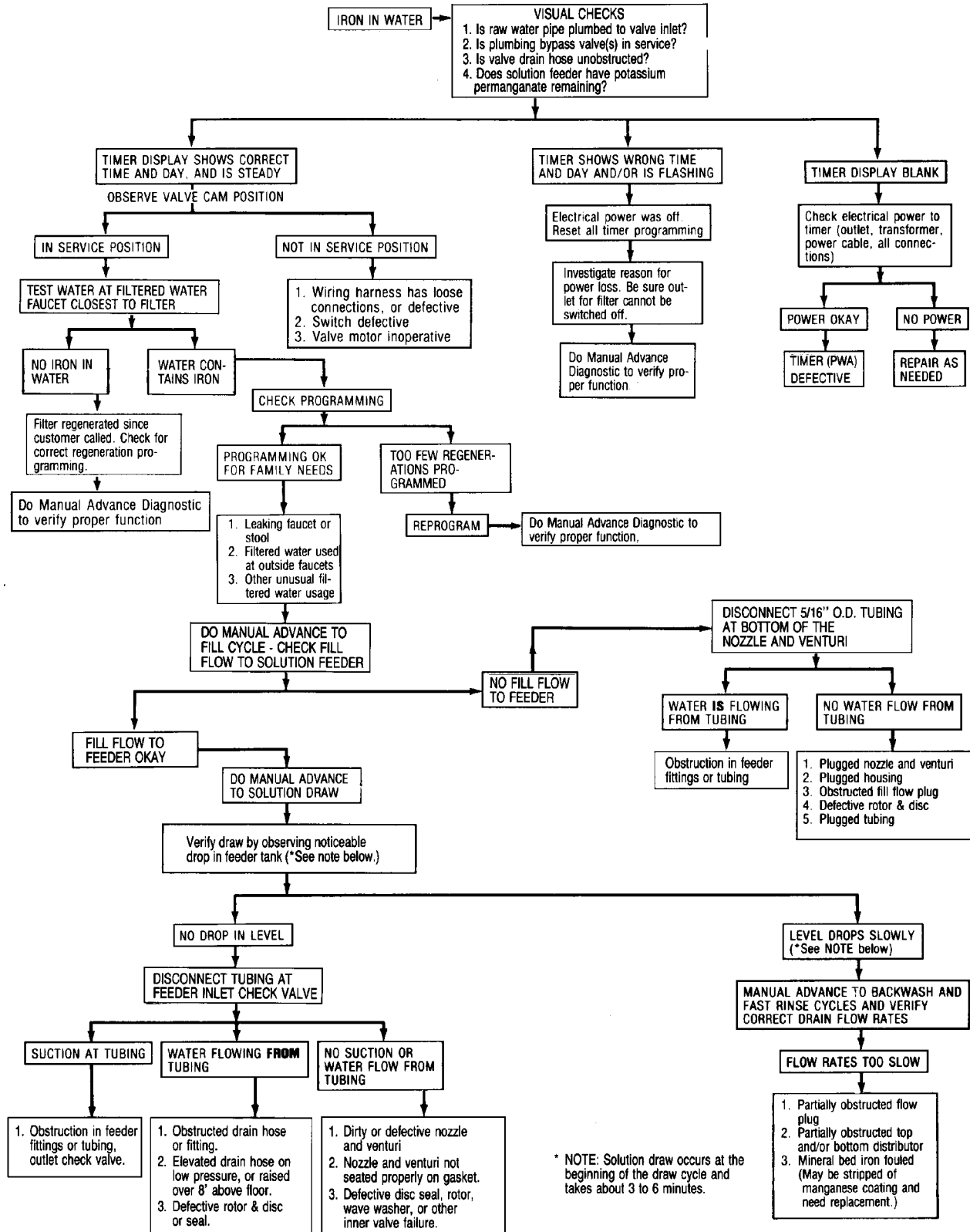
3. Press Select to return the present time display. If the code was changed, make ALL the timer settings, pages 11 and 12.

service: *WIRING SCHEMATIC*

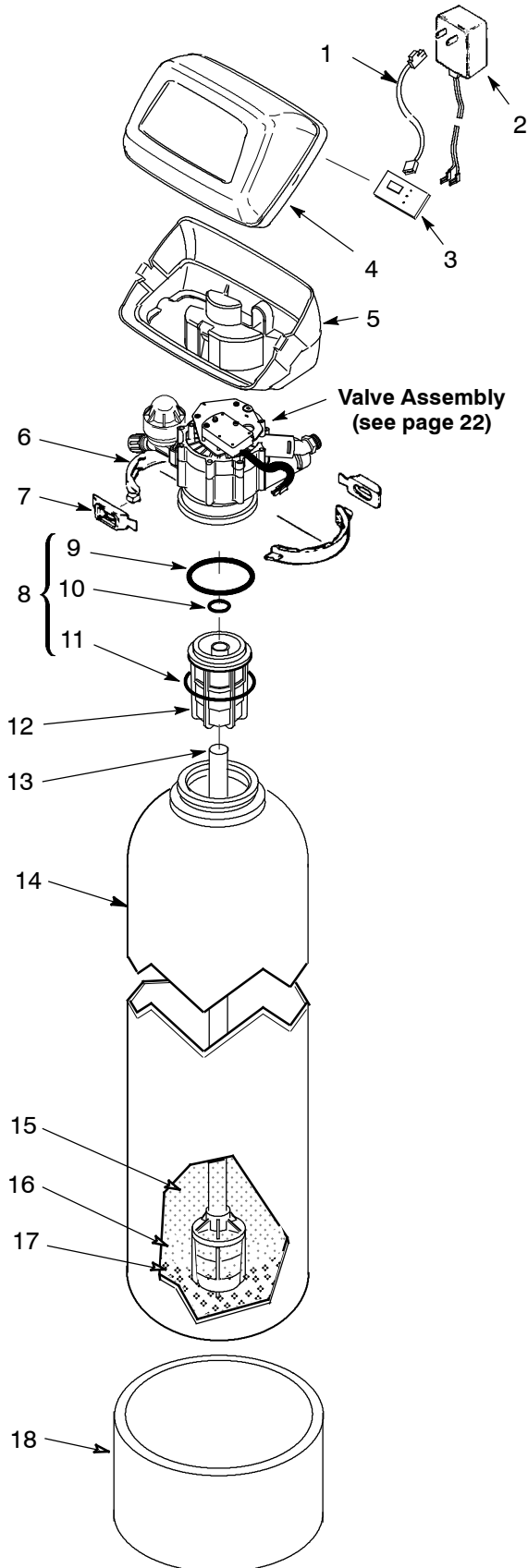


FACEPLATE TIMER FEATURES, SETTINGS AND SERVICE

service: "QUICK-CHECK" TROUBLESHOOTING PROCEDURE



REPAIR PARTS - FILTER ASSEMBLY

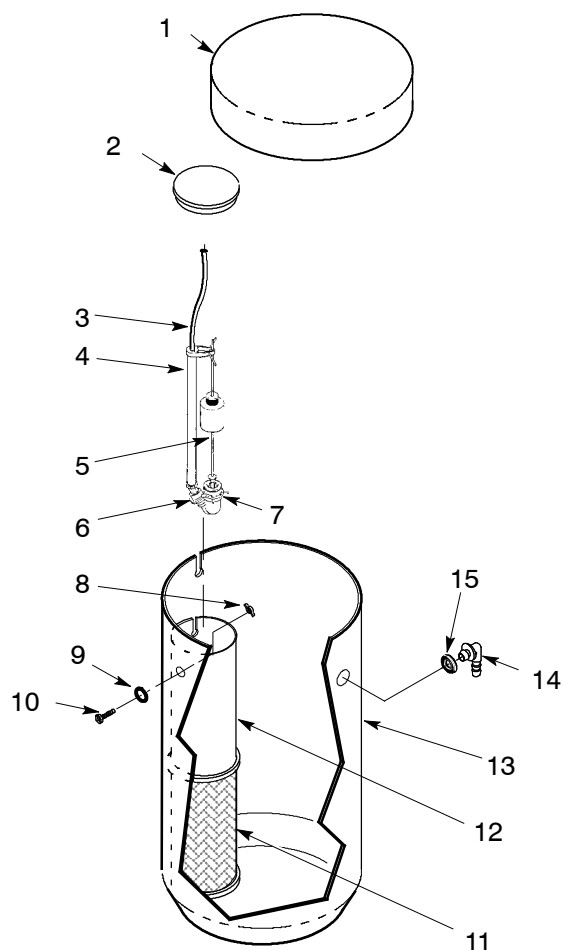


KEY NO.	PART NO.	DESCRIPTION
1	7259927	Wire Harness
2	7275907	Transformer, 24V – 10VA
3	7286699	Repl. Timer (PWA)
4	7260554	Cover (order decal below)
–	7285279	Decal, Filter
5	7189449	Bottom Cover
6	7176292	Clamp Section (2)
7	7088033	Clamp Retainer (2)
8	7112963	O–ring Kit (incls. key no. 4, 5 & 6)
9	– –	O–ring, 2–7/8” x 3–1/4”
10	– –	O–ring, 13/16” x 1–1/16”
11	– –	O–ring, 2–3/4” x 3”
12	7088855	Top Distributor
13	7105047	Repl. Bottom Distributor
14	7092202	Mineral Tank, 10”
15	7266322	MTM, 1 cu ft
16	0501783	Filter Sand, 10 lbs
17	7124415	Gravel, 17 lbs
18	7302039	Tank Foot

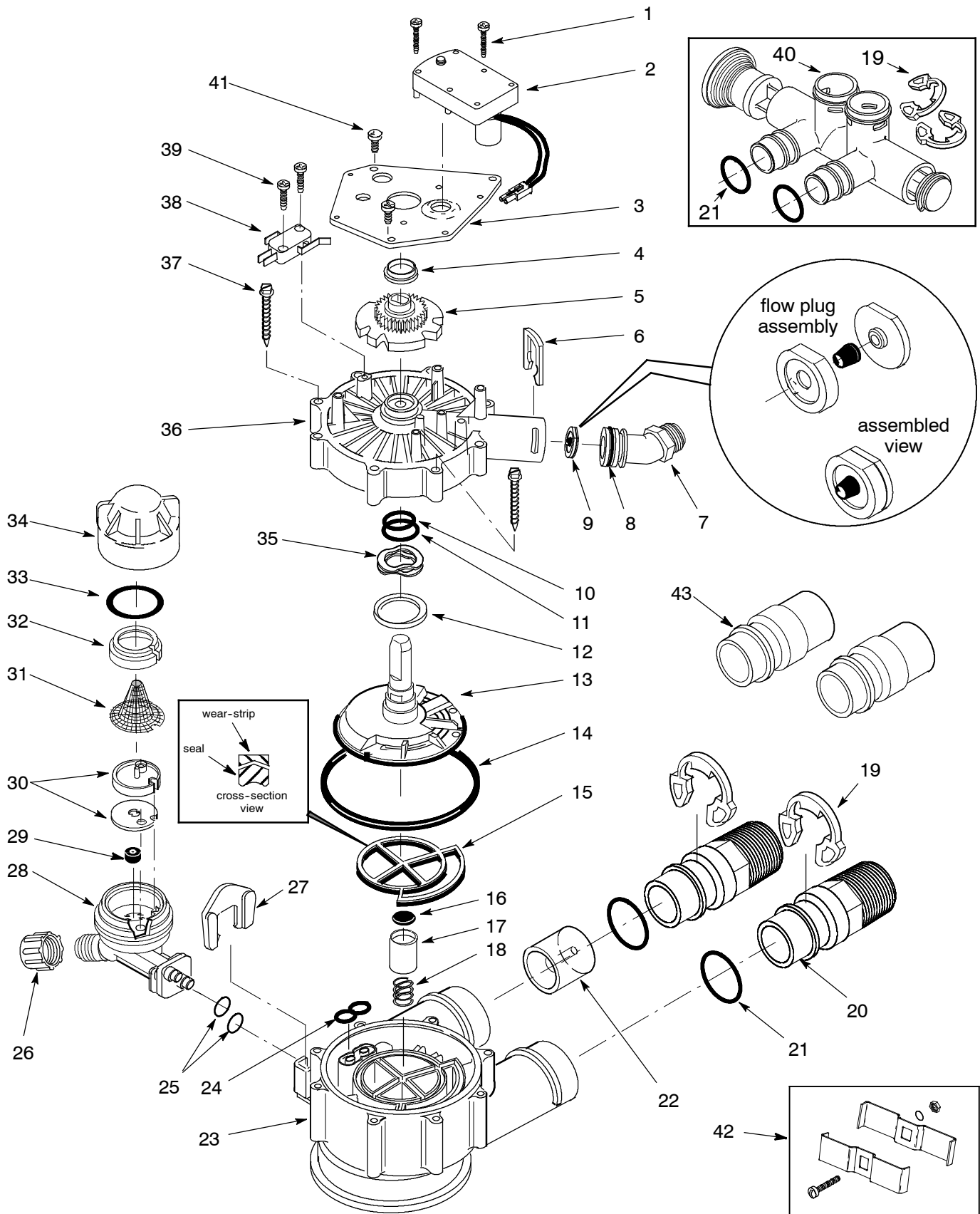
REPAIR PARTS - FEEDER ASSEMBLY

KEY NO.	PART NO.	DESCRIPTION
1	7071133	Tank Cover
2	0500283	Brinewell Cover
3	7113016	Tubing Assembly
4	7310155	Brine Valve Assembly (includes key nos. 2, 4, 5 and 6)
5	7289710	Float, Stem & Guide Assembly
6	7142942	Clip
7	7116713	Clip
8	7082150	Wing Nut
9	7003847	O-Ring
10	7148875	Screw
11	7182390	Screen, Brinewell
12	7106962	Brinewell
13	7182421	Feeder Tank
14	1103200	Hose Adaptor
15	9003500	Grommet
-	7161807	Tubing, 5/16" O.D. x 20'
-	7161768	Tubing, 5/16" O.D. x 100'
◆	7118252	Potassium Permanganate Powder (6 lbs)

◆ not illustrated.



REPAIR PARTS - VALVE ASSEMBLY



REPAIR PARTS - VALVE ASSEMBLY

KEY NO.	PART NO.	DESCRIPTION
1	7224087	Screw, #8-32 x 1" (2 req.)
2	7286039	Motor (incl. 2 ea. of Key No. 1)
3	7231393	Motor Plate
4	7171250	Bearing
5	7283489	Cam and Gear
6	7169180	Clip (Drain)
7	7172793	Drain Hose Adaptor
8	7170288	O-ring, 15/16 x 1-3/16
9	7178189	Flow Plug, 5 gpm
10	-	O-ring, 5/8 x 13/16 ♦
11	-	O-ring, 1-1/8 x 1-1/2 ♦
12	7174313	Bearing, Wave Washer
13	7185500	Rotor & Disc
14	-	O-ring, 4-1/2 x 4-7/8 ♦
15	-	Rotor Seal ♦
16	-	Seal ♦
17	7171187	Plug (Drain Seal)
18	7129889	Spring
19	7089306	Clip (4 req.)
20	7271204	Installation Adaptor, 1" (2 req.)
21	7170262	O-ring, 1-1/8 x 1-3/8 (4 req.)
22	7078240	Support
23	7171145	Valve Body
24	-	Seal ♦
25	7170319	O-ring, 1/4 x 3/8 (2 req.)

KEY NO.	PART NO.	DESCRIPTION
26	1202600	Nut-Ferrule
27	7081201	Retainer
28	7081104	Nozzle & Venturi Housing
29	1148800	Flow Plug, .3 gpm
30	7114533	Nozzle & Venturi-Gasket Kit
-	7204362	Gasket (only)
31	7146043	Screen
32	7167659	Screen Support
33	7170262	O-ring, 1-1/8 x 1-3/8
34	7199729	Cap
-	7085247	Nozzle & Venturi Asm. (incl. Key Nos. 28 through 34)
35	7175199	Wave Washer
36	7171161	Valve Cover
37	7172997	Screw, #10 x 2-5/8 (8 req.)
38	7305150	Switch
39	7140738	Screw, #4-24 x 3/4 (2 req.)
40	7214317	Bypass Valve (Incl. following parts)
-	7172882	Stem
-	7173016	O-ring, 1.109 I.D. x 1.387 O.D. (4 req.)
-	7175238	C-ring
41	0900857	Screw, #6-20 x 3/8 (3 req.)
42	7248706	Ground Clamp Kit
43	7104546	PVC Adaptor (2 req.), not included
♦	7185487	Seal Kit (incl. Key Nos. 10, 11, 14, 15, 16 and 24)

♦ not illustrated.