PP0131
0611
Supersedes
0610

PREMIER PRODUCTS

WATER TREATMENT

INSTALLATION, OPERATION, AND MAINTENANCE MANUAL
CBW10, CBW10D, CBW20, CBW20D
CCF10, CCF10D, CCF20, CCF20D
(Addendum Included)

AUTOMATIC WATER FILTERS

SPECIFICATION TABLE

		Units	CBW10, CBW10D	CCF10, CCF10D	CBW20, CBW20D	CCF20, CCF20D
Service Flow [1]	Cont.	GPM	3	3	5	5
	Peak	GPM	8	8	10	10
Pipe Size		In/Out - Inches	1″	1″	1″	1″
Operating Pressure Range		PSI	30 - 125	30 - 125	30 - 125	30 - 125
Max Operating Temperature		Degrees F	110	110	110	110
Mineral Tank Size (Dia. x Ht.) [2]		Inches	10 x 44	10 x 44	12 x 52	12 x 52
Shipping Weight		Lbs.	47.5	137	57.5	235
Overall Height		Inches	52	52	60	60
Drain Flow During Regeneration[3]		GPM	5.3	6.5	7.5	7.5

NOTE:

[1] Pressure drop not to exceed 15 psi.

[2] Product materials and workmanship are protected with a written warranty.

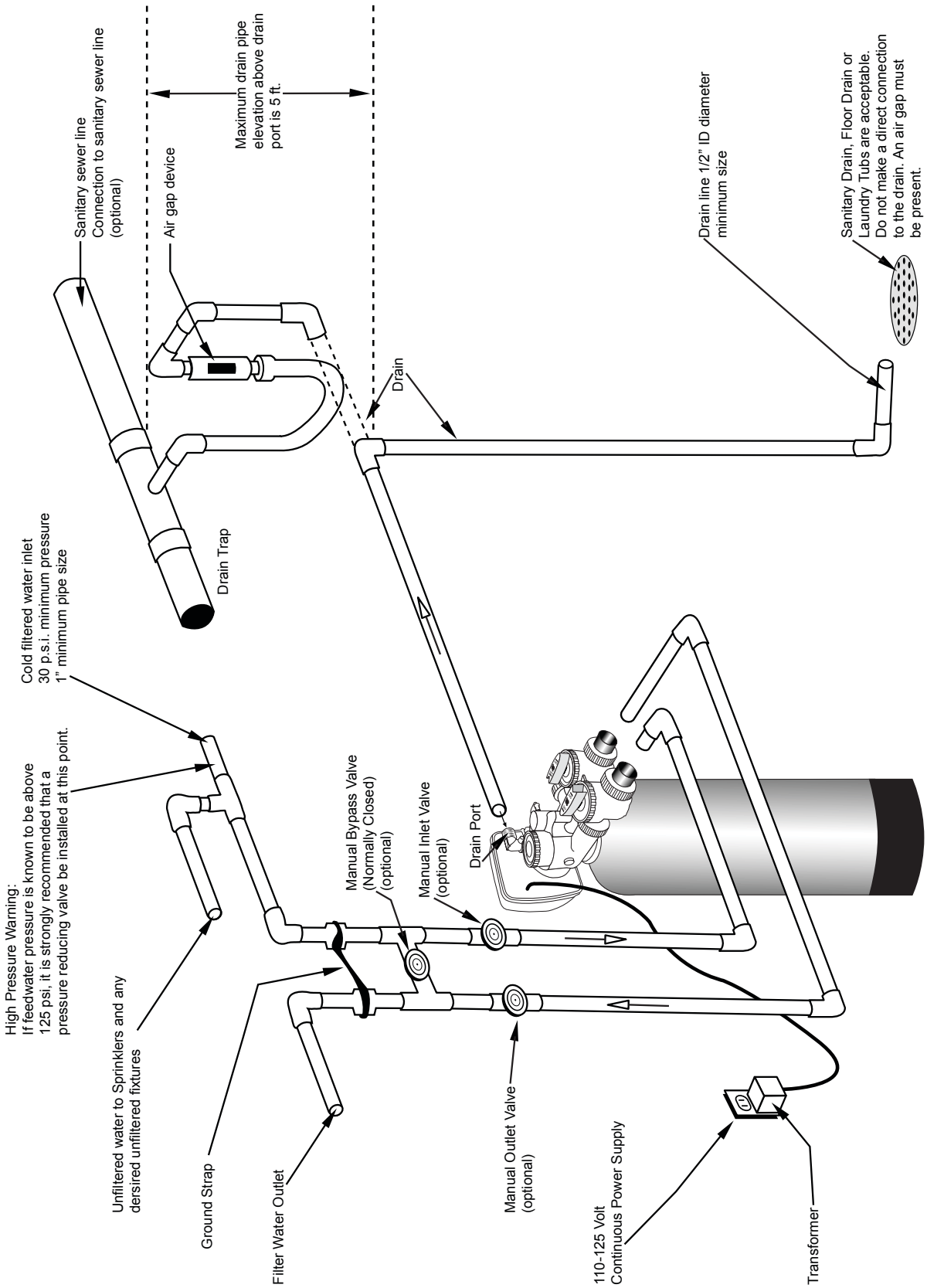
[3] Untreated water provided during all steps of regeneration.

FILL IN FOR FUTURE REFERENCE

MODEL NO:_____

DATE INSTALLED:_____

DEALER:_____



Typical Water CBW Installation

INSTALLATION FITTING ASSEMBLIES

Installation fittings connect to the control valve or the bypass valve using nuts that only require hand tightening. Hand tight nut connections between control valve and installation fittings, control valve and bypass valve, and bypass valve and installation fittings allow for ease serviceability. Do not use a pipe wrench to tighten nuts on installation fittings. Hand tighten only.

Split ring retainer design holds the nut on and allows load to be spread over the entire nut surface area reducing the chance for leakage. The split ring design, incorporated into the installation fittings allows approximately 2 degrees off axis alignment to the plumbing system. The installation fittings are designed to accommodate minor plumbing misalignments but are not designed to support the weight of a system or the plumbing.

When assembling the installation fitting package, connect the fitting to the plumbing system first and then attach the nut, split ring and o-ring. Heat from soldering or solvent cements may damage the nut, split ring or o-ring. Solder joints should be cool and solvent cements should be set before installing the nut, split ring and o-ring. Avoid getting primer and solvent cements on any part of the o-rings or split rings, bypass valve or control valve. Solvent cements and primers should be used in accordance with the manufacturer's instructions.

Slip the nut onto the fitting first, then the split ring second and the o-ring last. hand tighten the nut. If the fitting is leaking, tightening the nut will not stop the leak. Remove the nut, remove the fitting, and check for damage or misalignment of the o-ring.

Do not use pipe dope or other sealant on threads. Teflon tape must be used on the threads of the 1" connection and on the threads for the drain line connection. Teflon tape is not necessary on the nut connection or caps because of o-ring seals.

Do not use Vaseline, oils or other unacceptable lubricants on o-rings. A silicon lubricant may be used on black o-rings.

BYPASS VALVE

The bypass valve easily connects to the control valve body using nuts that only require hand tightening. Hand tighten nut connections between control valve and fittings, control valve and bypass valve, and bypass valve and installation fittings allow for easy serviceability. The split ring retainer design holds the nut on and allows load to be spread over the entire nut surface area reducing the chance for leakage. The split ring design, incorporated into the bypass, allows approximately 2 degrees off axis alignment to the plumbing system. The bypass is designed to accommodate minor plumbing misalignments but is not designed to support the weight of a system or the plumbing.

Avoid getting primer and solvent cements on any part of the o-rings or split rings, bypass valve or control valve. Do not use pipe dope or other sealant on threads. Teflon tape is not necessary on the caps because of o-ring seals.

Do not use Vaseline, oil or other unacceptable lubricants on o-rings. A silicon lubricant may be used on black o-rings.

A. GENERAL

1. Shut off all water at main supply valve.
2. Shut off the fuel supply to water heater.
3. Open faucets (hot and cold) nearest pump or water meter to relieve pressure and drain system.
4. Move filter into the installation position. Loosely attach all fittings to measure for bypass valve assembly (if used), or manual bypass valve.
5. Level the unit. (Do Not use metal shims.)
6. Cut the cold water supply line as required.
7. Install the bypass valve assembly if used.

B. PLANNING INSTALLATION

1. All installation procedures must conform to local plumbing, electrical and sanitation codes and ordinances.
2. It is recommended that outside faucets for lawn service be on the hard water line, ahead of the filter, to conserve filtered water.
3. If this isn't practical, use the convenient integral bypass valve assembly.

   CAUTION: The inlet water temperature MUST NOT exceed 120° F.
4. Do not locate filter where ambient temperature drops below 40° F.
5. Allow space around the filter for ease of servicing.
6. The filter drain lines must never be solidly connected to the sewer line. (Always provide an air gap at the END of the drain line). Valve drain line must not be elevated over 5' from the top of the filter on well systems, and not over 8' on municipal water systems.
7. Move the filter into position and connect to bypass assembly (if used). The integral manual bypass option is a connection which eliminates the need for a 3-valve manifold. This makes installation easier and provides a more convenient method of bypassing.
8. IMPORTANT: Be sure that the water inlet line is connected to the "inlet" side of the bypass valve or to the inlet fitting. (Bypass valve both inlet/outlet fittings are marked.) If water lines are reverse, (inlet/outlet) filter mineral may be forced from the water filter into the household plumbing system. If this

occurs, household plumbing system must be flushed clean.

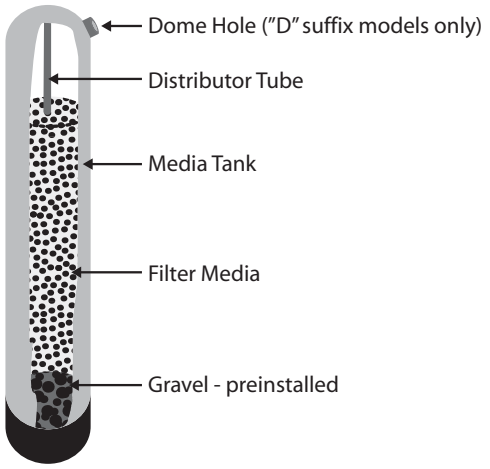
C. CONNECT ALL FITTINGS (refer to previous page)

CAUTION: Care must be used when working with copper tubing. Do not allow the flame from torch to contact any portion of the Valve assembly.

1. Attach 3/4" drain line to drain elbow with insert and nut.
2. Do not elevate the drain line over 5' above the top of the valve (8' on municipal systems) or to exceed 25' in length at either height.

   CAUTION: An air gap must be provided upon sewer entry. (Conform to local plumbing and sanitation codes and ordinances).

1. Media was shipped boxed under media tank. Carefully unscrew control valve. Be sure to "plug" the top of the distributor tube using tape or some other means. Do not allow filter media to enter inside of distributor tube. (See Fig. 3)
2. Pour the separately boxed media into media tank.
3. Lubricate o-rings on control valve with silicone lubricant. **DO NOT USE PETROLEUM JELLY.**
4. Lubricate bypass valve o-rings with silicone lubricant and secure to the control valve using adapter couplings, clips and screws.
5. Cut main supply line as required to fit plumbing to the inlet and outlet of bypass valve. Make certain water flow enters through the Inlet and discharges through the Outlet of the bypass valve.
6. Attach drain line to drain line fitting. Position drain line over drain and secure firmly. To prevent back siphoning, be sure to have adequate air gap of at least 2 inches.
7. Make certain bypass valve is in the "bypass" position. Turn on power to well pump or open main supply valve completely.
8. Plug control valve into a non-switched 115v power source.
9. Manually stage filter to the backwash position (see service manual).
10. Open inlet valve and allow the unit to fill SLOWLY. This will allow air to escape from the media tank. Once water continually flows to drain, open both inlet and outlet valves fully.
11. Check for leaks and allow filter to backwash for at least 10 minutes or until water flowing from drain runs clear.
12. Allow unit to fully regenerate (see service manual).
13. Models CBW10D, CBW20D, CCF10D and CCF20D have a dome hole/plug located in the upper dome of the mineral tank. This is used to replenish mineral as required. DO NOT remove dome hole plug without first depressurizing the tank.



INSPECTION AND HANDLING YOUR FILTER

Be sure to inspect the equipment for shipping damage and notify the transportation company if damage exists. Handle the filter with care, as damage can result if dropped or if the filter is set on a sharp object.

CONDUCT A THOROUGH WATER TEST

Your water should have a thorough analysis prior to the selection of water conditioning equipment. Enter your analysis below:

WATER ANALYSIS

IRON (fe) _____ ppm

Manganese (Mn) _____ ppm

pH _____

Tannins _____ ppm

Hydrogen Sulfide (H2S) _____ ppm

NOTE: Hydrogen Sulfide must be tested at the well site. Failure to conduct an "on site" analysis will result in inaccurate test results.

LOCATING EQUIPMENT CORRECTLY

The location of your filter should be selected carefully. A variety of conditions will contribute to proper location as follows:

1. Locate as close as possible to the source of water supply.
2. Locate as close as possible to drain, i.e. laundry tub or floor drain.

3. Locate in correct relationship to other water treatment equipment (See Figure 1).
4. Allow sufficient area around the equipment for service.

FACTS TO REMEMBER WHILE PLANNING YOUR INSTALLATION

1. All installation procedures MUST conform to local and state plumbing codes.
2. If lawn sprinkling, a swimming pool or geothermal heating/cooling are to be treated by the Chemical Free filter, a larger model filter MUST be selected to accommodate the higher flow rate demands.
3. **IMPORTANT**: Always use Teflon tape on threaded plastic fittings. NEVER use pipe dope, as it will deteriorate the plastic fittings.

CHECK WATER PRESSURE

Minimum water pressure required at the inlet of the filter is 20 psi. IF PRESSURE IS OVER 100 PSI, A PRESSURE REGULATING VALVE MUST BE INSTALLED TO REDUCE WATER PRESSURE.

NOTE: Pressure regulating valve must be installed in water line ahead of the air induction assembly.

CHECK PUMPING RATE OF WELL PUMP

The pumping rate of your well pump must be sufficient to properly backwash the filter. Check backwash flow rate required for specific filter model.

Water Pressure Low _____ psi
High _____ psi

Pumping Rate _____ GPM

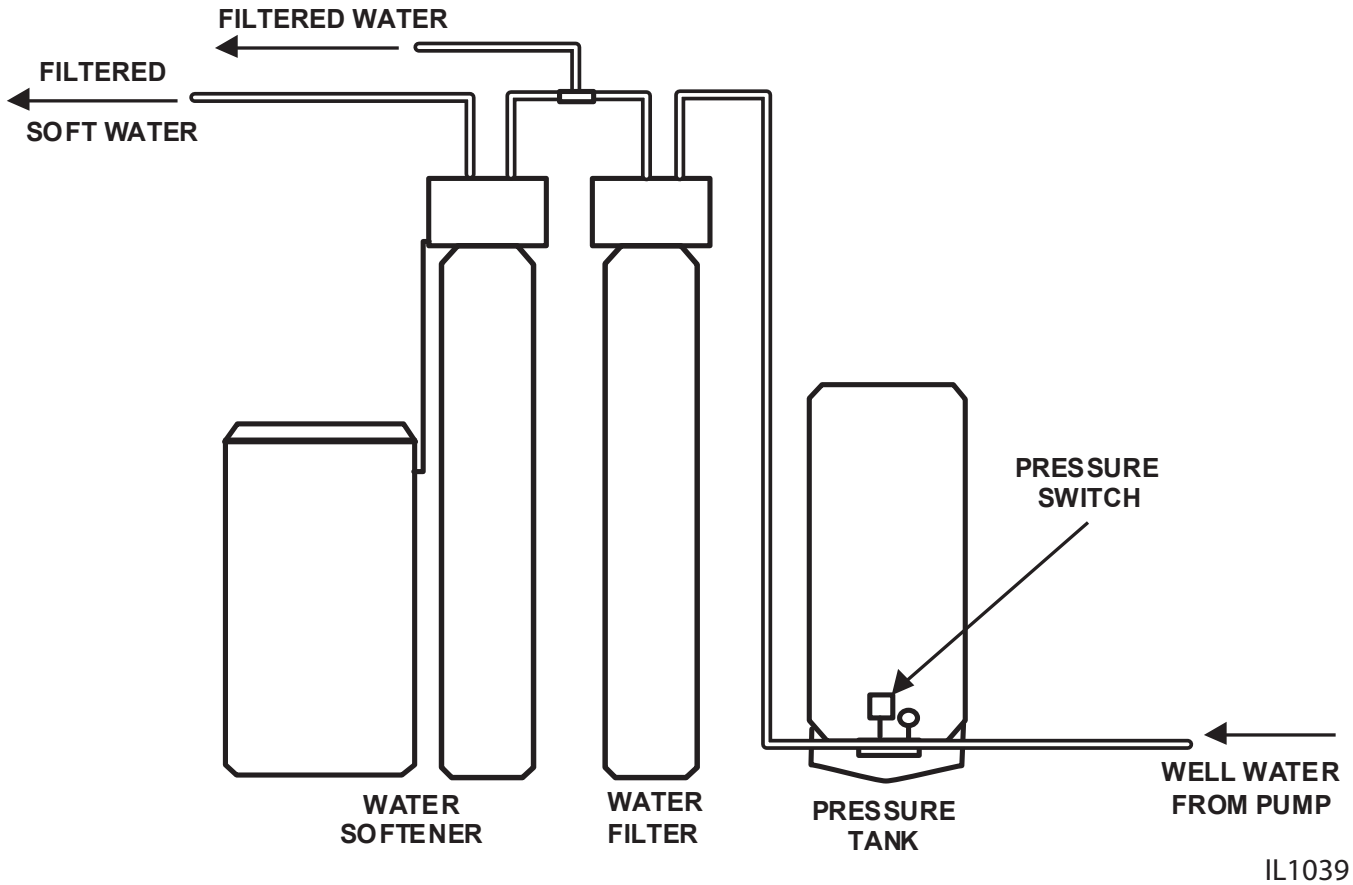


Figure 1 - Standard Installation

PREMIER PRODUCTS
WATER TREATMENT

Addendum for CCF Series Automatic Water Filters Only

BEFORE INSTALLING YOUR FILTER

INSPECTION AND HANDLING YOUR FILTER

Be sure to inspect the equipment for shipping damage and notify the transportation company if damage exists. Handle the filter with care, as damage can result if dropped or if the filter is set on a sharp object.

CONDUCT A THOROUGH WATER TEST

Your water should have a thorough analysis prior to the selection of water conditioning equipment. Enter your analysis below:

WATER ANALYSIS

IRON (fe)	_____ ppm
Manganese (Mn)	_____ ppm
pH	_____
Tannins	_____ ppm
Hydrogen Sulfide (H2S)	_____ ppm

NOTE: Hydrogen Sulfide must be tested at the well site. Failure to conduct an "on site" analysis will result in inaccurate test results.

LOCATING EQUIPMENT CORRECTLY

The location of your filter should be selected carefully. A variety of conditions will contribute to proper location as follows:

1. Locate as close as possible to the source of water supply.
2. Locate as close as possible to drain, i.e. laundry tub or floor drain.
3. Locate in correct relationship to other water treatment equipment (See Figure 1).
4. Allow sufficient area around the equipment for service.

FACTS TO REMEMBER WHILE PLANNING YOUR INSTALLATION

1. All installation procedures MUST conform to local and state plumbing codes.
2. All water MUST pass through the air induction assembly, pressure tank and the Chemical-Free Iron Filter (See Figure 1)
3. If lawn sprinkling, a swimming pool or geothermal heating/cooling are to be treated by the Chemical Free filter, a larger model filter MUST be selected to accommodate the higher flow rate demands.
4. **IMPORTANT**: Always use Teflon tape on threaded plastic fittings. NEVER use pipe dope, as it will deteriorate the plastic fittings.

CHECK WATER PRESSURE

Minimum water pressure required at the inlet of the filter is 30 psi. IF PRESSURE IS OVER 125 PSI, A PRESSURE REGULATING VALVE MUST E INSTALLED TO REDUCE WATER PRESSURE.

NOTE: Pressure regulating valve must be installed in water line ahead of the air induction assembly.

CHECK PUMPING RATE OF WELL PUMP

The pumping rate of your well pump must be sufficient to properly backwash the filter. Check backwash flow rate required for specific filter model.

Water Pressure	Low	_____ PSI
	High	_____ PSI
Pumping Rate		_____ GPM

INSTALLATION

INSTALLING THE AIR INDUCTION ASSEMBLY

1. Shut off all water at the main supply. On a private well system, turn off power to the pump and drain pressure tank. Make sure pressure is relieved from complete system by opening nearest faucet to drain system. SHUT OFF FUEL SUPPLY TO WATER HEATER.
2. Cut main supply line as required to fit air induction assembly in plumbing between well pump and pressure tank. Air induction assembly may be installed in a vertical or horizontal position. Position air induction assembly so that the flow adjusting screw is accessible for adjustment by screwdriver. Install unions to facilitate air induction assembly removal and inspection. Be certain the Flow Arrow on air induction assembly points toward the pressure tank

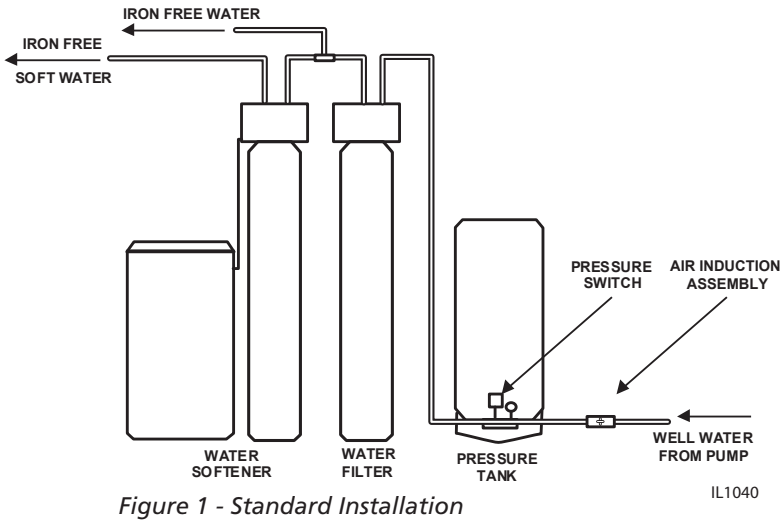


Figure 1 - Standard Installation

Addendum for CCF Series Automatic Water Filters Only

and pressure control switch is located on pressure tank side of the air induction assembly (See Figure 2). Allow 8" of straight pipe on both sides of air induction assembly.

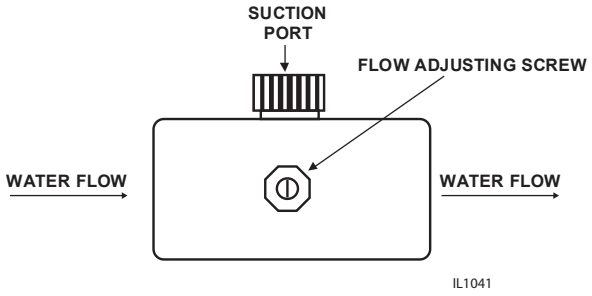


Figure 2 - Air Induction Assembly

INSTALLING THE FILTER

1. Media was shipped separately. Carefully unscrew the control valve. Be sure to "plug" the top of the distributor tube using tape or some other means. Do not allow filter media to enter inside of distributor tube (See Figure 3).

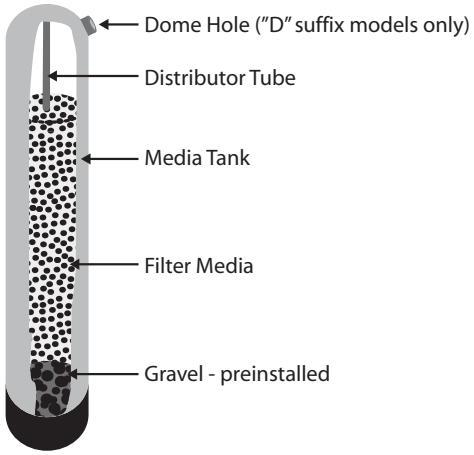


Figure 3 - Media Tank Cutaway

2. Pour the separately shipped media into media tank.
3. Replace control valve on media tank. Lubricate o-rings on control valve with silicone lubricant. DO NOT USE PETROLEUM JELLY.
4. Lubricate bypass valve o-rings with silicone lubricant and secure to the control valve using adapter couplings, clips and screws.
5. Cut main supply line as required to fit plumbing to the inlet and outlet of bypass valve. Make certain water flow enters through the Inlet and discharges through the Outlet of bypass valve.
6. Attach drain line to drain line fitting. Position drain line over drain and secure firmly. To prevent back siphoning, be sure to have adequate air gap of at least 2 inches.
7. Make certain bypass valve is in the "bypass" position. Turn on power to well pump or open main supply valve completely.
8. Plug control valve into a non-switched 115V power source.
9. Manually stage filter to the backwash position (see service manual).
10. Open inlet valve and allow the unit to fill SLOWLY. This will allow air to escape from the media tank. Once water continually flows to drain, open both inlet and outlet valves fully.
11. Check for leaks and allow filter to backwash for at least 10 minutes, or until water flowing from drain runs clear.
12. Allow unit to fully regenerate (see service manual).
13. Models CCF10D and CCF20D have a dome hole/plug located in the upper dome of the mineral tank. This is used to replenish mineral as required. DO NOT remove dome hole plug without first depressurizing the tank.

ADJUSTING THE AIR INDUCTION ASSEMBLY

1. Open nearest faucet until pump starts, then close faucet.
2. Place finger lightly over SUCTION PORT (See figure 2). A slight suction should be detected for approximately ONE-THIRD of pumping cycle. (Do not confuse with one-third of PRESSURE RANGE).
3. If suction duration is too short, increase by turning FLOW ADJUSTING SCREW CLOCKWISE. To decrease duration, turn COUNTER CLOCKWISE.
4. Repeat steps 1 through 3 until proper setting is obtained.

NOTE: When the duration of the suction is too long, cold water may have a "milky" appearance caused by excess air in the system. Correct this condition by reducing the duration of suction. This condition is commonly associated with bladder type pressure tanks In extreme cases where elimination of excess air prevents system from performing satisfactorily, it may be necessary to install a standard air-to-water type pressure tank with an air relief valve.

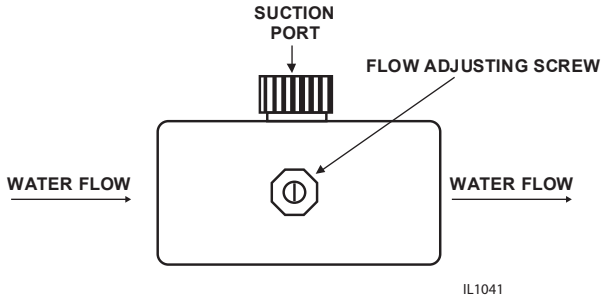


Figure 2

D. PRESSURE TEST THE INSTALLATION

The plumbing system can now be checked for any possible leaks

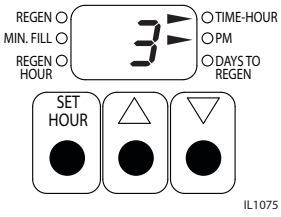
1. Open the water supply inlet valve very slowly. Once the mineral tank is full of water, slowly open the outlet on the bypass. Open a faucet down stream from the filter & allow the air to escape. DO NOT INITIATE A BACKWASH UNTIL MEDIA IS SATURATED.
2. Allow water to run until clear. CHECK FOR LEAKS!
3. Plug the unit in.
4. Make sure the power cord is plugged into a properly grounded wall receptacle.

E. PROGRAMMING THE CONTROL VALVE

How To Set Time Of Day

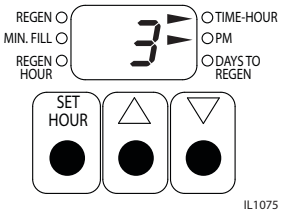
The user can set the time of day. Time of day should only need to be set initially, and after extended power outages or when daylight saving time begins or ends and at the time of start-up. If an extended power outage occurs, the time of day will flash on and off which indicates the time of day should be reset.

STEP 1U - press SET HOUR.



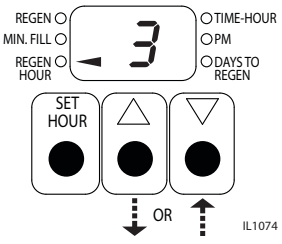
STEP 2U - Current Time (hour): Set the hour of the day using ▲ or ▼ buttons. AM/PM toggles after 12.

STEP 3U - press SET HOUR button to complete and return to display mode.



How To Change Time of Backwash and Days Between Backwashes

STEP 1 - From normal mode, press SET HOUR & ▲ buttons simultaneously for 3 seconds and release.



STEP 1A - Backwash Time:

Set the clock to the hour the backwash should occur by using the ▼ and ▲ buttons. An arrow will point to p.m. after 12 (factory default is 1 a.m.). Press SET HOUR to go to step 1B.

STEP 1B - Setting Days Between Backwash:

Use the ▼ and ▲ buttons to set the days between backwashes (factory default is 3 days).

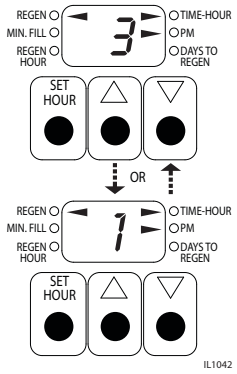
Press SET HOUR to return to Normal mode.

Backwash Mode

Typically a system is set to backwash at a time of low water usage. An example of a time with low water usage is when a household is asleep. If there is a demand for water when the system is backwashing, untreated water will be used.

When the system begins to backwash, the display will change to include information about the step of the backwash process. The system runs through the steps automatically and will reset itself to provide treated water when the backwash has been completed.

Manual Backwash



Sometimes there is a need to backwash the system, sooner than when the system calls for it, usually referred to as manual backwash.

To initiate a manual backwash at the preset delayed backwash time, press and release ▼ and ▲ simultaneously. An arrow point on the display indicates that the system will backwash at the preset delayed backwash time. If you pressed the ▼ and ▲ buttons in error, pressing the buttons again will cancel the request.

To initiate a manual backwash immediately, press and hold the ▼ and ▲ buttons simultaneously for four seconds. The system will begin to backwash immediately. The request cannot be cancelled. You can manually step through individual cycles by pressing the ▲ button until display reaches normal mode.

Power Loss

If the power goes out for **less than two hours**, the system will automatically reset itself. If an extended power outage occurs, the time of day will flash on and off which indicates the time of day should be reset. The system will retain the other information entered by your plumbing professional.

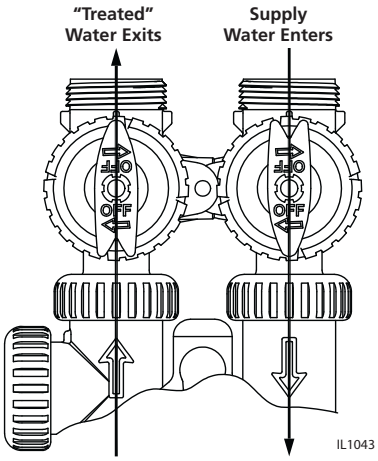
Bypass Valve

The bypass valve is typically used to isolate the control valve from the plumbing system's water pressure in order to perform control valve repairs or maintenance. The bypass valve is particularly unique in the water treatment industry due to its versatility and state of the art design features. The bypass valve incorporates four positions including a diagnostic position that allows service personal to work on a pressurized system while still providing untreated bypass water to the facility or residence. Its completely non-metallic, all plastic, design allows for easy
access and serviceability without the need for tools.

The bypass body and rotors are glass filled Noryl and the nuts and caps are glass filled polypropylene. All seals are self-lubricating EPDM to help prevent valve seizing after long periods of non-use. Internal o-rings can easily be replaced
if service is required.

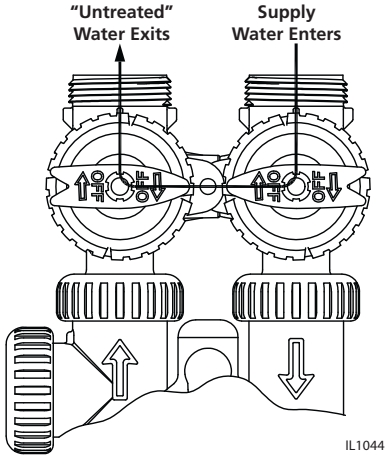
The bypass consists of two interchangeable plug valves that are operated independently by red arrow shaped handles. The handles identify the flow direction of the water. The plug valves enable the bypass valve to operate in four positions.

Figure 1
NORMAL OPERATION



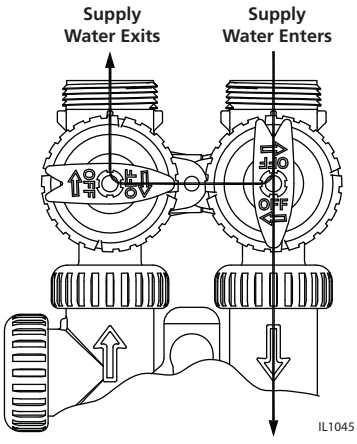
Normal Operation:
The inlet and outlet handles point in the direction of flow indicated by the engraved arrows on the control valve. Water flows through the control valve during normal operation and this position also allows the control valve to isolate the media bed during the regeneration cycle.

Figure 2
BYPASS OPERATION



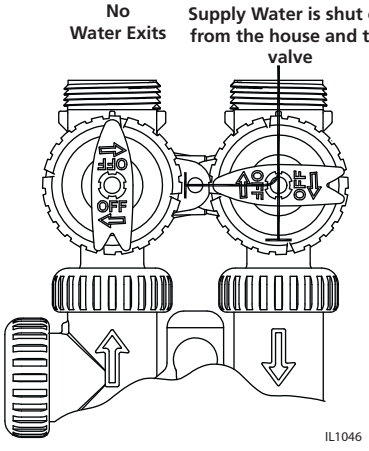
Bypass:
The inlet and outlet handles point to the center of the bypass, the control valve is isolated from the water pressure contained in the plumbing system. Untreated water is supplied to the plumbing system.

Figure 3
DIAGNOSTIC MODE



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

Figure 4
SHUT OFF MODE

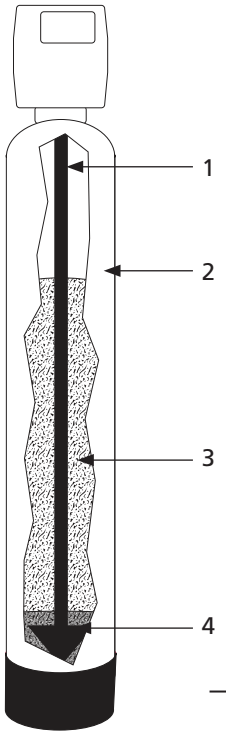


Shut Off:
The inlet handle points to the center of the bypass valve and the outlet handle points in the direction of flow, the water is shut off to the plumbing system. If water is available on the outlet side of the softener it is an indication of water bypass around the system (i.e. a plumbing connection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

Automatic Water Filters

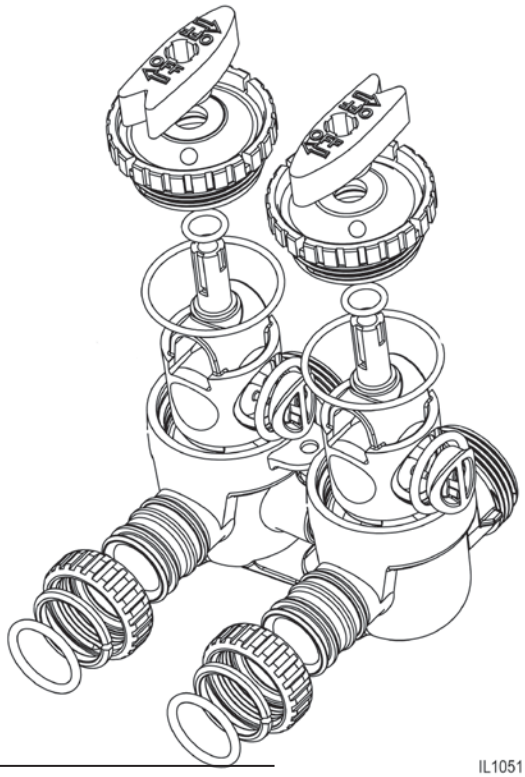
Item No.	Part No.	Description	Qty
1	023406	Motor	1
2	023412	PC Board	1
3	023408	Piston Assy.	1
4	023409	Seal Assy.	1
5	023410	O-Ring Kit	1
6	127001	Mineral Fill Funnel	1
7	023362	Service Tool	1
8	023411	Transformer 110V-12V	1

Item	Description	CBW10	CBW10D	CBW20	CBW20D	CCF10	CCF10D	CCF20	CCF20D
1	Distributor tube / screen	023360	023360	023488	023488	023360	023360	023488	023488
2	Mineral tank	023319	023320	023483	023491	023319	023320	023483	023491
3	Mineral	*	*	*	*	023358	023358	023358(Qty 2)	023358(Qty 2)
4	Gravel	135523	135523	023529	023529	135523	135523	023529	023529

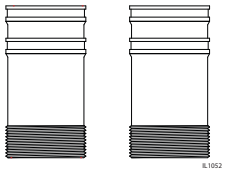


Application*	Part #	Description	Qty	
			CBW10 **CBW10D**	CBW20 CBW20D
Iron Removal	135514	Birm	1 Box 1 CF	2 Boxes 2 CF
Acid Neutralizer	023357	Calcite		
Sediment	135518	Filter-AG		
Taste & Odor	135516	Activated Carbon		

Bypass Valve Less Connectors
023328



Connectors
023329
Set of 2



Air Inducer
CCF10 Only
021708

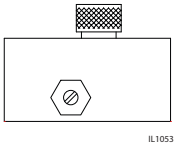


Table 6 - Troubleshooting Procedures

Problem	Possible Cause		Solution	
1. Timer does not display time of day	a.	AC adapter unplugged	a.	Connect power
	b.	No electric power at outlet	b.	Repair outlet or use working outlet
	c.	Defective transformer	c.	Replace transformer
	d.	Defective PC board	d.	Replace PC board
2. Timer does not display correct time of day	a.	Switched outlet	a.	Use uninterrupted outlet
	b.	Power outage	b.	Reset time of day
	c.	Defective PC board	c.	Replace PC board
3. Control valve regenerates at wrong time of day	a.	Power outages	a.	Reset control valve to correct time of day
	b.	Time of day not set correctly	b.	Reset to correct time of day
	c.	Defective PC board	c.	Reset regeneration time
4. E1, E2, or E3 E1 - Unable to recognize start of regeneration E2 - Unexpected stall E3 - Motor ran too long, timed out trying to reach the next cycle position or trying to reach home position	a.	Control valve has just been serviced	a.	Press SET HOUR and DOWN for 3 seconds or unplug power source jack (black wire) from the circuit board and plug back in to reset control valve.
	b.	Foreign matter is lodged in control valve	b.	Check piston and spacer stack assembly for foreign matter.
	c.	High drive forces on piston	c.	Replace piston(s) and spacer stack assembly
	d.	Control valve piston not in home position	d.	Press SET HOUR and DOWN for 3 seconds or unplug power source jack (black wire) from the circuit board and plug back in to reset control valve
	e.	Motor not inserted fully to engage pinion, motor wires broken or disconnected, motor failure	e.	Check motor and wiring. Replace motor if necessary
	f.	Drive gear label dirty or damaged, missing or broken gear	f.	Clean drive gear
	g.	Drive bracket incorrectly aligned to back plate	g.	Reseat drive bracket properly
	h.	PC board is damaged or defective	h.	Replace PC board
	i.	PC board incorrectly aligned to drive bracket	i.	Ensure PC board is correctly snapped on to drive bracket
5. Control valve stalled in regeneration	a.	Motor not operating	a.	Replace motor
	b.	No electric power at outlet	b.	Repair outlet or use working outlet
	c.	Defective AC adapter	c.	Replace AC adapter
	d.	Defective PC board	d.	Replace PC board
	e.	Broken drive gear or drive cap assembly	e.	Replace piston kit
	f.	Broken piston retainer	f.	Replace piston kit
	g.	Broken main or regenerant piston	g.	Replace piston kit
7. Control valve does not regenerate automatically when UP and DOWN button is depressed and held	a.	AC adapter unplugged	a.	Connect AC adapter
	b.	No electric power at outlet	b.	Repair outlet or use working outlet
	c.	Broken drive gear or drive cap assembly	c.	Replace drive gear or drive cap assembly.
	d.	Defective PC board	d.	Replace PC board
8. Control valve does lnot regenerate automatically but does when UP and DOWN button is depressed and held	a.	Defective PC board	a.	Replace PC board
	b.	Set-up error	b.	Check control valve set-up procedure