

POWERLINE™

Filter Owners Manual



Models

PF 0840cb
PF 1040cb
PF 1240cb
PF 1354e

PF 0840n
PF 1040n
PF 1240n

PF 0840m
PF 1040m
PF 1240m

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Product Line Overview

The PowerLine Filter Systems are designed for varying filter options depending on the types of media used. Carbon media is used to remove chlorine and unpleasant tastes and odors. Macrolite® media is used to remove particulate matter, such as iron. Calcite media is used to increase your pH and alkalinity.

The PowerLine Filter is available in 3 sizes, which are selected based your removal needs, flow rate and backwash rates.

PN	Description	Media	Regeneration Control
13100	PF 0840n	Calcite	Timer
13104	PF 1040n	Calcite	Timer
13108	PF 1242n	Calcite	Timer
13101	PF 0840c	Carbon	Timer
13105	PF 1040c	Carbon	Timer
13109	PF 1242c	Carbon	Timer
13102	PF 0840m	Macrolite	Timer
13106	PF 1040m	Macrolite	Timer
13110	PF 1242m	Macrolite	Timer
14004	PF 1354e*	Empty – Black	Timer
14005	PF 1354e*	Empty – Natural w/Dome Hole	Timer

*Use 6 gpm backwash flow control with carbon or Macrolite, and 7 gpm backwash flow control with calcite.

Regeneration Timer Control

This system control will regenerate your filter on a given day of the week. Each PowerLine Filter is designed with a 12 day timer. Setup is simple, with each day independently selected to start a regeneration. If the skipper wheel (day of the week wheel) is programmed to regenerate, then the unit will start a regeneration at 2:00 am on that day.

System Operation

Service: Untreated water enters unit at valve inlet and flows down through the media in the media tank. Conditioned water enters center tube through the bottom distributor, then flows up through the center tube, around the piston and out the outlet of the valve.

Preliminary Rinse: Slow rinse of the media bed. Water flows down through the media bed, up the bottom distributor and out the drain.

Backwash: Untreated water enters unit at valve inlet, flows through the piston, down center tube, through the bottom distributor, and up through the media, around the piston and out the drain line. Water is passed through the media bed in the opposite direction of normal flow, which flushes suspended matter out of

the media tank. Backwashing also loosens the media bed which becomes compacted during the softening (service) cycle.

Rapid Rinse: The media bed is rinsed to remove excess brine solution from the tank and the media beads are then ready to produce soft water again. Hard water enters unit at valve inlet, flows through the piston, down the center tube, through the bottom distributor, and up through the media bed, around the piston and out the drain line.

Settling Rinse: Slow rinse of the media bed. Water flows down through the media bed, up the bottom distributor and out the drain.

Regeneration: When the valve is in regeneration, raw water is being passed to service until rapid rinse is complete.

Residential Checklist

Water Pressure

Inlet water pressure range of 20-125 psi is required for regeneration valve to operate effectively.

Electrical Facilities

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

Existing Plumbing

Condition of existing plumbing should be free from lime and iron buildup. Replace piping that has heavy lime and/or iron buildup. If piping is clogged with iron, install a separate iron filter unit ahead of the water filter.

By-pass Valves

Always provide for the installation of a by-pass valve if unit is not equipped with one. If valve is leaking, turn by-pass from In Service to the By-pass position.

NOTE: If the valve continues to leak after turning the by-pass to by-pass position, shutoff the main water line and call your local service technician (preferably the one who installed the system) IMMEDIATELY.

CAUTION

- Do not exceed water pressure of 120 psi.
- Do not exceed water temperature of 110 °F.
- Do not subject unit to freezing conditions.

Installation

Existing Plumbing

Condition of existing plumbing should be free from lime and iron buildup. Replace piping that has heavy lime and/or iron buildup.

Location of System and Drain

Locate the system close to a clean working drain and connect according to local plumbing codes.

By-pass Valves

Always provide for the installation of a by-pass valve if unit is not equipped with one.

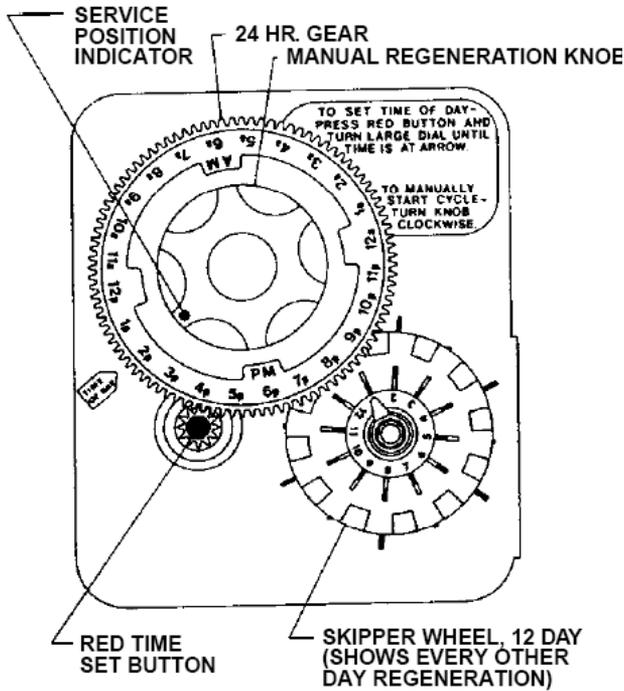
CAUTION

- Do not exceed water pressure of 120 psi.
- Do not exceed water temperature of 110 °F.
- Do not subject unit to freezing conditions.

Valve Installation and Start-up Procedures

1. Place the filter tank where you want to install the unit. **NOTE:** Be sure the tank is level and on a firm base.
2. During cold weather it is recommended that the installer warm the valve to room temperature before operating.
3. Perform all plumbing according to local plumbing codes.
 - Use a 1/2" minimum pipe size for the drain.
 - Use a 3/4" drain line for backwash flow rates that exceed 7 gpm or length that exceeds 20 ft (6 m).
4. Cut the 1" distributor tube (1.050 O.D.) flush with top of each tank. **NOTE:** Only use silicone lubricant.
5. Lubricate the distributor O-ring seal and tank O-ring seal. Place the main control valve on tank.
6. Solder joints near the drain must be done before connecting the Drain Line Flow Control fitting (DLFC). Leave at least 6" (152 mm) between the DLFC and solder joints when soldering pipes that are connected on the DLFC. Failure to do this could cause interior damage to DLFC.
7. Use only Teflon tape on the drain fitting.
8. On units with a by-pass, place in By-pass position. Turn on the main water supply. Open a cold soft water tap nearby and let water run a few minutes or until the system is free of foreign material (usually solder) resulting from the installation. Close the water tap when water runs clean.
9. Place the by-pass in the In Service position and let water flow into the filter tank. When water flow stops, slowly open a cold water tap nearby and let water run until air is purged from the unit. Then close tap.
10. Plug the valve into an approved power source. When the valve has power it drives to the In Service position.

PowerLine Timer Systems Start-up Procedures



NOTE: Install the system with the inlet, outlet and drain connections made according to manufacturer's recommendations and to meet applicable plumbing codes.

1. Remove control box cover.
2. Make "Time of Day" setting and set "Program Wheel". Rotate program wheel counter clockwise until it stops at regeneration position.
3. Observe regeneration cycle settings. Arrange cycle times as determined.
4. **Note:** To set the various positions listed in #5 below: turn the manual regeneration knob slowly in a clockwise direction until the Program Micro Switch lifts on top of the first set of pins. Allow the drive motor to move the piston to the next regeneration step. Always allow the motor to stop before moving to the next set of pins or spaces.

5. Control Valve Positions
 - a. Service Drive shaft out
 - b. Backwash Drive shaft in
 - c. Brine/Slow Rinse Drive shaft ½ way out
 - d. Rapid Rinse Drive shaft ¾ way out
6. Position valve to backwash and check to make sure that the drain line flow remains steady for ten (10) minutes or until clear (see above).
7. Position valve to rapid rinse and check the drain line flow, run for five (5) minutes or wait until the water is clear. (Note: Rapid rinse and backwash flow rates should be the same).
8. Replace control box cover.

PowerLine Timer Setting Procedures

How To Set Days on Which System Is to Backwash

Rotate skipper wheel until the number "1" is at the red pointer.

Set the days that regeneration is to occur by sliding tabs on the skipper wheel outward to expose trip fingers. Each tab is one day. Finger at red pointer is tonight.

Moving clockwise from the red pointer, extend or retract fingers to obtain the desired regeneration schedule.

How To Set The Time Of Day

Press and hold the red button in to disengage the drive gear.

Turn the large gear until the actual time of day is at the time of day pointer.

Release the red button to again engage the drive gear.

How To Manually Backwash Your Water Filter At Any Time

Turn the manual regeneration knob clockwise.

The slight movement of the manual regeneration knob engages the program wheel and starts the regeneration program.

The black center knob will make one revolution in the following approximately three (3) hours and stop in the position shown in the previous drawing.

Even though it takes three (3) hours for this center knob to complete one revolution, the regeneration cycle of your unit might be set only ½ of this time.

In any event, conditioned water may be drawn after water stops flowing from the water filter drain line.

PowerLine Filter Troubleshooting

Filter fails to regenerate.	<p>A. Electrical service to unit has been interrupted.</p> <p>B. Timer is defective.</p> <p>C. Power failure.</p>	<p>A. Assure permanent electrical service (check fuse, plug, pull chain or switch).</p> <p>B. Replace timer.</p> <p>C. Reset time of day.</p>
Filter delivers hard water.	<p>A. By-pass valve is open.</p> <p>B. No salt in brine tank.</p> <p>C. Injectors or screen is plugged.</p> <p>D. Insufficient water flowing into brine tank.</p> <p>E. Hard water tank hardness.</p> <p>F. Leak at distributor tube.</p> <p>G. Internal valve leak.</p>	<p>A. Close by-pass valve.</p> <p>B. Add salt to brine tank and maintain salt level above water level.</p> <p>C. Replace injectors and screen.</p> <p>D. Check brine tank fill time and clean brine line flow control if plugged.</p> <p>E. Repeated flushings of the hot water tank is required.</p> <p>F. Make sure distributor tube is not cracked. Check O-ring and tube pilot.</p> <p>G. Replace seals and spacers and/or piston.</p>
Unit uses too much salt.	<p>A. Improper salt setting.</p> <p>B. Excess water in brine tank.</p>	<p>A. Check salt usage and salt setting.</p> <p>B. See problem #7.</p>
Loss of water pressure.	<p>A. Iron buildup in line to water filter.</p> <p>B. Iron buildup in water filter.</p> <p>C. Inlet control plugged due to foreign material loose from pipes by recent work done on plumbing system.</p>	<p>A. Clean line to water filter.</p> <p>B. Clean control and add media cleaner to media bed. Increase frequency of regeneration.</p> <p>C. Remove piston and clean control.</p>
Loss of media through drain line.	<p>A. Air in water system.</p>	<p>A. Assure that well system has proper air elimination control. Check for dry well condition.</p>
Iron in conditioned water.	<p>A. Fouled media bed.</p>	<p>A. Check backwash, brine draw and brine tank fill, increase frequency of regeneration, increase backwash time.</p>
Excessive water in brine tank.	<p>A. Plugged drain line flow control.</p>	<p>A. Clean flow control.</p>

Salt water in service line.	<ul style="list-style-type: none"> A. Plugged injector system. B. Timer not cycling. C. Foreign material in brine valve. D. Foreign material in brine line flow control. 	<ul style="list-style-type: none"> A. Clean injector and replace screen. B. Replace timer. C. Clean or replace brine valve. D. Clean brine line flow control.
Filter fails to draw brine.	<ul style="list-style-type: none"> A. Draw line flow control is plugged. B. Injector is plugged. C. Injector screen plugged. D. Line pressure is too low. E. Internal control leak. 	<ul style="list-style-type: none"> A. Clean drain line flow control. B. Clean or replace injectors. C. Replace screen. D. Increase line pressure (minimum 20 psi). E. Change seals, spacers and/or piston assembly.
Control cycles continuously.	<ul style="list-style-type: none"> A. Faulty timer mechanism. 	<ul style="list-style-type: none"> A. Replace timer.
Drain flows continuously.	<ul style="list-style-type: none"> A. Foreign material in control. B. Internal control leak. C. Control valve jammed in brine or backwash position. D. Timer motor stopped or jammed. 	<ul style="list-style-type: none"> A. Remove piston assembly and inspect bore, remove foreign material and check control in various regeneration positions. B. Replace seals and/or piston assembly. C. Replace seals and/or piston assembly. D. Replace timer.

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