



Bubble-Up XP

Model: _____

SN: _____

Installation and Operating Instructions Bubble-Up[®] XP Radon Removal System U.S. Patent # 6,372,024



The Bubble-Up XP[®] unit from R.E. Prescott Co., Inc. is designed to remove radon gas from water. Radon is a radioactive gas which can cause serious health problems. Inside the unit, air is injected into the incoming water and allowed to bubble upward. This bubbling action releases the radon from the water. Air containing the radon is then collected, bubbled up and vented out.

Bubble-Up XP Radon Removal System

Specifications

Dimensions: Depth: 30" Width: 25" Tank Height: 41" Overall Height: 60"
 Maximum water depth: 26" (off float switch level)
 Refill water depth: 19" (on float switch level)
 Run dry water depth: 5"

Water capacity: On/Off Cycle Volume: 15 Gallons
 Usable water at maximum water depth of 26": 53 Gallons
 Usable water at refill water depth of 19": 38 Gallons

Approximate weight: 125 lb. empty
 567 lb. filled to maximum water depth of 26"
 792 lb. filled to overflow water depth of 41"

Plumbing connections: 1" mnpt water inlet and outlet with built-in bypass valve
 2" fnpt air inlet with nipple for directly mounting the Bubble-Up XP blower
 2" female PVC socket weld air outlet
 1.25" fnpt overflow connection

Electrical: Dedicated 20A circuit, quadplex GFI outlet, 115V AC #12 AWG wiring

Pump: 1/2 HP high pressure (75 p.s.i.) submersible pump
 10.6 A maximum (running) @ 115V

Blower: 4.5A, 115V AC

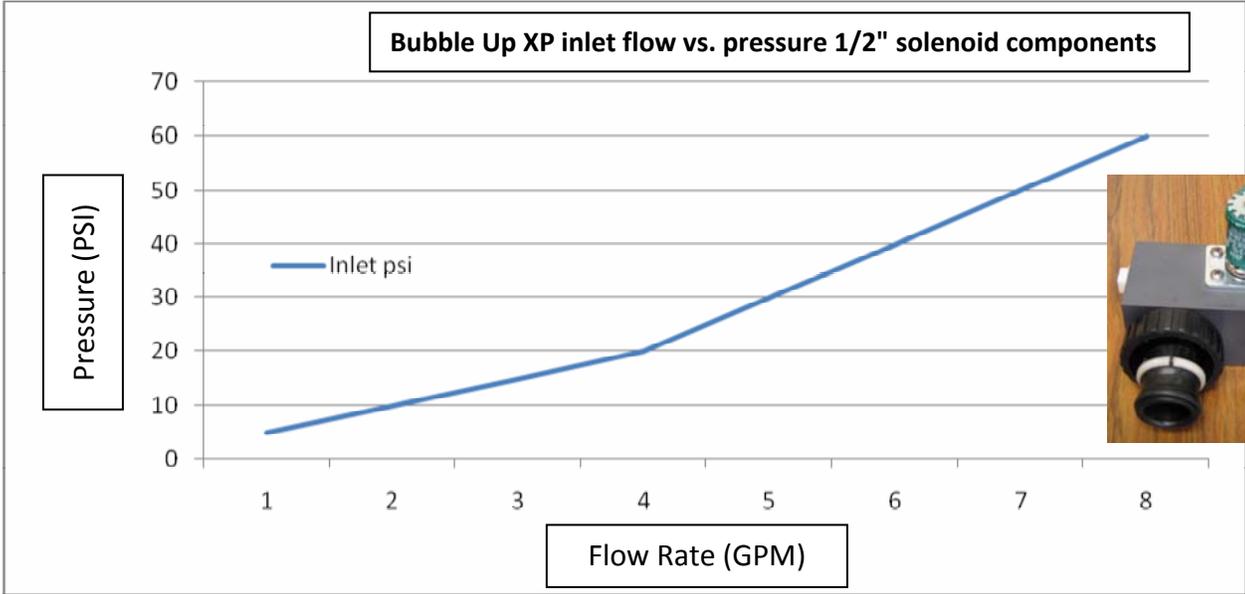
Solenoid valve: 1 - High flow 1/2" fnpt, CV = 2.0, 115V coil for 7 gpm

Pump controller: Protects the pump from running dry, integral check valve, operates the pump from a 1 gallon tank, 115V AC

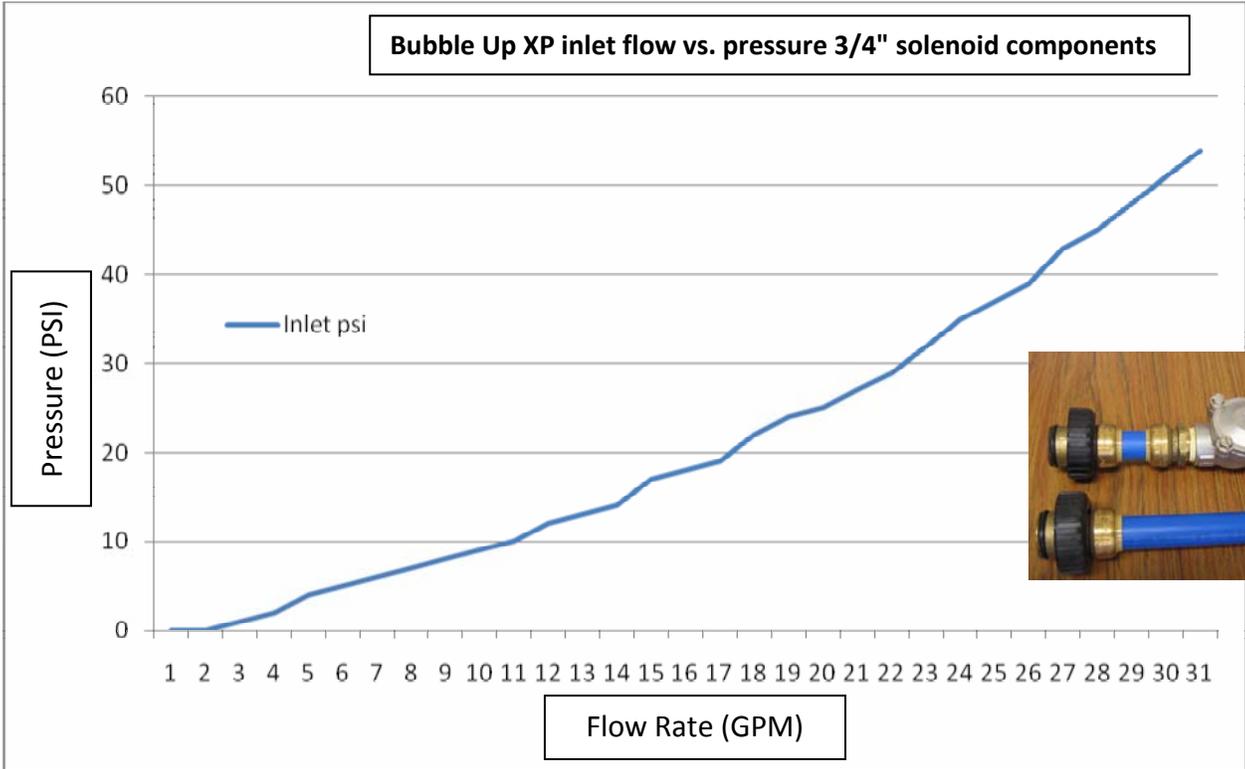
Radon removal efficiency:

MODEL	GPM	EFFICIENCY	METER
<input type="checkbox"/> Bubble-Up XP	7	99%	YES
Custom = <input type="checkbox"/>			

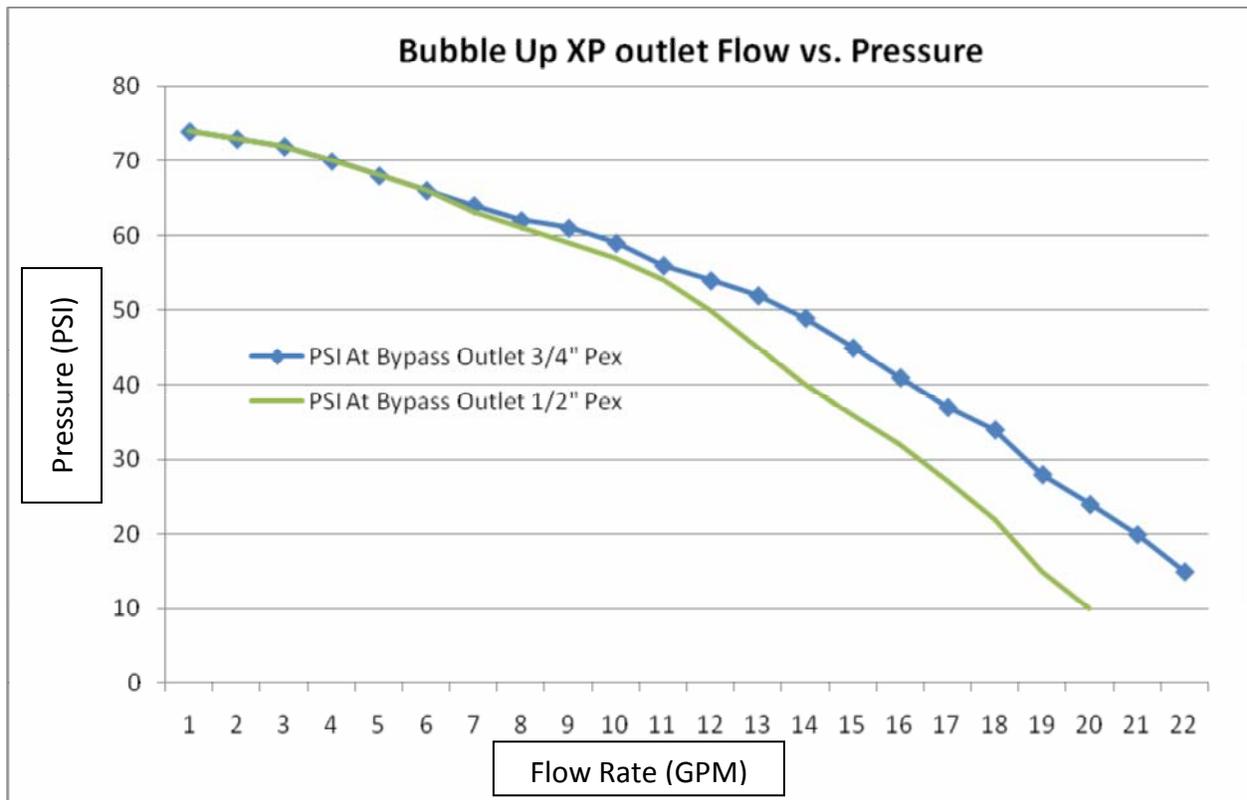
1/2" Inlet Flow and Pressure Specifications



3/4" Inlet Flow and Pressure Specifications (Optional)



Outlet Flow and Pressure Specifications



Controls and Indicators

Bypass valve

This valve can be used to divert the water flow if a problem develops with the Bubble-Up XP unit.

This valve has two red handles, and is located near the back of the unit. See Fig. 2B. The valve has two positions:

- Service - This is the normal operating position. When the two valve handles are in line with water flow, the unit can remove radon from the incoming water.
- Bypass - When the two valve handles are perpendicular to water flow, the incoming water “bypasses” the Bubble-Up XP unit. Use this position only if there is a problem with the unit.

Caution! When the bypass valve is set to the Bypass position, the Bubble-Up XP unit cannot provide any protection against radon in the water.

Indicators on automatic pump controller –

The pump control has three indicators:

- Restart (button) - Use this button if the control reports a failure condition (red indicator). See the section on “Troubleshooting.” Once the problem has been corrected, wait ten seconds and press the Restart button to resume normal operation.
- Power On Light (green) - When this indicator is lighted, it shows that the pump controller is receiving power. It should be on when the pump control is plugged in.
- Failure Light (red) - This indicator shows that the pump has tried to operate without water in the tank. This is a low water failure light. There could be several possible causes for this. See the section on “Troubleshooting.”

Operating Instructions

Once the Bubble-Up XP has been installed, it should operate with very little attention.

Normal Operation -

The unit should not need any operator attention. When water is used in the house, the one gallon draw-down tank delivers water demand. When the pressure drops to 45 PSI, the automatic pump control starts the Bubble-Up pump to deliver water to the home and refills the one gallon draw-down tank. When the automatic pump control senses less than 1 – 2.5 GPM flow and normal household pressure, the automatic pump control shuts the Bubble-Up pump off after a 10 second time delay. As the water level falls in the Bubble-Up main tank, the float switch powers the blower and solenoid to fill the main Bubble-Up tank with treated water.

Bypassing the Unit -

If a problem develops, the Bubble-Up XP unit can be taken out of the water supply system with the bypass valve. The rest of the water system will operate normally, but the Bubble-Up XP will not be able to provide any protection against radon in the water.

Caution! Do not continue to operate the water supply system this way for a long time. Correct the problem with the Bubble-Up XP and return it to service as quickly as possible.

Installation

1. Set the main tank of the Bubble-Up XP in the desired location that can hold the weight of the Bubble-Up XP shown in specification section above. Choose a flat, level surface with ample set-up space.
2. In case of a malfunction, the unit could overflow. The Bubble-Up XP is fitted with an overflow pipe. (The overflow pipe is mounted near the rear of the unit. See Fig. 2B.) Take this into account when positioning the unit. It is best if the unit can be positioned near a drain or sump pit with a sump pump.

Important note about overflow: A water sensor can be placed in a bucket under the overflow pipe and operate a water shut-off valve to stop overflow. Ask your installer for more information.

Caution! Normally, the output from the pump is at a pressure of 75 PSI. This should not create a problem in an installation where the existing plumbing is in good condition. However, in an installation where the existing plumbing cannot withstand the operating pressure of the Bubble-Up XP, the output from the pump may produce a stress on the plumbing and cause leaks. In this kind of situation, a pressure regulator should be installed on the outlet side of the unit and drawdown tank.

3. The Bubble-Up XP requires a quadplex ground-fault circuit interruption (GFCI) protection outlet wired to a dedicated 20A circuit. This circuit should use #12 AWG wiring.
4. Install the one-gallon drawdown tank on the outlet side of the unit. See Fig. 6. This tank is included to prevent the pump from starting and stopping quickly (“short cycling”) when there are short-term demands for small amounts of water.
5. Install a pre-filter on the inlet side to protect the solenoid from sediment clogging. (See Fig. 6). The pre-filter should be a sediment-type filter with a 5 micron rating. Do not use a carbon-type filter.
6. Attach the WS1 bypass valve. (An optional WS1 vertical adapter assembly (V3191-01) is available so that the unit may be positioned close to a wall.)
7. The bypass valve is included so that the unit can be taken out of service easily without interrupting the water supply. Plumb the inlet line and outlet line so that the water can continue to the water demand if the bypass valve is set to the Bypass position.
8. Pour one ounce of bleach into the blower attachment nipple to disinfect the unit. See Fig. 2B for location of blower attachment nipple.
9. Firmly slip the blower onto the blower attachment nipple and tighten clamp in order to secure blower to nipple. See Fig. 4.

Caution! Do not use PVC pipe cement on this connection.

10. Plug in the following cords as shown in Fig. 3.
 - Plug blower cord into duplex outlet on Bubble-Up XP
 - Plug solenoid cord into duplex outlet on Bubble-Up XP
 - Plug duplex outlet cord into piggy-back float switch cord

- Plug piggy-back float switch cord into yellow float switch power cord
11. Run the vent line outdoors using 2" PVC piping. Try to make this line as short and direct as possible. Make all of the pipe connections air tight using proper PVC pipe cement.

Important note about vent line piping: Use ¼" per foot pitch towards the Bubble-Up XP.

Caution! Do not install a vent outlet line which is longer than 50', and includes more than five elbows. This can create excessive backpressure and interfere with the operation of the unit. On longer runs, use larger pipe. Call the factory for details on specific applications.

Caution! Do not install the vent opening at a location where the vent gasses could be blown back into an occupied space.

Important information about venting: Since the Bubble-Up XP unit removes radon in the water, the unit must be vented carefully. Common practice is to run the vent up past the roof line of the building. An elevated vent opening provides the best way of dissipating the radon gas. Protocols recommend extending the vent opening 2' above the highest opening in the building, and at least 10' away from the nearest opening. It is recommended to protect the vent opening with a vent screen. A single free hard (printed) copy of the ASTM E-2121 standard (Recommended Residential Radon Mitigation Standard of Practice) is available from EPA's National Service Center for Environmental Publications (NSCEP). You can order a copy by phone at 1-800-490-9198, via E-mail nscep@bps-lmit.com, or via the internet at www.epa.gov/nscep/ordering.htm. Please use the EPA document number (402-K-03-007) when ordering E-2121. EPA reprints E-2121 under agreement with ASTM International.

12. Plumb automatic pump control and plug pump cord into female cord of pump control.
13. Check all plumbing fittings to be sure all fittings are water tight.

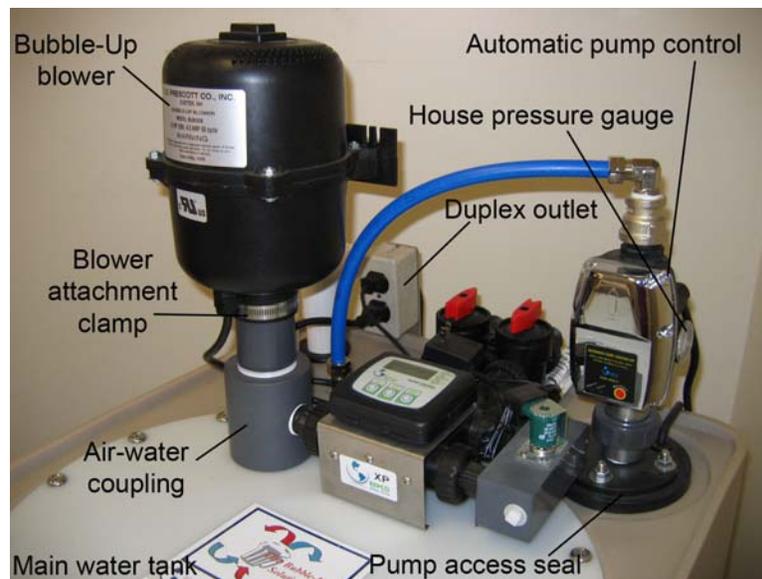


Fig. 2A Installation Points

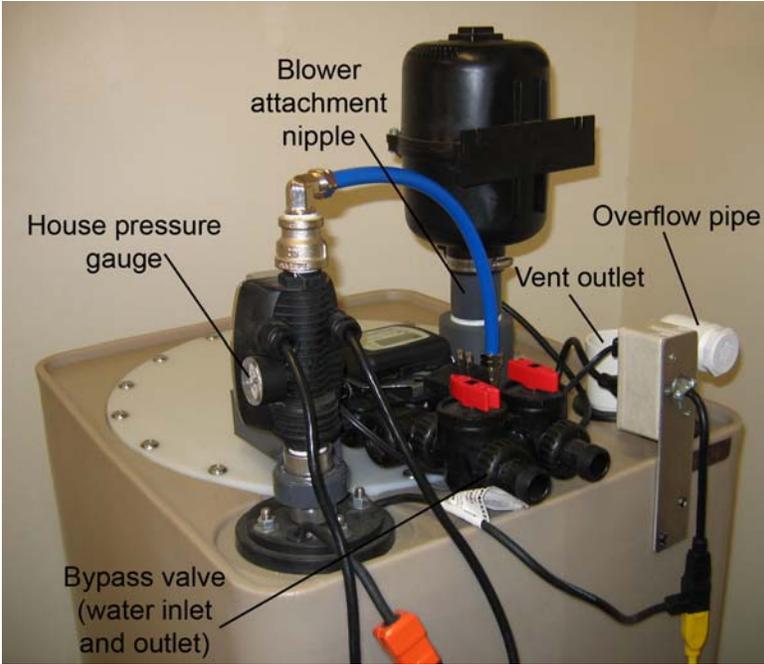


Fig. 2B Installation Points

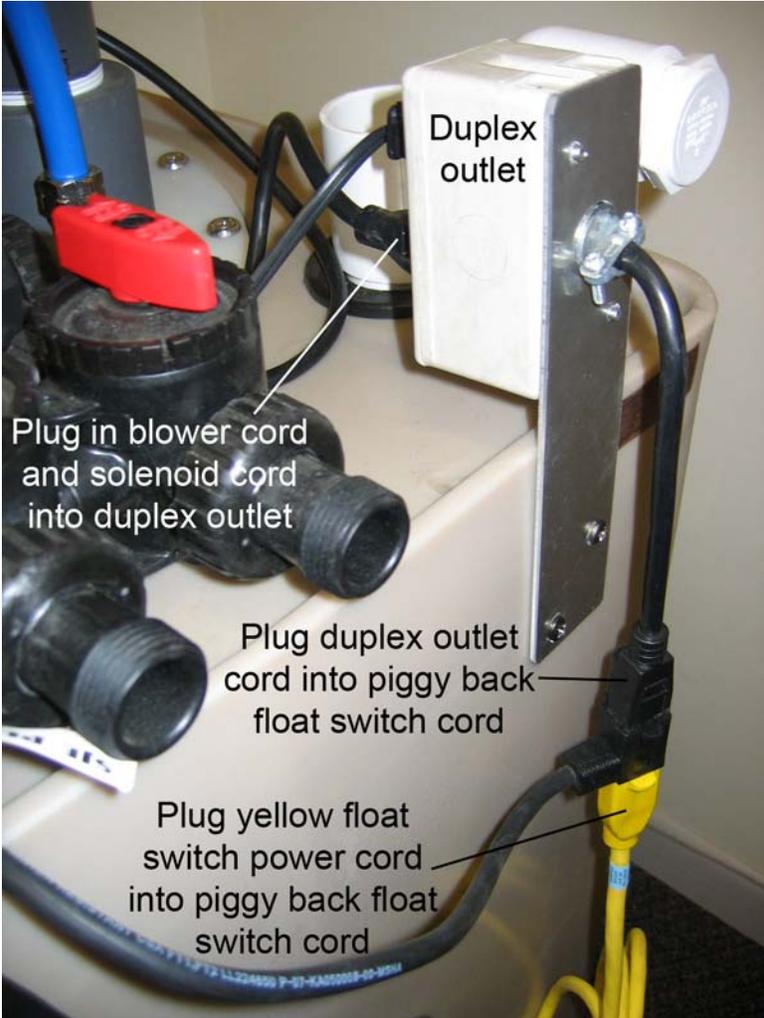


Fig. 3 Duplex Outlet Wiring Connections

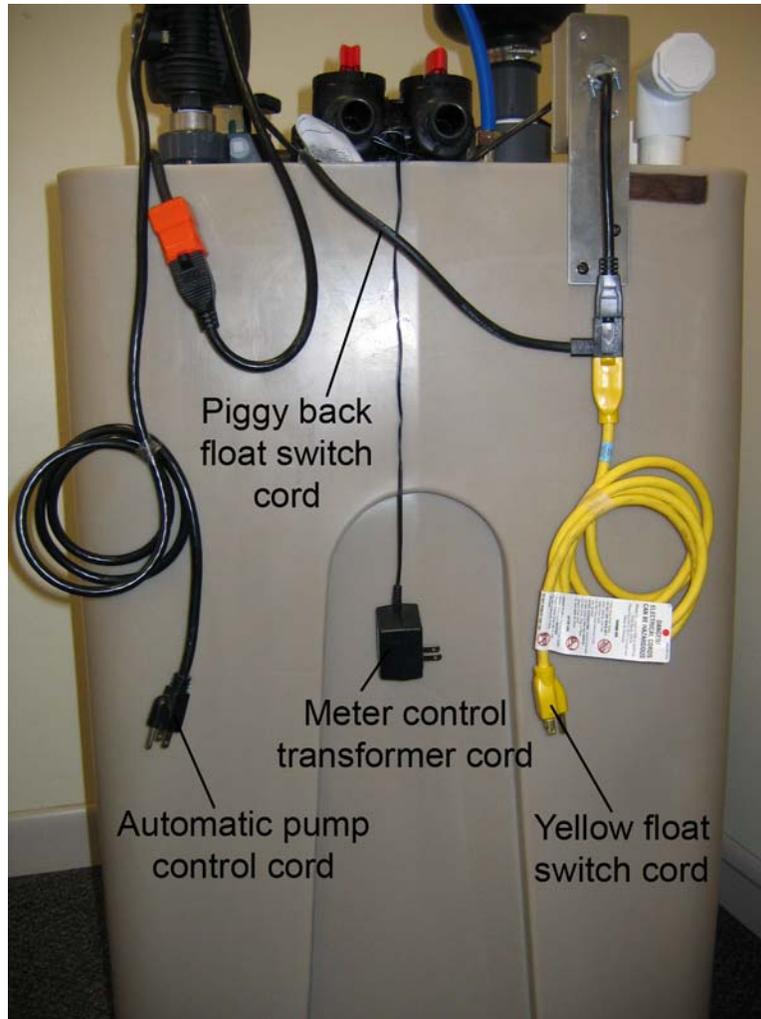


Fig. 3A Power Cords

Start Up Procedure

1. Set the red handles on the bypass valve to the Service position.
2. Before plugging in the Bubble-Up XP, identify the plug-in cords. See Fig. 3 and 3A
3. Plug in the meter control transformer cord.
4. Plug in the yellow cord first. The blower should start, and the solenoid valve should open to begin filling the tank.

Caution! Do not plug in the black cord for the automatic pump control until the tank is filled with water. This will prevent the pump from running while dry.

5. As the water level in the tank rises, the float switch will tilt up. This will stop the blower and close the solenoid valve.
6. Once the tank is full, plug in the black pump control cord. The pump control may require pressing the restart button. Press restart button after ten seconds of the pump not starting. See section on "Troubleshooting for Automatic Pump Controller".
7. If the pump does not start delivering water to the house, it may be necessary to prime the pump. (Normally you will only have to do this once, when the unit is first installed.) The pump is suspended by a pipe underneath the pump control. Unscrew the union and move the pump control off to the side. You may need to siphon the water up this pipe to remove the air from the pump and prime it.

8. Once the air has been removed from the pump, replace the pump control and tighten the union. Plug in the pump. If the Failure light on the pump control lights, wait ten seconds and press the restart button. If the pump does not start delivering water to the house, repeat the priming sequence.
9. After the unit is operating, run a radon test of the raw water and the filtered water to ensure that the unit is reducing radon levels in the water.
10. Perform the six-month maintenance procedure, and fill out the Start-Up Data page at the end of this manual.

Maintenance

Every six months:

- Check the operation of the float, pump control, solenoid valve, and the blower by turning on a water tap and allowing it to run. At first, the water will be supplied by the 1 gallon drawdown tank, and then the pump should turn on. A few minutes later, you should hear the blower start and the solenoid valve should open. (The unit cannot remove radon unless the blower is working.)
- Shut off the water tap. The tank in the Bubble-Up XP unit should fill in less than three minutes.
- Check the outlet of the vent line to ensure that it is not blocked.
- Disinfect the unit as needed. (Pour one ounce of bleach into the blower attachment nipple.)

Every year:

We recommend that you have your Bubble-Up XP unit checked once a year by a qualified installer. The yearly checkup may include these steps:

- Run raw water and filtered water radon tests.
- Replace the cartridge in the pre-filter and disinfect.
- Clean the main Bubble-Up XP tank as described below.
- Disinfect the unit as needed. (Pour one ounce of bleach into the pre-filter cartridge housing.)

Cleaning the tank:

1. Unplug the yellow power cord to the unit.
2. Run a water faucet until main storage tank is empty.
3. Unplug the pump controller.
4. Set the bypass valve to the Bypass position.
5. Remove the blower and set it to one side.
6. Run a 3/8" OD tube down the center of the air-water coupler about 3 feet and siphon out the water in the bubbling chamber.
7. Undo the XP manifold nut that attaches the fitting to the air-water coupling below the blower. See Fig. 2A.
8. Undo the 16 screws around the large circular top cover. Carefully remove the cover, with the attached internal tank. Now you can clean the inside of the tank.
9. Pump or siphon the water out of the tank.
10. Vacuum out any remaining water with a wet/dry vacuum.
11. Wash down the inside of the tank. This may require some scrubbing. If a layer of minerals has collected at the bottom of the tank, remove this layer. If the mineral layer includes a rusty material, you may have to use a reducing chemical to dissolve and neutralize the rust.
12. As a final step, sanitize the inside of the tank using a dilute solution of chlorine bleach. Rinse, then vacuum out any remaining water.
13. Re-install the circular top cover with the internal tank.
14. Reconnect the water supply line to the air-water coupling below the blower.
15. Disinfect the unit. (Pour one ounce of bleach into the blower attachment nipple.)
16. Install the blower. Firmly slip the blower onto the blower attachment nipple and clamp it. See Fig. 4.
17. Set the bypass valve to the Service position.
18. Restart the unit. Follow the instructions in the "Start up Procedure."

Removing the Pump:

1. Unplug both power cords to the unit. Set the bypass valve to the Bypass position.
2. Remove piping on top of pump control and unscrew 1" union located under the pump control.
3. Unplug and remove the pump control.

4. Unplug the piggy back float switch cord from the duplex outlet on the Bubble-Up XP.
5. Loosen the 4 nuts on the pump access seal. See Fig. 2A. Do not remove nuts so that the bolts do not fall into the Bubble-Up XP main water tank. Note that the direction of the float switch cord is towards the duplex outlet so that it can be re-installed in the same position.
6. Lift the pump access seal off of the main water tank. This may require prying with a flat screwdriver or two.
7. Lift and pull out float switch and then pump from the main water tank.

Troubleshooting for Automatic Pump Controller

Low Water Failure light on pump control:

If the Bubble-Up XP tries to pump for 10 seconds without water, this will trigger a low water failure condition. This may be caused by a clogged pre-filter. See Fig. 6. Once the problem has been corrected, press the Restart button on the pump control. When the unit is first installed, or has been drained for cleaning, the pump will not be able to pump water if it needs to be primed. See the section on "Start up Procedure." The pump motor has internal thermal protection which will operate if the pump motor is overloaded for some reason. This can happen if the impeller in the pump is jammed by foreign matter. The overload device will reset automatically once the motor has cooled. If this happens, call a service technician.

Slow filling:

If the Bubble-Up XP requires more than 2.5 minutes filling, this may be caused by a clogged pre-filter. See Fig. 6. Replace filter cartridge in pre-filter.

Short cycling:

The unit may short cycle in response to demands for water of short duration. The installation should include a one gallon drawdown tank on the outlet line. This drawdown tank is included to smooth out the pressure sensed by the pump control, and to prevent short cycling. Short cycling can cause the pump to wear out prematurely.

Unit overflows:

This could happen if the solenoid valve is jammed open by foreign matter in the water. This may indicate a problem with the pre-filter. Shut off the water supply at the bypass valve, unplug the pump, and disassemble the solenoid valve. Clean each component of the valve, and then reassemble the valve. Also check the pre-filter and clean or replace the elements if necessary. Disinfect the unit as needed. (Pour one ounce of bleach into the blower attachment nipple.) Overflowing could also occur if the float switch is damaged or jammed. See section on "Removing the Pump." Check the float switch and replace it if necessary.

Pump runs when no water is called for:

Every couple hours or so the pump spontaneously turns on when no water is used, possibly caused by a small leak in the plumbing system (or R.O. unit / ice maker). To determine if the Bubble-Up XP pressure pump system is leaking, put the Bubble-Up XP in bypass. If the pressure holds steady, the pump does not start and the Bubble-Up XP pressure system is water tight and the leak is caused externally.

Replacement Parts

Figures 4 through 11 list some of the replacement parts on the Bubble-Up XP. Here are some points to keep in mind when replacing parts:

- Before removing any parts, shut off the water inlet to the Bubble-Up XP. Set the handle on the bypass valve to the Bypass position.
- Always unplug both of the power cords before working with the unit.

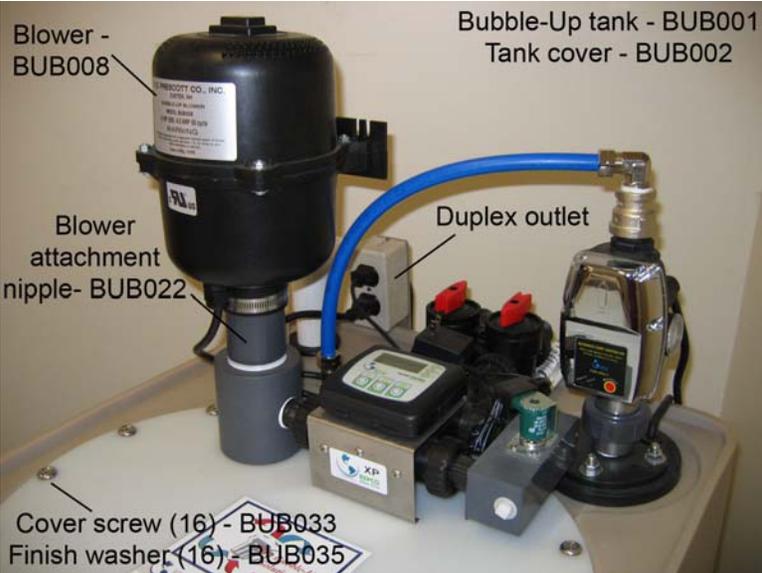


Fig. 4 Replacement Parts



Fig. 5 Pump Assembly



Fig. 6 Accessories



Fig. 7 Pump Control

Parts Listing

Item#	Description	Quantity	Unit
BUB001	Bubble-Up XP Tank	1	each
BUB002	Bubble-Up XP Tank Cover	1	each
BUB003	Bubbling Chamber Liner	1	each
BUB007	Float switch assembly	1	each
BUB008	Blower	1	each
BUB009	PVC Manifold – air-water coupling	1	each
BUB011	6" supply cord 16/3, yellow	1	each
BUB012	Well Seal, size 5"	1	each
BUB018-08	Solenoid Valve, 1" side in/out	1	each
BUB020	18" Solenoid Cord	1	each
BUB021	3/16" x 1.25" x 50' foam gasket	0.10	each
BUB022	2" X 8" SCD 80 TXT Nipple	1	each
BUB023	1" X 22" SCD 80 Tube	1	each
BUB024	1" PVC SCD 80 Union	1	each
BUB025	1.25" PVC SCD 40SXT 90 Elbow	1	each
BUB026	1.25" X 1" PVC SCD 80 Bushing	1	each
BUB027	1.25" X 41.5" PVC SCD 40 Overflow Pipe	1	each
BUB028	2" X 35" Slotted PVC Downcomer	1	each
BUB029A	1" X 3/4" Nickel Plated Reducing Coupling	1	each
BUB032	#12 X 1.25" Phil Pan Sheet Metal Screw	2	each
BUB033	#12 X 1.25" Phil Flat Head Tap Screw	16	each
BUB035	#14 Finishing Washer	16	each
BUB036	2" Adaptaflex, Air Outlet	1	each
BUB037	1.25" Adaptaflex, Overflow	1	each
BUB038	5/8" Delrin Sleeve	2	each
BUB041	5/8" X 3/4" W/Stop Ell – Nickel Plated	1	each
BUB042	5/8" X 1/2" W/S – Nickel Plated	1	each
BUB044	Pump Cord Plug	1	each
BUB045	1/2" SS Pex Insert	2	each
BUB046	1/2" X 20' Pex Tubing	0.1	each
BUB048	2" S.S. Clamp	1	each
BUB051	Automatic Pump Control	1	each
	Hydrotronic Pump Control		
	Automatic Pump Control Assembly		
	Hydrotronic Pump Control Assembly		
BUB054-08	Sta-Rite Bottom Suction, 20DOM05121+1	1	each
TC100	XP Manifold	1	each
V3007-04	1" Plastic Male NPT Assembly	2.5	each
BUBXP075	Bubble-Up XP Manifold Assembly		
BUBXP085	1/2" Solenoid Component Assembly		
BUBXP090	3/4" Solenoid Component Assembly (optional)		
BUBXP095	1/2" Outlet Flow Control Adapter Assembly		
	Duplex Outlet with cord		
	Duplex Outlet bracket		

Start-Up Data

For service, call: _____

Installer: _____

Address: _____

Serial number: _____

Start-Up Notes

Fill Rate: _____

Radon in: _____

Radon out: _____



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