

Bubble-Up® Interactive™

INSTALLATION AND OPERATING INSTRUCTIONS U.S. PATENT # 6,372,024 AND 8,393,875



Installation and Service By:

The Bubble-Up® Interactive 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 blown 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 and vented out.

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Manufactured by:

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REPRESCOTT.COM

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"

Influent Water Requirements:

Hardness < 68 mg/l (4 GPG)
Iron < 0.03 mg/l
Manganese < 0.05 mg/l

Plumbing Connections:

1" male npt water inlet and outlet bypass valve
2" FNPT air inlet with nipple for directly mounting Bubble-Up® Interactive™ blower
2" Fernco air outlet
1.25" fnpt overflow connection

Electrical:

Dedicated 20A circuit, quadplex 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:

Bubble-Up Mechanical Pump Control with a low water float switch, protects the pump from running dry, integral check valve, and operates the pump from a 1 gallon tank, 115V AC

Radon Removal Efficiency:

MODEL	GPM	EFFICIENCY
<input type="checkbox"/> Bubble-Up® Interactive™ ½" Solenoid	7	99%
<input type="checkbox"/> Bubble-Up® Interactive™ ¾" Solenoid	14	98%
<input type="checkbox"/> Custom		

Inlet Flow and Pressure Specifications

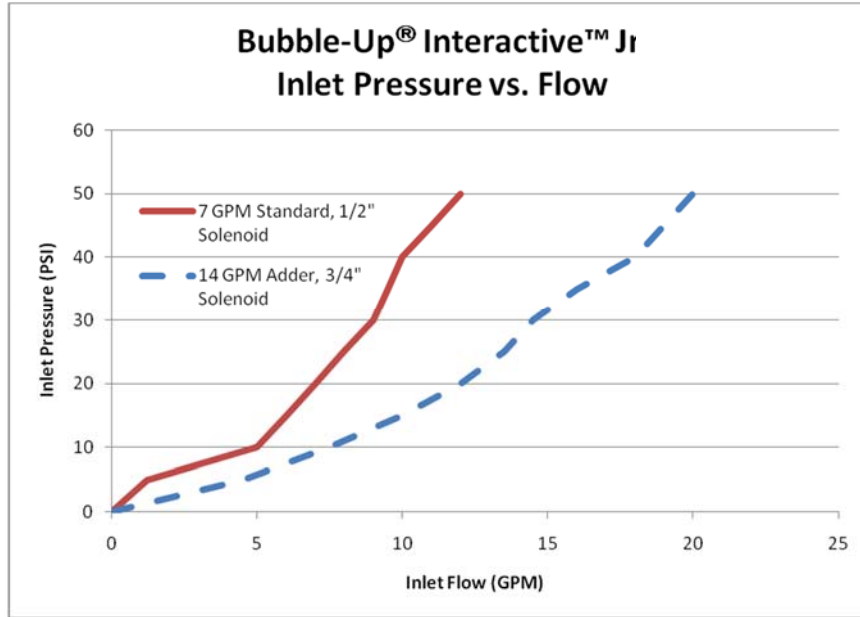


Figure 1 - Bubble-Up® Interactive™ Inlet Pressure vs. Flow

Outlet Flow and Pressure Specifications

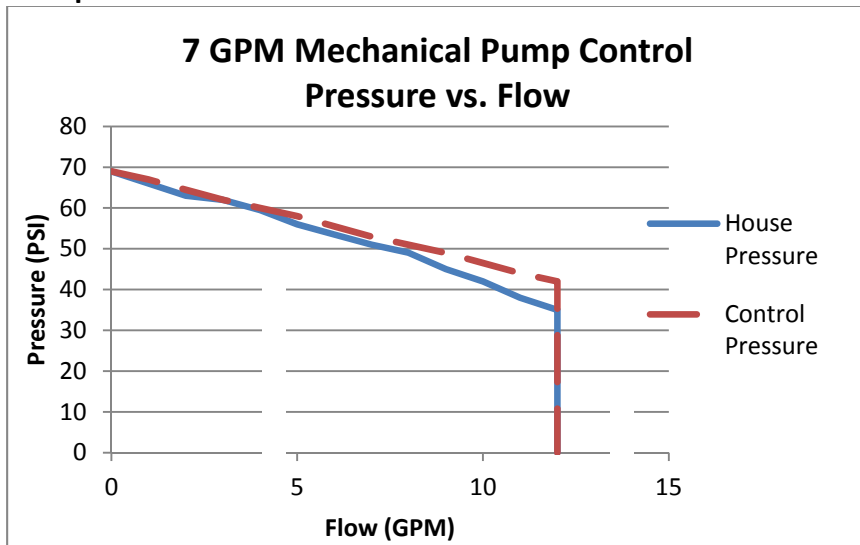


Figure 2 - Bubble-Up® Interactive™ Outlet Flow vs. Pressure 7 GPM

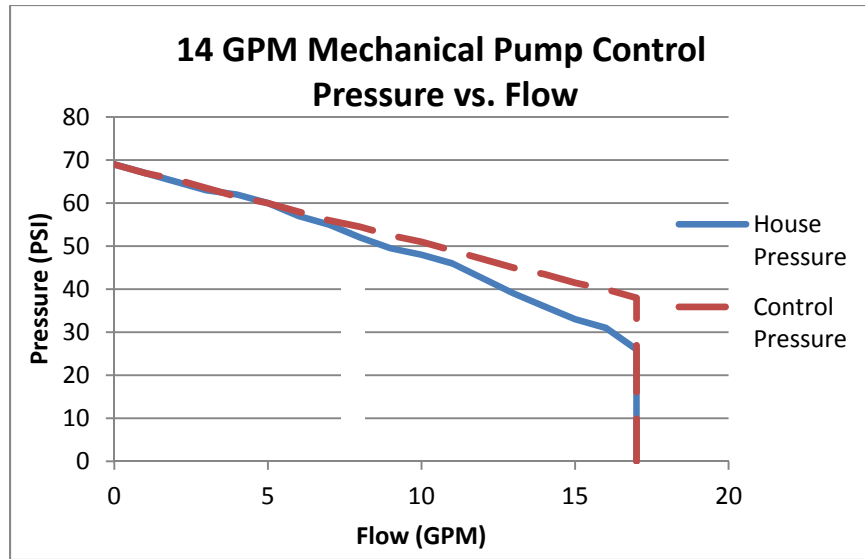


Figure 3 – Bubble-Up® Interactive™ Outlet Flow vs. Pressure 14 GPM

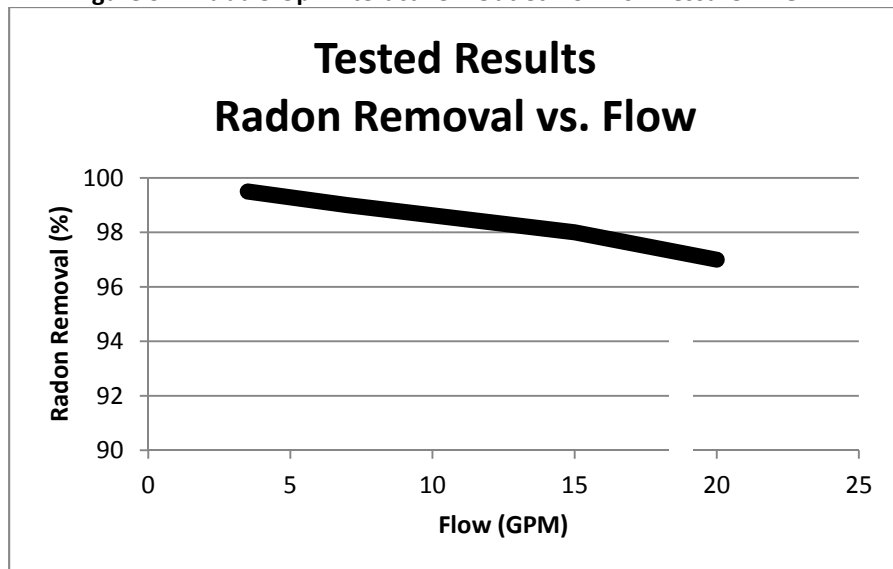


Figure 4 – Radon Removal vs. Flow 99% Removal at 7 GPM

Controls and Indicators

Bypass valve

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

This valve has two red handles, and is located near the back of the unit. See Figure 7. 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® Interactive™ unit. Use this position only if there is a problem with the unit.

Caution! When the bypass valves are set to the Bypass position, the Bubble-Up® Interactive™ unit cannot provide any protection against radon in the water.

Meter Control

For instructions regarding the meter control refer to the Bubble-Up Meter Control manual in the appendix and online at www.represcott.com

Mechanical Pump Control

For instructions regarding the mechanical pump control refer to the Bubble-Up Mechanical Pump Control Assembly Owner’s Manual in the appendix and online at www.represcott.com.

Water Alarm Valve

The water alarm valve control is designed to identify leaking problems in the Bubble-Up® Interactive™. It is designed to monitor radon vent obstruction, high water and fitting leaks. It does this by incorporating a water alarm valve float switch, water alarm floor sensor and water alarm tank top terminal block sensor to signal the water alarm valve control which operates the motorized water alarm ball valve. See Figures 13 and 14.

Important Feature: The water alarm valve can also be used to create any number of remote leak detection points by connecting extra leads to the leads of the terminal block.

Users Guide:

- Please choose the correct mode on the mode switch shown in the picture according to the application. In the case of the Bubble-Up® Interactive™, the switch should be in the normal water position. See figure 5
- The buzzer will beep if there is a radon vent pipe obstruction, high water alarm or detected water leak, and at the same time a signal will be sent to the external motorized ball valve. This signal will cause the ball valve to close and cut off the water supply immediately.
- To reset the motorized ball valve to its original open position, hold the reset button for three seconds.
- A yellow light accompanied by the buzzer means that the battery is low. If this occurs replace the battery as soon as possible to avoid any overflows during a power outage.

Important information about the Water Alarm Valve: The alarm on this control will go off if there is water inside of the control. If this occurs, fully dry the inside of the control before returning it to service.

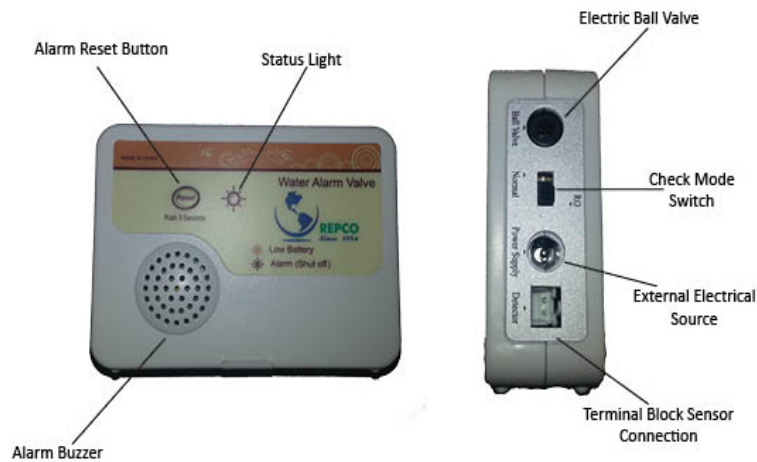


Figure 5 – Water Alarm Valve

Installation

1. Be sure the float switches are not tangled around the pump by removing the 2" vent fitting and visually inspecting the float.
2. The Bubble-Up® Interactive™ comes with a standard 2.1 gallon water expansion tank. Plumb this expansion tank near the outlet of the Bubble-Up® Interactive™.

Note: This expansion tank can be used for a certain amount of water heater thermal expansion. If you have a tank type water heater, check manufacturer's requirements for sizing thermal expansion tank.

Radon Testing Note: It is important to install a new sample valve or boiler drain in new piping so that the radon testing is not influenced by old piping.

3. Set the main tank of the Bubble-Up® Interactive™ in the desired location that can hold the weight of the Bubble-Up® Interactive™ shown in the Specification Section on page 2. Choose a flat, level surface with ample set-up space.
4. In case of a malfunction, the unit could overflow. The Bubble-Up® Interactive™ is fitted with an overflow pipe. (The overflow pipe is mounted near the rear of the unit. See Figure 7) 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.
5. Depress the high water alarm float so it is flush with the rubber cord seal. (Figure 6)
6. Set water alarm sensor on floor and wire to terminal block, one wire on the black connection and one wire on the red connection.

Important note about overflow: The Bubble-Up® Interactive™ incorporates a high water alarm float switch in the cord seal, a water alarm tank top terminal block sensor and a water alarm floor sensor. The control will operate the water alarm valve and shut off incoming water when there is an obstruction in the radon exhaust pipe, water around the floor sensor or tank to terminal block sensor, a faulty float switch assembly, tangled float switch assembly, or if the solenoid valve is stuck open. This water alarm valve has a battery backup and will function during a power outage. However, additional overflow precautions should be taken such as connecting the overflow to a proper drain.

Caution! Normally, the output from the pump is at a pressure of 70 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® Interactive™, 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.

7. The Bubble-Up® Interactive™ requires a quadplex outlet wired to a dedicated 20A circuit. Use a 20 amp duplex GFCI receptacle for the yellow float switch cord for UL (See Figure 8). This circuit should use #12 AWG wiring.
8. Install the 2.1 gallon water expansion tank on the outlet side of the unit. See Figure 11. 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.
9. Install a pre-filter on the inlet side to protect the solenoid from sediment clogging. See Figure 11. The pre-filter should be a sediment-type filter with a 5 micron rating. Do not use a carbon-type filter.
10. Attach the red handled bypass valve.
11. 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 the water demand if the bypass valve is set to the bypass position.
12. Pour one ounce of bleach into the blower attachment nipple to disinfect the unit. See Figure 6 for location of blower attachment nipple.
13. Firmly slip the blower onto the blower attachment nipple and tighten clamp to secure blower to nipple.

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

Note: If blower inlet is connected to draw air from an outdoor source, make sure that no moisture can get into a blower motor. If an outdoor source is desired, a dryer vent kit can be modified by removing the flap check and replacing it with a screen. Be sure to install the kit as directed and run the hose down to the floor in the area of the Bubble-Up® Interactive.

14. Plug in the following cords. Refer to figures 6, 7, & 8.
 - Plug blower cord into duplex outlet.
 - Plug solenoid cord into duplex outlet.
 - Plug fill piggy-back float switch cord into yellow float switch cord
 - Plug duplex outlet cord into fill piggy-back float switch cord
15. Plug yellow float switch cord, meter control cord, and water alarm valve cord into dedicated 20 amp quadplex outlet. See Figure 8.

Important note: Do not plug in pump control cord until Bubble-Up® Interactive™ tank is filled to normal operating water depth.

16. 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® Interactive™.

***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. If this is done the blower unit of the Bubble-Up® Interactive™ can create pressure within the main tank. This can cause water from the main tank to be forced up through the overflow pipe and spill onto the water sensor terminal block thus activating the water alarm valve, shutting down the unit. This can also occur if the vent outlet line is plugged.

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® Interactive™ 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.

17. Plumb the mechanical pump control and plug pump cord into low water piggy-back float cord. Plug the low water piggy-back float cord into the female cord of pump control. See Figure 7.
18. Check all plumbing fittings to be sure all fittings are water tight.
19. The water alarm valve control is wired to the power supply, motorized ball valve, and water sensor terminal block.
20. Install 9V battery backup into water alarm control.
21. Terminal block wires are connected to high water alarm valve control, water alarm float switch and water alarm floor sensor. These wires are twisted together and connected to terminal block.

Note: Water Sensor Terminal Block Connection: Connect the water alarm float wire (figure 6), water alarm control, and water alarm sensor wires to the terminal block (The terminal block is located next to the air vent figure 7). Connect one wire to the black connection of the terminal block and the other wire to the red connection of the terminal block. It is very important that this is a good connection.

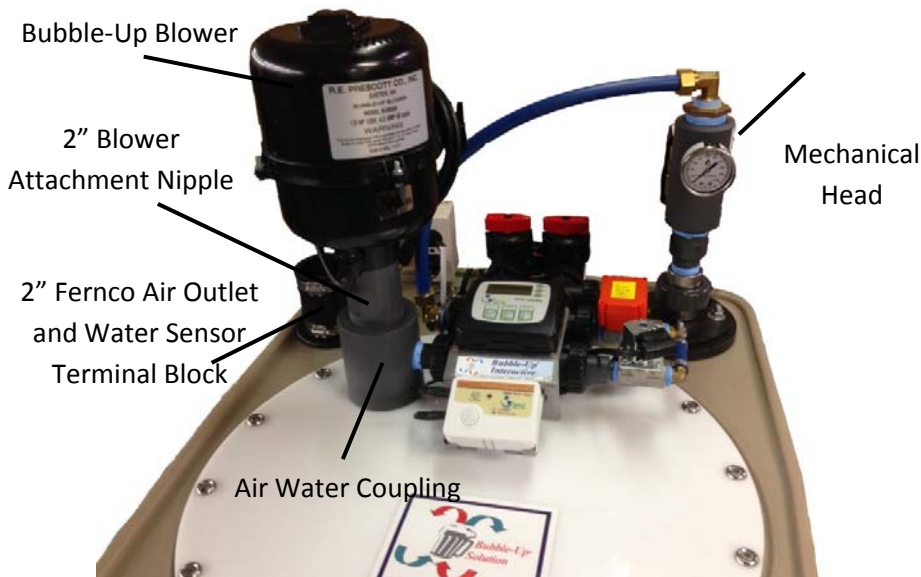


Figure 6 - Installation Points

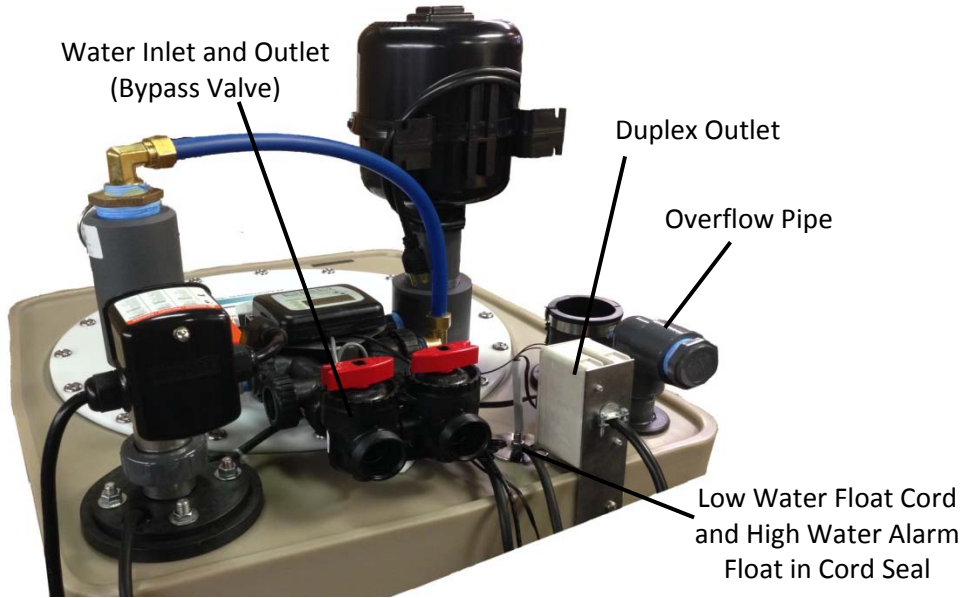


Figure 7 - Installation Points

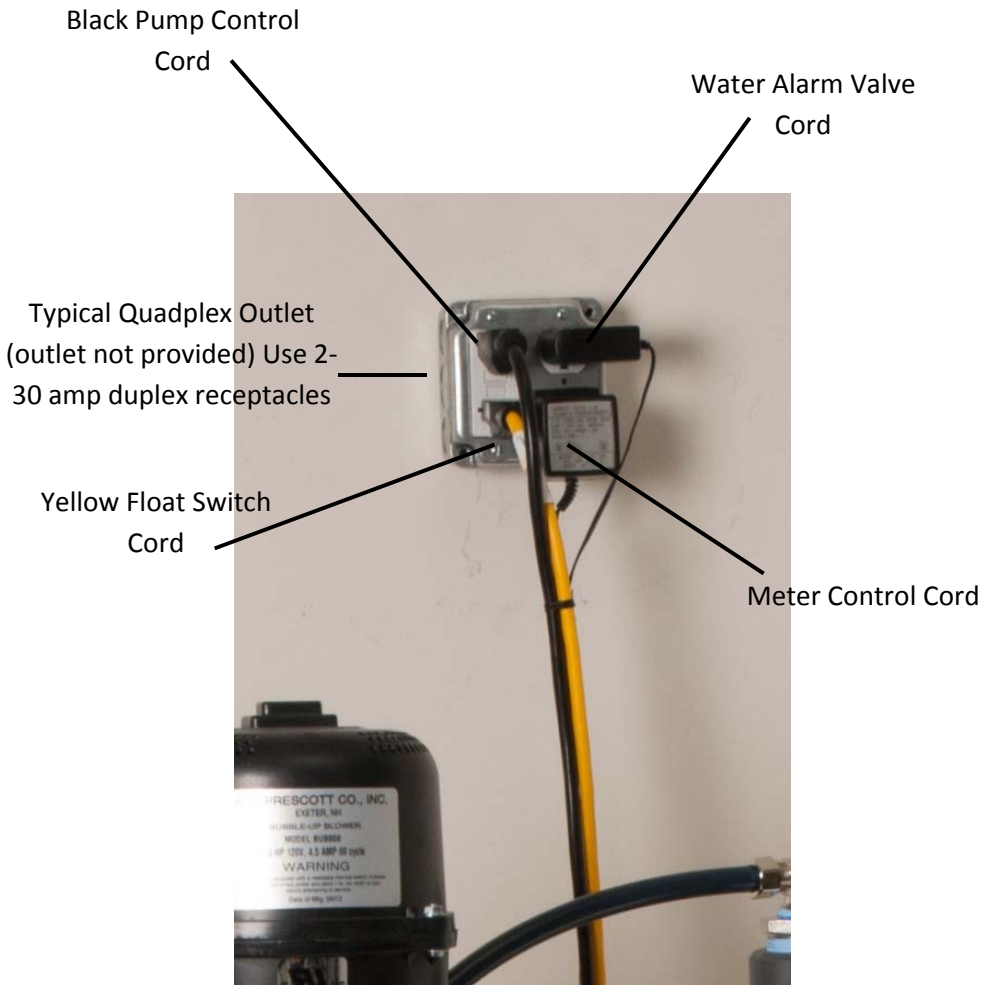


Figure 8 - Power Cords

Start Up Procedure

1. Set the red handles on the bypass valve to the Service position.
2. Before plugging in the Bubble-Up® Interactive™, identify the plug-in cords. See Figure 8.
3. Plug in the meter control and water alarm valve control power cords.
4. Push reset button on water alarm valve control for 3 seconds to open the motorized ball valve.
5. Plug in the yellow cord first. The blower should start, and the solenoid valve should open to begin filling the tank.
6. As the water level in the tank rises, the fill float switch will tilt up. This will stop the blower and close the solenoid valve.
7. Once the tank is full, plug in the black pump control cord to start the pump.
8. 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 or vacuum the water up this pipe to remove the air from the pump and prime it.
9. Once the air has been removed from the pump, replace the pump control and tighten the union. Plug in the pump. If the pump does not start delivering water to the house, repeat the priming sequence.
10. 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.

Radon Testing Note: It is important to install a new sample valve or boiler drain in new piping so that the radon testing is not influenced by old piping.

11. Perform the six-month maintenance procedure, and fill out the Start-Up Data page at the end of this manual.

Operating Instructions

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

Normal Operation

Main Unit

The unit should not need any operator attention. When water is used in the house, the 2.1 gallon water expansion tank delivers water demand. When the pressure drops to the set pressure, the mechanical pump control starts the Bubble-Up® Interactive™ pump to deliver water to the home and refill the 2.1 gallon water expansion tank. When the mechanical pump control senses normal household pressure, the mechanical pump control shuts the Bubble-Up® Interactive™ pump off. As the water level falls in the Bubble-Up® Interactive™ main tank, the float switch powers the blower and solenoid to fill the Bubble-Up® Interactive™ tank with treated water.

Low Water Cut-Out Float Switch

The pump will automatically stop when there is low water in the Bubble-Up tank. The pump will automatically restart when water is replenished.

Water Alarm Valve

The water alarm valve is in place for protection against leaking or overflowing and will not operate unless one of these things happens. Once the water alarm valve control, overflow alarm float, floor sensor or terminal block senses a problem in the system the water alarm valve control activates the motorized ball valve and shuts off the incoming water. The water alarm valve control will also sound an alarm to identify that there is a problem.

Bypassing the Unit

If a problem develops, the Bubble-Up® Interactive™ 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® Interactive™ 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® Interactive™ and return it to service as quickly as possible.

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 2.1 gallon water expansion 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.)
- Check the incoming flow rate on the meter control. Typical well pump fill rates are between 4 and 7 GPM. Higher flow rate systems are available.
- Shut off the water tap. The tank in the Bubble-Up® Interactive™ unit should fill in less than two minutes.
- Check the outlet of the vent line to ensure that it is not blocked.
- Check that the motorized ball valve is operating correctly by crossing the leads of the terminal block or raising the high water float, or wetting the floor sensor. This should activate the motorized ball valve and shut off all incoming water. Hold the RESET button on the front of the water alarm valve control for three seconds to return the motorized ball valve to its open position after each test.
- Disinfect the unit as needed. (Pour one ounce of bleach into the blower attachment nipple.)
- Replace 9-volt battery in Water Alarm Valve Control

Every year:

We recommend that you have your Bubble-Up® Interactive™ 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® Interactive™ tank as described below.
- Disinfect the unit as needed. (Pour one ounce of bleach into the pre-filter cartridge housing.)
- Clean and rebuild solenoid valve. 1/2" Rebuild Kit PN: BUB019C or 3/4" Rebuild Kit PN: BUB020C
- Check the operation of both float switches, low water and fill.

Every five years:

- Replace both float switches, low water float and fill float.

Cleaning the tank:

1. Unplug all power cords to the unit except the pump controller.
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 vacuum or siphon out the water in the bubbling chamber.
7. Undo the water inlet line at the point where it meets the air-water coupling below the blower. See Figure 6.
8. Remove the manifold by disconnecting it from the bypass valve and removing the mounting screw located behind the meter control.

9. 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.
10. Pump or siphon the water out of the tank.
11. Vacuum out any remaining water with a wet/dry vacuum.
12. 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.
13. As a final step, sanitize the inside of the tank using a dilute solution of chlorine bleach. Rinse, then vacuum out any remaining water.
14. Re-install the circular top cover with the internal tank and air-water coupling. Check the gasket to make sure it is properly sealed. Replace the gasket if necessary.
15. Reconnect the water supply line to the air-water coupling below the blower.
16. Disinfect the unit. (Pour one ounce of bleach into the blower attachment nipple.)
17. Install the blower. Firmly slip the blower onto the blower attachment nipple and tighten clamp.
18. Set the bypass valve to the Service position
19. Restart the unit. Follow the instructions in the “Startup Procedure.”
20. Check all seals to ensure they are air or water tight.

Removing the Pump and Low-Water Float:

1. Unplug both power cords to the unit. Set the bypass valve to the Bypass position.
2. Remove piping on top of mechanical pump control and unscrew 1” union located under the mechanical pump control.
3. Unplug and remove the pump control.
4. Unplug the piggy back float switch cord from the duplex outlet box on the Bubble-Up® Interactive™.
5. Loosen the 4 nuts on the pump access seal. See Figure 6. Do not remove the top nuts so that the bolts do not fall into Bubble-Up® Interactive™ main water tank. Note that the direction of the float switch cord is towards the air-water coupling 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 fill float switch and then pump from the main water tank. See Figure 10.
8. Retrieve low-water float and high water alarm float through the pump access hole.

Troubleshooting for Bubble-Up Mechanical Pump Controller

Low-Water Pump Cut-out

A low water float switch is used to turn off the pump to protect it from running dry. The pump will automatically restart when water level returns to normal. If the water alarm valve or solenoid is stuck closed, incoming water will not be allowed to enter the Bubble-Up® Interactive™ main tank. This will cause the tank to empty and the low water float to turn off the pump to protect it from running dry. If the well pump fails there will be no water entering the main tank of the Bubble-Up® Interactive™ also causing the low water float to turn off the pump to protect it from running dry.

No Water from the Bubble Up (no alarm is sounding)

Cause: Low water float switch shut off Bubble-Up® pump.

Example: The Bubble Up Interactive includes a low water float switch to stop the Bubble-Up® pump from delivering water flow to the house when the water level in the Bubble Up tank is too low. This protects the pump from running dry. This float switch will automatically restart the Bubble Up pump once water level rises to normal levels.

This situation can be caused by simply using more water out of the Bubble-Up® than what is coming in. Compare water outlet flow with “current flow” meter control reading on the Bubble-Up® while filling.

A few inlet flow problems are; low yield well, well pump failure, clogged plumbing or water filtration restricting water flow filling the Bubble-Up®.

No water from the Bubble Up (alarm is sounding)

Cause: Water Alarm Valve shut water off to Bubble-Up®.

Example: The Bubble-Up® Interactive includes a water alarm valve which sounds an alarm and stops water filling the Bubble Up when a leak or overflow condition is detected. Once water stops filling the Bubble-Up®, continued water use will cause the low water float switch to stop the Bubble Up pump from delivering water flow to the house.

Examples: The alarm conditions to cause the water alarm valve to close and stop water from entering the Bubble-Up® are; 1- water sensor box detecting water on the floor around Bubble-Up®, 2- water sensor terminal block detecting water on top of Bubble-Up® or 3- high water float switch senses high water in the main tank.

These conditions are caused by water detection due to high water levels, water leaks, condensation Etc.

Also if the air vent piping is restricted the Bubble-Up® blower cannot freely blow the air out of the Bubble-Up®. This will cause blower back pressure which will force water up the overflow pipe to be released through the breather vent, causing the sensors on the terminal block to detect an overflow of water. Vent piping back pressure can be caused by an obstruction, ice build-up, water trapped in a reverse pitch, excess pipe fittings or pipe length.

High-Water Alarm

A few things can cause the high-water alarm valve control to sound:

- The leak detection terminal block or floor sensor is wet, repair leak and dry off the top of the Bubble-Up® Interactive™.
- Vent line is obstructed, forcing the water up the overflow and triggering the water sensor terminal block. Clear obstruction.
- High water alarm float is triggered due to overfilling the main tank of the Bubble-Up® Interactive™. This can be caused by a failed or stuck solenoid, tangled float switch assembly, or a failed float switch assembly. Check to see that solenoid and float switch are working properly and replace if necessary.

Replacement Parts

The back of this manual shows the replacement parts on a Bubble-Up® Interactive™. Many are shown in Figures 6 through 14. Figure 13 and 14 show the parts included in the Retrofit Kit. This kit is used to upgrade a Bubble-Up® XP to a Bubble-Up® Interactive™. See dealer for more information regarding this Retrofit Kit. Here are some points to keep in mind when replacing parts:

- Before removing any parts, shut off the water inlet to the Bubble-Up® Interactive™. Set the handles on the bypass valve to the bypass position.
- Always unplug all of the power cords before working on the unit.
- Notice that, inside each end of the blue water tubing there is a stainless steel insert and a plastic ferrule. This is an important part of the connection. You may need to replace this ferrule when you replace one of these connections.

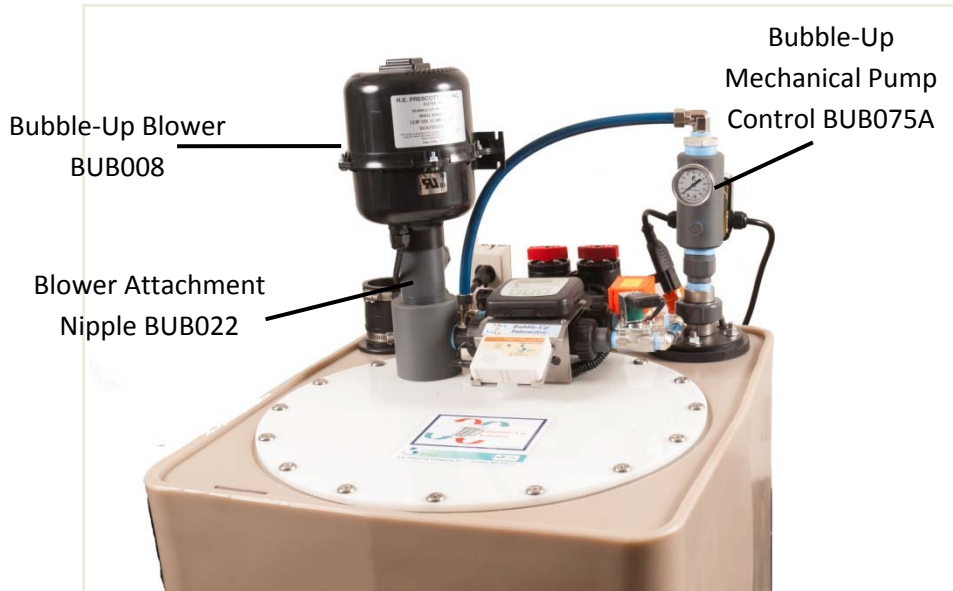


Figure 9

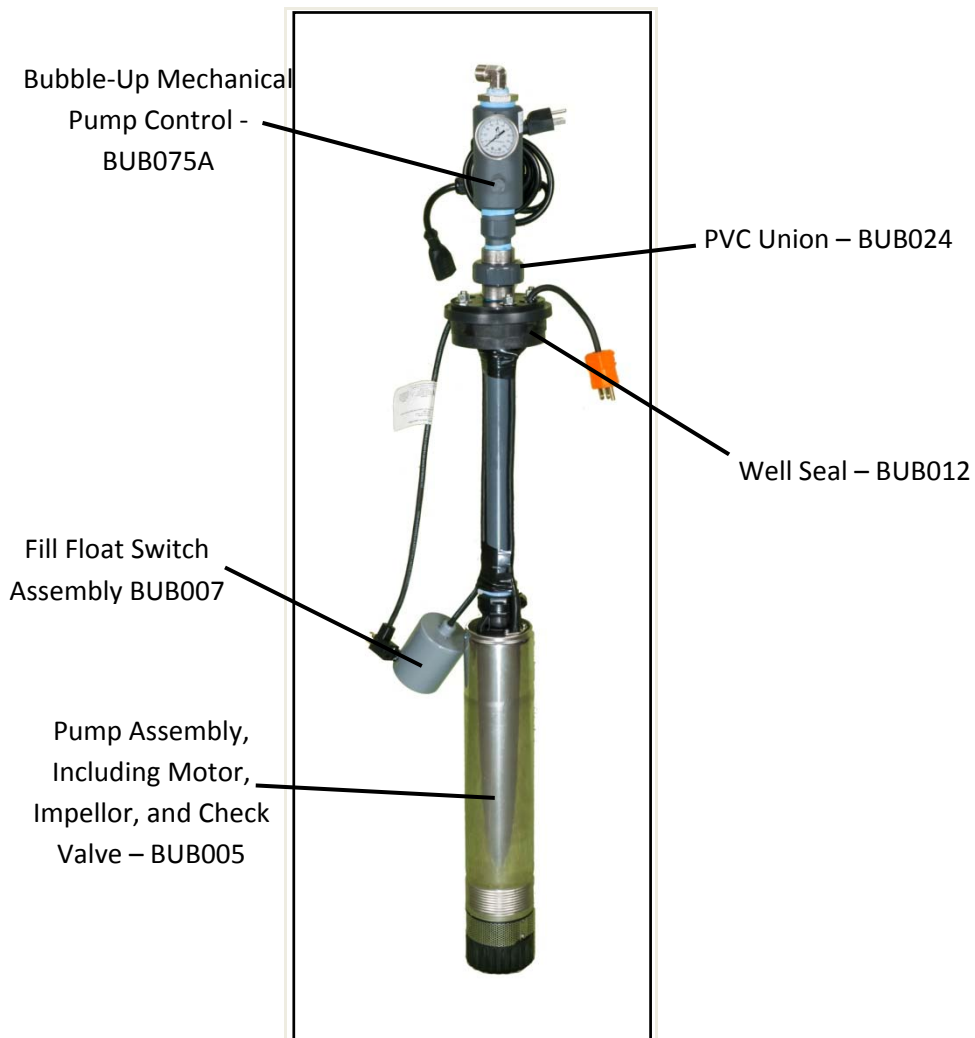


Figure 10 - Pump Assembly with Control

Pre-filter, Paper
Element – 83310
(Sold separately)



2.1 Gallon Water Expansion Tank –

Figure 11 – Accessories 41510 (included with purchase)



Figure 12 – Bubble-Up Mechanical Pump Control Assembly– BUB075A

Retrofit Kit

A retrofit kit is available to convert an XP style Bubble-Up to a Bubble-Up Interactive. This kit includes all of the parts necessary for the conversion. Seen below are the parts included in the retrofit kit.



Figure 13 – Interactive Components

Water Alarm Valve Control
Auxiliary Water Alarm Sensor
9 volt Battery
Water Alarm Power Supply
Water Alarm Bracket
Terminal Block and Screws

Motorized Ball Valve and Solenoid Assembly (1/2" or 3/4")

Bubble-Up®
Interactive™ Overflow
Pipe with Plug and
Vented Elbow



Water Alarm Float Wires
Connect to terminal Block



Low water float
switch grommet

High Water Alarm Float Assembly

Figure 14 – Overflow and High Water Alarm

Parts Listing:

<u>Item#</u>	<u>Description</u>	<u>Quantity</u>	<u>Unit</u>
BUB057	Bubble-Up Interactive Tank	1	each
BUB058	Bubble-Up Interactive Tank Cover	1	each
BUB009	PVC Manifold – air-water coupling	1	each
BUB004	9" Grid chamber with grids	1	each
BUB011	6' supply cord 16/3, yellow	1	each
BUB007	Solenoid Float switch assembly	1	each
BUB008	Blower	1	each
BUB012A	5" X 1" Gasket #3231	1	each
BUB012B	5" X 1" Top #3628	1	each
BUB012C	5" X 1" Bottom #3629	1	each
BUB035A	3/8" X 2.5" S.S. HEX BOLT	4	each
BUB035B	3/8" S.S. WASHER	4	each
BUB035C	3/8" ZINC PLATED NUT	4	each
BUB300	1/2" Solenoid and Water Alarm Valve Assembly	1	each
BUB310	3/4" Solenoid and Water Alarm Valve Assembly	1	each
BUB020	18" Solenoid Cord	1	each
BUB021	3/16" x 1.25" x 50' foam gasket	0.05	each
BUB022	2" X 4" SCD 80 TXPE Nipple	2	each
BUB023B	1" X 17" SCD 80 Tube	1	each
BUB026	1.25" X 1" PVC SCD 80 Bushing	1	each
BUB028	2" X 35" Slotted PVC Downcomer	1	each
BUB031B	1/4" SCD 80 Nipple Standoff	1	each
BUB033	#12 X 1.25" Phil Flat Head Tap Screw	8	each
BUB034	#12 X 3" Phil HD Flat Tapping Screw	1	each
BUB035	#14 Finishing Washer	8	each
BUB036	2" Adaptaflex, Air Outlet	1	each
BUB037	1.25" Adaptaflex, Overflow	1	each
BUB038	5/8" Delrin Sleeve	2	each

Bubble-Up® Interactive™ Radon Removal System

BUB042	5/8" X 1/2" W/Stop Ell – 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
BUB051B	Sta-Rite Bottom Suction, 20DOM05121+1	1	each
BUB075A	7 GPM Mech. Pump Control Assembly	1	each
BUB075B	14 GPM Mech. Pump Control Assembly	1	each
BUB080	Meter Control Assembly W/ Transformer	1	each
CD1402-01	Manifold w/o Ports w/Meter	1	each
CV3630	Meter Control Mounting Plate	1	each
CV3006	Bypass	1	each
CV3007-04	1" Plastic Male NPT Assembly	1.5	each
56525B	1 1/4" T X T X T SCD 80 Tee	1	each
56655	1 1/4" SCD 80 Plug	1	each
BUB055A	1/4" npt SS Screen Breather Vent	1	each
BUB031C	1 1/4" X 48" SCD 80 Nipple	1	each
BUB031D	1/4" X 1/8" SS R-Coupling	1	each
BUB030F	Alarm Float Adapter - 1-1/4" x 1/4"	1	each
BUB055J	High Water Float Switch	1	each
BUB320A	Water Alarm Valve Control W/ Sensor Valve, Transformer and Battery Backup	1	each
BUB055C	Water Alarm Control Bracket	1	each
BUB055D	Water Alarm Control Bracket Mount	1	each
BUB055E	Water Alarm Control Bracket Screw	2	each
BUB055F	Water Alarm Control Bracket Nut	2	each
PA-260-300	Leak Sensor Terminal Block	1	each
BUB055G	Leak Sensor Terminal Block Standoff (1/4" nylon)	2	each
BUB055H	Leak Sensor Terminal Block Screw	2	each

BUB009B	1/2" XP Adapter	1	each
CV3151	AB1 Nut	1	each
CV3150	Split Ring	1	each
BUB030G	2" SCD 80 PVC Street X Female Air Outlet Adapter	1	Each
BUB330	Low Water Float Cord Seal Low Water Float w/ WT	1	Each



Start-Up Data

For service, call: _____

Installer: _____

Address:

Serial Number:

Start-Up Notes

Fill Rate:

Radon In:

Radon Out:

Appendix A:

7 GPM Bubble-Up Mechanical Pump Control Assembly Manual

Part Number BUB-075A, 7GPM Standard 45/65 Pressure Switch

For use with only 115 volt Bubble-Up pumps.



Patent Number: US 8,393,875 B2

A. SETTING PRESSURE SWITCH FOR PROPER OPERATION:

1. Always unplug the pressure switch before removing pressure switch cover and making adjustments. See pressure adjustment instructions under the cover.
2. Adjust the large spring only until the pressure switch turns on at 45 PSI.
3. Do not adjust the small spring. This will keep 20 psi differential.

B. HOW IT WORKS

Pressure switch is connected to the venturi throat pressure. When there is ½ to 1 GPM flow through the venturi the pressure switch senses less than 65 psi. This keeps the pump running at low flows.

C. INSTALLATION

1. Use only 115 volt outlet for the Bubble-Up mechanical pump control.
2. The bottom 1" schedule 80 union and top 1/2" PEX fittings are to be water tight and secure.
3. Check that the pump is primed before plugging in the Bubble-Up mechanical pump control.
4. The Bubble-Up mechanical pump control is supplied with 115 volt electrical cords. Connect the pump's male power plug into the Bubble-Up mechanical pump control female cord.
5. To start the pump, refer to OPERATION below.
6. The pressure switch factory set at to turn the pump on at 45 PSI. To set pressure switch for proper operation see instructions above.

WARNING! Unplug the Bubble-Up mechanical pump control before removing the pressure switch cover.

7. Always use the bladder tank provided with the Bubble Up. The correct pre-charge air pressure in the tank is 40 psi.

D. OPERATION

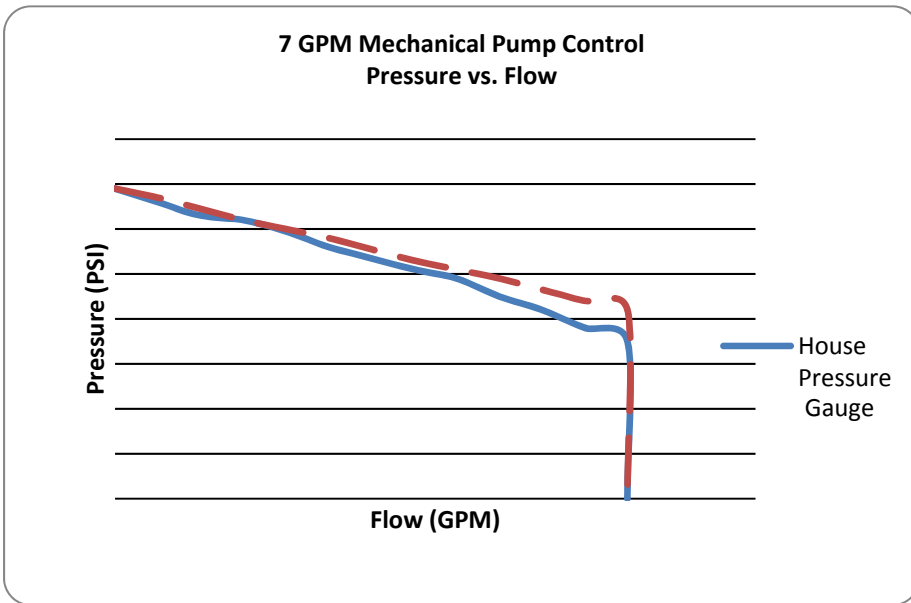
See setting pressure switch above. The Bubble-Up mechanical pump control starts the pump when the pressure drops to 45 PSI. The pump will run constant when the flow is greater than 1/2 to 1 GPM. When water flow falls below 1/2 to 1 GPM, water fills the required cycle tank providing a minimum run time before the pump is shut off.

Internal parts include: 2 - Check Valves, a Nozzle and Throat Assembly with retainer, Double Check Valve and Nozzle Retainer and 3 screws.



TECHNICAL DATA	
Flow Rate.....	See Pressure flow chart below
Power source.....	115 Volt AC, 60 Hz, single phase
HP rating	1.5 HP 115 volt
Operating Pressure Range.....	0 – 75 PSI
Maximum Allowable Pressure.....	80 PSI
Maximum Liquid Temperature.....	100°F
Connection.....	1" SCD 80 union inlet, 1/2" PEX outlet
Protection Level.....	UL Listed Pressure Switch & cords

7 GPM Mechanical Pump Control Parts List	
1. 5/8" X 3/4" W/ Stop ELL-NP	9. Stainless steel nozzle retainer (single)
2. 1 1/4" X 3/4" Bushing-NP	10. Nozzle and Throat (part of repair kit)
3. 1 1/4" Bubble-Up Mechanical Pump Control Body	11. Stainless steel screws (qty. 3)
4. Back Mount Pressure Gauge	12. 1/4" PVC plug
5. 45/65 Standard Pressure Switch	13. Male And Female 115 Volt Power Cords
6. 1/4" Nickel plated hex nipple	14. Power cord connects to pressure switch (qty. 2)
7. Check valve (qty. 2, part of repair kit)	15. 1" Male X 1 1/4" Male Check Valve
8. Stainless steel check retainer (Single)	16. 1" PVC SCD 80 Union



Appendix B:

Meter Control Manual

METER CONTROL FOR BUBBLE UP® XP AND INTERACTIVE™ PART NUMBER BUB080 VER. 101.1



Display Operation

The display on the meter control system displays the following information by pressing the corresponding buttons. These are (working from left to right across the display):

- Flow: Displays CURRENT flow rate, gal/min.
- Total Flow: Displays TOTAL gallons treated since last meter reset, gal.
- Peak Flow: Displays PEAK flow rate since last meter reset, gal/min.

The display also has three informative lights:

- Green Power Light: System is plugged in and fully functioning.
- Yellow Warning Light: Will blink when system is at 80% of threshold gallons.

- Red Expired Light: Lit when system is at 90% of threshold gallons.
- At 100% threshold gallons the red light will blink, and the meter control will beep three times every 15 seconds and output 2 will provide 12 V AC 30 ma power. The beep can be silenced by pushing any button, and will remain silent for two days.
- To reset threshold and or beep continue to **programming**.

Programming

Press all three buttons of the display simultaneously to enter Program Mode:

- The Flow button toggles to next screen, also acts as the Enter Button.
- The Total Flow button toggles the values **up**.
- The Peak Flow button toggles the values **down**.

Screen One: **CLR MEMORY YES NO. YES** to clear memory and reset threshold or **NO** to continue programming.

Next Screen: **SET PULSES**

- Should be factory set at 83 pulses.

Next Screen: **SET THRESHOLD TOTAL YES or NO**

- Choose **YES** or **NO** to use threshold function. The threshold function utilizes the yellow and red display lights, along with 12 V AC Output 2 and audible alarm.

Next Screen: **SET THRESHOLD TOTAL** (set gallons for 12 V AC at connection Opt2, .030 amps max.)

- Should be factory set at 80 which translates to 80,000 gallons.
- 80,000 gallons is an estimated yearly service reminder for 4 people using 50 gallons per day each.
- This threshold can be set for your particular application at this time.
- Yellow Warning Light will flash at 80% of threshold gallon setting.
- Red Expired Light will light at 90% of threshold gallon setting.
- At 100% threshold gallons the red light will blink, and the meter control will beep three times every 15 seconds and output 2 will provide 12 V AC 30 ma power. The beep can be silenced by pushing any button, and will remain silent for two days. To reset threshold and alarm follow the Clear Memory instructions above.

Next Screen: **SET GAL/MIN** (set GPM flow for 4-20 ma connection, J2 +/-)

- There is no factory setting.
- Set max flow GPM value for 20 ma flow signal.

Next Screen: **SET GAL 1** (set gallons for 12V AC output at connection Opt 1, .030 amps max.)

- Set between 1 to 990 gallons for connection Opt1 output interval.
- You can also set at zero for Opt1 to be used as a flow switch sensitive at .5 GPM.

Next Screen: **SET MIN 1** (set minutes for 12 V AC connection, Opt1 minimum run time)

- Set between .1 to 90 minutes for connection Opt1 output minimum run time.

END OF PROGRAMMING

Appendix C:

Bubble Up® Warranty

April 1, 2010

R.E. Prescott Co., Inc. warrants to the original purchaser of the Bubble Up® radon system that the product is in good working condition, according to its specifications at the time of shipment, for a period of three years from the date of original purchase.

Should the product, in R.E. Prescott Co., Inc.'s opinion, malfunction within the warranty period, R.E. Prescott Co., Inc. will at its discretion repair or replace the Bubble Up upon receipt with an equivalent unit. Any replaced parts become the property of R.E. Prescott Co., Inc. This warranty does not apply to a Bubble Up which has been damaged due to accident, misuse, abuse, improper installation, usage not in accordance with product specifications and instructions, natural or personal disaster, or unauthorized alterations, repairs or modifications.

- The warranty applies only to defects in workmanship.
 - The warranty makes no claims regarding suitability of the product for a particular use or environment.
 - Only products manufactured by R.E. Prescott Co., Inc. are covered by the standard warranty. Third party products used in R.E. Prescott Co., Inc. components will be covered by the third party warranty.
 - **A serial number is required for any warranty service.** R.E. Prescott Co., Inc. asks you to record the serial number on the outside of the packaging when shipping the product.
 - Proof of purchase may be required, but only if some doubt exists regarding warranty eligibility. Late model products are assumed to be under warranty. R.E. Prescott Co., Inc. accepts originals, photocopies and faxes as proof of purchase when required.
 - Unauthorized repairs to an R.E. Prescott Co., Inc. product will void the warranty offered by R.E. Prescott Co. R.E. Prescott Co., Inc. reserves the right to refuse to service any product which has been altered, modified or repaired by non-R.E. Prescott Co., Inc. authorized service personnel.
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- After a warranty has expired, R.E. Prescott Co., Inc. charges a flat rate of \$75.00 per hour to repair the product. Other circumstances which violate the terms and conditions of the warranty (abuse, misuse, unauthorized repair, etc.) are not eligible for this "out of warranty" arrangement.
 - Standard warranty service consists of repair upon receipt. You are responsible for the cost of shipping the product to R.E. Prescott Co., Inc. R.E. Prescott Co., Inc. pays the cost of returning a product to you.
 - R.E. Prescott Co., Inc. reserves the right to replace the product with a service product at their sole discretion at any time.

Thank you for choosing REPCO Bubble Up® Radon Removal systems. If you have any further questions please feel free to contact us.

