SERVICE MANUAL

for

PureWaterCooler™

by Vertex

Model 7000

Table of Contents

PWC-7000 Cooler
1. Introduction

The PWC-7000 line of point of use coolers are designed to give years of reliable service The cooler has 2 spigots that dispense filtered water at 2 different temperature levels – hot and cold temperature water. The cold tank holds 1.1 gallons of water and is constructed of stainless steel. The main (room-temp) tank holds 4.4 gallons of water and can be accessed for servicing the float mechanism and for cleaning by removing the cooler main top cover (see section 3).

The hot tank is made of stainless steel and holds 1.0 gallons. It is important not to turn on the hot tank when there is no water in it as this will damage the heating element.

The compressor is a sealed unit and is not serviceable in the field. The compressor can be replaced by a qualified refrigeration technician with proper tools and equipment.
Please consult the factory if the compressor needs servicing.
CAUTION: *If the compressor has been stopped by switching it off or unplugging power*, WAIT 10 MINUTES *before turning the compressor on again. The compressor may stall and burnout if powered back on without waiting.*

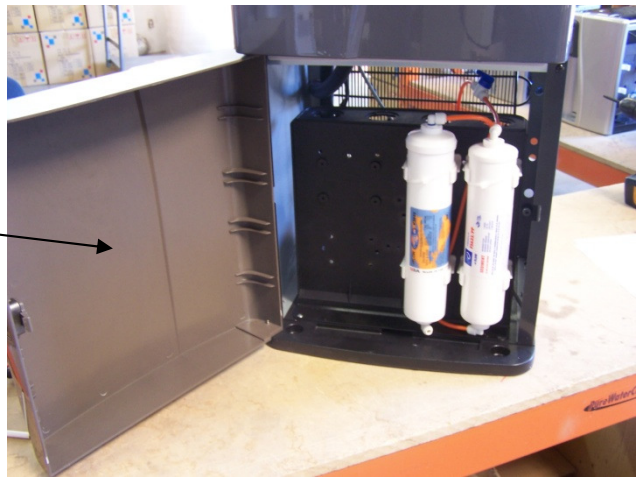
The cooler makes clean water by filtration or by the reverse osmosis process. Water enters the back of the cooler and then passes through the filtration system. A feed water ball valve is located near the filters and must be turned to the <u>on</u> position to allow the unit to make water. Electrical power is not required for the cooler to make purified water. CAUTION: The carbon filtration versions of the cooler (PWC-7000F) should not be used with water hardness over 7 grains because of lime scale build up on the heating element. If hardness is higher than 7 grains, softening of the feed water is recommended or another option is to install a “phosphate” filter to the filter system.

2. Cooler Set-Up (for new cooler installation)

Feedwater/Drain Connections

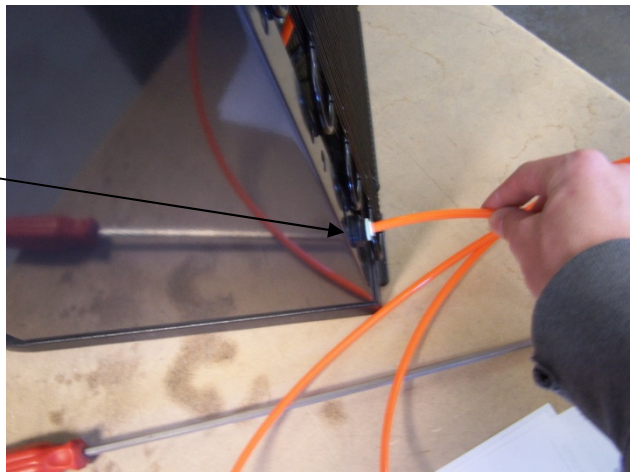
-Feed Connection

2.1 Open hinged door to access filter compartment



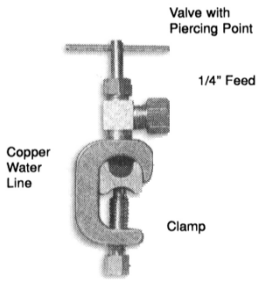
2.5 Remove feed water plug (orange) from back of cooler.

2.6 Connect supplied orange feed water tubing to feed connector on back of cooler.



2. Cooler Set-Up cont.

2.4 Make feed water connection to cold water line.
A self piercing saddle valve is provided.



Feedwater connection (RO & filtration coolers)
(For use on copper tubing)
Use supplied self piercing saddle valve. Connect to water inlet on cooler using 1/4" tubing. Clamp saddle valve over copper feed water line (cold water line only). Tighten needle valve until tube is pierced. Retract needle 1 -2 turns to start water flow.

2.5 <u>Flushing carbon fines from carbon filter</u>.
Most carbon filters have fine particles of carbon material in the filter that will be swept into the water stream when the first water flows through the filter. Although not harmful, these carbon fines in the water are unsightly. Flush the carbon fines out of the filter before filling cooler tanks with the following procedure.

2.6 Remove outlet line of carbon filter (bottom)

2.7 Attach 3 feet of ¼" tubing to the carbon filter outlet port (flush tubing)

2.8 Place flush tubing in bucket to catch water carbon fines.

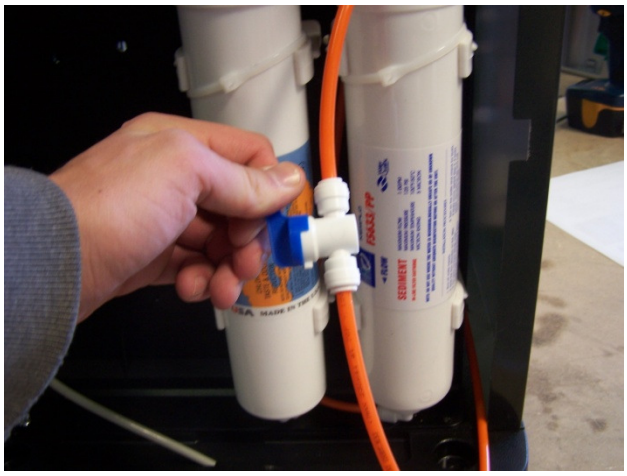
2. Cooler Set-Up cont.

2.9 Turn on feed water at source and turn ball valve at filter to "on" to let the water flush the filter.

2.10 Flush until water flows clear (1 – 2 gallons)

2.11 Remove flush line. Reconnect tank line to outlet of carbon filter

2.12 WARNING: Do not turn on cooler hot power until cooler tanks are full of water.



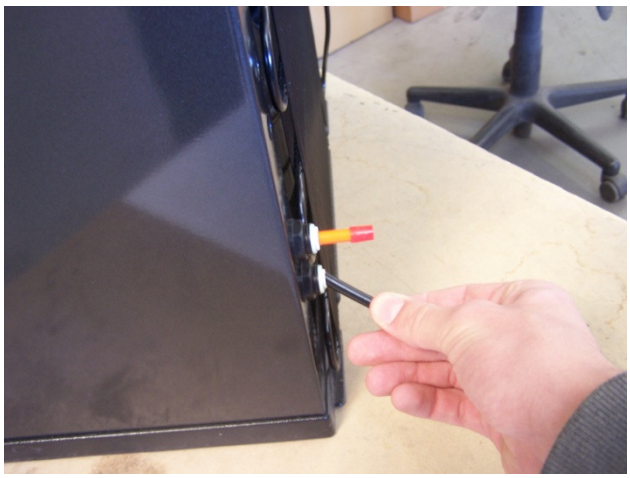
-Drain Connection

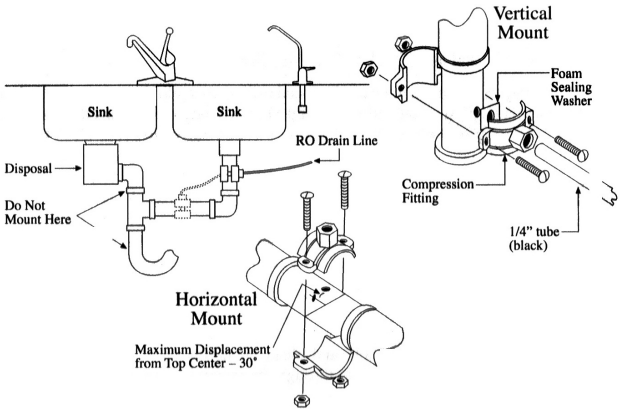
2.9 Drain Connection (for units equipped with RO)

2.10 Remove drain plug (black) from back of cooler

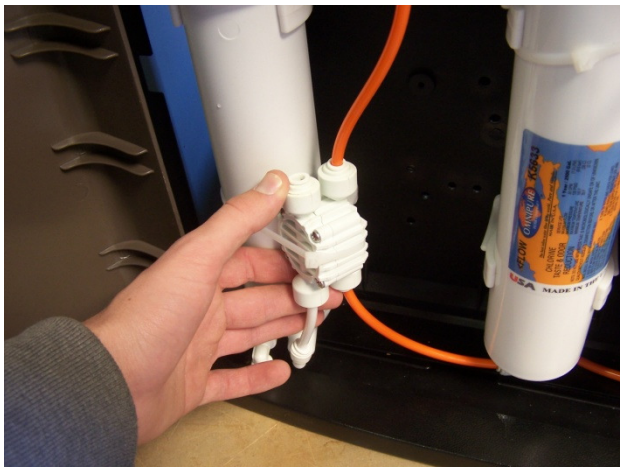
2.11 Connect supplied black tubing to drain connector on back of cooler

2.12 Attach supplied drain saddle to a standard 1 ½" drain pipe see fig. 1 below





Drain saddle connection method
Drain connection required only for cooler with reverse osmosis filtration
Figure 1



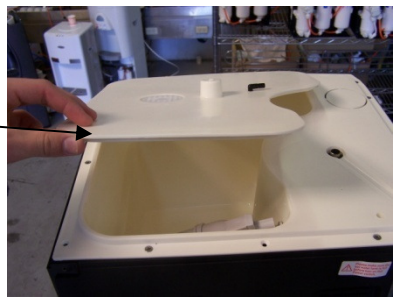
RO filter set showing autovalve.
The autovalve automatically turns off the water flow when the tanks are full

3. Top Cover Removal

3.1 Remove (2) screws on back of cooler top cover

3.2 Lift cover

3.3 Lift Lid



3.4 Room tank is now accessible for cleaning and servicing other parts of the cooler.

3.5 Reinstall in reverse order

4. Remove/Replace Mechanical Float Valve Assembly

4.1 Remove top lids from cooler as performed in Section 3.

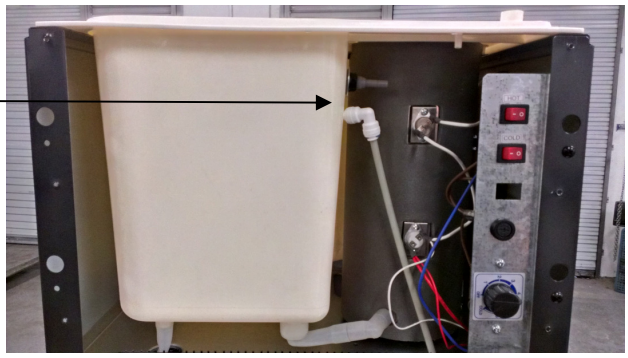
Remove Black Screws (4)

4.2 Remove Silver Screws (2)

4.3 Remove Back Panel

4. Remove/Replace Mechanical Float Valve Assembly

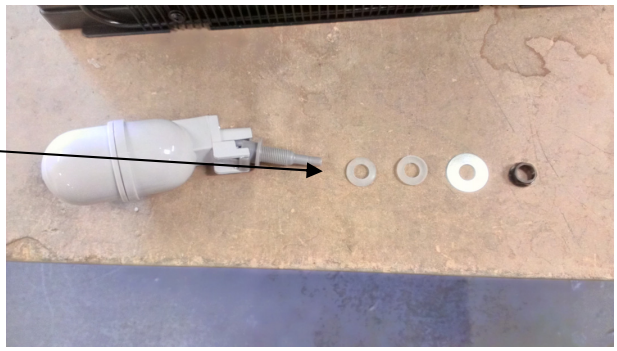
4.4 Remove ¼” elbow from stem.



4.5 Remove nut from float assembly. This is easily done by turning the float while holding the nut.

4.6 Remove float mechanism from main tank.

4.7 Complete Float assembly (removed)

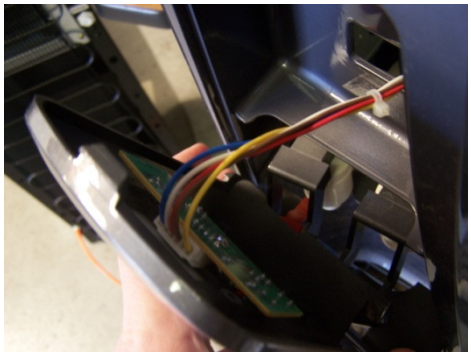


4.8 Reassembled in reverse order.

5. Removing/Replacing Control Panel and Circuit Board

5.1 Place hand under control panel and pull up and out.

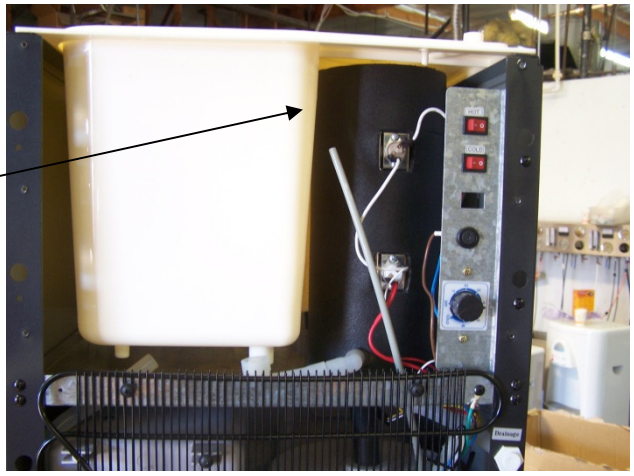
5.2 Disconnect connector from circuit board.



5.3 Remove screw from circuit board.

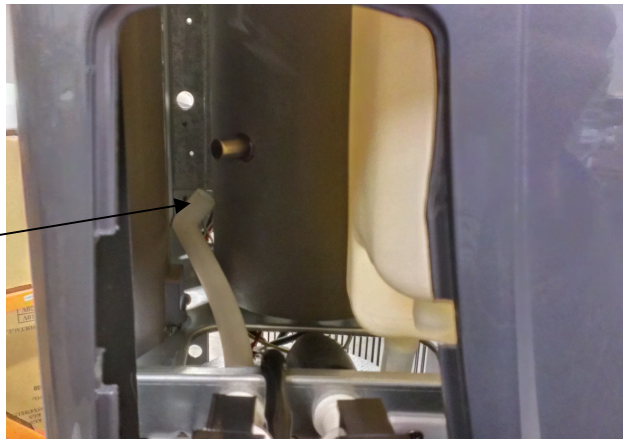
6. Remove/Replace Hot Tank

6.1 Follow proper procedures for removing float valve assembly as described in Section 4.



6.2 Remove control panel as in Section 5. (Disconnecting wire not necessary)

6.3 Remove silicon tube connected to hot tank, easily accessible through the control panel opening.

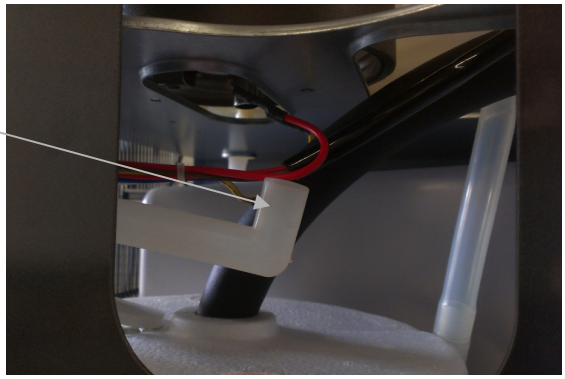


6.4 Remove cup-holder panel on left side of cooler. Reach into the cabinet through the control panel opening and apply pressure on the side of the cup-holder panel as well as on its rear. The cup-holder panel will unclip on the left side as seen in the picture. Then pull the panel to the left to free the panel from the cooler.

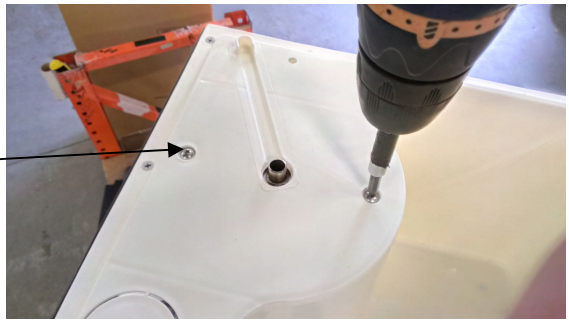
6. Remove/Replace Hot Tank

cont.

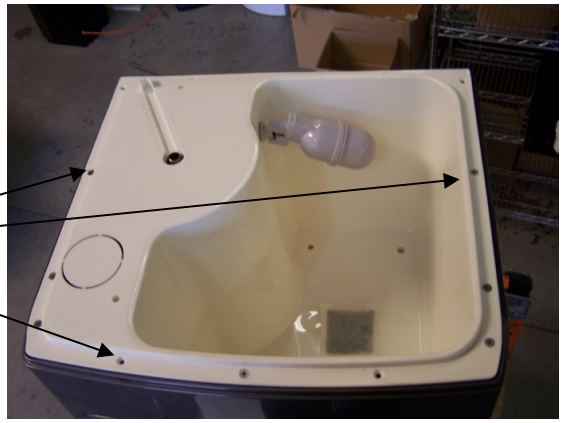
6.5 Remove silicon tube connected to bottom of hot tank by reaching through the cup-holder panel opening.



6.6 Remove 2 screws on top of hot tank.



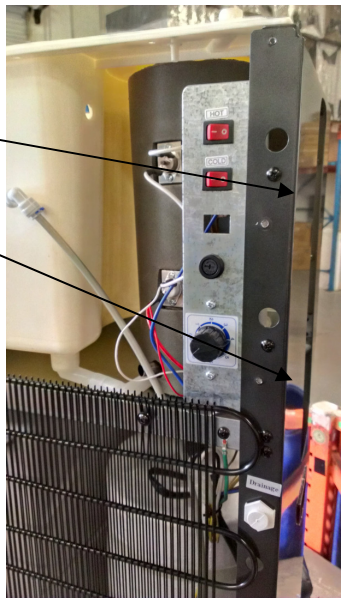
6.7 Remove 9 screws mounting main tank.



6. Remove/Replace Hot Tank

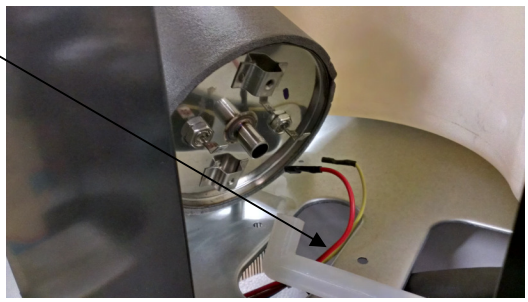
cont.

6.8 Remove two black screws.



6.9 Disconnect four electrical connectors and silicon tube from hot tank. Do not disconnect electrical connectors from components on bracket.

6.10 While gently lifting the main tank up, swing the hot tank out of the cooler. When the electrical connectors connected to the bottom of the hot tank are exposed, reach in through the cup-holder opening and disconnect them. The hot tank is now free from the cooler.



6.11 Reassemble in reverse order.

7. Remove/Replace Spigot Internals

7.1 Remove control panel as in Section 5.

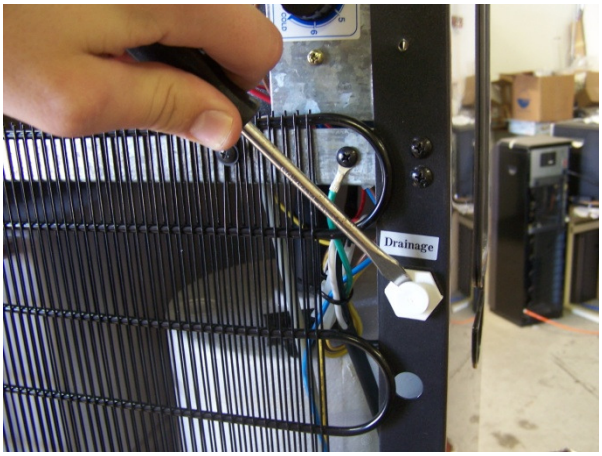
7.2 Unscrew lever assembly from spigot body and remove.

7.3 Reassemble in reverse order.

8. Draining Cooler Tanks

Completely draining the tanks is required when shipping the cooler or when one the of the tanks needs replacing. This procedure will allow you to remove all the water from the cooler.

8.1 There are 3 ports located on the back of the cooler (one for each tank)



8.2 For all ports, using a flat head screwdriver, pry the plug out until you can grasp it with your fingers.

8.3 Remove the plug with fingers. Water will pour from the port.

8.4 Drain any remaining water in the system by depressing the spigots.

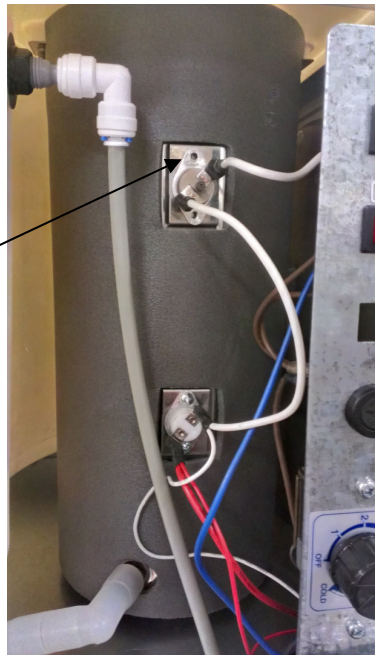
9. Remove/Replace Hot Tank Sensor

There are two thermal sensors on the hot tank. The lower sensor controls the heating element function and the upper sensor is for high temperature cut out. If the hot tank is not working, one or both of the sensors may have failed in the open position. To check for this condition, unplug the cooler from main power, disconnect one of the electrical terminals on the sensor. Using an ohm meter, check for continuity. If there is no continuity, the sensor is bad and must be replaced.

9.1 Remove the top and back of the cooler per section 3 to gain access to the hot tank.

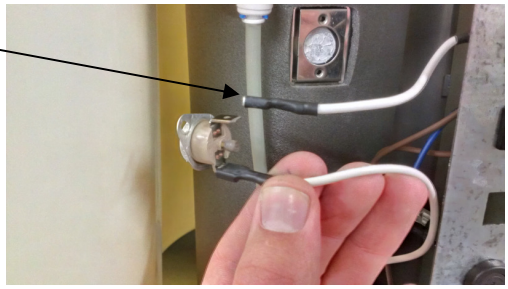
9.2 The hot tank does not have to be removed from the cooler to change the sensors. It is recommended that the sensors be replaced one at a time so as to avoid confusion when rewiring.

9.3 Remove the two screws that hold each sensor to the tank. The sensor can now be removed.



9.4 Remove the electrical terminals from the sensor.

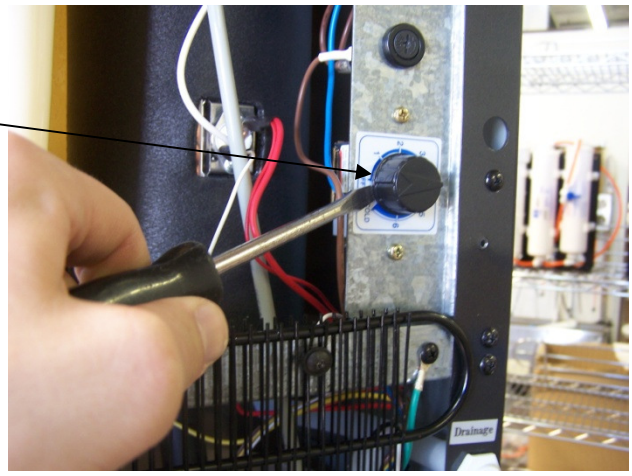
9.5 Reassemble in reverse.



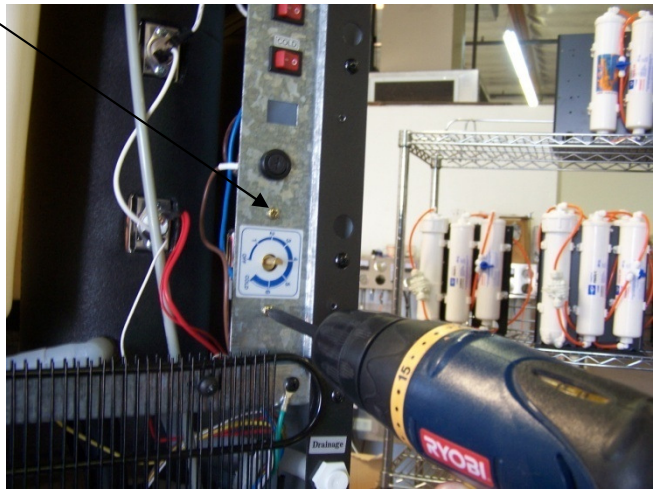
10. Remove/Replace Cold Temperature Switch and Sensor

The cold temperature switch includes the thermal sensor which is attached to the switch. The sensor probe (integral with the switch) is inserted into the receptacle at the top of the cold tank.

10.1 With top and back cover removed, remove adjustment knob using a flat head screwdriver



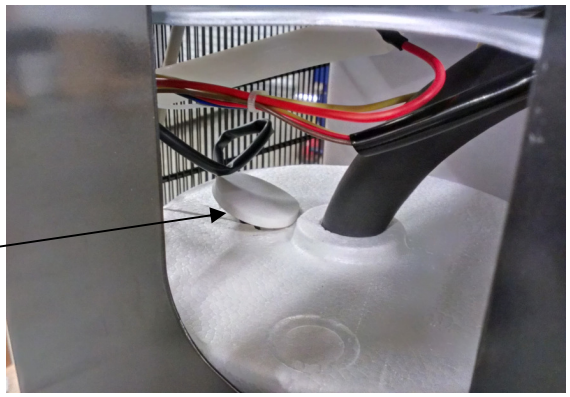
10.2 Loosen (2) screws holding the switch to the mounting plate.



10. Remove/Replace Cold Temperature Switch and Sensor

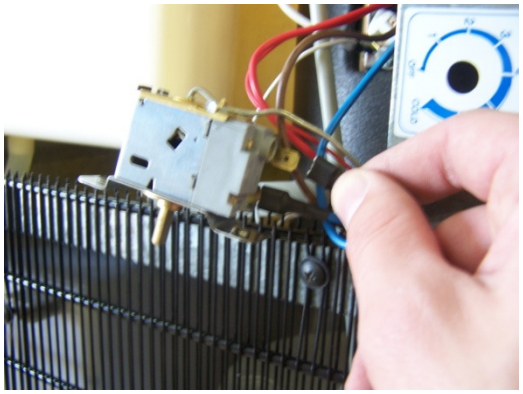
cont.

10.3 Remove cup-holder panel as in section 6.



10.4 Carefully remove the sensor probe from the receptacle at the top of the cold tank.

10.5 Disconnect (2) electrical terminal wires.



10.6 Lift and remove switch assembly from cooler.

10.7 Replace new switch in reverse order.

11. Sanitization Procedure

The sanitization procedure is performed to reduce/eliminate any bacteriological growth in the cooler tanks and dispensing plumbing. Bacteriological growth can be the cause of some taste in the water.

The procedure is as follows:

1. Mix ½ teaspoon of common household bleach (5.25%) with 5 gallons of clean water.
2. Unplug the cooler from the power source.
3. Drain all water from the cooler tanks.
4. Pour the sanitizing solution into the main (room temperature) tank until full.
5. Open all 3 spigots to allow sanitizing solution to fill the dispensing faucets. Close the faucets.
6. Let the sanitizing solution stand in the cooler for 10 minutes.
   CAUTION: Leaving the sanitizing solution in the cooler for more than 10 minutes can cause taste problems in the water.
7. Completely drain the sanitizing solution from all the tanks.
8. Fill the main (room temp.) tank with clear tap water to rinse out the sanitizing solution.
9. Completely empty the rinse water from the tanks.
10. The cooler is now sanitized and ready for use.

12. Trouble Shooting

Water not cold from cold tank

(Water dispenses from spigot but is not cold)

Possible causes	Solution .
1. Cooler not plugged in	Make sure power cord is plugged into wall socket
2. Power switch not on	Make sure cold power button on on front panel is on
3. Adjust temperature control	The thermostat temperature control adjustment is located on the right rear of the cooler
4. All cold water has been drained	Cooler needs time to recover. wait 10 minutes until water cools
5. Water not dispensing from cold spigot	Cold tank is frozen. Turn down cold temperature adjustment

12. Trouble Shooting

Cont.

No Hot Water from Hot Tank

Possible Causes	Solution
1. Cooler not plugged in	Make sure power cord is plugged into wall socket
2. Power switch not on	Make sure Hot power button on front panel is on and illuminated
3. Electrical terminal disconnected	Check to see that both wires are connected to the heating element terminals. These are located at the bottom of the tanks
4. Heating element failure due to scaling	Check for continuity across hot tank heater terminals. To do this, unplug unit from wall power. Disconnect one of the connector at the heating element terminals (at bottom of tank). Using an ohm meter, check for continuity across the 2 terminals. If there is no continuity (open), the tank must be replaced.

12. Trouble Shooting Cont.

No Hot Water from Hot Tank cont.

Possible causes	Solution
5. Thermal sensor failure	The thermal sensors are attached to the hot tank. The upper sensor is a 92 ºC sensor and functions as an over heat safety. The lower sensor is a 82 ºC sensor and controls the heating element function. The lower sensor would be the problem if there was no hot water. To see if the sensor is functioning properly, first unplug the cooler from the wall. remove the terminal from the sensor. Using an ohm meter, check for continuity If there is no continuity (open), replace sensor.

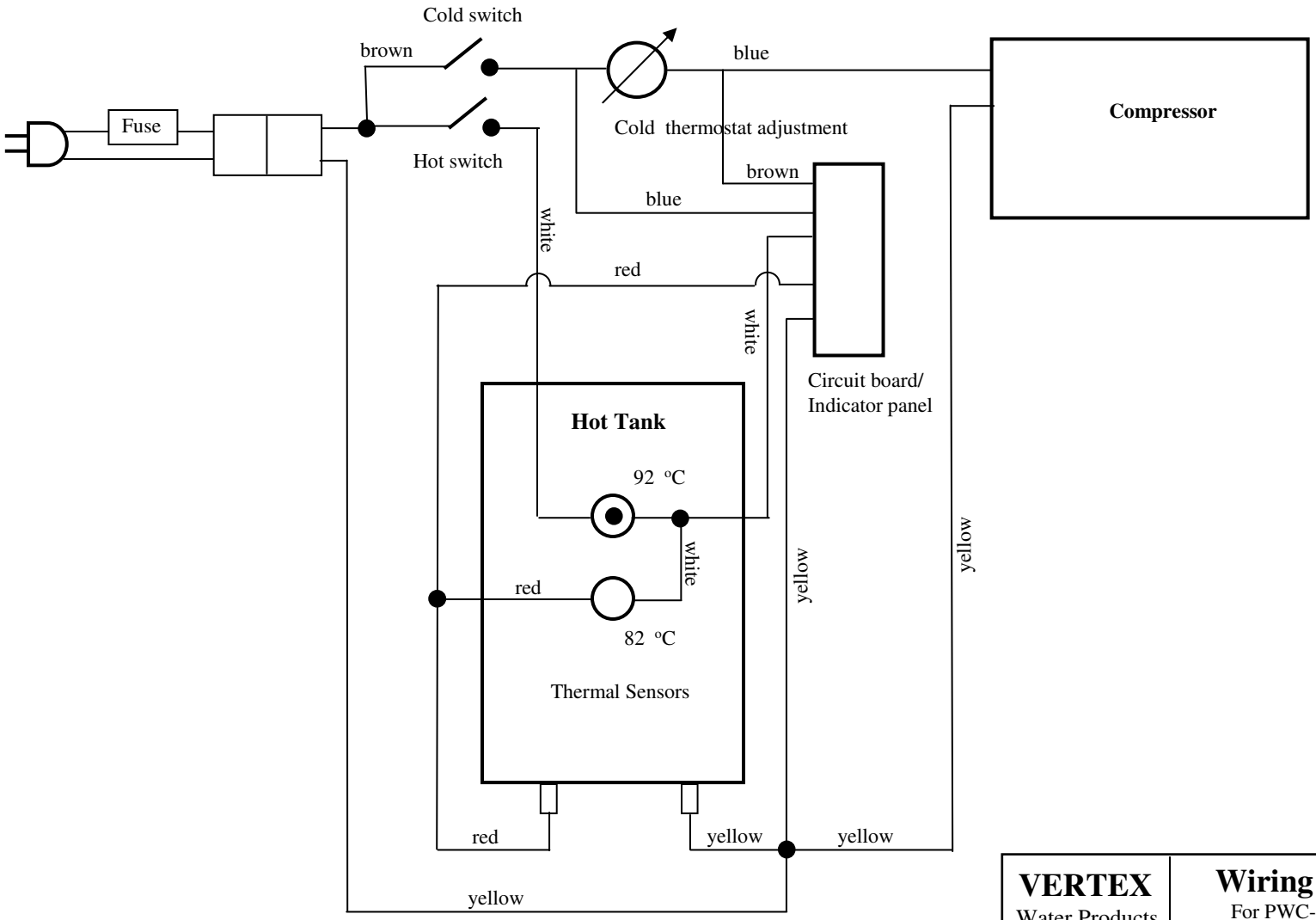
12. Trouble Shooting Cont.

No Hot Water from Hot Tank cont.

An indicator of a hot tank problem can also be the lights on the front control panel. Below is a table of trouble shooting help.

If the Hot Tank is not heating and the front panel lights are:

Front Panel Lights	Cause	Check
Hot Power – on Heating - on	Heating element disconnected or burned out	No Continuity across heating element
No lights at all Including cold power	Upper thermal sensor disconnected or burned out	No Continuity across upper thermal sensor
Hot Power – on Keep Warm – on Heating - off	Lower thermal sensor disconnected or burned out	No Continuity across lower thermal sensor



VERTEX Water Products Montclair, California		**Wiring Diagram** For PWC-7000 Cooler
	None Scale	**CL1-10001-13** Dwg. No.
	10/10/09 Date	**PWC-7000** Used on.

13. Specifications

Voltage/Frequency	120 VAC/ 60 Hz
Weight (dry)	48 lbs.
	Model PWC-7000
Total Water Capacity	6.3 gallons
Room temp. tank	4.2 gallons
Hot tank	1.0 gallons
Cold tank	1.1 gallons
Power Consumption Total	600 Watts
Hot Tank	500 Watts
Cold Tank	100 Watts
Temperature	
Hot	180 ºF average
Cold (adjustable)	38 ºF average
Refrigerant	R134a 36 mg.