



Operation and Installation Manual

Peerless[®] Partner[®] PV Series Indirect Fired Water Heater

Limited Warranty and Tank Replacement

GENERAL INFORMATION

**PLEASE READ INSTRUCTIONS COMPLETELY
BEFORE INSTALLING WATER HEATER**

IMPORTANT OWNER'S RESPONSIBILITY

PB Heat, LLC (herein called the Company) specifically does not expressly or impliedly warrant the merchantability or the fitness for any particular purpose or the performance of the heater within that system, nor does it assume liability for any consequential damage to general property or other components of the system.

This appliance is designed to heat water by circulating water from the boiler through the internal coil in the tank at pressures **not more than 150 psi**. This Peerless® Partner® PV Series Indirect fired water heater is to be used as a separate zone to a heating system boiler. The Company specifically does not warrant this tank for high temperature applications such as wood stoves or steam producing systems. Such use of this product will automatically void the warranty.

The design anticipates the proper installation and care in use of the product. There is risk of property damage and personal injury inherent in the use of any hot water system. The Company cannot supervise the installation and therefore makes it a specific condition of the warranty that the customer will supervise the installation and use of this product to be sure they are performed in accordance with these instructions, as well as safe industry guidelines and proper local or national codes.

Generalized instructions and procedures cannot anticipate all situations. For this reason, only qualified installers should perform the installation. A qualified installer is a licensed person who has appropriate training and a working knowledge of the applicable codes, regulations, tools, equipment and methods necessary for safe installation of a boiler system and an indirect water heater.

An installation checklist has been provided to help the customer ensure that all procedures for a safe installation have been followed.

If questions regarding installation arise, check with your local plumbing and electrical inspectors for proper procedures and codes. Local codes take precedence over instructions in this manual.

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To fully understand the purchaser's responsibilities for installing the water heater, please read the warranty.

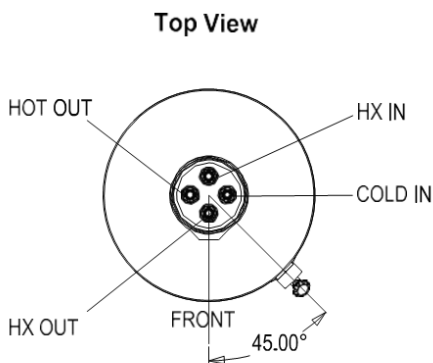


TM

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SPECIFICATIONS



Peerless® Partner® PV Tank Dimensions

Domestic Water Connection Sizes, NPT	Boiler Connection Sizes, NPT	Height (to connections), Inch	Tank Diameter, Inch
3/4"	3/4"	40.5"	22.75"
3/4"	3/4"	41"	28"
1 - 1/2"	1"	53.5"	28"
1 - 1/2"	1"	74"	28"

Peerless® Partner® PV Ratings



Water Heater Model Number	Potable Water Volume, gallons	Standby Loss, °F/h	Continuous Draw, gal/h	First Hour Rating, gal/h	Min Heat Source output, MBH	Min Heat Source Flow, gpm	Heat Source Friction Loss, Feet w.c.
PV-40	30.0	0.8	177	199	115000	8.0	18.7
PV-60	55.0	0.6	177	217	115000	8.0	18.7
PV 80	80.0	0.4	315	381	199000	14.0	16.0
PV-120	119.0	0.4	381	477	244000	14.0	20.0

These ratings were obtained with a heat source output and heat source flow rate as listed in the chart using the parameters of the Domestic Cold Water inlet at 58°F, Domestic Temperature Rise of 77°F and Boiler Temperature Output of 180°F. Other results will be obtained under different conditions.

Peerless Partner water heaters are exempt from ASME Section VIII, Division 1 Code construction per ASME Interpretation VIII86-136. These water heaters absorb less than 200,000 BTU/hr. when domestic water outlet temperature is 194°F and boiler water supply temperature is 240°F. Listed outputs are based on ASME Section VIII Interpretation VIII-1-86-136.

First Hour Ratings at 200°F boiler water & 130°F domestic outlet water*

PV40 @ 8 GPM Boiler Flow Rate*

Boiler BTU/Hr	Inlet Water Temp °F:				
	40.0	50.0	60.0	70.0	80.0
	1st Hour Rating (Gallons Per Hr.)				
190,000	270.6	289.2	312.8	350.6	384
180,000	270.6	289.2	312.8	350.6	384
170,000	265.4	289.2	312.8	350.6	384
160,000	251	281.9	312.8	350.6	384
150,000	236.7	275.1	297.8	347.7	384
140,000	222.4	258.2	279.4	325.9	373.8
130,000	208.1	241.3	261	304.2	348.7
120,000	193.8	224.5	242.6	282.5	323.6
110,000	179.5	207.6	224.2	260.8	298.4
100,000	165.2	190.7	205.9	239.1	273.3
90,000	150.8	173.8	187.5	217.4	248.2

PV40 @ 6 GPM Boiler Flow Rate***

Boiler BTU/Hr	Inlet Water Temp °F:				
	40.0	50.0	60.0	70.0	80.0
	1st Hour Rating (Gallons Per Hr.)				
170,000	250.2	267.3	288.9	323.6	354.2
160,000	250.2	267.3	288.9	323.6	354.2
150,000	246.9	267.3	288.9	323.6	354.2
140,000	232	258.2	288.9	323.6	354.2
130,000	217	241.3	262	319.9	354.2
120,000	202	224.5	256	297	351.2
110,000	187	207.6	236.5	274.1	323.8
100,000	172	190.7	217	251.2	296.4
90,000	157	173.8	197.5	228.3	268.9
80,000	142	157	178	205.3	241.5

PV60 @ 8 GPM Boiler Flow Rate*

Boiler BTU/Hr	Inlet Water Temp °F:				
	40.0	50.0	60.0	70.0	80.0
	1st Hour Rating (Gallons Per Hr.)				
190,000	288.6	307.2	330.8	368.6	402
180,000	288.6	307.2	330.8	368.6	402
170,000	283.4	307.2	330.8	368.6	402
160,000	269	299.9	330.8	368.6	402
150,000	254.7	293.1	315.8	365.7	402
140,000	240.4	276.2	297.4	343.9	391.8
130,000	226.1	259.3	279	322.2	366.7
120,000	211.8	242.5	260.6	300.5	341.6
110,000	197.5	225.6	242.2	278.8	316.4
100,000	183.2	208.7	223.9	257.1	291.3
90,000	168.8	191.8	205.5	235.4	266.2

PV60 @ 6 GPM Boiler Flow Rate***

Boiler BTU/Hr	Inlet Water Temp °F:				
	40.0	50.0	60.0	70.0	80.0
	1st Hour Rating (Gallons Per Hr.)				
170,000	268.2	285.3	306.9	341.6	372.2
160,000	268.2	285.3	306.9	341.6	372.2
150,000	264.9	285.3	306.9	341.6	372.2
140,000	250	276.2	306.9	341.6	372.2
130,000	235	259.3	280	337.9	372.2
120,000	220	242.5	274	315	369.2
110,000	205	225.6	254.5	292.1	341.8
100,000	190	208.7	235	269.2	314.4
90,000	175	191.8	215.5	246.3	286.9
80,000	160	175	196	223.3	259.5

PV80 @ 14 GPM Boiler Flow Rate*

Boiler BTU/Hr	Inlet Water Temp °F:				
	40.0	50.0	60.0	70.0	80.0
	1st Hour Rating (Gallons Per Hr.)				
290,000	480	521	520.2	585	664.6
280,000	480	521	520.2	585	664.6
270,000	466	521	520.2	585	664.6
260,000	451.2	499.3	520.2	585	664.6
250,000	436.4	482.7	503	585	664.6
240,000	421.6	466	485.5	568.9	664.6
230,000	406.7	449.3	468	548	635.6
220,000	391.9	432.7	450.5	527	610.8
210,000	377.1	416	433.1	506	586
200,000	362.3	399.3	415.6	485.1	561.3
190,000	347.5	382.7	398.1	464.1	536.5
180,000	332.7	366	380.6	443.2	511.7
170,000	317.9	349.3	363.1	422.2	487
160,000	303	332.7	345.7	401.3	462.2
150,000	288.2	316	328.2	380.3	437.5

PV120 @ 14 GPM Boiler Flow Rate*

Boiler BTU/Hr	Inlet Water Temp °F:				
	40.0	50.0	60.0	70.0	80.0
	1st Hour Rating (Gallons Per Hr.)				
400,000	677.3	703	712.1	776	912.6
390,000	677.3	703	712.1	776	912.6
380,000	659	703	712.1	776	912.6
370,000	644.1	703	712.1	776	912.6
360,000	629.3	696	712.1	776	912.6
350,000	614.5	679.3	712.1	776	912.6
340,000	599.7	662.7	687	776	912.6
330,000	584.9	646	669.6	776	912.6
320,000	570.1	629.3	652.2	754.8	912.6
310,000	555.3	612.7	634.9	734.2	891.4
300,000	540.4	596	617.5	713.6	865.7
280,000	525.6	579.3	600.1	693	840.1
260,000	496	546	565.3	651.8	788.7
240,000	466.4	512.7	530.6	610.7	737.4
220,000	436.7	479.3	495.8	569.5	686.1

* These ratings tables are outside of the scope of the AHRI IWH Certification Program.

AHRI ratings are shown on pg. 4. Contact factory for tank ratings at other conditions.

** PV40/PV60 Pressure Drop at 6 GPM is 10ft.

First Hour Ratings at 180°F boiler water & 130°F domestic outlet water*

PV40 @ 8 GPM Boiler Flow Rate*

Boiler BTU/Hr	Inlet Water Temp °F:				
	40.0	50.0	60.0	70.0	80.0
	1st Hour Rating (Gallons Per Hr.)				
140000	203.0	216.2	241.4	270.6	301.6
130000	203.0	216.2	241.4	270.6	301.6
120000	193.8	209.1	241.4	270.6	301.6
110000	179.5	193.5	226.4	261.7	301.6
100000	165.2	177.9	207.8	239.9	275.5
90000	150.8	162.3	189.2	218.1	250.1
80000	136.5	146.7	170.7	196.3	224.8
70000	122.2	131.1	152.1	174.5	199.4

PV40 @ 6 GPM Boiler Flow Rate***

Boiler BTU/Hr	Inlet Water Temp °F:				
	40.0	50.0	60.0	70.0	80.0
	1st Hour Rating (Gallons Per Hr.)				
130000	188.1	200.2	223.4	250.2	278.6
120000	188.1	200.2	223.4	250.2	278.6
110000	187.0	200.2	223.4	250.2	278.6
100000	172.0	182.6	217.8	250.2	278.6
90000	157.0	166.5	198.2	228.7	265.3
80000	142.0	150.5	178.7	205.7	238.2
70000	127.0	134.4	159.1	182.8	211.2
60000	112.0	118.4	139.5	159.8	184.2

PV60 @ 8 GPM Boiler Flow Rate*

Boiler BTU/Hr	Inlet Water Temp °F:				
	40.0	50.0	60.0	70.0	80.0
	1st Hour Rating (Gallons Per Hr.)				
140,000	221.0	234.2	259.4	288.6	319.6
130,000	221.0	234.2	259.4	288.6	319.6
120,000	211.8	227.1	259.4	288.6	319.6
110,000	197.5	211.5	244.4	279.7	319.6
100,000	183.2	195.9	225.8	257.9	293.5
90,000	168.8	180.3	207.2	236.1	268.1
80,000	154.5	164.7	188.7	214.3	242.8
70,000	140.2	149.1	170.1	192.5	217.4

PV60 @ 6 GPM Boiler Flow Rate***

Boiler BTU/Hr	Inlet Water Temp °F:				
	40.0	50.0	60.0	70.0	80.0
	1st Hour Rating (Gallons Per Hr.)				
130,000	206.1	218.2	241.4	268.2	296.6
120,000	206.1	218.2	241.4	268.2	296.6
110,000	205.0	218.2	241.4	268.2	296.6
100,000	190.0	200.6	235.8	268.2	296.6
90,000	175.0	184.5	216.2	246.7	283.3
80,000	160.0	168.5	196.7	223.7	256.2
70,000	145.0	152.4	177.1	200.8	229.2
60,000	130.0	136.4	157.5	177.8	202.2

PV80 @ 14 GPM Boiler Flow Rate*

Boiler BTU/Hr	Inlet Water Temp °F:				
	40.0	50.0	60.0	70.0	80.0
	1st Hour Rating (Gallons Per Hr.)				
220,000	367.4	396.7	408.7	458.7	528.4
210,000	367.4	396.7	408.7	458.7	528.4
200,000	362.3	396.7	408.7	458.7	528.4
190,000	347.5	382.7	400.6	458.7	528.4
180,000	332.7	366	383	453.5	528.4
170,000	317.9	349.3	365.4	432	515.1
160,000	303	332.7	347.8	410.4	488.7
150,000	288.2	316	330.2	388.9	462.3
140,000	273.4	299.3	312.6	367.4	435.8
130,000	258.6	282.7	295	345.8	409.4
120,000	243.8	266	277.4	324.3	383
110,000	229	249.3	259.7	302.8	356.6
100,000	214.1	232.7	242.1	281.3	330.2

PV120 @ 14 GPM Boiler Flow Rate*

Boiler BTU/Hr	Inlet Water Temp °F:				
	40.0	50.0	60.0	70.0	80.0
	1st Hour Rating (Gallons Per Hr.)				
300,000	519.2	537.1	560.9	610.5	726.8
290,000	519.2	537.1	560.9	610.5	726.8
280,000	510.8	537.1	560.9	610.5	726.8
270,000	496	529.6	560.9	610.5	726.8
260,000	481.2	513.6	555	610.5	726.8
250,000	466.4	497.5	537.3	610.5	726.8
240,000	451.6	481.5	519.7	594.3	712.7
230,000	436.7	465.4	502	573.5	687
220,000	421.9	449.3	484.4	552.8	661.3
210,000	407.1	433.3	466.7	532	635.6
200,000	392.3	417.2	449.1	511.3	609.9
190,000	377.5	401.2	431.4	490.5	584.2
180,000	362.7	385.1	413.8	469.7	558.5
170,000	347.9	369	396.1	449	532.8
160,000	333	353	378.5	428.2	507.2
150,000	318.2	336.9	360.8	407.4	481.5
140,000	303.4	320.8	343.1	386.7	455.8
130,000	288.6	304.8	325.5	365.9	430.1
120,000	273.8	288.7	307.8	345.2	404.4
110,000	259	272.7	290.2	324.4	378.7
100,000	244.1	256.6	272.5	303.6	353

* These ratings tables are outside of the scope of the AHRI IWH Certification Program.

AHRI ratings are shown on pg. 4. Contact factory for tank ratings at other conditions.

** PV40/PV60 Pressure Drop at 6 GPM is 10ft.

INSTALLATION GUIDELINES

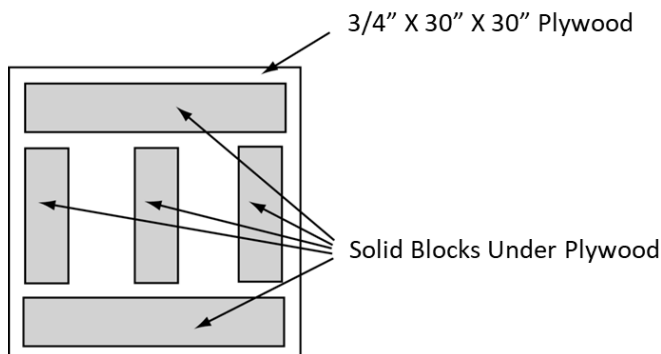
A. INSPECTING AND PREPARING THE HEATER

- ❑ Remove the cardboard box, which comes packaged with the heater. It should contain the following: Thermostat, T&P valve, brass "T", insulation, lid and screws.
- ❑ Do not cover or damage the temperature and pressure relief valve opening located in the topside of the tank (See FIGURE 1 and FIGURE 2).

B. LOCATION

- ❑ **CAUTION: All tanks will eventually leak at some unpredictable time.**
- ❑ Do not place the heater where there is a risk of property damage in the event of a leak.
- ❑ Place the heater on a solid foundation in a clean, dry location nearest the boiler.
- ❑ The heater should be protected from freezing and water lines should be insulated to reduce energy and water waste.
- ❑ Leave sufficient headroom to service the heat exchanger and electrical controls.
- ❑ Do not install in an area where flammable liquids or combustible vapors are present.
- ❑ **CAUTION: The heater's outer jacket is plastic and can melt.**
- ❑ Do not install in close proximity to wood burning stove or other high temperature apparatus.

NOTE: If heater is placed on blocks to raise it from the floor, be sure to support the **entire bottom** with at least $\frac{3}{4}$ " plywood on the top of the blocks.



C. PROTECTION FROM WATER DAMAGE

- ❑ **CAUTION: All water heaters have a risk of leakage at some unpredictable time.**
- ❑ **IT IS THE CUSTOMER'S RESPONSIBILITY TO PROVIDE A CATCH PAN OR OTHER ADEQUATE MEANS, SO THAT THE RESULTANT FLOW OF WATER WILL NOT DAMAGE FURNISHINGS OR PROPERTY.**

The Warranty provided assures replacement within its terms, but specifically does not warrant against consequential damage caused by a leaking water heater.

D. TEMPERATURE AND PRESSURE RELIEF VALVE

- ❑ **WARNING: A POTENTIAL HAZARD TO LIFE AND PROPERTY MAY EXIST IN ANY WATER HEATER IF AN APPROVED TEMPERATURE-AND-PRESSURE RELIEF VALVE IS NOT PROPERLY INSTALLED.**
- ❑ For protection against excessive pressures and temperatures in this water heater, install temperature-and-pressure protective equipment by local codes, but not less than a combination temperature-and-pressure relief valve certified by a nationally recognized testing laboratory that maintains periodic inspection of production of listed equipment of materials, as meeting the requirements for Relief Valves and Automatic Gas Shutoff for Hot Water Supply Systems, ANSI Z21.22-1971. This valve must be marked with maximum set pressure not to exceed the marked maximum allowable working pressure of the water heater (150psi). Install the valve into an opening provided and marked for this purpose in the water heater, and orient it or provide the tubing so that any discharge from the valve will exit only within 6 inches above, or at any distance below the structural floor and cannot contact any live electrical parts. The discharge opening must not be blocked or reduced in size under any circumstances.
- ❑ **CAUTION: A relief valve is designed to discharge excessively hot water. THE CUSTOMER IS RESPONSIBLE TO PROTECT PROPERTY AND PERSONNEL FROM HARM WHEN THE VALVE FUNCTIONS.**
- ❑ Install the T&P provided on hot water outlet of tank as shown in FIGURE 1 and FIGURE 2.
- ❑ Care must be taken to be sure that the stem of the pressure-and-temperature relief valve is immersed in the water within the top 6 inches of the tank.
- ❑ The drain line from the relief valve must not be concealed or blocked and must be protected from freezing.

- ❑ **WARNING: IF THE WATER SUPPLY IS FROM A WELL, OR KNOWN TO HAVE HARD WATER, IT IS RECOMMENDED TO USE A PRESSURE RELIEF VALVE IN THE COLD WATER LINE AS WELL AS A T&P VALVE IN THE HOT WATER LINE.**
- ❑ No valve of any kind should be installed between the relief valve and tank or in the drain line.

E. WATER SUPPLY CONNECTIONS

- ❑ **WARNING: Some local codes mandate the use of a backflow preventer or check valve or pressure-reducing valve. An adequate expansion tank (or other adequate means) must be installed to prevent pressure build up or damage from thermal expansion when a check valve or backflow preventer or pressure-reducing valve is used. Failure to do so could result in tank leakage and therefore void the warranty. (See FIGURE 1 and FIGURE 2 for proper location.)**
- ❑ All water supply fittings on this heater are brass – do not over tighten or strip threads.
- ❑ Provide a shut off valve in the cold water line. Mark for future emergency use.
- ❑ It is recommended to use unions as per FIGURE 1 and FIGURE 2.
- ❑ **Do not apply heat directly to the cold-water inlet as it includes a plastic dip tube which will melt.**
- ❑ Water connections are 3/4" male threaded fittings
- ❑ Note: PV80 and PV120 have 1 inch HX fittings and 1 1/2 inch hot and cold fittings.

F. BOILER SUPPLY CONNECTIONS

- ❑ **WARNING: Heat exchanger fluid must be non-toxic.**
- ❑ **WARNING: Boiler temperature must be controlled by the boiler hi limit not to exceed 200°. Failure to do so will create a hazardous installation and void the warranty.**
- ❑ All fittings on this heater are brass – do not strip threads.
- ❑ It is recommended to use unions as per FIGURE 1 and FIGURE 2.
- ❑ Heat exchanger connections are 3/4" male threaded fittings
- ❑ Note: PV80 and PV120 have 1 inch HX fittings and 1 1/2 inch hot and cold fittings.
- ❑ Connect the supply line (from the boiler) to the "Hx In" fittings of the heat exchanger. Connect the return line (back to the boiler) to the "Hx Out" fittings.
- ❑ For closed-loop systems that do not use water as the heat-transfer fluid, the total volume of the heat-transfer fluid in the closed loop shall be less than 10% of storage tank volume.

$$Max Loop Length = \frac{(\frac{Tank Capacity}{10})}{(\pi * Pipe Radius * Pipe Radius)}$$

NOTE: Be sure to connect Boiler Supply Line (from the boiler) to the “HX in” fitting and Boiler Return Line (to the boiler) to the “HX Out” fitting.

Construction of Single Wall Heat Exchanger

- ❑ Consists of one copper tube, wound into a coil. The ends of the tube are soldered into the brass fittings that mate with the hot water supply.

Construction of Double Wall Heat Exchanger

- ❑ Not Applicable.

G. FILLING THE HEATER

- ❑ Check that the temperature-and-pressure relief valve has been properly installed (**mandatory requirement**).
- ❑ Completely close the drain valve.
- ❑ Open the highest hot water faucet to allow air to escape from piping.
- ❑ Open the valve to the cold-water inlet and allow the heater and piping system to completely fill, as indicated by a steady flow of water from the open faucet.

H. THERMOSTAT INSTALLATION

- ❑ Place hole in back of Thermostat over the temperature sensor leads. It should fit flush against the tank. Use the provided self-tapping screw (Screw A) to attach case back directly to the Peerless® Partner® PV Series. (See THERMOSTAT DIAGRAM 1)
- ❑ Connect temperature sensor wires to press release connector (if equipped). (See THERMOSTAT DIAGRAM 4)
- ❑ Run all 24VAC wiring thru the square notch on bottom of thermostat case. (See THERMOSTAT DIAGRAM 3)
- ❑ The Peerless® Partner® PV Series may operate as a separate heating zone using either the heating system circulator and an appropriate zone valve, or a separate circulator dedicated for water heating. (See FIGURE 1 and FIGURE 2).
- ❑ In both systems, the Peerless® Partner® PV Series is controlled through the thermostat on the heater. (See FIGURE 1 and FIGURE 2).
- ❑ Be certain to replace thermostat cover using the black screw provided.

I. ETC101 WIRING CONTROLS

WARNING: Do not use ETC101 with 110V circuits.

- ❑ For controlling zone valves, multi-zone controllers and switching relays, follow applicable wiring diagrams for typical low voltage thermostat circuits.

J. INSULATION INSTALLATION

- ❑ Place included fiberglass insulation between and around the water supply and boiler supply connections. Attach lid using screws provided. Insulate hot water pipes with pipe insulation.

INSTALLATION CHECKLIST

A. INSPECTING AND PREPARING THE HEATER

- ☐ Remove the cardboard box, which comes packaged with the heater. It should contain the following: Thermostat, T&P valve, brass "T", insulation, lid and screws.
- ☐ Do not cover T&P relief valve opening.

B. LOCATION

- ☐ Solid foundation and dry location.
- ☐ Protect heater water lines from freezing.
- ☐ Area free of flammable vapors.
- ☐ Sufficient room to service heater.
- ☐ Not in close proximity to wood burning stove.
- ☐ Where leak will not damage property.

C. PROTECTION FROM WATER DAMAGE

- ☐ **Be sure to make provisions to protect area from water damage if a leak should occur in the tank or connected fittings.**

D. TEMPERATURE AND PRESSURE RELIEF VALVE

- ☐ **Warning: Improper installation will present potential hazard to life and property.**
- ☐ A T&P Relief Valve with an 8-inch stem should be used.
- ☐ Check to be sure that proper relief valve requirements are met.
- ☐ T&P installed as shown in FIGURE 1 and FIGURE 2.
- ☐ 3/4" discharge pipe – properly protected from freezing and restrictions.
- ☐ No valve between tank and relief valve or in drain line.
- ☐ Provision for hot water discharge from relief valve.

E. BOILER SUPPLY CONNECTIONS

- ☐ Return line (back to the boiler) connected to the "Hx Out" fitting.
- ☐ Supply line (from the boiler) connected to the "Hx In" fitting.

F. WATER SUPPLY CONNECTIONS (See FIGURE 1 and FIGURE 2.

- ☐ Do not over tighten brass threads.
- ☐ Mark the water shutoff for future reference.
- ☐ Do not apply heat to cold inlet.

- ☐ If there is a check valve (sometimes in water meter), backflow preventer or pressure-reducing valve, install an adequate size expansion tank.

G. FILLING THE HEATER

- ☐ Water connections completed and free of leaks.
- ☐ Check for proper installation of relief valve.
- ☐ Close drain valve.
- ☐ Open highest hot water faucet.
- ☐ Open cold water inlet valve and fill system.

H. WIRING

- ☐ Verify that wiring matches thermostat diagrams
- ☐ Check that water heats to desired temperature

I. INSTALLATION COMPLETED AND CHECKLIST FILLED OUT

BY: _____

DATE: _____

SPECIAL NOTE: Test of hot water after installation is necessary to be sure temperature controls are working properly. (See WATER TEMPERATURE REGULATION)

SERVICE INFORMATION

WATER TEMPERATURE REGULATION

WARNING: Exposure to 125° F or hotter water can cause scalding injuries. Appropriate caution must be taken when using hot water. Special supervision must be given to those who cannot act quickly such as children, invalids or elderly persons.

The input of heat into the tank is controlled by a thermostat with a thermistor (temperature sensor) attached to the water heater. These automatic controls are set at the factory to maintain a water temperature of 120° F. Although these thermostats are designed to industry standards, they can fail to control temperature properly without any notice, and therefore should be tested periodically for your protection.

The test is very simple: Turn on the hot water faucet and measure the maximum temperature with an accurate thermometer. If the temperature is above the safe limits for your circumstances call a service technician to adjust or replace the control.

DANGER: IF YOU DISCOVER EXTREME HOT WATER COMING FROM THE FAUCET, IMMEDIATELY SHUT OFF THE MAIN SWITCH TO THE BOILER AND CALL COMPETENT SERVICE PERSONNEL. ANY OVERHEATED WATER IS A POTENTIAL HAZARD TO LIFE AND PROPERTY. DO NOT OPERATE UNTIL THE SOURCE OF THE PROBLEM HAS BEEN DETERMINED AND ELIMINATED.



❑ Water temperature over 125° F can cause severe burns instantly or death from scalds.

❑ Children, disabled and elderly are at the highest risk of being scalded.

❑ See instruction manual before setting temperature at the water heater.

❑ Feel water before bathing or showering.

❑ Properly maintained, your water heater can provide years of dependable, trouble free service. It is

suggested that the purchaser use the following preventive maintenance program.

A. WATER TEMPERATURE CONTROLS

- ❑ A periodic inspection of the operating controls, heat exchanger and wiring should be made by qualified service personnel.
- ❑ Temperature of the water should be tested periodically at the faucet to be sure thermostat is working properly.

B. TEMPERATURE CONTROL

- ❑ The water heater is delivered with an ETC101 thermostat. A factory set temperature setting of 120°F and differential setting of 10°F. Any temperature adjustment of the thermostat must be made by qualified service personnel, as shown below.

WARNING: See WATER TEMPERATURE REGULATION, regarding safe water temperature before proceeding. Hot water can cause scalding injuries.

- ❑ Shut off or disconnect all electrical supply to heater.
- ❑ Remove cover to Thermostat.
- ❑ Adjust right side lever to the desired temperature. Moving lever down will decrease temperature. **(See THERMOSTAT DIAGRAM 1). NOTE: Markings on slide are approximate. Check temperature at faucet to ensure safe operating temperature.**
- ❑ Adjust left side lever to the desired differential. The thermostat will call for heat when the tank temperature has fallen to the set differential degrees below the Temperature set point.
- ❑ Reattach cover.
- ❑ Reconnect electrical supply.
- ❑ Check faucet temperature to verify desired temperature is achieved.

In order to set the temperature above 140°F (**NOT RECOMMENDED**) you must remove the SCALD DANGER label attached to the temperature slide.

CAUTION: Do not increase temperature above 140° without a properly installed mixing valve in the system – See WATER TEMPERATURE REGULATION and SCALD WARNING.

Indicator LED operation:

- ❑ The thermostat has an indicator LED at the top of the case. (See THERMOSTAT DIAGRAM 1 or Inside Cover of Thermostat)
- ❑ When thermostat is calling for heat, the Indicator LED will flash green.
- ❑ When thermostat is satisfied, the Indicator LED will be solid green.
- ❑ If the thermostat detects a failure, Indicator LED will flash Red. Replace the thermostat.

C. INSTALLING THE REMOVABLE HEAT EXCHANGER

- ❑ Heat exchanger is installed at the factory. The following is provided for servicing or removing the heat exchanger.
- ❑ Insert heat exchanger with plastic O-ring housing and align top fittings so the HX out fitting faces forward.
- ❑ **WARNING: Plastic O-ring housing must be properly installed. (See FIGURE 4). Failure to do this will void the warranty.**
- ❑ Install and secure the clamp and nut in the following manner:
 - Apply anti-seize lubricant to bolt threads.
 - Place the clamp around the flange and coil plate.
 - Ensure the bolt is facing forward and slide through hole.
 - Hold the clamp together with one hand and tighten nut with the other hand. (See FIGURE 4)
 - Tighten to 15 ft.-lbs.

NOTE: Be sure that clamp is installed level.

WARNING: Plastic O-ring housing must be installed properly (See FIGURE 4) to prevent leaking. Failure to do this will void the warranty. Must use new O-ring if replaced or removed.

D. EMERGENCY

- ❑ Should the heater be subject to flood, fire, or other damaging conditions, turn the power and water to the heater off.
- ❑ **DO NOT** place water heater in operation again until it has been thoroughly checked by qualified service personnel.

MAINTENANCE

Properly maintained, your water heater can provide years of dependable, trouble free service. It is suggested that the purchaser follow the preventive maintenance program outlined below.

A. CONTROLS

- ❑ A periodic inspection of the operating controls, heat exchanger and wiring should be made by qualified service personnel. Temperature of the water should be tested periodically at the faucet to be sure temperature controllers are working properly.

B. LONG TERM SHUT DOWN

- ❑ If the water heater is to remain idle for an extended period of time, the boiler and the water to the heater should be turned off to conserve energy.
- ❑ The water heater and piping should be drained, if they might be subjected to freezing temperatures.
- ❑ After a long shutdown period, qualified service personnel should check the heater's operations and controls.
- ❑ Make certain the water heater is filled before placing it in operation.

C. DRAINING THE HEATER

- ❑ **CAUTION: Shut off the boiler before draining water. To drain the tank, a hot water faucet must be opened to admit air to the tank.**
 1. Attach a hose to the drain valve on the heater.
 2. Close valve on the cold water line to the heater.
 3. Open the drain valve and direct the water to a drain.

D. EMERGENCY

- ❑ Should the heater be subject to flood, fire or other damaging conditions, turn off the boiler and the water to the heater.
- ❑ **DO NOT** place water heater in operation again until it has been thoroughly checked by qualified service personnel.

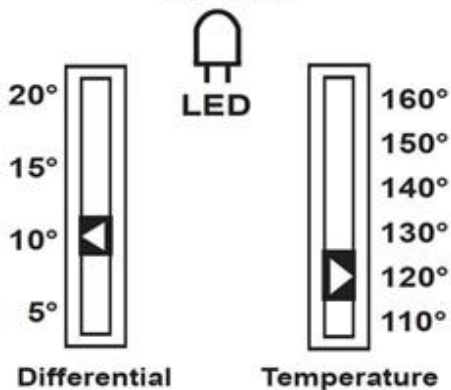
E. CLEANING THE HEAT EXCHANGER

- ❑ Shut off water supply to tank and boiler. Remove the heat exchanger.
- ❑ Flush inside of heat exchanger with water. Rinse outside of heat exchanger with water and scrub with soft bristled brush.
- ❑ Install heat exchanger, turn on water and bleed air from system.

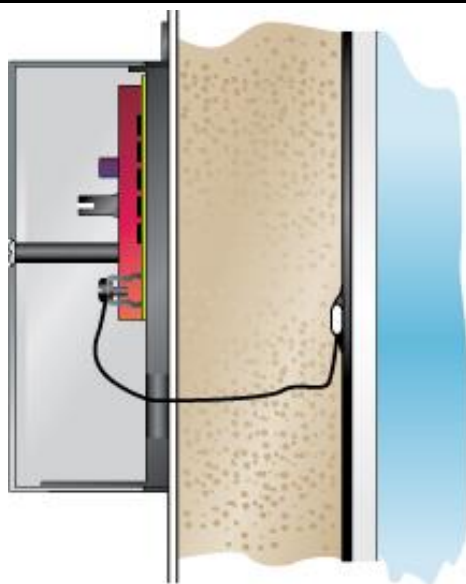
THERMOSTAT DIAGRAM 1



flashing green = calling for heat
solid green = at temperature
red = error

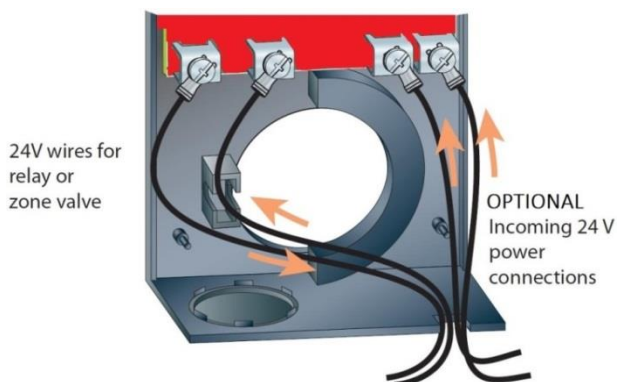


THERMOSTAT DIAGRAM 2



THERMOSTAT DIAGRAM 3

ETC101 (Low Voltage Only)



THERMOSTAT DIAGRAM 4

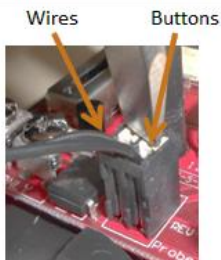
Inserting the probe wires into the press release connector

- 4.A – Position tool on top of white buttons
- 4.B – Push Down on buttons and push wires Down into holes in top of connector (This can also be done one side at a time)
- 4.C – Tug on each wire to make sure they are secure

4.A Buttons Up



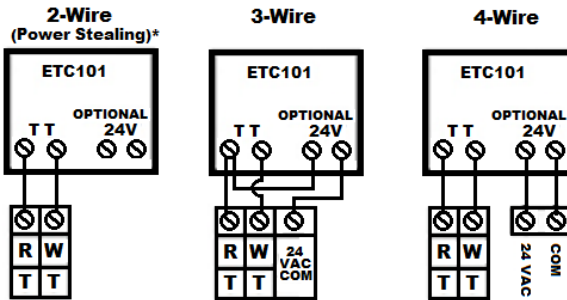
4.B Buttons down, Wires pushed down



4.C Buttons up, Wires Tight



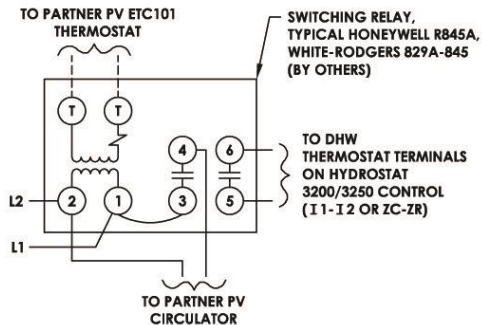
ETC101 THERMOSTAT DIAGRAM 5



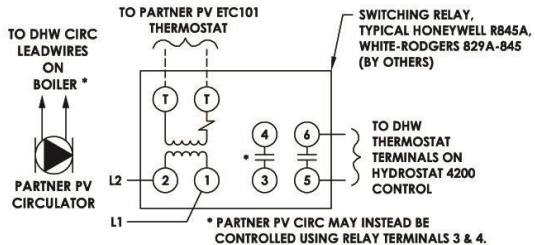
* **For Newer Switching Relay Panels:** Some models do not work with “Power Stealing” thermostats. The ETC101 is a power stealing thermostat unless powered separately from the TT terminals as shown in the 3-wire or 4-wire configuration. See also wiring diagrams on subsequent pages.

Zone Relay Wiring, R845 or 829A

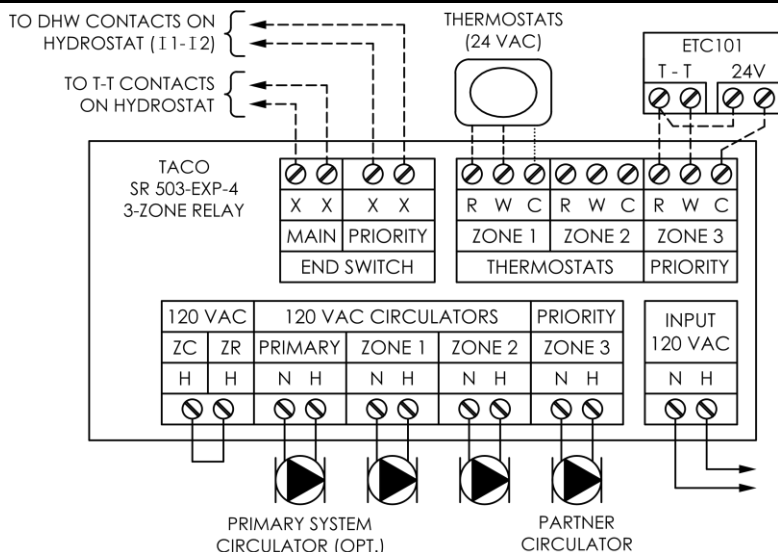
Hydrostat
3200 or 3250



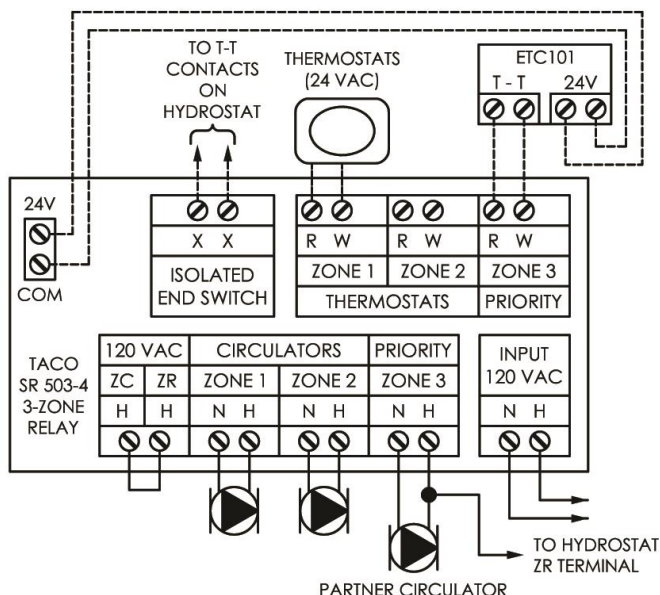
Hydrostat
4200 (MI-e)



Zoning Panel with HydroStat 3200 or 4200 Gas Boiler control (SR503-EXP shown)



Zoning Panel with HydroStat 3250 Oil Boiler control (SR503 shown)



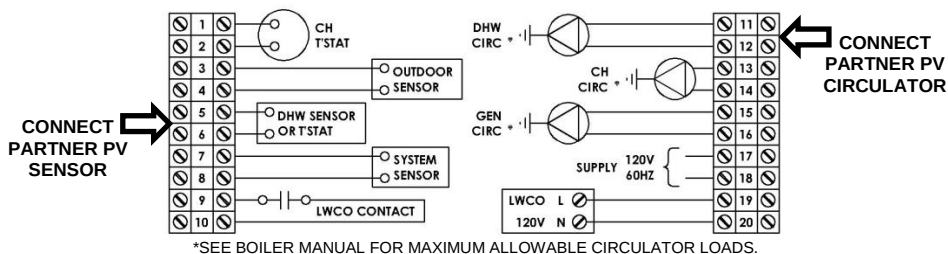
PureFire® Boiler Wiring

Option 1 (Recommended) - Partner® PV Sensor Directly Connected to PureFire® DHW terminals.

Disconnect the sensor from the Partner® PV ETC101 limit control terminal block. Use the ETC101 housing as a junction box to extend the sensor leads to the boiler DHW terminals. This method is recommended due to simplicity, and it also allows the PureFire® control to capture the actual Partner® PV temperature.

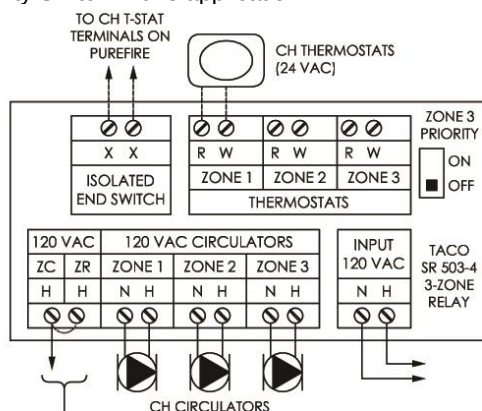
In the PureFire® Installer Menu choose DHW Mode 1 – “DHW Sensor”.

Note that since the PureFire® directly controls the Partner® PV, the ETC101 limit control LED will not illuminate when used in this application.



PF-50 – PF-140 boiler connections – See PureFire manuals for other sizes

For multiple CH Zone installations, also connect PureFire® Boiler to zone panel as shown below. The zone panel does not require a dedicated DHW Priority Switch in this application.



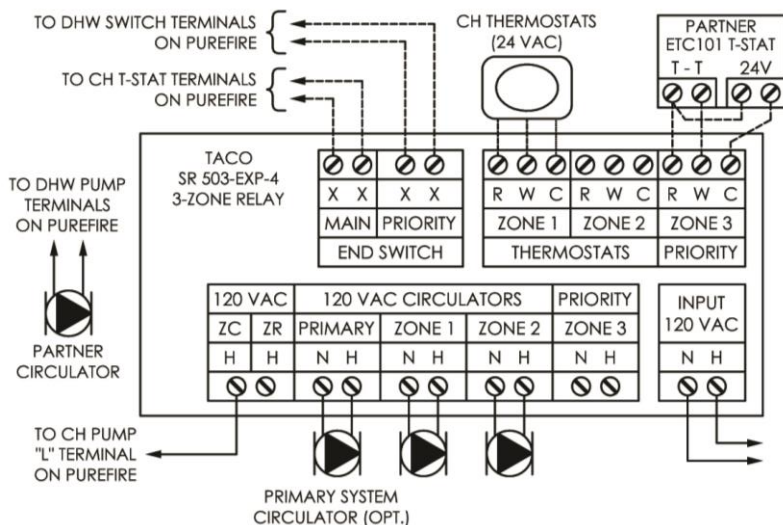
FOR INSTALLATIONS WITH DOMESTIC HOT WATER:

- REMOVE ZC/ZR JUMPER AND CONNECT ZC TO BOILER CH PUMP "L" TERMINAL.
- SET PRIORITY SWITCH ON RELAY PANEL TO "OFF".
- CONNECT DHW T-STAT/SENSOR AND DHW CIRC TO DHW TERMINALS ON BOILER.
- BOILER WILL PROVIDE DHW PRIORITY BY ENERGIZING ZC ONLY WHEN SATISFYING CH DEMAND.

Option 2 – Partner® PV ETC101 Limit Control connected to Zone Panel

Use a Relay Panel that includes a DHW priority end switch. Connect the PureFire® Boiler DHW T-Stat and CH T-Stat terminals to the panel as shown below.

In the PureFire® Installer Menu choose DHW Mode 2 – “DHW Switch”.



Option 3 – Partner® PV ETC101 Limit Control Connected to Individual Zone Relay

The ETC101 limit control is connected to a Honeywell R845 or White Rodgers R829A relay as shown below.

In the PureFire® Installer Menu choose DHW Mode 2 – “DHW Switch”.

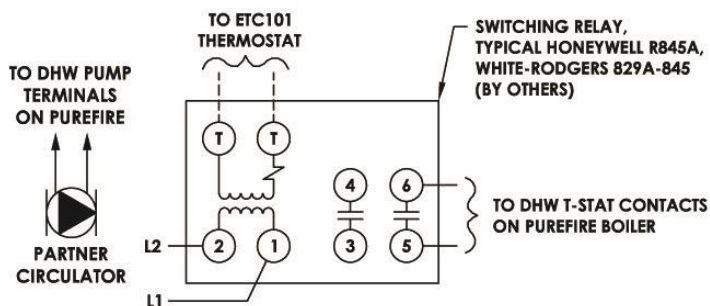
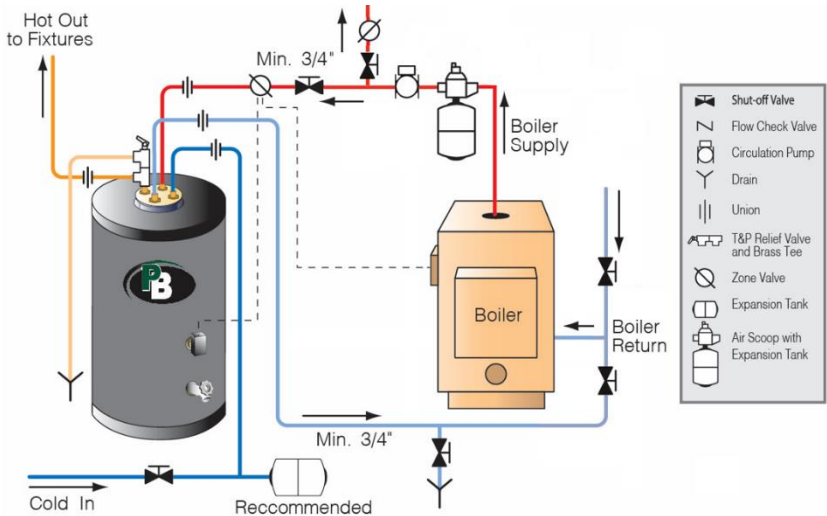


FIGURE 1

Installation Diagram Using Zone Valves



Note: PV80 and PV120 have 1 inch HX fittings and 1 1/2 inch hot and cold fittings.

FIGURE 2

Installation Diagram Using Separate Circulator

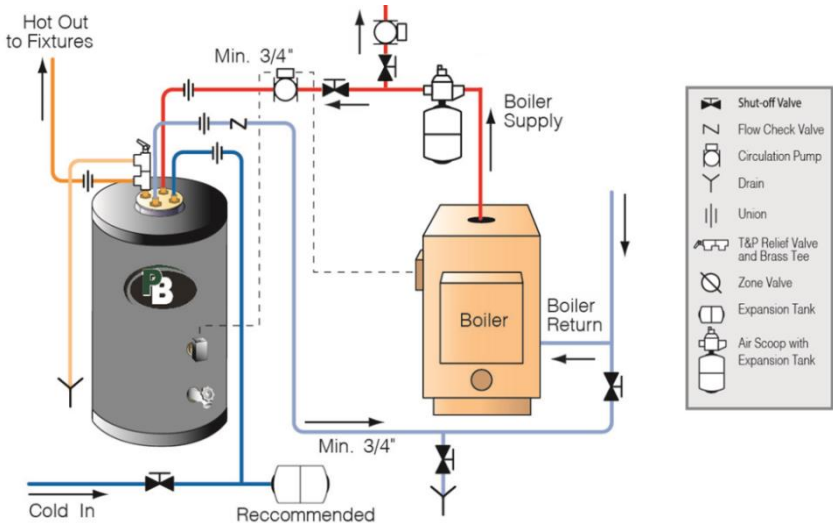


FIGURE 3

Typical Piping Peerless® PureFire® Boiler

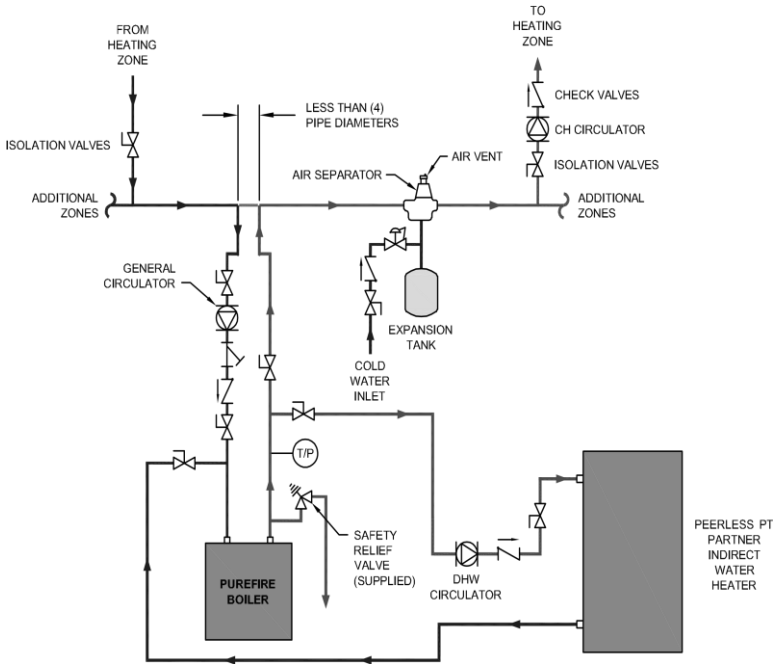
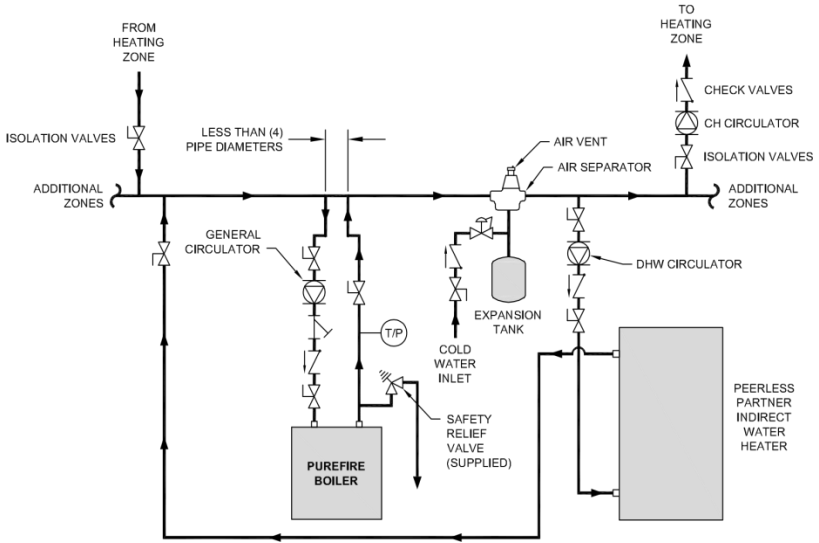
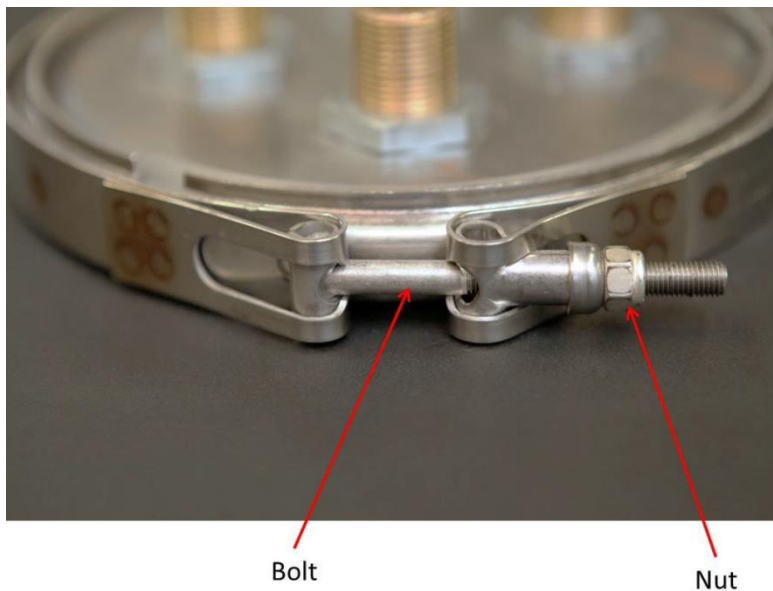
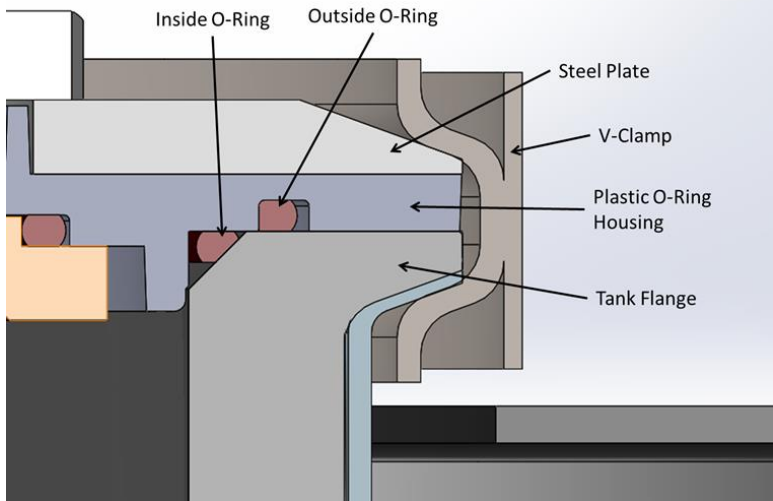


FIGURE 4



PARTS LIST

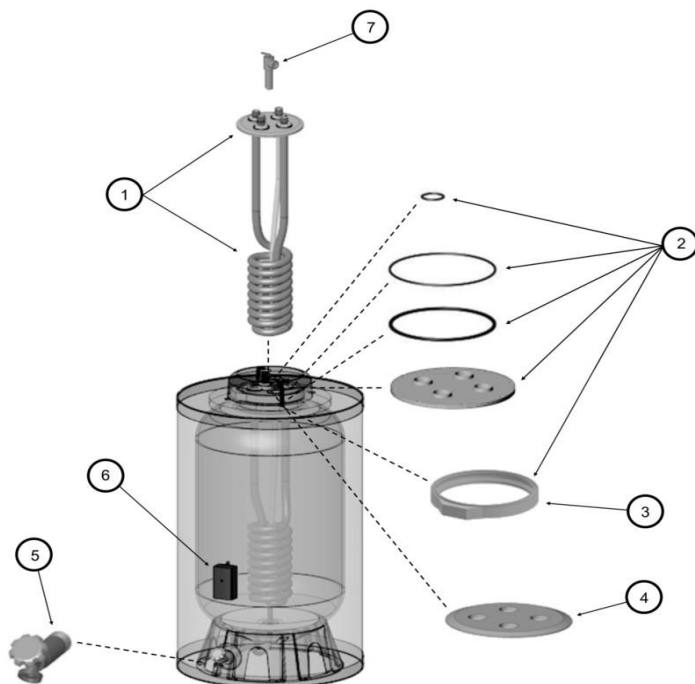
- ❑ **T&P Relief Valve** – Located above and to the left of hot water outlet.
- ❑ **Temperature Control** – Temperature controls are specifically designed for Peerless® Partner® PV Series water heaters. Temperature sensors are located under the plastic jacket and may be located using the template provided in the replacement kit.
- ❑ **Water Diffuser Dip Tube** – Introduces cold water at the bottom of the tank in a flat, gentle swirl, preventing turbulent mixing with heated water above.
- ❑ **Hot Water Outlet Nipple** – Located on the top of the heater for easy installation and access.
- ❑ **Heat Exchanger Connections** – Located on the top of the heater for easy installation and access.
- ❑ **Long-Life Heat Exchanger** – Copper wound finned tubing for providing maximum heat transfer.
- ❑ **Clamp** – Stainless steel removable v-clamp for servicing heater.
- ❑ **Drain** – Easy access to drain the tank located at the bottom of the heater.
- ❑ **Plastic Jacket** – Durable & easy-to-clean jacket high-density plastic.
- ❑ **High-Density Insulation** – High-density foam blankets the storage tank which significantly reduces heat loss.

NOTE: When ordering parts, please specify model and serial number of tank, shown on the rating plate, as well as parts name, information and number. See following page(s).

REPAIR PARTS

Repair Parts are available from your local PB Heat, LLC distributor or from Parts-To-Your-Door at 1 (610) 916-5380 (www.partstoyourdoor.com).

Note: Remember to include the model number and serial number when ordering parts.



REPAIR PARTS		
Item	Stock Code	Description
1	51374	COIL KIT PARTNER PV40/60, WP04570529
	51375	COIL KIT PARTNER PV80, WP0458050429
	51376	COIL KIT PARTNER PV120, WP0459050429
2	51377	GASKET KIT PARTNER PV40/60, MS016043
	51378	GASKET KIT PARTNER PV80/120, MS016043032
3	51382	V-CLAMP PARTNER PV, FA0803827000
4	51379	COIL PLATE PARTNER PV 8.15" OD, WP050630433
5	51381	DRAIN VLV PARTNER PV 3/4" NYLON, FT1707075300
6	51380	ELECTRONIC TEMP CTRL PARTNER PV, ETC101-PB
--	51383	SENSOR KIT PARTNER PV W/ INSTR
7	---	RELIEF VALVE, PV-40/60, 3/4", 150PSI, 210F, WATTS 100XL-8 (available at local supplier)
	---	RELIEF VALVE, PV-80/120, 3/4", 150PSI, 210F, WATTS 40XL-5 (available at local supplier)

HOW TO OBTAIN SERVICE ASSISTANCE

PB Heat, LLC does not have a service department or personnel to service your heater in the field. A qualified installer or service technician must do all service work. Therefore, if you have any questions about your new water heater concerning service adjustment, repair, routine maintenance, or replacement - **first contact your installer, plumbing contractor or service agency.**

PEERLESS® PARTNER® PV SERIES INDIRECT FIRED WATER HEATER 10/2 LIMITED WARRANTY

5/2 LIMITED WARRANTY for PV80 and PV120

Ten (or 5) Year Limited Tank Replacement Policy Two Year Limited Tank Replacement Labor Allowance One Year Limited Parts Warranty

PB Heat, LLC, (hereinafter called the company) offers the following Limited Tank Replacement Policy, Limited Tank Replacement Labor Allowance, and Limited Parts Warranty to the original purchaser/owner of this stone-lined **Peerless® Partner® PV Series indirect** water heater. These warranties are not transferable beyond the original purchaser/owner, and are not valid if the tank is removed from initial installation site. THIS WARRANTY SPECIFICALLY EXCLUDES ANY IMPLIED WARRANTY OF MERCHANTABILITY OR OF FITNESS FOR ANY PARTICULAR PURPOSE, AS WELL AS ANY PERFORMANCE WARRANTY. The Company reserves the right to require proof of purchase and inspection and/or testing of tank as a condition of these warranties.

LIMITED TANK REPLACEMENT POLICY

DURATION:

1. **STANDARD DURATION:** (10) years from the date of manufacture as indicated by the serial number. Exceptions: (5) years for the PV80 and PV120 and see Limitations below.
1. **OPTIONAL LIFETIME DURATION:** (available to residential, single family homes only)(Not available for the PV80 and PV120). For as long as the original purchaser owns the home in which the **Peerless® Partner® PV Series** was originally installed. Optional Lifetime replacement Policy is not effective unless **PB Heat, LLC** receives completed registration card and payment within 30 days of purchase (see cover for details).
IF NO CARD IS RETURNED OR PAYMENT RECEIVED, THE REPLACEMENT POLICY WILL BE THE STANDARD 10-YEAR WARRANTY AND WILL BEGIN FROM THE MANUFACTURED DATE INDICATED BY THE SERIAL NUMBER ON THE TOP PERFORMER.

COVERAGE: Replacement policy covers only the storage tank for leaks caused by the corrosive effects of water under normal and proper use. Recovery under the terms of this agreement is subject to prior approval by the company. The tank replacement policy excludes any performance warranty or any warranty implied or specific of merchantability and fitness for its intended use.

COMPANY OBLIGATION: Repair of the original tank or replacement of the entire heater with a new comparable model is at the option of the company and constitutes the fulfillment of **ALL** obligations of the Company hereunder. In replacing or repairing the **Top Performer**, the company reserves the right to make such changes in details of design, construction or material as shall in their judgment constitute an improvement of former practices.

REPLACEMENT: When a replacement is made under the terms of this policy, the replacement unit will have a policy of replacement and labor allowance only for the remaining time under the original policy. The Company reserves the right to require the return of the defective unit at the expense of the purchaser.

LIMITATIONS: The duration of the tank replacement policy on the tank assembly shall be reduced to a period of five years if (1) the purchaser is a business, partnership or corporation, or if (2) the **Peerless® Partner® PV Series** is used for a commercial, institutional, industrial, non-residential or multi-application. All repairs or replacements will be made F.O.B. the company. The purchaser must pay for transportation service, labor, installation, administrative fees or other costs involving the repair or replacement of such part.

YOUR ACTION: When you discover a defect, immediately notify the dealer from whom the heater was purchased. If you cannot locate the dealer, contact the Company.

TWO YEAR LIMITED TANK REPLACEMENT LABOR ALLOWANCE: The Company shall pay up to a maximum of \$200, for the labor to exchange a tank that is leaking due to the corrosive effects of water within two years from date of installation.

This labor allowance is for tank replacement only, and not for any service work on the heater such as cleaning of the heat exchanger (due to the build-up of calcium or other minerals or metals), leakage from plumbing connections, relief valves, heat exchanger gaskets, thermostats, or any other component of the heater. This labor must be performed by a qualified installer. Proof of labor costs may be required as a condition of payment of the Tank Replacement Labor Allowance.

LIMITATION: All other repairs or replacements will be made F.O.B the Company. The purchaser must pay for all transportation, service, labor, installation, administrative fees or other cost involving the repair or replacement of such component parts.

YOUR ACTION: When you discover a defect, immediately notify the dealer from whom the heater was purchased. If you cannot locate the dealer, contact the Company.

LIMITED PARTS WARRANTY

DURATION: The warranty is effective for (1) year beginning with the date of original purchase. This warranty shall begin from the date of manufacture as indicated by the serial number.

COVERAGE: The warranty covers any component part of the **Peerless® Partner® PV Series** water heater proven to be defective in workmanship or material. Recovery under the terms of this agreement is subject to prior approval by the company.

COMPANY OBLIGATION: The warranty covers any component of the **Peerless® Partner® PV Series water** heater proven to be defective in workmanship or material. Recovery under the terms of this agreement is subject to prior approval by the Company.

EXCLUSIONS AND LIMITATIONS

Limited Warranty and Tank Replacement Policy are valid only if you comply with the following conditions and limitations:

1. The **Peerless® Partner® PV Series** must be correctly installed according to the installation manual provided with the unit and all applicable local and national codes.
1. The unit must be operated within the factory calibrated temperature limits and water pressure not exceeding 150 psi.
2. Any failure or malfunction that results from improper or negligent operation, accident, abuse (including freezing), misuse, unauthorized alteration or improper maintenance is specifically excluded.
3. Any failure or malfunction that results from failure to keep the tank full of potable water, free to circulate at all times; and free of damaging water sediment or scale deposits is specifically excluded. In areas where adverse water conditions are suspected (i.e. calcium and other minerals), it is essential that the water be tested and appropriate action be taken to prevent damage to the Peerless® Partner® PV Series tank. It may be necessary to remove the heat exchanger for cleaning to maintain maximum performance in poor water areas. **Diminished performance due to the build-up of calcium or other minerals, metals, or deposits on the heat exchanger is specifically excluded from the coverage of these warranties.**
4. This Limited Warranty and Tank Replacement Policy specifically exclude any implied warranty of merchantability or of fitness for any particular purpose, as well as any performance warranty.

IN NO EVENT SHALL THE COMPANY BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES WHATSOEVER.

Some states do not allow the exclusion or limitation of implied warranties or of liability for incidental or consequential damages, so the above limitation(s) or exclusion(s) may not apply to you.

SPECIFIC LIMITATIONS: If any provision or part of this warranty is declared invalid the remaining provisions (or parts thereof) shall remain in full force and effect. This is the only warranty for this heater made by the Company. It does not authorize Company representatives or other persons to vary the terms of this warranty or to assume for the Company any other obligations or liabilities with respect to this product.

**The following information should be noted
At time of installation and retained for
future reference.**

Model No. _____

Serial No. _____

Date Installed _____

Dealer's Name _____

Address _____

City _____

State _____ Zip _____



131 S Church Street, Bally, PA 19503 610-845-6100

Revision 1.10

NOTES

Product Registration and Optional Lifetime Warranty Purchase Card

☐

I wish to purchase the Optional Lifetime Warranty!

Available to Residential, Single Family Homes Only

☐

I wish to only register my product, you may also register on line at www.peerlessboilers.com)

DATE _____

PURCHASER'S NAME _____

HOME ADDRESS _____

CITY _____ STATE _____ ZIP _____

HOME PHONE _____

TANK (9 DIGIT) SERIAL NUMBER

COMPANY PURCHASED FROM _____

INSTALLING COMPANY NAME _____

ADDRESS _____

CITY _____ STATE _____ ZIP _____

COMPANY PHONE _____

DATE OF INSTALLATION _____

Optional Lifetime Warranty on newly purchased tanks (Not available on replacement tanks), may be purchased by completing and returning this form to PB Heat, LLC along with a payment of \$249 within 30 days of installation / occupancy.

Optional Ten Year Extended Warranty (Replacement tanks only):

If the original tank is replaced under warranty with a new tank, you can get an additional ten year warranty added to your current warranty period for a cost of \$249. For example if you currently only have 4 years left on your warranty for \$249 this would become 14 years.

Send this completed form in with INITIAL HERE: _____

METHOD OF PAYMENT:

☐ CHECK PAYABLE TO: **PB Heat, LLC.** ENCLOSED.

CHARGE MY: ☐ VISA ☐ MASTERCARD

ACCOUNT NUMBER _____ Vnumber _____

(V number is last three digits of number printed on back of credit card.)

EXP. DATE _____

SIGNATURE _____

Complete form, cut along dotted line, and return (with payment if purchasing extended coverage) to:

PB HEAT, LLC

131 S Church Street, Bally, PA 19503