Series WV-DV™

Oil Boilers

Installation,
Operation &
Maintenance
Manual

PeerlessBoilers.com

NOTICE

Sidewall Venting

The Peerless® Series WV-DV™ is designed and built to be vented through a side wall of a building using a stainless steel concentric vent terminal (4 inch diameter tube inside an 8 inch diameter tube). Exhaust gases from combustion contain water vapor. During the cooler months of the year, this water vapor will condense into a visible vapor plume. This water vapor may condense on any surface near the vent terminal. Care must be taken not to locate the vent terminal where the exhaust gas, vapor plume and condensation could cause a hazard or a nuisance. Do not locate terminal under a deck, for instance, as it may create a coating of ice on the deck during the winter months, as well as shorten the life of the deck materials. Refer to Chapter 4 in this manual for specific terminal location requirements. Condensate from a side wall vent terminal may also cause paint on surrounding surfaces to crack and peel. If the boiler is used to heat potable (tap) water, the boiler will cycle year round. The effects of hot exhaust gases and odors must be taken into consideration during summer months.

Side wall vented, oil fired appliances may cause soot staining on wall surfaces surrounding their terminals. To reduce the potential for staining, the boiler must be serviced annually. Soot and scale must be completely removed from the combustion chamber and cast iron heat exchanger flueways. See Chapter 7 in this manual. The oil burner must be completely serviced and set up according to the specifications shown in Chapter 5 of this manual.

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USING THIS MANUAL

A. INSTALLATION SEQUENCE

Follow the installation instructions provided in this manual in the order shown. The order of these instructions has been set in order to provide the installer with a logical sequence of steps that will minimize potential interferences and maximize safety during boiler installation.

B. SPECIAL ATTENTION BOXES

Throughout this manual you will see special attention boxes intended to supplement the instructions and make special notice of potential hazards. These categories mean, in the judgment of PB Heat, LLC:

⚠ DANGER

Indicates a hazardous situation, which, if not avoided, will result in death or serious injury and major property damage.

⚠ WARNING

Indicates a hazardous situation, which, if not avoided, could result in death or serious injury and major property damage.

⚠ CAUTION

Indicates a hazardous situation, which, if not avoided, could result in minor or moderate injury, and minor property damage.

NOTICE

Indicates special attention is needed, not related to personal injury or property damage.

1. PREINSTALLATION

⚠ WARNING

This manual is intended for use by Qualified Heating Professionals only. Installation, service, or adjustment of this heating appliance by anyone other than a Qualified Heating Professional can cause significant property damage, personal injury, or death.

Read carefully, study these instructions before beginning work. It will save time. Study the included drawings. Save these instructions for reference.

The boiler warranty can be voided if the boiler is not installed, maintained and serviced correctly.

NOTICE

The equipment shall be installed in accordance with those installation regulations in force in the local area where the installation is to be made, including the current edition of *NFPA-31, Standard for the Installation of Oil-Burning Equipment*, and in *Canada, CSA B139, Installation Code for Oil Burner Equipment*. These shall be carefully followed in all cases. Authorities having jurisdiction shall be consulted before installations are made.

NOTICE

In accordance with Section 325 (f) (3) of the Energy Policy and Conservation Act, this boiler is equipped with a feature that saves energy by reducing the boiler water temperature as the heating load decreases. This feature is equipped with an override which is provided primarily to permit the use of an external energy management system that serves the same function.

THIS OVERRIDE MUST NOT BE USED UNLESS AT LEAST ONE OF THE FOLLOWING CONDITIONS IS TRUE:

- **An external energy management system is installed that reduces the boiler water temperature as the heating load decreases.**
- **This boiler is not used for any space heating.**
- **This boiler is part of a modular or multiple boiler system having a total input of 300,000 BTU/hr or greater.**
- **This boiler is equipped with a tankless coil.**

⚠ CAUTION

Never burn garbage or paper in the unit, and never leave combustible material around it.

⚠ CAUTION

Do not tamper with boiler or controls.

⚠ WARNING

Do not use this appliance if any part has been under water. Improper or dangerous operation may result. Immediately call a qualified service technician to inspect the boiler and to replace any part of the control system and any control which has been under water.

A. ACCESSIBILITY CLEARANCES

To provide for reasonable conditions of accessibility, the following minimum clearances are recommended: Alcove Installation.

1. 12” from left side
2. 24” from top
3. 24” from front
4. 9” from right side and rear

B. CLEARANCES FROM COMBUSTIBLE CONSTRUCTION

The design of this boiler is certified for the following clearances from combustible construction:

1. 0” from rear
2. 0” from right and left sides
3. 0” from top
4. 0” from vent pipe
5. 0” from vent connector
6. 0” from vent terminal
7. 24” from front

C. BOILER WATER TREATMENT

Consult a local qualified water treatment specialist for recommendations regarding the appropriate chemical compounds and concentrations which are compatible with local environmental regulations.

1. Boiler water pH should be in the 7.5 to 11 range.
2. Boiler water chloride concentration should be less than 30 ppm.
3. The water hardness should be less than 9 grains per gallon to prevent scale build-up.

2. BOILER SET-UP

A. SETTING THE BOILER

1. Prepare sketches and notes of the layout of the installation. Include boiler location, venting system, existing piping and wiring. Show existing equipment that may interfere with installation of new equipment. See Section 4-A. “Vent System Installation,” Page 7, and Figure 4.1.

2. Provide a level foundation, located as close as possible to the center of the heating system.

3. This boiler is suitable for use on combustible flooring, provided the boiler is not set on carpet and a metal drip pan is placed under the appliance.

4. See clearance information in Section 1, “Preinstallation”.

5. See exploded view (Figure 9.1). After uncrating boiler and setting it on foundation, open burner mounting plate (Item 5) and make certain the target wall (Item 2) is seated in the back of the combustion chamber. (WV-DV-04) Ceramic fiber blanket base liner (Item 3) should be lying flat on bottom of combustion chamber between target wall and burner mounting plate. Close burner mounting plate.

3. PIPING & CONTROLS

A. BOILER SUPPLY & RETURN

1. See Figure 3.1 for suggested piping to the boiler.
2. Make up cold water supply connection to the boiler.
3. Plug all open tappings in the boiler and fill with water. Apply approximately thirty (30) psi pressure. Check to make certain that all joints and fittings are water tight.
4. After all joints and connections have been proven water tight, remove cold water supply and plugs from all tappings that are to be used. See Figure 8.1 for tapping locations.
5. Return piping must allow for opening and closing Burner Mounting Plate. PB Heat, LLC suggests installing a 1-1/4 NPT tee, a 90° elbow, and a 1-1/4 NPT x 5" long nipple in the return tapping before a vertical stand pipe is used.

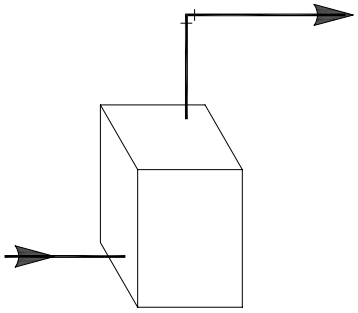


Figure 3.1

6. The supply and return connections should be sized to suit the system. A 1-1/2" to 1-1/4" reducing coupling may be used on the return where the system piping is 1-1/2".
7. The supply should be out of the top of the back section and return to the bottom of the front section. There is a 3/4" tapping in the top of the back section for air elimination.
8. When the return temperature from the system will be below 150°F on oil boilers for extended periods (heat pump systems, outdoor reset, snow melt, etc.), provide piping and controls to protect the boiler from condensation. Condensation will damage the boiler and will lead to shortened boiler life and maintenance problems.

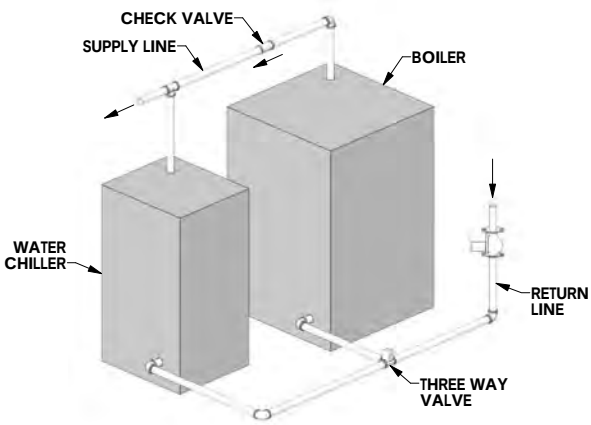


Figure 3.2

9. If the boiler is to be used in conjunction with a refrigeration system, the chilled medium shall be piped in parallel with boiler and proper valves applied to prevent the chilled medium from entering the boiler. Refer to Figure 3.2.
10. If the boiler is connected to heating coils located in air handling units, the boiler piping system must be equipped with flow control valves or other automatic devices to prevent gravity circulation of the boiler water during the cooling cycle.

B. SAFETY RELIEF VALVE

⚠ CAUTION

Pipe the discharge of the safety relief valve to prevent injury in the event of pressure relief. Pipe the discharge to a drain. Provide piping that is the same size as the relief valve.

1. Remove safety relief valve and 3/4" x 3" nipple from parts bag. Install nipple and safety relief valve in top or rear tapping. See Figure 8.1. If rear tapping is used, installer must supply an elbow so that safety relief valve is installed in vertical position.

C. TANKLESS WATER HEATER

⚠ DANGER

Install mixing valve in hot water supply piping. Water temperature above 125°F can cause severe burns instantly or death from scalds.

⚠ DANGER

Install anti-scald device in hot water supply piping. Water temperature above 125°F can cause severe burns instantly or death from scalds.

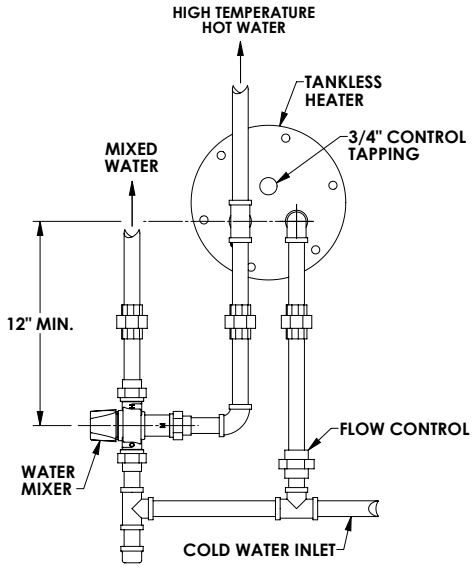


Figure 3.3

D. INDIRECT-FIRED WATER HEATER

1. If a Partner indirect fired water heater or other, refer to Figure 3.4 for typical piping. Also refer to additional instructions supplied with the Partner.

E. CONTROLS

⚠ IMPORTANT

In accordance with Section 325 (f) (3) of the Energy Policy and Conservation Act, water boilers are equipped with a feature that saves energy by reducing the boiler water temperature as the heating load decreases. This feature is equipped with an override which is provided primarily to permit the use of an external energy management system that serves the same function.

THIS OVERRIDE MUST NOT BE USED UNLESS AT LEAST ONE OF THE FOLLOWING CONDITIONS IS TRUE:

- **An external energy management system is installed that reduces the boiler water temperature as the heating load decreases.**
- **This boiler is not used for any space heating.**
- **This boiler is part of a modular or multiple boiler system having a total input of 300,000 BTU/hr or greater.**
- **This boiler is equipped with a tankless coil.**

1. For complete information on servicing and adjustment of controls, refer to the attached control specification sheets.
2. This boiler is equipped with a water temperature limit control which includes a low water cut-off function.
3. For installations subject to UL726, a second operating control that senses water temperature is also required (not provided). Use an L4080B or equivalent. Install in the supply piping near the boiler.
4. For complete information on servicing and adjustment of controls, refer to the attached control specification sheets.

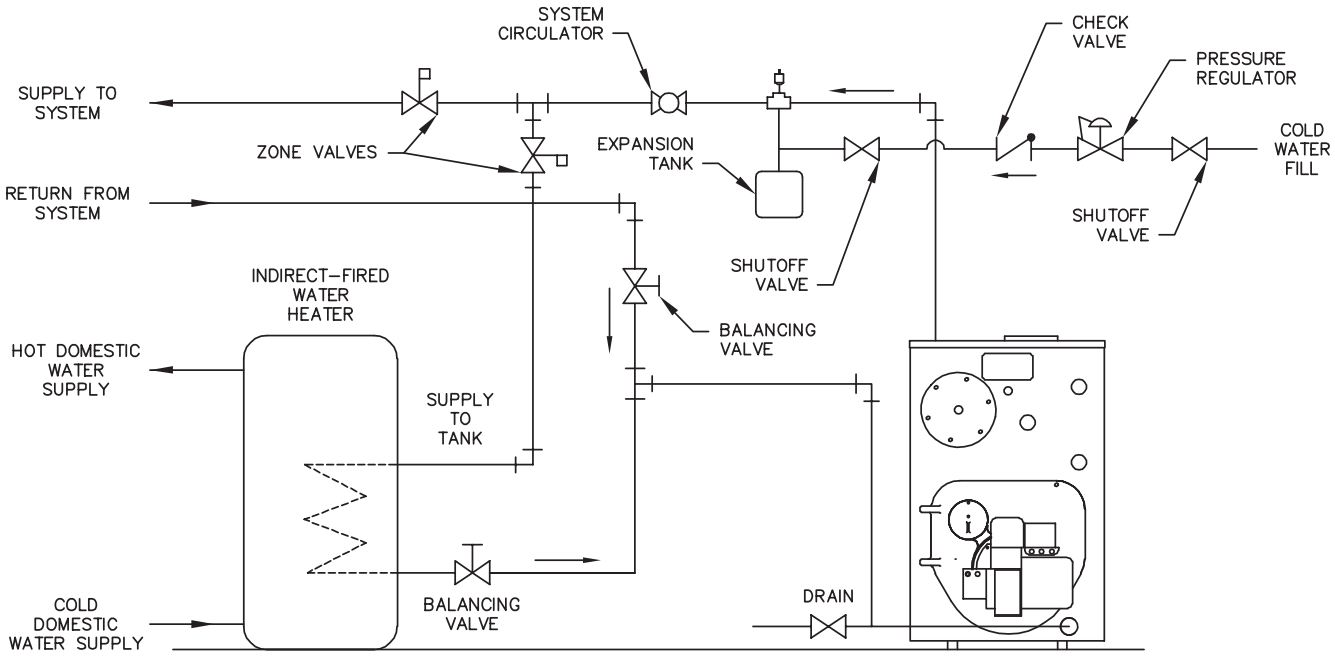


Figure 3.4

4. VENTING

See Sidewall Venting NOTICE on inside of front cover of this manual.

NOTICE

This boiler is shipped with a Z-Flex Vent Terminal carton, and a Z-Flex Venting Components Kit. The following components from these two cartons must be used in the installation of this boiler:

- **Z-Flex Oil Vent Terminal**
- **Z-Flex Vent Pipe**
- **Z-Flex Appliance Adapter**
- **Z-Flex Terminal Adapter**
- **Z-Flex Sealant**

⚠ CAUTION

This Oil-Fired Unit Shall be Connected to a Direct Vent System, to Assure Safe Proper Operation of the Unit.

A. VENT SYSTEM INSTALLATION

1. Determine vent terminal location:
   a. Vent length must be between 3’ and 20’ long. See paragraph 4.A.3 and Figure 4.1 for air intake requirements.
   b. No clearance is required between vent terminal and combustible construction.
   c. Vent terminal extends 12” beyond outside wall surface and at least 16” beyond inside wall surface. See Figure 4.1.
   d. Sidewall vented products are susceptible to wind conditions that can effect combustion. To minimize the effects of wind, the exhaust and air inlet terminations must penetrate the same wall or vertical surface. In addition, the length of the exhaust and air inlet pipes must be roughly equivalent.
   e. Condensation from a sidewall vented appliance may cause paint and other surface coatings to deteriorate. In addition, soot stains may appear on surrounding surfaces if the boiler is not properly maintained.
   f. If the boiler is used to heat potable (tap) water, the boiler will operate year round. The effects of hot gases and odors must be taken into consideration during the summer months.
   g. See Figure 4.2 for an illustration of clearances for location of exit terminals for direct-vent, sidewall venting systems.
   h. The boiler vent system shall terminate at least 3 feet (0.9 m) above any forced air inlet located within 10 feet (3 m). Note: This does not apply to the combustion air inlet of a direct-vent appliance.

Table 4.1

WALL THICKNESS	DIM. A
1"	21"
2"	20"
3"	19"
4"	18"
5"	17"
6" TO 14"	16"

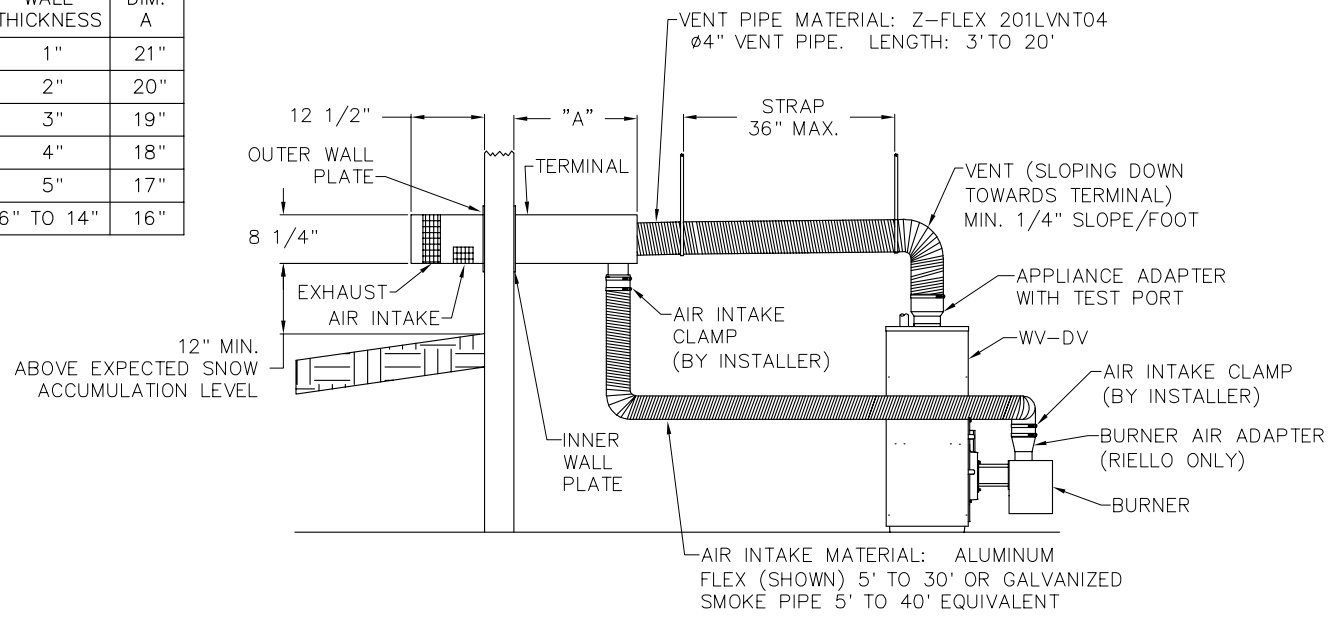


Figure 4.1: Venting

i. Provide a minimum of 1 foot (300 mm) distance from any door, operable window, or gravity air inlet into any building.

j. Do not locate the exhaust termination directly under an operable window.

k. Provide a minimum of 1 foot (300 mm) clearance from the bottom of the exhaust termination above the expected snow accumulation level. Snow removal may be necessary to maintain clearance.

l. Provide 4 feet horizontal clearance from electrical meters, gas meters, air conditioning condensers or other external equipment. In no case shall the exit terminal be above or below the aforementioned equipment unless a 4 foot horizontal distance is maintained.

m. Do not locate the exit termination over public walkways where condensate could drip or freeze, causing a hazard or nuisance.

n. When the exhaust termination is adjacent to a public walkway, it is to be located at least 7 feet (2100 mm) above grade.

o. Do not locate exhaust termination directly under roof overhangs to prevent icicles from forming.

p. Provide 3 feet (0.9 m) clearance from the inside

2. Use Z-Flex 4” diameter Vent Pipe.

3. For air intake, use 4” diameter galvanized smoke pipe or 4” diameter flexible corrugated aluminum pipe. Maximum equivalent length of galvanized smoke pipe is 40’. Allow 5 equivalent feet for each 90° elbow used. (Example: No more than 20’ straight smoke pipe can be used with four 90° elbows.) To connect air intake to Riello BF5 burner, use burner air adapter from trim bag to connect 4” air intake to 3” opening on top of burner. See Figure 4.1.

4. For specific installation and maintenance instructions for the Z-Flex Vent Terminal, Appliance Adapter, Terminal Adapter, Burner Air Adapter (Riello only), and Sealant that are included with the boiler, as well as instructions for installation of flexible vent pipe and air intake pipe, refer to Z-Flex Manual included in vent kit.

NOTICE

PB Heat, LLC requires that the vent slopes down 1/4” per foot towards the vent terminal. This takes precedence over the requirements shown in the Z-Flex manual.

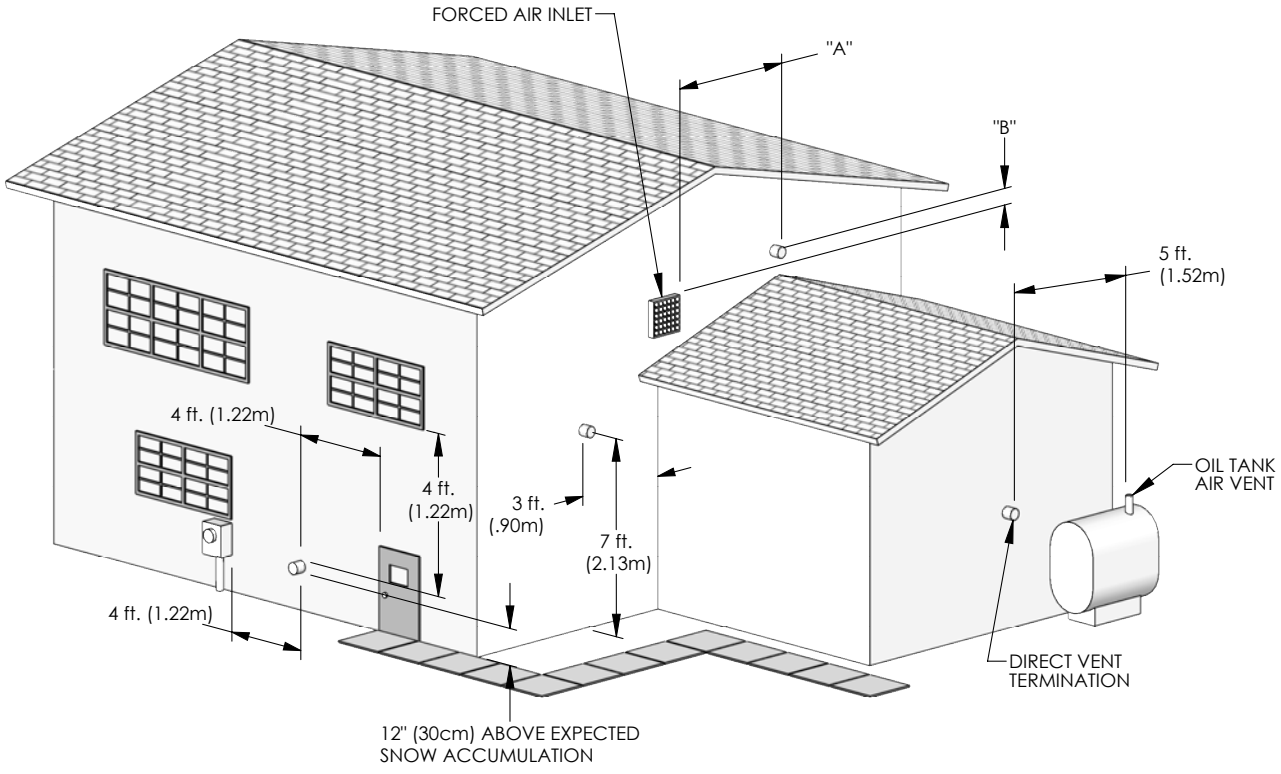


Figure 4.2: Location of Exit Terminals of Mechanical Draft and Direct-Venting Systems

5. BURNER SETUP & BOILER OPERATION

⚠ CAUTION

Burn only #2 Fuel Oil in this appliance. Do not use gasoline, crankcase drainings or any oil containing gasoline.

A. BURNER INSTALLATION

1. The oil burner is supplied with a mounting flange fixed in position.

NOTICE

Be sure hi temp gasket is between the burner mounting flange and the Burner Mounting Plate.

2. Care must be taken when routing the oil lines so not to interfere with the opening and closing of the burner mounting plate. Flexible oil lines or flared copper disconnects with valves (when copper lines are used) may be installed to assure full opening of the burner mounting plate when servicing.

NOTICE

Two-pipe oil supply for Riello burner requires a separate kit. Order part #C7001026 from Riello dealer.

3. Oil burner specifications:
   For information pertinent to the oil burner such as nozzle sizing, fuel supply piping, adjusting or servicing, refer to the charts in this section and the burner installation manual.

4. Sampling tapping in CeraFlex Appliance Adapter must be used for CO_2, smoke and flue pressure readings.

B. BURNER START-UP & ADJUSTMENT

⚠ CAUTION

Do not start the burner unless all cleanout doors are in place.

1. Burner should start automatically when thermostat is turned up and main boiler service switch is turned on. If burner does not start, check to be sure there is oil in the tank and push reset button on burner control:
   Beckett: Square red button.
   Riello: Round red button inside clear flexible cover on back of burner cover.

If burner still does not start, contact serviceman.

⚠ CAUTION

Do not attempt to start the burner when excess oil has accumulated, when the unit is full of vapor, or when the combustion chamber is very hot.

2. Adjust burner for highest CO_2 (Maximum 13.1%) while maintaining a 0 Smoke. Pressure or draft over fire and in flue cannot be adjusted. However, draft and/or pressure measurements must be taken in these two locations and recorded for reference.

   All adjustments must be made using suitable instruments such as found in a Bacharach Combustion Test Kit.

⚠ CAUTION

Always keep the manual fuel supply valve shut off if the burner is shut down for an extended period of time.

3. Burner and boiler can be shut down by turning down the thermostat and moving the main boiler service switch to the “off” position.

4. Post-purge timing on Riello BF5 burner is controlled by 3/8” diameter dial near top right corner of AL1009 circuit board inside burner cover. Post-purge duration must be a minimum of one minute. Adjust dial so arrow is pointing directly to the right (toward mounting screw for AL1009 bracket). Check post-purge timing to confirm it is at least one minute long.

5. See burner manufacturer’s manual for further information regarding the burner.

C. CHECK BOILER CONTROLS

1. Limit and Operating Controls:
   a. Lower the set point of each control until the burner shuts down. Note that the system temperature corresponds to the desired set point.
   b. Return the controls to the desired set point.

2. Low Water Cut-off - consult the manufacturer’s instructions for the low water cut-off operational check procedure.

D. FILL THE BOILER

1. Set the air pressure on the expansion tank to the system water pressure before filling boiler. The pressure reducing valve on the fill line will typically allow the system to be filled and pressurized to 12 psi (83 kPa). Consult the valve and expansion tank manufacturer for more specific information.

2. Fill the boiler and system with water making certain to vent air from all high points in the system. Water should bleed from each air vent when it is opened.

3. Check all joints and fittings throughout the system for leaks. If leaks are found, drain the system and repair as required.

4. See Section 1 - Preinstallation for boiler water treatment requirements.

5. If the system requires antifreeze protection, use only propylene glycol specially formulated for hydronic systems. These contain inhibitors that prevent corrosion of the boiler and system components. Do not use ethylene glycol or automotive antifreezes.
   a. Make sure that the antifreeze supplier can provide periodic testing of antifreeze concentration and inhibitor level.
   b. If an automatic fill valve is used, the solution strength in the system must be checked to assure that the antifreeze concentration has not been overly diluted.
   c. Local codes may require the addition of a backflow preventer or manual fill only with separation from the city water supply.
   d. Consider the minimum temperature of potential exposure in the system when deciding on the antifreeze concentration. A concentration of 50% generally provides protection from freezing to -30°F.

E. PURGE AIR FROM THE SYSTEM

1. Purge the system using purge valves, isolating zones in the process or use system vents. Do not operate the pump(s) while purging. Pumps will hold air in the eye of the impeller.

2. Allow the system to reach 180°F and use manual vents, if installed, to remove any remaining air. Watch the pressure gauge as the system approaches 180°F. If the pressure exceeds the design operating pressure, check:
   a. Fill valve pressure.
   b. Expansion or compression tank operation and sizing.

Table 5.1

Beckett NX Burner Specifications					
Boiler Model No.	Burner Model	Nozzle Manufacturer, Size	Pump Pressure (psig)	Head/Air Setting	Low Fire Baffle
WV-DV-03-075	NX70LB	**Delavan 0.60 60° W**	175	2.25	Yes
WV-DV-04-115	NX70LD	**Hago 0.85 60° B**	170	1.50	Yes
WV-DV-04-130	NX70LD	Hago 1.00 60° B[1]	170	1.50	No

Table 5.2

Riello BF5 Burner Specifications				
Boiler Model No.	Nozzle Size	Pump Pressure (psig)	Turbulator Setting	Air Damper Setting
WV-DV-03-075	**Delavan .60 80° B**	165	1	3.3
WV-DV-04-115	Hago .85 60° B[1] or Delavan .85 60° W[1]	180	2	5.0
WV-DV-04-130	Hago 1.10 60° B[1] or Delavan 1.10 60° W[1]	140	4	5.0

Start-up and adjustment recommendations: Above Turbulator, Pin, Air Damper, and Air Dial settings are start-up settings only. Adjust burner for highest CO_2 (no more than 13.1%) while maintaining a 0 smoke spot. Pressure or draft over fire and in flue cannot be adjusted. However, draft and/or pressure measurements must be taken in these two locations and recorded for reference. All adjustments and measurements must be made using suitable instruments such as those found in a Bacharach Combustion Test Kit.

Factory Installed Nozzles are indicated in **Boldface**.

1. Shipped Loose

6. ELECTRICAL

A. WIRING

1. All electrical wiring shall be done in accordance with the National Electrical Code and Local Requirements. Single Pole Switches including those of Safety Controls or Protective Devices shall not be wired in a grounded line.

⚠ CAUTION

Do not connect power supply to Aquastat. To assure service switch interrupts power to all boiler controls, power supply must be connected to junction box as shown below.

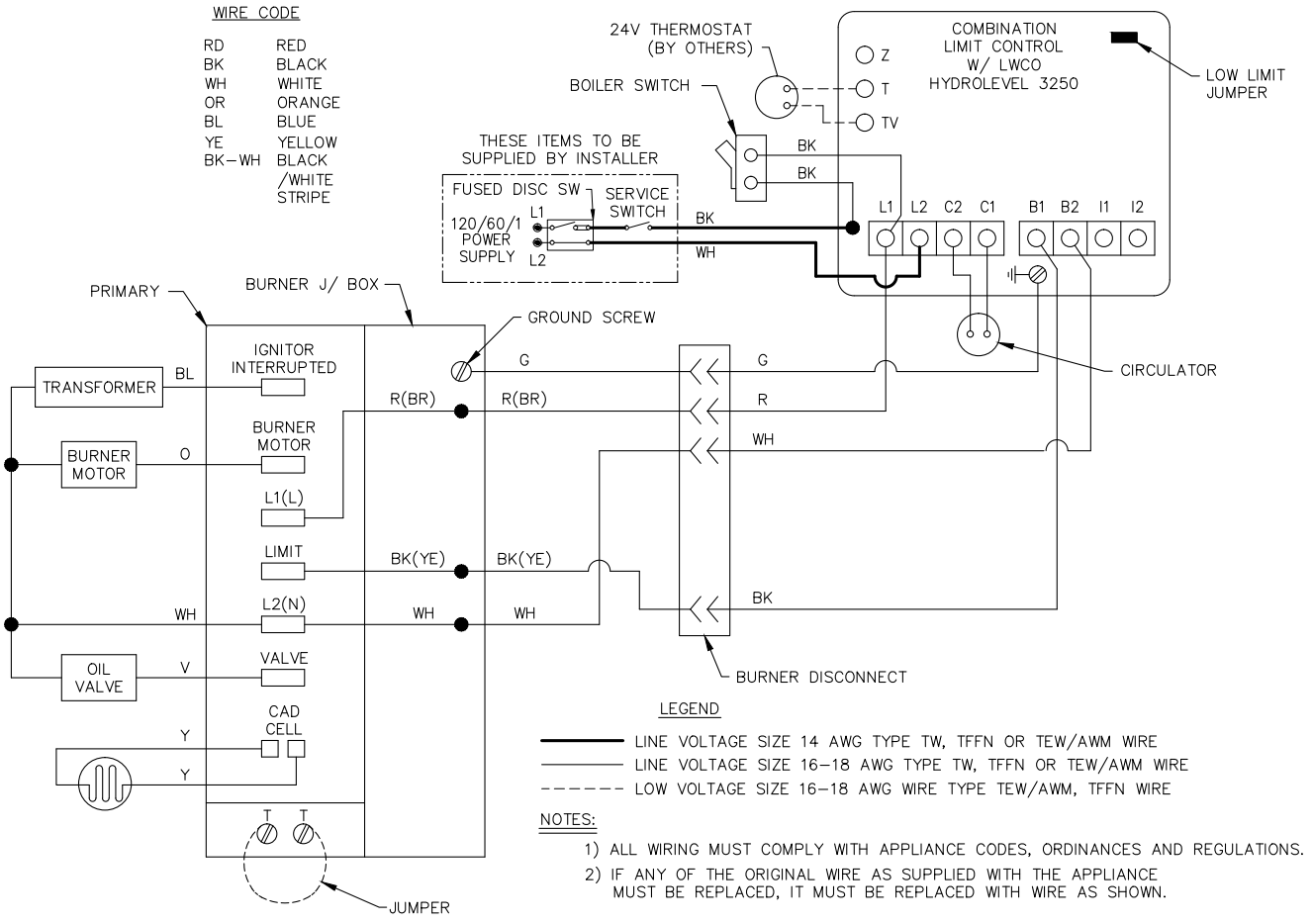
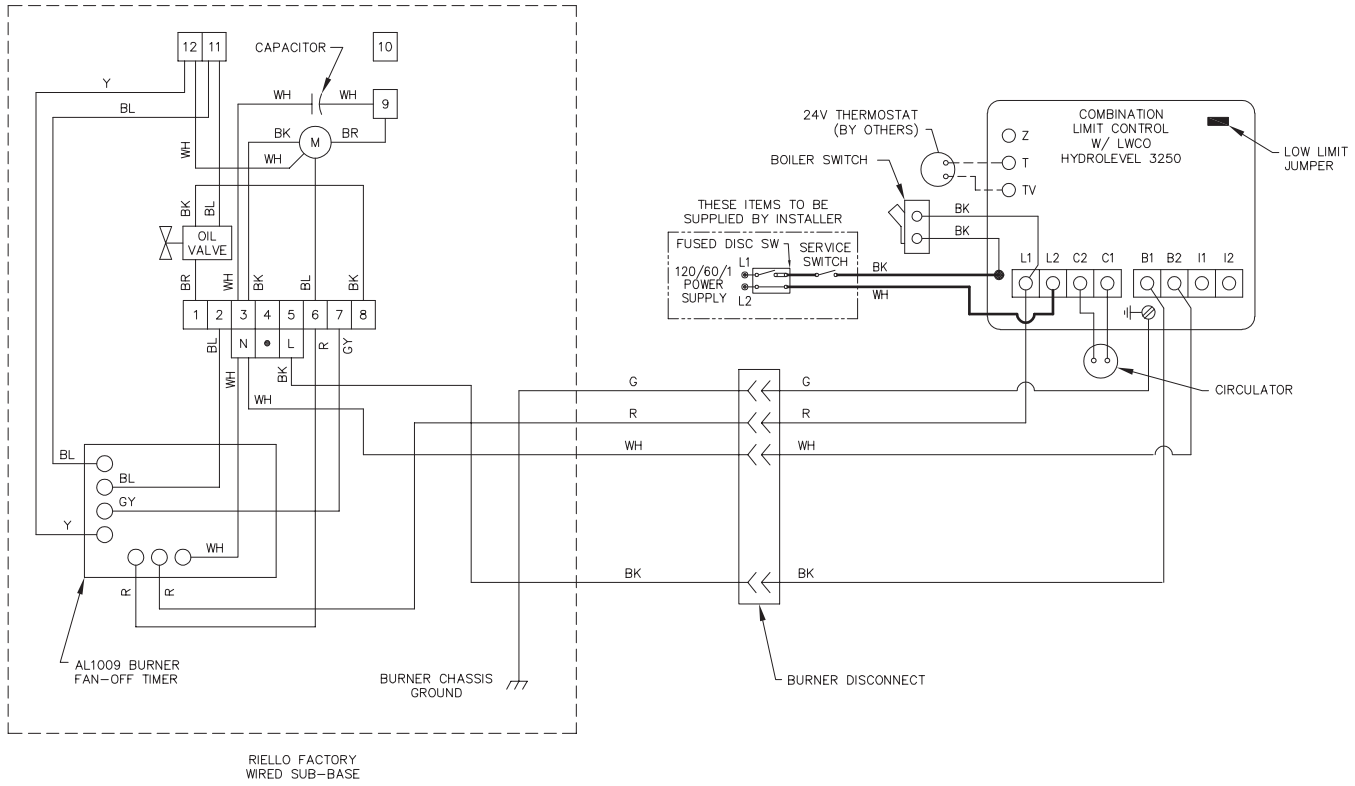


Figure 6.1: Hydrolevel 3250 Limit Control, Beckett and Carlin Burners



LINE VOLTAGE ————

LOW VOLTAGE – – – – –

NOTE: ALL WIRING MUST COMPLY WITH APPLIANCE CODES, ORDINANCES AND REGULATIONS.

Figure 6.2: Hydrolevel 3250 Limit Control, Riello Burner

7. MAINTENANCE

⚠ WARNING

Product Safety Information
Refractory Ceramic Fiber Product

This appliance contains materials made from refractory ceramic fibers (RCF). Airborne RCF fibers, when inhaled, have been classified by the International Agency for Research on Cancer (IARC), as a possible carcinogen to humans. After the RCF materials have been exposed to temperatures above 1800°F, they can change into crystalline silica, which has been classified by the IARC as carcinogenic to humans. If particles become airborne during service or repair, inhalation of these particles may be hazardous to your health.

Avoid Breathing Fiber Particulates and Dust

Suppliers of RCF recommend the following precautions be taken when handling these materials:

Precautionary Measures:
Provide adequate ventilation.
Wear a NIOSH/MSHA approved respirator.
Wear long sleeved, loose fitting clothing and gloves to prevent skin contact.
Wear eye goggles.
Minimize airborne dust prior to handling and removal by water misting the material and avoiding unnecessary disturbance of materials.
Wash work clothes separately from others. Rinse washer thoroughly after use.
Discard RCF materials by sealing in an airtight plastic bag.

First Aid Procedures:
Inhalation: If breathing difficulty or irritation occurs, move to a location with fresh clean air. Seek immediate medical attention if symptoms persist.
Skin Contact: Wash affected area gently with a mild soap and warm water. Seek immediate medical attention if irritation persists.
Eye Contact: Flush eyes with water for 15 minutes while holding eyelids apart. Do not rub eyes. Seek immediate medical attention if irritation persists.
Ingestion: Drink 1 to 2 glasses of water. Do not induce vomiting. Seek immediate medical attention.

A. GENERAL

1. Check pipes adjacent to cold walls or in unheated spaces. Insulate and tape them if necessary to be sure they can't freeze up. Keeping the water moving at all times will reduce the likelihood of freezing.

⚠ WARNING

Do not use this appliance if any part has been under water. Improper or dangerous operation may result. Immediately call a qualified service technician to inspect the boiler and to replace any part of the control system and any control which has been under water.

B. DAILY MAINTENANCE (WITH BOILER OPERATING)

Daily boiler observation can be performed by the owner. If any potential problems are found, a qualified installer or service technician/agency must be notified.

1. Remove any combustible materials, gasoline and other flammable liquids and substances that generate flammable vapors from the area where the boiler is contained. Make certain that the boiler area has ample air for combustion and ventilation and that there are no obstructions to the free flow of air to and from the boiler.

2. Observe general boiler conditions (unusual noises, vibrations, etc.)

3. Observe operating temperature and/or pressure gauge on the boiler. Boiler pressure should never be higher than 5 psi below the rating shown on the safety relief valve. The valve rating can be found on the top of the safety relief valve. Boiler temperature should never be higher than 250°F.

4. Check for water leaks in boiler and system piping.

C. MAINTENANCE OF SAFETY RELIEF VALVE

1. Check function and maintain safety relief valve as specified by manufacturer, typically every other month or every month, per the instructions on the tag on the safety relief valve.

D. MONTHLY MAINTENANCE (WITH BOILER OPERATING)

1. Check boiler room floor drains for proper functioning.

2. Test probe type low-water cut-off (if used) by using the Push-to-Test Button.

⚠ CAUTION

Turn off power to boiler before adjusting limit control.

3. Test limit by lowering the limit set point until the burner shuts down. When proper operation is confirmed, return the set point to original setting.

4. Follow additional instructions in the Burner Manual for proving the burner component operation.

E. MAINTENANCE – ANNUAL

NOTICE

Entire heating system, including boiler, burner and venting system, must be inspected at least once a year by a qualified heating professional. Boiler is to be cleaned at least once a year.

⚠ WARNING

Disconnect all power to the burner before accessing combustion chamber.

NOTICE

Entire heating system, including boiler, burner and venting system, must be inspected at least once a year by a qualified heating professional. Boiler is to be cleaned at least once a year.

TO CLEAN:

1. Turn off all electrical power to the boiler before beginning cleaning operation.

2. Remove top jacket panel and flue collector cover plate, Item 11.

3. To thoroughly clean the boiler it must be brushed down from the top. Alternately, for limited space or minimum clearance to combustible installations, cleaning the heat exchanger from the combustion chamber side is acceptable. If unit is extremely dirty, brushing up from the combustion chamber area also may be necessary. The target wall is made of a soft ceramic fiber. Care must be taken not to damage this material during cleaning.

4. Remove any scale or soot from the combustion chamber area by vacuum cleaning or any other available means.

NOTICE

Combustion chamber cover plate must be opened to facilitate this operation.

5. Replace oil burner and flue collector cover plate making sure all gaskets are in place.

⚠ CAUTION

Combustion chamber and flue collector may be under pressure when burner is running. Flue collector cover plate and combustion chamber must be completely sealed before boiler is returned to operation.

6. Replace jacket top panel.

NOTICE

All Cover Plates, Enclosures, and Guards must be maintained in place at all times, except during maintenance and servicing.

7. Inspect venting system.

8. Systems using freeze protection - the glycol solution should be tested at least once a year and as recommended by the glycol manufacturer.

F. IF A LONG SHUTDOWN IS REQUIRED

1. To take boiler out of service if the boiler and system are not to be used when temperatures are below freezing:
   a. Drain the boiler and system completely and shut off make-up water supply.

   b. Open main line power disconnect switch to boiler. Remove the fuses or secure the switch so that the power cannot be turned on accidentally.

⚠ CAUTION

Always keep the manual fuel supply valve shut off if the burner is shut down for an extended period of time.

2. Be certain that the boiler and system are refilled before returning to service.

8. BOILER DIMENSIONS & RATINGS

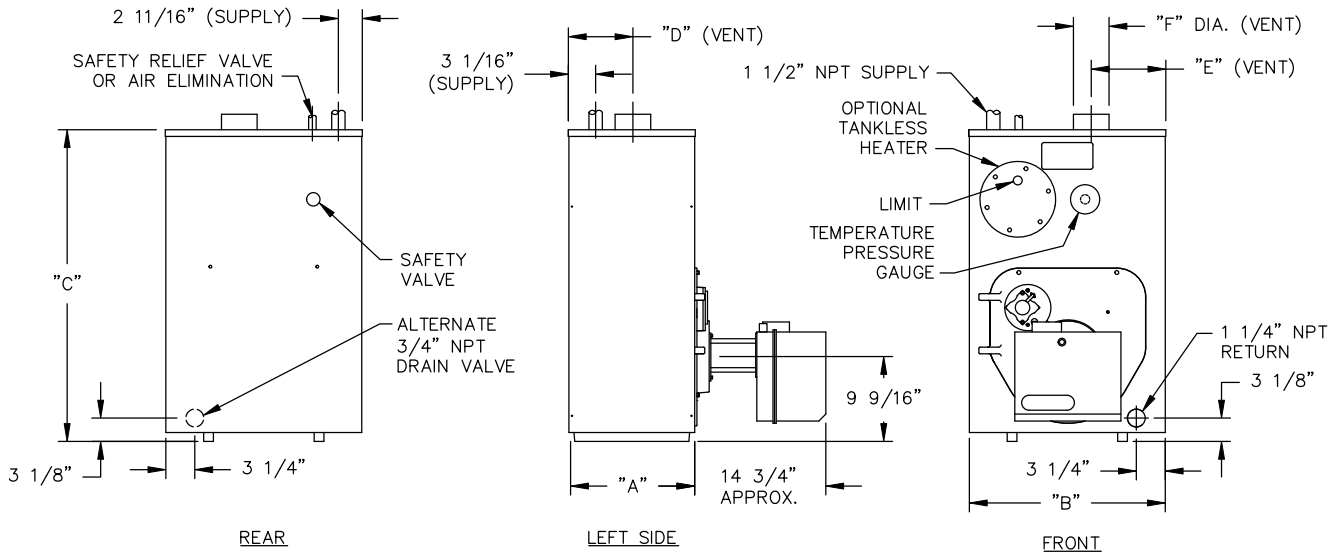


Figure 8.1: Boiler Views

Boiler Model Number	Jacket Depth "A"	Jacket Width "B"	Jacket Height "C"	Rear of Jacket to c/l of Vent "D"	Right Side of Jacket to c/l of Vent "E"	Vent Size Diameter "F"
WVDV-03	14-1/8"	22-1/8"	35"	7-1/16"	8-5/16"	4"
WVDV-04	18-1/8"	22-1/8"	35"	9-1/16"	8-5/16"	4"

Table 7.1: Boiler Ratings

Series WV-DV™						
Model Number[1]	Input[2]		Heating Capacity[4], MBH	Net Ratings Water[3], MBH	AFUE[4], %	Water Content, gal
	GPH	MBH				
WV-DV-03	0.75	105	92	80	86.7	11.75
WV-DV-04	1.15	161	141	122	86.7	14.75
WV-DV-04	1.30	182	158	137	86.0	14.75

1 Boiler Model No. may have the following suffix letters: WPC = Water Package w/Burner & Circulator; WPCT = Water Package w/Burner, Circulator & Tankless Coil.
2 Firing rate is based on a fuel oil with a heating value of 140,000 BTU per gallon. Burner input based on maximum altitude of 2,000 ft. – for other altitudes consult factory.
3 Net water ratings based on an allowance of 1.15. Consult Factory before selecting a boiler for installations having unusual piping and pickup requirements, such as intermittent system operation, extensive piping systems, etc.
4 Heating Capacity and Annual Fuel Utilization Efficiency (AFUE) ratings are based on U.S. Government test.
5 Must be used with factory supplied 4" flexible insulated venting system.

9. 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 boiler model number and serial number when ordering parts.

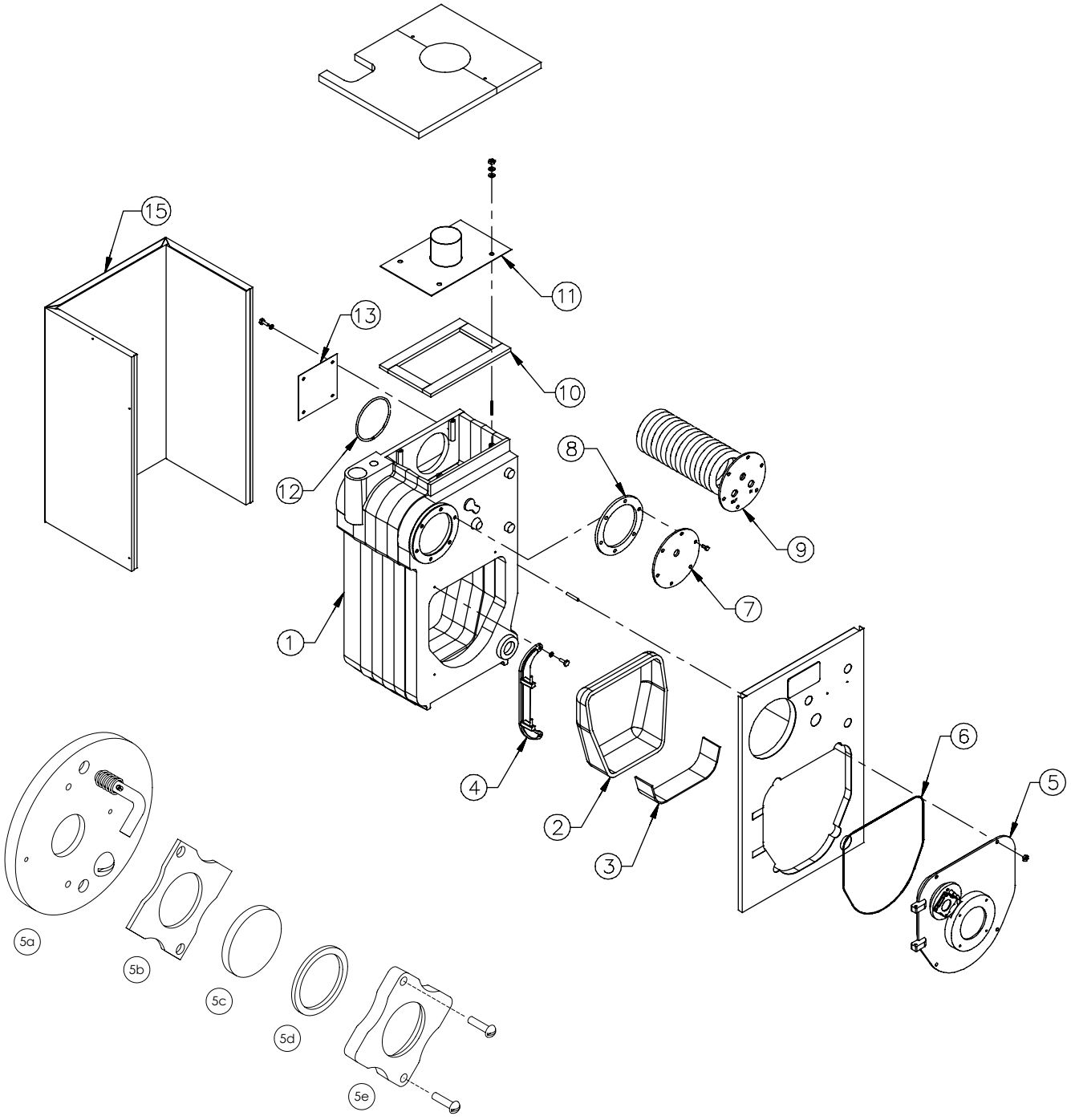


Figure 9.1: Repair Parts

Table 9.1: Repair Parts*

Item No.	Description	Additional Information	Stock Code WV-DV-03	Stock Code WV-DV-04
1	Block Assembly Water – WPCT	1	90183	90184
	Block Assembly Water – WPC	1	90186	90187
2	Target Wall	1	50795	50795
3	Base Liner	1	50857	50857
4	Swing Door Hinge w/ Pins	1	7240	7240
5	Burner Mounting Plate Assembly	1	90137	90137
–	Burner Mounting Plate Insulation	1	50794	50794
–	Flame Observation Assembly	1	90754	90754
5a	Flame Observation Cover Plate	1	SC1012	SC1012
5b	Face Gasket	1	50230	50230
5c	Pyrex Observation Window	1	51681	51681
5d	Ring Gasket	1	50229	50229
5e	Observation Glass Holder	1	–	–
6	Burner Mounting Plate Rope Seal	6 ft Needed	51211	51211
7	Steel Cover Plate (Front) Water w/ Gasket & Cap Screws	1	99812	99812
8	Rubber Gasket (Front Plate)	1	51800	51800
9	Tankless Coil	1	90532	90534
10	Flue Collector Plate Blanket Seal	1	90999	90999
11	Flue Collector Cover Plate	1	50245	50253
12	Rope Seal	2 ft	51209	51209
13	Rear Outlet Cover Plate	1	90563	90563
15	Jacket Assembly	1	90098	90418
–	Limit Control, Hydrolevel 3250, w/ Sensor	1	50343	50343
–	Well, 3/4” NPT, Standard shank, Hydrolevel 48-201	1	50723	50723
–	Well, 3/4” NPT, Long shank, Hydrolevel 48-202	1	50792	50792
–	Safety Relief Valve, 3/4” NPT, 30 psi	1	50501	50501
–	Temp/Press Gauge, 2-1/2 RD, 320°F, 0-75#, 1/4" NPT	1	51324	51324
–	Drain Valve, 3/4" NPT	1	50764	50764
–	Harness, Limit Control to Connector on Burner Harness	1	54507	54507
–	Burner Harness, Beckett	1	50917	50917
–	Burner Harness, Riello	1	50921	50921
–	Harness, Circulator	1	X7083	X7083
–	Switch, Round Toggle, 120 VAC	1	6050	6050
–	ZFLEX APPL Termination Adapter	1	7577	7577
–	ZFLEX APPL Adapter	1	7576	7576
–	Riello Burner Adapter	CFBA34-RL	7615	7615
–	Tube of Sealant	XMMSC5	7616	7616
–	Concentric Vent Termination Kit	CFT4	91776	91776

*See Figure 9.1

NOTES

Series WV-DV™

Oil Boilers

Installation, Operation & Maintenance Manual

TO THE INSTALLER:

This manual is the property of the owner and must be affixed near the boiler for future reference.

TO THE OWNER:

This boiler should be inspected annually by a Qualified Service Agency.

PeerlessBoilers.com

PB HEAT, LLC

131 S. CHURCH STREET • BALLY, PA 19503

Service Information

Name: _____

Address: _____

_____

Phone: _____

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