INSTALLATION, OPERATING AND SERVICE INSTRUCTIONS PVCG™ SERIES GAS BOILER

BEFORE INSTALLATION: READ THIS MANUAL

SAVE THESE INSTRUCTIONS

Installing contractor and homeowner should read and be informed as to the proper installation and operation of this boiler. The manufacturer will not be responsible for improper installation or operation. This manual and all associated instruction material should be conspicuously posted near the boiler.

For service or repairs to boiler, call your heating contractor. When seeking information on boiler, provide Boiler Model Number and Serial Number as shown on Rating Label.

Boiler Model Number PVCG	Boiler Serial Number	Installation Date
Heating Contractor		Phone Number
Address		

New Yorker®
RESIDENTIAL HEATING BOILERS

8141975R14-11/09

Price - $3.00

IMPORTANT INFORMATION - READ CAREFULLY

NOTE: The equipment shall be installed in accordance with those installation regulations enforced in the area where the installation is to be made. These regulations shall be carefully followed in all cases. Authorities having jurisdiction shall be consulted before installations are made.

All wiring on boilers installed in the USA shall be made in accordance with the National Electrical Code and/or local regulations.

The New York City Department of Buildings has approved the PVCG™ Series boiler: Approval No. MEA 318-99-E.

The City of New York requires a Licensed Master Plumber supervise the installation of this product.

The Massachusetts Board of Plumbers and Gas Fitters has approved the PVCG Series boiler. See the Massachusetts Board of Plumbers and Gas Fitters website, **http://license.reg.state.ma.us/pubLic/pb_pre_form.asp** for the latest Approval Code or ask your local Sales Representative.

The Commonwealth of Massachusetts requires this product to be installed by a licensed Plumber or Gas Fitter.

The following terms are used throughout this manual to bring attention to the presence of hazards of various risk levels, or to important information concerning product life.

DANGER

Indicates an imminently hazardous situation which, if not avoided, will result in death, serious injury or substantial property damage.

CAUTION

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

WARNING

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

NOTICE

Indicates special instructions on installation, operation, or maintenance which are important but not related to personal injury hazards.

DANGER

DO NOT store or use gasoline or other flammable vapors or liquids in the vicinity of this or any other appliance.

If you smell gas vapors, NO NOT try to operate any appliance - DO NOT touch any electrical switch or use any phone in the building. Immediately, call the gas supplier from a remotely located phone. Follow the gas supplier's instructions or if the supplier is unavailable, contact the fire department.

WARNING

This boiler requires regular maintenance and service to operate safely. Follow the instructions contained in this manual.

Improper installation, adjustment, alteration, service or maintenance can cause property damage, personal injury or loss of life. Read and understand the entire manual before attempting installation, start-up operation, or service. Installation and service must be performed only by an experienced, skilled, and knowledgeable installer or service agency.

This boiler must be properly vented.

This boiler needs fresh air for safe operation and must be installed so there are provisions for adequate combustion and ventilation air.

The interior of the venting system must be inspected and cleaned before the start of the heating season and should be inspected periodically throughout the heating season for any obstructions. A clean and unobstructed venting system is necessary to allow noxious fumes that could cause injury or loss of life to vent safely and will contribute toward maintaining the boiler's efficiency.

Installation is not complete unless a pressure relief valve is installed into the tapping located on top of appliance. - See the Water Piping and Trim Section of this manual for details.

This boiler is supplied with safety devices which may cause the boiler to shut down and not re-start without service. If damage due to frozen pipes is a possibility, the heating system should not be left unattended in cold weather; or appropriate safeguards and alarms should be installed on the heating system to prevent damage if the boiler is inoperative.

This boiler contains very hot water under high pressure. Do not unscrew any pipe fittings nor attempt to disconnect any components of this boiler without positively assuring the water is cool and has no pressure. Always wear protective clothing and equipment when installing, starting up or servicing this boiler to prevent scald injuries. Do not rely on the pressure and temperature gauges to determine the temperature and pressure of the boiler. This boiler contains components which become very hot when the boiler is operating. Do not touch any components unless they are cool.

Boiler materials of construction, products of combustion and the fuel contain alumina, silica, heavy metals, carbon monoxide, nitrogen oxides, aldehydes and/or other toxic or harmful substances which can cause death or serious injury and which are known to the state of California to cause cancer, birth defects and other reproductive harm. Always use proper safety clothing, respirators and equipment when servicing or working nearby the appliance.

Failure to follow all instructions in the proper order can cause personal injury or death. Read all instructions, including all those contained in component manufacturers manuals which are provided with the boiler before installing, starting up, operating, maintaining or servicing.

Keep boiler area clear and free from combustible materials, gasoline and other flammable vapors or liquids.

All cover plates, enclosures and guards must be in place at all times.

NOTICE

This boiler has a limited warranty, a copy of which is printed on the back of this manual. It is the responsibility of the installing contractor to see that all controls are correctly installed and are operating properly when the installation is complete.

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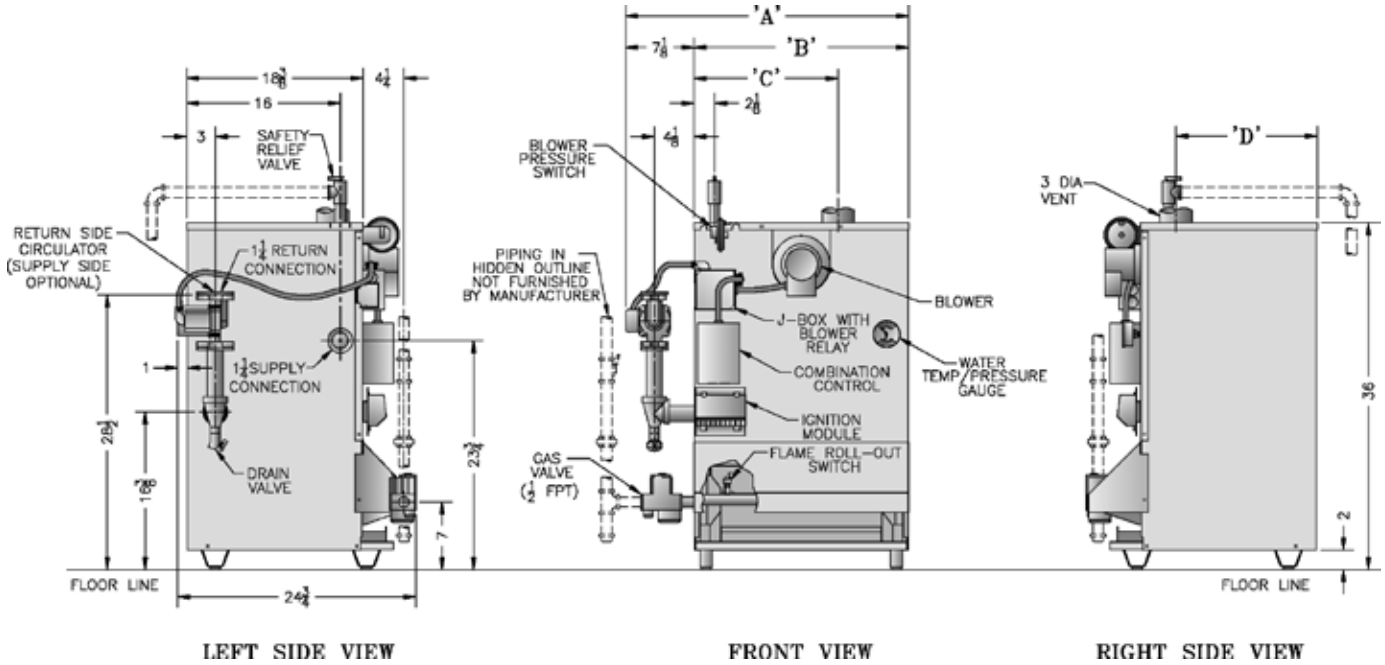


Figure 1: Dimensional Drawing

Table 1: Dimensional Data

Boiler Size	Dimensions [in inches]				Water Content [Gallons]	Approximate Shipping Weight (lbs.)
	A	B	C	D		
PVCG30	19-1/8	12	9-5/8	15-5/8	3.2	260
PVCG40	22-3/8	15-1/4	10-5/8	15-5/8	4.0	305
PVCG50	25-5/8	18-1/2	13	15-1/4	4.7	350
PVCG60	28-7/8	21-3/4	14-5/8	15-1/4	5.5	415

I. Pre-Installation

WARNING

Carefully read all instructions before installing boiler. Failure to follow all instructions in proper order can cause personal injury or death.

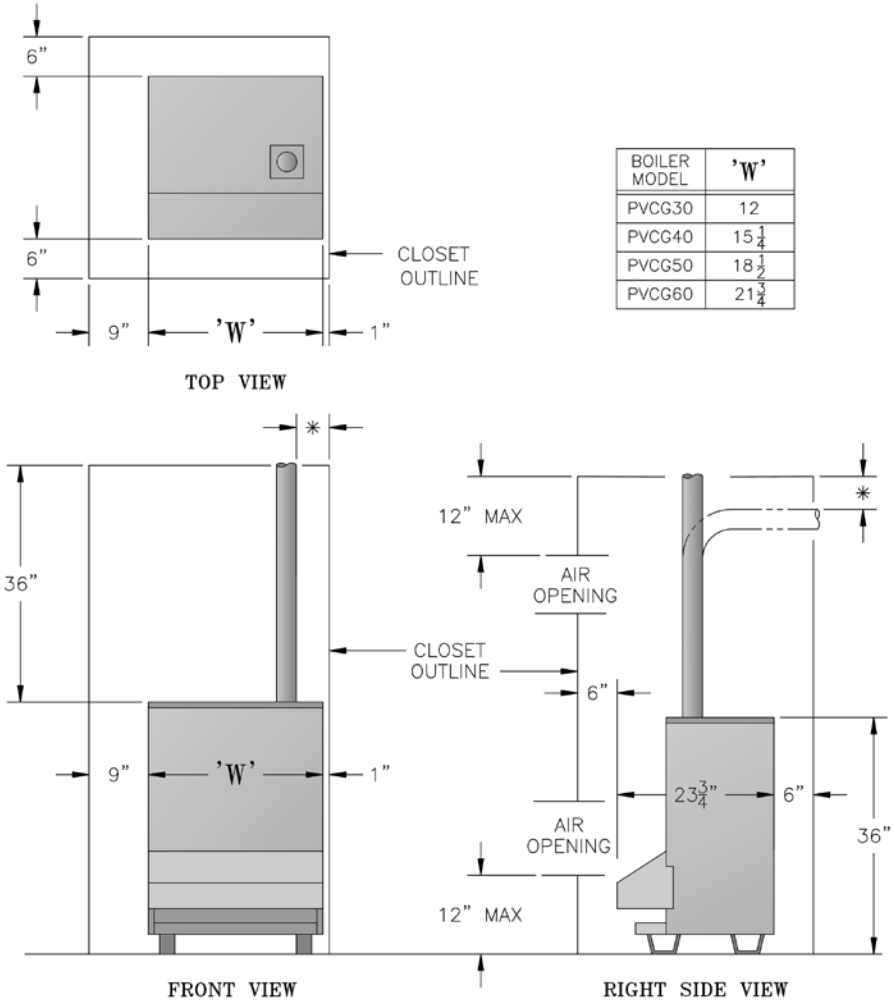
DANGER

Do not install boiler where gasoline or other flammable vapors or liquids, or sources of hydrocarbons (i.e. bleaches, cleaners, chemicals, sprays, paint removers, fabric softeners, etc.) are used or stored.

NOTICE

Due to the low water content of the boiler, mis-sizing of the boiler with regard to the heating system load will result in excessive boiler cycling and accelerated component failure. Manufacturer DOES NOT warrant failures caused by mis-sized boiler applications. DO NOT oversize the boiler to the system.

A. **Inspect shipment** carefully for any signs of damage. All equipment is carefully manufactured, inspected and packed. Manufacturer's responsibility ceases upon delivery of boiler to carrier in good condition. Any claim for damage or shortage in shipment must be filed



BOILER MODEL	'W'
PVCG30	12
PVCG40	15¼
PVCG50	18½
PVCG60	21¾

✳ VENT PIPE MINIMUM CLEARANCE TO COMBUSTIBLE MATERIAL IS FIVE (5) INCHES WHEN VENT IS INSTALLED IN A FULLY ENCLOSED (CHASE) APPLICATION OR FOUR (4) INCHES WHEN VENT IS INSTALLED WITH AT LEAST ONE SIDE OPEN, SIMILAR TO A JOIST BAY APPLICATION.

Figure 2: Minimum Clearances to Combustible Material

immediately against carrier by consignee. No claims for variances or shortages will be allowed by Boiler Manufacturer, unless presented within sixty (60) days after receipt of equipment.

B. **Installation must conform** to the requirements of the authority having jurisdiction. In the absence of such requirements, installation must conform to *National Fuel Gas Code*, NFPA 54/ANSI Z223.1. Where required by the authority having jurisdiction, the installation must conform to the *Standard for Controls and Safety Devices for Automatically Fired Boilers*, ANSI/ASME CSD-1.

C. Do not install boiler where gasoline or other flammable vapors or liquids, or sources of hydrocarbons (i.e. bleaches, cleaners, chemicals, sprays, paint removers, fabric softeners, etc.) are used or stored.

D. **Appliance is design certified** for installation on combustible flooring. Do not install boiler on carpeting.

E. **Provide clearance** between boiler jacket and combustible material in accordance with local fire ordinance. See Figure 2 for minimum clearance from combustible material for closet installation. For alcove installation provide top clearance of 27 inches and right side clearance of 6 inches. Recommended service clearance is 24 inches from left side, right side and front. Service clearances may be reduced to minimum clearances to combustible materials.

F. **Install on level floor.** For basement installation provide solid base, such as concrete, if floor is not level or if water may be encountered on floor around boiler. Floor must be able to support weight of boiler, water and all additional system components.

G. **Install near outside wall** for through the wall venting. Refer to Venting Section of this manual.

H. **Protect gas ignition system components** from water (dripping, spraying, rain, etc.) during boiler operation and service (circulator replacement, condensate trap, control replacement, etc.).

I. **Provide combustion and ventilation air** in accordance with applicable provisions of local building codes, or National *Fuel Gas Code*, NFPA 54/ANSI Z223.1, Section 5.3, Air for Combustion and Ventilation.

WARNING

Adequate combustion and ventilation air must be provided to assure proper combustion.

The following guideline is based on the *National Fuel Gas Code*, NFPA 54/ANSI Z223.1.

1. Determine volume of space (boiler room). Rooms communicating directly with space (through openings not furnished with doors) are considered part of space.

   Volume [ft³] = Length [ft] x Width [ft] x Height [ft]

2. Determine Total Input of all appliances in space. Round result to nearest 1,000 Btu per hour (Btuh).
3. Determine type of space. Divide Volume by Total Input.
   a. If result is greater than or equal to 50 ft³ per 1,000 Btuh, space is considered an *unconfined space*.
   b. If result is less than 50 ft³ per 1,000 Btuh, space is considered a *confined space*.
4. Determine building type. A building of *unusually tight construction* has the following characteristics:
   a. Walls and ceiling exposed to outside atmosphere have a continuous water vapor retarder with a rating of 1 perm or less with openings gasketed and sealed, and;
   b. Weather-stripping has been added on openable windows and doors, and;
   c. Caulking or sealants applied in joints around window and door frames, between sole plates and floors, between wall-ceiling joints, between wall panels, at plumbing and electrical penetrations, and at other openings.
5. For boiler located in an *unconfined space in a building of other than unusually tight construction*, adequate combustion and ventilation air is normally provided by fresh air infiltration through cracks around windows and doors.
6. For boiler located within *unconfined space in building of unusually tight construction* or within *confined space*, provide outdoor air through two permanent openings which communicate directly or by duct with the outdoors or spaces (crawl or attic) freely communicating with the outdoors. Locate one opening within 12 inches of top of space. Locate remaining opening within 12 inches of bottom of space. Minimum dimension of air opening is 3 inches. Size each opening per following:
   a. Direct communication with outdoors. Minimum free area of 1 square inch per 4,000 Btu per hour input of all equipment in space.
   b. Vertical ducts. Minimum free area of 1 square inch per 4,000 Btu per hour input of all equipment in space. Duct cross-sectional area shall be same as opening free area.
   c. Horizontal ducts. Minimum free area of 1 square inch per 2,000 Btu per hour input of all equipment in space. Duct cross-sectional area shall be same as opening free area.

Alternate method for boiler located within confined space. Use indoor air if two permanent openings communicate directly with additional space(s) of sufficient volume such that combined volume of all spaces meet criteria for unconfined space. Size each opening for minimum free area of 1 square inch per 1,000 Btu per hour input of all equipment in spaces, but not less than 100 square inches.

7. Ventilation Duct Louvers and Grilles. Equip outside openings with louvers to prevent entrance of rain and snow, and screens to prevent entrance of insects and rodents. Louvers and grilles must be fixed in open position or interlocked with equipment to open automatically before burner operation. Screens must not be smaller than ¼ inch mesh.

   Consider the blocking effect of louvers, grilles and screens when calculating the opening size to provide the required free area. If free area of louver or grille is not known, assume wood louvers have 20-25 percent free area and metal louvers and grilles have 60-75 percent free area.

CAUTION

Avoid operating this boiler in an environment where saw dust, loose insulation fibers, dry wall dust, etc. are present. If boiler is operated under these conditions, the burner interior and ports must be cleaned and inspected daily to insure proper operation.

II. Unpack Boiler

CAUTION

Do not drop boiler. Do not bump boiler jacket against floor.

A. Move boiler to approximate installed position.

B. Remove all crate fasteners.

C. Lift outside container and remove with all other inside protective spacers and bracing. Save two of the wooden slats from the container sleeve for use in Steps E and F.

D. Remove all boiler hold-down fasteners.

WARNING

Installation of this boiler should be undertaken only by trained and skilled personnel from a qualified service agency.

E. Tilt the boiler to one side and slide a wooden slat under the two raised feet.

F. Tilt the boiler to the other side and slide another wooden slat under the two raised feet.

G. Slide the boiler forward or backward off the skid using the two wooden slats as runners.

H. Move boiler to its permanent location.

III. Venting

WARNING

Do not use this boiler with galvanized, Type 304 or Type 316 stainless steel, non metallic or any other non AL29-4C® based vent systems.

Do not use a barometric damper or drafthood with this boiler.

Do not use vent dampers with this boiler.

Moisture and ice may form on surfaces around termination. To prevent deterioration, surfaces should be in good repair (sealed, painted, etc.).

This boiler needs fresh air for safe operation and must be installed so there are provisions for adequate combustion and ventilation air.

Do not operate boiler where gasoline or other flammable vapors or liquids, or sources of hydrocarbons (i.e. bleaches, cleaners, chemicals, sprays, paint removers, fabric softeners, etc.) are used, stored and/ or present in the air.

Do not exceed maximum vent length of 25 equivalent feet.

NOTICE

The gasketed vent system components pictured below in Figure A are being phased in and each vent component is interchangeable with the previously supplied gasket-less venting components. The newer vent components are generally quicker and easier to join, as they do not require the sealant application and their clamp bands are attached.

In the event a gasketed vent component and a gasket-less vent component must be interconnected, follow the instructions associated with Figure 4C or 4D. The two guiding principles of these instructions are as follows:

1) Any joining of vent components that involves at least one gasket-less vent component always requires the sealant application.

2) The female end of a gasket-less vent component always requires a clamp band, regardless of the design of the mating male vent component.

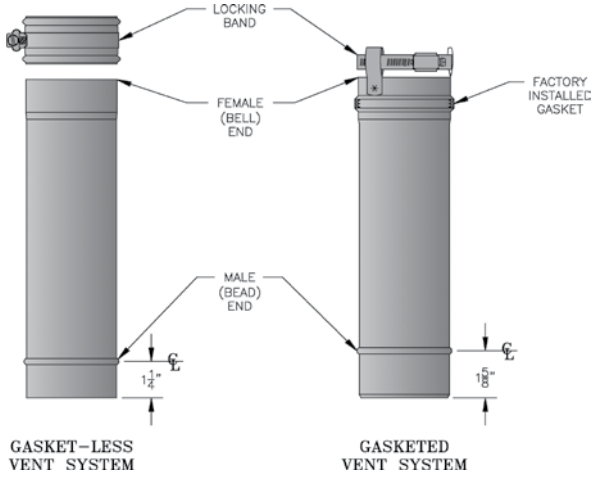


Figure A: Vent

Each gasket-less vent component is supplied with a clamp band and sealant.

A Vent Transition Kit, part number 6116302, is available that contains one clamp band and one 3 ounce tube of sealant.

Table 2: Vent System Components

Vent System Component	Current Gasket-less Vent Part Number	New Gasketed Vent Part Number
3” Dia. Pipe x 1 Ft	61160112	8116296U
3” Dia. Pipe x 3 Ft	61160101	8116298U
3” Dia. Pipe x 5 Ft	61160111	8116300U
3” Dia. Pipe x Adjustable	N/A	8116319U
3” Dia. 90° Elbow	61160121	8116294U
3” Dia. 45° Elbow	61160131	8116292U
3” Dia. Horizontal Drain Tee	6116037	8116302U
3” Dia. Vertical Drain Tee	6116036	8116304U

A. General Guidelines.

1. Vent system installation must be in accordance with *National Fuel Gas Code*, NFPA 54/ANSI Z221.3, Venting of Equipment or applicable provisions of local building codes. Contact local building or fire officials about restrictions and installation inspection in your area.
2. This appliance requires a Special Gas Vent. Use Vent Connector and Vent Terminal in Vent Accessory Carton provided with boiler (See Repair Parts). The product is designed to use factory supplied AL 29-4C® Stainless Steel vent system components. The following manufacturers offer similar AL 29-4C® components and are approved for use with this product: Heat-Fab Inc. - Saf-T-Vent (800-772-0739); Flex-L International Inc. - Star-34 (800-561-1980); Z-Flex U. S., Inc. - Z-Vent (800-654-5600); and Protech Systems, Inc.- FasNSeal™ (800-766-3473) or equivalent. The use of these alternate manufacturer's venting systems will require adapters to connect to the factory supplied vent connector and vent terminal. These adapters are not supplied with this unit and should be obtained from the supplier of the alternate manufacturer's venting system. See Table 2 for complete list of Vent System Components.
3. Vent length restrictions are based on equivalent feet of vent pipe (total length of straight pipe in feet plus 5 equivalent feet for each 45° or 90° elbow). Do not exceed the maximum certified vent length of 25 equivalent feet. The minimum certified vent length is 7 equivalent feet. Do not include vent terminal or vent connector in equivalent feet calculations.
4. Do not install venting system components on the exterior of the building except as specifically required by these instructions.
5. This PVCG boiler may only be sidewall vented; it may not be vertically vented, as through a roof.

B. Removal of Existing Boiler.

For installations not involving the replacement of an existing boiler, proceed to Step C.

When an existing boiler is removed from a common venting system, the common venting system is likely to be too large for proper venting of the remaining appliances. At the time of removal of an existing boiler, the following steps shall be followed with each appliance remaining connected to the common venting system placed in operation, while the other appliances remaining connected to the common venting system are not in operation:

1. Seal any unused openings in the common venting system.
2. Visually inspect the venting system for proper size and horizontal pitch and determine there is no blockage or restriction, leakage, corrosion, and other deficiencies which could cause an unsafe condition.
3. Insofar as is practical, close all building doors and windows and all doors between the space in which the appliances remaining connected to the common venting system are located and other spaces of the building. Turn on clothes dryers and any appliance not connected to the common venting system. Turn on any exhaust fans, such as range-hoods and bathroom exhausts, so they will operate at maximum speed. Do not operate a summer exhaust fan. Close fireplace dampers.
4. Place in operation the appliance being inspected. Follow the Lighting (or Operating) Instructions. Adjust thermostat so appliance will operate continuously.
5. Test for spillage at the drafthood relief opening after 5 minutes of main burner operation. Use the flame of a match or candle, or smoke from a cigarette, cigar or pipe.

6. After it has been determined that each appliance remaining connected to the common venting system properly vents when tested as outlined above, return doors, windows, exhaust fans, fireplace dampers and any other gas burning appliance to their previous conditions of use.
7. Any improper operation of the common venting system should be corrected so the installation conforms with the *National Fuel Gas Code*, NFPA 54/ANSI Z223.1. When resizing any portion of the common venting system, the common venting system should be resized to approach the minimum size as determined in the *National Fuel Gas Code*, NFPA 54/ANSI Z223.1.

C. Install Vent Connector.

1. Remove vent connector from vent accessory carton.
2. Remove gaskets, orifice plate and hardware from blower outlet flange.
3. Assemble orifice plate gaskets, orifice plate, and vent connector. See Figure 3.
4. Secure vent connector with washers and locknuts.

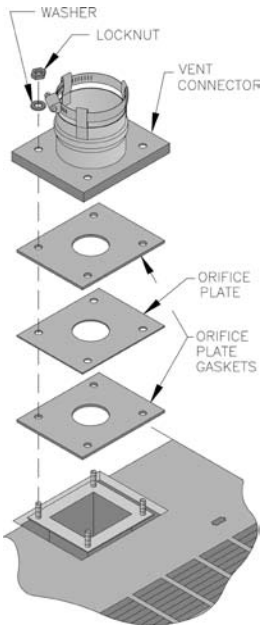


Figure 3: Vent Connector Installation

D. Install Vent Pipe, General.

1. Plan venting system to avoid possible contact with plumbing or electrical wires. Start venting system at vent connector and work toward the vent terminal.
2. Use non-combustible ¾ inch pipe strap to support horizontal runs, maintain vent location and slope, while preventing sags in pipe. Do not restrict thermal expansion or movement of vent system. Maximum support spacing is 5 feet. Do not penetrate any part of the vent system with fasteners.
3. Provide and maintain vent pipe minimum clearance to combustible materials. Vent pipe minimum clearance to combustible material is five (5) inches when vent is installed in a fully enclosed (chase) application or four (4) inches when vent is installed with at least one side open, similar to a joist bay application. Use thimble when penetrating combustible wall.
   a. PVCG30 and PVCG40 – Single wall thimble, Factory Part No. 8116116. Other wall thimble manufacturers are American Metal Products, Hart & Cooley, and Metal Fab.
   b. PVCG50 and PVCG60 – Double wall thimble, Factory Part No. 8116115 (accommodates 5 inch to 8-3/4 inch wall thickness). Another wall thimble manufacturer is Hart & Cooley.
4. Once a vent pipe manufacturer and system is chosen never mix and match vent systems.
5. If a non-standard length pipe is required:

   Gasketed Vent System: The use of the adjustable length pipe (P/N 8116319U) is recommended to complete a non-standard pipe length. This pipe requires a minimum installed length of 12¾ inch and can adjust across a 7 inch gap up to a maximum of 19¾ inch long. (Note for the adjustable pipe the installed length should be measured from the centerline of the bead on the male end of the first pipe to the end of the female pipe excluding the locking band of the second pipe with a single gasket.) Only in the event the adjustable length pipe is not sufficient a standard length pipe may be cut using the procedure outlined below for the Gasket-Less Vent System.

WARNING

Never exceed maximum installed length of 19¾ inches for adjustable length pipe.
Risk of flue gas leakage is possible.

Gasket-Less Vent System: Carefully cut pipe to length using a hacksaw with minimum 32 teeth per inch or circular saw with metal abrasive wheel. Remove male (bead) end only – female (bell) end accepts next fitting or pipe.

NOTICE

Cut must be square with pipe and filed or sanded smooth before joining. Carefully ensure roundness of cut pipe by hand with gloves before installing. Seal joint with RTV specified in this manual.

6. Seal all Gasket-Less vent, mixed vent (Gasket-Less and Gasketed) and field cut joints using Dow Corning Silastic 732 RTV, Dow Corning Silastic 736 RTV, GE RTV106, Polybac #500 RTV, Sil-

bond RTV 4500 (Acetoxy) and Sil-bond RTV 6500. Do not use other adhesives or sealants.

E. Install Vent Pipe, Gasket-Less Vent System.

1. Procedure for Joining Gasket-Less Vent Pipe and Fittings. See Figure 4A.

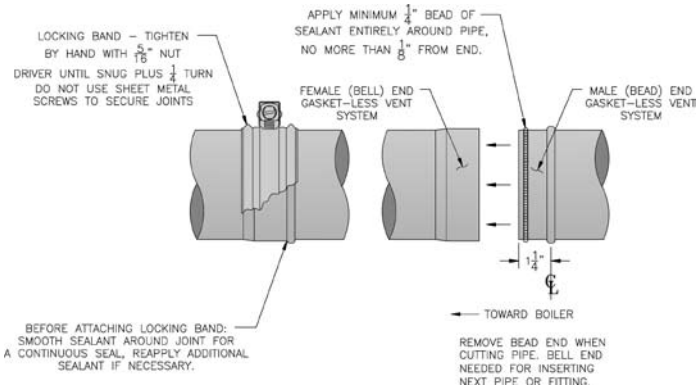


Figure 4A: Gasket-Less Vent Joint Detail

a. Clean joints of pipe or fittings using an alcohol pad to remove any dirt and grease.

b. Slip a locking band over female (bell) end of pipe/fitting.

c. Apply a continuous ¼ inch bead of sealant around male end of joint no more than 1/8 inch from end.

d. Align weld seams and use a slight twisting motion to FULLY insert male end into female end of joint. Ensure bead in male end rest against the end of the female pipe.

e. Smooth sealant around joint for a continuous seal. Reapply sealant if necessary.

f. Slip the locking band over joint and align closest bead in locking band with bead in male end of pipe.

g. Tighten locking band by HAND with a 5/16" nut driver until snug plus ¼ turn. DO NOT SECURE JOINTS WITH SHEET METAL SCREWS OR POP RIVETS. DO NOT PUNCTURE THE VENT SYSTEM!

h. Once the installation is complete, operate appliance and inspect all joints to ensure that flue gases and/or liquid condensate will not escape.

F. Install Vent Pipe, Gasketed Vent System.

1. Procedure for Joining Gasketed Vent Pipe and Fittings. See Figure 4B.

a. Wipe the male end of each joint using an alcohol pad to remove any dirt and grease.

b. Align weld seams in pipes and use a slight twisting motion to FULLY insert male end into female end of joint. Ensure bead in male end of pipe is below locking band and rest against the end of the female pipe. Verify the factory-installed gasket is not dislodged or cut.

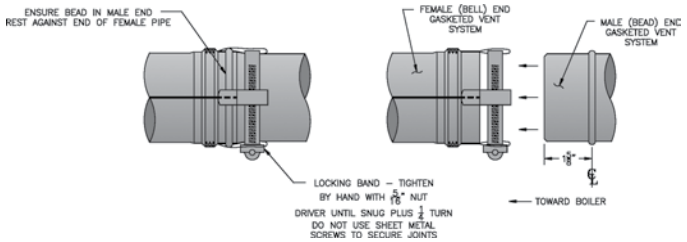


Figure 4B: Gasketed Vent Joint Detail

c. Tighten locking band by HAND with a 5/16" nut driver until snug plus ¼ turn. DO NOT SECURE JOINTS WITH SHEET METAL SCREWS OR POP RIVETS. DO NOT PUNCTURE THE VENT SYSTEM!

d. Once the installation is complete, operate appliance and inspect all joints to ensure that flue gases and/or liquid condensate will not escape.

G. Install Vent Pipe, Gasket-Less & Gasketed Vent System.

1. Procedure for joining the male end of Gasket-Less Vent with the female end of Gasketed Vent. See Figure 4C.

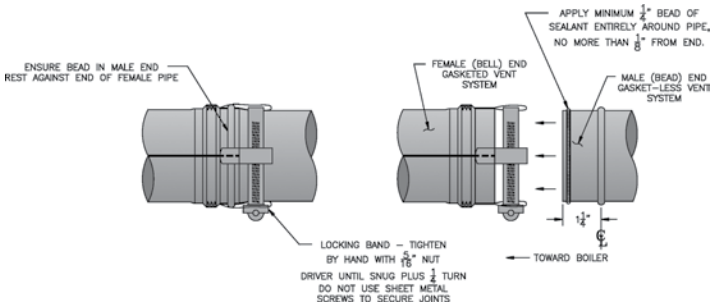


Figure 4C: Gasket-Less Male and Gasketed Female Vent Joint Detail

a. Clean the male end of each joint using an alcohol pad to remove any dirt and grease.

b. Apply a continuous ¼ inch bead of sealant around male end of joint no more than 1/8 inch from end.

c. Align weld seams in pipes and use a slight twisting motion to FULLY insert male end into female end of joint. Ensure bead in male end of pipe is below locking band and rest against the end of the female pipe. Verify the factory-installed gasket is not dislodged or cut.

d. Smooth sealant around joint for a continuous seal. Reapply sealant if necessary.

e. Tighten locking band by HAND with a 5/16" nut driver until snug plus ¼ turn. DO NOT SECURE JOINTS WITH SHEET METAL SCREWS OR POP RIVETS. DO NOT PUNCTURE THE VENT SYSTEM!

f. Once the installation is complete, operate appliance and inspect all joints to ensure that flue gases and/or liquid condensate will not escape.

2. Procedure for joining the female end of Gasket-Less Vent with the male end of Gasketed Vent. See Figure 4D.

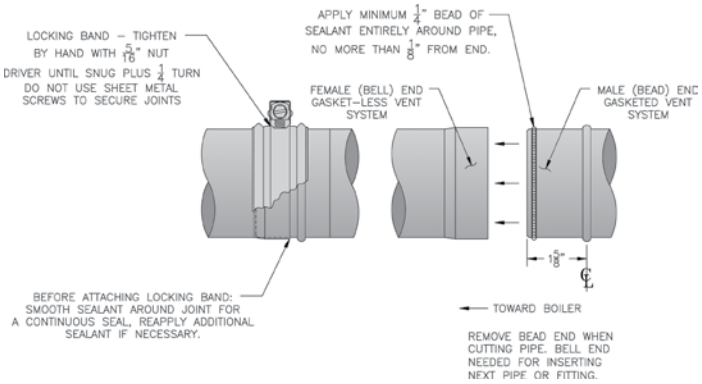


Figure 4D: Gasket-Less Female and Gasketed Male Vent Joint Detail

a. Clean joints of pipe or fittings using an alcohol pad to remove any dirt and grease.

b. Slip a locking band over female (bell) end of pipe/fitting.

c. Apply a continuous ¼ inch bead of sealant around male end of joint no more than 1/8 inch from end.

d. Align weld seams in pipes and use a slight twisting motion to FULLY insert male end into female end of joint.

e. Smooth sealant around joint for a continuous seal. Reapply sealant if necessary.

f. Slip the locking band over joint and align closest bead in locking band with bead in male end of pipe.

g. Tighten locking band by HAND with a 5/16" nut driver until snug plus ¼ turn. DO NOT SECURE JOINTS WITH SHEET METAL SCREWS OR POP RIVETS. DO NOT PUNCTURE THE VENT SYSTEM!

h. Once the installation is complete, operate appliance and inspect all joints to ensure that flue gases and/or liquid condensate will not escape.

H. Horizontal (Through Wall) Vent Installation.

1. Maintain minimum ¼ inch per foot slope in horizontal runs. Slope pipe down toward vent terminal. Position weld seams in vent pipes in all horizontal runs at the top to avoid condensate from lying on the seams.
2. Vent terminal location restricted per following:
   a. Minimum 12 inches above grade plus normally expected snow accumulation level, or 7 feet above grade if located adjacent to public walkway. Do not install over public walkway where local experience indicates condensate or vapor from Category III appliances creates a nuisance or hazard.
   b. Minimum 3 feet above any forced air inlet located within 10 feet.
   c. Minimum 4 foot below, 4 foot horizontally from, or 1 foot above any door, window, or gravity air inlet.
   d. Minimum 4 feet (6 feet in Canada) horizontally from, and in no case above or below, unless a 4-foot horizontal distance is maintained, from electric meters, gas meters, regulators and relief equipment.
   e. Minimum 12 inches from overhang or corner.
3. Use wall thimble when passing through combustible outside wall (thimble use optional for noncombustible wall). Insert thimble through wall from outside. Secure outside flange to wall with nails or screws, and seal with adhesive material. Install inside flange to inside wall, secure with nails or screws, and seal with adhesive material.
4. For noncombustible wall when thimble is not used, size opening such that female (bell) end with locking band attached cannot pass through.
5. Join vent terminal to vent pipe. Locate vent terminal 3 inches (minimum) and 6 inches (recommended) from wall when joined to inside vent piping. See Figure 5. Vent terminal clearance to vinyl wall surfaces is 6 inches.
6. Insert vent pipe through thimble/opening from outside and join to vent system. Apply sealant between vent pipe and opening/thimble to provide weathertight seal.

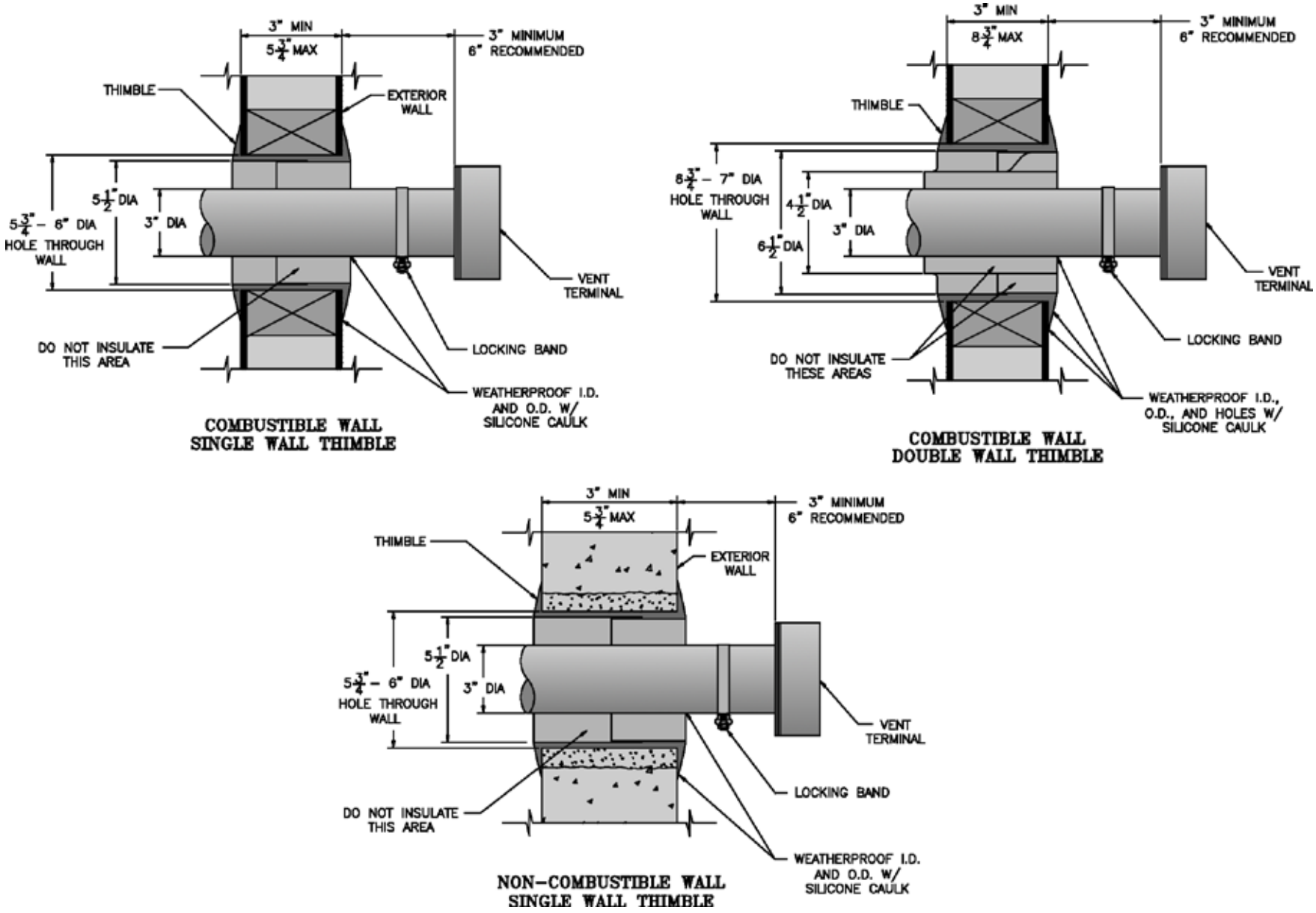


Figure 5: Recommendations for Thimble and Wall Penetration

IV. Water Piping and Trim

WARNING

Failure to properly pipe boiler may result in improper operation and damage to boiler or structure.

Oxygen contamination of boiler water will cause corrosion of iron and steel boiler components, and can lead to boiler failure. Manufacturer's Standard Warranty does not cover problems caused by oxygen contamination of boiler water or scale (lime) build-up caused by frequent addition of water.

A. Design and install boiler and system piping to prevent oxygen contamination of boiler water and frequent water additions.

1. There are many possible causes of oxygen contamination such as:
   a. Addition of excessive make-up water as a result of system leaks.
   b. Absorption through open tanks and fittings.
   c. Oxygen permeable materials in the distribution system.
2. In order to insure long product life, oxygen sources must be eliminated. This can be accomplished by taking the following measures:
   a. Repairing system leaks to eliminate the need for addition of make-up water.
   b. Eliminating open tanks from the system.
   c. Eliminating and/or repairing fittings which allow oxygen absorption.
   d. Use of non-permeable materials in the distribution system.
   e. Isolating the boiler from the system water by installing a heat exchanger.
   f. Use properly designed and operating air elimination devices in water piping.

B. Connect system supply and return piping to boiler. See Figures 7 and 8. Also consult I=B=R Installation and Piping Guides. Maintain minimum ½ inch clearance from hot water piping to combustible materials.

C. Install Circulator with flanges, gaskets and bolts provided. Install system circulator on supply piping. Connect harness to circulator and secure any excess conduit.

D. Install Pressure Relief Valve. See Figure 7 or 8. Pressure Relief Valve must be installed with spindle in vertical position. Installation of the relief valve must comply with the ANSI/ASME Boiler and Pressure Vessel Code, Section IV.

WARNING

Pressure relief valve discharge piping must be piped such that the potential of severe burns is eliminated. DO NOT pipe in any area where freezing could occur. DO NOT install any shut-off valves, plugs or caps. Consult Local Codes for proper discharge piping arrangement.

E. Install Drain Valve in ¾ inch NPT connection in tee provided. See Figure 1.

F. Space heating and domestic water heating with New Yorker Link SL™ indirect water heater. Install New Yorker Link SL™ indirect water heater as a separate heating zone. Refer to New Yorker Link SL™ Installation, Operating and Service Instructions for additional information.

G. If boiler is used in connection with refrigeration systems, boiler must be installed with chilled medium piped in parallel with the heating boiler using appropriate valves to prevent chilled medium from entering boiler, see Figure 6. Also consult I=B=R Installation and Piping Guides.

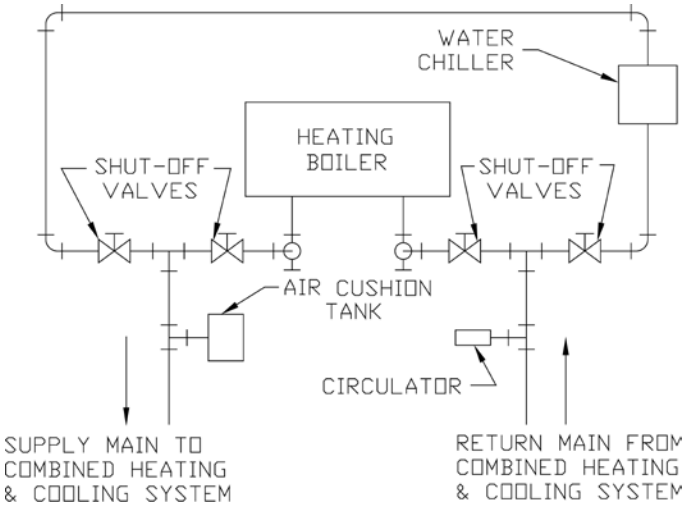


Figure 6: Recommended Piping for Combination Heating & Cooling (Refrigeration) Systems

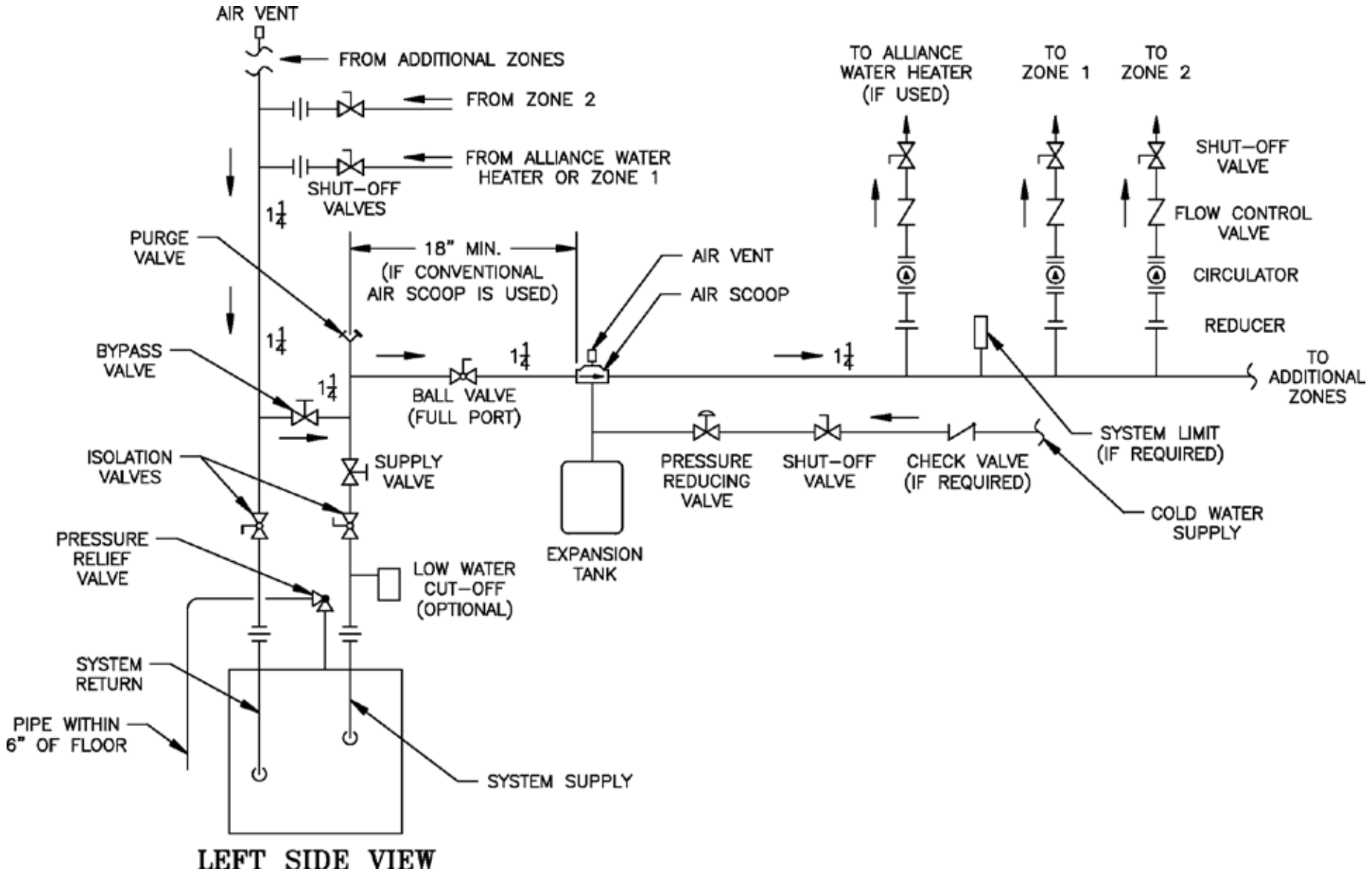


Figure 7: Recommended Water Piping for Circulator Zoned Heating Systems

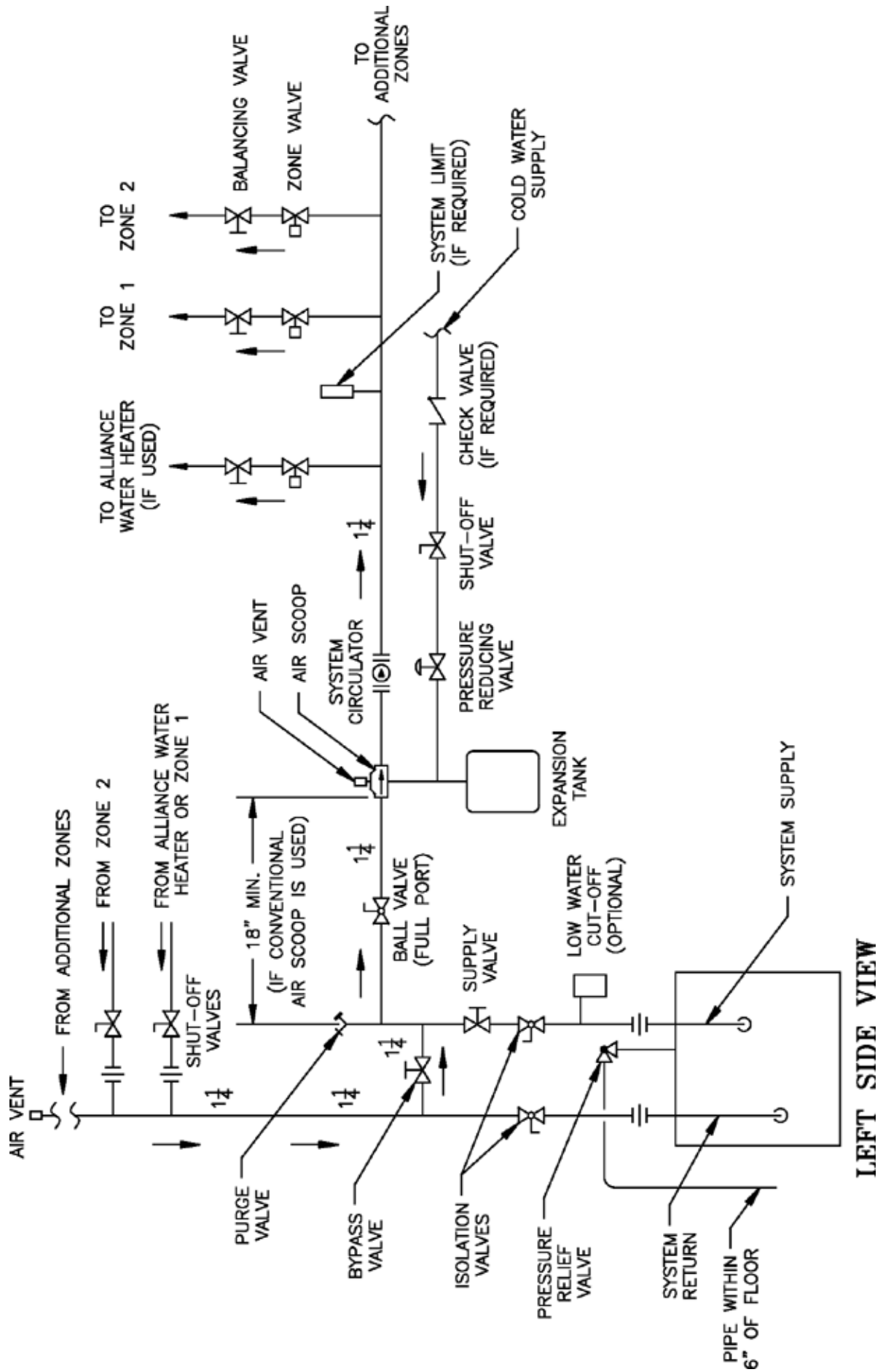


Figure 8: Recommended Water Piping for Zone Valve Zoned Heating Systems

H. **If boiler is connected to heating coils** located in air handling units where they may be exposed to refrigerated air, boiler piping must be equipped with flow control valves to prevent gravity circulation of boiler water during operation of cooling system.

I. **Use a boiler bypass** if the boiler is to be operated in a system which has a large volume or excessive radiation where low boiler water temperatures may be encountered (i.e. converted gravity circulation system, etc.).

Install pipe tee between circulator and boiler return along with second tee in supply piping as shown in Figures 7 and 8. Bypass should be same size as the supply and return lines with valves located in bypass and supply outlet as illustrated in Figures 7 and 8 in order to regulate water flow to maintain higher boiler water temperatures.

After the boiler is operational (reference System Start-Up Section of this manual) set by-pass and boiler supply valves to half throttle position to start. Operate boiler until system water temperature reaches normal operating range.

Adjust valves to provide 180° to 200°F supply water temperature. Opening the boiler supply valve will raise system temperature, while opening the by-pass valve will lower system supply temperature.

J. **A hot water boiler installed above radiation level** must be provided with a low water cut-off device as part of installation.

If a low water cut-off is required, it must be mounted in the system piping above the boiler.

The minimum safe water level of a hot water boiler is just above the highest water containing cavity of the boiler; that is, a hot water boiler must be full of water to operate safely.

K. **Oil, grease, and other foreign materials** which accumulate in new hot water boilers and a new or reworked system should be boiled out, and then thoroughly flushed. A qualified water treatment chemical specialist should be consulted for recommendations regarding appropriate chemical compounds and concentrations which are compatible with local environmental regulations.

L. **After the boiler and system have been cleaned and flushed,** and before refilling the entire system, add appropriate water treatment chemicals, if necessary, to bring the pH between 7 and 11.

M. **If it is required to perform a long term pressure test of the hydronic system**, the boiler should first be isolated to avoid a pressure loss due to the escape of air trapped in the boiler.

To perform a long term pressure test including the boiler, ALL trapped air must first be removed from the boiler.

A loss of pressure during such a test, with no visible water leakage, is an indication that the boiler contained trapped air.

V. Gas Piping

WARNING

Failure to properly pipe gas supply to boiler may result in improper operation and damage to the boiler or structure. Always assure gas piping is absolutely leak free and of the proper size and type for the connected load.

An additional gas pressure regulator may be needed. Consult gas supplier.

A. Size gas piping. Design system to provide adequate gas supply to boiler. Consider these factors:

1. Allowable pressure drop from point of delivery to boiler. Maximum allowable system pressure is ½ psig. Actual point of delivery pressure may be less; contact gas supplier for additional information. Minimum gas valve inlet pressure is listed on rating label on front of boiler.
2. Maximum gas demand. Table 3 lists boiler input rate. Also consider existing and expected future gas utilization equipment (i.e. water heater, cooking equipment).

Table 3: Rated Input

Boiler Model Number	Input Rate [cubic feet per hour]		Gas Connection Size
	Natural Gas	LP/Propane	
PVCG30	62	24¾	½
PVCG40	96	38½	½
PVCG50	130	52	½
PVCG60	164	65¾	½

3. Length of piping and number of fittings. Refer to Table 4 for maximum capacity of Schedule 40 pipe. Table 5 lists equivalent pipe length for standard fittings.
4. Specific gravity of gas. Corrections for the specific gravity of natural gas can be found in Table 6.

For materials or conditions other than those listed above, refer to *National Fuel Gas Code*, NFPA 54/ANSI Z223.1, or size system using standard engineering methods acceptable to authority having jurisdiction.

B. Connect boiler gas valve to gas supply system.

WARNING

Failure to use proper thread compounds on all gas connectors may result in leaks of flammable gas.

WARNING

Gas supply to boiler and system must be absolutely shut off prior to installing or servicing boiler gas piping.

1. Use methods and materials in accordance with local plumbing codes and requirements of gas supplier. In absence of such requirements, follow *National Fuel Gas Code*, NFPA 54/ANSI Z223.1.
2. Use thread (joint) compounds (pipe dope) resistant to action of liquefied petroleum gas.
3. Install sediment trap, ground-joint union and manual shut-off valve upstream of boiler gas control valve. See Figure 10.

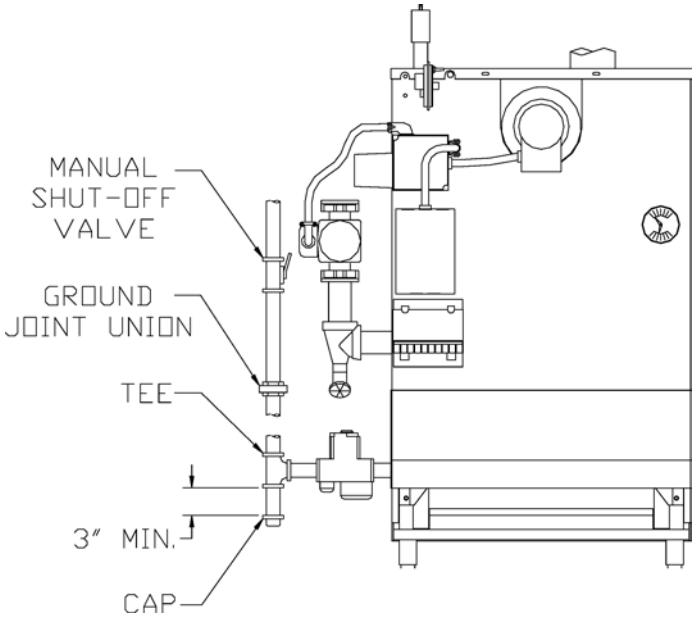


Figure 10: Recommended Gas Piping

4. All above ground gas piping upstream from manual shut-off valve must be electrically continuous and bonded to a grounding electrode. Do not use gas piping as grounding electrode. Refer to *National Electrical Code*, ANSI/NFPA 70.

C. Pressure test. The boiler and its gas connection must be leak tested before placing boiler in operation.

1. Protect boiler gas control valve. For all testing over ½ psig, boiler and its individual shutoff valve must be disconnected from gas supply piping. For testing at ½ psig or less, isolate boiler from gas supply piping by closing boiler's individual manual shutoff valve.
2. Locate leaks using approved combustible gas detector, soap and water, or similar nonflammable solution.

DANGER

Do not use matches, candles, open flames or other ignition source to check for leaks.

Table 4: Maximum Capacity of Schedule 40 Pipe in CFH For Natural Gas Pressures of 0.5 psig or Less

Length [Feet]	0.3 Inch w.c. Pressure Drop				0.5 Inch w.c. Pressure Drop			
	½	¾	1	1¼	½	¾	1	1¼
10	132	278	520	1,050	175	360	680	1,400
20	92	190	350	730	120	250	465	950
30	73	152	285	590	97	200	375	770
40	63	130	245	500	82	170	320	660
50	56	115	215	440	73	151	285	580
60	50	105	195	400	66	138	260	530
70	46	96	180	370	61	125	240	490
80	43	90	170	350	57	118	220	460
90	40	84	160	320	53	110	205	430
100	38	79	150	305	50	103	195	400

Table 5: Fitting Equivalent Lengths

VALVES FULLY OPEN									
Pipe Size	I.D. Inches	Gate	Globe	Angle	Swing Check	90° Elbow	45° Elbow	90° Tee, Flow Through Run	90° Tee, Flow Through Branch
½"	06.22	0.35	18.6	9.3	4.3	1.6	0.78	1.0	3.1
¾"	0.824	0.44	23.1	11.5	5.3	2.1	0.97	1.4	4.1
1"	1.049	0.56	29.4	14.7	6.8	2.6	1.23	1.8	5.3
1¼"	1.380	0.74	38.6	19.3	8.9	3.5	1.60	2.3	6.9

Table 6: Specific Gravity Correction Factors for Natural Gas

Specific Gravity	Correction Factor	Specific Gravity	Correction Factor
0.50	1.10	1.30	1.07
0.55	1.04	1.40	1.04
0.60	1.00	1.50	1.00
0.65	0.96	1.60	0.97
0.70	0.93	1.70	0.94
0.75	0.90	---	---
0.80	0.87	---	---

NOTICE

PVCG boilers built for installation at altitudes greater than 2,000 feet above sea level have been specially orificed to reduce gas input rate. See rating label for gas orifice size. High altitude boiler models are identifiable by the second digit in the model number suffix on the rating label:

PVCG_O_1-_2_: Less than 2000 ft. elevation

PVCG_O_1-_5_: 2000 to 5000 ft. elevation

VI. Electrical

DANGER

Positively assure all electrical connections are unpowered before attempting installation or service of electrical components or connections of the boiler or building. Lock out all electrical boxes with padlock once power is turned off.

WARNING

Failure to properly wire electrical connections to the boiler may result in serious physical harm.

Electrical power may be from more than one source. Make sure all power is off before attempting any electrical work.

Each boiler must be protected with a properly sized fused disconnect.

Never jump out or make inoperative any safety or operating controls.

The wiring diagrams contained in this manual are for reference purposes only. Each boiler is shipped with a wiring diagram attached to the left side of the boiler. Refer to this diagram and the wiring diagram of any controls used with the boiler. Read, understand and follow all wiring instructions supplied with the controls.

A. General. Install wiring and ground boiler in accordance with requirements of authority having jurisdiction, or in absence of such requirements, the *National Electrical Code*, ANSI/NFPA 70.

B. Install thermostat. Locate on inside wall approximately 4 feet above floor. Do not install on outside wall, near fireplace, or where influenced by drafts or restricted air flow, hot or cold water pipes, lighting fixtures, television, or sunlight. Allow free air movement by avoiding placement of furniture near thermostat.

C. Wire thermostat. Provide Class II circuit between thermostat and boiler. Run wires through grommet in L8148E Combination Control. Set thermostat heat anticipator to 0.4 amps. See Figure 11.

D. Wire boiler. Boiler is rated for 120 VAC, 60 hertz, less than 12 amperes. A separate electrical circuit must be run from the main electrical service with an over-current device/disconnect in the circuit. A service switch is recommended and may be required by some local jurisdictions. Connect circuit to black and white wires and green ground screw. See Figure 11.

E. New Yorker Link SL™ indirect water heater (if used). See Figure 11. Also refer to New Yorker Link SL™ *Installation, Operating and Service Instructions*.

1. Zoning with Circulators, Domestic Hot Water Priority. Provide DPDT relay. Connect coil to New Yorker Link SL™ indirect water heater thermostat. Connect normally open contacts to L8148E Combination Control terminals 'Z' and 'B'. Disconnect yellow circulator wire terminal 'C1' in L8148E Combination Control. Connect normally closed contacts to 'C1' terminal and yellow circulator wire.
2. Zoning with Circulators, Nonpriority. Connect New Yorker Link SL™ indirect water heater circulator zone control to L8148E Combination Control terminals 'Z' and 'B'.
3. Zoning with Zone Valves. Connect New Yorker Link SL™ indirect water heater thermostat to zone valve. Connect zone valve end switch to L8148E Combination Control terminals 'T' and 'TV'. See Paragraph F.

F. For installations using zone valves provide separate transformer for zone valve wiring. Consult zone valve manufacturer for assistance.

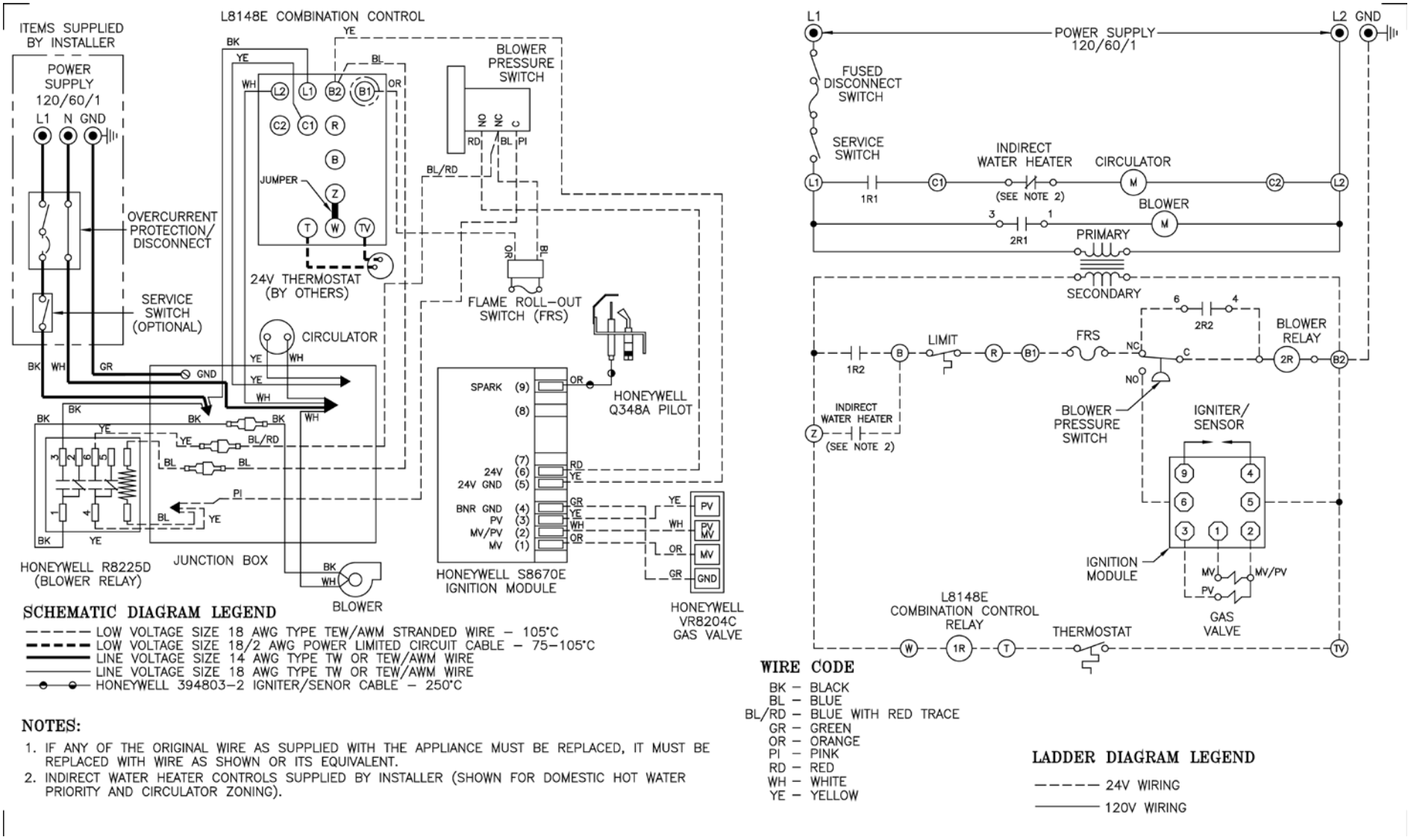


Figure 11: Wiring Diagram

A. **Safe operation** and other performance criteria were met with gas manifold and control assembly provided on boiler when boiler underwent tests specified in *American National Standard for Gas-Fired Low-Pressure Steam and Hot Water Boilers,* ANSI Z21.13.

B. Verify that the venting, water piping, gas piping and electrical system are installed properly. Refer to installation instructions contained in this manual.

C. Confirm all electrical, water and gas supplies are turned off at the source and that vent is clear of obstructions.

D. Confirm that all manual shut-off gas valves between the boiler and gas source are closed.

WARNING

Completely read, understand and follow all instructions in this manual before attempting start up.

E. FILL ENTIRE HEATING SYSTEM WITH WATER and vent air from system. Use the following procedure on a Series Loop or multi-zoned system installed as per Figure 7 or 8 to remove air from system when filling.

WARNING

The maximum operating pressure of this boiler is 30 psig. Never exceed this pressure. Do not plug or change pressure relief valve.

1. Close full port ball valve in boiler supply piping.
2. Isolate all zones by closing zone valves or shut-off valves in supply and return of each zone(s).
3. Attach a hose to the vertical bib located prior to the full port ball valve in the system supply piping. (Note - Terminate hose in five gallon bucket at a suitable floor drain or outdoor area).
4. Starting with one circuit at a time, open zone valve or shut-off valve in system supply and return piping.
5. Open bib.
6. Open fill valve (Make-up water line should be located directly after full port ball valve in system supply piping between air scoop and expansion tank).
7. Allow water to overflow from bucket until discharge from hose is bubble free for 30 seconds.
8. Close the opened zone valve or shut-off valve for the zone being purged of air, then open the zone valve or shut-off valve for the next zone to be purged. Repeat this step until all zones have been purged. At completion, open all zone valves or shut-off valves.
9. Close bib, continue filling the system until the pressure gauge reads 12 psi. Close fill valve.

   (Note - If make-up water line is equipped with pressure reducing valve, system will automatically fill to 12 psi. Follow fill valve manufacturer's instructions).
10. Open isolation valve in boiler supply piping.
11. Remove hose from bib.

F. **Confirm that the boiler and system have no water leaks.**

G. **Prepare to check operation.**

1. Obtain gas heating value (in Btu per cubic foot) from gas supplier.
2. Connect manometer to pressure tap on gas valve. Use 1/8 NPT tapping provided. See Figure 12.

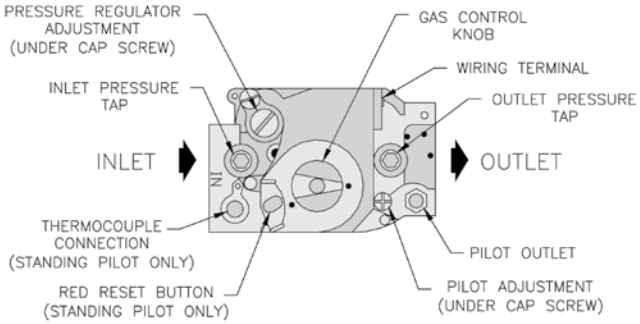


Figure 12: Gas Valve Pressure Tap

3. Temporarily turn off all other gas-fired appliances.
4. Turn on gas supply to the boiler gas piping.
5. Confirm that the supply pressure to the gas valve is 14 in. w.c. or less. Refer to rating label on front of boiler.
6. Open the field installed manual gas shut-off valve located upstream of the gas valve on the boiler.
7. Using soap solution, or similar non-combustible solution, electronic leak detector or other approved method. Check that boiler gas piping valves, and all other components are leak free. Eliminate any leaks.

DANGER

Do not use matches, candles, open flames or other ignition source to check for leaks.

8. Purge gas line of air.

FOR YOUR SAFETY READ BEFORE OPERATING

WARNING: If you do not follow these instructions exactly, a fire or explosion may result causing property damage, personal injury, or loss of life.

A. This appliance is equipped with an ignition device which automatically lights the pilot. Do not try to light the pilot by hand.

B. BEFORE OPERATING smell all around the appliance area for gas. Be sure to smell next to the floor because some gas is heavier than air and will settle on the floor.

WHAT TO DO IF YOU SMELL GAS

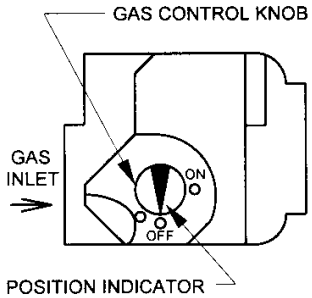
- ► Do not try to light any appliance.
- ► Do not touch any electric switch; do not use any phone in your building.
- ► Immediately call your gas supplier from a neighbor's phone. Follow the gas supplier's instructions.
- ► If you cannot reach your gas supplier, call the fire department.

C. Use only your hand to push in or turn the gas control knob. Never use tools. If the knob will not push in or turn by hand, don't try to repair it, call a qualified service technician. Force or attempted repair may result in a fire or explosion.

D. Do not use this appliance if any part has been under water. Immediately call a qualified service technician to inspect the appliance and to replace any part of the control system and any gas control which has been under water.

OPERATING INSTRUCTIONS

1. STOP! Read the safety information above on this label.
2. Set the thermostat to lowest setting.
3. Turn off all electric power to the appliance.
4. This appliance is equipped with an ignition device which automatically lights the pilot. Do not try to light the pilot by hand.
5. Locate the gas control valve at the end of the gas supply pipe going into the boiler. The gas control knob is the brown or blue plastic knob located on top of the gas control valve.



6. Rotate gas control knob clockwise ↷ from "ON" position to "OFF". Make sure knob rests against stop.
7. Wait five (5) minutes to clear out any gas. Then smell for gas, including near the floor. If you smell gas, STOP! Follow "B" in the safety information above on this label. If you do not smell gas, go to the next step.
8. Rotate gas control knob counterclockwise ↶ from "OFF" to "ON". Make sure knob rest against stop. Do not force.
9. Turn on all electric power to the appliance.
10. Set thermostat to desired setting.
11. If the appliance will not operate, follow the instructions "TO TURN OFF GAS TO APPLIANCE" and call your service technician or gas supplier.

TO TURN OFF GAS TO APPLIANCE

1. Set the thermostat to lowest setting.
2. Turn off all electric power to the appliance if service is to be performed.
3. Rotate gas control knob clockwise ↷ from "ON" position to "OFF". Make sure knob rests against stop.

Figure 13: Operating Instructions

H. Operating Instructions

1. See Figure 13 to place boiler in operation.
2. Electronic Ignition Modules with LED indicators. Table 7 cross-references the ignition module terminal designations to the ignition terminal numbers in the wiring ladder diagrams. The yellow LED indicates the status of the flame, see Table 8. The green LED indicates the status of the system, see Table 9. See Figure 14 for LED locations. See Figure 15 for Troubleshooting Guide.

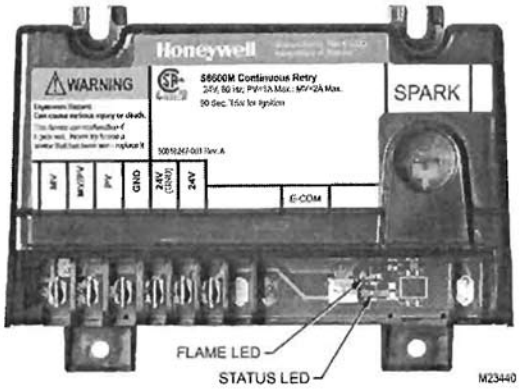


Figure 14: LED Locations

Table 7: Ignition Module Terminal Cross-Reference

Ignition Module Terminal Designation	Wiring Ladder Diagram Terminal Number
MV	1
MV/PV	2
PV	3
GND	4
24V (GND)	5
24V	6
SPARK	9

Table 8: Yellow LED Flame Codes

Yellow LED Flash Code[a]	Indicates	Recommended Service Action
Heartbeat	Normal Flame Signal	N/A
2	Weak Flame Signal - System will operate reliably but flame signal is less than desired. **Note**: This indication may flash temporarily during or shortly after lightoff on some applications.	Perform routine maintenance to assure optimum flame signal.
1	Marginal Flame Signal (less than 1.1 µA) - System may not operate reliably over time. Service call recommended. **Note**: This indication may flash temporarily during or shortly after lightoff on some applications.	Check gas supply, pilot burner, flame sense wiring, contamination of flame rod, burner ground connection.
OFF	No Flame or Flame Signal - below minimum threshold for system operation.	N/A

[a]Flash Code Descriptions

- Heartbeat: Constant ½ second bright, ½ second dim cycles.
- The flash code number signifies that the LED flashes X times at 2Hz, remains off for two seconds, and then repeats sequence.

Table 9: Green LED Status Codes

Green LED Flash Code (X + Y)[a]	Indicates	Next System Action	Recommended Service Action
OFF	No “Call for Heat”	N/A	None
Flash Fast	Startup - Flame sense calibration	N/A	None
Heartbeat	Normal operation	N/A	None
2	5 minute Retry Delay- Pilot flame not detected during trial for ignition	Initiate new trial for ignition after retry delay completed.	If system fails to light on next trial for ignition check gas supply, pilot burner, spark and flame sense wiring, flame rod contamination or out of position, burner ground connection.
3	Recycle- Flame failed during run	Initiate new trial for ignition. Flash code will remain through the ignition trial until flame is proved.	If system fails to light on next trial for ignition check gas supply, pilot burner, flame sense wiring, flame rod contamination, burner ground connection.
4	Flame sensed out of sequence	If situation self corrects within 10 seconds, control returns to normal sequence. If flame out of sequence remains longer than 10 seconds, control goes to Flash code 6+4 (see below)	Check for pilot flame. Replace gas valve if pilot flame present. If no pilot flame, cycle “Call for Heat.” If error repeats, replace control.
7	Flame sense leakage to ground	Control remains in wait mode. When the fault corrects, control resumes normal operation after a one minute delay.	Check flame sense lead wire for damage or shorting. Check that flame rod is in proper position. Check flame rod ceramic for cracks, damage or tracking.
8	Low secondary voltage supply- (below 15.5 Vac)	Control remains in wait mode. When the fault corrects, control resumes normal operation after one minute delay.	Check transformer and AC line for proper input voltage to the control. Check with full system load on the transformer.
6 + 2	5 minute Retry Delay- On every third retry on same “Call for Heat”	Initiate new trial for ignition after retry delay completed.	Check gas supply, pilot burner, spark and flame sense wiring, flame rod contamination or out of position, burner ground connection.
6 + 3	On every 6th flame failure during run on the same “Call for Heat”	5 minute retry delay, then initiate new trial for ignition.	Check gas supply, pilot burner, flame sense wiring, contamination of flame rod, burner ground connection.
6 + 4	Flame sensed out of sequence- longer than 10 seconds	Control waits until flame is no longer sensed and then goes to soft lockout. Flash code continues. Control auto resets from soft lockout after one hour.	Check for pilot flame. Replace gas valve if pilot flame present. If no pilot flame, cycle “Call for Heat.” If error repeats, replace control.
ON	Soft lockout due to error detected during self check sequences	Control auto resets from soft lockout after one hour.	Reset by cycling “Call for Heat.” If error repeats, replace the control

[a]Flash Code Descriptions:

- Flash Fast: rapid blinking
- Heartbeat: Constant ½ second bright, ½ second dim cycles.
- A single flash code number signifies that the LED flashes X times at 2Hz, remains off for two seconds, and then repeats the sequence.
- X + Y flash codes signify that the LED flashes X times at 2Hz, remains off for two seconds, flashes Y times at 2 Hz, remains off for three seconds, and then repeats the sequence.

Honeywell Electronic Ignition Troubleshooting Guide

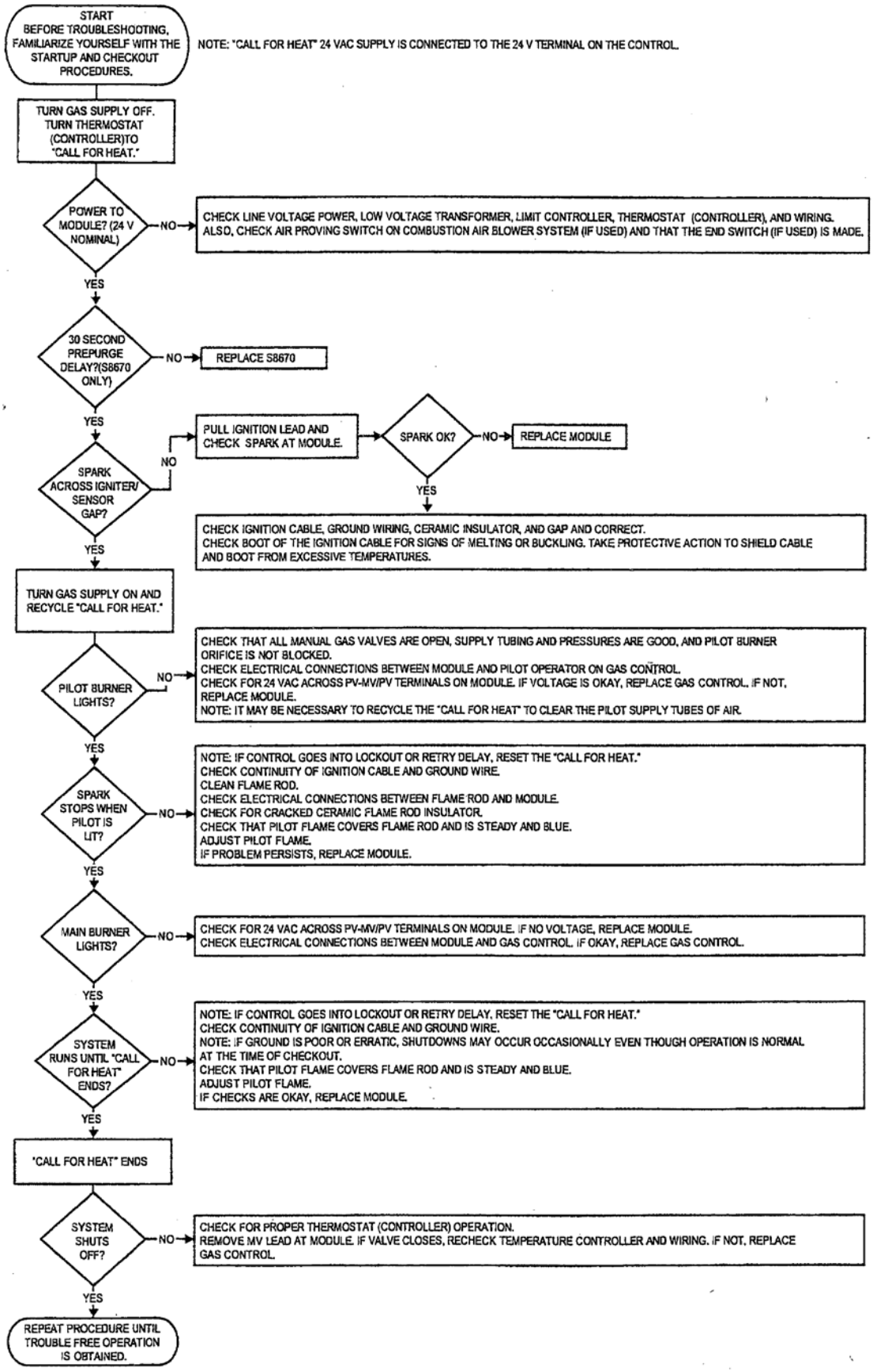


Figure 15: Troubleshooting Guide

I. **Sequence of Operation.** See Figure 16. If boiler fails to operate properly, see Troubleshooting Guides in Service Section.

J. **Check pilot burner flame.** See Figure 17. Flame should be steady, medium hard blue enveloping 3/8 to 1/2 inch of sensing probe.

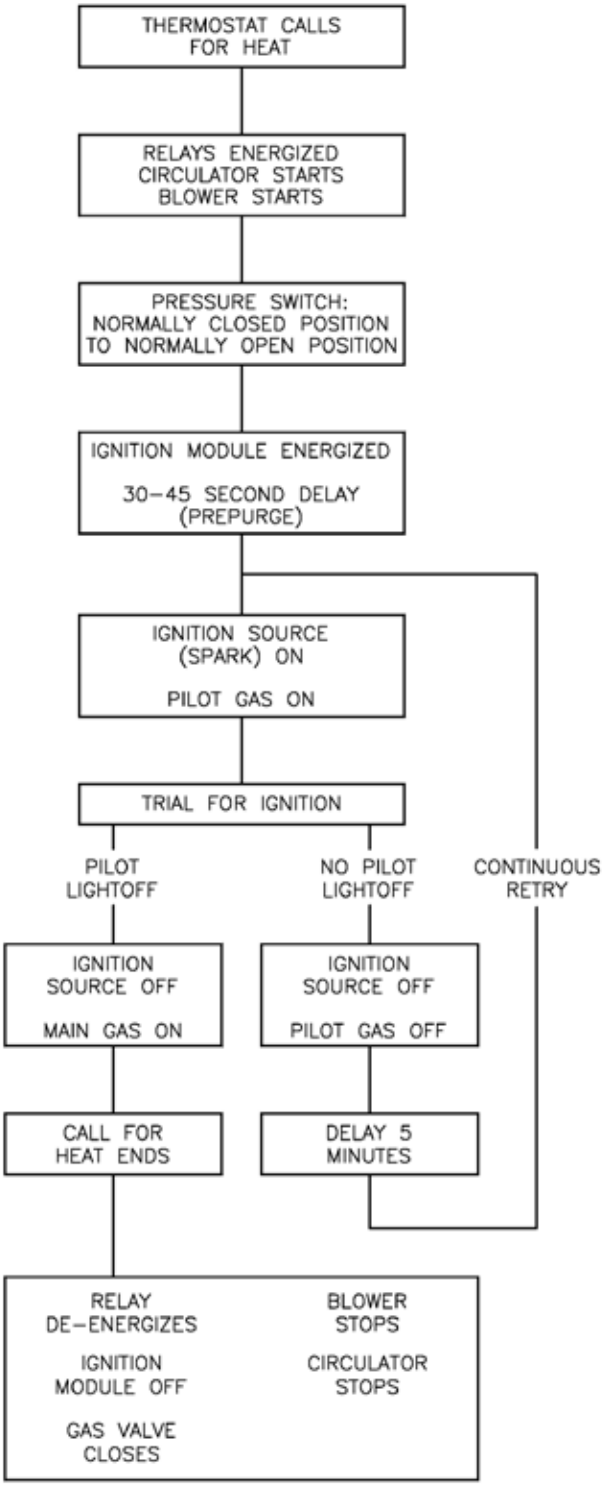


Figure 16: Sequence of Operation

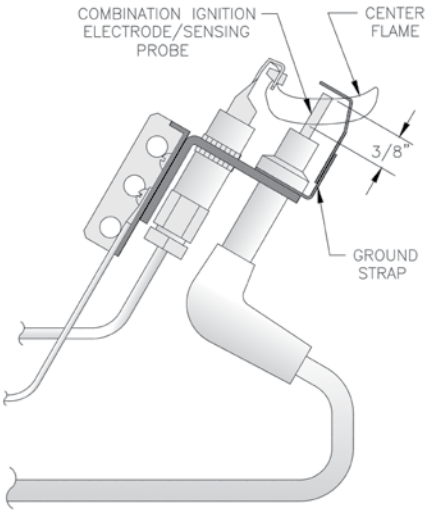


Figure 17: Pilot Burner Flame

K. **Check main burner flame.** See Figure 18. Flame should have clearly defined inner cone with no yellow tipping. Orange-yellow streaks should not be confused with true yellow tipping.

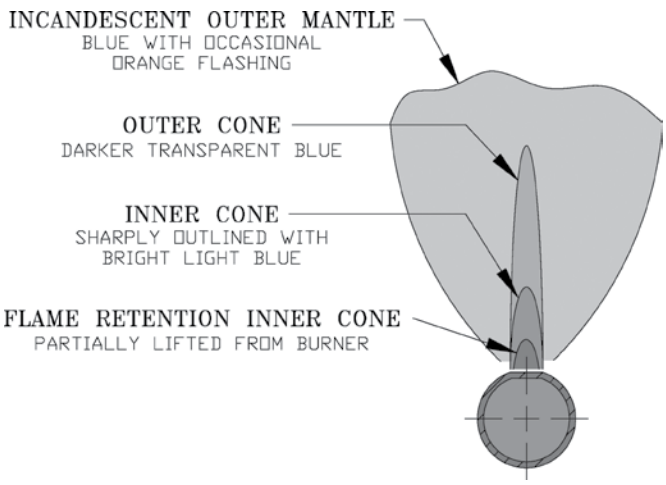


Figure 18: Main Burner Flame

L. **Check thermostat operation.** Raise and lower temperature setting to start and stop boiler operation.

M. **Check ignition control module shut-off.** Disconnect ignitor/sensor cable from Terminal 9 (SPARK). Gas valve should close and pilot and main burners should extinguish. If burners do not shutdown, determine cause of malfunction. Replace necessary items and check operation.

N. **Check low water cut-off** (if so equipped).

1. Adjust thermostat to highest setting.
2. With boiler operating, open drain valve and slowly drain boiler.

3. Main burners and pilot burner will extinguish and blower stop when water level drops below low water cut-off probe. Verify limit, thermostat or other controls have not shut off boiler.
4. Adjust thermostat to lowest setting. Refill boiler.

O. Check limit (Combination Control).

1. Adjust thermostat to highest setting.
2. Observe temperature gauge. When temperature is indicated, adjust limit to setting below observed temperature. Main burners and pilot burner should extinguish, and blower should stop.
3. Adjust limit to setting above observed temperature. Ignition sequence should begin.
4. Adjust thermostat to lowest setting. Adjust limit to desired setting.

P. Adjust gas input rate to boiler.

1. Adjust thermostat to highest setting.
2. Check manifold gas pressure. See rating label located on front of boiler. Adjust gas valve pressure regulator as necessary (turn adjustment screw counterclockwise to decrease manifold pressure, or clockwise to increase manifold pressure). If pressure cannot be attained, check gas valve inlet pressure. If less than minimum indicated on boiler's rating label, contact gas supplier for assistance.
3. Clock gas meter for at least 30 seconds. Use Table 10 to determine gas flow rate in Cubic Feet per Hour.
4. Determine Input Rate. Multiply gas flow rate by gas heating value.

WARNING

Failure to properly adjust gas input rate will result in over firing or under firing of the appliance. Improper and unsafe boiler operation may result.

5. Compare measured input rate to input rate stated on rating plate.
   a. Boiler must not be over fired. Reduce input rate by decreasing manifold pressure. Do not reduce more than 0.3 inch w.c. If boiler is still over-fired, contact your New Yorker distributor for replacement Gas Orifice.
   b. Increase input rate if less than 98% of rating plate input. Increase manifold gas pressure no more than 0.3 inch w.c. If measured input rate is still less than 98% of rated input:
      i. Remove Main Burners per procedure in Service Section.
      ii. Remove gas orifices. Drill one (1) drill size larger (drill size is stamped on orifice, or see Repair Parts Section).
      iii. Reinstall gas orifices and main burners. Measure input rate.
6. Recheck Main Burner Flame.
7. Return other gas-fired appliances to previous conditions of use.

Q. Review User's Information Manual and system operation with owner or operator.

Table 10: Gas Flow Rate in Cubic Feet per Hour

Seconds for One Revolution	Size of Gas Meter Dial		
	One-Half Cu. Ft.	One Cu. Ft.	Two Cu. Ft.
30	60	120	240
32	56	113	225
34	53	106	212
36	50	100	200
38	47	95	189
40	45	90	180
42	43	86	172
44	41	82	164
46	39	78	157
48	37	75	150
50	36	72	144
52	35	69	138
54	33	67	133
56	32	64	129
58	31	62	124
60	30	60	120

VIII. Service

DANGER

This boiler uses flammable gas, high voltage electricity, moving parts, and very hot water under high pressure. Assure that all gas and electric power supplies are off and that the water temperature is cool before attempting any disassembly or service.

Assure that all gas valves and electrical disconnect switches are off before attempting any disassembly or service.

Do not attempt any service work if gas is present in the air in the vicinity of the boiler. Never modify, remove or tamper with any control device.

WARNING

This boiler must only be serviced and repaired by skilled and experienced service technicians.

If any controls are replaced, they must be replaced with identical models.

Read, understand and follow all the instructions and warnings contained in all the sections of this manual.

If any electrical wires are disconnected during service, clearly label the wires and assure that the wires are reconnected properly.

Never jump out or bypass any safety or operating control or component of this boiler.

Read, understand and follow all the instructions and warnings contained in ALL of the component instruction manuals.

Assure that all safety and operating controls and components are operating properly before placing the boiler back in service.

A. General. Inspection and service should be conducted annually. Turn off electrical power and gas supply while conducting service or maintenance. Follow instructions TO TURN OFF GAS TO APPLIANCE. See Figure 13.

B. Inspect Housekeeping. Boiler area must be clear and free from combustible materials, gasoline and other flammable vapors and liquids. Remove obstructions to the flow of combustion and ventilation air.

C. Low water cut-off (if so equipped).

1. Float Type
   a. Monthly Blowoff. During the heating season, if an external float type low water cut-off is on the boiler, the blow off valve should be opened once a month (use greater frequency where conditions warrant), to flush out the sediment chamber so the device will be free to function properly.
   b. Annual Service. Float type low water cutoffs should be dismantled annually by qualified personnel, to the extent necessary to insure freedom from obstructions and proper functioning of the working parts. Inspect connecting lines to boiler for accumulation of mud, scale, etc., and clean as required. Examine all visible wiring for brittle or worn insulation and make sure electrical contacts are clean and that they function properly. Give special attention to solder joints on bellows and float when this type of control is used. Check float for evidence of collapse and check mercury bulb (where applicable) for mercury separation or discoloration.
2. Probe Type (Annual Service). Probe type LWCO should be removed once a year, examined and cleaned of any dirt accumulations to assure proper operations. Do not attempt to repair mechanisms in the field. Complete replacement mechanisms, including necessary gaskets and installation instructions, are available from the manufacturer.

D. Vent System. Inspect for obstructions, soot accumulation, proper support, and deterioration of pipe, fittings, and joints.

1. Clean terminal screen. Terminal must be free of obstruction, undamaged, with screen securely in place.

2. Terminal and wall thimble (if used) must be weathertight.
3. Pipe must be full round shape, and show no damage from impact or excessive temperature.
4. Pipe must be supported at minimum five (5) foot intervals and must not sag.
5. All vent joints must be secure and watertight.
6. If pipe must be disassembled for removal of obstructions or resealing of joint, see Venting Section.

E. Inspect Boiler Flue Passages for blockage or soot accumulation. See Figure 20.

1. Disconnect vent connector from blower discharge flange.
2. Remove sheet metal screws securing Jacket Top Panel. Lift panel and rotate about relief valve piping until top of boiler is exposed. If piping or wall prevent full rotation of top panel for access to canopy, cut slot into relief valve opening and remove top panel.
3. Disconnect blower connection from wiring harness.
4. Remove bolts securing canopy to boiler sections. Cut silastic sealant around base of canopy, pry canopy from boiler sections and remove canopy/ blower assembly from boiler.
5. Using flashlight, examine all flue passageways.
   a. If passageways are free of soot and obstruction, replace canopy, secure and seal using kit available from New Yorker Distributors, Part No. 6111716.
   b. If passageways need cleaning, remove burners as described in Paragraph F below. Using long handle wire or bristle flue brush and vacuum, brush flueways thoroughly from top of boiler as illustrated in Figure 20. Replace canopy and seal using kit available from New Yorker Distributors, Part No. 6111716.

WARNING

Canopy must be resealed with RTV-732 Silicone Rubber Sealant (500°F Intermittent Duty).

6. Reinstall jacket top panel, vent pipe and vent connector in reverse manner. Reconnect electrical connector to blower.

F. Clean Main Burners and Firebox.

1. To remove burners for cleaning, changing orifice plugs, or repairs:
   a. Remove jacket burner cover.
   b. Disconnect pilot tubing at gas valve.
   c. Disconnect igniter/sensor cable and ground wire at Ignition Module.
   d. Disconnect Flame Rollout Switch wires.
   e. Remove Burner Access Panel.
   f. Mark Pilot Main Burner location on Manifold.
   g. Hold burner on throat. Lift slightly to clear orifice. Pull burner from combustion chamber. Pilot Main Burner can only be removed by lifting at 45° angle after adjacent burner to right is removed.
2. Brush top of burners with a soft bristle brush. See Figure 20. Vacuum burners.
3. Check orifices. Drilled passageways must be free of lint or dirt.
4. Vacuum tip of Pilot Burner.
5. Clean firebox by vacuuming. Exercise care not to disturb insulation inside base.
6. Install burners by reversing procedure used to remove burners. Burner with pilot assembly must be in same location as original installation. See Table 11. Burners must be properly located on support bracket at rear of burner. Slide burner over orifice.

Table 11: Pilot Burner Location

Boiler Model	Main Burner with Pilot Bracket *	Pilot Burner Located Between Main Burners *
PVCG30	1	1 & 2
PVCG40	2	2 & 3
PVCG50	3	3 & 4
PVCG60	4	4 & 5

* Main burners numbered left to right as viewed from front of boiler.

7. Reconnect pilot gas supply, igniter/sensor cable, and ground wire. Reinstall Burner Access Panel. Reconnect Flame Rollout Switch wires.

G. Check operation. Follow Steps G through P from System Start-up Section.

H. Removal or replacement of pilot assembly or pilot assembly parts. If pilot assembly, sensor or pilot orifice need replacing, remove main burner with pilot using procedure described in Paragraph F.1.

1. To replace orifice.
   a. Disconnect pilot tubing. Pilot orifices screw into Pilot Burner. Replace with Honeywell 388146NE (Natural Gas) or Honeywell 388146KP (LP/Propane).
   b. Reconnect pilot tubing and check for leaks.
2. To adjust or check spark gap between electrode and hood on Honeywell Q348A intermittent pilot. See Figure 19.
   a. Use round wire gauge to check spark gap.

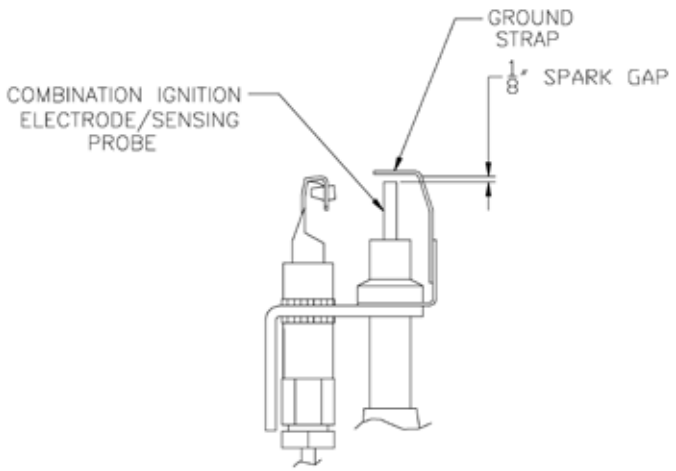


Figure 19: Spark Gap Setting

b. Spark gap should be 1/8 inch for optimum performance.

3. To replace complete pilot assembly.
   a. Remove two machine screws holding pilot burner to pilot bracket.
   b. Disconnect pilot tubing.
   c. Disconnect all other leads to pilot.
   d. Select pilot assembly with identical model number, reconnect leads and pilot tubing. Resecure to pilot bracket.
4. Reinstall main burner following procedure described in Paragraph F.1.

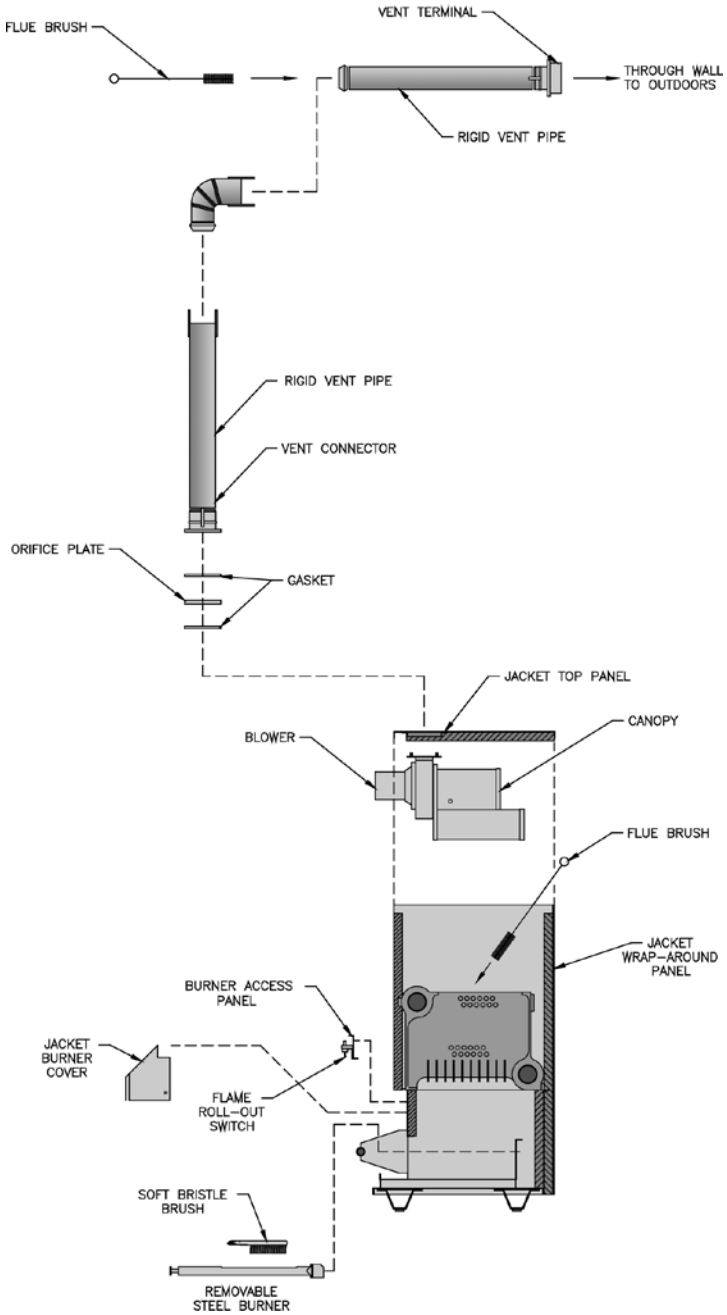


Figure 20: Flueway Cleaning

I. Lubrication. There are no parts requiring lubrication by service technician or owner. Circulator bearings are water lubricated. Blower motor bearings are factory sealed.

J. Procedure for measuring fan inlet pressure. See Figure 21.

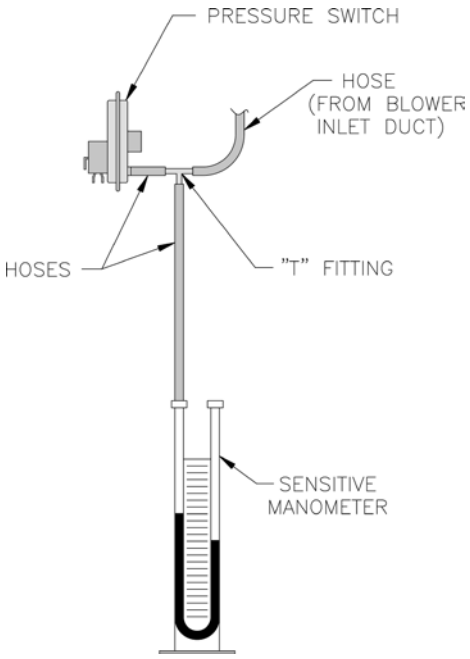


Figure 21: Procedure for Measuring Fan Inlet Pressure

1. With boiler off, remove hoses at pressure switch.
2. With tee connect water manometer as shown with additional tubing.
3. Start boiler and read Pressure on Manometer when boiler water temperature reaches operating temperature. Refer to Table 12 for minimum readings.

   NOTE: If switch drops-out before boiler reaches temperature or if inlet pressure reading is below minimum shown in Table 12, check for cracks in hose or contact your nearest New Yorker representative.
4. Stop boiler, remove manometer and reconnect hose to pressure switch.

Table 12: Minimum Fan Inlet Pressure

Boiler Model	Minimum Inlet Pressure
PVCG30	-0.40 inches w.c.
PVCG40	-0.40 inches w.c.
PVCG50	-0.70 inches w.c.
PVCG60	-0.70 inches w.c.

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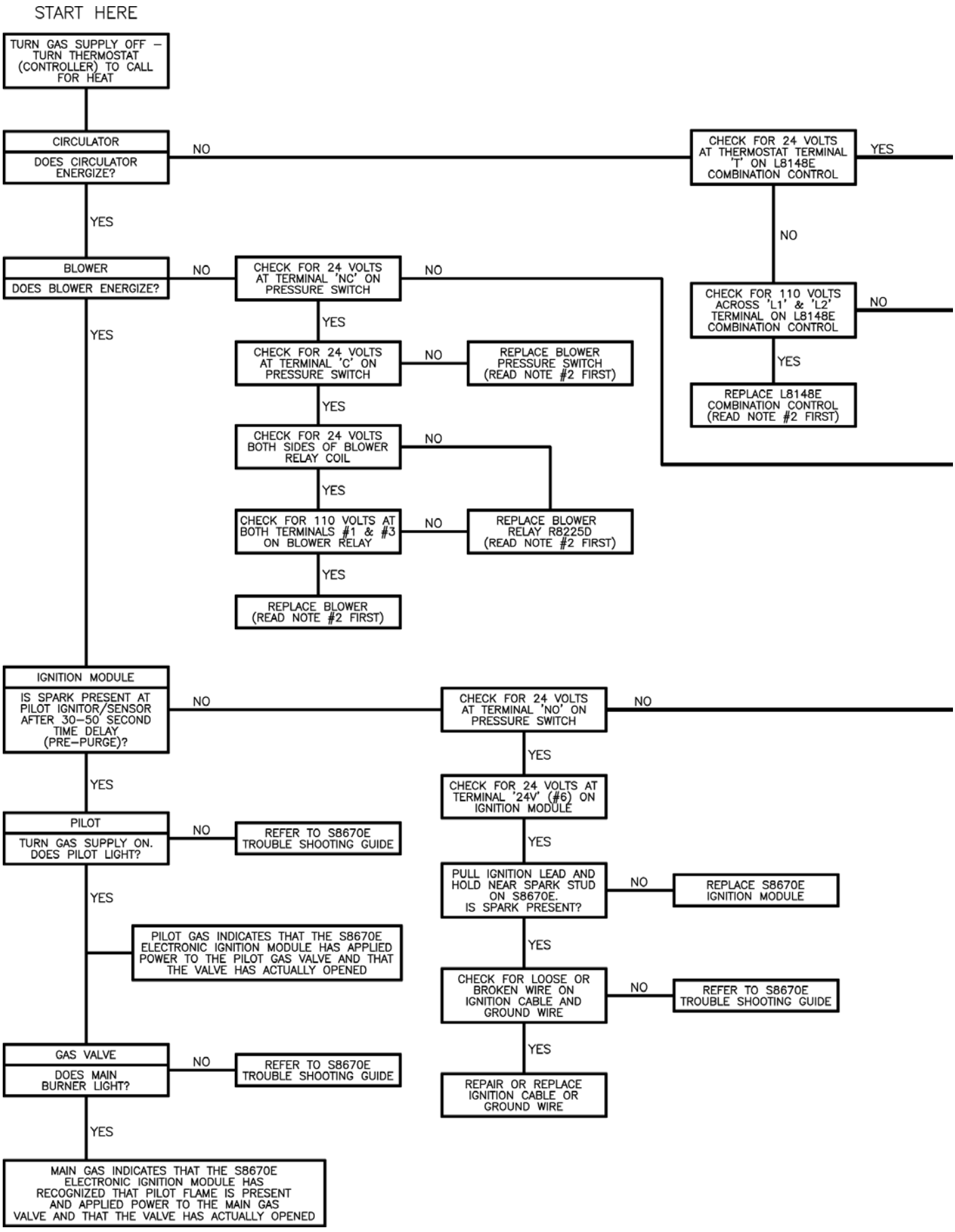
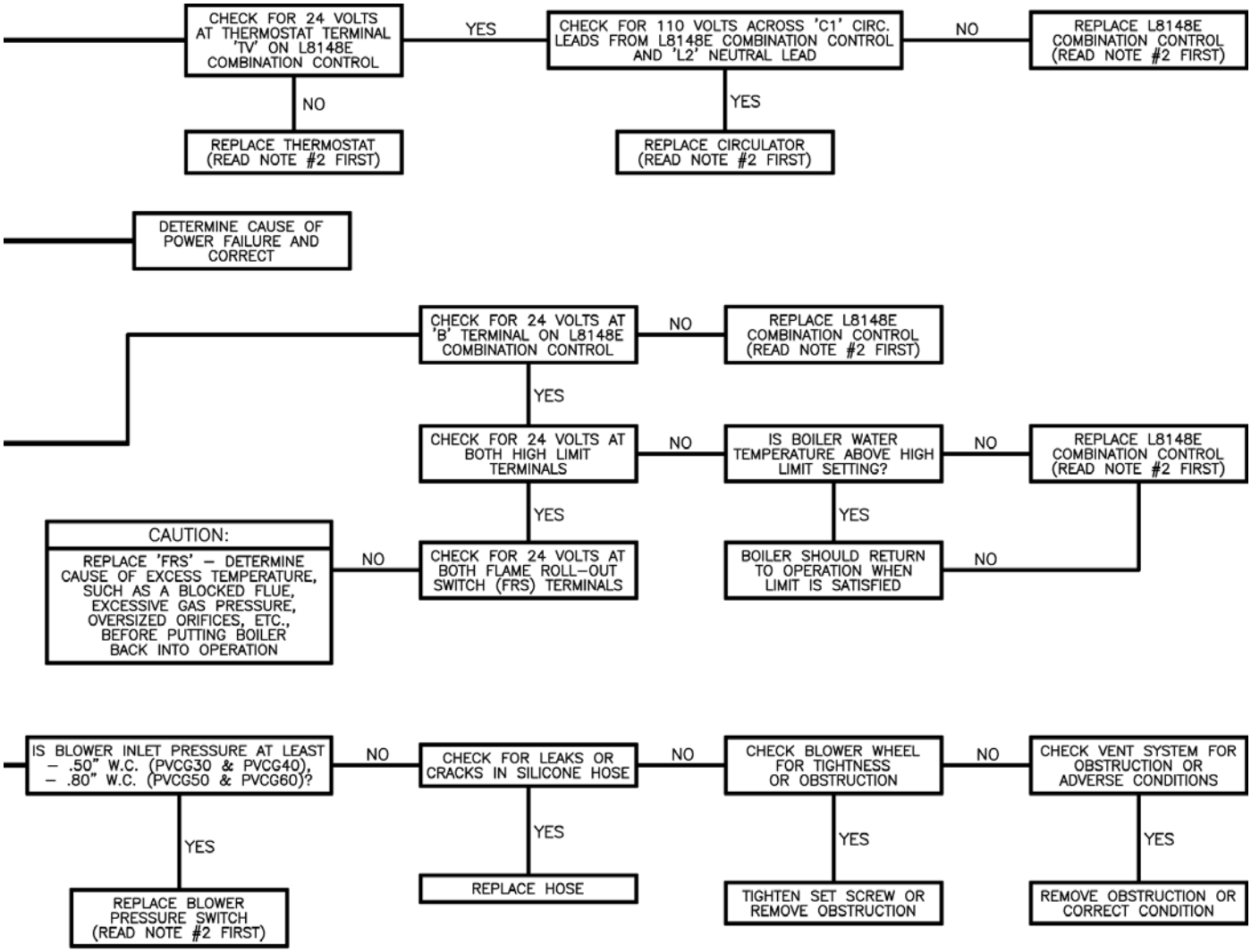

START HERE
TURN GAS SUPPLY OFF – TURN THERMOSTAT (CONTROLLER) TO CALL FOR HEAT
CIRCULATOR
DOES CIRCULATOR ENERGIZE?
NO
YES
CHECK FOR 24 VOLTS AT THERMOSTAT TERMINAL 'T' ON L8148E COMBINATION CONTROL
YES
NO
BLOWER
DOES BLOWER ENERGIZE?
NO
YES
CHECK FOR 24 VOLTS AT TERMINAL 'NC' ON PRESSURE SWITCH
NO
YES
CHECK FOR 24 VOLTS AT TERMINAL 'C' ON PRESSURE SWITCH
NO
REPLACE BLOWER PRESSURE SWITCH (READ NOTE #2 FIRST)
YES
CHECK FOR 24 VOLTS BOTH SIDES OF BLOWER RELAY COIL
NO
YES
CHECK FOR 110 VOLTS AT BOTH TERMINALS #1 & #3 ON BLOWER RELAY
NO
REPLACE BLOWER RELAY R8225D (READ NOTE #2 FIRST)
YES
REPLACE BLOWER (READ NOTE #2 FIRST)
CHECK FOR 110 VOLTS ACROSS 'L1' & 'L2' TERMINAL ON L8148E COMBINATION CONTROL
NO
YES
REPLACE L8148E COMBINATION CONTROL (READ NOTE #2 FIRST)
IGNITION MODULE
IS SPARK PRESENT AT PILOT IGNITOR/SENSOR AFTER 30–50 SECOND TIME DELAY (PRE–PURGE)?
NO
YES
CHECK FOR 24 VOLTS AT TERMINAL 'NO' ON PRESSURE SWITCH
NO
YES
CHECK FOR 24 VOLTS AT TERMINAL '24V' (#6) ON IGNITION MODULE
YES
PULL IGNITION LEAD AND HOLD NEAR SPARK STUD ON S8670E. IS SPARK PRESENT?
NO
REPLACE S8670E IGNITION MODULE
YES
CHECK FOR LOOSE OR BROKEN WIRE ON IGNITION CABLE AND GROUND WIRE
NO
REFER TO S8670E TROUBLE SHOOTING GUIDE
YES
REPAIR OR REPLACE IGNITION CABLE OR GROUND WIRE
PILOT
TURN GAS SUPPLY ON. DOES PILOT LIGHT?
NO
REFER TO S8670E TROUBLE SHOOTING GUIDE
YES
PILOT GAS INDICATES THAT THE S8670E ELECTRONIC IGNITION MODULE HAS APPLIED POWER TO THE PILOT GAS VALVE AND THAT THE VALVE HAS ACTUALLY OPENED
GAS VALVE
DOES MAIN BURNER LIGHT?
NO
REFER TO S8670E TROUBLE SHOOTING GUIDE
YES
MAIN GAS INDICATES THAT THE S8670E ELECTRONIC IGNITION MODULE HAS RECOGNIZED THAT PILOT FLAME IS PRESENT AND APPLIED POWER TO THE MAIN GAS VALVE AND THAT THE VALVE HAS ACTUALLY OPENED



NOTES:

1. READ SEQUENCE OF OPERATION PRIOR TO USING TROUBLE SHOOTING GUIDE.
2. PRIOR TO REPLACING A CONTROL, ALWAYS CHECK FOR BROKEN WIRES OR LOOSE CONNECTORS THAT PROVIDE POWER TO THAT CONTROL.

IX. Repair Parts

All PVCG™ Series Repair Parts may be ordered through New Yorker Boiler Co., Inc., or its authorized distributors. Should you require assistance in locating a New Yorker distributor in your area, or have questions regarding the availability of New Yorker products or repair parts, please contact:

New Yorker Boiler Co., Inc.
P.O. Box 10
Hatfield, PA 19440-0010
Phone: (215) 855-8055
Attn: Customer Service Department

Description	[Quantity] Part Number			
	PVCG30	**PVCG40**	**PVCG50**	**PVCG60**
Section Assembly	[1] 617170321	[1] 617170421	[1] 617170521	[1] 617170621
Canopy	[1] 61117034	[1] 61117044	[1] 61117054	[1] 61117064
Cerafelt Sealing Strip ½" x 1" x 56" (Canopy to Section Assembly)	[1] 72017062			
Cerafelt Sealing Strip ½" x 2" x 72" (Section Assembly to Base)	[1] 72017061			
Blower	[1] 6116059		[1] 6116060	
Blower Mounting Gasket (Included with Blower)	[1] 8206048		[1] 8206049	
Orifice Plate Gasket (Included with Blower)	[1] 8206042		[1] 8206035	
Orifice Plate	[1] 71117035	[1] 71117045	[1] 71117055	[1] 71117065
Main Burner	[2] 8236099	[4] 8236099	[6] 8236099	[8] 8236099
Main Burner with 45° Pilot Bracket	[1] 8236111			
Manifold	[1] 82219031	[1] 82219041	[1] 82219051	[1] 82219061
Natural Gas Orifices, Sea Level to 2000 Ft.				
Main Burner Orifice, #45, Pink	[3] 822711	[5] 822711	[7] 822711	[9] 822711
LP/Propane Gas Orifices, Sea Level to 2000 Ft.				
Main Burner Orifice, #55, Green	[3] 822708	---	---	---
Main Burner Orifice, 1.25mm, Purple	---	[5] 822705	[7] 822705	[9] 822705

Description	[Quantity] Part Number			
	PVCG30	PVCG40	PVCG50	PVCG60
Pilot Assembly, Natural Gas, Honeywell Q348A1002	8236072			
Pilot Assembly, LP Gas, Honeywell Q348A1010	8236081			
Pilot Tubing, 1/4" OD x 40"	8236123			
Gas Valve, 1/2 x 1/2, Natural Gas, Honeywell VR8204C3007	81660145			
Gas Valve, 1/2 x 1/2, LP/Propane, Honeywell VR8204C3015	81660146			
Igniter/Sensor Cable, 36", Honeywell 394803-2	8236121			
Ground Wire Assembly	6130403			
Safety Relief Valve, 30 psi, 3/4 NPT, Conbraco 10-408-05	81660319			
Combination Aquastat/Circulator Relay Control, Honeywell L8148E1257	80160349			
Relay, DPST, Honeywell R8225D1029	80160265			
Flame Rollout Switch	80160044			
Pressure Switch	6011905		6011906	
Silicone Tubing, 3/16" ID x 22" Long	9016007 (Specify Length)			
Ignition Module, Honeywell S8670E3003	100959-01			
Temperature-Pressure Gauge	100282-01			
Circulator with Gaskets, Bell & Gossett NRF-22	8056155			
Circulator with Gaskets, Grundfos UP15-42F	8056173			
Circulator with Gaskets, Taco 007F	8056182			
Drain Valve, 3/4 NPT, Conbraco 35-302-03	806603061			
Wall Thimble, Single Wall, 3" ID	8116116		----	
Wall Thimble, Double Wall, 3" ID	----		8116115	
Vent Transition Kit (Gasketed to Gasket-less) Includes one clamp band and one 3 oz. tube of sealant	6116302			
Gasketed Vent Accessory Carton	611170323		611170523	
Gasketed Vent Connector (Included in Vent Accessory Carton)	8116306		8116307	
Gasketed Terminal (Included in Vent Accessory Carton)	[1] 8111710			

X. Low Water Cut Off (LWCO) on Hot Water Boilers

WARNING

DO NOT ATTEMPT to cut factory wires to install an aftermarket Low Water Cut Off (LWCO). Only use connections specifically identified for Low Water Cut Off.

In all cases, follow the Low Water Cut Off (LWCO) manufacturer's instructions.

When

A low water cutoff is required to protect a hot water boiler when any connected heat distributor (radiation) is installed below the top of the hot water boiler (i.e. baseboard on the same floor level as the boiler). In addition, some jurisdictions require the use of a LWCO with a hot water boiler.

Where

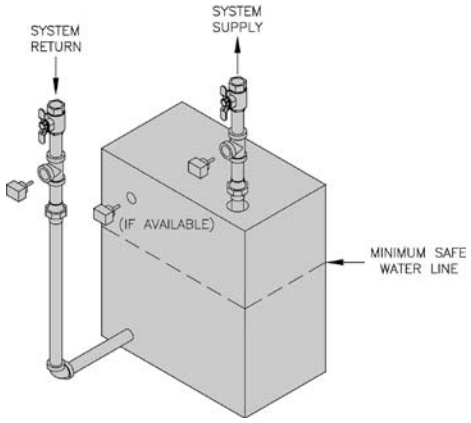
The universal location for a LWCO on both gas and oil hot water boilers is above the boiler, in either the supply or return piping. The minimum safe water level of a water boiler is at the uppermost top of the boiler; that is, it must be full of water to operate safely.

What Kind

Typically, in residential applications, a probe type LWCO is used instead of a float type, due to their relative costs and the simplicity of piping for a probe LWCO.

How to Pipe

A "tee" is commonly used to connect the probe LWCO to the supply or return piping, as shown below.



LWCO Location

Select the appropriate size tee using the LWCO manufacturer's instructions. Often, the branch connection must have a **minimum** diameter to prevent bridging between the probe and the tee. Also, the run of the tee must have a minimum diameter to prevent the end of the probe from touching or being located too close to the inside wall of the run of the tee.

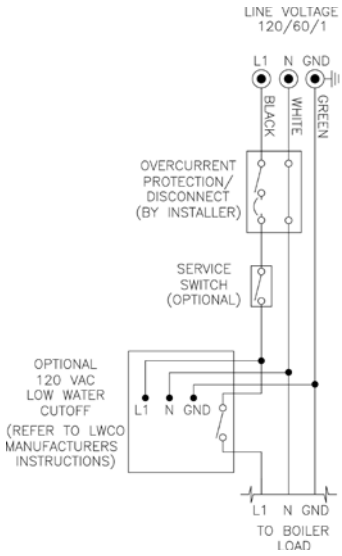
Ideally, manual shutoff valves should be located above the LWCO and the boiler to allow for servicing. This will allow probe removal for inspection without draining the heating system. Many probe LWCO manufacturers recommend an annual inspection of the probe.

How to Wire

LWCO's are available in either 120 VAC or 24 VAC configurations. The 120 VAC configuration can be universally applied to both gas and oil boilers by wiring it in the line voltage service to the boiler (after the service switch, if so equipped).

The presence of water in a properly installed LWCO will cause the normally open contact of the LWCO to close, thus providing continuity of the 120 VAC service to the boiler.

It is recommended to supply power to the probe LWCO with the same line voltage boiler service as shown below.



Wiring of Typical LWCO

A 24 VAC LWCO is used primarily for gas fired boilers where a 24 volt control circuit exists within the boiler. However, a 24 VAC LWCO can only be used if the boiler manufacturer has provided piping and wiring connections and instructions to allow for this application.

How to Test

Shut off fuel supply. Lower water level until water level is BELOW the LWCO. Generate a boiler demand by turning up thermostat. Boiler should not attempt to operate. Increase the water level by filling the system. The boiler should attempt to operate once the water level is above the LWCO.

SERVICE RECORD

DATE SERVICE PERFORMED

NEW YORKER BOILER CO., INC.

Limited Warranties

For Residential Cast Iron and Steel Water Boilers

By this Warranty Statement New Yorker Boiler Co., Inc. ("New Yorker"), issues limited warranties subject to the terms and conditions stated below. These limited warranties apply to residential cast iron and steel water boilers labeled with the New Yorker® brand which are sold on or after March 1, 2004.

ONE YEAR LIMITED WARRANTY

One Year Limited Warranty for Residential Water Boilers New Yorker warrants to the original consumer purchaser at the original installation address that its residential cast iron and steel water boilers will be free from defects in material and workmanship under normal usage for a period of one year from the date of original installation. In the event that any defect in material or workmanship is found during the one year period following the date of installation, New Yorker will, at its option, repair the defective part or provide a replacement free of charge, F.O.B. its factory.

FIVE YEAR LIMITED WARRANTY

Five Year Pressure Vessel Limited Warranty for WC™ Residential Water Boilers New Yorker warrants to the original consumer purchaser at the original installation address that the pressure vessel of the boiler will be free of defects in material and workmanship under normal usage for a period of five years following the date of installation. In the event that any defect in material or workmanship is found during the five year period following the date of installation, New Yorker will, at its option, repair the defective pressure vessel or provide a replacement free of charge, F.O.B. its factory.

LIFETIME LIMITED WARRANTY

Lifetime Pressure Vessel Limited Warranty for AP-U™, FR™, S-AP™, microTEK3™, microTEKDV™, CLW™, CG-A™, and PVCG™ Residential Water Boilers New Yorker warrants to the original consumer purchaser at the original installation address that the pressure vessel component of the boiler will be free of defects in material and workmanship under normal usage for the lifetime of the original consumer purchaser. In the event that any defect in material or workmanship is found during the ten year period following the date of installation, New Yorker will, at its option, repair the defective pressure vessel or provide a replacement free of charge, F.O.B. its factory. In the event that any defect in material or workmanship is found after the tenth year following the date of installation, New Yorker will provide a replacement pressure vessel upon payment by the original consumer purchaser of an amount equal to a percentage of the then current retail price of the model boiler involved (or, in the event that such model is not then in production, the most comparable model then in production), as follows:

Years In Service	11th	12th	13th	14th	15th	16th	17th	18th
Consumer Purchaser Pays	5%	10%	15%	20%	25%	30%	35%	40%

Years In Service	19th	20th	21st	22nd	23rd	24th	25th and beyond
Consumer Purchaser Pays	45%	50%	55%	60%	65%	70%	75%

EXCEPTIONS AND EXCLUSIONS

1. Components Manufactured by Others Following the expiration of the foregoing one year limited warranty, all component parts of a boiler which are manufactured by others (such as burners, burner controls, circulator, tankless water heater, and New Yorker Link) shall be subject only to the manufacturer's warranty, if any.

2. Removal and Replacement Costs These warranties do not cover expenses of removal or reinstallation. The consumer purchaser will be responsible for the cost of removing and replacing any defective part and all labor and related materials connected therewith. Replacement parts will be invoiced to the distributor in the usual manner and will be subject to adjustment upon proof of defect.

3. Proper Installation These warranties are conditioned upon the installation of the boiler in strict compliance with New Yorker's Installation, Operating and Service Instructions. New Yorker specifically disclaims any liability of any kind which arises from or relates to improper installation.

4. Improper Use or Maintenance These warranties will not be applicable if the boiler is used or operated over its rated capacity, is installed for uses other than home heating, or is not maintained in accordance with New Yorker's Installation, Operating and Service Instructions and hydronics industry standards.

5. Improper Operation These warranties will not be applicable if the boiler has been damaged as a result of being improperly serviced or operated, including but not limited to the following: operated with insufficient water; allowed to freeze; subjected to flood conditions; or operated with water conditions and/or fuels or additives which cause unusual deposits or corrosion in or on the pressure vessel or associated controls.

6. Geographic Limitations These warranties apply only to boilers installed within the 48 contiguous United States.

7. Installation Requirements In order for these warranties to be effective:

a. The boiler must be installed in a single or two-family residential dwelling. This warranty does not apply to boilers installed in apartments or for commercial or industrial applications.

b. The boiler must be installed in strict compliance with New Yorker's Installation, Operating and Service Instructions by an installer regularly engaged in boiler installations.

c. Boiler sections must not have been damaged during shipment or installation.

d. The boiler must be vented in accordance with chimney recommendations set forth in New Yorker's Installation, Operating and Service Instructions.

8. Exclusive Remedy New Yorker's obligation in the event of any breach of these warranties is expressly limited to the repair or replacement of any part found to be defective under conditions of normal use.

9. Limitation of Damages Under no circumstances will New Yorker be liable for incidental, indirect, special or consequential damages of any kind under these warranties, including, without limitation, injury or damage to persons or property and damages for loss of use, inconvenience or loss of time. New Yorker's liability under these warranties shall under no circumstances exceed the purchase price paid for the boiler involved. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

10. Limitation of Warranty These limited warranties are given in lieu of all other express warranties and set forth the entire obligation of New Yorker with respect to any defect in a residential water boiler. New Yorker shall have no express obligations, responsibilities or liabilities of any kind, other than those set forth herein.

ALL APPLICABLE IMPLIED WARRANTIES, IF ANY, INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, ARE EXPRESSLY LIMITED IN DURATION TO A PERIOD OF ONE YEAR, EXCEPT THAT IMPLIED WARRANTIES, IF ANY, APPLICABLE TO THE PRESSURE VESSEL OF A RESIDENTIAL WATER BOILER SHALL BE LIMITED IN DURATION TO THE LESSER OF THE DURATION OF SUCH IMPLIED WARRANTY OR A PERIOD EQUAL TO THE TERM OF THE APPLICABLE EXPRESS WARRANTY. Some states do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you.

PROCEDURE FOR OBTAINING WARRANTY SERVICE

Upon discovery of a condition believed to be related to a defect in material or workmanship covered by these warranties, the original consumer purchaser should notify the installer, who will in turn notify the distributor. If this action is not possible or does not produce a prompt response, the original consumer purchaser should write to New Yorker Boiler Co., Inc. at P.O. Box 10, Hatfield, PA 19440-0010, giving full particulars in support of the claim.

The original consumer purchaser is required to make available for inspection by New Yorker or its representative the parts claimed to be defective and, if requested by New Yorker, to ship those parts prepaid to New Yorker at the above address for inspection or repair. In addition, the original consumer purchaser agrees to make all reasonable efforts to settle any disagreement arising in connection with any warranty claim before resorting to legal remedies in the courts.

THIS WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS AND YOU MAY ALSO HAVE OTHER RIGHTS WHICH VARY FROM STATE TO STATE.

New Yorker®
RESIDENTIAL HEATING BOILERS

02/04