

# INSTALLATION, OPERATING AND SERVICE INSTRUCTIONS CG-C™ 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 CG C	Boiler Serial Number	Installation Date
Heating Contractor		Phone Number
Address		



**New Yorker**<sup>®</sup>  
RESIDENTIAL HEATING BOILERS

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.

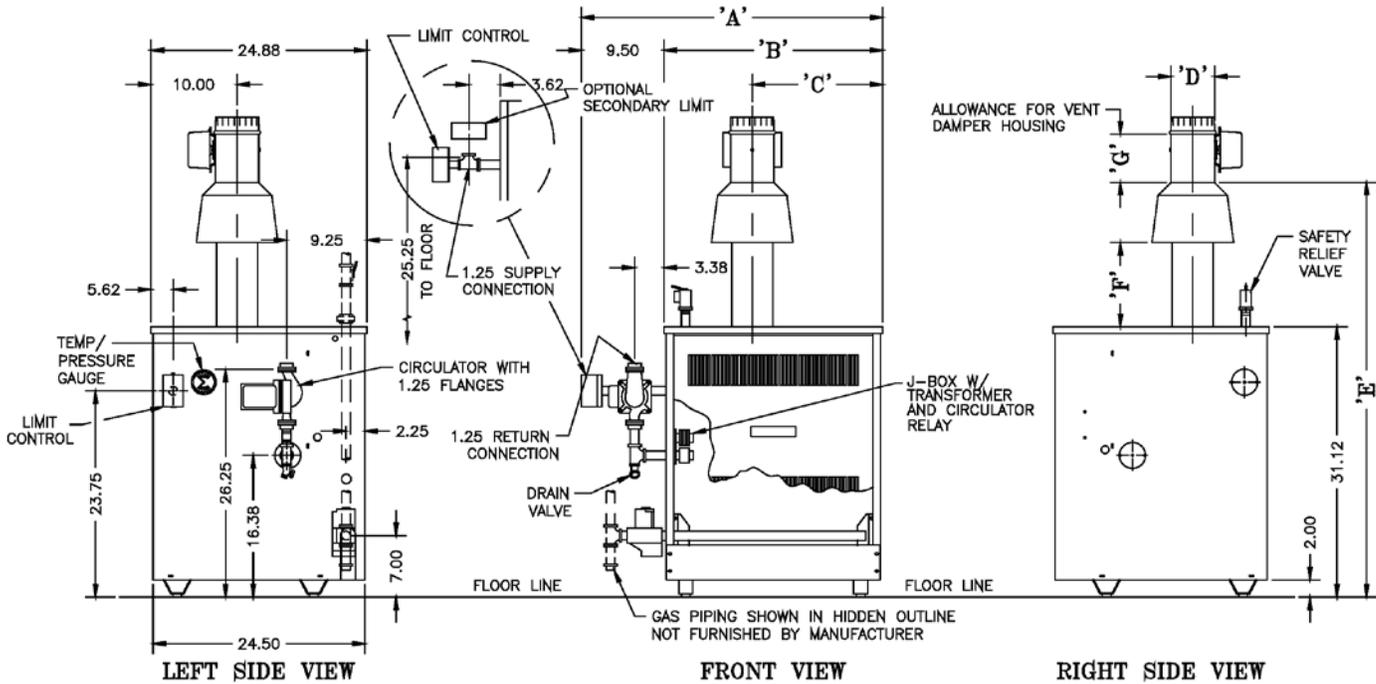


Figure 1: Dimensional Drawing

Table 1: Dimensional Data

Boiler Size	'A'	'B'	'C'	'D'	'E'	'F'	'G'	Recommended Vent Size [1]	Gas Conn. (FPT)	Water Content (Gallons)	Approx. Shipping Weight (LB.)
								Round Dia. (in) x Ht. (ft.)			
20	20-1/4	10-3/4	6-3/8	4	45-5/8	8-1/2	10**	4" Dia. x 15'	1/2	2.5	212
30	21-1/2	12	6	4	45-3/4	8-1/2	4-3/4	4" Dia. x 15'	1/2	3.2	254
40	24-3/4	15-1/4	7-5/8	5	47-1/8	9-1/8	4-3/4	5" Dia. x 15'	1/2	4.0	298
50	28	18-1/2	9-1/4	6	48-1/2	9-3/4	5-1/4	6" Dia. x 15'	1/2	4.7	346
60	31-1/4	21-3/4	10-7/8	6	48-1/2	9-3/4	5-1/4	6" Dia. x 15'	1/2	5.5	408
70	34-1/2	25	12-1/2	7	50-1/8	10-3/8	6-5/8	7" Dia. x 15'	3/4	6.2	450
80	37-3/4	28-1/4	14-1/8	7	50-1/8	10-3/8	6-5/8	7" Dia. x 15'	3/4	7.0	506
90	41	31-1/2	15-3/4	8	52	11	7-1/4	8" Dia. x 15'	3/4	7.7	550
100	44-1/4	34-3/4	17-3/8	8	52	11	7-1/4	8" Dia. x 15'	3/4	8.5	608

\*\*CG20 only. Dimension 'G' includes allowance for 4" x 3" size reducer furnished with boiler. See Figure 10.

[1] 15' chimney height is from bottom of draft hood opening to top of chimney.

Maximum Allowable Working Pressure (Water only): 30 PSI

The New York City Department of Buildings has approved the CG-C Series boiler: Approval No. MEA 40-94-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 CG-C Series Boiler. See the Massachusetts Board of Plumbers and Gas Fitters website, [http://license.reg.state.ma.us/pubLic/pb\\_pre\\_form.asp](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.

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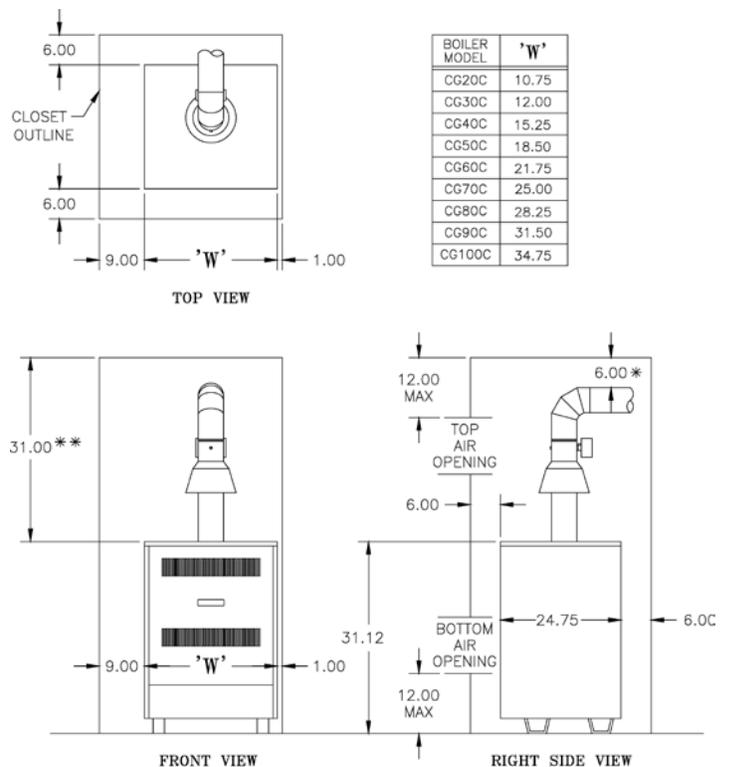
## I. Pre-Installation

### WARNING

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

- A. Inspect shipment** carefully for any signs of damage. All equipment is carefully manufactured, inspected and packed. Our responsibility ceases upon delivery of boiler to carrier in good condition. Any claim for damage or shortage in shipment must be filed 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. Appliance is design certified for installation on combustible flooring.** The boiler must not be installed on carpeting.
- D. Provide clearance between boiler jacket and combustible material** in accordance with local fire ordinance. Refer to Figure 2 for minimum clearance from combustible material for closet installation.

For alcove or unconfined space installations height clearance maybe reduced to 27". Subject to boiler and system piping, left side clearance may be reduced to 1" if right side clearance is increased to 9".



\* MINIMUM RADIAL CLEARANCE AROUND DRAFT HOOD AND BREECHING.

\*\* ADD HEIGHT REQUIRED TO MAINTAIN 6" CLEARANCE FROM ALL BREECHING COMPONENTS. VENT DAMPER MAY BE INSTALLED IN VERTICAL OR HORIZONTAL SECTION OF BREECHING WITHIN REACH OF CONTROL HARNASS.

**Figure 2: Minimum Clearances to Combustible Construction for Closet Installation**

**E. Provide practical service clearances.** A minimum of 24" from the left side and front jacket panels is recommended for servicing but may be reduced to minimums shown in Figure 2. Subject to boiler and system piping, left side clearance may be reduced to 1" if right side clearance is increased to 9".

**F. Install on level floor.** For basement installation provide concrete base if floor is not level or if water may be encountered on floor around boiler.

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

**H. 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 [ft<sup>3</sup>] = 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 ft<sup>3</sup> per 1,000 Btuh, space is considered an *unconfined space*.
  - b. If result is less than 50 ft<sup>3</sup> 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.

- I. 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.

## 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.
- 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. Water Piping and Trim

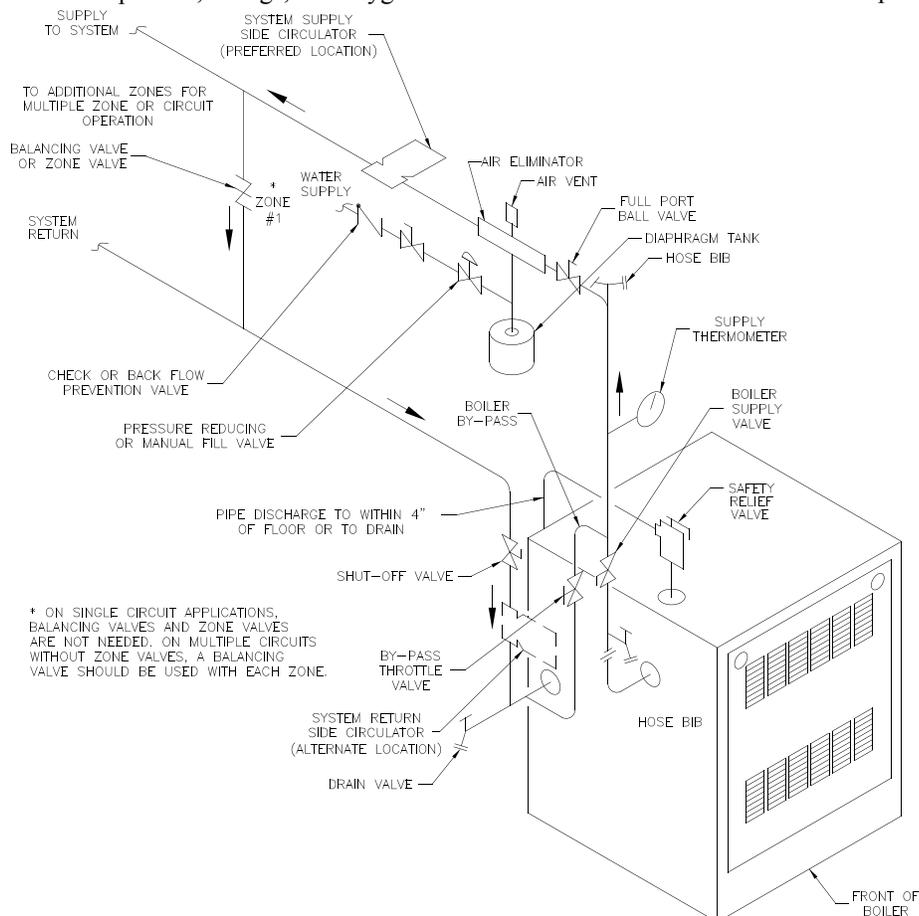
### WARNING

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

- A. **Design and install boiler and system piping to prevent oxygen contamination of boiler water.**  
Oxygen contamination sources are system leaks requiring addition of makeup water, fittings, and oxygen

permeable materials in distribution system. Eliminate oxygen contamination by repairing system leaks, repairing fittings, and using nonpermeable materials in distribution system.

- B. **Install circulator** with flanges, gaskets and bolts provided. Five foot long circulator harness allows circulator to be mounted on supply or return. Connect harness to circulator and secure any excess conduit.
- C. **Install Safety Relief Valve.** See Figure 1. Safety Relief Valve must be installed with spindle in vertical position.

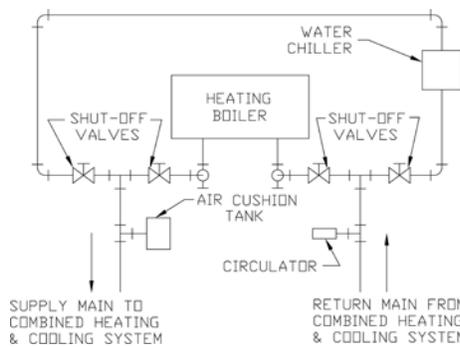


**Figure 3: Recommended Water Piping for Zone Valve Zoned Heating Systems**

## WARNING

**Safety relief valve discharge piping must be piped near floor to eliminate potential of severe burns. Do not pipe in any area where freezing could occur. Do not install any shut-off valves.**

- D. Connect system supply and return piping** to boiler. Refer to Figure 3. Also consult Residential Hydronic Heating Installation and Design I=B=R Guide. Maintain minimum ½ inch clearance from hot water piping to combustible materials.
- E. Space heating and domestic water heating** with the New Yorker Link SL™ indirect water heater. Install the New Yorker Link SL™ indirect water heater as a separate heating zone. Refer to the New Yorker Link SL™ Indirect Water Heater Installation, Operating and Service Instructions for additional information.



**Figure 4: Recommended Piping for Combination Heating & Cooling (Refrigeration) Systems**

- F. 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 4. Also consult Residential Hydronic Heating Installation and Design I=B=R Guide.

- G. 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.
- H. 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.).

Remove circulator and install pipe tee between circulator and boiler return along with second tee in supply piping as shown in Figure 3. Bypass should be same size as the supply and return lines with valves located in bypass and supply outlet as illustrated in Figure 3 in order to regulate water flow to maintain higher boiler water temperatures.

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 by-pass valve will lower system supply temperature.

- I. 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.

## IV. Gas Piping

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

- 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.
- Maximum gas demand. Table 2 lists boiler input rate. Also consider existing and expected future gas utilization equipment (i.e. water heater, cooking equipment).

**Table 2: Rated Input**

Boiler Model Number	Input Rate [cubic feet per hour]		Gas Connection Size
	Natural Gas	LP/Propane	
20	37.5	15.0	½
30	62.0	24.8	½
40	96.0	38.4	½
50	130.0	52.0	½
60	164.0	65.6	½
70	198.0	79.2	¾
80	232.0	92.8	¾
90	266.0	106.4	¾
100	299.0	119.6	¾

**Table 3: 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 4: Fitting Equivalent Lengths**

Fitting	Nominal Pipe Size			
	½	¾	1	1¼
45° Ell	0.7	1.0	1.2	1.6
90° Ell	1.6	2.1	2.6	3.5
Tee (As Elbow)	3.1	4.1	5.2	6.9

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

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.**

- 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.
- Use thread (joint) compounds (pipe dope) resistant to action of liquefied petroleum gas.
- Install sediment trap, ground-joint union and manual shut-off valve upstream of boiler gas control valve. See Figure 6 or 7.

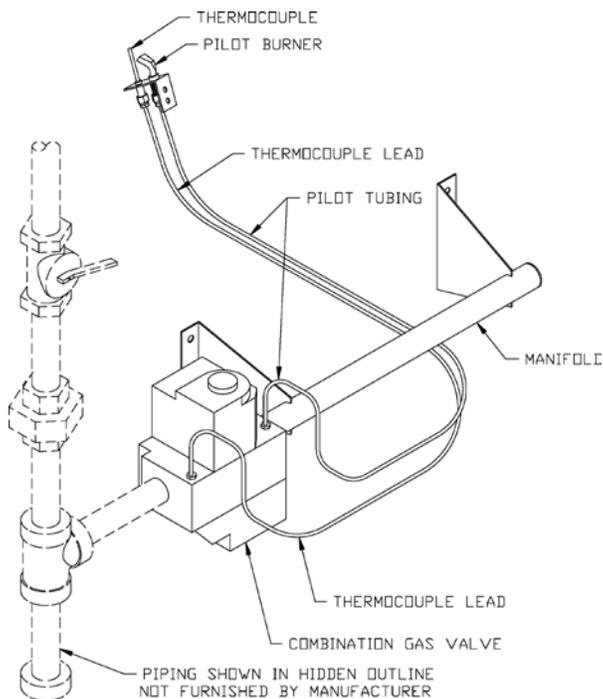
**Table 5: Specific Gravity Correction Factors for Natural Gas**

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		

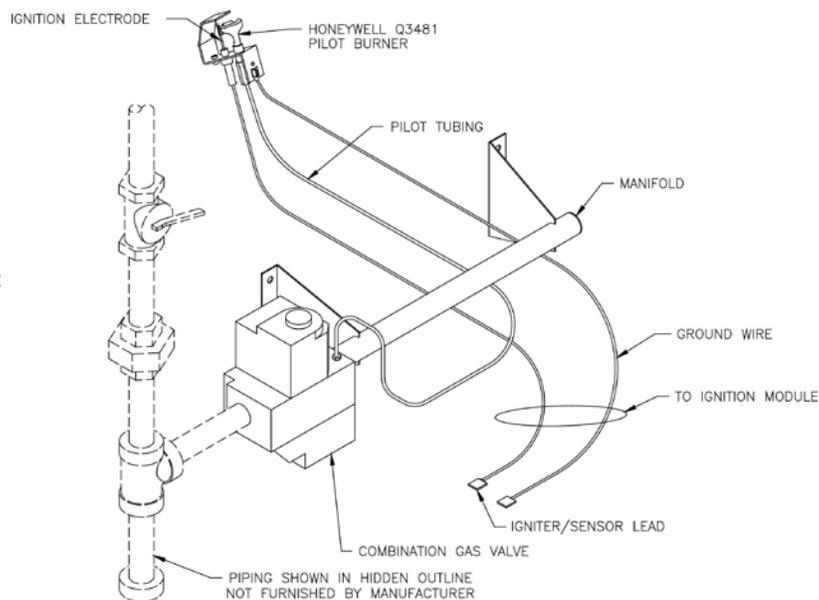
- All above ground gas piping upstream from manual shut-off valve must be electrically continuous and bonded to a grounding electrode. Do not use gas piping as grounding electrode. Refer to *National Electrical Code*, ANSI/NFPA 70.

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

- 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.
- Locate leaks using approved combustible gas detector, soap and water, or similar nonflammable solution. Do not use matches, candles, open flames, or other ignition source.



**Figure 6: Pilot and Gas Piping, Continuous Ignition (Standing Pilot)**



**Figure 7: Pilot and Gas Piping, Intermittent Ignition (EI)**

## V. Venting

**A. Install vent system** in accordance with local building codes; or local authority having jurisdiction; or *National Fuel Gas Code*, ANSI Z223.1/NFPA 54. Install any of the following for this Classic CG-C Series Category I, draft hood equipped appliance:

1. Type B or Type L gas vent. Install in accordance with listing and manufacturer's instructions.
2. Masonry or metal chimney. Build and install in accordance with local building codes; or local authority having jurisdiction; or *Standard for Chimneys, Fireplaces, Vents, and Solid Fuel Burning Appliances*, ANSI/NFPA 211.

Masonry chimney must be lined with approved clay flue lining or listed chimney lining system except as provided in ANSI Z223.1/NFPA 54, Paragraph 7.5.4(a): *Exception: Where permitted by the authority having jurisdiction, existing chimneys shall be permitted to have their use continued when an appliance is replaced by an appliance of similar type, input rating, and efficiency.*

3. Single wall metal vent. Allowed by ANSI Z223.1/NFPA 54 under very restrictive conditions.

**B. Inspect chimney** and remove any obstructions or restrictions. Clean chimney if previously used for solid or liquid fuel-burning appliances or fireplaces.

### DANGER

**Inspect existing chimney before installing boiler. Failure to clean or replace perforated pipe or tile lining will cause severe injury or death.**

**C. Install Draft Hood** without modification on outlet of flue collector. See Figure 1. Secure with sheet metal screws.

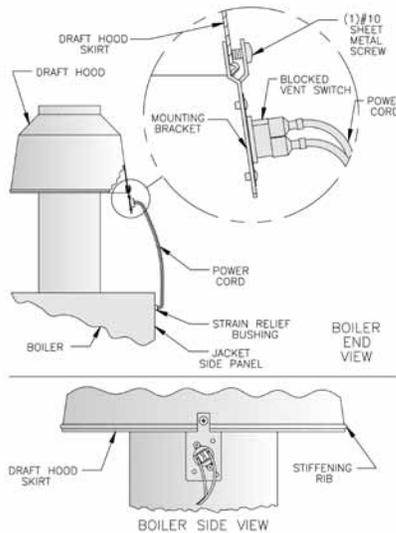
### WARNING

**Do not alter boiler draft hood or place any obstruction or non-approved damper in the breeching or vent system. Flue gas spillage can occur. ETL certification will become void.**

**D. Install Blocked Vent Switch.** The Blocked Vent Switch Assembly shipped taped to top of boiler includes power cord and switch attached to mounting bracket.

1. Untape Blocked Vent Switch Assembly from top of boiler. Uncoil power cord.
2. Position mounting bracket onto lower edge of Draft Hood skirt. Locate center tooth (with #10 sheet metal screw) on outside and other two teeth inside Draft Hood skirt. See Figure 8.

- Slide mounting bracket tight against lower edge of Draft Hood skirt. Position #10 sheet metal screw above skirt's stiffening rib.
- Secure bracket in position by tightening #10 sheet metal screw against outer surface of Draft Hood skirt.
- Verify power cord, mounting bracket and Blocked Vent Switch are secure and located as shown in Figure 8.



**Figure 8: Blocked Vent Switch Installation**

## WARNING

**Failure to properly install and use this Blocked Vent Switch may result in property damage, personal injury or loss of life.**

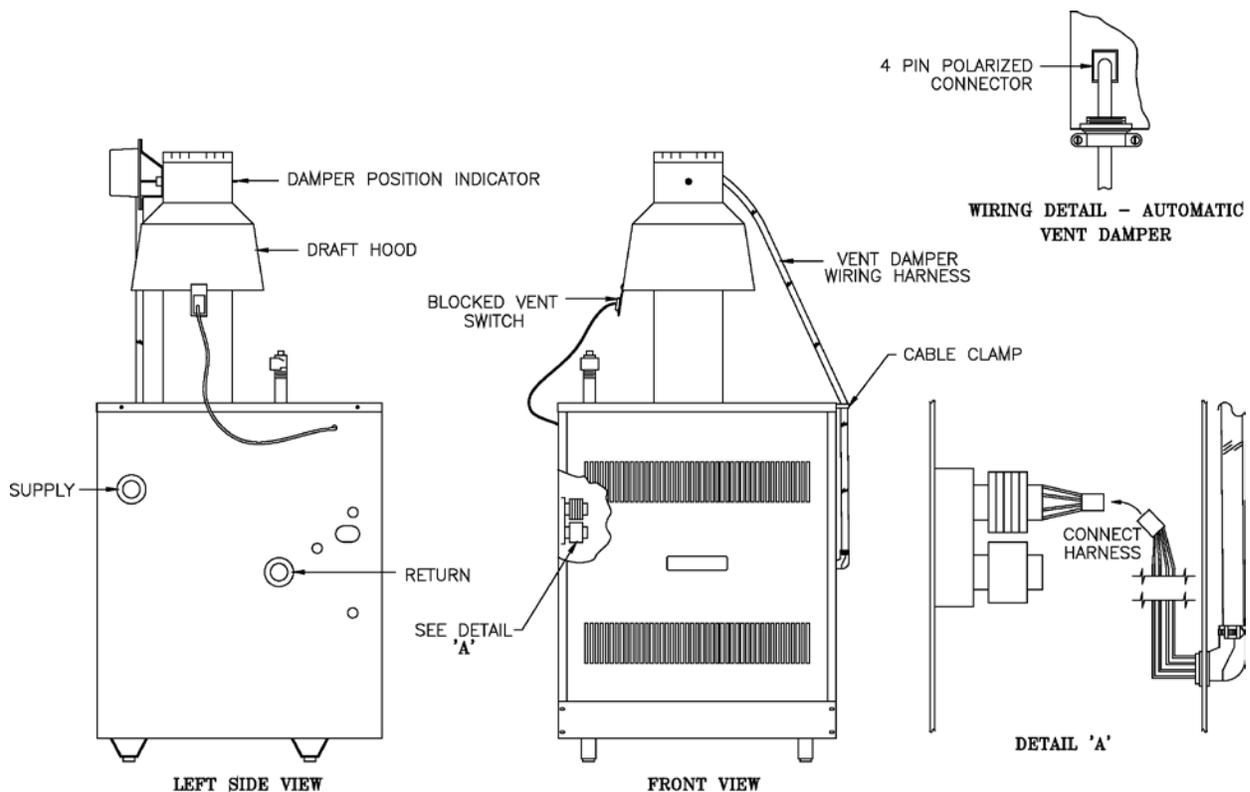
### E. Install Vent Damper. See Figure 9.

- Open Vent Damper Carton and remove Installation Instructions. Read Installation Instructions thoroughly before proceeding.

## NOTICE

**Please refer to the specifications, installation instructions and troubleshooting guide packed in the vent damper carton for complete detailed installation instructions.**

- Vent damper should be same size as draft hood outlet. See Figure 1. Unpack vent damper carefully - **DO NOT FORCE CLOSED!** Forcing vent damper may damage gear train and void warranty. Vent damper assembly includes pre-wired connection harness with polarized plug for use on all 24V standing pilot or EI control systems.
- Mount vent damper assembly on draft hood without modification to either. Refer to instructions packed with vent damper for specific instructions. Vent damper position indicator to be visible to users.



**Figure 9: Vent Damper Installation**

## NOTICE

**Provide adequate clearance for servicing.**

## WARNING

**Provide 6" minimum clearance between damper and combustible construction.**

## CAUTION

**Do not use one vent damper to control two heating appliances.**

- F. Install Vent Connector** from vent damper to chimney or gas vent. See Figure 10.
1. Do not connect into same leg of chimney serving an open fireplace.
  2. Vent connector must not be smaller than vent damper outlet. Type B is recommended, but single-wall vent pipe may be used. Arrange venting system so only the boiler is served by vent damper device.
  3. Where two or more appliances vent into a common vent, the area of the common vent should be at least equal to the area of the largest vent plus 50% of the area in the additional vent(s). Do not connect the vent of this appliance into any portion of mechanical draft systems operating under positive pressure.
  4. Vent connector should have greatest possible initial rise above vent damper consistent with headroom available and required clearance from adjacent combustible building structure.
  5. Vent connector should slope upward from vent damper to chimney or gas vent not less than one inch in four feet. No portion of vent connector should run downward or have dips or sags. Vent connector must be securely supported.
  6. Vent connector should be installed above bottom of chimney to prevent blockage. Inserted into but not beyond inside wall of chimney liner. Seal tight between vent connector and chimney.

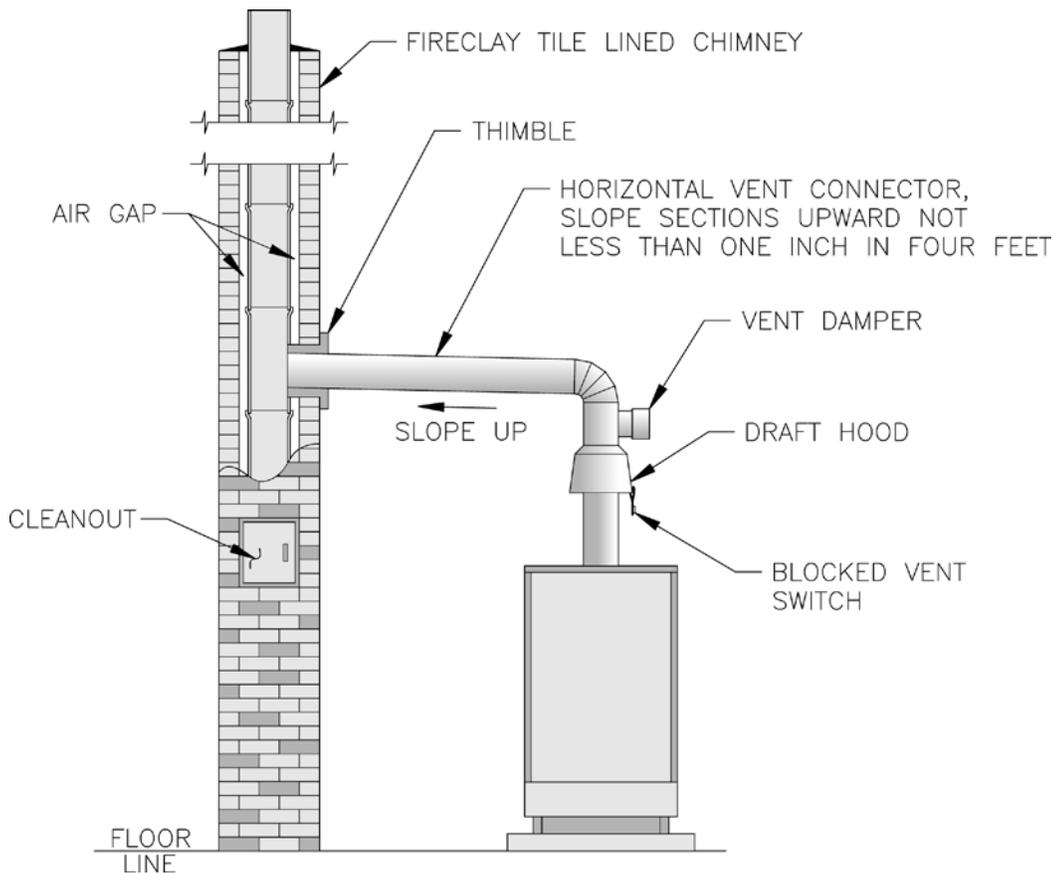
**G. If an Existing Boiler is Removed:**

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 appliances remaining connected to it.

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:

- a. Seal any unused openings in the common venting system.
- b. 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.
- c. 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.
- d. Place in operation the appliance being inspected. Follow the Lighting (or Operating) Instructions. Adjust thermostat so appliance will operate continuously.
- e. Test for spillage at the draft hood 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.
- f. 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 condition of use.
- g. 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 using the appropriate tables in Part 11 in the *National Fuel Gas Code*, NFPA 54/ANSI Z223.1.



**Figure 10: Typical Vent System Installation**

## VI. Electrical

**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. Connect Vent Damper.** See Figure 9.

Install the 90° BX connector attached to the flexible conduit in the 7/8" hole on the right side of the jacket. Plug the factory wired Vent Damper Harness into polarized receptacle.

**C. 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.

**D. Wire thermostat.** Provide Class II circuit between thermostat and boiler. Set thermostat heat anticipator to 0.3 amps. See Figure 12 for continuous ignition (standing pilot) or Figure 13 for intermittent ignition (EI).

If system tends to overheat above thermostat's temperature setting, reduce heat anticipator setting by 0.1 or 0.2 amps. If system tends to shortcycle without reaching desired room temperature, increase heat anticipator setting by 0.1 or 0.2 amps.

**E. New Yorker Link SL™ indirect water heater (if used).** See Figure 12 for continuous ignition (standing pilot) or Figure 13 for intermittent ignition (EI). Also refer to the New Yorker Link SL™ Indirect Water Heater Installation, Operating and Service Instructions.

**F. 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 to black and white wires and green ground screw. See Figure 12 for continuous ignition (standing pilot) or Figure 13 for intermittent ignition (EI).

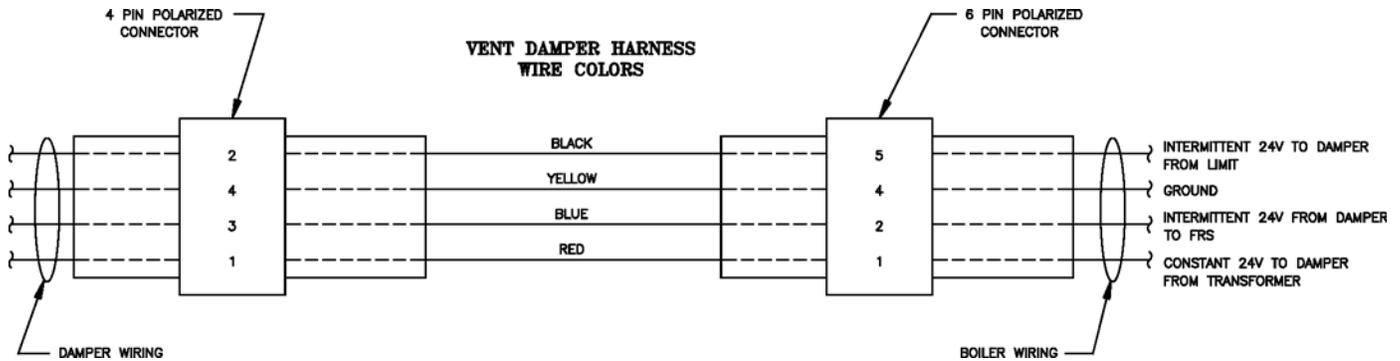
**G. For installations using zone valves** provide separate transformer for zone valve wiring. Consult zone valve manufacturer for assistance.

**H. Vent Damper Sequence of Operation.** See Figure 11.

1. Vent Damper continuously powered at Terminal 1.
2. Call for heat energizes Vent Damper through Terminal 5.
3. Vent Damper reaches fully open position. Power is sent back to Limit through Terminal 2.
4. Call for heat ends. Vent Damper closes.

**CAUTION**

This boiler contains controls which may cause the boiler to shut down and not restart 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.



**Figure 11: Vent Damper Schematic Wiring Diagram**

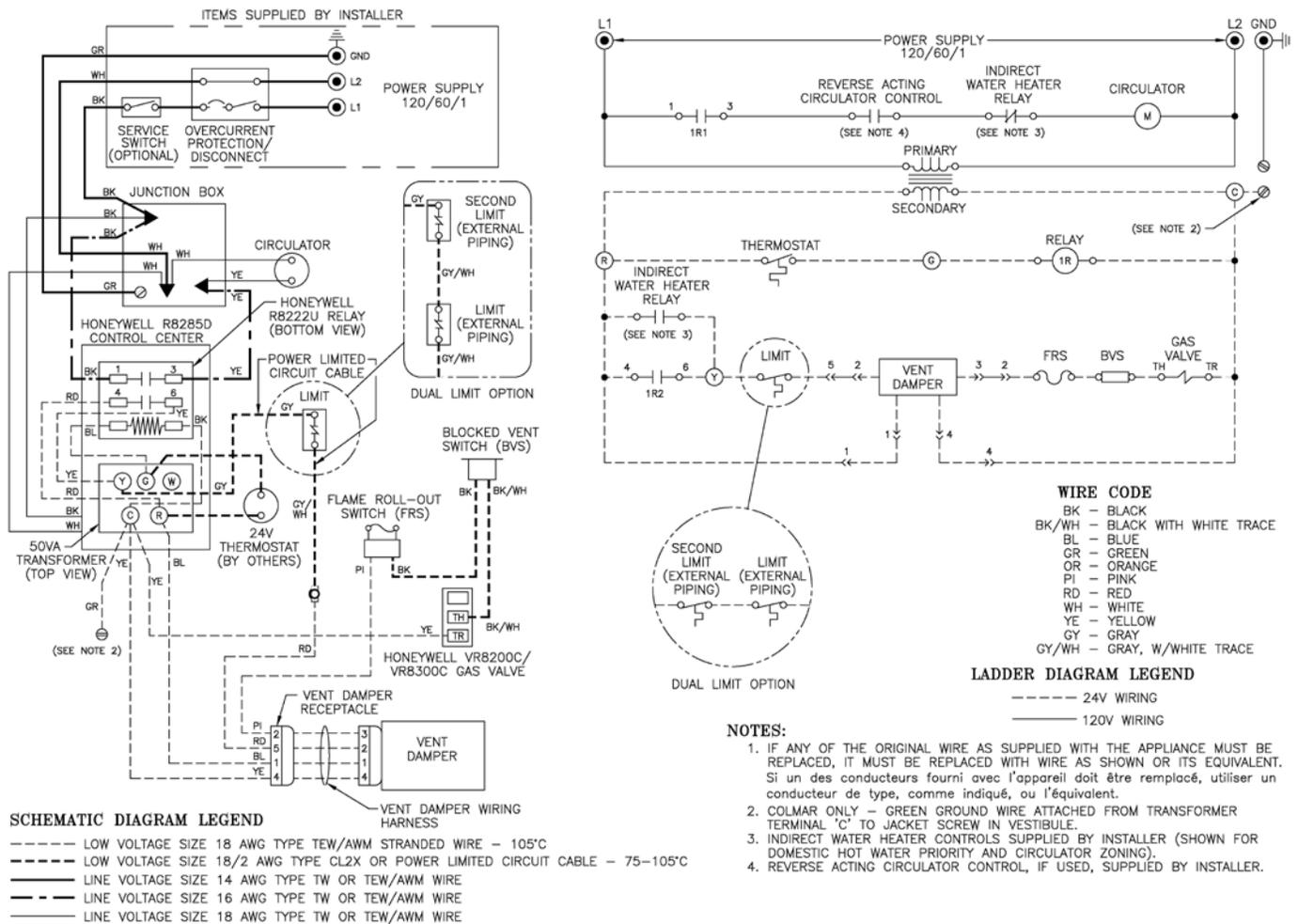


Figure 12: Wiring Diagram, Continuous Ignition (Standing Pilot)

## I. Sequence of Operation, Continuous Ignition (Standing Pilot).

### 1. Normal Operation

- Thermostat calls for heat. Vent Damper opens.
- Gas Valve energized allowing main gas flow and ignition of Main Burners.
- Call for heat ends. Gas Valve de-energized, extinguishing main flame. Vent Damper closes.

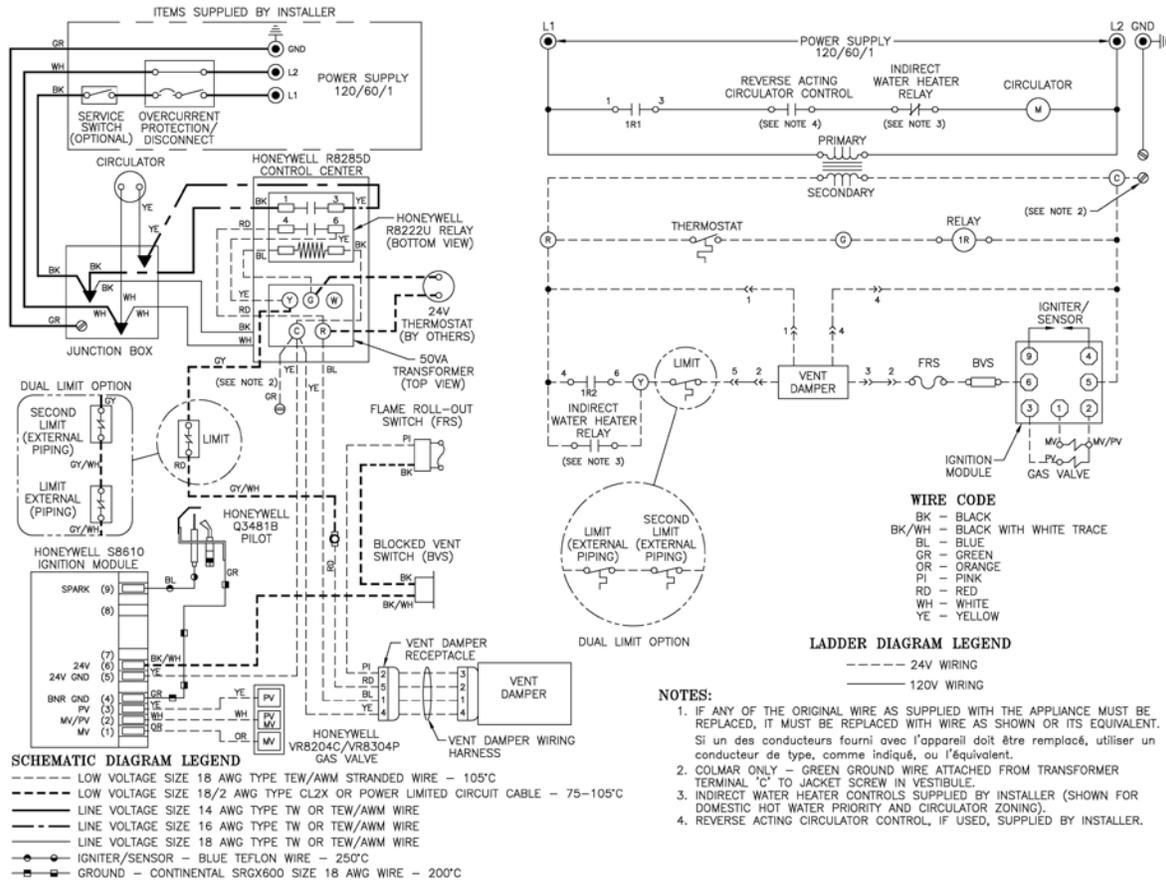
### 2. Safety Shutdown

- Limit:** Automatically interrupts main burner operation when water temperature exceeds set point. Maximum allowable temperature is 250°F. Circulator continues to operate with call for heat and Vent Damper closes. Normal operation resumes when water temperature falls below set point.
- Blocked Vent Switch.** Automatically interrupts main burner operation when excessive vent system blockage occurs. Circulator continues

to operate and Vent Damper remains open with call for heat. If blocked vent switch is activated do not attempt to place boiler in operation. The source of blockage must be corrected by trained and skilled personnel from a qualified service agency before resetting switch.

- Flame Roll-out Switch.** Automatically interrupts boiler operation when flames or excessive heat are present in vestibule. Circulator continues to operate and Vent Damper remains open with call for heat. Control is single use device. If flame roll-out switch is activated do not attempt to place boiler in operation. The source of blockage must be corrected and the flame roll-out switch replaced by trained and skilled personnel from a qualified service agency.

- Thermocouple:** senses pilot flame and causes gas valve to turn off main burner and pilot burner gas flow should pilot burner flame extinguish. Circulator continues to operate and Vent Damper remains open with call for heat.



## VII. System Start-up

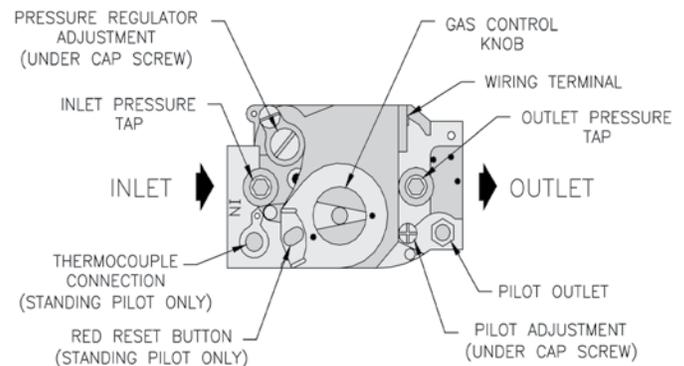
Safe lighting and other performance criteria were met with the gas manifold and control assembly provided on the boiler when the boiler underwent tests specified in *American National Standard for Gas-Fired Low-Pressure Steam and Hot Water Boilers*, ANSI Z21.13.

**A. Main Burner Check** - Check main burners to see that they were not dislodged during shipment. Rear of burners should be in the vertical slots in the rear of burner tray and the front of the burners should be seated completely on the orifices.

### B. Initial start -

1. **Fill entire heating system with water** and vent air from system. Use the following procedure on a Series Loop System equipped with zone valves. (See Figure 3).
  - a. Close isolation valve in boiler supply piping.
  - b. Isolate all circuits by closing zone valves or balancing valves.
  - c. Attach a hose to hose bib located just below isolation valve in boiler supply piping. (Note - Terminate hose in five gallon bucket, at a suitable floor drain, or outdoor area).
  - d. Starting with one circuit, open zone valve.
  - e. Open hose bib.
  - f. Open fill valve (Make-up water line should be located directly above isolation valve in boiler supply piping).
  - g. Allow water to overflow from bucket until discharge from hose is bubble free for 30 seconds.
  - h. Open zone valve to the second zone to be purged, then close the first. Repeat this step until all zones have been purged, but always have one zone open. At completion, open all zone valves.
  - i. Close hose 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. Leave globe valve open).
  - j. Open isolation valve in boiler supply piping.
  - k. Remove hose from hose bib.
2. Turn ROOM THERMOSTAT to lowest setting.
3. Be sure that gas to pilot and main burners has been off for at least five minutes and vent damper has been in the open position.
4. Turn "OFF" the electric switch serving boiler.
5. Open valve on main gas line at meter.
6. **PURGE AIR FROM GAS PIPING.** This procedure will vary with ignition system furnished but **in all cases adequate ventilation must be provided and no smoking or open flame permitted.**

- a. Standing Pilot Models, see Figures 6 and 16.
  - i. Keep electric switch "OFF".
  - ii. Open Manual Shut-off Valve upstream of Combination Gas Valve.
  - iii. Disconnect Pilot Tubing at gas valve (Purge **must not** be into combustion chamber).
  - iv. Turn Main Gas Knob on Combination Gas Valve to "Pilot" Position. Depress and hold in this position until purging is complete. Turn Main Gas Knob to "off" position.
  - v. Reconnect pilot tubing and check pipe and fittings from meter to combination Gas Valve for leaks using soap solution or other approved method.
- b. Intermittent Ignition Models, see Figures 7 and 16.
  - i. Turn "ON" electric switch serving boiler.
  - ii. Open Manual Shut-off Valve upstream of Combination Gas Valve.
  - iii. Loosen or remove Inlet Pressure Tap Plug in Combination Gas Valve and when purging is complete, tighten or replace plug. (See Figure 14).



**Figure 14: Top View of Honeywell Gas Valves**

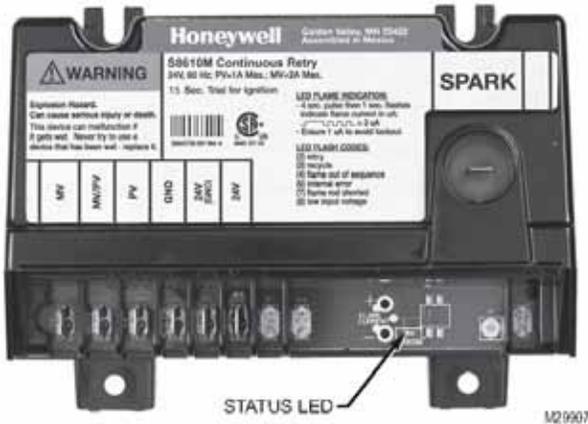
- iv. Check pipe and fittings from meter to Combination Gas Valve using soap solution or other approved methods.

## CAUTION

- v. Test gas piping and connections between Combination Gas Valve and manifold, orifices, and pilot piping for leaks after boiler is operating. Use soap solution or other approved method.

### C. Instructions to Put the Boiler in Operation.

1. Enhanced Electronic Ignition Module with single Status LED indicator. See Figure 15A "Location of LED".



**Figure 15A: Location of LED**

Table 6 cross-references the ignition module terminal designations to the ignition terminal numbers in the wiring ladder diagrams.

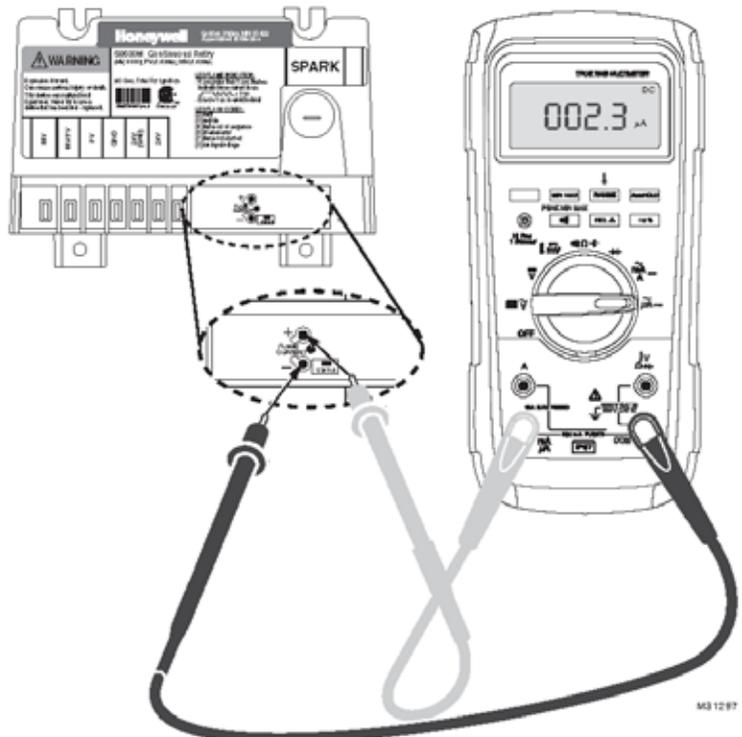
Table 7 provides green LED status codes and recommended service action where applicable.

2. See Figure 17 for Continuous Ignition System (standing pilot).
3. Flame Current Measurement Procedure. See Figure 15B "Measuring Pilot Flame Current with Micro-ammeter"
  - a. Pilot flame current in micro amps can be measured using any standard micro-ammeter by inserting the meter probes into the module holes labeled FLAME CURRENT as shown in Figure 15B.
  - b. Flame current **must be measured with pilot valve open/pilot lit but the main valve closed.**
  - c. Disconnect MV lead wire from the module before measuring flame current. Trying to measure the pilot flame current in series with the wiring will not yield the accurate reading.
  - d. The **minimum steady pilot flame signal must be 1  $\mu$ Amp** (microampere) DC (direct current).
  - e. **For reliable operation** the flame current should be **2  $\mu$ Amp or greater.**
  - f. To ensure **adequate flame current:**
    - i. Turn off boiler power at circuit breaker or fuse box

**Table 6: 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

- ii. Clean the flame rod with emery cloth if required
- iii. Make sure electrical connections are clean and tight, and wiring not damaged, repair/replace as needed
- iv. Check for igniter/sensor cracked ceramic insulator, replace if needed
- v. Check the pilot flame. It must be blue, steady and envelop the flame sensing rod 3/8" to 1/2".
- vi. If needed, adjust pilot flame by turning the gas valve pilot adjustment screw clockwise to decrease or counterclockwise to increase pilot flame. Always reinstall pilot adjustment screw cover and tighten securely upon completion to assure proper gas valve operation.



**Figure 15B: Measuring Pilot Flame Current with Micro-ammeter**

**Table 7: Green LED Status Codes**

Green LED Flash Code <sup>a</sup>	Indicates	Next System Action	Recommended Service Action
OFF	No "Call for Heat"	N/A	None
Flash Fast	Power up - internal check	N/A	None
Heartbeat	Normal startup - ignition sequence started (including prepurge)	N/A	None
4 Seconds ON then "x" flashes	Device in run mode. "x" = flame current to the nearest $\mu$ A.	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, contamination of flame rod, 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 will resume normal operation 1 hour after error is corrected.	Check for pilot flame. Replace gas valve if pilot flame present. If no pilot flame, cycle "Call for Heat." If error repeats, replace control.
6	Control Internal Error	Control remains in wait mode. When the fault corrects, control resumes normal operation.	Cycle "Call for Heat". If error repeats, replace control.
7	Flame rod shorted to ground	Control remains in wait mode. When the fault corrects, control resumes normal operation.	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.	Check transformer and AC line for proper input voltage to the control. Check with full system load on the transformer.

<sup>a</sup>Flash Code Descriptions:

- Flash Fast: rapid blinking
- Heartbeat: Constant ½ second bright, ½ second dim cycles.
- 4 second solid on pulse followed by "x" 1 second flashes indicates flame current to the nearest  $\mu$ A. This is only available in run mode.
- A single flash code number signifies that the LED flashes X times at 2Hz, remains off for two seconds, and then repeats the sequence.

- g. Reconnect MV lead wire to the module upon satisfactory completion of pilot flame current measurement.
- h. Check the pilot burner operation/ignition sequence during ignition cycle:
  - i. Restore boiler power at circuit breaker or fuse box
  - ii. Set thermostat to call for heat
  - iii. Watch ignition sequence at burner
  - iv. If spark does not stop after pilot lights, replace ignition module
  - v. If main burners do not light or if main burners light but system locks out, check the module ground wire and gas control as described in "Honeywell Electronic Ignition Troubleshooting Guide" on page 22 of this manual.

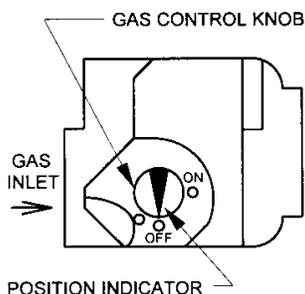
## FOR YOUR SAFETY READ BEFORE OPERATING

**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.
- 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.
- ▶ If you cannot reach your gas supplier, call the fire department.

## 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.

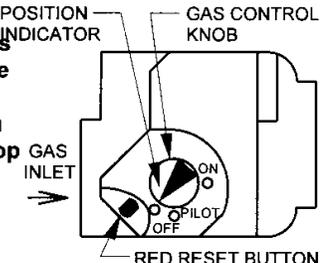
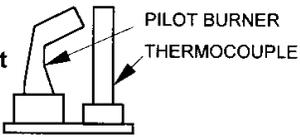
Figure 16: Operating Instructions

## FOR YOUR SAFETY READ BEFORE LIGHTING

**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 has a pilot which must be lighted by hand. When lighting the pilot, follow these instructions exactly.
  - ▶ If you cannot reach your gas supplier, call the fire department.
- B. BEFORE LIGHTING smell all around the appliance for gas. Be sure to smell next to the floor because some gas is heavier than air and will settle on the floor.
  - ▶ 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.
- 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.

## LIGHTING INSTRUCTIONS

1. STOP! Read the safety information above.
2. Read the lighting instructions all the way through before starting the procedure.
3. If equipped with a vent damper, set the room thermostat to highest setting and wait two (2) minutes for the damper to open.
4. Turn off all electric power to the appliance.
5. Set the room thermostat to lowest setting.
6. Locate the gas control valve at the end of the gas supply pipe going into the boiler. The gas control knob is the blue or brown plastic knob located on top of the gas control valve.
 
7. Rotate gas control knob clockwise from "ON" position to "OFF" position.
8. 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. NOTE: Vent damper must be open during this five (5) minute wait period.
9. Remove front door.
10. Remove the burner access panel located above the burners.
 
11. Find the pilot by following the aluminum tube from the gas control valve to the pilot located between the steel tube burners.
12. Turn gas control knob counterclockwise to "PILOT" position.
13. Push in red reset button and hold in. Immediately light the pilot with a match. Continue to hold the red reset button for about one (1) minute after the pilot is lit. Release button and it will pop back up. Pilot should remain lit. If it goes out, repeat Steps 8 - 13.
  - ▶ If button does not pop up when released, stop and immediately call your service technician or gas supplier.
  - ▶ If the pilot will not stay lit after several tries, turn gas control knob clockwise to "OFF" and call your service technician or gas supplier.
14. Replace burner access panel.
15. Replace front door.
16. Turn gas control knob counterclockwise to "ON" position. Knob can be turned to "ON" only if red reset button is up.
17. Turn on all electric power to the appliance.
18. Set room thermostat to desired setting.

## 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. Turn gas control knob clockwise to "OFF". Do not force.

Figure 17: Lighting Instructions

## D. Check Gas Input to Boiler

### NOTICE

**CG-C boilers built for installation at altitudes greater than 2,000 feet above sea level have been specially orificed to reduce gas input rate 4 percent per 1,000 feet above sea level per the National Fuel Gas Code, NFPA 54/ANSI Z223.1. High altitude boiler models are identifiable by the third digit in the model number suffix on the rating label:**

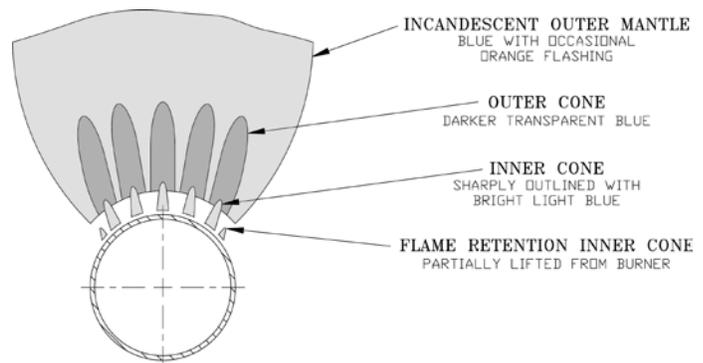
**CG\_OC-\_\_2: less than 2000 ft. elevation**  
**CG\_OC-\_\_5: 2000 to 5000 ft. elevation**

1. Input Rate and Maximum Inlet Pressure shown on Rating Label must not be exceeded. Inlet pressure must not be lower than minimum inlet pressure shown on Rating Label.
2. All Rate checks and all adjustments are to be made while boiler is firing - all other appliances connected to the same meter as the boiler must be off.
3. With boiler off, water Manometer or water column gauge should be connected to a shut-off cock installed in the 1/8" outlet pressure tap in the gas valve (See Figure 14). By installing gas cock upstream of manometer, gas pressure can be introduced gradually - without shut-off cock; surge of pressure when boiler is turned on, could blow liquid out of manometer. Replace plug in gas valve when rate check is finished.
4. LP Gas Input:  
Adjust Regulator on Gas Valve so that manifold pressure is 10 inches water column. Turning Regulator Adjusting Screw Clockwise increases pressure. Counterclockwise rotation decreases pressure.
5. Natural Gas Input
  - a. Approx. Input - Adjust regulator on Gas Valve so that manifold pressure is three and a half (3½) inches water column (three inches water column for high altitude). Turning Regulator Adjusting Screw Clockwise increases pressure, Counterclockwise rotation decreases pressure. If more accurate check on input is necessary see (b) .  
For minor input changes readjust Regulator Gas Valve to increase or decrease manifold pressure to obtain corresponding increase manifold pressure more than 0.3" of water to obtain rated input, remove orifices and drill one size larger. Reinstall and recheck input rate.
  - b. Additional Check on Input - Since input is a function of heating value, specific gravity, and volume of gas flow contact your utility for the

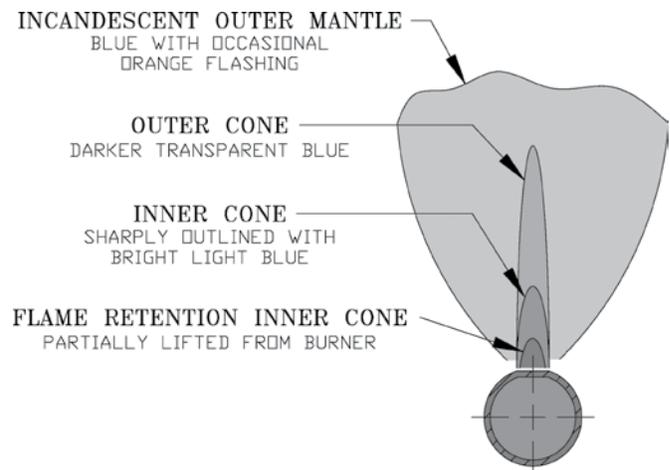
first two items in order to utilize the formula below. The gas meter should then be clocked for three (3) minutes with stop watch and substituting the appropriate values in the formula below, determine what the gas flow should be in this 3 minute period to give the input shown on the Rating Label:

$$\text{Gas Input cu. ft. per 3 min.} = \frac{\text{Btuh Input}}{\text{Heating Value of Gas (Btu / cu. ft.)}} \times \text{Multiplier from Table 5}$$

- E. Check Main Burner Flame.** See Figure 18 or 18a. Flame should have a clearly defined inner cone with no yellow tipping. Orange-yellow streaks caused by dust should not be confused with true yellow tipping.



**Figure 18: 40mm Main Burner Flame**



**Figure 18a: 1 Inch Main Burner Flame**

### 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.**

## F. Check Pilot Burner Flame.

1. Continuous Ignition (Standing Pilot, Natural Gas), Models 20 through 70 and Model 20 (Standing Pilot, LP). See Figure 19. Pilot burner produces a single flame. The flame should be steady, medium hard blue enveloping 3/8 to 1/2 inch of thermocouple.
2. Continuous Ignition (Standing Pilot, Natural and LP Gas), Models 80 through 100 and Continuous Ignition (Standing Pilot, LP gas), Models 30 through 70. See Figure 20. Pilot burner produces three (3) flames. The center flame should be steady, medium hard blue enveloping 3/8 to 1/2 inch of thermocouple.
3. Intermittent Ignition (EI). See Figure 21. The pilot burner should be lit only if thermostat is calling for heat. The pilot burner produces three (3) flames. The center flame should be steady, medium hard blue enveloping 3/8 to 1/2 inch of thermocouple.

## G. Check Ignition System Shutoff.

Gas valve should close and pilot and main burners should extinguish.

1. Continuous Ignition (standing pilot). Disconnect thermocouple at gas valve.
2. Intermittent Ignition (EI). Disconnect sensor wire from Terminal 4 SENSE on Ignition Module.

## H. Check Vent Damper Operation.

Vent Damper must be in open position when main burners are ignited.

## I. Check Limit.

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

## J. Check Thermostat Operation.

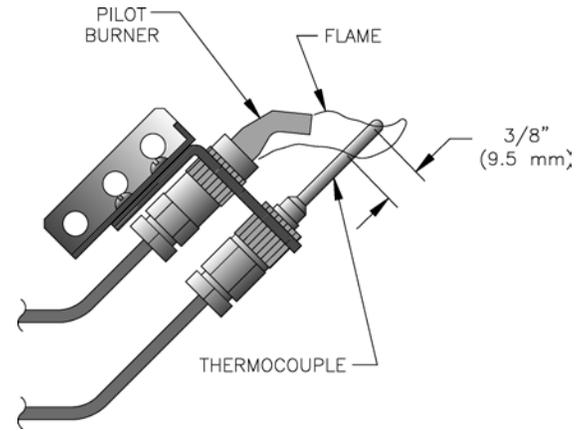
Raise and lower temperature setting to start and stop boiler operation. Adjust thermostat to normal setting.

## K. Review User's Information Manual

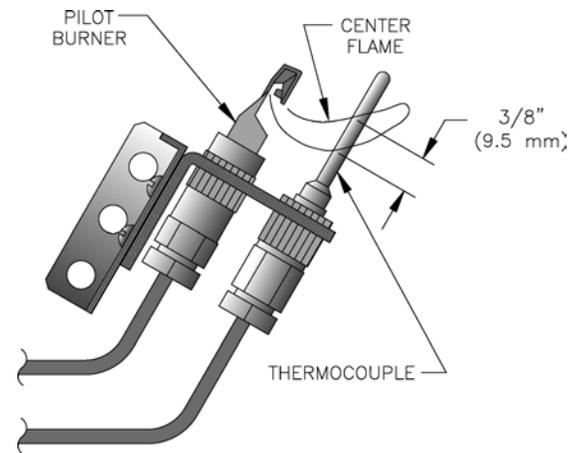
and system operation with owner or operator.

## L. Post instructions

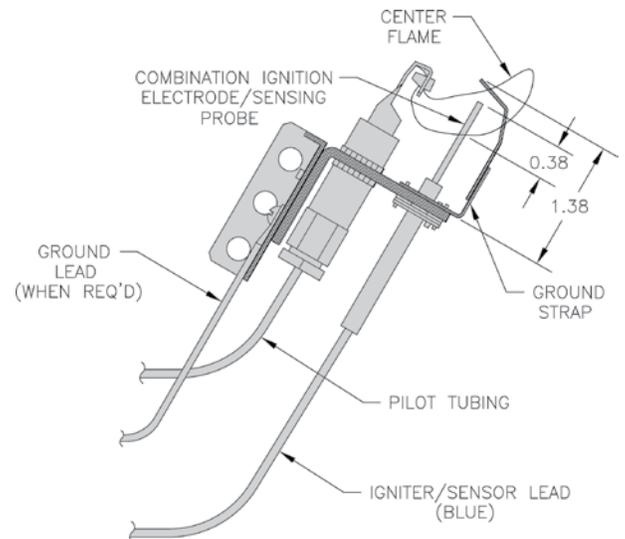
near boiler for reference by owner and service personnel.



**Figure 19: Pilot Burner Flame, Continuous Ignition, Model 20: LP Gas, Models 20 through 70: Natural Gas**

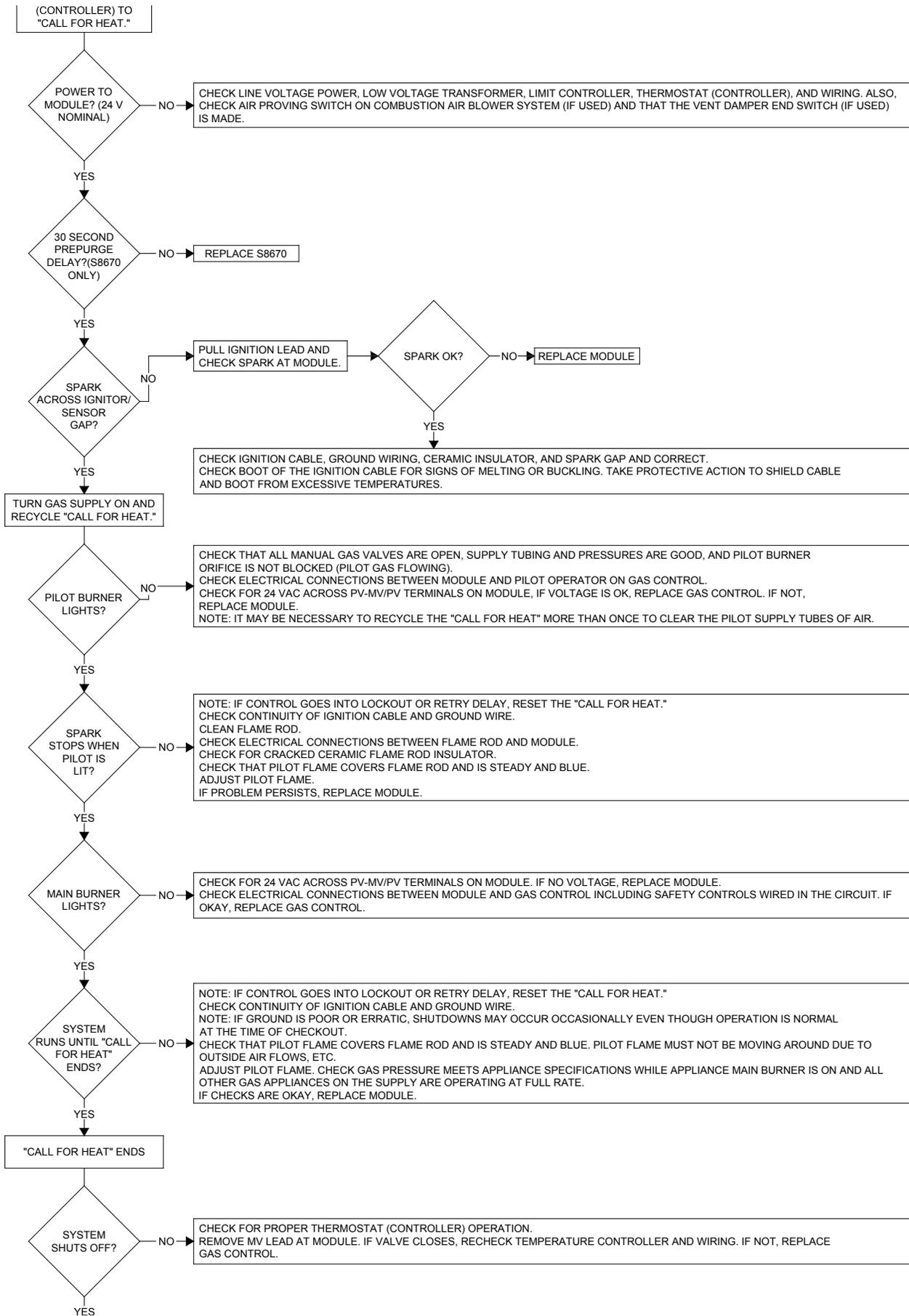


**Figure 20: Typical Pilot Flame, Continuous Ignition, Models 30 through 70: LP Gas, Models 80 through 100: Natural and LP Gas**



**Figure 21: Pilot Burner Flame, Intermittent Ignition, Models 20 through 100: Natural and LP Gas**

# Honeywell Electronic Ignition Trouble Shooting Guide



## VIII. Service

### WARNING

**Service on this boiler should be undertaken only by trained and skilled personnel from a qualified service agency. Inspections should be performed at intervals specified in this manual. Maintain manual in a legible condition.**

**Keep boiler area clear and free of combustible materials, gasoline and other flammable vapors and liquids.**

**Do not place any obstructions in boiler room that will hinder flow of combustion and ventilation air.**

- 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 17 for Intermittent Ignition (EI) or Figure 16 for Continuous Ignition (standing pilot).

### CAUTION

**Label all wires prior to disconnection when servicing controls. Wiring errors can cause improper and dangerous operation. Verify proper operation after servicing.**

- B. Low Water Cutoff** (if so equipped). Follow instructions provided with low water cutoff.
- C. Inspect Vent System.** See Figure 22.
1. Remove obstructions in vent pipe and chimney.
  2. Remove soot accumulations with wire brush and vacuum.
  3. Repair or replace deteriorated vent pipe and vent accessories.
  4. Provide proper support. Repair sags, particularly in horizontal sections.
  5. Repair leaking joints.
- D. Inspect Boiler Flue Passages** for blockage or soot accumulation. See Figure 22.
1. Remove vent pipe, vent damper, blocked vent switch and draft hood.
  2. Remove sheet metal screws securing Jacket Top Panel. Lift panel and rotate about safety 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 safety relief valve opening and remove top panel.
  3. Remove carriage bolts securing Canopy to Section Assembly. For high efficiency models (CG-CH) remove flue baffles.
  4. Using flashlight, examine all flue passageways.
    - a. If passageways are free of soot and obstruction, replace canopy, secure and seal.
    - b. If passageways need cleaning, remove burners as described in Paragraph E. Using long handle

wire or bristle flue brush and vacuum, brush flueways thoroughly from top of boiler as illustrated in Figure 22. Replace canopy and seal.

5. Install flue baffles (if used).
6. Install new gasket material (See Section IX: Repair Parts). Install canopy. Secure with carriage bolts.
7. Install Jacket Top Panel, Draft Hood, Blocked Vent Switch, Vent Damper, and vent pipe.

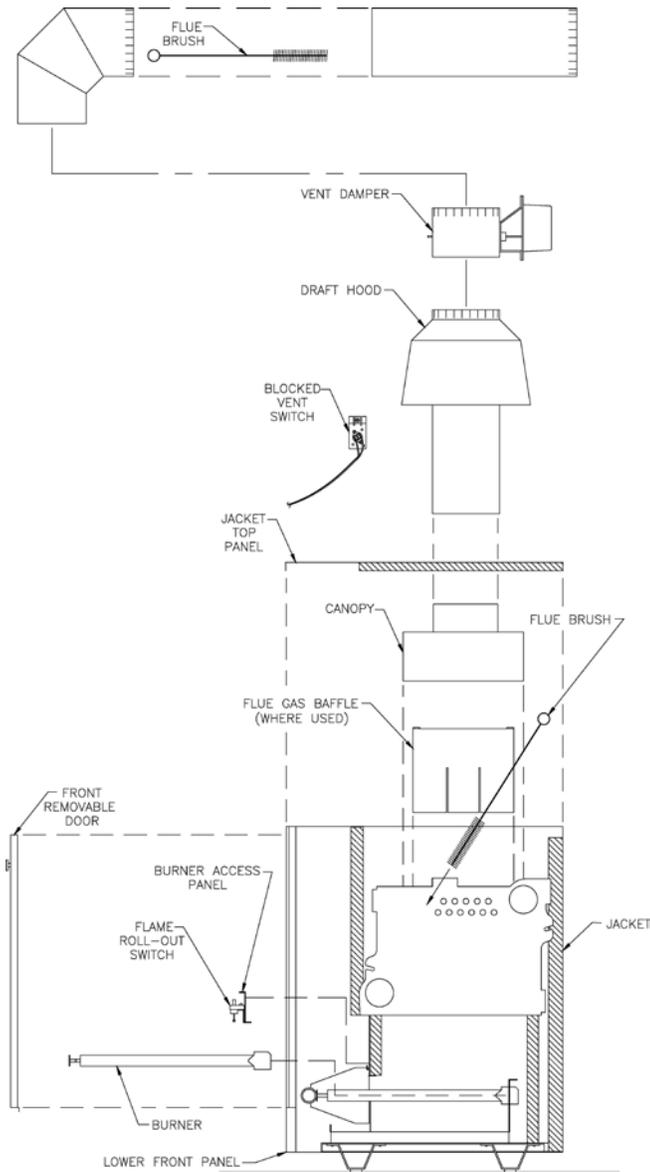
**E. Clean Main Burners and Firebox.**

1. To remove burners for cleaning, changing orifices, or repairs:
  - a. Remove Jacket Front Panel.
  - b. Disconnect pilot tubing at gas valve.
  - c. For Continuous Ignition (Standing Pilot), disconnect thermocouple at gas valve. For Intermittent Ignition (EI), disconnect igniter/sensor wire 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.

**Table 9: Pilot Burner Location**

Boiler Model	Main Burner with Pilot Bracket *		Pilot Burner Located Between Main Burners *	
	1 Inch	40mm	1 Inch	40mm
CG20	1	1	1 & 2	---
CG30	1	1	1 & 2	1 & 2
CG40	2	2	2 & 3	2 & 3
CG50	3	2	3 & 4	2 & 3
CG60	4	3	4 & 5	3 & 4
CG70	6	3	6 & 7	3 & 4
CG80	7	4	7 & 8	4 & 5
CG90	8	4	8 & 9	4 & 5
CG100	9	5	9 & 10	5 & 6

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



**Figure 22: Flueway Cleaning**

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 23. 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 damage base insulation.
6. Install burners by reversing procedure used to remove burners. Make sure burner with pilot assembly is in same location as original installation - see Table 9.

Check burners to see that they are located properly in slot at rear of burner tray, see Figure 23. Reinstall injection shield assembly (40mm burners only, where used) and burner access panel. Reconnect

flame roll-out switch wires, pilot gas supply, thermocouple lead or pilot lead.

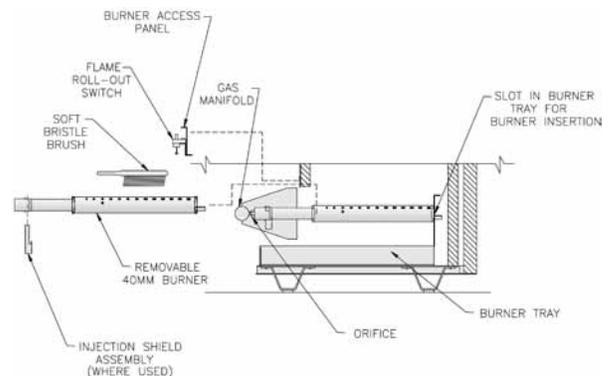
7. For Continuous Ignition (Standing Pilot) connect thermocouple at gas valve. For Intermittent Ignition (EI) connect pilot gas supply, igniter/sensor wire, and ground wire at Ignition Module.
8. Install Burner Access Panel. Connect Flame Rollout Switch wires.

**F. Check Operation.** Follow steps C through J from Section VII: System Start-up.

**G. 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 E.1.

1. To replace orifice disconnect pilot tubing.
  - a. Continuous Ignition (Standing Pilot) and Intermittent Ignition (EI). Orifice is retained by compression fitting. See Section IX: "Repair Parts" and Paragraph G.4 below.
  - b. Connect pilot tubing and check for leaks.
2. Continuous Ignition (Standing Pilot). To replace thermocouple:
  - a. Loosen attachment nut securing thermocouple to pilot burner.
  - b. Remove thermocouple. Replace per Section IX: "Repair Parts".
3. Intermittent Ignition (EI).
4. To replace pilot burner assembly.
  - a. Remove two machine screws holding pilot burner to pilot bracket.
  - b. Disconnect pilot tubing, igniter/sensor wire and ground wire.
  - c. Replace per Section IX: "Repair Parts".
  - d. Reconnect pilot tubing, igniter/sensor wire and ground wire.
5. Reinstall main burner following procedure described in Paragraph E.

**H. Lubrication.** There are no parts requiring lubrication by service technician or owner. Circulator bearings are water lubricated.



**Figure 23: Burner Cleaning and Installation**

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## IX. Repair Parts

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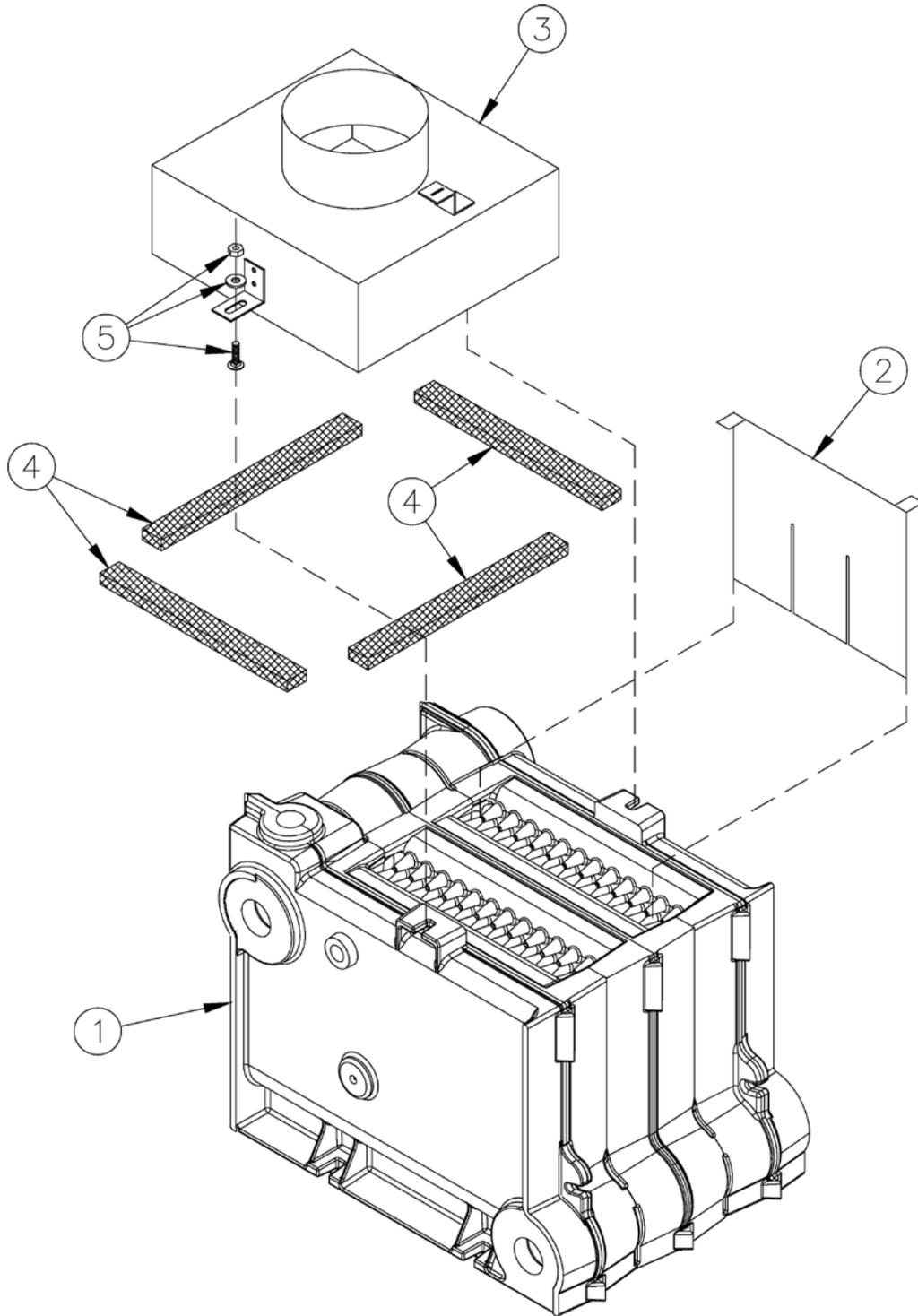
All CG-C™ Series repair parts may be ordered through New Yorker Boiler Co., Inc. or its authorized distributors.

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, Pennsylvania 19440-0010  
Phone: (215) 855-8055  
Attn: Customer Service Department

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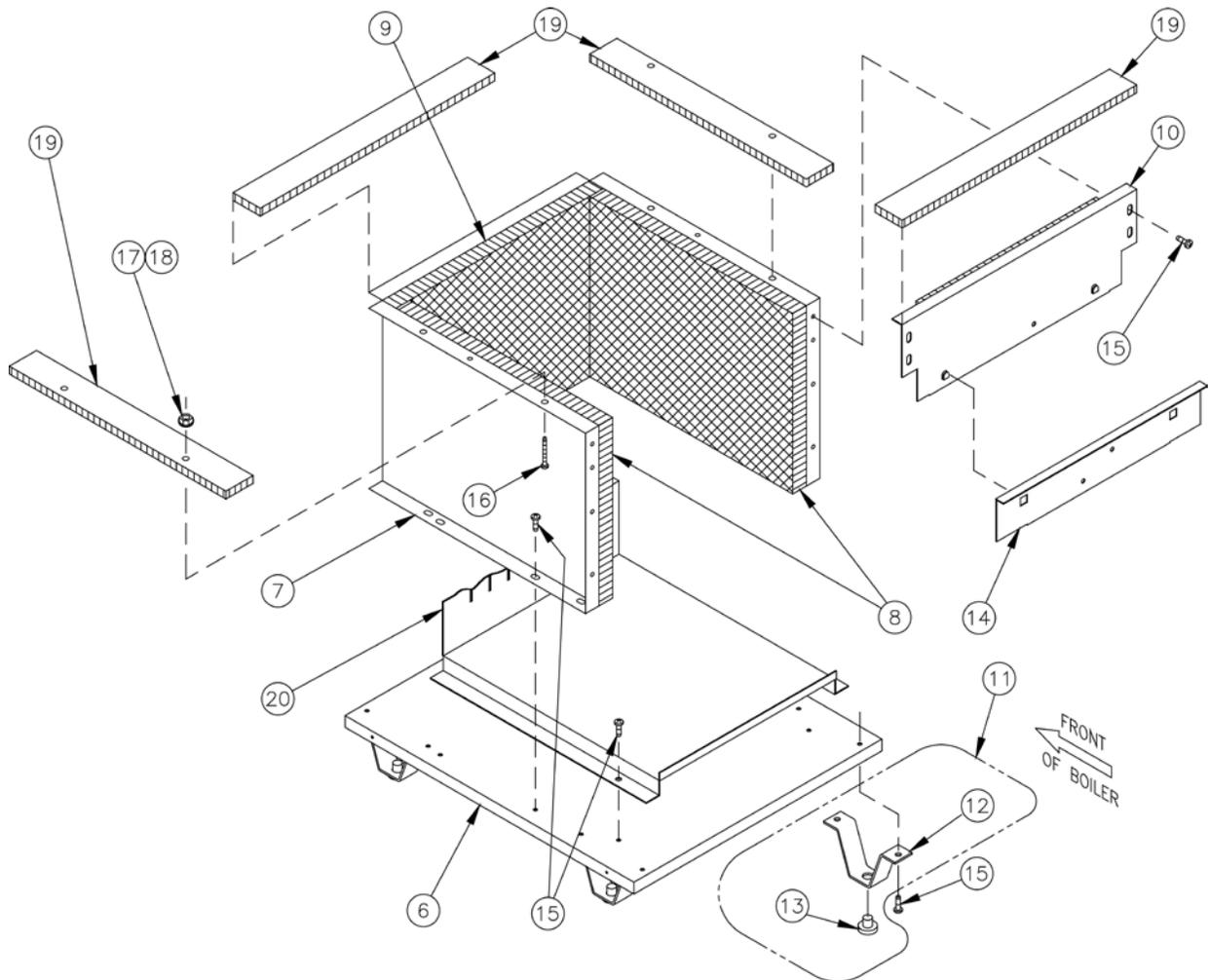
Key No.	Description	Part Number	CG-C MODEL								
			20	30	40	50	60	70	80	90	100
1	Cast Iron Section Assembly (Complete)	6171702	1	---	---	---	---	---	---	---	---
		6171703	---	1	---	---	---	---	---	---	---
		6171704	---	---	1	---	---	---	---	---	---
		6171705	---	---	---	1	---	---	---	---	---
		6171706	---	---	---	---	1	---	---	---	---
		6171707	---	---	---	---	---	1	---	---	---
		6171708	---	---	---	---	---	---	1	---	---
		6171709	---	---	---	---	---	---	---	1	---
		6171710	---	---	---	---	---	---	---	---	1
2	Flue Baffle	71106001	1[d]	2[a,b]	3[a,b]	4[a,b]	5[a,b]	6[b]	7[c]	8[c]	9[c]
		<b>Footnote to Flue Baffle:</b> [a] - CG-CH Models (EI) only [b] - Standing Pilot, LP, 1" Burners only [c] - Standing Pilot, Natural & LP Gas, 1" Burners only [d] - Standing Pilot, Natural & LP, 1" & 40mm Burners									
3	Canopy Assembly	61117022	1	---	---	---	---	---	---	---	---
		611170302	---	1	---	---	---	---	---	---	---
		611170402	---	---	1[a]	---	---	---	---	---	---
		100310-01	---	---	1[b]	---	---	---	---	---	---
		611170502	---	---	---	1	---	---	---	---	---
		611170602	---	---	---	---	1[a]	---	---	---	---
		100310-02	---	---	---	---	1[b]	---	---	---	---
		6111706010	---	---	---	---	1[c]	---	---	---	---
		611170702	---	---	---	---	---	1	---	---	---
		611170802	---	---	---	---	---	---	1[a]	---	---
		100310-03	---	---	---	---	---	---	1[b]	---	---
		611170902	---	---	---	---	---	---	---	1	---
		611171002	---	---	---	---	---	---	---	---	1[a]
		100310-04	---	---	---	---	---	---	---	---	1[b]
<b>Footnote to Canopy Assembly:</b> [a] - 1" Burners only [b] - 40mm Burners only [c] - CG60HC Model only											
4	Cerafelt Sealing Strip ½" x 1" x 10' (Canopy for Section Assembly)	6206001	1	1	1	1	1	1	1	1	1
5	Carriage Bolt ¼" - 20 x 1"	80860115	2	2	2	2	2	2	2	2	2
	Flat Washer, ¼"	80860603									
	Nut, Hex ¼" - 20	80860407									



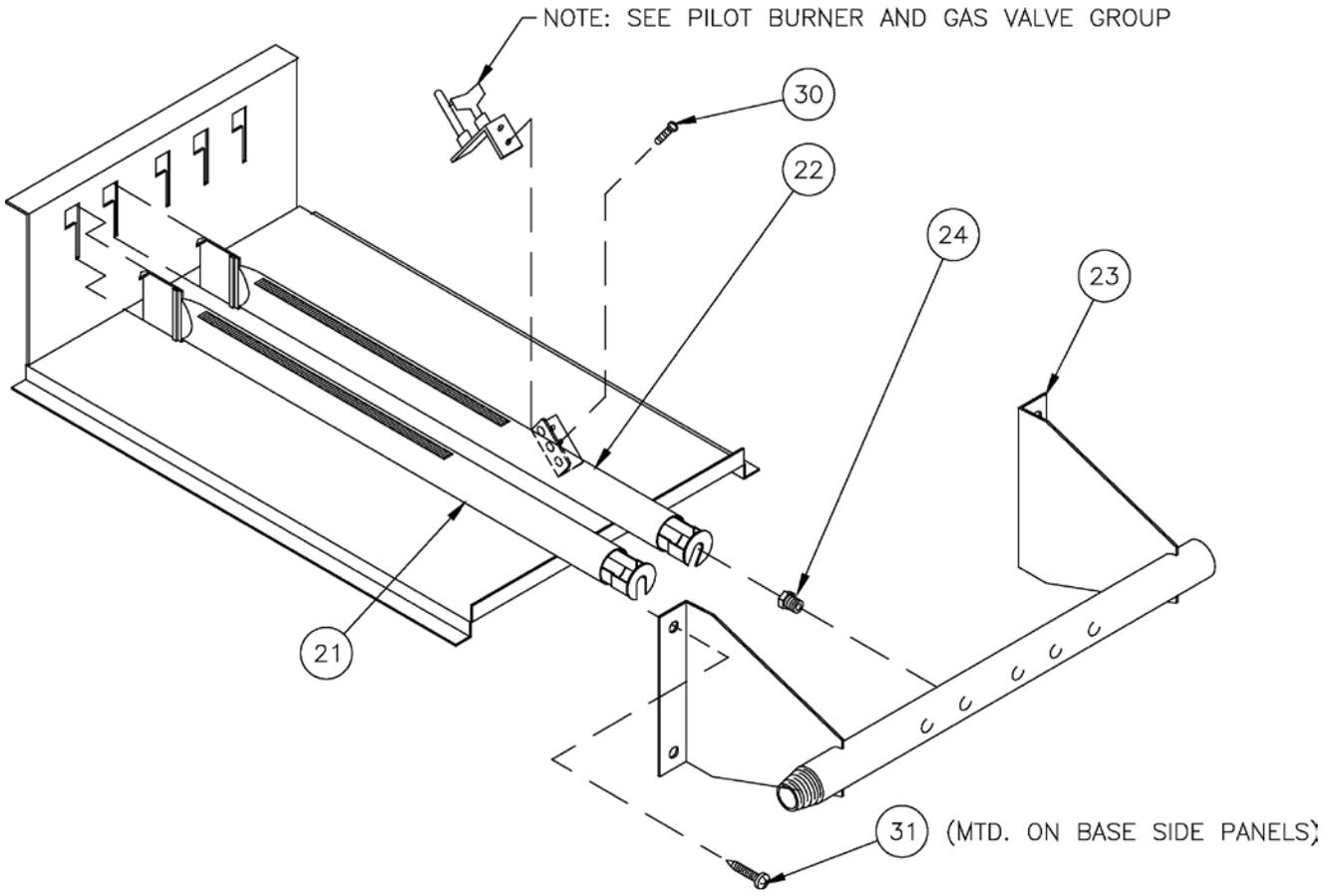
**Section Assembly and Canopy Group**

Key No.	Description	Part Number	CG-C MODEL								
			20	30	40	50	60	70	80	90	100
6	Base Tray	718600291	1	---	---	---	---	---	---	---	---
		718600391	---	1	---	---	---	---	---	---	---
		718600491	---	---	1	---	---	---	---	---	---
		718600591	---	---	---	1	---	---	---	---	---
		718600691	---	---	---	---	1	---	---	---	---
		718600791	---	---	---	---	---	1	---	---	---
		718600891	---	---	---	---	---	---	1	---	---
		718600991	---	---	---	---	---	---	---	1	---
		718601091	---	---	---	---	---	---	---	---	1
7	Base Wrapper	718600211	1	---	---	---	---	---	---	---	---
		718600311	---	1	---	---	---	---	---	---	---
		718600411	---	---	1	---	---	---	---	---	---
		718600511	---	---	---	1	---	---	---	---	---
		718600611	---	---	---	---	1	---	---	---	---
		718600711	---	---	---	---	---	1	---	---	---
		718600811	---	---	---	---	---	---	1	---	---
		718600911	---	---	---	---	---	---	---	1	---
		718601011	---	---	---	---	---	---	---	---	1
8	Base End Insulation	720601	2	2	2	2	2	2	2	2	2
9	Base Rear Insulation	72060025	1	---	---	---	---	---	---	---	---
		72060035	---	1	---	---	---	---	---	---	---
		72060045	---	---	1	---	---	---	---	---	---
		72060055	---	---	---	1	---	---	---	---	---
		72060065	---	---	---	---	1	---	---	---	---
		72060075	---	---	---	---	---	1	---	---	---
		72060085	---	---	---	---	---	---	1	---	---
		72060095	---	---	---	---	---	---	---	1	---
		72060105	---	---	---	---	---	---	---	---	1
10	Base Front Panel Assembly	618600241	1	---	---	---	---	---	---	---	---
		618600341	---	1	---	---	---	---	---	---	---
		618600441	---	---	1	---	---	---	---	---	---
		618600541	---	---	---	1	---	---	---	---	---
		618600641	---	---	---	---	1	---	---	---	---
		618600741	---	---	---	---	---	1	---	---	---
		618600841	---	---	---	---	---	---	1	---	---
		618600941	---	---	---	---	---	---	---	1	---
		618601041	---	---	---	---	---	---	---	---	1
11	Base Leg Assembly	6186001	4	4	4	4	4	4	4	4	4
12	Base Leg	71860021	4	4	4	4	4	4	4	4	4
13	Nylon Glide	8186006	4	4	4	4	4	4	4	4	4

Key No.	Description	Part Number	CG-C MODEL								
			20	30	40	50	60	70	80	90	100
14	Burner Access Panel	718600261	1	---	---	---	---	---	---	---	---
		718600361	---	1	---	---	---	---	---	---	---
		718600461	---	---	1	---	---	---	---	---	---
		718600561	---	---	---	1	---	---	---	---	---
		718600661	---	---	---	---	1	---	---	---	---
		718600761	---	---	---	---	---	1	---	---	---
		718600861	---	---	---	---	---	---	1	---	---
		718600961	---	---	---	---	---	---	---	1	---
		718601061	---	---	---	---	---	---	---	---	1
15	Self-Tapping Screw ¼ - 20 x ½	80860700	20	20	20	20	20	21	21	21	21
16	Self-Tapping Screw 5/16 - 18 x 1¼	80860717	4	4	4	4	4	4	4	4	4
17	Flat Washer 5/16", USS	80860601	4	4	4	4	4	4	4	4	4
18	Hex Lock Nut 5/16 - 18	80860464	4	4	4	4	4	4	4	4	4
19	Cerafelt Sealing Strip ½" x 2" x 10' (Section Assembly to Base)	6206002	1	1	1	1	1	1	1	1	1

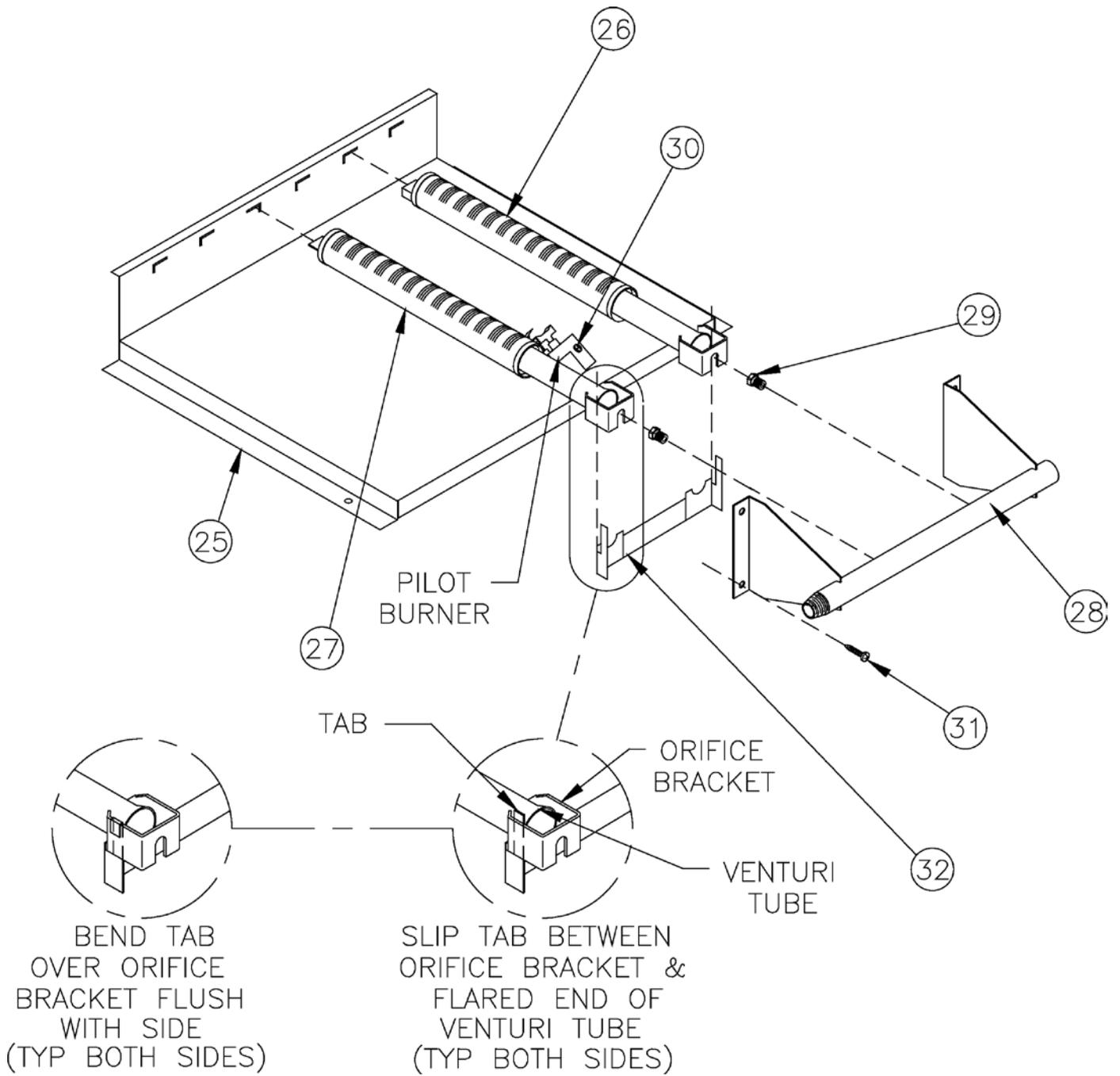


Key No.	Description	Part Number	CG-C MODEL									
			20	30	40	50	60	70	80	90	100	
<b>Burner Tray, Main Burners and Manifold (1 Inch Main Burners Only)</b>												
20	Burner Tray/Burner Tray Assembly	718600205	1	---	---	---	---	---	---	---	---	---
		100307-01	---	1	---	---	---	---	---	---	---	---
		718600405	---	---	1	---	---	---	---	---	---	---
		718600505	---	---	---	1	---	---	---	---	---	---
		718600605	---	---	---	---	1	---	---	---	---	---
		100307-02	---	---	---	---	---	1	---	---	---	---
		100307-03	---	---	---	---	---	---	1	---	---	---
		718600905	---	---	---	---	---	---	---	1	---	---
		100307-04	---	---	---	---	---	---	---	---	---	1
21	Main Burner w/Slotted Orifice Bracket	8236119	1	2	4	6	8	11	13	15	17	
22	Main Burner w/70° Pilot Bracket & Offset Lancings - Q350 Standing Pilot, Natural Gas	8236117	1	1	1	1	1	1	---	---	---	
	Main Burner w/60° Pilot Bracket - Q327 Standing Pilot, Natural Gas	8236118	---	---	---	---	---	---	1	1	1	
	Main Burner w/45° Pilot Brackets - Q350 Standing Pilot, LP Gas	8236120	1	1	1	---	---	---	---	---	---	
	Main Burner w/45° Pilot Bracket - Q327 Standing Pilot, LP Gas		---	---	---	1	1	1	1	1	1	
	Main Burner w/60° Pilot Bracket - EI, Natural & LP Gas	8236118	1	1	1	1	1	1	1	1	1	
23	Manifold	82219021	1	---	---	---	---	---	---	---	---	
		82219031	---	1	---	---	---	---	---	---	---	
		82219041	---	---	1	---	---	---	---	---	---	
		82219051	---	---	---	1	---	---	---	---	---	
		82219061	---	---	---	---	1	---	---	---	---	
		82219071	---	---	---	---	---	1	---	---	---	
		82219081	---	---	---	---	---	---	1	---	---	
		82219091	---	---	---	---	---	---	---	1	---	
	82219101	---	---	---	---	---	---	---	---	1		
<b>Burner Gas Orifice - Natural Gas, Sea Level to 2000 Ft.</b>												
24	Main Burner Orifice #45 (Pink)	822711	---	3	5	7	9	---	---	---	---	
	Main Burner Orifice #47 (White)	822710	2	---	---	---	---	12	14	16	18	
<b>Burner Gas Orifice - LP Gas, Sea Level to 2000 Ft.</b>												
24	Main Burner Orifice 1.25mm (Purple)	822705	2	---	5	7	9	---	---	---	---	
	Main Burner Orifice #55 (Green)	822708	---	3	---	---	---	---	---	---	---	
	Main Burner Orifice 3/64" (Blue)	822704	---	---	---	---	---	12	14	16	18	



**Manifold and Main Burners  
(1 Inch Main Burners)**

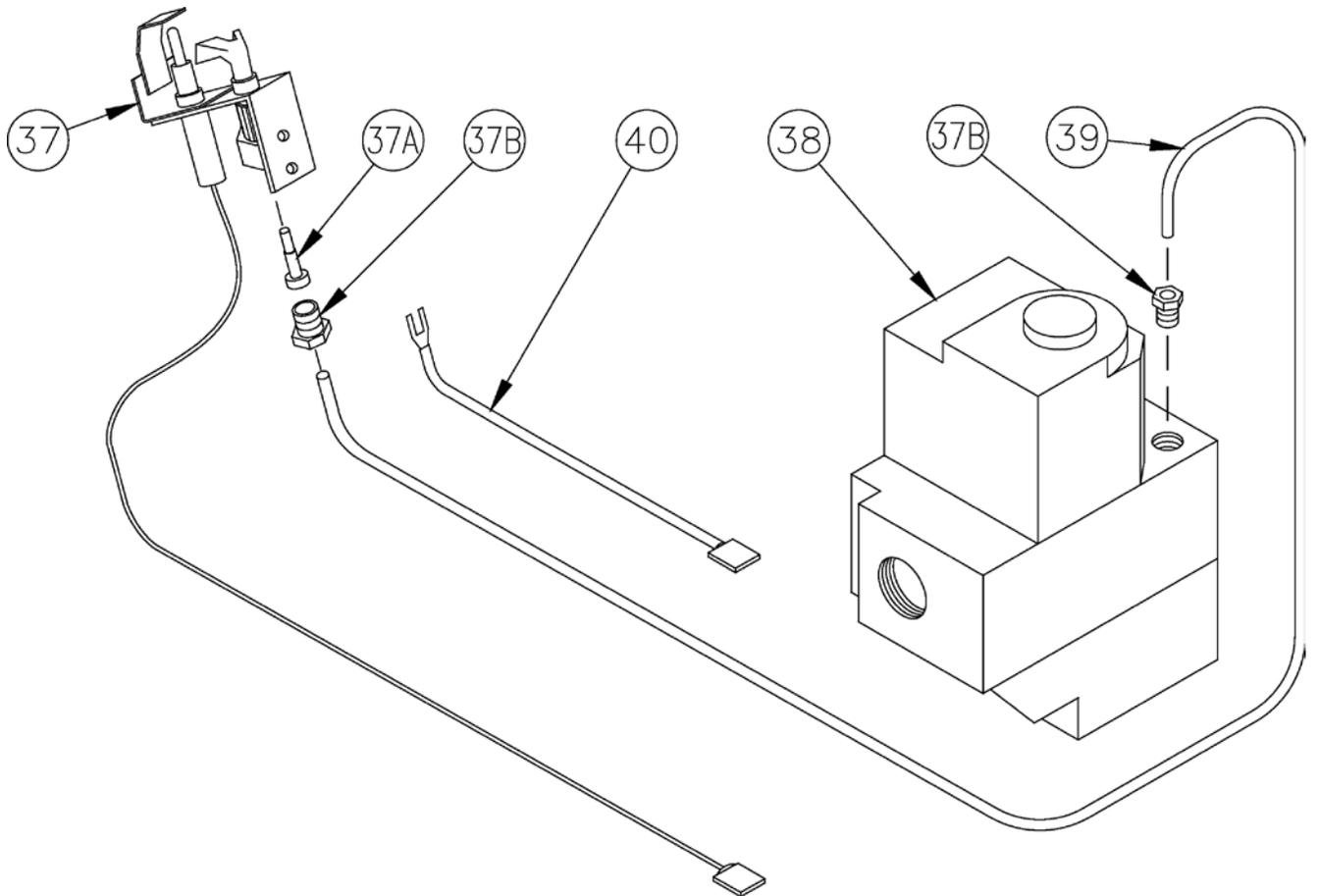
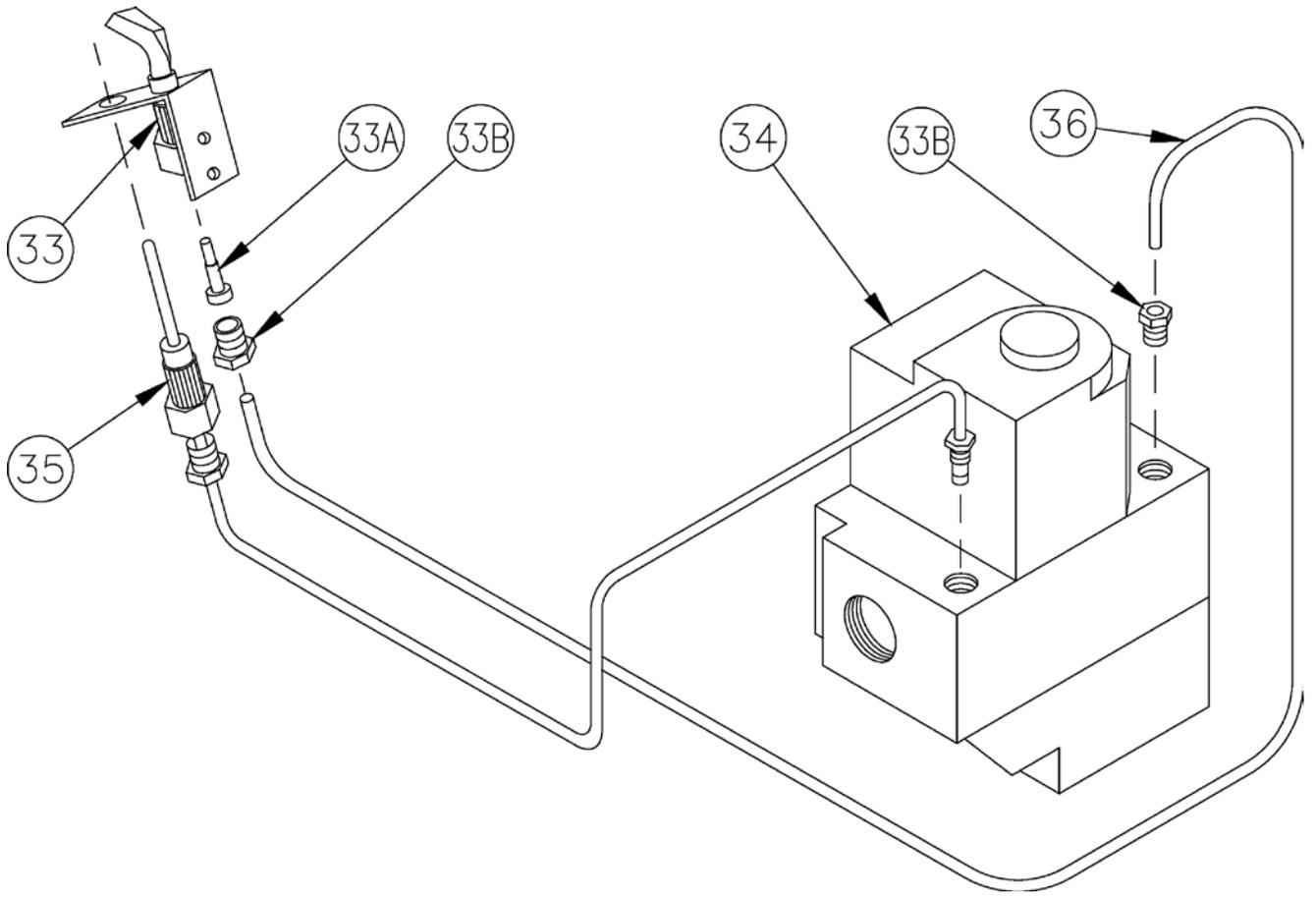
Key No.	Description	Part Number	CG-C MODEL									
			20	30	40	50	60	70	80	90	100	
<b>Burner Tray, Main Burners and Manifold (40mm Main Burners Only)</b>												
25	Burner Tray/Burner Tray Assembly	100308-01	---	1	---	---	---	---	---	---	---	---
		7186047	---	---	1	---	---	---	---	---	---	---
		7186057	---	---	---	1	---	---	---	---	---	---
		7186067	---	---	---	---	1	---	---	---	---	---
		7186077	---	---	---	---	---	1	---	---	---	---
		100308-02	---	---	---	---	---	---	1	---	---	---
		718600906	---	---	---	---	---	---	---	1	---	---
		100308-03	---	---	---	---	---	---	---	---	---	1
26	Main Burner	8236135	---	1	2	3	4	5	6	7	8	
<b>Intermittent Ignition (EI) Only</b>												
27	Main Burner w/41° Pilot Bracket	8236136	---	1	1	1	1	1	1	1	1	
<b>24V Continuous Ignition (Standing Pilot) Natural Gas Only</b>												
27	Main Burner w/48° Pilot Bracket	8236143	---	1	1	1	1	---	---	---	---	
	Main Burner w/41° Pilot Bracket	8236136	---	---	---	---	---	1	1	1	1	
<b>24V Continuous Ignition (Standing Pilot) LP Gas Only</b>												
27	Main Burner with 41° Pilot Bracket	8236136	---	1	1	1	1	1	1	1	1	
28	Manifold	82219032	---	1	---	---	---	---	---	---	---	
		82219042	---	---	1	---	---	---	---	---	---	
		82219052	---	---	---	1	---	---	---	---	---	
		82219062	---	---	---	---	1	---	---	---	---	
		82219072	---	---	---	---	---	1	---	---	---	
		82219082	---	---	---	---	---	---	1	---	---	
		82219092	---	---	---	---	---	---	---	1	---	
		82219102	---	---	---	---	---	---	---	---	1	
<b>Burner Gas Orifice - Natural Gas, 2000-5000 Ft. USA Only</b>												
29	Main Burner Orifice #39	822727	---	2	3	---	---	---	---	---	---	
	Main Burner Orifice #38	822720	---	---	---	4	5	6	7	8	9	
<b>Burner Gas Orifice - LP Gas, 2000-5000 Ft. USA Only</b>												
29	Main Burner Orifice #53	822722	---	2	3	4	5	6	7	8	9	
<b>Burner Gas Orifice, Natural Gas, 5000-9000 Ft. USA Only</b>												
29	Main Burner Orifice #41	822729	---	2	3	---	---	---	---	---	---	
	Main Burner Orifice #40	822728	---	---	---	4	5	6	7	8	9	
<b>Burner Gas Orifice, LP Gas, 5000-9000 Ft. USA Only</b>												
29	Main Burner Orifice #54	822734	---	2	---	---	---	---	---	---	---	
	Main Burner Orifice #53	822722	---	---	3	4	5	6	7	8	9	
30	MS, Phillips Head w/Captive Lockwasher, #10-32 x ¼"	80860874	---	2	2	2	2	2	2	2	2	
31	Self Tapping Screw, Phillips Pan Head, ¼-20 x ½"	80860700	---	4	4	4	4	4	4	4	4	
32	Injection Shield Assembly	71860 -- 62	---	A/R								
		<b>Footnotes to Injection Shield Assembly:</b> -- : Number of cast iron sections A/R: As Required										



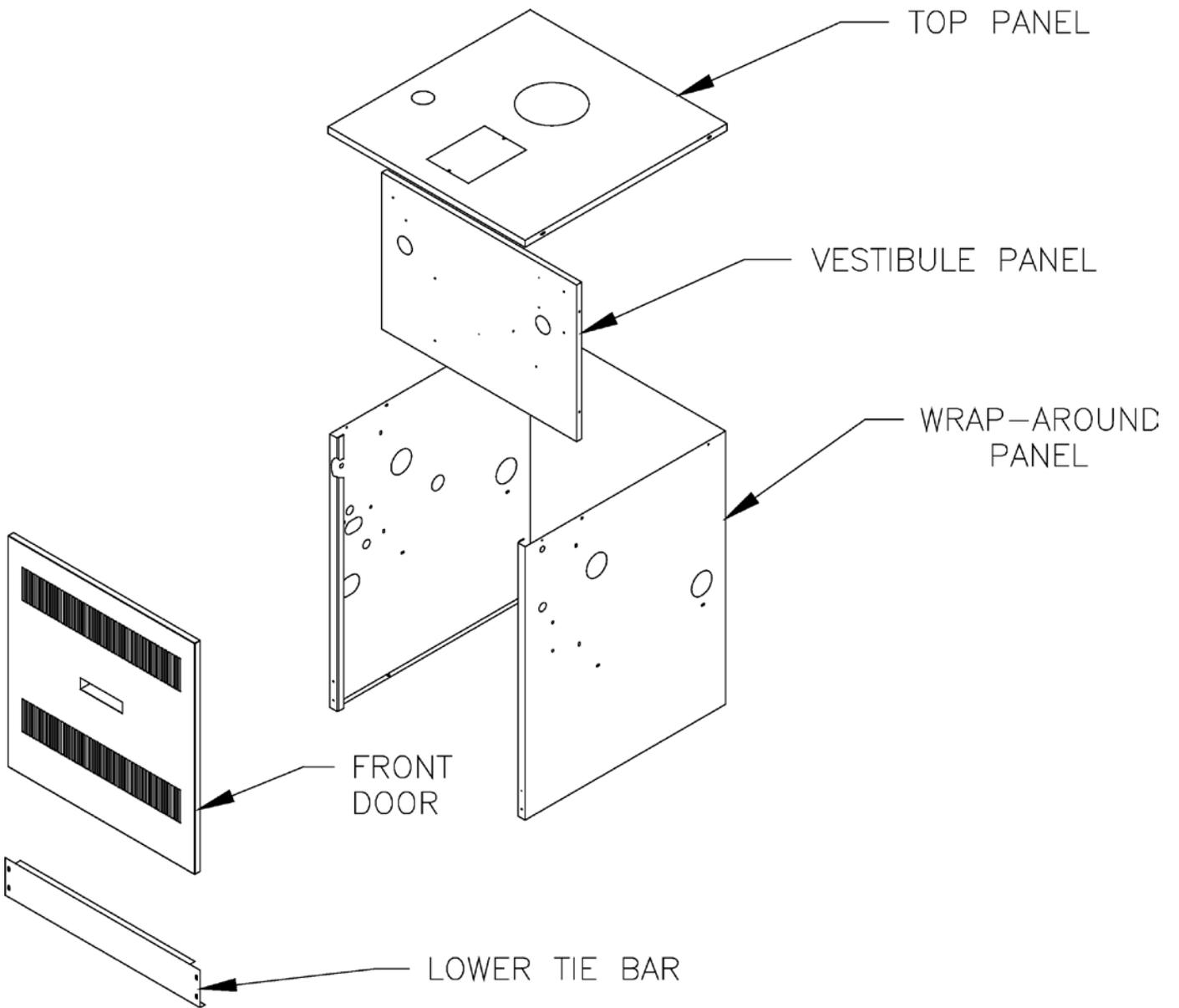
**Manifold and Main Burners  
 (40mm Main Burners)**

Key No.	Description	Part Number	CG-C MODEL								
			20	30	40	50	60	70	80	90	100
<b>Continuous Ignition (24V Standing Pilot) - 1 Inch and 40mm Main Burners - Pilot Burner and Gas Valve, Natural &amp; LP Gas</b>											
33	Pilot Burner, Honeywell Q350A1321 (Nat. Gas)	8236065	1	1	1	1	1	*1	---	---	---
	Pilot Burner, Honeywell Q327A1006 (Nat. Gas)	8236022	---	---	---	---	---	**1	1	1	1
	Pilot Burner, Honeywell Q350A1339 (LP)	8236066	1	---	---	---	---	---	---	---	---
	Pilot Burner, Honeywell Q327A1147 (LP)	8236023	---	1	1	1	1	1	1	1	1
33A	Pilot Orifice, NG, Honeywell 390686-22 (.012")	Included with Pilot Burner	1	1	1	1	1	---	---	---	---
	Pilot Orifice, NG, Honeywell 388146AG (.026")		---	---	---	---	---	1	1	1	1
	Pilot Orifice, LP, Honeywell 388146KR (.014")		1	1	1	1	1	---	---	---	---
	Pilot Orifice, LP, Honeywell 390686-23 (.008")		---	---	---	---	---	1	1	1	1
33B	Compression Fitting, 1/4" OD x 1/4" C.C.	Included with Pilot Burner	1	1	1	1	1	1	1	1	1
34	Gas Valve, Honeywell VR8200C3005 (Nat. Gas)	81660143	*1	*1	*1	*1	*1	---	---	---	---
	Gas Valve, Honeywell VR8300C4027 (Nat. Gas)	81660154	---	---	---	---	---	*1	*1	*1	*1
	Gas Valve, Honeywell VR8200C6065 (Nat. Gas)	100333-01	**1	**1	**1	**1	**1	---	---	---	---
	Gas Valve, Honeywell VR8300C4266 (Nat. Gas)	100334-01	---	---	---	---	---	**1	**1	**1	**1
	Gas Valve, Honeywell VR8200C3013 (LP)	81660144	1	1	1	1	1	---	---	---	---
	Gas Valve, Honeywell VR8300C4035 (LP)	81660163	---	---	---	---	---	1	1	1	1
35	Thermocouple, 30" Honeywell Q309A1988	8236024	1	1	1	1	1	1	---	---	---
	Thermocouple, 36" Honeywell Q309A1996	8236004	---	---	---	---	---	---	1	1	1
36	Pilot Tubing 1/4" OD x 30" Lg. Aluminum	8236122	1	1	1	1	---	---	---	---	---
	Pilot Tubing 1/4" OD x 40" Lg. Aluminum	8236123	---	---	---	---	1	1	---	---	---
	Pilot Tubing 1/4" OD x 48" Lg. Aluminum	8236042	---	---	---	---	---	---	1	1	1
<b>Footnote to Continuous Ignition (24V Standing Pilot):</b> *1 - 1 inch Burner Only **1 - 40mm Burner Only											

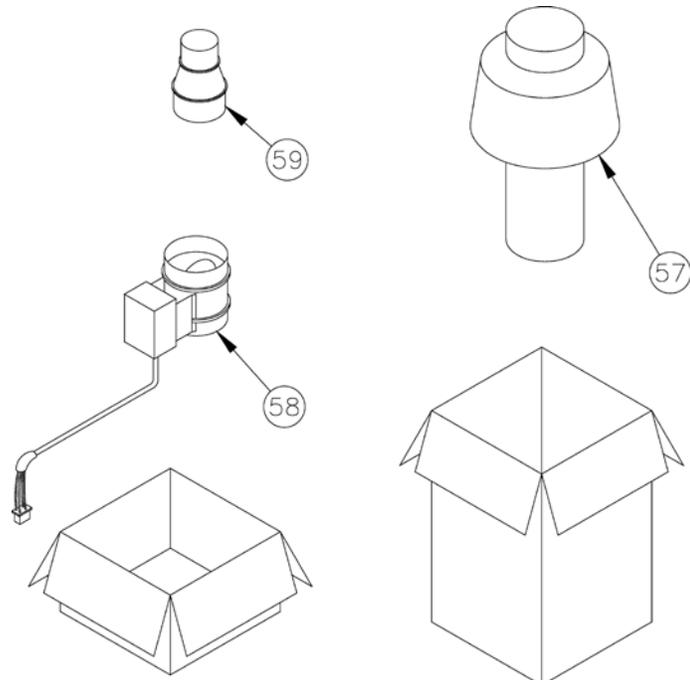
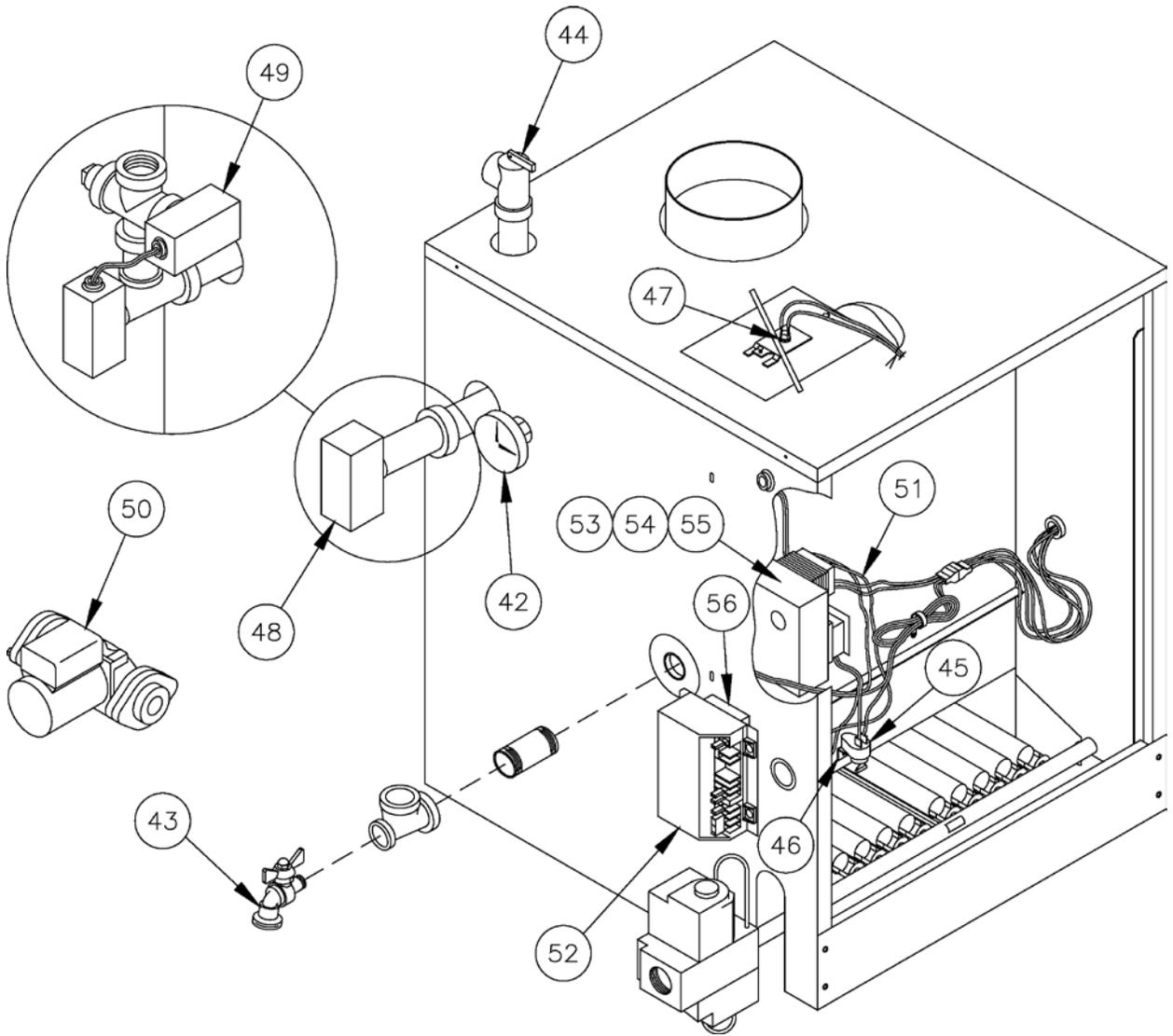
Key No.	Description	Part Number	CG-C MODEL								
			20	30	40	50	60	70	80	90	100
<b>Intermittent Ignition (EI) - 1 Inch and 40mm Main Burners - Pilot Burner and Gas Valve, Natural &amp; LP Gas</b>											
37	Pilot Burner, Honeywell Q3481B1172 (Nat. Gas)	100331-01	1	1	1	1	1	1	1	1	1
	Pilot Burner, Honeywell Q3481B1180 (LP)	100332-01	1	1	1	1	1	1	1	1	1
37A	Pilot Orifice, Honeywell 388146NE (Nat. Gas)	Included with Pilot Burner	1	1	1	1	1	1	1	1	1
	Pilot Orifice, Honeywell 388146KP (LP)		1	1	1	1	1	1	1	1	1
37B	Compression Fitting, 1/4" OD x 1/4" C.C.	Included w/ Pilot Burner & Gas Valve	2	2	2	2	2	2	2	2	2
38	Gas Valve, Honeywell VR8204C3007 (Nat. Gas)	81660145	1	1	1	1	1	---	---	---	---
	Gas Valve, Honeywell VR8304P4306 (Nat. Gas)	81660161	---	---	---	---	---	1	1	1	1
	Gas Valve, Honeywell VR8204C3015 (LP)	81660146	1	1	1	1	1	---	---	---	---
	Gas Valve, Honeywell VR8304P4314 (LP)	81660160	---	---	---	---	---	1	1	1	1
39	Pilot Tubing 1/4" OD x 30" Lg. Aluminum	8236122	1	1	1	1	---	---	---	---	---
	Pilot Tubing 1/4" OD x 40" Lg. Aluminum	8236123	---	---	---	---	1	1	---	---	---
	Pilot Tubing 1/4" OD x 48" Lg. Aluminum	8236042	---	---	---	---	---	---	1	1	1
40	Ground Wire Assembly, 36" Lg.	6136054	1	1	1	1	1	1	1	1	1



Key No.	Description	Part Number	CG-C MODEL									
			20	30	40	50	60	70	80	90	100	
<b>Jacket Assembly, Complete</b>												
41	Jacket Assembly, Complete	100294-01	1	---	---	---	---	---	---	---	---	---
		100294-02	---	1	---	---	---	---	---	---	---	---
		100294-03	---	---	1	---	---	---	---	---	---	---
		100294-04	---	---	---	1	---	---	---	---	---	---
		100294-05	---	---	---	---	1	---	---	---	---	---
		100294-06	---	---	---	---	---	1	---	---	---	---
		100294-07	---	---	---	---	---	---	1	---	---	---
		100294-08	---	---	---	---	---	---	---	1	---	---
		100294-09	---	---	---	---	---	---	---	---	---	1



Key No.	Description	Part Number	CG-C MODEL									
			20	30	40	50	60	70	80	90	100	
<b>Controls and Trim</b>												
42	Temperature / Pressure Gauge	100282-01	1	1	1	1	1	1	1	1	1	1
43	Drain Valve, Conbraco 35-302-03	806603061	1	1	1	1	1	1	1	1	1	1
44	Safety Relief Valve, 30 psi, 3/4 NPT Conbraco 10-408-05	81660319	1	1	1	1	1	1	1	1	1	1
45	Flame Rollout Switch	80160044	1	1	1	1	1	1	1	1	1	1
46	Flame Rollout Switch Mounting Bracket	7186018	*1	1	1	1	1	1	1	1	1	1
		<b>Footnote to Flame Rollout Switch Mounting Bracket:</b> *1 - 40mm Burner Only										
47	Blocked Vent Switch Replacement Assembly	6016066	1	1	1	1	1	1	1	1	1	1
48	External Limit, Honeywell L4080B	100335-01	1	1	1	1	1	1	1	1	1	1
49	Optional External Limit, Honeywell L4080B	80160736	1	1	1	1	1	1	1	1	1	1
50	Circulator w/Gaskets and Hardware, Taco 007	8056182	1	1	1	1	1	1	1	1	1	1
51	24V/EI Vestibule Harness	8131706	1	1	1	1	1	---	---	---	---	---
		8131707	---	---	---	---	---	1	1	1	1	1
52	Ignition Module, Honeywell S8610M3009	100958-01	1	1	1	1	1	1	1	1	1	1
53	J-Box 4" x 4" x 1-1/2"	8136259	1	1	1	1	1	1	1	1	1	1
54	Transformer/Relay, Honeywell R8285D5001, 50VA	80160155U	1	1	1	1	1	1	1	1	1	1
55	Replacement Relay, Honeywell R8222U1006	80160096U	1	1	1	1	1	1	1	1	1	1
56	Ignition Module Support Bracket	7016001	1	1	1	1	1	1	1	1	1	1
<b>Draft Hood, Vent Reducer and Vent Damper (Natural or LP/Propane Gas)</b>												
57	Draft Hood	8116067	1	1	---	---	---	---	---	---	---	---
		8111702	---	---	1	---	---	---	---	---	---	---
		8111703	---	---	---	1	1	---	---	---	---	---
		8111704	---	---	---	---	---	1	1	---	---	---
		8111705	---	---	---	---	---	---	---	---	1	1
58	Vent Damper - 4" Dia.	8116321	1	1	---	---	---	---	---	---	---	---
	Vent Damper - 5" Dia.	8116322	---	---	1	---	---	---	---	---	---	---
	Vent Damper - 6" Dia.	8116323	---	---	---	1	1	---	---	---	---	---
	Vent Damper - 7" Dia.	8116324	---	---	---	---	---	1	1	---	---	---
	Vent Damper - 8" Dia.	8116325	---	---	---	---	---	---	---	---	1	1
59	Vent Reducer, 4" x 3"	8116164	1	---	---	---	---	---	---	---	---	---



VENT DAMPER CARTON

DRAFT HOOD CARTON







## 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

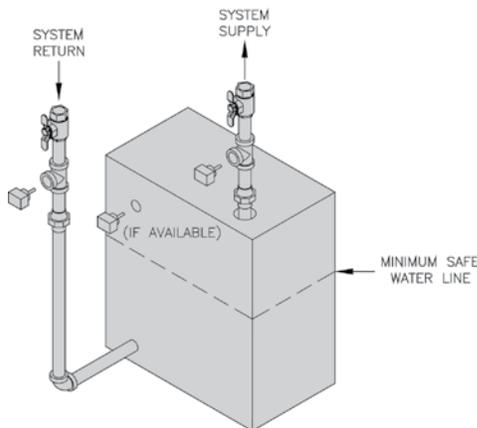
The universal location for a LWCO on both gas and oil hot water boilers is above the boiler, in either the supply or return piping. The minimum safe water level of a water boiler is at the uppermost top of the boiler; that is, it must be full of water to operate safely.

#### 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

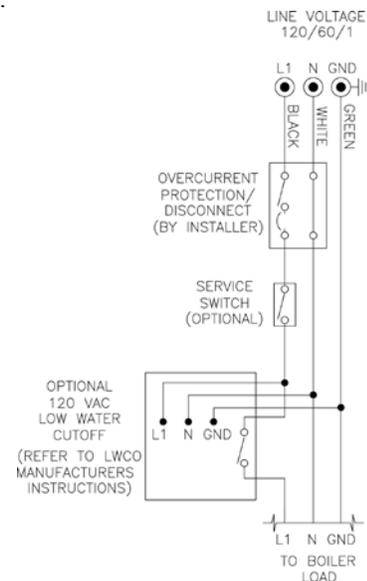
draining the heating system. Many probe LWCO manufacturers recommend an annual inspection of the probe.

#### 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.

# 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-APT™, microTEK3™, microTEKDV™, CLW™, CG-AT™, 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

- 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.
- 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.
- 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.
- 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:

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

