

INSTALLATION, OPERATING AND SERVICE INSTRUCTIONS "CLW" SERIES CAST IRON OIL-FIRED 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 CLW - _ - _	Boiler Serial Number 6 _ _ _ _ _	Installation Date
Heating Contractor		Phone Number
Address		



New Yorker[®]

RESIDENTIAL HEATING BOILERS

IMPORTANT INFORMATION - PLEASE READ THIS PAGE CAREFULLY

1. THIS BOILER HAS LIMITED WARRANTIES, COPIES OF WHICH ARE PRINTED ON THE BACK COVER OF THIS MANUAL.
2. THIS BOILER IS SUITABLE FOR INSTALLATION ON COMBUSTIBLE FLOORING. BOILER CANNOT BE INSTALLED ON CARPETING.
3. ALL BOILERS MUST BE INSTALLED IN ACCORDANCE WITH NATIONAL, STATE AND LOCAL PLUMBING, HEATING AND ELECTRICAL CODES AND THE REGULATIONS OF THE SERVING UTILITIES WHICH MAY DIFFER FROM THIS MANUAL. AUTHORITIES HAVING JURISDICTION SHOULD BE CONSULTED BEFORE INSTALLATIONS ARE MADE.
IN ALL CASES, REFERENCE SHOULD BE MADE TO THE FOLLOWING STANDARDS:
 - A. Current Edition of American National Standard ANSI/NFPA 31, "Installation of Oil Burning Equipment", for clearances between boiler, vent connector and combustible material.
 - B. Current Edition of American National Standard ANSI/NFPA 211, "Chimneys, Fireplaces, Vents, and Solid Fuel Burning Appliances", For Chimney requirements, type of venting material and clearances between vent connector pipe and combustible materials.
 - C. Current Edition of American Society of Mechanical Engineers ASME CSD-1, "Controls and Safety Devices for Automatically Fired Boilers", for assembly and operations of controls and safety devices.
4. ALL HEATING SYSTEMS SHOULD BE DESIGNED BY COMPETENT CONTRACTORS AND ONLY PERSONS KNOWLEDGEABLE IN THE LAYOUT AND INSTALLATION OF HYDRONIC HEATING SYSTEMS SHOULD ATTEMPT INSTALLATION OF ANY BOILER.
5. THE BOILER MUST BE CONNECTED TO AN APPROVED CHIMNEY IN GOOD CONDITION. SERIOUS PROPERTY DAMAGE COULD RESULT IF THE BOILER IS CONNECTED TO A DIRTY OR INADEQUATE CHIMNEY. THE INTERIOR OF THE CHIMNEY FLUE MUST BE INSPECTED AND CLEANED BEFORE THE START OF THE HEATING SEASON AND SHOULD BE INSPECTED PERIODICALLY THROUGHOUT THE HEATING SEASON FOR ANY OBSTRUCTIONS. A CLEAN AND UNOBSTRUCTED CHIMNEY FLUE IS NECESSARY TO ALLOW NOXIOUS FUMES THAT COULD CAUSE INJURY OR LOSS OF LIFE TO VENT SAFELY AND WILL CONTRIBUTE TOWARD MAINTAINING THE BOILER'S EFFICIENCY.
6. READ THE LITERATURE ENCLOSED BY THE MANUFACTURER WITH THE VARIOUS ACCESSORY DEVICES. THESE ACCESSORY DEVICES MUST BE INSTALLED AND USED ACCORDING TO THE RECOMMENDATIONS OF THE MANUFACTURER.
7. IT IS THE RESPONSIBILITY OF THE INSTALLING CONTRACTOR TO SEE THAT ALL CONTROLS ARE CORRECTLY INSTALLED AND ARE OPERATING PROPERLY WHEN THE INSTALLATION IS COMPLETED.
8. FOR OPTIMUM PERFORMANCE AND SERVICEABILITY FROM THIS BOILER ADHERE TO THE FOLLOWING RECOMMENDATIONS:
 - A. DO NOT TAMPER WITH THE BOILER OR CONTROLS. Retain your contractor or a competent serviceman to assure that the boiler is properly adjusted and maintained.
 - B. Have flueways cleaned at least once a year - preferably at the end of the heating season to remove soot and scale. Inside of firebox should also be cleaned at the same time.
 - C. Have oil burner and controls checked at least once a year or as may be necessitated.

WARNING

THIS BOILER IS DESIGNED TO BURN NO. 2 FUEL OIL ONLY. DO NOT USE GASOLINE, CRANKCASE DRAININGS, OR ANY OIL CONTAINING GASOLINE. NEVER BURN GARBAGE OR PAPER IN THIS BOILER. DO NOT CONVERT TO ANY SOLID FUEL (I.E. WOOD, COAL) OR GASEOUS FUEL (I.E. NATURAL GAS, LP/PROPANE). ALL FLAMMABLE DEBRIS, RAGS, PAPER, WOOD SCRAPS, ETC., SHOULD BE KEPT CLEAR OF THE BOILER AT ALL TIMES. KEEP THE BOILER AREA CLEAN AND FREE OF FIRE HAZARDS. All boilers equipped with burner swing door have a potential hazard which can cause severe property damage, personal injury or loss of life if ignored. Before opening swing door, turn off service switch to boiler and disconnect two halves of Burner Swing Door Interlock wiring harness to prevent accidental firing of burner outside the combustion chamber. Be sure to tighten swing door fastener completely and reconnect two halves of Burner Swing Door Interlock when service is completed.

WARNING

High water temperatures increase the risk of burns or scalding injury. Install an automatic tempering (mixing) valve at the tankless heater outlet to avoid excessively hot water at the fixtures.

IMPORTANT

Before starting to install this oil boiler, read these instructions carefully. Keep instructions in legible condition and posted near oil boiler for reference by owner and service technician.

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SECTION I: GENERAL INFORMATION

- A. INSPECT SHIPMENT** carefully for any signs of damage.
1. ALL EQUIPMENT is carefully manufactured, inspected and packed. Our responsibility ceases upon delivery of crated boiler to the carrier in good condition.
 2. ANY CLAIMS for damage or shortage in shipment must be filed immediately against the carrier by the consignee. No claims for variances from, or shortage in orders, will be allowed by the manufacturer unless presented within sixty (60) days after receipt of goods.
- B. LOCATE BOILER** in front of final position before removing crate. See Figures 1A and 1B.
1. LOCATE so that smoke pipe connection to chimney will be short and direct. **BOILER IS SUITABLE FOR INSTALLATION ON COMBUSTIBLE FLOOR.** Boiler cannot be installed on carpeting.
 2. FOR BASEMENT INSTALLATION, provide a solid base, such as concrete, if floor is not level, or if water may be encountered on floor around boiler.
 3. PROVIDE SERVICE CLEARANCE of at least 24” on right side of boiler for cleaning flueways and for removal of rear tankless heater. Provide at least 24” clearance from front jacket panel for servicing.
 4. For minimum clearances to combustible materials. See Figure 2.
- C. PROVIDE AIR SUPPLY AND VENTILATION** to accommodate proper combustion. If natural ventilation is inadequate, provide a screened opening or duct from the boiler room to the outside. The opening or duct must be sized so the boiler input will not exceed 4,000 BTUH/Sq. In. of free area. If other air consuming appliances are near the boiler, the air inlet should be larger. Consult respective manufacturers.

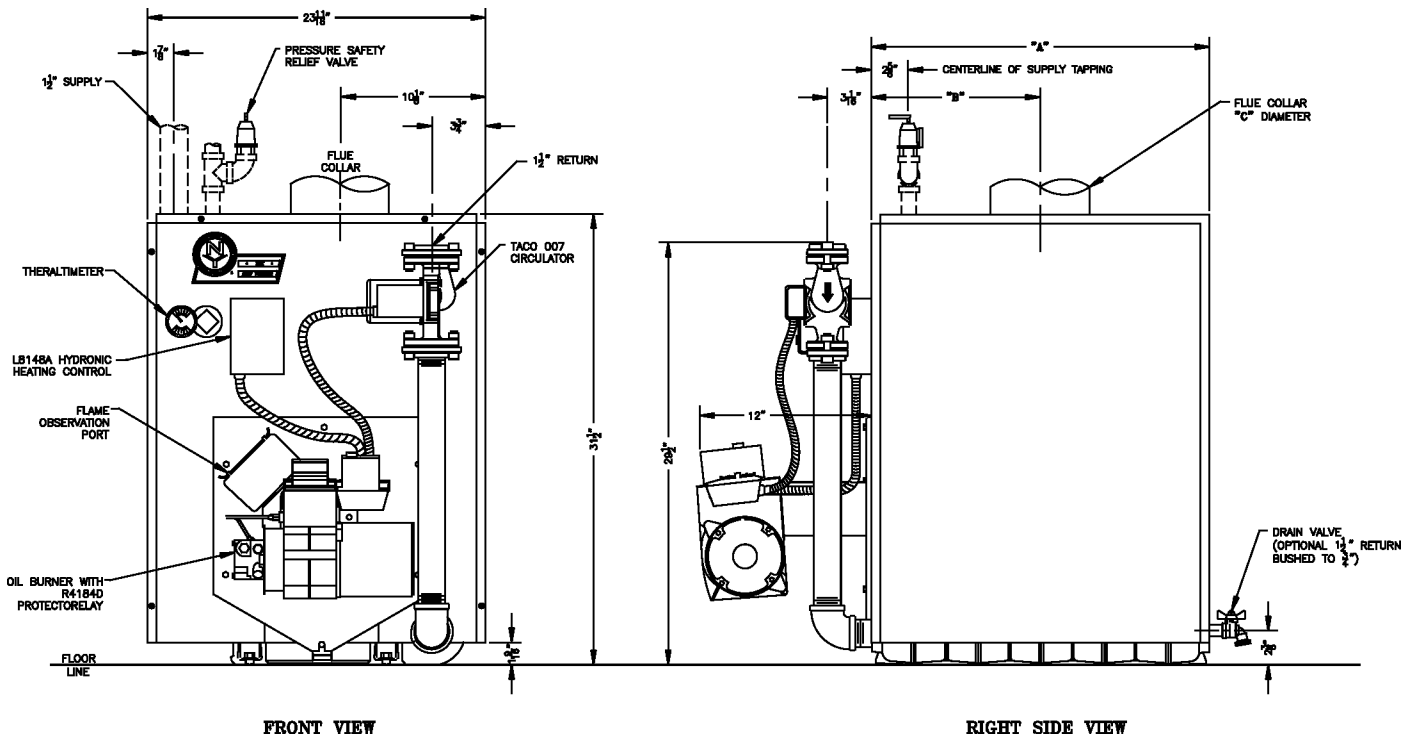


Figure 1A: CLW Series "P" Less Tankless Heater

TABLE 1: DIMENSIONAL DATA (See Figures 1A and 1B)

Boiler Model	Dimensions			Minimum Chimney Size		Water Content - Gallons
	"A"	"B"	"C"	Rectangular	Round	
CLW-3	15-7/8"	7-1/4"	6"	8" x 8" x 15'	6" x 15'	13.5
CLW-4	19-7/8"	9-1/4"	6"	8" x 8" x 15'	7" x 15'	15.9
CLW-5	23-7/8"	11-1/4"	7"	8" x 8" x 15'	7" x 15'	18.3
CLW-6	27-7/8"	13-1/4"	7"	8" x 8" x 15'	8" x 15'	20.7

Maximum Working Pressure - 30 PSI (Water Only)

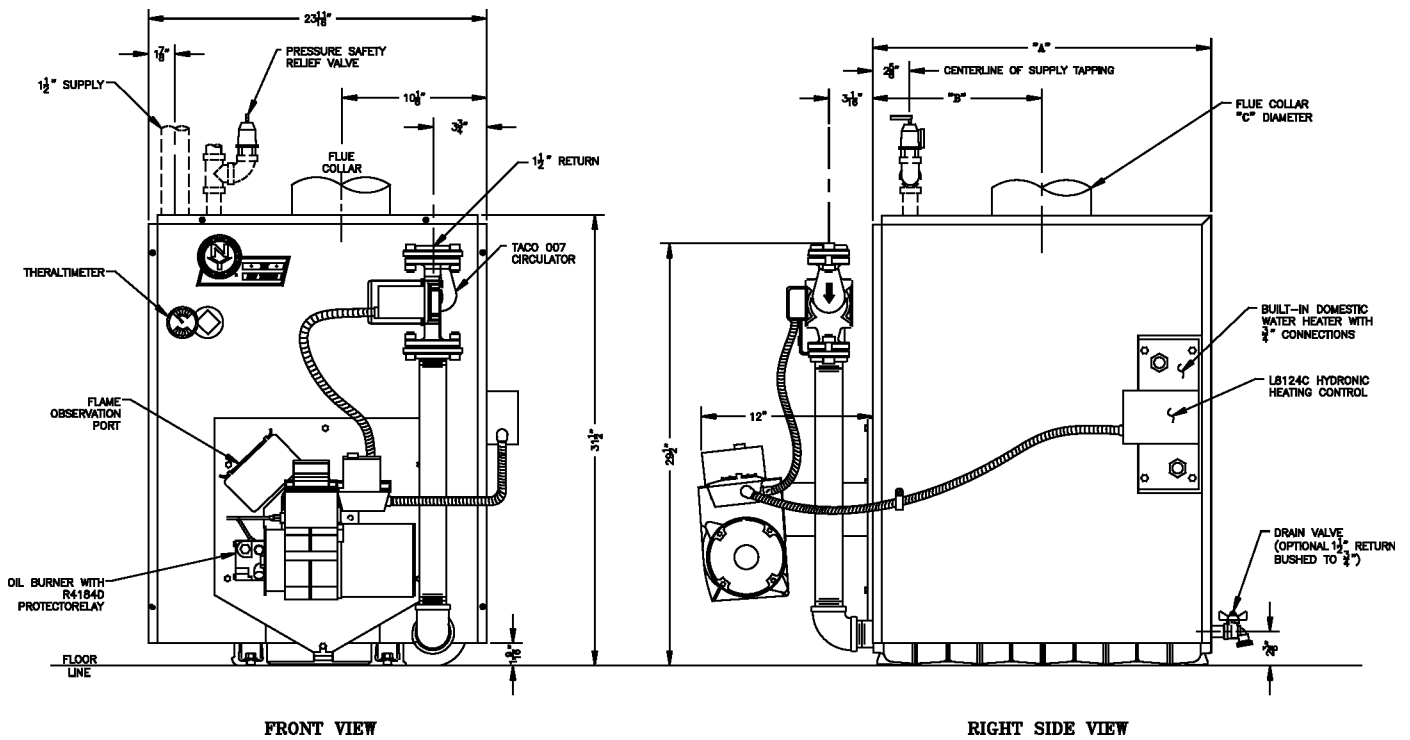


Figure 1B: CLW Series "PT" With Tankless Heater

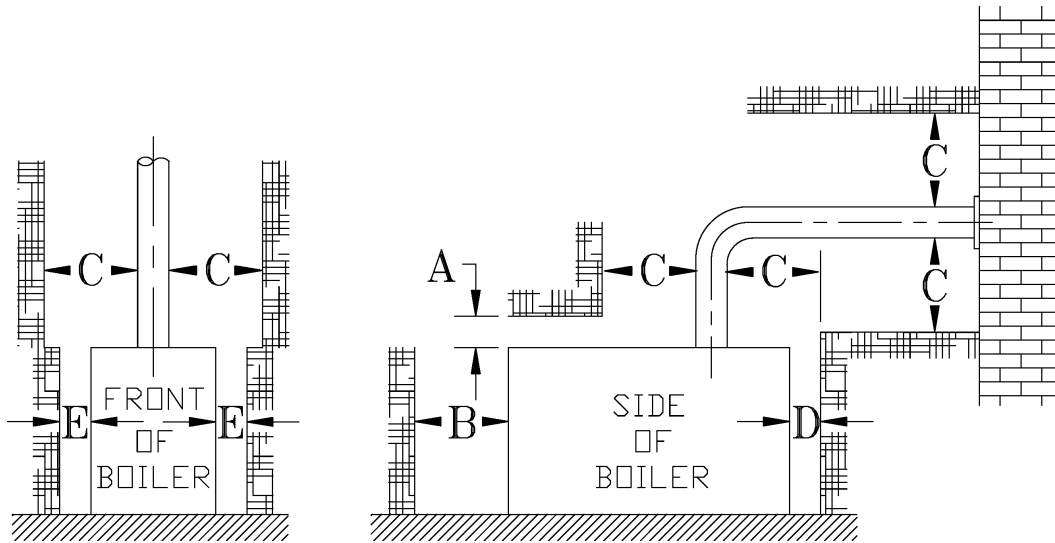


Figure 2: Minimum Installation Clearances To Combustible Materials (Inches)

NOTE 1: Listed clearances comply with American National Standard NFPA 31, Standard for the Installation of Oil Burning Equipment.

NOTE 2: CLW Series boilers can be installed in rooms with clearances from combustible material as listed above. Listed clearances cannot be reduced for alcove or closet installations.

NOTE 3: For reduced clearances to combustible material, protection must be provided as described in the above ANSI/NFPA 31 standard.

A	B	C	D	E
Above	Front	Chimney Connector	Rear	Sides
6	24	18	6	6

SECTION II: INSTALLATION INSTRUCTIONS

A. REMOVE CRATE

1. Remove all fasteners at crate skid.
2. Lift outside container and remove all other inside protective spacers and bracing. Remove miscellaneous trim carton containing relief valve, circulator and fittings, drain valve and pipe fittings.

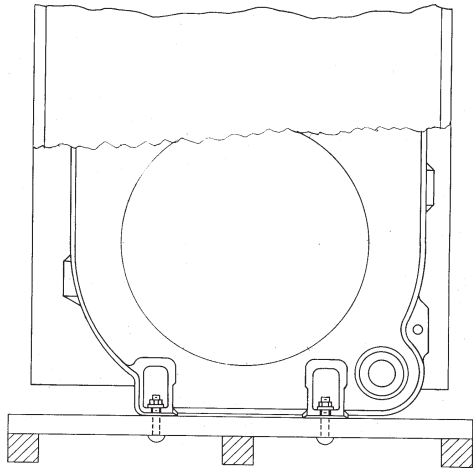


Figure 3: Removal of Boiler From Skid

B. REMOVAL OF BOILER FROM SKID

1. Boiler is secured to base with 4 carriage bolts, 2 on left side and 2 on right side. See Figure 3. Remove all bolts.
2. Tilt boiler to right and to rear. Using right rear leg as pivot, rotate boiler 90° in a clockwise direction, and lower left side of boiler to floor. Tilt boiler and remove crate skid. Care should be exercised to prevent damage to jacket or burner.

C. MOVE BOILER TO PERMANENT POSITION by sliding or walking.

D. INSPECT COMBUSTION TARGET WALL AND COMBUSTION CHAMBER LINER

1. OPEN FLAME OBSERVATION DOOR AND/OR BURNER SWING DOOR on front of boiler. Use flashlight to inspect target wall secured to rear section with silastic sealant. Inspect ceramic fiber blanket secured to floor of boiler with water glass adhesive. If either is damaged they must be replaced.

E. CONNECT SUPPLY AND RETURN PIPING TO HEATING SYSTEM.

1. CLEARANCES — Hot water pipes shall have clearances of at least ½" from all combustible construction.
 - a. For Forced Circulation HOT WATER HEATING. See Figure 4. Consult I=B=R Installation and Piping Guide No. 200.
 - b. Screw drain valve into 1½" tapping in rear section using 1½" x ¾" bushing.
 - c. Install relief valve and fittings in top of front

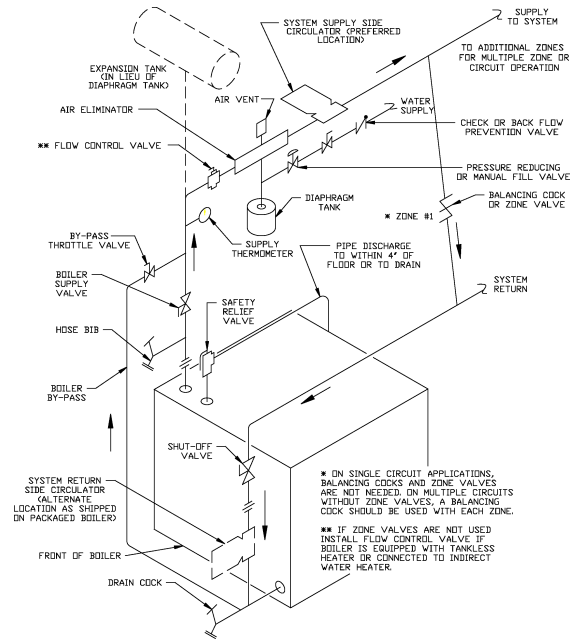


Figure 4: Recommended Boiler Piping For Series Loop Hot Water System

section, see Figures 1A or 1B.

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

Install a pipe tee between the circulator and boiler return along with a second tee in the supply piping as shown in Figure 4. The bypass should be the same size as the supply and return lines. Locate valves in the bypass and supply outlet as illustrated in Figure 4 for regulation of water flow to maintain higher boiler water temperature.

Set the by-pass and boiler supply valves to a half throttle position to start. Operate boiler until the system water temperature is a normal operating range.

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

- e. If this boiler is connected to heating coils located in air handling units where they may be exposed to refrigerated air the boiler piping must be equipped with flow control valves to prevent gravity circulation of boiler water during the operation of the cooling system.
- f. If this boiler is used in connection with

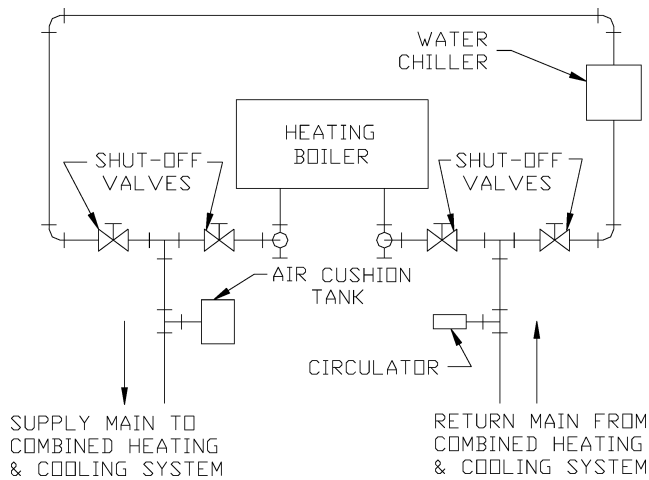


Figure 5: Recommended Piping for Combination Heating & Cooling (Refrigeration) Systems Water Boilers

refrigeration systems, the boiler must be installed so that the chilled medium is piped in parallel with the heating boiler using appropriate valves to prevent the chilled medium from entering the boiler, see Figure 5. Also consult I=B=R Installation and Piping Guides.

- g. A hot water boiler installed above radiation level must be provided with a low water cutoff device as part of the installation.

CAUTION

Oxygen contamination of the boiler water will cause corrosion of iron and steel boiler components, and can lead to boiler failure. New Yorker's standard warranty does not cover problems caused by oxygen contamination of boiler water.

There are many possible causes of oxygen contamination such as:

- a. Addition of excessive make-up water as a result of system leaks.
- b. Absorption through open tanks and fittings.
- c. Oxygen permeable materials in the distribution system.

In order to insure long product life, oxygen sources should be eliminated. This can be accomplished by taking the following measures:

- a. Repairing system leaks to eliminate the need for addition of make-up water.
- b. Eliminating open tanks from the system.
- c. Eliminating and/or repairing fittings which allow oxygen absorption.
- d. Use of non-permeable materials in the distribution system.
- e. Isolating the boiler from the system water by

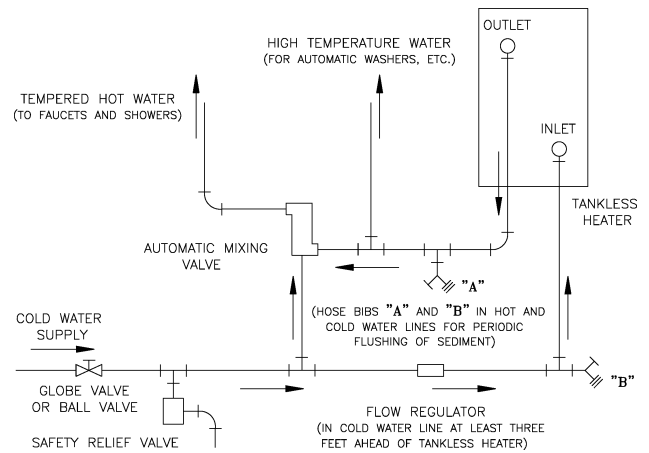


Figure 6: Schematic Tankless Heater Piping

installing a heat exchanger.

- F. CONNECT TANKLESS HEATER PIPING AS SHOWN IN Figure 6. See Table 2 for Tankless Heater

TABLE 2: TANKLESS HEATER DATA

Boiler Model	Rating (GPM)	Pressure Drop (PSI)
CLW-3	3	4.7
CLW-4	3¼	5.6
CLW-5	3½	6.4
CLW-6	3¾	7.2

Ratings.

THE FOLLOWING GUIDELINES SHOULD BE FOLLOWED WHEN PIPING THE TANKLESS HEATER:

1. FLOW REGULATION — If flow through the heater is greater than its rating, the supply of adequate hot water may not be able to keep up with the demand. For this reason a flow regulator matching the heater rating should be installed in the cold water line to the heater. The flow regulator should preferably be located below the inlet to the heater and a minimum of 3' away from the inlet so that the regulator is not subjected to excess temperatures that may occur during "off" periods when it is possible for heat to be conducted back through the supply line. The flow regulator also limits the flow of supply water regardless of inlet pressure variations in the range of 20 to 125 psi.
2. TEMPERING OF HOT WATER — Installation of an automatic mixing valve will lengthen the delivery of the available hot water by mixing some cold water with the hot. This prevents excessive and possibly scalding hot water at the fixtures. In addition, savings of hot water will be achieved since the user will not waste as much hot water while seeking water temperature to his liking. Higher temperature hot water required by dishwashers and automatic washers is possible by piping the hot water from the

heater prior to entering the mixing valve. The mixing valve should be “trapped” by installing it below the cold water inlet to heater to prevent lime formation in the valve.

WARNING

Install automatic mixing valve at tankless heater outlet to avoid risk of burns or scalding due to excessively hot water at fixtures. Adjust and maintain the mixing valve in accordance with the manufacturer's instructions.

3. **FLUSHING OF HEATER** — All water contains some sediment which settles on the inside of the coil. Consequently, the heater should be periodically backwashed. This is accomplished by installing hose bibs as illustrated and allowing water at city pressure to run into hose bib A, through the heater, and out hose bib B until the discharge is clear. The tees in which the hose bibs are located should be the same size as heater connections to minimize pressure drop.
4. **HARD WATER** — A water analysis is necessary to determine the hardness of your potable water. This is applicable to some city water and particularly to well water. An appropriate water softener should be installed based on the analysis and dealer's recommendation. This is not only beneficial to the tankless heater but to piping and fixtures plus the many other benefits derived from soft water.

G. INSTALL SMOKEPIPE — The CLW should be vented into a fireclay tile-lined masonry chimney or chimney constructed from type L vent or a factory built chimney that complies with the type HT requirements of UL103. The chimney and vent pipe shall have a sufficient draft at all times, to assure safe proper operation of the boiler. See Figure 7 for recommended installation.

1. Install a draft regulator (supplied with boiler) following the instructions furnished with the regulator. See Figure 8 for draft regulator locations.
2. Consider the chimney overall. Chimneys that have a high heat loss may become less suitable as the heat loss of the home goes down and the efficiency of the boiler installed goes up. Most homes have a chimney appropriate for the fuel and the era in which the home was built. That may have been a coal fired or an inefficient oil fired boiler built into a home without insulation or storm windows. With increasing fuel prices that home probably has been insulated and fitted with storm windows so that the heat loss of the home has been reduced. This requires less fuel to be burned and sends less heat up the chimney.

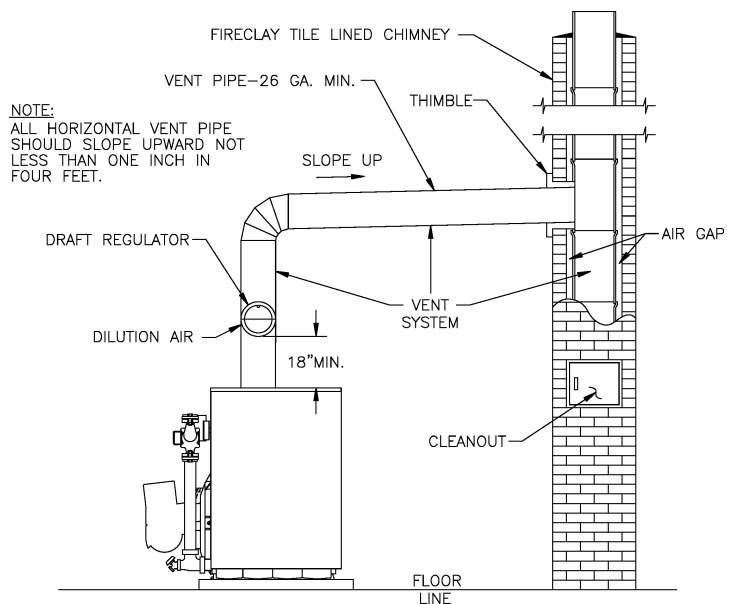


Figure 7: Recommended Smokepipe Arrangement and Chimney Requirements

A new boiler probably has a higher efficiency than the boiler being replaced. That probably means that the stack temperature from the new boiler will be lower than that from the old boiler and with less room air being drawn up the chimney to dilute the stack gases. The combination of a large uninsulated chimney, reduced firing rate, reduced firing time, lower stack temperature and less dilution air can, in some cases, contribute to the condensing of small amounts of water vapor in the chimney. Such condensation, when it occurs, can cause chimney deterioration. In extreme cases, condensed water may be visible on the outside of the breeching or chimney. In those extreme cases, the chimney may have to be lined to insulate the chimney and thus prevent the condensation. The addition of dilution air into the chimney may assist in drying the chimney interior surfaces.

A massive chimney on a cold, or exposed outside wall may have produced adequate draft when it was fired with a higher input and greater volumes of heated gases. With reduced input and volume, the draft may be severely affected. In one instance research showed a new chimney of adequate sizing produced only $-.035''$ W.C. after 30 minutes of continuous firing at $13.0\% \text{ CO}_2$. Outside wall chimneys take longer to heat up and can have $.00''$ W.C. draft at burner startup. You may have to consider a special alloy chimney flue liner with insulation around it and a stabilizing draft cap or even a draft inducing fan in severe cases.

3. For the same reasons as in 2. above, heat extractors mounted into the breeching are not recommended.

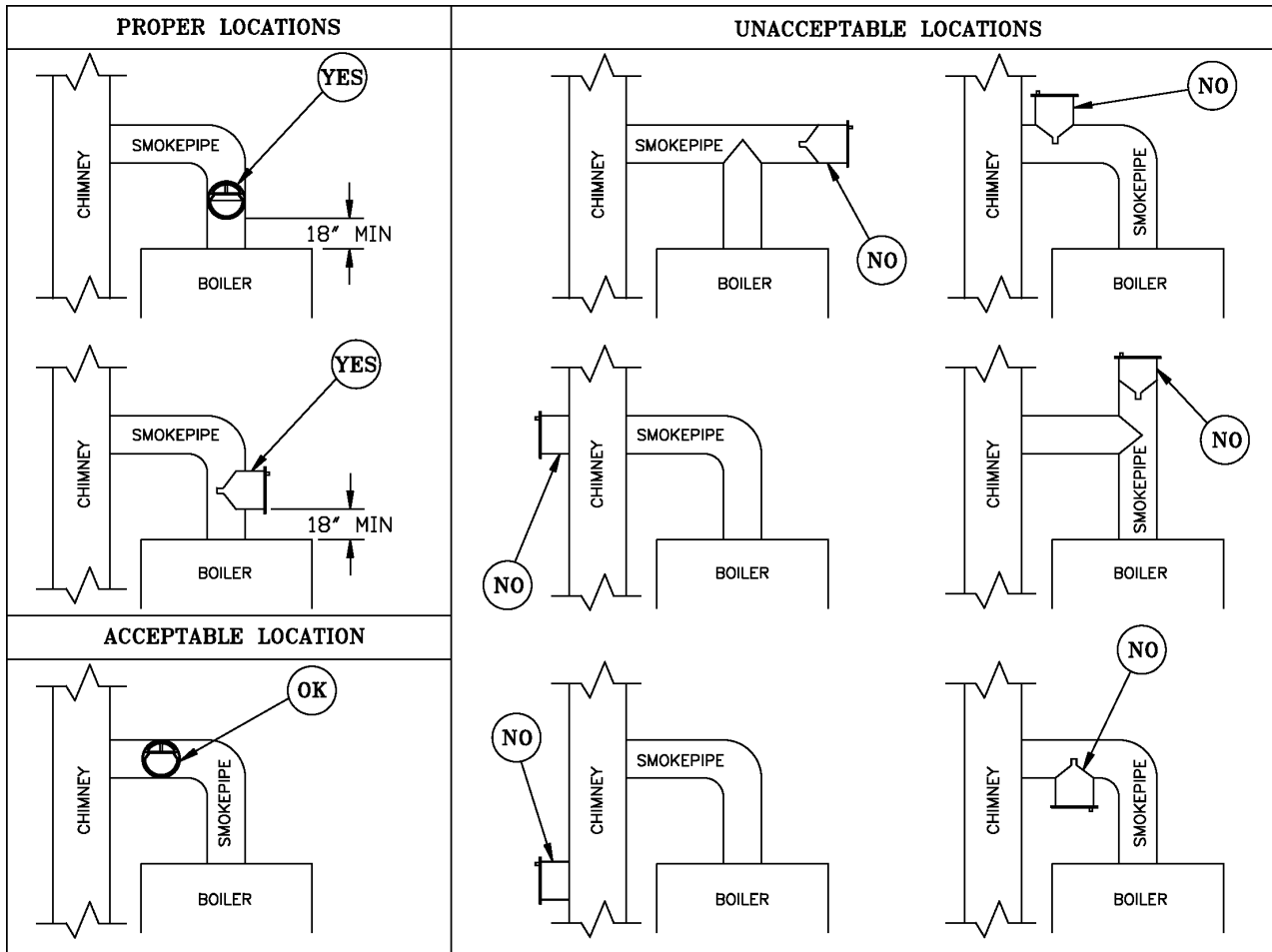


Figure 8: Proper and Improper Locations of Draft Regulator

H. INSTALL ELECTRIC WIRING in accordance with National Electrical Code and local regulations. A separate ELECTRICAL CIRCUIT should be run from meter with a Fused Disconnect Switch in the Circuit. Wiring should conform to Figures 11 and 12.

I. FUEL UNITS AND OIL LINES

SINGLE-PIPE OIL LINES - Standard burners are provided with single-stage 3450 rpm fuel units with the by-pass plug removed for single-pipe installations. The single-stage fuel unit may be installed single-pipe with gravity feed or lift. Maximum allowable lift is 8 feet. See Figure 9.

TWO-PIPE OIL LINES - For two-pipe systems where more lift is required, the two-stage fuel unit is recommended. Table 3 (single-stage) and Table 4 (two-stage) show allowable lift and lengths of 3/8-inch and 1/2-inch OD tubing for both suction and return lines. Refer to Figure 10.

Be sure that all oil line connections are absolutely airtight. Check all connections and joints. Flared fittings are recommended. Do not use compression fittings.

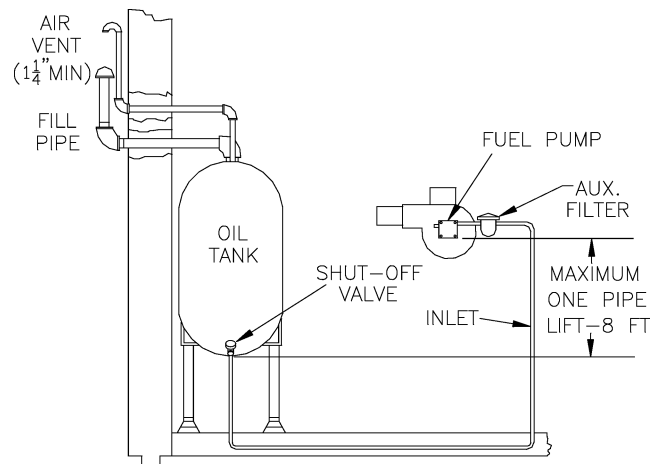


Figure 9

IMPORTANT

Single-pipe installations must be absolutely airtight or leaks or loss of prime may result. Bleed line and fuel unit completely.

Open the air-bleed valve and start the burner. For clean bleed, slip a 3/16" ID hose over the end of the bleed valve and bleed into a container. Continue to bleed for 15 seconds after oil is free of air bubbles. Stop burner and close valve.

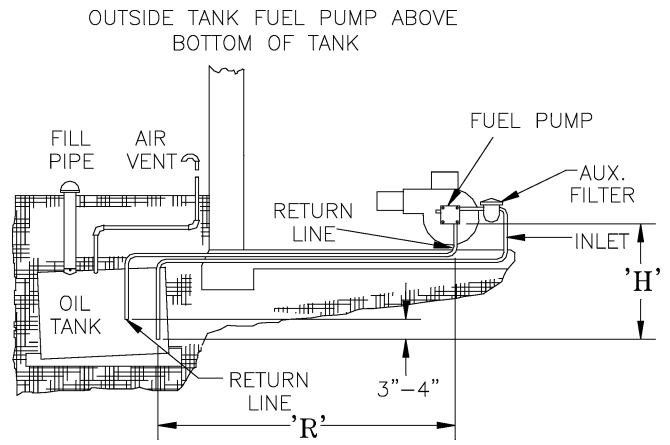
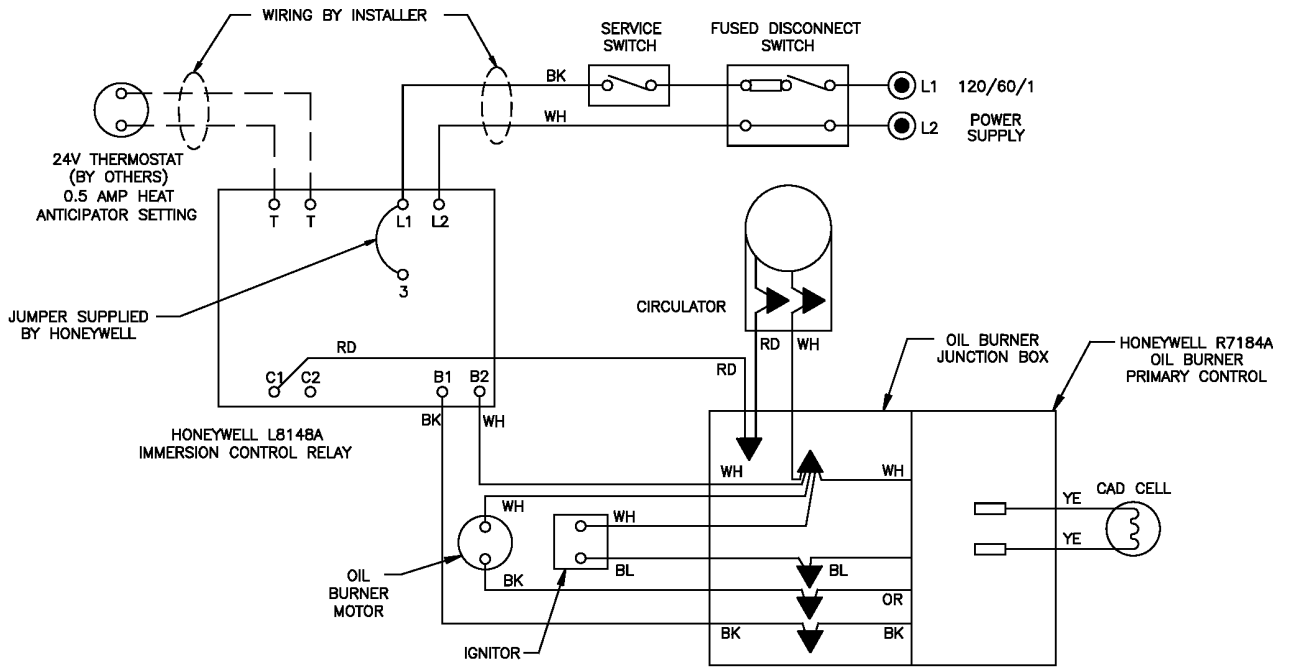


Figure 10

TABLE 3: SINGLE STAGE UNITS (3450 RPM) TWO PIPE SYSTEMS		
Lift "H" (See Figure)	Maximum Length of Tubing "H" + "R" (See Figure)	
	3/8" OD Tubing (3 GPH)	1/2" OD Tubing (3 GPH)
0'	84'	100'
1'	78'	100'
2'	73'	100'
3'	68'	100'
4'	63'	100'
5'	57'	100'
6'	52'	100'
7'	47'	100'
8'	42'	100'
9'	36'	100'
10'	31'	100'
11'	26'	100'
12'	21'	83'
13'	---	62'
14'	---	41'

TABLE 4: TWO-STAGE UNITS (3450 RPM) TWO-PIPE SYSTEMS		
Lift "H" (See Figure)	Maximum Length of Tubing "H" + "R" (See Figure)	
	3/8" OD Tubing	1/2" OD Tubing
0'	93'	100'
2'	85'	100'
4'	77'	100'
6'	69'	100'
8'	60'	100'
10'	52'	100'
12'	44'	100'
14'	36'	100'
16'	27'	100'
18'	---	76'



SCHEMATIC DIAGRAM LEGEND

- 120V – 14 AWG WIRE TYPE TW WITH 27 MIL THICK INSULATION.
- 120V – 18 AWG WIRE TYPE TEW/AWM 105 C WITH 31 MIL THICK INSULATION.
- - - - 24V – 18 AWG WIRE TYPE SPT WITH 13 MIL THICK INSULATION.

WIRE CODE

- BK – BLACK
- BL – BLUE
- OR – ORANGE
- WH – WHITE
- YE – YELLOW
- RD – RED

Figure 11: Wiring Diagram for Water Boilers With Beckett AFG Burner and Split Controls Less Tankless Heater

SEQUENCE OF OPERATION

A call for heat by the thermostat energizes the L8148A control which in turn energizes the R7184A primary control to turn on the burner. If burner ignites within approximately 45 seconds and cad cell see flame, the burner will continue to operate until the call for heat is satisfied or the setting of the high limit is reached. The circulator will operate as long as the thermostat is calling for heat. If the thermostat is not satisfied and the high limit is reached, the circulator will continue to operate, and the burner will stop until the high limit is closed by a drop in boiler water temperature.

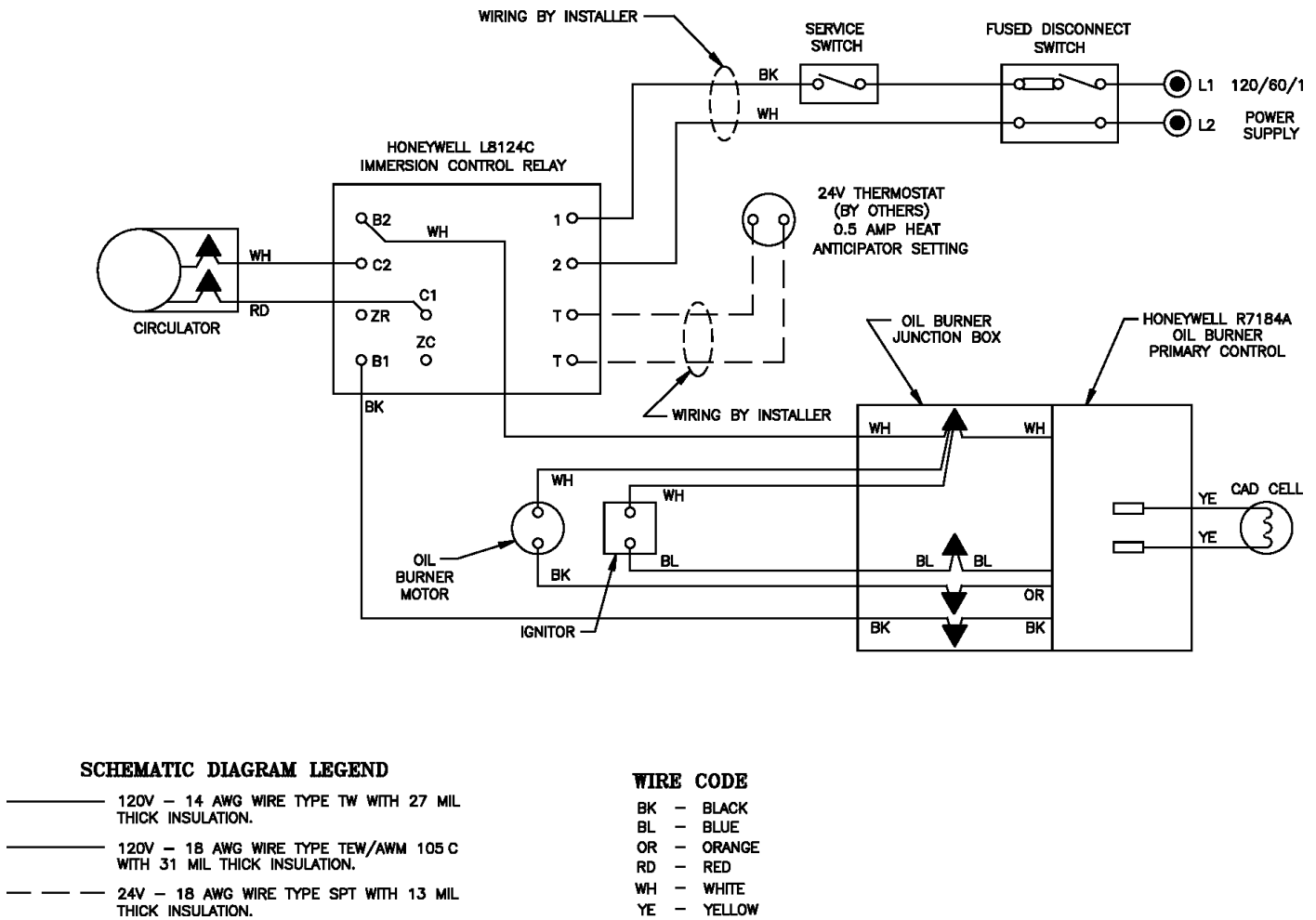


Figure 12: Wiring Diagram for Water Boilers with Beckett AFG Burner and Split Controls with Tankless Heater

SEQUENCE OF OPERATION

A call for heat by the thermostat energizes the L8124C control which in turn energizes the R7184A primary control to turn on the burner. If burner ignites within approximately 45 seconds and the cad cell see flame, the burner will continue to operate until the call for heat is satisfied. The circulator will also operate when the thermostat calls for heat if the boiler water temperature is up to the setting of the low limit in the L8124C control. If boiler water temperature is below the low limit setting the burner will operate but the circulator will not, giving preference to the domestic hot water demand.

On call for heat by the thermostat the burner will continue to operate until the thermostat is satisfied or the setting of the high limit is reached. If the thermostat is not satisfied when the high limit is reached the burner will stop but the circulator will continue to operate until the thermostat is satisfied.

Any time the boiler water temperature drops below the setting of the low limit the burner will be energized in order to maintain domestic water temperature.

SECTION III: OPERATING AND SERVICE INSTRUCTIONS

A. ALWAYS INSPECT INSTALLATION BEFORE STARTING BURNER.

B. FILL HEATING SYSTEM WITH WATER.

1. Hot Water Boilers: Fill entire Heating System with water and vent air from system. Use the following procedure on a Series Loop System installed as per Figure 4:
 - a. Close all but one zone valve.
 - b. Open drain valve on boiler.
 - c. Open fill valve.
 - d. Close purge valve.
 - e. Open relief valve on boiler.
 - f. Allow water to run out of drain valve until zone has been purged of air and filled with water.
 - g. 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.
 - h. Close drain valve.
 - i. When water discharges from relief valve, release the lever on the top of the relief valve, allowing it to close.
 - j. Continue filling the system until the pressure gauge reads 12 psi. Close fill valve.

NOTE:

If make-up connections are tight and burner is rigid, that all electrical connections have been completed and fuses installed, and that oil tank is filled and oil lines have been tested.

C. CHECK CONTROLS, WIRING AND BURNER to be sure that all connections are tight and burner is rigid, that all electrical connections have been completed and fuses installed, and that oil tank is filled and oil lines have been tested.

D. LUBRICATION

1. Follow instruction on burner and circulator label to lubricate, if oil lubricated. Most motors currently used on residential type burners employ permanently lubricated bearings and thus do not require any field lubrication. Water lubricated circulators do not need field lubrication.
2. Do not over-lubricate. This can cause as much trouble as no lubrication at all.

E. SET CONTROLS with burner service switch turned "OFF".

1. SET ROOM THERMOSTAT about 10° above room temperature.
2. PRESS RED RESET LEVER on R7184 Protectorelay and release.

3. ON UNITS WITHOUT TANKLESS HEATERS, set high limit dial on L8148 at 210°F. This temperature may be varied to suit requirements of installation.

4. ON UNITS WITH TANKLESS HEATERS, set operating control dial on L8124 at 190°F and high limit dial at 210°F. Operating Control must be a minimum of 20° below High Limit Setting. Set Differential at 25°.

F. REMOVE GUN ASSEMBLY

1. CLW boilers are equipped with Beckett AFG burners. Items to be checked are nozzle size, head size, gun setting, and positioning of electrodes. This information is shown in Figure 13 and Table 5.
2. Reinstall gun assembly.

G. ADJUST OIL BURNER BEFORE STARTING.

1. SET BURNER AIR BAND AND AIR SHUTTER, see Table 5.
2. OPEN ALL OIL LINE VALVES.
3. ATTACH A PLASTIC HOSE TO FUEL PUMP VENT FITTING and provide a pan to catch the oil.
4. REMOVE GAUGE PORT PLUG from fuel pump and install pressure gauge.
5. OPEN FLAME OBSERVATION DOOR on front of boiler.

H. START OIL BURNER.

1. Open vent fitting on fuel pump.
2. TURN 'ON' BURNER service switch and allow burner to run until oil flows from vent fitting in a SOLID stream without air bubbles for approximately 10 seconds.
3. Close vent fitting and burner flame should start immediately.

I. ADJUST OIL PRESSURE.

1. Locate oil pressure adjusting screw and turn screw for appropriate pump pressure. (See Table 5)
2. DO NOT REMOVE PRESSURE GAUGE until later.

J. OTHER ADJUSTMENTS

1. ADJUST THE AIR BAND AND/OR AIR SHUTTER.

Adjust air supply by loosening lock screws and moving the air shutter and if necessary the air band. Refer to Table 5 for preliminary settings.

2. ADJUST DRAFT REGULATOR for a draft of -.02" (water gauge) over the fire after chimney has reached operating temperature and while burner is running.

TABLE 5: BECKETT AFG BURNER

Boiler Model	Firing Rate	Air Shutter Setting	Air Band Setting	Head	Static Disc	Pump Pressure	Nozzle Data			
							GPH	Angle	Type	Mfg.
CLW-3*	0.75	7	0	F3	3-3/8"U	140	0.65	80°	A	Delavan
	1.00	10	2	F3	3-3/8"U	140	0.85	80°	B	Delavan
CLW-4	1.00	8	0	F3	2-3/4"U	100	1.00	80°	B	Delavan
	1.35	8	1	F6	2-3/4"U	100	1.35	80°	B	Delavan
CLW-5	1.35	9	0	F6	2-3/4"U	100	1.25	80°	B	Delavan
	1.65	10	2	F6	2-3/4"U	100	1.65	80°	B	Delavan
CLW-6	1.50	10	1	F6	2-3/4"U	100	1.50	80°	B	Delavan
	2.00	10	2	F16	2-1/4"	100	2.00	80°	B	Delavan

*Low Firing Rate Baffle is Used on CLW-3
 Settings are approximate and must be verified by smoke and CO₂ measurement.
 Readjust where necessary. See Text of the Manual.

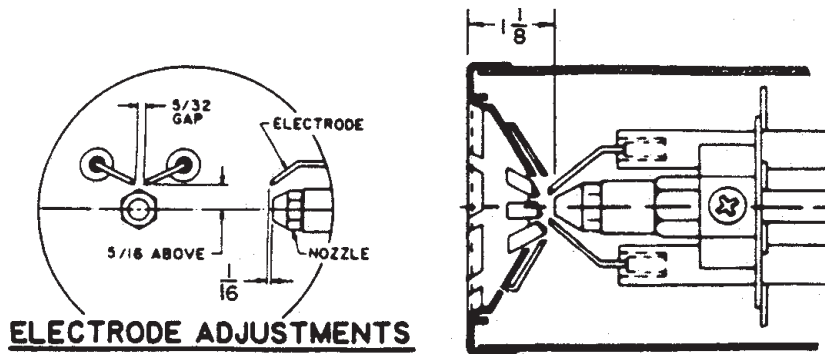


Figure 13: Beckett AFG Gun Setting and Electrode Positioning

3. READJUST AIR BANDS OR AIR SHUTTER on burner for a light orange colored flame while the draft over the fire is $-.02''$. Use a smoke tester and adjust air for minimum smoke (not to exceed #1) with a minimum of excess air. Make final check using suitable instrumentation to obtain a CO₂ of 11.5 to 12.5% with draft of $-.02''$ (water gauge) in fire box. These settings will assure a safe and efficient operating condition. If the flame appears stringy instead of a solid fire, try another nozzle of the same type. Flame should be solid and compact. After all adjustments are made recheck for a draft of $-.02''$ over the fire.
4. TURN "OFF" BURNER and remove pressure gauge. Install gauge port plug and tighten. Start burner again.
5. CAD CELL LOCATION AND SERVICE
 The burner is supplied with a cadmium sulfide flame detector mounted at the factory, mounted on the

bottom of the electronic ignitor. See Figure 14. To service cad cell or to replace the plug in portion, swing open the ignitor. After service is complete, be sure to fasten down the ignitor.

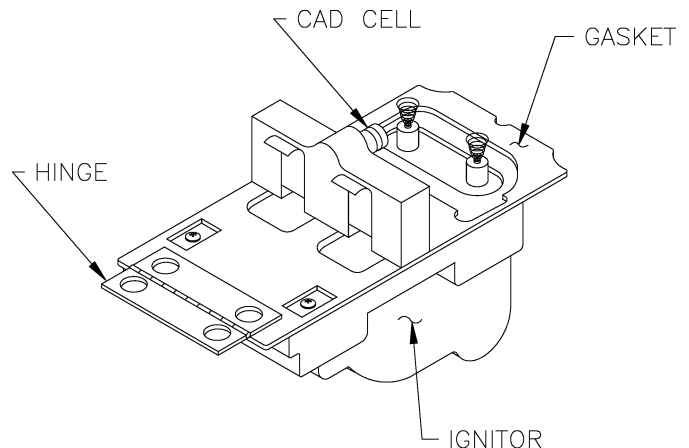


Figure 14: Cad Cell Location

6. FLAME FAILURE

The CLW boiler controls operate the burner automatically. If for unknown reasons the burner ceases to fire and the reset button on the primary control has tripped, the burner has experienced ignition failure. Before pressing the reset button call your heating contractor immediately.

CAUTION

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

K. CHECK FOR CLEAN CUT OFF OF BURNER.

1. AIR IN THE OIL LINE between fuel unit and nozzle will compress when burner is on and will expand when burner stops, causing oil to squirt from nozzle at low pressure as burner slows down and causing nozzle to drip after burner stops. Usually cycling the burner operation about 5 to 10 times will rid oil line of this air.
2. IF NOZZLE CONTINUES TO DRIP, repeat step K.1. If this does not stop the dripping, remove cutoff valve and seat, and wipe both with a clean cloth until clean, then replace and readjust oil pressure. If dripping or after burn persist replace fuel pump.

L. TEST CONTROLS.

WARNING

Before installation of the boiler is considered complete, the operation of the boiler controls should be checked, particularly the primary control and high limit control.

1. CHECK THERMOSTAT OPERATION. Raise and lower thermostat setting as required to start and stop burner.
2. VERIFY PRIMARY CONTROL SAFETY FEATURES using procedures outlined in Instructions furnished with control or instructions as follows:

CHECKOUT PROCEDURE

- a. Check wiring connections. Close line switch. Check power at control.

PRIMARY RELAY TEST

- b. Disconnect cad cell leads from quick connects on underside at primary control. Reset safety switch.
- c. Set controller to call for heat. Burner should start.

- d. Jumper the quick connect terminals within 15 to 30 seconds. Burner should run.
- e. Remove the quick connect terminals jumper. Burner shuts down in approximately 15 to 60 seconds.
- f. If burner operates as described, relay is good. If not, install new relay.

CAD CELL TEST

- g. Open line switch. Clean cell face and see that cell is securely in socket. Reconnect leads. Reset safety switch.
 - h. Close line switch. If burner starts and runs beyond safety switch cut-out time, cell is good. If not, install new cell.
3. WARNING — Check High Limit Control — Jumper Thermostat Terminals. Allow burner to operate until shut-down by limit. Installation is not considered complete until this check has been made. REMOVE JUMPER.
 4. CHECK OPERATING CONTROL on boiler equipped with tankless heaters. With burner off, draw hot water until burner starts, then turn off hot water and check burner shut-down.

IF CONTROLS DO NOT MEET REQUIREMENTS AS OUTLINED ABOVE, REPLACE CONTROL AND REPEAT CHECK-OUT PROCEDURES.

M. BOILER AND SYSTEM CLEANING INSTRUCTIONS FOR TROUBLE FREE OPERATION.

NOTICE

Check with local authorities or consult local water treatment services for acceptable chemical cleaning compounds.

1. FILLING OF BOILER AND SYSTEM — GENERAL — In a hot water heating system, the boiler and entire system (other than the expansion tank) must be full of water for satisfactory operation. Water should be added to the system until the boiler pressure gauge registers 12 psi. To insure that the system is full, water should come out of all air vents when opened.
2. BOILING OUT OF BOILER AND SYSTEM. The oil and grease which accumulate in a new hot water boiler can be washed out in the following manner:
 - a. Remove relief valve using extreme care to avoid damaging it.
 - b. Add an appropriate amount of recommended boil out compound.
 - c. Replace relief valve.
 - d. Fill the entire system with water.
 - e. Start firing the boiler.
 - f. Circulate the water through the entire system.

- g. Vent the system, including the radiation.
 - h. Allow boiler water to reach operating temperature, if possible.
 - i. Continue to circulate the water for a few hours.
 - j. Stop firing the boiler.
 - k. Drain the system in a manner and to a location that hot water can be discharged with safety.
 - l. Remove plugs from all available returns and wash the water side of the boiler as thoroughly as possible, using a high-pressure water stream.
 - m. Refill the system with fresh water.
3. Add appropriate boiler water treatment compounds as recommended by your qualified water treatment company.

O. HINTS ON COMBUSTION

1. **NOZZLES** — Although the nozzle is a relatively inexpensive device, its function is critical to the successful operation of the oil burner. The selection of the nozzle supplied with the CLW boiler is the result of extensive testing to obtain the best flame shape and efficient combustion. Other brands of the same spray angle and spray pattern may be used but may not perform at the expected level of CO₂ and smoke. Nozzles are delicate and should be protected from dirt and abuse. Nozzles are mass-produced and can vary from sample to sample. For all of those reasons a spare nozzle is a desirable item for a serviceman to have.
2. **FUEL LEAKS** — Any fuel leak between the pump and the nozzle will be detrimental to good combustion results. Look for wet surfaces in the air tube, under the ignitor, and around the air inlet. Any such leaks should be repaired as they may cause erratic burning of the fuel and in the extreme case may become a fire hazard.
3. **AIR LEAKS** — Any such leaks should be repaired, as they may cause erratic burning of the fuel and in extreme cases may become a fire hazard.

SUCTION LINE LEAKS -

Whatever it takes, **The Oil Must Be Free of Air**. This can be a tough problem, but it must be resolved. Try bleeding the pump through a clear tube. There must be no froth visible. There are various test kits available to enable you to look at the oil through clear tube. There must be no froth visible. There are various test kits available to enable you to look at the oil through clear tubing adapted to the supply line at the pump fitting. Air eliminators are on the market that have potential. Also, electronic sight glasses are being used with good success. At times, new tubing must be run to the tank or new fittings put on. Just make sure you get the air out before you leave. Any air leaks in the fuel line will cause an unstable

flame and may cause delayed ignition noises. Use only flare fittings in the fuel lines.

4. **GASKET LEAKS** — If 11.5 to 12.5% CO₂ with a #1 smoke cannot be obtained in the breeching, look for air leaks around the burner mounting gasket, observation door, and canopy gasket. Such air leaks will cause a lower CO₂ reading in the breeching. The smaller the firing rate the greater effect an air leak can have on CO₂ readings.
5. **DIRT** — A fuel filter is a good investment. Accidental accumulation of dirt in the fuel system can clog the nozzle or nozzle strainer and produce a poor spray pattern from the nozzle. The smaller the firing rate, the smaller the slots become in the nozzle and the more prone to plugging it becomes with the same amount of dirt.
6. **WATER** — Water in the fuel in large amounts will stall the fuel pump. Water in the fuel in smaller amounts will cause excessive wear on the pump, but more importantly water doesn't burn. It chills the flame and causes smoke and unburned fuel to pass out of the combustion chamber and clog the flueways of the boiler.
7. **COLD OIL** — If the oil temperature approaching the fuel pump is 40°F or lower poor combustion or delayed ignition may result. Cold oil is harder to atomize at the nozzle. Thus, the spray droplets get larger and the flame shape gets longer. An outside fuel tank that is above grade or has fuel lines in a shallow bury is a good candidate for cold oil. The best solution is to bury the tank and lines deep enough to keep the oil above 40°F.
8. **FLAME SHAPE** — Looking into the combustion chamber through the observation door, the flame should appear straight with no sparklers rolling up toward the crown of the chamber. If the flame drags to the right or left, sends sparklers upward or makes wet spots on the target wall, the nozzle should be replaced. If the condition persists look for fuel leaks, air leaks, water or dirt in the fuel as described above.
9. **HIGH ALTITUDE INSTALLATIONS**
Air settings must be increased at high altitudes. Use instruments and set for 11.5 to 12.5% CO₂.
10. **START-UP NOISE** — Late ignition is the cause of start-up noises. If it occurs recheck for electrode settings, flame shape, air or water in the fuel lines.
11. **SHUT DOWN NOISE** — If the flame runs out of air before it runs out of fuel, an after burn with noise may occur. That may be the result of a faulty cut-off valve in the fuel pump, or it may be air trapped in the nozzle line. It may take several firing cycles for that air to be fully vented through the nozzle. Water in the fuel or poor flame shape can also cause shut down noises.
A very good test for isolating fuel side problems is

to disconnect the fuel system and with a 2 ft. length of tubing, fire out of an auxiliary five gallon pail of clean, fresh, warm #2 oil from another source. If the burner runs successfully when drawing out of the auxiliary pail then the problem is isolated to the fuel or fuel lines being used on the jobsite.

P. ATTENTION TO BOILER WHILE NOT IN OPERATION

IMPORTANT

IF BOILER IS NOT USED DURING WINTER TIME, IT MUST BE FULLY DRAINED TO PREVENT FREEZE DAMAGE.

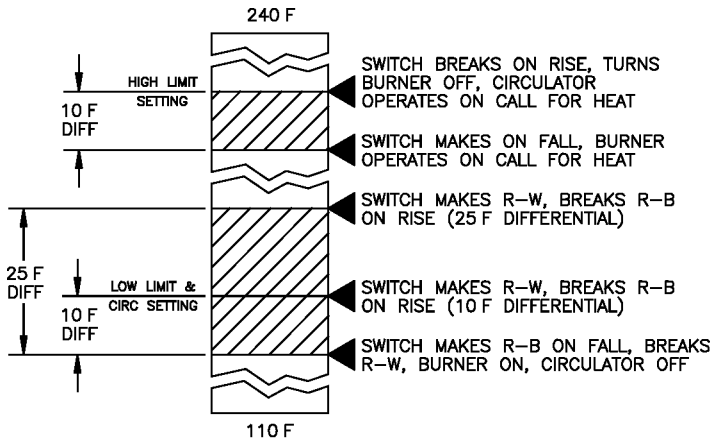
1. Spray inside surfaces with light lubricating or crankcase oil using gun with extended stem so as to reach all corners.
2. Always keep the manual fuel supply valve shut off if

the burner is shut down for an extended period of time.

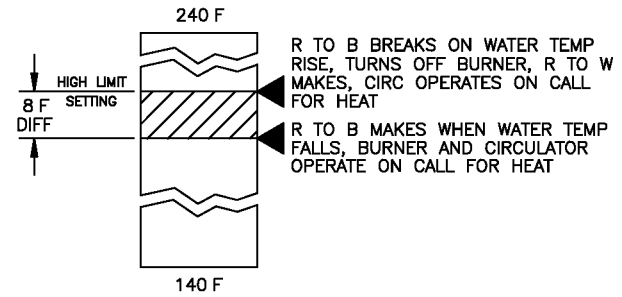
3. To recondition the heating system in the fall season after a prolonged shut down, follow the instructions outlined in Section III, Items A through L.

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.



L8124C CONTROL



L8148A CONTROL

AQUASTAT SWITCHING ACTION WITHIN L8124C CONTROL

The switching action within the L8124C control has three settings:

1. high limit
2. low limit
3. adjustable differential

HIGH LIMIT OPERATION —

The high limit opens and turns off the burner when the water temperature reaches the set point. The high limit automatically resets after the water temperature drops past the set point and through the 10°F differential.

Set the indicator at desired shutoff temperature.

LOW LIMIT OPERATION —

On a temperature rise, with the adjustable differential at the minimum setting of 10°F, the burner circuit (R-B) breaks and the circulator circuit (R-W) makes at the low limit set point. On a temperature drop of 10°F below the set point, the R-B circuit makes and the R-W circuit breaks.

ADJUSTABLE DIFFERENTIAL —

At any differential setting greater than 10°F, the R-B make temperature and R-W break temperature will remain the same-control setting minus 10°F. The R-B break and R-W make temperature will be the set point temperature plus the difference between the differential setting and 10°F.

EXAMPLE: Set point of 140°F; differential set at 25°F. On a temperature rise, R-B will break and R-W will make at 155°F. On a temperature fall, R-B will make and R-W will break at 130°F.

Set low limit indicator at the minimum temperature recommended for domestic hot water supply. This setting *must* be at least 20°F below high limit setting to prevent one switch from locking out the other.

Set the differential the desired number of degrees. 25°F differential gives longest burner cycles.

AQUASTAT SWITCHING ACTION WITHIN L8148A CONTROLS

The switching action in the L8148A control has one setting, the high limit. The switching relay is controlled by the low voltage room thermostat. On a call for heat, the relay contacts make to complete the line voltage circulator circuit and also the burner circuit if the boiler water temperature is below the high limit setting. The high limit switch shuts off the burner if boiler water temperature exceeds the high limit setting.

Set the indicator at the desired shutoff temperature.

SECTION IV: BOILER CLEANING

WARNING

All boiler cleaning must be completed with burner service switch turned off.

A. CLEAN THE FLUEWAYS (See Figure 15).

1. Disconnect oil line(s) and remove burner and burner mounting plate. See Figures 1A and 1B.
2. Lay protective cloth or plastic over combustion chamber blanket.
3. On boilers with tankless heaters remove the control from the tankless heater well. Unfasten the conduit from the jacket panel and swing control away from the jacket right side.
4. Remove the smokepipe as necessary to gain access to the boiler canopy.
5. Remove the jacket top and right side panels.
NOTE: Top panel must be altered to be made removable. Cut away left corner around supply piping and relief valve. Top panel can be hinged upward for access to canopy.
6. Remove the canopy being careful not to damage the cerafelt gasket.
7. Loosen nuts securing the flue cleanout plates and remove the plates. The insulation should be removed with the plates taking care not to damage the insulation.
8. Using a 1¼" diameter wire or fibre bristle brush (30" handle) clean the flueways. Brush from the top and side using horizontal and diagonal strokes for best results. DO NOT allow brush to strike the target wall or liner in the chamber.

B. CLEAN TOP OF BOILER SECTIONS.

1. Brush and vacuum the tops of the boiler sections.

C. CLEAN THE FIREBOX.

1. Using wire or fibre bristle brush, clean crown of boiler and inside of water legs. DO NOT allow brush to strike target wall or blanket in the combustion chamber.

D. AFTER CLEANING, remove protective cloth with debris and vacuum as necessary, but be careful not to damage blanket. Inspect target wall, combustion chamber blanket and burner mounting plate insulation for signs of damage. If damaged, replace as needed.

E. REASSEMBLE BOILER.

CAUTION: Do not start the burner unless canopy, smokepipe, burner mounting plate and all flue plates are secured in place.

1. Install the canopy taking care to align the gaskets without blocking the flueways. If gasket is damaged, replace as needed.
2. Bolt burner mounting plate to front section with fasteners.
3. Bolt burner to burner mounting plate and connect oil line(s).

4. Reinstall flue plates, making sure gasket on each plate is in place and forms gas tight seal. If damaged replace as needed.
5. Reinstall Right Side Jacket Panel and Top Panel and secure with sheet metal screws.
6. Reinstall smokepipe on canopy and secure to collar with sheet metal screws.
7. On boilers with tankless heaters place sensing element of control well and bottom. Tighten screw. secure conduit to jacket with plastic clips.

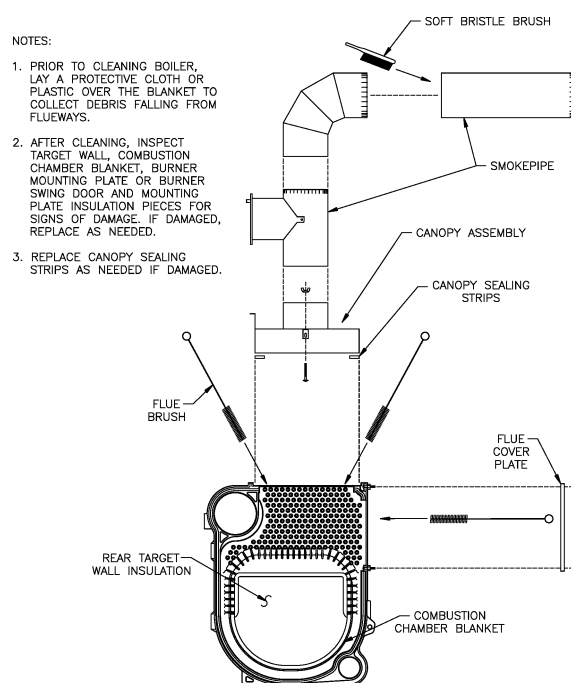


Figure 15: Cleaning of Boiler Flueways

WARNING

The boiler must be connected to an approved chimney in good condition. Serious property damage could result if the boiler is connected to a dirty or inadequate chimney. The interior of the chimney flue must be inspected and cleaned before the start of the heating season and should be inspected periodically throughout the heating season for any obstructions. A clean and unobstructed chimney flue is necessary to allow noxious fumes that could cause injury or loss of life to vent safely and will contribute toward maintaining the boiler's efficiency.

SECTION V: REPAIR PARTS

All CLW Series repair parts may be ordered through New Yorker® Boiler Company, 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 295, Colmar, PA 18915, Phone: (215) 822-0114 Attn: Customer Service Department

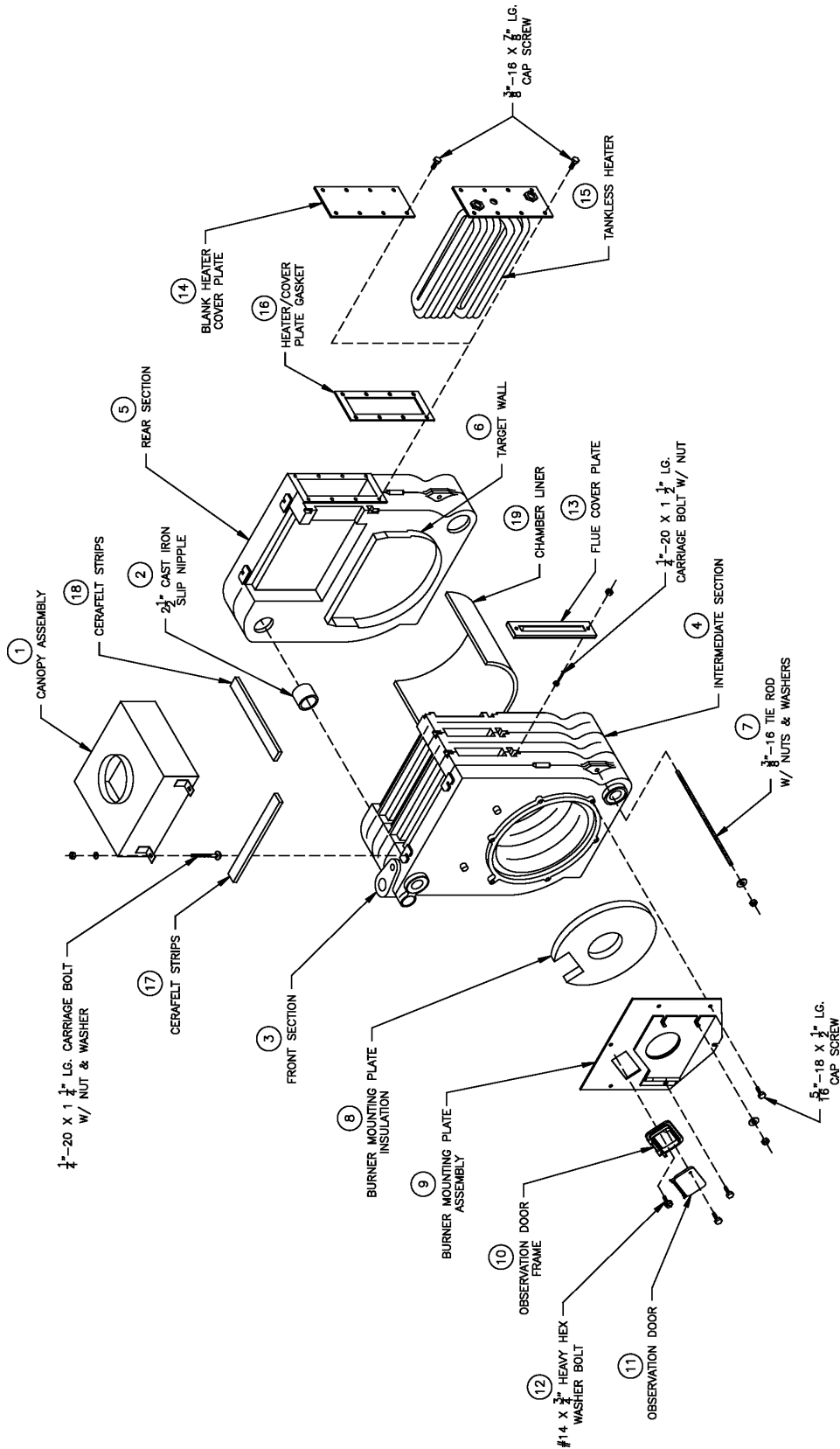


Figure 16: Bare Boiler Assembly Exploded View

BARE BOILER ASSEMBLY

<u>Key</u> <u>Number</u>	<u>Description</u>	<u>Boiler Size / Quantity</u>			
		<u>CLW-3</u>	<u>CLW-4</u>	<u>CLW-5</u>	<u>CLW-6</u>
1	Canopy	1	1	1	1
SECTION ASSEMBLY NOTE: When section assembly is furnished key numbers 2 thru 7 are included.					
2	2-1/2 Cast Iron Nipple	4	6	8	10
3	Front Section	1	1	1	1
4	Center Section	1	2	3	4
5	Rear Section	1	1	1	1
6	Flame Target Wall Insulation	1	1	1	1
7	Tie Rod Set				
7A	Tie Rods 3/8" - 16 x 12-1/2"	2			
	Tie Rods 3/8" - 16 x 17"		2		
	Tie Rods 3/8" - 16 x 20-3/4"			2	
	Tie Rods 3/8" - 16 x 25-1/4"				2
7B	Hex Nuts 3/8" - 16	4	4	4	4
7C	Flat Washers 3/8"	4	4	4	4
8	Burner Mounting Plate Insulation	1	1	1	1
9	Burner Mounting Plate Assembly P/N 60220001	1	1	1	1
10	Observation Door Frame	1	1	1	1
11	Observation Door	1	1	1	1
12	#14 x 3/4" Heavy Hex Washerbolt	2	2	2	2
13	Flue Cover Plate	2	3	4	5
14	Tapped Heater Cover Plate (P)	1	1	1	1
15	Tankless Heater (PT)	1	1	1	1
16	Gasket-Tankless Heater or Cover Plate	1	1	1	1
17	Cerafelt Strips - Front & Back 1/2" x 2" x 12"	2	2	2	2
18	Cerafelt Strips - Sides 1/2" x 2" x 11"	2			
	1/2" x 2" x 15"		2		
	1/2" x 2" x 19"			2	
	1/2" x 2" x 23"				2
19	Combustion Chamber Liner 24" x 5"	1			
	24" x 9"		1		
	24" x 13"			1	
	24" x 17"				1

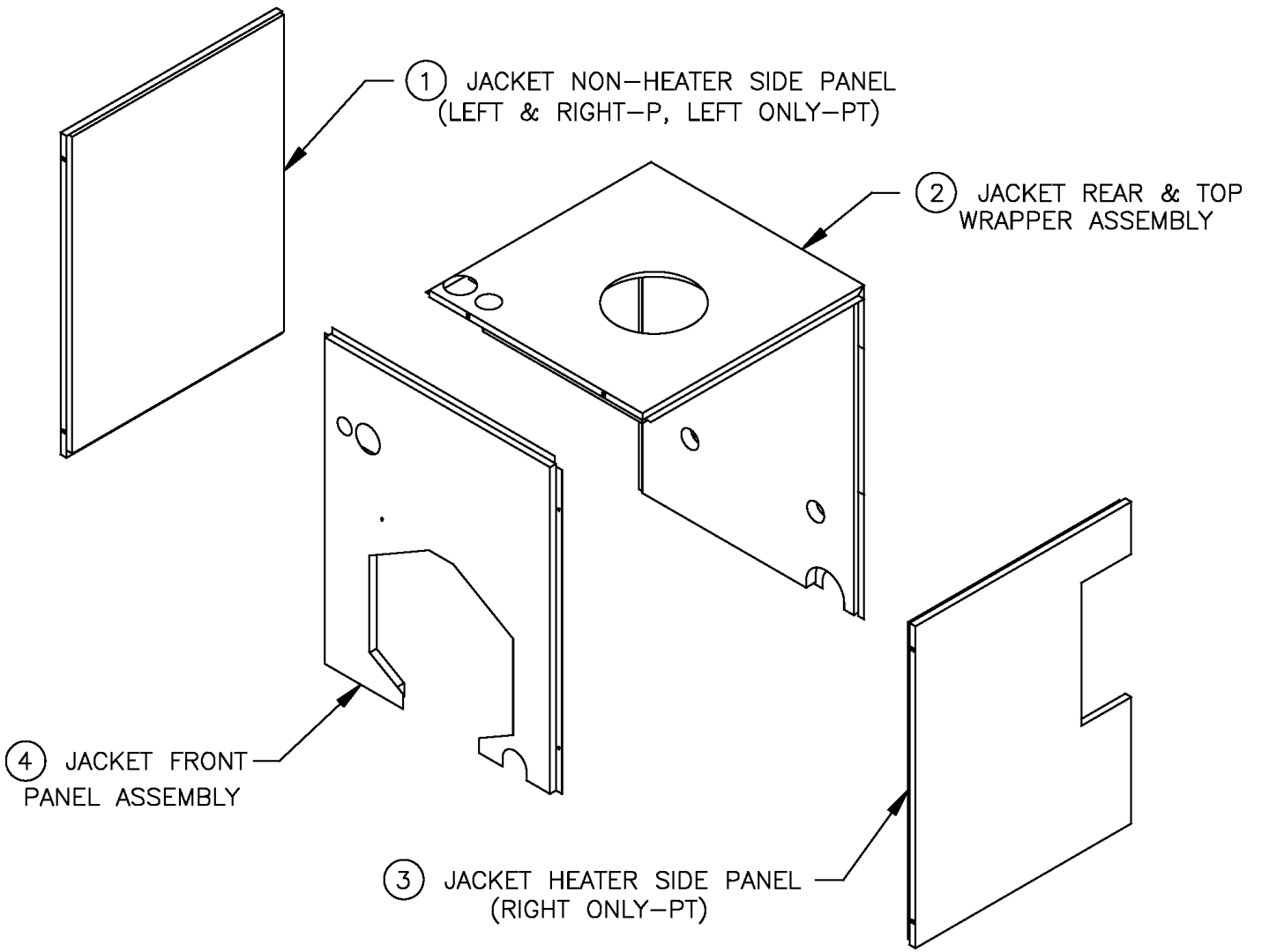


Figure 17: Flush Jacket Panels

Flush Jacket Assembly

<u>Key</u> <u>Number</u>	<u>Description</u>	<u>Quantity</u>
FLUSH JACKET COMPONENTS		
	Items 1 thru 4 include insulation as part of assembly	1
1	Jacket Non-Heater Side Panel Assembly (P)	2
1	Jacket Non-Heater Side Panel Assembly (PT)	1
2	Jacket Rear & Top Wrapper Assembly	1
3	Jacket Heater Side Panel Assembly (PT)	1
4	Jacket Front Panel Assembly	1

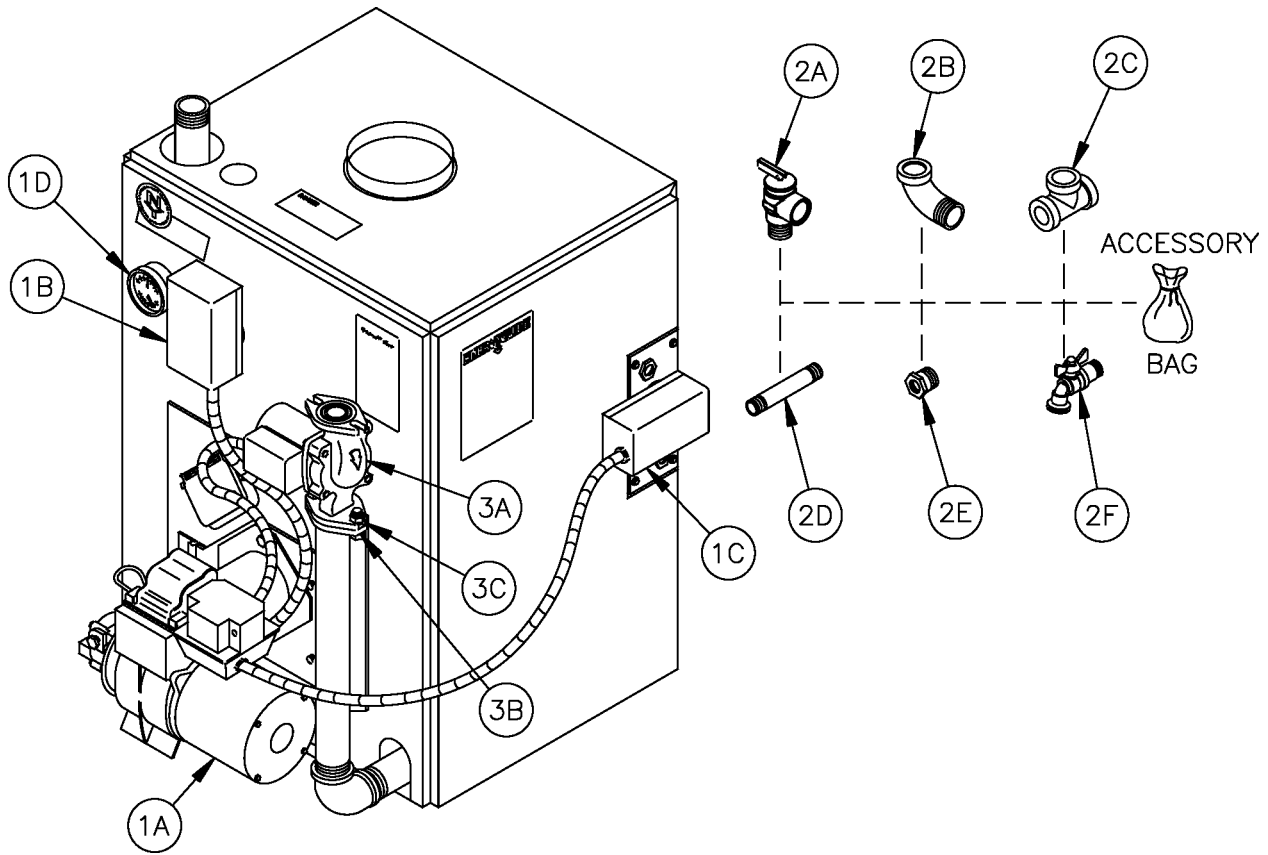


Figure 18: Trim and Controls

Trim and Controls Assembly

<u>Key No.</u>	<u>Description</u>	<u>Key No.</u>	<u>Description</u>
1A	R7184A1000 Protectorelay	2D	3/4" x 7" Nipple
1B	L8148A1090 Hi Limit, Circ. Relay	2E	1 1/2" x 3/4" Bushing
1C	L8124C1102 Hi & Lo Limit, Circ.	2F	3/4" Drain Valve
1D	2 1/2" Temperature/Pressure Gauge	3A	Taco 007 Circulator
2A	Relief Valve, #10-407-05	3B	1 1/2" Circulator Flange (2 Req'd)
2B	3/4" x 90° Street Elbow	3C	Taco Flange Gasket (2 Req'd)
2C	3/4" Tee		

Important Product Safety Information

Refractory Ceramic Fiber Product

Warning:

This product contains refractory ceramic fibers (RCF). RCF has been classified as a possible human carcinogen. After this product is fired, RCF may, when exposed to extremely high temperature (>1800F), change into a known human carcinogen. When disturbed as a result of servicing or repair, RCF becomes airborne and, if inhaled, may be hazardous to your health.

AVOID Breathing Fiber Particulates and Dust

Precautionary Measures:

Do not remove or replace previously fired RCF (combustion chamber insulation, target walls, canopy gasket, flue cover gasket, etc.) or attempt any service or repair work involving RCF without wearing the following protective gear:

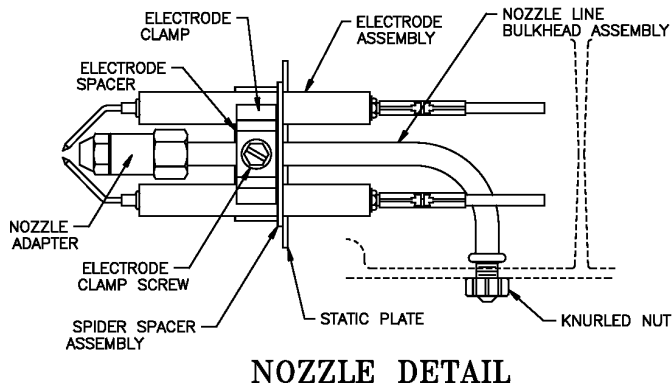
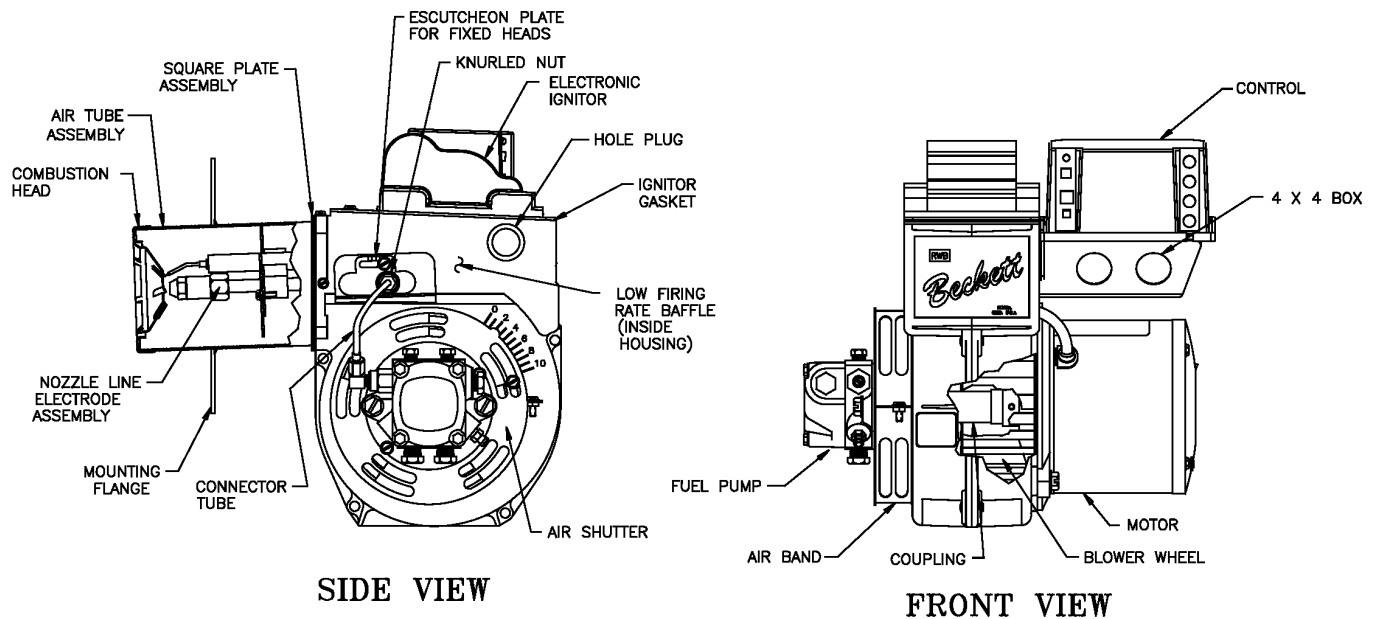
1. A National Institute for Occupational Safety and Health (NIOSH) approved respirator
 2. Long sleeved, loose fitting clothing
 3. Gloves
 4. Eye Protection
- Take steps to assure adequate ventilation.
 - Wash all exposed body areas gently with soap and water after contact.
 - Wash work clothes separately from other laundry and rinse washing machine after use to avoid contaminating other clothes.
 - Discard used RCF components by sealing in an air tight plastic bag.

First Aid Procedures:

- If contact with eyes: Flush with water for at least 15 minutes. Seek immediate medical attention if irritation persists.
- If contact with skin: Wash affected area gently with soap and water. Seek immediate medical attention if irritation persists.
- If breathing difficulty develops: Leave the area and move to a location with clean fresh air. Seek immediate medical attention if breathing difficulties persist.
- Ingestion: Do not induce vomiting. Drink plenty of water. Seek immediate medical attention.

BECKETT OIL BURNER PARTS LIST

MODEL AFG --- 60-Hz, 3450 RPM



FOR REPLACEMENT OIL BURNER PARTS, CONTACT YOUR WHOLESALE OR THE BURNER MANUFACTURER:

R. W. BECKETT CO.
 P.O. BOX 1289
 ELYRIA, OHIO 44036
 (440) 327-1060

BECKETT PART NOS. FOR CLW SERIES BOILERS - MODEL AFG BURNER

NOTE: When ordering parts always give the serial and model numbers shown on the boiler and burner. Also provide the name of the part(s) and part number as listed below.

Boiler Model	<u>CLW-3</u>	<u>CLW-4</u>	<u>CLW-5</u>	<u>CLW-6</u>
Air Tube Combination	AF40YH	AF40XN	AF40YB	AF40YB
Spec No.	NY2001	NY2002	NY2003	NY2004
Air Band	3492	3492	3492	3492
Air Band Nut	4150	4150	4150	4150
Air Band Screw	4198	4198	4198	4198
Air Shutter	3709	3709	3709	3709
Air Shutter Screw	4198	4198	4198	4198
Blower	2999	2999	2999	2999
Low Firing Rate Baffle	3708P	---	---	---
Bulkhead Fitting Locknut	3666	3666	3666	3666
Connector Tube Assembly	5636	5636	5636	5636
Coupling	2454	2454	2454	2454
Electrode Clamp	149	149	149	149
Electrode Clamp Screw	4219	4219	4219	4219
Electrode Insulator Assembly	5780	5780	5780	5780
Spider Spacer Assembly	5503	5503	5503	5503
Escutcheon Plate	3493	3493	3493	3493
Flange and Air Tube Assembly Welded	31497	31497	31497	31497
Head	360003	360003	360006	360006
Head Screws	4221	4221	4221	4221
Hole Plug	2139	2139	2139	2139
Housing Assembly w/Inlet Bell	5874	5874	5874	5874
Motor	21805	21805	21805	21805
Nozzle Adapter	213	213	213	213
Nozzle Line Electrode Assembly	NL72YH	NL72YH	NL72YH	NL72YH
Pump	21391	21391	21391	21391
Static Plate	3384	3383	3383	3383
Ignitor	7440	7440	7440	7440
Ignitor Hinge Screw	4217	4217	4217	4217
Ignitor Holding Screw	4292	4292	4292	4292
Wire Guard	10251	10251	10251	10251
Junction Box	2362	2362	2362	2362
Flame Detector	7006	7006	7006	7006

Lifetime Limited Warranties

For Residential Cast Iron, Steel Water Boilers

- A) One-Year Warranty covers all New Yorker water steel, cast iron boilers. New Yorker Boiler Co., Inc. (New Yorker) warrants to the original consumer purchaser at the original installation address that the water boilers are free from defects in material and workmanship for a period of one (1) year from date of original installation. In the event that any defect in material or workmanship is found to exist on examination by New Yorker within one year of the date of installation, New Yorker will repair or furnish a replacement part free of charge, F.O.B. its factory.
- B) Four-Year Additional Warranty cover series OS, and PH Option Pkgs., and WC residential water boilers. During the second (2nd) through fifth (5th) year after date of original installation, New Yorker warrants to the original consumer purchaser at original installation address that the pressure vessel portion of the appliance is free of defects in material workmanship. In the event that any defect in material or workmanship is found to exist on examination by New Yorker within the second (2nd) through fifth (5th) year, New Yorker will repair or furnish a replacement part, free of charge, F.O.B. its factory.
- C) Nine-Year Additional Warranty covers series AP, FR, S-AP, microTEK3, microTEK3/DV, CLW and CGW residential water boilers. During the second (2nd) through tenth (10th) year from date of original installation, New Yorker warrants to the original consumer purchaser at the original installation address that the pressure vessel portion of the appliance is free of defects in material or workmanship. In the event any defect in material or workmanship is found to exist on examination by New Yorker within the second (2nd) through tenth (10th) year of installation, New Yorker will repair or furnish a replacement part, free of charge, F.O.B. its factory in Colmar, PA.
- D) Lifetime limited Warranty covers series AP, FR, S-AP, microTEK3, microTEK3/DV, CLW and CGW residential water boilers. During the eleventh (11th) through lifetime after date of original installation, New Yorker warrants to the original consumer purchaser at the original installation address that the pressure vessel portion of the appliance is free of defects in material and workmanship. In the event any defect in material or workmanship is found to exist, on examination by New Yorker within the eleventh (11th) through lifetime, New Yorker will furnish a replacement part at a charge equal to a proportionate amount of the List Price of the pressure vessel, as shown in New Yorker's current Parts Price List, as of the date of the warranty claim, F.O.B. its factory.

For example:

E) Exceptions and Exclusions

Years In Warranty Claim	11th	12th	13th	14th	15th	16th	17th	18th
Homeowner Pays	5%	10%	15%	20%	25%	30%	35%	40%

Years In Warranty Claim	19th	20th	21st	22nd	23rd	24th	25th year and beyond
Homeowner Pays	45%	50%	55%	60%	65%	70%	75%

- The second (2nd) through lifetime Ltd. Warranty cover the pressure vessel only. Accessory parts such as burner control, circulator, tankless water heater, New Yorker Mate, etc. furnished by New Yorker but purchased from other manufacturers shall be limited to their warranties.
- The second (2nd) through lifetime Ltd. Warranty covers series AP, FR, S-AP, microTEK3, microTEK3/DV, CLW, and CGW hot water heating boilers installed inside a one- or two-family residential dwelling for the purpose of heating the dwelling. This warranty does not apply to boilers installed in more than two-family apartments or for commercial or industrial installations.
- The additional second (2nd) through fifth (5th) year warranty covers series OS and PH Option Pkgs., and WC boilers installed for the specific purpose each was designed: ie: Series OS for outside

installation, Series PH for outside pool heating application, and Series WC for inside application as a companion unit connected with a hot water heating boiler.

- This warranty does not cover removal or reinstallation of equipment. The owner will be responsible for the cost of removing and reinstalling the defective part or its replacement, as well as the cost for all the labor and material connected therewith.
- This warranty applies to boilers installed within the 48 contiguous United States.
- This warranty is void if:
 - Sealer has been added to the boiler to eliminate system leaks.
 - The boiler was not installed in strict accordance with the installation manual furnished with the boiler.
 - The boiler was not installed by an installer regularly engaged in the installation manual furnished with the boiler.
 - The boiler utilized a fuel for which it was not designed or equipped.
 - The boiler has been operated at an input greater than specified on the rating plate.
 - The boiler does not have adequate ventilation and sufficient air for proper combustion, or is exposed to any unusual atmospheric conditions including, without limitation, exposure to foreign particles such as lint, saw dust, animal hair, etc.
 - The boiler has not been properly maintained and serviced annually by a qualified heating contractor or oil burner servicemen and tested for efficiency in accordance with prescribed practices.
 - The boiler has been operated at temperatures or pressures exceeding that specified by New Yorker.
- Further, this warranty is effective July 1, 1997, and does not cover:
 - ordinary wear and tear.
 - failure due to lack of water, freezing, fire, flood, acts of God, negligent or improper operation, improper water conditioning, or failure due to improper internal or external maintenance.
 - any boiler that has been structurally altered.
 - Boilers installed or warranted prior to July 1, 1997.

The manufacturer will not be liable for any labor connected with the repair or replacement of the equipment nor for any other expense incident to such repair, nor for any consequential damages direct or indirect caused by the failure of any warranted part. However, note that some states do not allow the exclusion or limitation or incidental or consequential damages so the above limitation or exclusion may not apply to you. This warranty shall start on the date your boiler is installed. In the event that you need service under this warranty, the following procedure should be followed:

- Contact the contractor who installed your boiler.
- If you need assistance under this warranty that cannot be obtained locally, write Consumer Services Department, New Yorker Boiler Company, Inc., PO Box 10, Hatfield, PA 19440-0010.

This warranty excludes all expressed or implied warranties which extend beyond the time contained herein and specifically excludes the implied warrant for merchantability. With respect to these exclusions, however, please note that some states do not allow limitations on an implied warranty or on the length of time a warranty lasts, so the above limitation may not apply to you. This warranty gives you specific legal rights which may vary from state to state.

** Commercial Units are limited to A) One-Year Warranty.....

