

BOILER INSTALLATION, OPERATION INSTRUCTIONS

Riva

ADVANCE COMBI

WALL HUNG GAS BOILER FOR CENTRAL HEATING SUPPLY

Please Read Instructions Carefully
Save for Future Reference

WARNING: If the information in this manual is not followed exactly, a fire or explosion may result causing property damage, personal injury or loss of life.

- Do not store or use gasoline or other flammable vapors and liquids in the vicinity of this or any other appliance.
- **WHAT TO DO IF YOU SMELL GAS**
 - Do not try to light any appliance.
 - Do not touch any electric switch; do not use any phone in your building.
 - Immediately call your gas supplier from a neighbor's phone. Follow the gas supplier's instructions.
 - If you can not reach your gas supplier call the fire department.
- Installation and service must be performed by a qualified installer, service agency or the gas supplier.

Manufactured by:



Biasi S.p.A.
Verona, Italy



Distributed By:



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3560 Lafayette Rd. Bldg. 2 Unit A
Portsmouth, NH 03801
Phone: 603-334-6400
Fax: 603-334-6401

Dear Customer:

Thank you for buying a Biasi Riva Advance Combi.

The Riva Advance Combi is a high efficiency condensing, wall mounted gas boiler which provides central heat supply water.

We realize that it is not possible to answer all questions about the Riva Advance Combi system in this manual. Reading this installation manual does not make the reader an expert in all aspects of installation and operation, and does not replace the need for a qualified, licensed heating contractor. We urge you to contact your installing contractor or distributor if you are in question about any aspect of your boiler's performance. Our main concern is that you are satisfied with your boiler and its performance. We require that your contractor complete efficiency tests using instruments.

The external controls and accessories listed in this manual (excluding those supplied inside the boiler) are intended to serve as guidelines rather than specific recommendations. We realize that other makes and models of such devices are available and can be used as successfully as those we specify. The installing contractor is the best judge of a system's specific requirements, as well as the local availability of certain makes and models of controls and accessories. The preceding does not apply, however, to the equipment that comes with every boiler, such as the overheat control and pressure relief valves. **The installation of the specific devices supplied with every boiler is absolutely necessary to the safe operation of the boiler and protection of the heating system.**

All BIASI wall hung boilers are built in accordance with the ASME boiler and pressure vessel code, and bear the "H" stamp. The Entire range of applications for the Riva Advance Combi has been tested to standard ANSI Z21.13/CSA 4.9 and is CSA compliant.

This Riva Advance Combi has a 2 year warranty, a copy of which is provided with the boiler. Please be sure to return the warranty registration card as the warranty will be void without your boiler's serial numbers (located on the ratings label affixed to the boiler), date of installation and the name of your installer being on record in our files.

Thank you for purchasing our Riva Advance Combi. If you have questions or comments, please don't hesitate to contact us immediately. Our goal is 100% customer satisfaction.

QHT inc.

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WARNING

Boiler is certified as an indoor appliance. Do not install boiler outdoors or locate where it will be exposed to freezing temperatures.

WARNING: If the information in this manual is not followed exactly, a fire or explosion may result causing property damage, personal injury or loss of life.

- Do not store or use gasoline or other flammable vapors and liquids in the vicinity of this or any other appliance.
- **WHAT TO DO IF YOU SMELL GAS**
 - Do not try to light any appliance.
 - Do not touch any electric switch; do not use any phone in your building.
 - Immediately call your gas supplier from a neighbor's phone. Follow the gas supplier's instructions.
 - If you can not reach your gas supplier call the fire department.
- Installation and service must be performed by a qualified installer, service agency or the gas supplier.

DANGER

Caution: Do not store or use flammable materials, chemicals or flammable liquids, especially gasoline, in the vicinity of this heating appliance.

Caution: Should overheating occur or the gas supply fail to shut off, do not turn off or disconnect the electrical supply to the pump. Instead, shut off the gas supply at a location external to the appliance.

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

WARNING

Any appliance that burns natural gas, propane gas, fuel oil, wood or coal is capable of producing carbon monoxide (CO). Carbon Monoxide (CO) is a gas which is odorless, colorless and tasteless but is very toxic. CO is lighter than air and thus may travel throughout the building.

BRIEF EXPOSURE TO HIGH CONCENTRATIONS OF CO, OR PROLONGED EXPOSURE TO LESSER AMOUNTS OF CO MAY RESULT IN CARBON MONOXIDE POISONING. EXPOSURE CAN BE FATAL AND EXPOSURE TO HIGH CONCENTRATIONS MAY RESULT IN THE SUDDEN ONSET OF SYMPTOMS INCLUDING UNCONSCIOUSNESS.

Symptoms of CO poisoning include the following:

dizziness	vision problems	shortness of breath
headache	loss of muscle control	unclear thinking
nausea	weakness	unconsciousness

The symptoms of CO poisoning are often confused with those of influenza, and the highest incidence of poisoning occurs at the onset of cold weather or during flu season.

A victim may not experience any symptoms, only one symptom, or a few symptoms.

Suspect the presence of carbon monoxide if symptoms tend to disappear when you leave your home.

The following signs may indicate the presence of carbon monoxide:

- Hot gasses from appliance, venting system pipes or chimney, escaping into the living space.
- Flames coming out around the appliance.
- Yellow colored flames in the appliance.
- Stale or smelly air.
- The presence of soot or carbon in or around the appliance.
- Very high unexplained humidity inside the building.

If any of the symptoms of CO occur, or if any of the signs of carbon monoxide are present, **VACATE THE PREMISES IMMEDIATELY AND CONTACT A QUALIFIED HEATING SERVICE COMPANY OR THE GAS COMPANY OR THE FIRE DEPARTMENT.**

ONLY QUALIFIED, LICENSED SERVICE CONTRACTORS SHOULD PERFORM WORK ON YOUR BIASI RIVA ADVANCE COMBI.

IMPORTANT INFORMATION
Please read this page carefully.

- **ALL BOILERS MUST BE INSTALLED IN ACCORDANCE WITH NATIONAL, STATE AND LOCAL PLUMBING, HEATING AND ELECTRICAL CODES AND ORDINANCES, AS WELL AS THE REGULATIONS OF THE SERVING ELECTRICAL, WATER AND GAS UTILITIES.**
- **All systems should be designed by competent contractors, and only persons knowledgeable in the layout and installation of heating systems should attempt the installation of any boiler. It is the responsibility of the installing contractor to see that all controls are correctly installed and operating properly when the installation is completed.**
- **This boiler is intended for use, only with propane or natural gas. All flammable liquids (especially gasoline), chemicals, rags, paper, wood scraps, debris, etc., should be kept away from the boiler at all times. Keep the boiler area clean and free of all fire hazards.**
- **Please read the literature and warranties supplied by the manufacturers of the various accessory equipment. This equipment is warranted by the respective manufacturers, not by Quincy Hydronic Technology, Inc. Each piece of equipment must be installed and used according to the recommendations of the manufacturer.**

Codes and Regulations:

Installation of the boiler and related equipment must conform to national, state and local regulating agencies and codes applicable to the installation of the equipment. 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 CSD1. In the absence of local requirements, the following codes apply:

- | |
|---|
| A. ANSI/NFPA - #70 National Electric Code |
| B. ANSI/NFPA - #211 Chimneys and Vents |
| C. ANSI/NFPA - #Z223.1 National Fuel Gas Code |
| C. ANSI/NFPA - Domestic Gas Conversion Burner |
| D. CAN/CGA - B149 Installation Codes |
| E. ANSI/ASME - CSD-1 |

The above codes are available from:

National Fire Protection Association (NFPA)
Battery March Park
Quincy, Massachusetts, 02269
<http://www.nfpa.org>

CANADIAN STANDARDS ASSOCIATION
STANDARDS DIVISION
5060 Spectrum Way, Suite 100
Mississauga, Ontario, L4W 5N6

1. General Information

The Riva Advance Combi is a high efficiency condensing, wall mounted gas boiler which provides central heat. The boiler features a gas valve which modulates the energy input from 32,000 BTU/h to 125,000 BTU/h. The boiler is shipped fully assembled with the components listed on pages 10-11. All units are pressure and combustion tested at the factory prior to shipping.

Key Features:

- Wall mountable - saving valuable floor space.
- Several flue options available
- Electronic spark ignition
- Safety flow switch - positioned on the main circuit, which monitors the flow and protects the main heat exchanger from thermal shock should there be a lack of water in the system.
- Frost protection - contains an integral frost protection system to prevent frost damage which can occur in areas susceptible to very cold weather conditions.
- Boiler operation recognition system - should the boiler not be used for longer than 24 hours, it then performs a controlled system test to ensuring the motorized components within the boiler do not become inoperable due to lack of use.
- Gas valve modulation - the gas input modulates based off central heating temperature to within ± 2 °F.
- Diagnostic information system equipped with three LED diagnostic lights for quick error assessment.

2. Technical Information (M210.32 CM)

GENERAL		
Height	in	31.6
Width	in	15.7
Depth	in	13.8
Weight	lb	109.5

ELECTRICAL		
Voltage	V	120
Frequency	Hz	60
Current	A	1.6
Power consumption	W	180

RESTRICTORS REFERENCES	Gas (ø mm)	Air (color)
Natural	N/A	BLUE
Propane	548	BLUE

CENTRAL HEATING		
Maximum working temp.	°F	185
Temp. Regulation range*	°F	100-185
Maximum pressure	psi	30.0
Minimum pressure	psi	4.35
Max head loss (at 4.4 GPM)	ft	8.25
*At the minimum useful output		

2. Technical Information Cont.

ENERGY CAPACITY		
Nominal heat input (0/2000 ft)	MBH	125.0
Nominal heat input (2000/4500 ft)	MBH	112.5
Minimum heat input	MBH	32.0
Maximum useful output (0/2000 ft)	MBH	112.5
Maximum useful output (2000/4500 ft)	MBH	107.0
Minimum useful output	MBH	28.8

GAS PRESSURE SUPPLY				
Gas		Min	Max	Normal
Natural	inwc	6.8	10.0	7.0
Propane	inwc	10.0	13.0	11.0

FLUE DESIGN		
Minimum Venturi pressure	inwc	0.64
Flue pipe diameter		
Coaxial	in	2.25/4 3.25/5
Twin split pipes	in	3.25/3.25
Nominal heat flow rate (0/2000 ft)	MBH	125.0
Nominal heat flow rate (2000/4500 ft)	MBH	112.5
Max Exhaust temperature	°F	190

GAS FLOW RATE			
Gas		Min	Max
Natural	ft ³ /h	31.0	121.0
Propane	lb/h	1.5	5.7

CLEARANCE TO COMBUSTIBLES		
Front	in	18
Back	in	0
Top	in	10
Sides	in	2
Bottom	in	8
Flue pipe enclosed	in	2
Flue pipe free air	in	0
Hot water pipes	in	1"

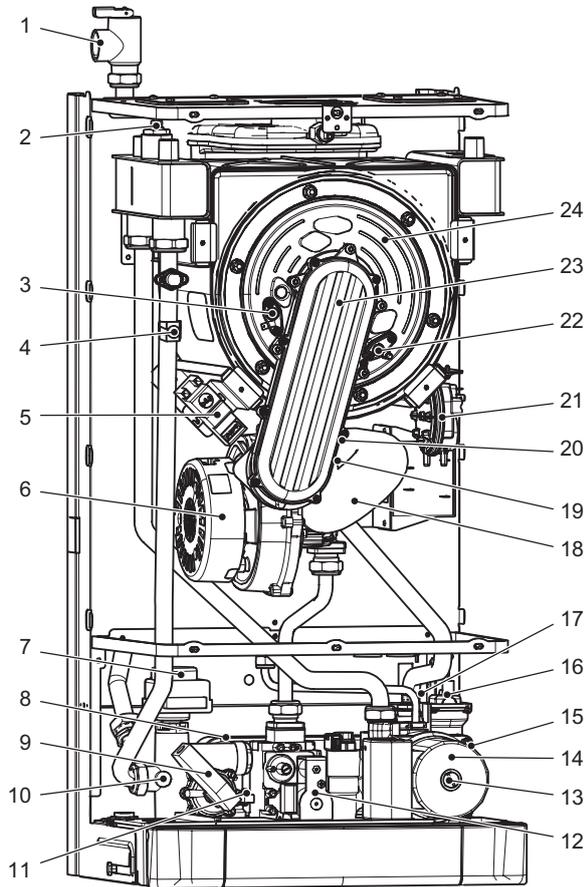
FLUE GAS FIGURES (at nominal heat input)		
Gas	Min	Max
CO ₂ content with Natural gas	8.8%	9.8%
CO ₂ content with Propane gas	9.6%	11.0%
O ₂ content	4.3%	5.0%

FLUE GAS FIGURES (at minimum heat input)		
Gas	Min	Max
CO ₂ content with Natural gas	8.8%	9.8%
CO ₂ content with Propane gas	9.6%	11.0%
O ₂ content	4.3%	5.0%

DOMESTIC HOT WATER		
Maximum temperature	°F	131
Minimum temperature	°F	95
Maximum pressure	psi	145
Minimum pressure	psi	4.35
D.h.w. ΔT 25°C / 45°F	gpm	4.5
D.h.w. ΔT 30°C / 54°F	gpm	3.8
D.h.w. ΔT 35°C / 63°F	gpm	3.2
D.h.w. ΔT 40°C / 72°F	gpm	2.8

3. Parts List

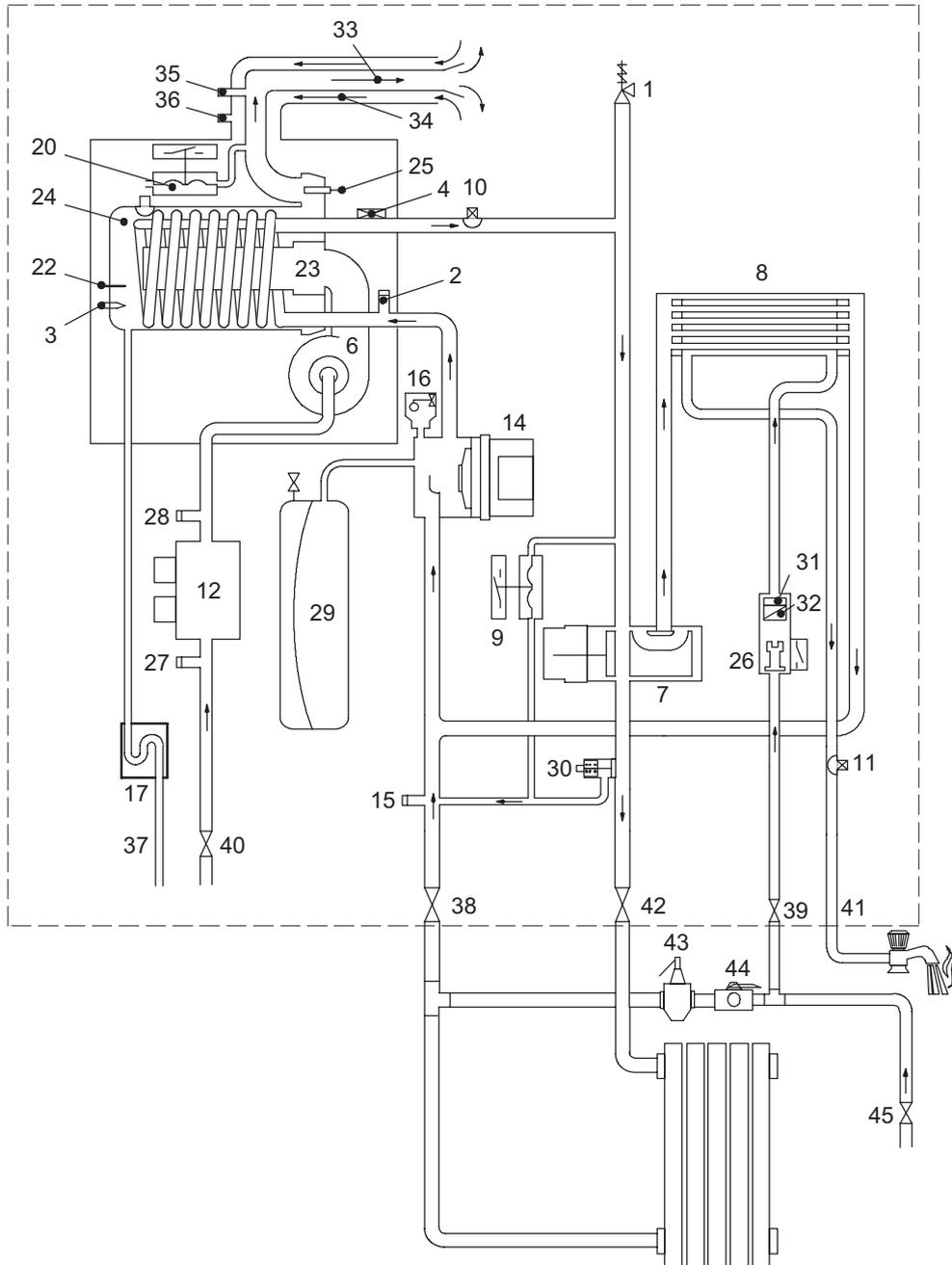
Primary Components:



- 1 Central heating pressure relief valve
- 2 Condensing heat exchanger air purger valve
- 3 Ignition electrodes
- 4 Safety thermostat
- 5 Spark generator
- 6 Fan
- 7 Three-way diverter valve
- 8 D.h.w. heat exchanger
- 9 Primary circuit flow switch
- 10 C.h. temperature probe NTC
- 11 D.h.w. temperature probe NTC
- 12 Gas valve
- 13 Pump vent plug

- 14 Pump
- 15 Main circuit drain valve
- 16 Automatic air purger valve
- 17 Condensate trap
- 18 Air hose
- 19 Transformer
- 20 Air box (air/gas mixer)
- 21 Air pressure switch
- 22 Flame-detecting electrode
- 23 Burner
- 24 Condensing heat exchanger
- 25 Flue temperature probe NTC
- 26 D.h.w. flow switch
- 27 Gas valve inlet pressure test point
- 28 Gas valve outlet pressure test point
- 29 C.h. expansion tank
- 30 By-pass valve
- 31 Domestic water circuit filter
- 32 D.h.w. flow limiter
- 33 Flue outlet pipe
- 34 Air intake pipe
- 35 Flue exhaust sampling point
- 36 Air sampling point
- 37 Condensate drain pipe
- 38 C.h. return valve
- 39 Domestic cold water inlet valve
- 40 Gas inlet valve
- 41 D.h.w. outlet pipe
- 42 C.h. flow valve
- 43 Pressure reducing automatic fill valve (Not Supplied)
- 44 Backflow preventer (Not Supplied)
- 45 Water supply inlet cock

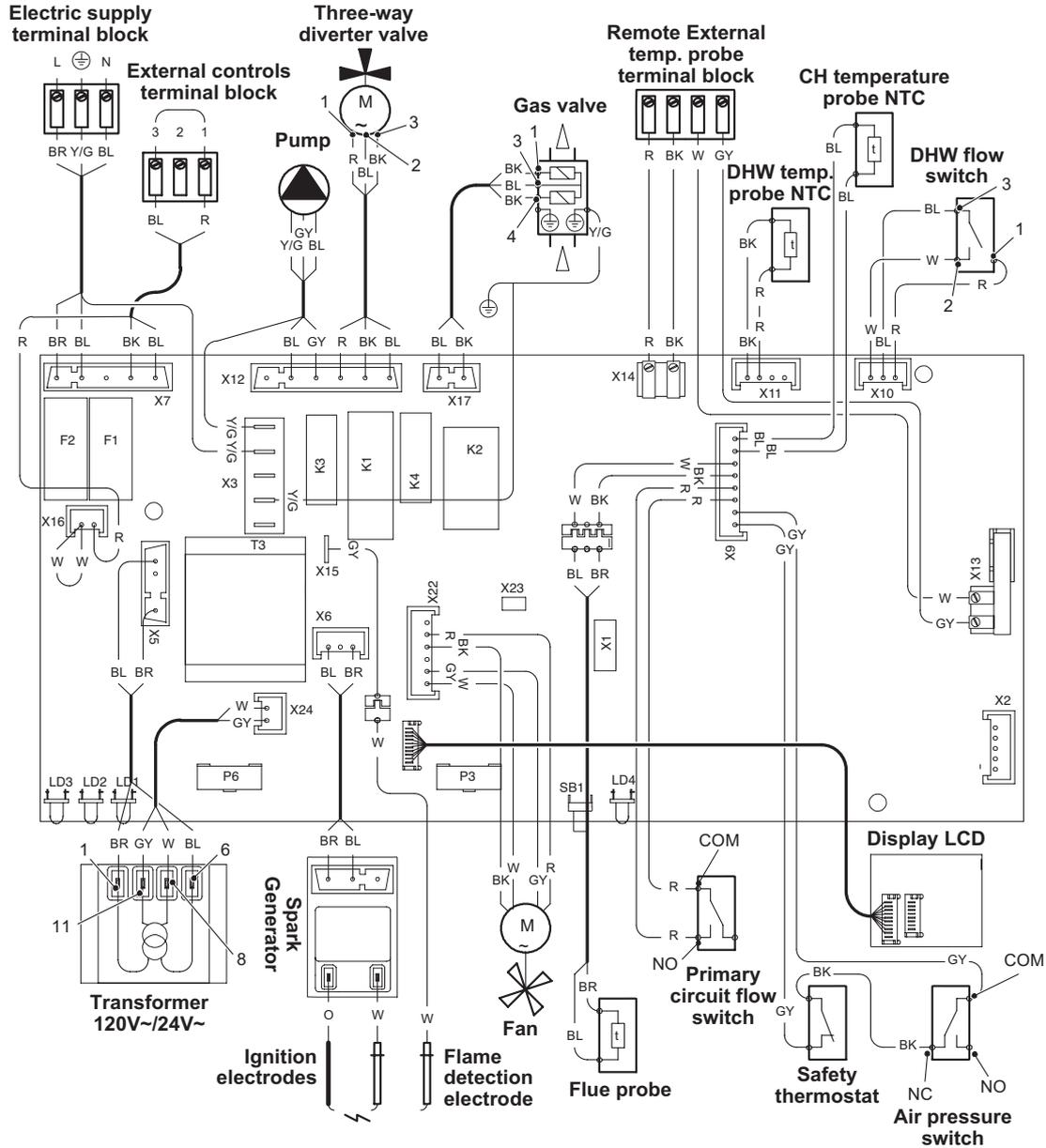
4. Internal Piping & Parts List



Note: Pressure Relief Valve (#1) should be piped to a drain or to the floor as close as possible to a drain.

Note: Figure is not intended to be a piping diagram, please refer to piping section of manual for piping practices and locations.

5. Electric Diagrams



BL	Blue	GY	Gray	Y/G	Yellow/Green
BK	Black	O	Orange	W	White
BR	Brown	R	Red		

Caution:

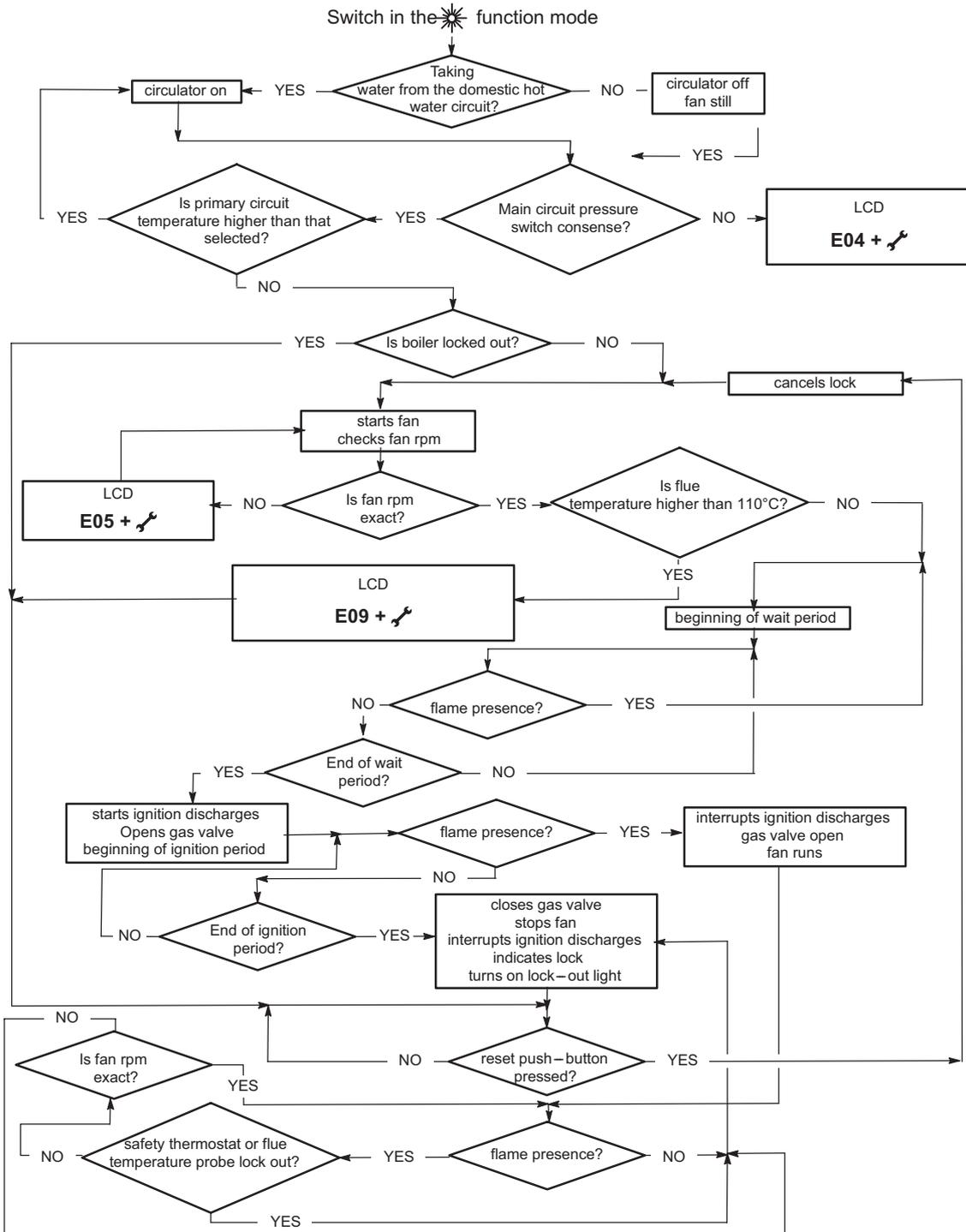
Label all wires prior to disconnection when servicing controls. Wiring errors can cause improper and dangerous operation.

Verify proper operation after servicing.

5. Electric Diagrams Cont.

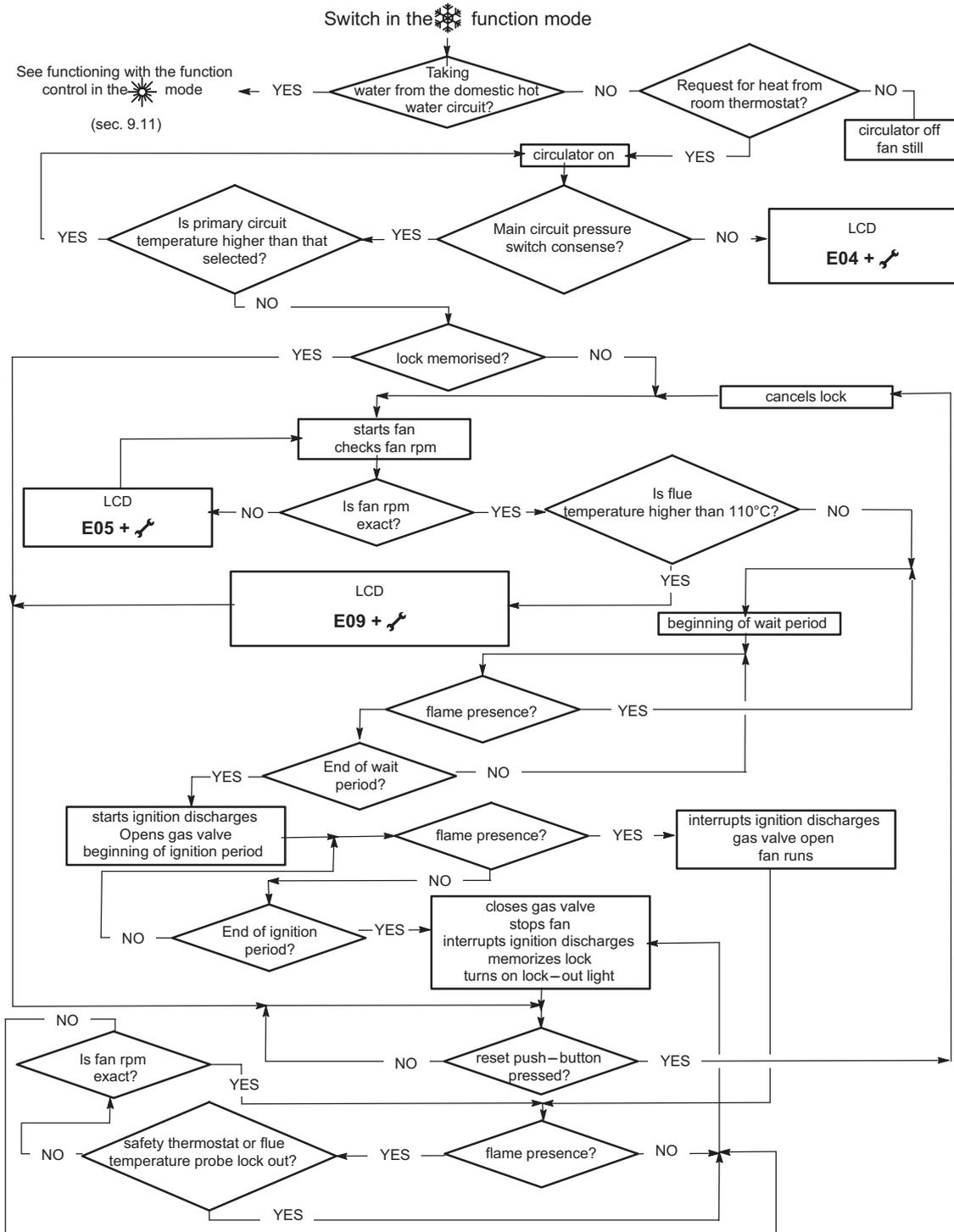
5.1 Sequence of Operation:

Thermal control in the  mode



5. Electric Diagrams Cont.

Thermal control in the ❄️ mode



6. Installation Location

The installation location chosen must:

- Comply with all clearances listed below.
- **Provide suitable location for the exhaust and intake venting.**
- Not be installed in an unheated space.
- Comply with all local codes and standards.

Note: Dimensions shown are minimums. Greater clearances will simplify installation and service.

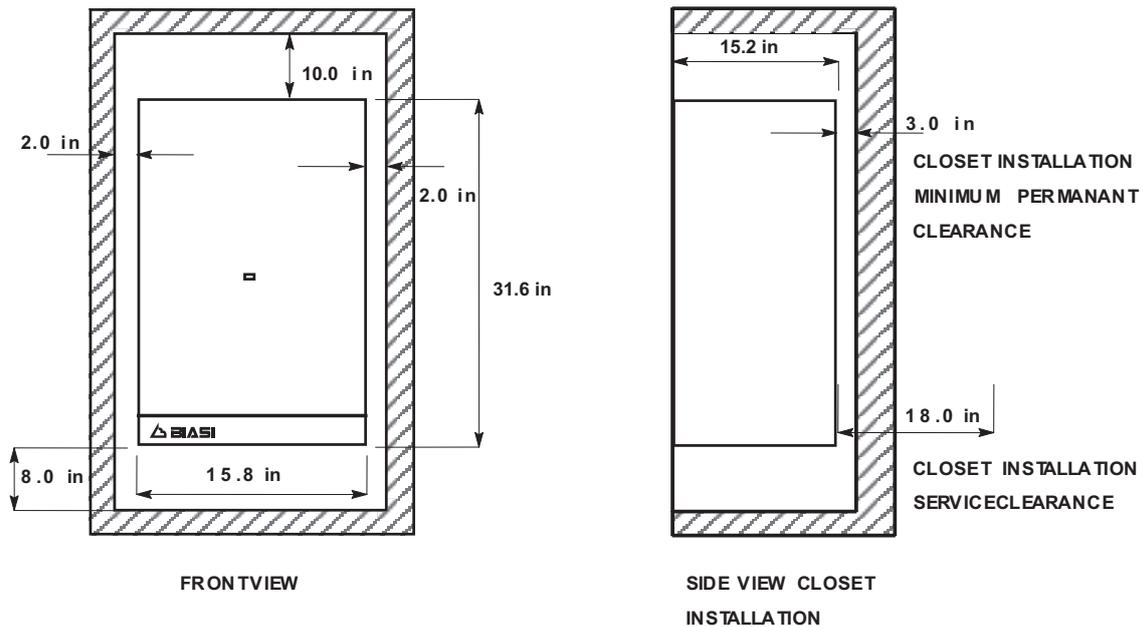


Figure 6.1

WARNING: Do not install the boiler on carpeting

If the boiler is to be installed in an enclosed room with no fresh air intake, the room must have proper vent louvers installed. There should be two louvers, place each within 12" of the ceiling and floor respectively. Each vent will have a free area of 54 square inches.

Note: For boilers in an enclosed space it is recommended to install a CO detector in the boiler room.

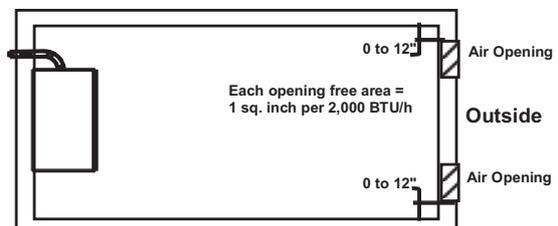


Figure 6.2

When choosing an installation location insure the exhaust and intake pipes comply with NFPA 54. The drawing on the next page illustrates the restrictions on exhaust locations.

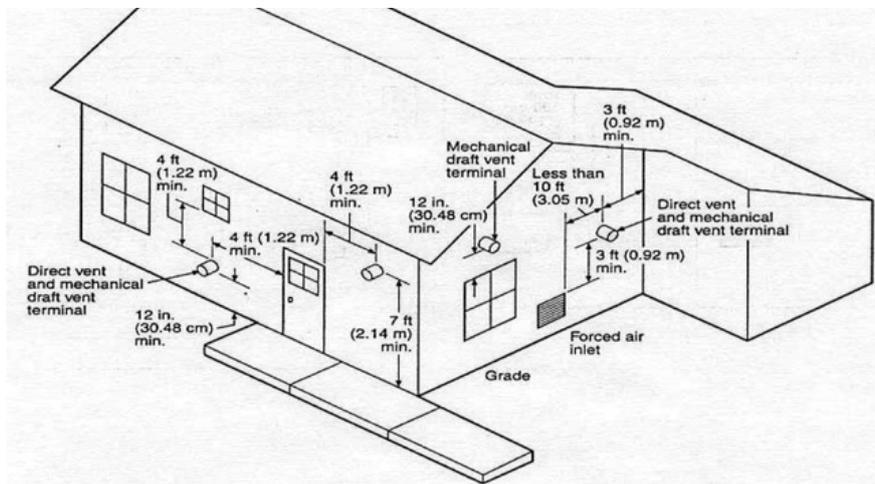
7. Exhaust Pipe Location

CAUTION

EXTERNAL VENT SURFACES ARE HOT.

IT IS RESPONSIBILITY OF THE HOMEOWNER TO KEEP THE VENT TERMINAL CLEAR OF SNOW AND ICE

NOTE: USE ONLY LISTED COMPONENTS SUPPLIED WITH THE BOILER. SURFACE DISCOLORATION OF THE BUILDING MAY OCCUR DUE TO IMPROPER INSTALLATION. QHT WILL NOT ACCEPT RESPONSIBILITY OR LIABILITY FOR SUCH DISCOLORATION.



The exhaust hood must be installed on the leeward side of house and conform to the following guidelines:

1. The vent hood shall not be less than 3 feet above any forced air inlet to the house.
 2. The vent hood shall not be less than 1 feet below, 1 foot horizontally, or 1 foot above any door, window or gravity inlet into any building.
 3. The vent hood shall not be less than 12" above normal snow level.
 4. The vent hood shall not be less than 2 feet from an adjacent building.
 5. The vent hood shall be not less than 7 feet above grade when located adjacent to public walkway.
 6. The vent hood shall be located so that flue gases are not directed to jeopardize people, overheat combustible structures, materials or enter buildings.
 7. Minimum of 4 feet horizontal clearance from electric meters, gas meters, regulators and relief equipment.
 8. **All joints in system are to be sealed to prevent leakage of products of combustion in the building.**
 9. Avoid installing exhaust hood on the North, West, or the side of the house receiving the prevailing winds.
 10. The vent should not be situated so that the flue gases are directed towards brickwork, siding, or other construction, in such a manner that may cause damage from heat or condensate from the flue gases.
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8. Mounting Bracket

After a suitable installation location is chosen, verify that the mounting wall is properly braced and strong enough to support the 110 pound weight of the unit when filled with water.

NOTE: The boiler shall be installed such that the gas ignition system components are protected from water and liquids in general (dripping, spraying, rain, etc) during the appliance operation and service.

Use the paper template provided with the boiler to determine the location of the mounting bracket. Securely mount the bracket to the wall using appropriate hardware for the particular wall construction.

Mounting Steps:

1. Tape the paper template to the wall in the chosen location. Be sure to level the template.
2. Pre-drill two holes in the center of the "oval" slots on the mounting bracket, sized for the hardware being used.
3. Mount the bracket to the wall. Be sure to level the bracket by adjusting the screw in the vertical slot.
4. Pre-drill the remaining hole in the mounting bracket and secure the final screw.
5. Mark and drill the exhaust/intake pipe holes through the house. If you are using a coaxial pipe system, drill the hole marked A (\varnothing 4") in the drawing below and on the paper template. If you are using a separate pipe system drill holes marked B and C (\varnothing 3.25") shown below as well as on the paper template.
6. **Remove paper template and hang boiler on bracket.**

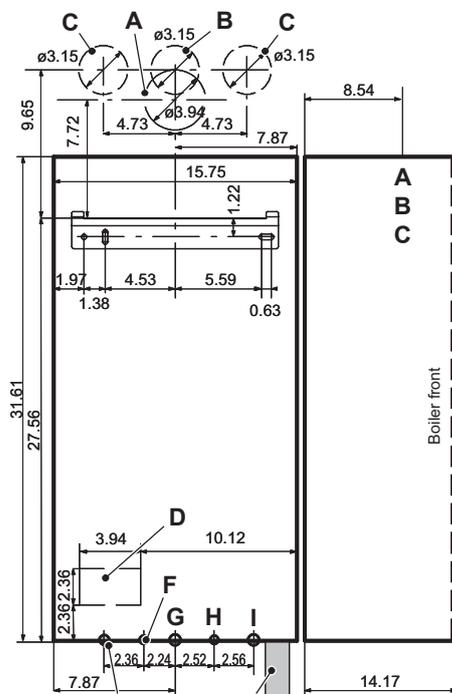


Figure 8.1

- A - Air intake/flue outlet pipe (co-axial)
- B - Flue outlet pipe \varnothing 80 mm (twin kit)
- C - Air intake pipe \varnothing 80 mm (twin kit)
- D - Electric connections area
- E - C.h. flow
- F - D.h.w. outlet
- G - Gas
- H - D.c.w. inlet
- I - C.h. return
- J - Condensate drain connection area

9. Venting

The Riva Advance Combi is a mechanical draft, side wall vented boiler. There are two side wall flue options available – separate and coaxial. The coaxial option has one configuration shown on the next page. The separate option has two possible configurations shown on the following pages. There is also a vertical roof venting option. Regardless of what vent kit is installed, they should all conform to the **Provisions for combustion and ventilation air in accordance with section 5.3, Air for Combustion and Ventilation, of the National Fuel Gas Code, ANSI Z223.1, or Sections 7.2, 7.3 or 7.4 of CAN/CGA B149, Installation Codes, or applicable provisions of the local building codes.**

If the Biasi Riva Advance Combi replaces a boiler that was attached to a common vent system, the common venting system is likely to be too large for proper venting of the appliances remaining connected to it. To ensure the remaining appliances will function properly, the test procedure below should be followed:

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 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, ANSI Z223.1 and/or CAN/CGA B149, Installation Codes. 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 of the National Fuel Gas Code, ANSI Z223.1 and/or CAN/CGA B149, Installation Codes.

9. Venting Requirements for the State of Massachusetts

The Commonwealth of Massachusetts requires compliance with regulation 248 CMR 4.00 and 5.00 for installation of through – the – wall vented gas appliances as follows:

(a) For direct-vent appliances, mechanical-vent heating appliances or domestic hot water equipment, where the bottom of the vent terminal and the air intake is installed below four feet above grade the following requirements must be satisfied:

1. If there is not one already present, on each floor level where there are bedroom(s), a carbon monoxide detector and alarm shall be placed in the living area outside the bedroom(s). The carbon monoxide detector shall comply with NFPA 720 (2005 Edition).
 2. A carbon monoxide detector shall be located in the room that houses the appliance or equipment and shall:
 - a. Be powered by the same electrical circuit as the appliance or equipment such that only one service switch services both the appliance and the carbon monoxide detector;
 - b. Have battery back-up power;
 - c. Meet ANSI/UL 2034 Standards and comply with NFPA 720 (2005 Edition);and
 - d. Have been approved and listed by a Nationally Recognized Testing Laboratory as recognized under 527 CMR.
 3. A Product-approved vent terminal must be used, and if applicable, a Product-approved air intake must be used. Installation shall be in strict compliance with the manufacturer's instructions. A copy of the installation instructions shall remain with the appliance or equipment at the completion of the installation.
 4. A metal or plastic identification plate shall be mounted at the exterior of the building, four feet directly above the location of vent terminal. The plate shall be of sufficient size to be easily read from a distance of eight feet away, and read "Gas Vent Directly Below".
- (b) For direct-vent appliances, mechanical-vent heating appliances or domestic hot water equipment where the bottom of the vent terminal and the air intake is installed above four feet above grade the following requirements must be satisfied:

1. If there is not one already present, on each floor level where there are bedroom(s), a carbon monoxide detector and alarm shall be placed in the living area outside the bedroom(s). The carbon monoxide detector shall comply with NFPA 720 (2005 Edition).
2. A carbon monoxide detector shall:
 - a. Be located in the room that houses the appliance or equipment;
 - b. Be either hard-wired or battery powered or both; and
 - c. Shall comply with NFPA 720 (2005 Edition).
3. A Product-approved vent terminal must be used, and if applicable, a Product-approved air intake must be used. Installation shall be in strict compliance with the manufacturer's instructions. A copy of the installation instructions shall remain with the appliance or equipment at the completion of the installation.

9. Venting Cont.

9.1 Fitting the flue system:

In general, it has to be taken in consideration that the horizontal sections of the flue pipe must have an horizontal sloping not less than 1.5 degree (0.3 in per ft) towards the boiler.

In the standard horizontal flue kit the flue pipe is angled within the air duct therefore the air duct must be horizontally installed.

If one or more extensions have to be used they must be adequately supported so that there is no sag in the flue pipe and a minimum fall of 1.5 degree (0.3 in per ft) over the whole length towards the boiler is ensured.

9.2 Choice of flue:

The following flue kits are available for connecting to the boiler:

A Standard coaxial horizontal flue kit (Exhaust & intake outside) - PART# RI-9990387

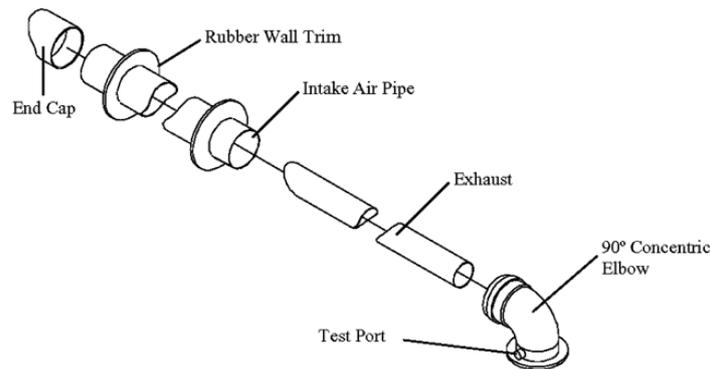


Figure 9.1 (Coaxial 2.4/4.0 inches – nominal length 3.3 ft)

It can be mounted to allow discharge to the rear or either side of the boiler via the flanged boiler adapter elbow. Minimum length required is 1.5 ft. Maximum equivalent length of 33 ft can be achieved utilizing extensions. This flue system can only be used to discharge horizontally, it is not designed to enable termination in the vertically.

Installation:

- Drill a hole 4.5" in diameter through the outside wall that is less than 18" thick.
- Cut the pipe as necessary so that a no more than 6" protrudes from the house.
- Slide the intake and exhaust pipes through the hole.
- Slide one rubber wall trim piece on the pipe from inside and one from outside.
- Connect exhaust (inner) pipe to concentric elbow.
- Connect intake (outer) pipe to concentric elbow.
- Secure elbow to boiler using gasket and four screws provided.
- Secure end cap on the intake pipe outside the house.

9. Venting Cont.

B Riser coaxial horizontal flue kit (Exhaust & intake outside)

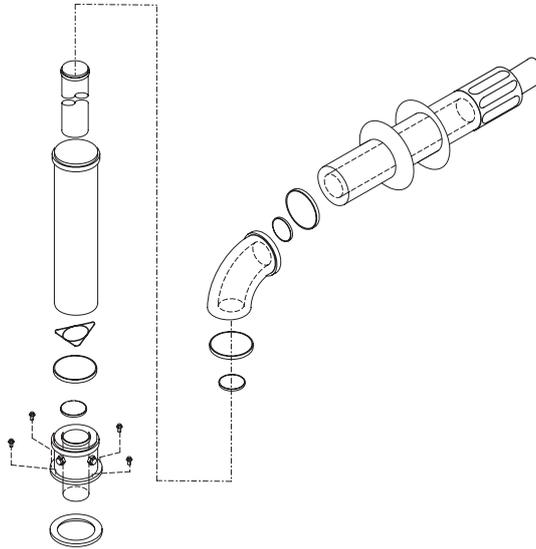


Figure 9.2 (Coaxial 2.4/4.0 inches – nominal length 4.5 ft)

It can be mounted to allow discharge to the rear or either side of the boiler via the flanged boiler adapter elbow. Minimum length required is 1.5 ft. Maximum equivalent length of 33 ft can be achieved utilizing extensions. This flue system can only be used to discharge horizontally, it is not designed to enable termination in the vertically.

Installation:

- Drill a hole 4.5" in diameter through the outside wall that is less than 18" thick.
- Cut the pipe as necessary so that a no more than 6" protrudes from the house.
- Slide the intake and exhaust pipes through the hole.
- Slide one rubber wall trim piece on the pipe from inside and one from outside.
- Connect exhaust (inner) pipe to concentric elbow.
- Connect intake (outer) pipe to concentric elbow.
- Secure elbow to boiler using gasket and four screws provided.
- Secure end cap on the intake pipe outside the house.

9. Venting Cont.

F Plastic vent requirements

All piping that is used to vent the Riva Advance Combi boiler must conform to the standards listed below.

Parts	Material	United States	Canada
Exhaust and Intake Piping	PVC	ANSI/ASTM D1785	ULC S636
	CPVC	ANSI/ASTM DF441	
	Polypropylene		
Pipe Cement / Primer	PVC	ANSI/ASTM D2564	
	CPVC	ANSI/ASTM F493	

It is not permitted to use a cellular core PVC (ASTM F891), cellular core CPVC, or Radel® (polyphenolsulfone) in venting systems. Covering non-metallic vent b[bWS V Xff] Ye thermal insulation shall be prohibited.

All intake piping can be constructed of PVC pipe. The first 8 feet of exhaust pipe must be CPVC or Polypropylene pipe. After that point it is permissible to assemble the rest of the vent in PVC. It is recommended to finish the piping using CPVC or Polypropylene.

Canadian Installations:

- PVC/CPVC vent pipe must be listed to ULC S636. Pipe, fittings, and cements are certified as a system and must be installed as such. Different manufacturers have different materials, joining systems and adhesives. Do not mix pipe, fittings, solvents, or joining methods from different BH Vent manufacturers, this can result in unsafe conditions.
- Consult PVC/CPVC manufacturer's installation manual for correct joining of pipe for gas venting.

General installation PVC/CPVC:

1. Cut pipe to required lengths and dry fit the venting and intake system to ensure a proper fit.
2. Disassemble the system and de burr the inside and outside of the pipe ends.
3. Chamfer the outside of each end of the pipes.
4. Make sure that each pipe end and fitting are clean. Once they are do not handle the joining surfaces.
5. Apply primer to both the fitting and the pipe end.
6. While the primer is damp, apply a even coating of cement to the pipe end and the fitting.
7. Insert the pipe into the fitting making sure the pipe is completely seated.
8. Rotate the pipe 1/4 turn and hold in place for 30 seconds.
9. Wipe any excess cement away and check that there is a complete bead of sealant around the joint of the fitting.
10. Allow to cure for 2 hours before commissioning the boiler.
11. Install perforated metal pipe supports onto the pipe, making sure there is no sagging in the pipe. Place supports as close as possible to elbows to relieve stress on the joint.

9. Venting Cont.

G PVC boiler adapter - Part# RI-99909120

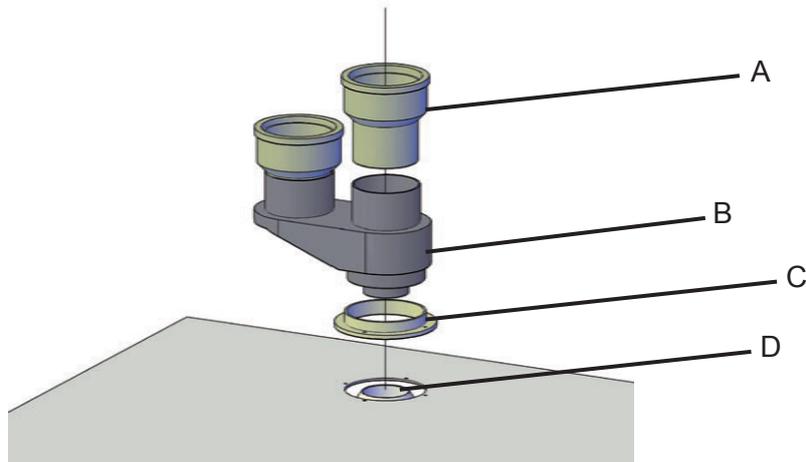


Figure 9.6

This kit is required to vent the Riva Advance Combi boiler using PVC/CPVC pipe. The kit includes a boiler connection adapted for PVC/CPVC. When venting with PVC/CPVC this boiler adapter is required in addition to one of the terminations on the following pages.

Canada: All PVC/CPVC pipe, fittings, and cement must be approved to ULC S636. Do not mix pipe and joining compounds from different manufacturers as this can result in an unsafe condition and void the certification.

Installation:

- Attach the collar (C) from the adapter kit to the top of the boiler using the supplied screws.
- Insert the boiler adapter (B) into the collar. Check that the exhaust gasket (D) is installed on the outlet of the boiler first.
- Once the adapter is positioned in place, tighten the clamp on the collar and install the supplied self tapping screw through the pre drilled hole on the collar.
- Insert the PVC adapters (A) into the boiler adapter (B).
- Slide the CPVC/PVC pipe into the PVC adapters (A), do not use any solvents or cement on this connection. It is a gasket connection that requires no sealing. If polypropylene pipe is being used, remove the PVC adapter A from the boiler adapter. Insert the polypropylene pipe into the boiler adapter and use the PVC adapter in the end of the polypropylene pipe to convert to PVC.

9. Venting Cont.

H PVC concentric vent kit - Part# RI 3PPS-HK

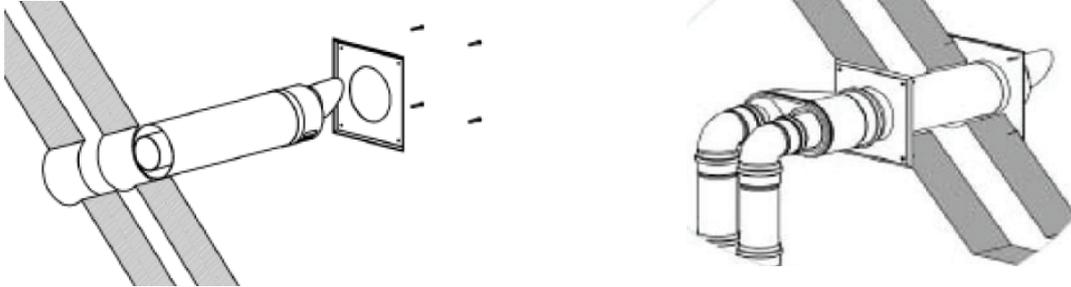


Figure 9.7 (Equivalent length - 5')

This kit allows horizontal termination of the flue pipe using PVC/CPVC pipe. The kit includes boiler connection and termination adapted for CPVC/PVC. 3" PVC/CPVC pipe may be added up to the total overall maximum permissible length of 132' intake and exhaust combined. Optional 45° and 90° elbows can be used to offset the flue route. Each additional elbow reduces the overall acceptable length of the flue system as follows:

Venting Specifications			
Max Length (intake + exhaust)	132 f	45° elbow	2.9 ft. equivalent
Min Length (intake + exhaust)	3 ft.	90° elbow	5.4 ft. equivalent

Canada: All PVC/CPVC pipe, fittings, and cement must be approved to ULC S636. Do not mix pipe and joining compounds from different manufacturers as this can result in an unsafe condition and void the certification.

Installation:

- Drill 5.5" hole through the outside wall making sure there is 1 foot clearance above normal snow level.
- Insert the termination through the flexible exterior gasket and the building wall.
- Fix the exterior gasket to the wall using 4 contractor supplied fasteners.
- Slide the interior wall gasket over the termination and fix it to the wall using 4 user supplied fasteners.
- Assemble the gaskets into the twin pipe adapter.
- Install the twin pipe adapter onto the termination.
- Install the PVC adapters supplied onto the twin pipe adapter according the manufacturers instructions.
- Install piping pitched back toward the boiler making sure not to exceed the maximum allowable length.
- Intake air piping can be constructed of PVC pipe. Exhaust piping must be CPVC or Polypropylene for the first 8 feet.
- Intake and exhaust piping should be assembled and secured according to the pipe manufacturers instructions.
- Install the vent adapter onto the top of the boiler using the gasket and screws provided.
- Install the pipe onto the boiler by simply pushing it into the adapters. Do not cement the pipe into the adapters, this is a gasket connection.

9. Venting Cont.

I PVC roof vent kit - Part# RI 3PPS-VK



Figure 9.8 (Equivalent length - 9')

This kit allows vertical termination of the flue pipe using PVC/CPVC pipe. The kit includes boiler connection and termination adapted for CPVC/PVC. 3" PVC/CPVC pipe may be added up to the total overall maximum permissible length of 132' intake and exhaust combined. Optional 45° and 90° elbows can be used to offset the flue route. Each additional elbow reduces the overall acceptable length of the flue system as follows:

Venting Specifications			
Max Length (intake + exhaust)	132 f	45° elbow	2.9 ft. equivalent
Min Length (intake + exhaust)	3 ft.	90° elbow	5.4 ft. equivalent

Canada: All PVC/CPVC pipe, fittings, and cement must be approved to ULC S636. Do not mix pipe and joining compounds from different manufacturers as this can result in an unsafe condition and void the certification.

Installation:

- Choose the appropriate weather collar for the installation, Pitched or Flat.
- Drill a hole through the roof large enough to accommodate the 5.5" vent terminal.
- Fix the flue collar in place and insert the termination from outside the building.
- Fix the supplied wall clamp around the vent terminal but do not tighten it.
- Assemble the gaskets with the concentric pipe adapter. It may be necessary to use a small amount of water.
- Install the PVC adapters supplied onto the twin pipe adapter according the manufacturers instructions.
- Install piping to the boiler making sure not to exceed the maximum allowable length.
- Intake air piping can be constructed of PVC pipe. Exhaust piping must be CPVC or Polypropylene for the first 8 feet.
- Intake and exhaust piping should be assembled and secured according to the pipe manufacturers instructions.
- Install the vent adapter onto the top of the boiler using the gasket and screws provided.
- Install the pipe onto the boiler by simply pushing it into the adapters. Do not cement the pipe into the adapters, this is a gasket connection.

9. Venting Cont.

J Polypropylene chimney liner kit Part#

This kit allows for venting of the boiler through an existing chimney way. The kit includes all the parts needed from the chimney thimble to the chimney top termination. It is not permitted to use any other vent system than the listed kit. The connection to the boiler should be constructed of polypropylene pipe lengths. The total overall maximum permissible length of 50' liner and chimney connector combined. Optional 45° and 90° elbows can be used to offset the flue route.

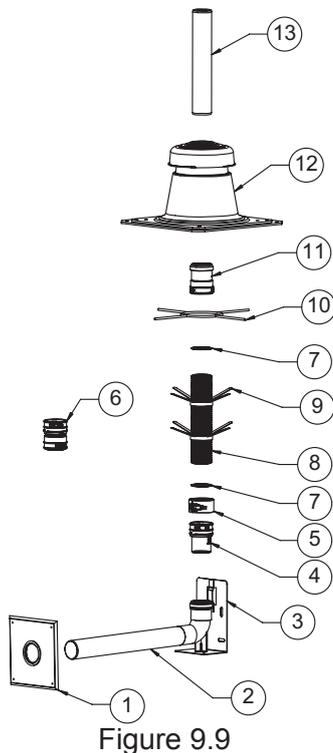


Figure 9.9

1. Single wall shaft connector
2. Support elbow
3. Support bracket
4. Male flex adapter to rigid
5. Clamp (or tie)
6. Coupling
7. Seal
8. Flex liner
9. Spacer bracket
10. Support cross
11. Female flex adapter to rigid
12. Weather collar
13. Metal termination pipe

Installation:

- Please refer to the manufacturers instructions for installation of the liner kit.
- Once liner has been installed install piping to the boiler using 3" polypropylene pipe making sure not to exceed the maximum allowable length.
- Intake air piping can be constructed of Polypropylene pipe. Exhaust piping can only be constructed of a high temperature pipe like polypropylene.
- Intake and exhaust piping should be assembled and secured according to the pipe manufacturers instructions.
- Install the vent adapter onto the top of the boiler using the gasket and screws provided and remove the PVC adapters supplied with the adapter.
- Install the pipe onto the boiler by simply pushing it into the adapters. Do not cement the pipe into the adapters, this is a gasket connection.

9. Venting Cont.

K PolyPro separate vent kit

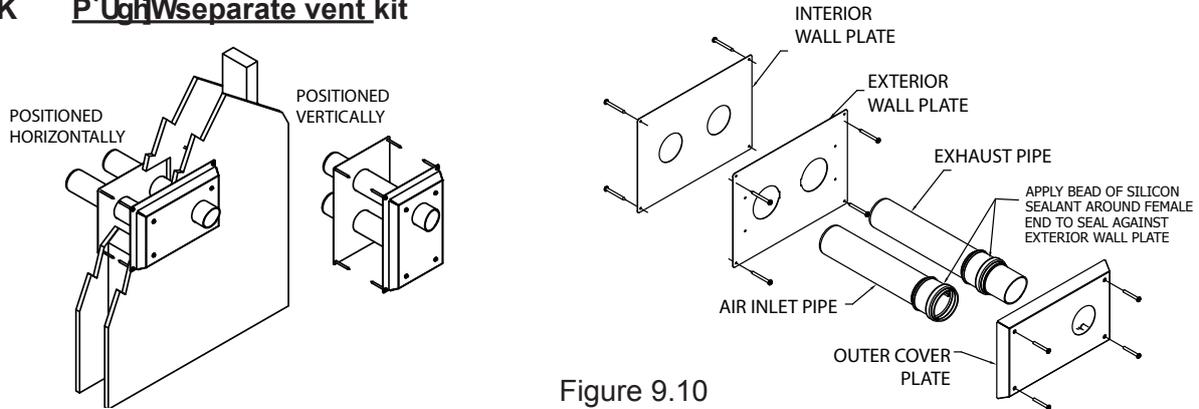


Figure 9.10

This kit allows horizontal termination of the flue pipe using 3" Plastic pipe. The kit includes PVC/CPVC boiler adapters. PVC pipe may be added up to the total overall maximum permissible length. Optional 45° and 90° elbows can be used to offset the flue route. Each additional elbow reduces the overall acceptable length of the flue system as follows:

Venting Specifications			
Max Length (intake + exhaust)	132 ft.	45° elbow	5.4 ft. equivalent
Min Length (intake + exhaust)	3 ft.	90° elbow	2.9 ft. equivalent

Canada: All PVC/CPVC pipe, fittings, and cement must be approved to ULC S636. Do not mix pipe and joining compounds from different manufacturers as this can result in an unsafe condition and void the certification.

Installation:

- Drill two 4" holes through the outside wall or the roof.
- Mount the Exterior Wall Plate of the Termination on the outside wall, using RTV silicone sealant between the plate and the wall to prevent rain infiltration.
- Secure the back plate in place with 1 1/2" screws or appropriate hardware for your exterior wall.
- From the outside, apply a bead of silicone sealant around the female end of the pipe where the plate will meet the flared end.
- Then slide the two PolyPro vent pipe section into the holes of the Exterior Wall Plate. Twist the pipe so the female end's keyway slide past the Exterior Wall Plate as shown.
- If needed, the PolyPro vent pipe sections can be cut to length for your installation.
- On the exhaust vent, attach the termination nozzle and orient it so the protruding edge is at the top of the exhaust vent.
- Put the Outer Cover Plate over the vent pipe, with the exhaust extending through the Outer Cover Plate, and the air inlet being covered by it.
- The Outer Cover Plate will hold both the air inlet vent and the exhaust vent in place. Secure the Outer Cover Plate to the Exterior Wall Plate using the hardware supplied.
- On the inside wall, mount the Interior Wall Plate to the wall and secure with hardware supplied.
- Install the pipe onto the boiler by simply pushing it into the adapters. Do not cement the pipe into the adapters, this is a gasket connection.

10. Pipe Connections

The Riva Advance Combi is supplied with a 3/4" stainless steel gas pipe (A in figure 10.1), 2 - 3/4" copper pipe (C, D in figure 10.1), 2 - 1/2" (F, G in figure 10.1) located in a plastic bag in the boiler package.

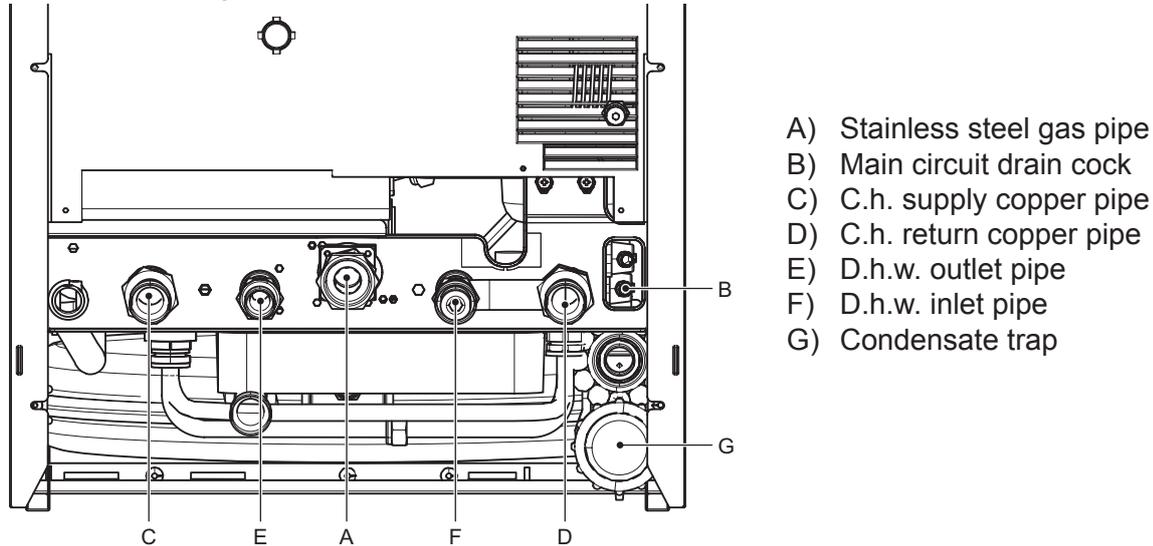


Figure 10.1

Installation:

- Remove the protective caps off boiler connections (Figure 10.1).
- Thoroughly clean the connections.
- Attach the supplied components to the boiler connections (see Figures 10.1). Be sure to use the proper gaskets for the pipe connections.
- Attach the PRV to the PRV discharge pipe on the top of the boiler. Be sure to use the 3/4" flat washer supplied for the connection.
- Attach the condensate trap to an appropriate drain pipe.
- Before connecting the boiler to the heating system piping, review the suggested piping diagrams in Section 4 (page 11).
- If the c.h. system is above the boiler level, it is advisable to install c.h. cocks close to the boiler for service.
- A hot water boiler installed above radiation level or as required by the Authority having jurisdiction, must be provided with a low water cutoff device either as part of the boiler or at the time of boiler installation.

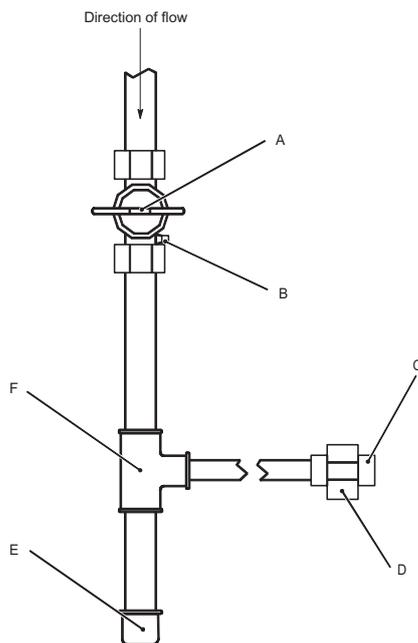
Condensate trap:

The condensate trap allows the discharge of the condensate via the condensate drain pipe while preventing the escape of combustion products. A plastic ball closes the trap outlet in case that the trap is empty. The condensate trap is provided with two electrodes: if the drain pipe is plugged or in any case in which the condensate isn't correctly evacuated, the condensate level in the trap rises putting in contact the electrodes thus causing the boiler lock-out.

11. Gas Pipe Connections

Gas supply piping is to be sized and installed properly in order to provide a supply of gas sufficient to meet the maximum demand without undue loss of pressure between the meter and the boiler. Consult with the **National Fuel Gas Code ANSI Z223.1** for proper sizing of gas piping for various lengths and diameters.

The boiler must be cut out from the gas supply piping system by closing its shut-off valve during any gas supply piping system pressure test where there is test pressures equal or lower than 1/2 psi (3.5 kPa).



- A) Manual T-handle Shutoff Valve
- B) Pressure Gauge Port
- C) Flexible Gas Line to Burner
- D) Male Union $\frac{3}{4}$ " NPT
- E) Pipe Cap
- F) 1" X 1" X $\frac{3}{4}$ " TEE

Note: Height of valve above ground level to conform to local codes, if any. Massachusetts state code requires gas shut off to be a tee handled gas cock.

Figure 11.1

Locate a drop pipe adjacent to, but not in front of the boiler. Locate a tee (F) in the drop pipe at the same elevation as the gas inlet connection to the boiler. Extend the drop line with a nipple towards the floor and cap to form a sediment trap (E). Install a shut off valve (A) before the tee with sediment trap and a union after the tee before the combination gas valve (D).

When installing the boiler, make sure a pipe compound resistant to the action of liquefied petroleum is used. Check piping for leaks. Always check leaks with a water and soap solution. The boiler and its gas connection must be leak tested before placing the boiler in operation. The boiler and its individual shut-off valve must be disconnected from the gas supply piping system during any pressure test in excess of $\frac{1}{2}$ psi (3.5 kPa).

WARNINGS

DO NOT USE A FLAME FOR CHECKING GAS LEAKS.

12. Electrical Connections/Wiring

12.1 Power Connection:

Removing Front Panel:

- Remove the front panel by removing screws A and sliding the front panel up and away from the boiler.

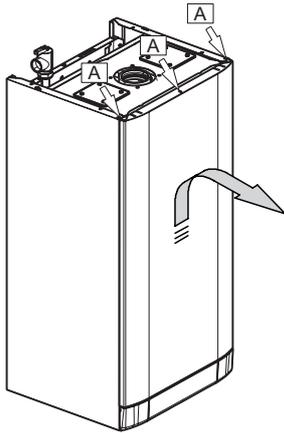


Figure 12.1

Removing Side Panel:

- Remove screws B.

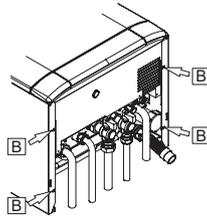


Figure 12.2

Removing Service Panel:

- Remove screws B.

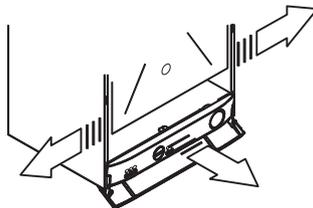


Figure 12.3

- Move the lower part of the side panels (figure 12.3).
- Pull the control panel. When completely pulled out, the panel can rotate 45° downward.

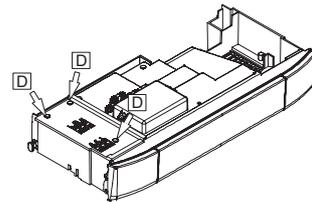


Figure 12.4

- Loosen screws D and remove the service panel (Fig. 12.4)

For the electrical connection to the boiler use electric wires which conform to local regulations. The boiler, when installed, must be electrically bonded to ground in accordance with the requirements of the authority having jurisdiction or, in the absence of such requirements, with the National Electrical Code, ANSI/NFPA 70 and/or Canadian Electrical Code Part I CSA C22.1, Electrical Code. In United-States, keep a distance of at least 4 feet (1.22 m) horizontally from the vent terminal at the gas meters, electric meters, regulators and venting equipment. In Canada, keep a distance of 6 feet (1.83 m) between the vent terminal and its devices.

12.2 Connection to the electricity supply:

- Connect the electrical supply cable coming from the fused spur isolation switch to the power supply terminal block of the boiler (as shown in figure 12.5) keeping the same connections for the live wire and the neutral wire.

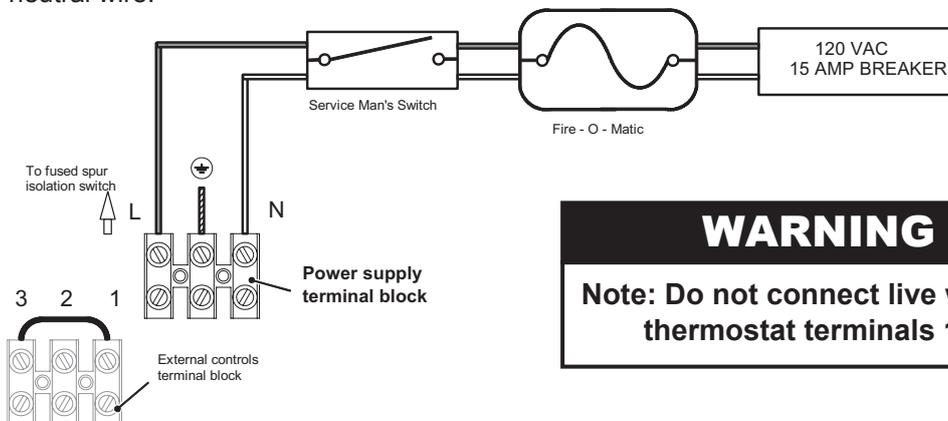


Figure 12.5

12. Electrical Connections/Wiring Cont.

12.3 Room Thermostat Connection:

- The room thermostat must be connected to the terminal block situated next to the control panel.

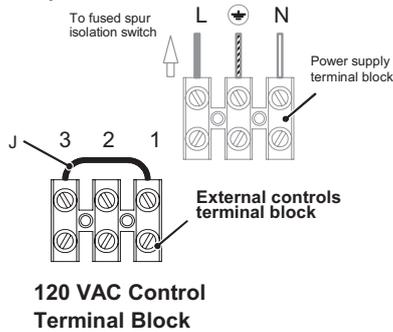


Figure 12.6

- Any external controls and connection lines must be rated at 120 VAC but under no circumstances should external live voltage be connected to terminals 1 and 3 on the boiler.

- When connecting any type of external control, the jumper J in Fig. 12.6 must be removed.
- The room thermostat must be connected to the “Control Terminal Block” through a external relay such as the RIB01BDC (Fig 12.7).

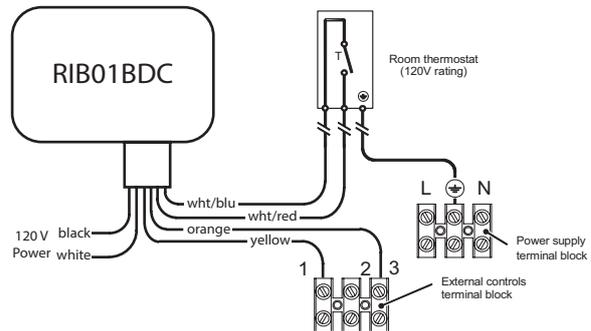


Figure 12.7

- Connect the room thermostat and relay control between terminals 1 and 3 as shown in Fig. 12.7.

12.4 Relay Panel Connection:

- The relay control must be connected to the terminal block situated next to the control panel.

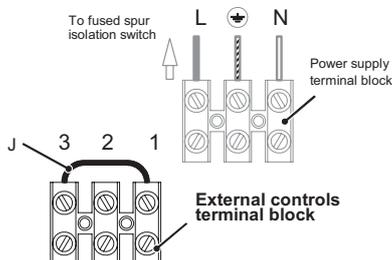


Figure 12.8

- When connecting any type of relay control, the jumper J in Fig. 12.8 must be removed.

- Connect the dry contact switch of the relay panel to the 120 VAC control terminal block (Fig 12.9).

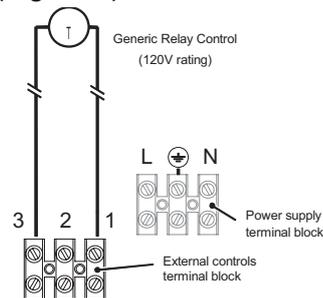


Figure 12.9

- Connect the dry contact switch to terminals 1 and 3 shown in Fig. 12.9.

12. Electrical Connections/Wiring Cont.

12.5 Finishing:

- Route the electrical supply cord and the external control cord as illustrated in Fig. 12.10.

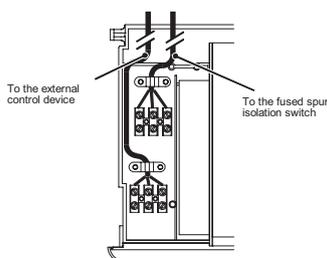


Figure 12.10

- Lock the cords in place with the flexible cord clamps.
- Replace the control panel reversing the steps on page 30.

12.6 Installing the external temperature probe:

The external probe must be installed on an external wall of the building, avoiding:

- Direct sun radiation.
- Wet walls or walls where mould tends to form.
- Installation near fans, exhaust or chimney vents.

12. Electrical Connections/Wiring Cont.

12.7 Electric connection between the boiler and the external probe:

When connecting the external probe to the boiler, use electric wires with a minimum gauge of 18 AWG or section of 0.50 mm².

The electric wires for connecting the external probe to the boiler must run through different grooves than those at network voltage (120 VAC), as they are powered at a low safety voltage and their maximum length must not exceed 66 feet or 20 meters.

- Remove the two screws shown in Figure 12.11 and open the **external probe** connection terminal board.

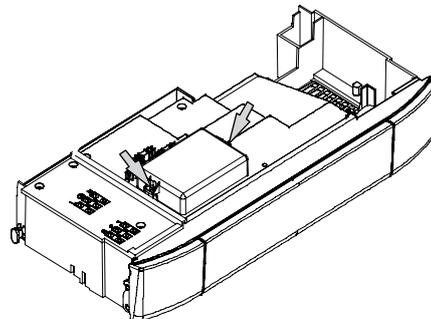


Figure 12.11

- Connect the two electric wires to terminals **E1** and **E2** on the terminal board as shown in Figure 12.12.
- Connect the same wires to the external probe terminals.

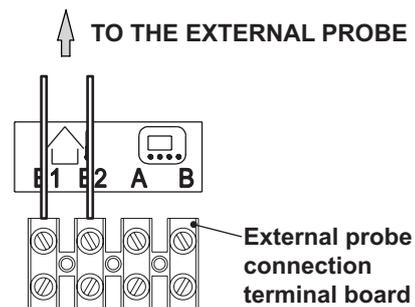


Figure 12.12

12. Electrical Connections/Wiring Cont.

The path of the external probe wires or cable must follow the indicated path and be fastened as shown in Figure 12.13.

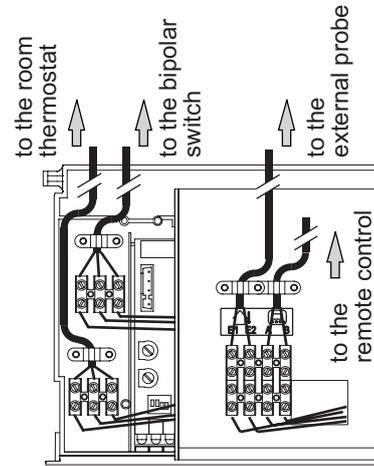


Figure 12.13

12.8 Remote control electric connection (optional):

Unscrew the screws and remove the terminal board cover (Figure 12.11). See also the REMOTE CONTROL manual to connect the remote control to the boiler.

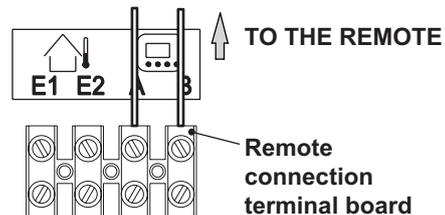


Figure 12.14

Connect the two electric wires to terminals **A** and **B** on the terminal board as shown in Figure 12.14.

The electric bridge connected in the room thermostat terminal board between terminals "1 and 3" must not be removed Figure 12.15.

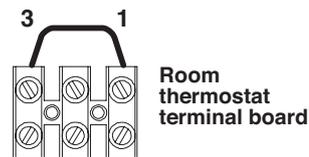
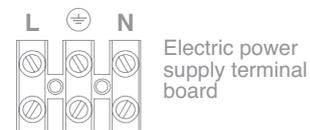


Figure 12.15

12. Electrical Connections/Wiring Cont.

The path of the electric power supply wires or cable of the boiler and the remote control must follow the indicated path and be fastened as shown in Figure 12.16.

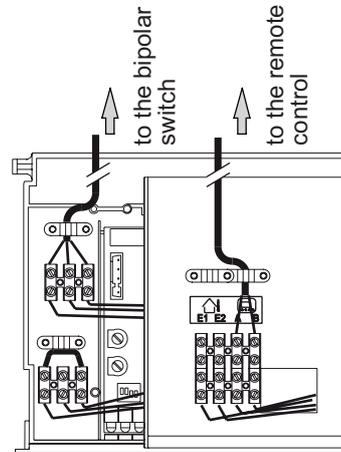


Figure 12.16

12.9 Remote enabling operation with the external probe:

For the boiler, operation with the external probe must be enabled. Its operation can be enabled by programming the REMOTE.

- Press the button  for more than 3 seconds to enter the mode *INFO*.

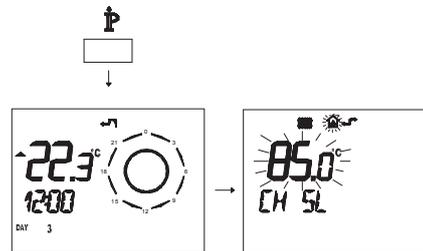


Figure 12.17

Press the buttons  and  at the same time to access transparent programming (Figure 12.18).

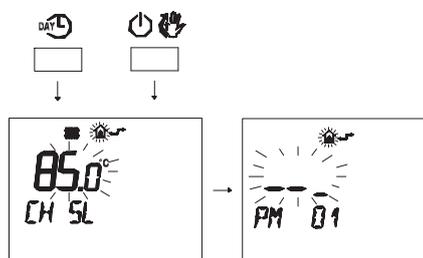


Figure 12.18

12. Electrical Connections/Wiring Cont.

- Press the buttons **F** \blacktriangledown or **F** \blacktriangle to display the programming “PM15” external probe enabling (Figure 12.19).

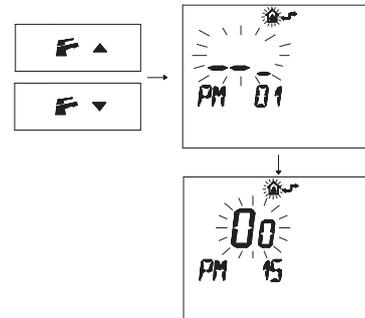


Figure 12.19

- Change the programmed SET using the buttons \blacktriangle \uparrow or \blacktriangledown \uparrow until a **set of 60** is displayed, wait until the programmed number starts to flash (Figure 12.20).

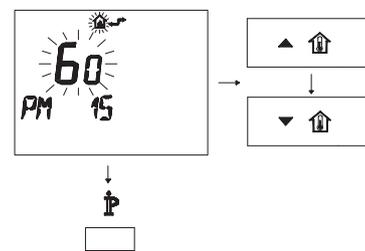


Figure 12.20

- To exit programming, press **P**.

13. Circulator Sizing

13.1 Circulator capacity as a function of flow rate:

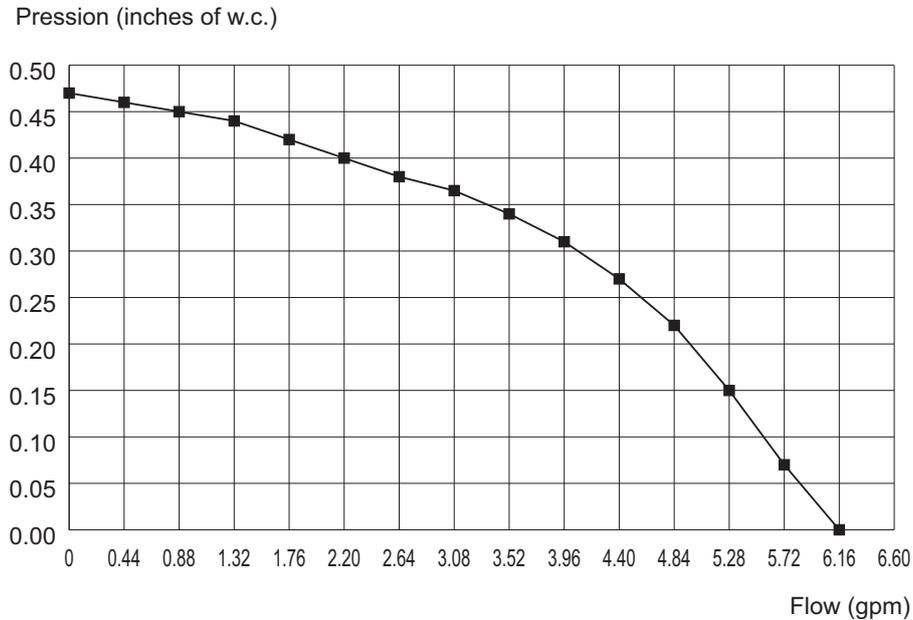


Figure 13.1

The hydraulic specification in Fig 13.1 represent the pressure (available head for the central heating system) as a function of the flow rate. The pressure loss due to the internal piping in the boiler has already been subtracted.

When determining proper piping of the heating system, verify that the internal boiler circulator will overcome the head loss of the system at the designed flow rate using the graph above.

If the internal circulator is **adequate**, direct system piping can be utilized. See section 14 page 41 for suggested direct supply/return piping.

If the internal circulator is **inadequate**, a secondary circulator must be utilized. See sections 14 for suggested primary/secondary piping.

13.2 Expansion vessels:

The height difference between the C.h. PRV (1 on page 11) and the highest point in the system may be 23 ft at most. For greater differences, increase the pre-load pressure in the C.h. expansion vessel (29 on page 11) and the system when cold, by 0.1 bar for additional 3.3 ft. For systems with volumes greater than 39 gallons (154 L), an additional expansion vessel must be provided.

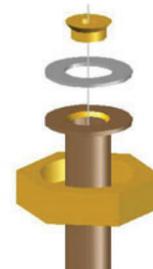
14. Piping

All external piping components are to be supplied by the installer. The boiler, when used in connection with a refrigeration system, must be installed so the chilled medium is piped in parallel with the boiler with appropriate valves to prevent the chilled medium from entering the boiler. The boiler piping system of a hot water boiler connected to heating coils located in air handling units where they may be exposed to refrigerated air circulation must be equipped with flow control valves or other automatic means to prevent gravity circulation of the boiler water during the cooling cycle.

It is very important to use a primary secondary piping scheme when an external circulator will be used. Also, when the boiler is piped in a primary secondary manner, it is necessary to use the central heating flow restrictor supplied with the boiler. The flow restrictor ensures that there will be enough back pressure to make the central heating flow switch in a low head loss piping system like primary secondary.

Installation of flow restrictor:

The flow restrictor is installed inside the pipe tail that attaches to the boiler. Place the flow restrictor into the gasket for the central heating supply pipe tail. Place the gasket on the pipe tail so the flow restrictor seats into the pipe tail. Then install the pipe tail onto the boiler.



There are two methods for accomplishing a primary secondary piping system. The first is to use two closely spaced tees for the boiler supply and return. An example is shown below in Figure 14.1. The run legs should be sized so that there is no excessive head loss on the external circulator that is installed. In most circumstances 1 1/4" piping will be the best choice. When the boiler is piped in this way, the external circulator will not have any hydraulic effect on the Riva Advance Combi. This is essential to ensure that the flow switch will operate properly. The second method is a hydraulic separator. Hydraulic separators are available commercially; however you can also construct your own. An example of a hydraulic separator is given in Figure 14.2. It is important that the separator be at least 2" in size to ensure proper performance.

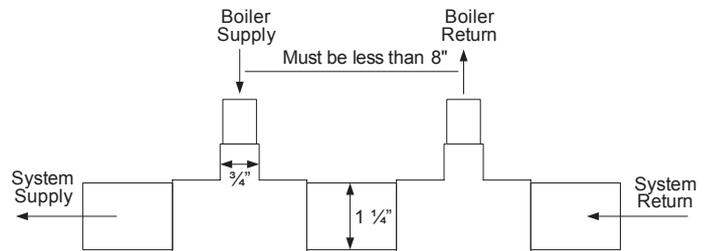


Figure 14.1

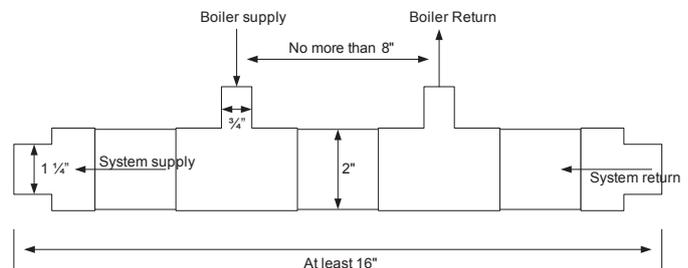


Figure 14.2

14. Piping Cont.

14.1 Primary – Secondary Piping:

All external piping components are to be supplied by the installer.

It is very important to use a hydraulic separator before secondary circulators.

All external piping components are to be supplied by the installer.

It is very important to use primary secondary piping or a hydraulic separator before secondary circulators.

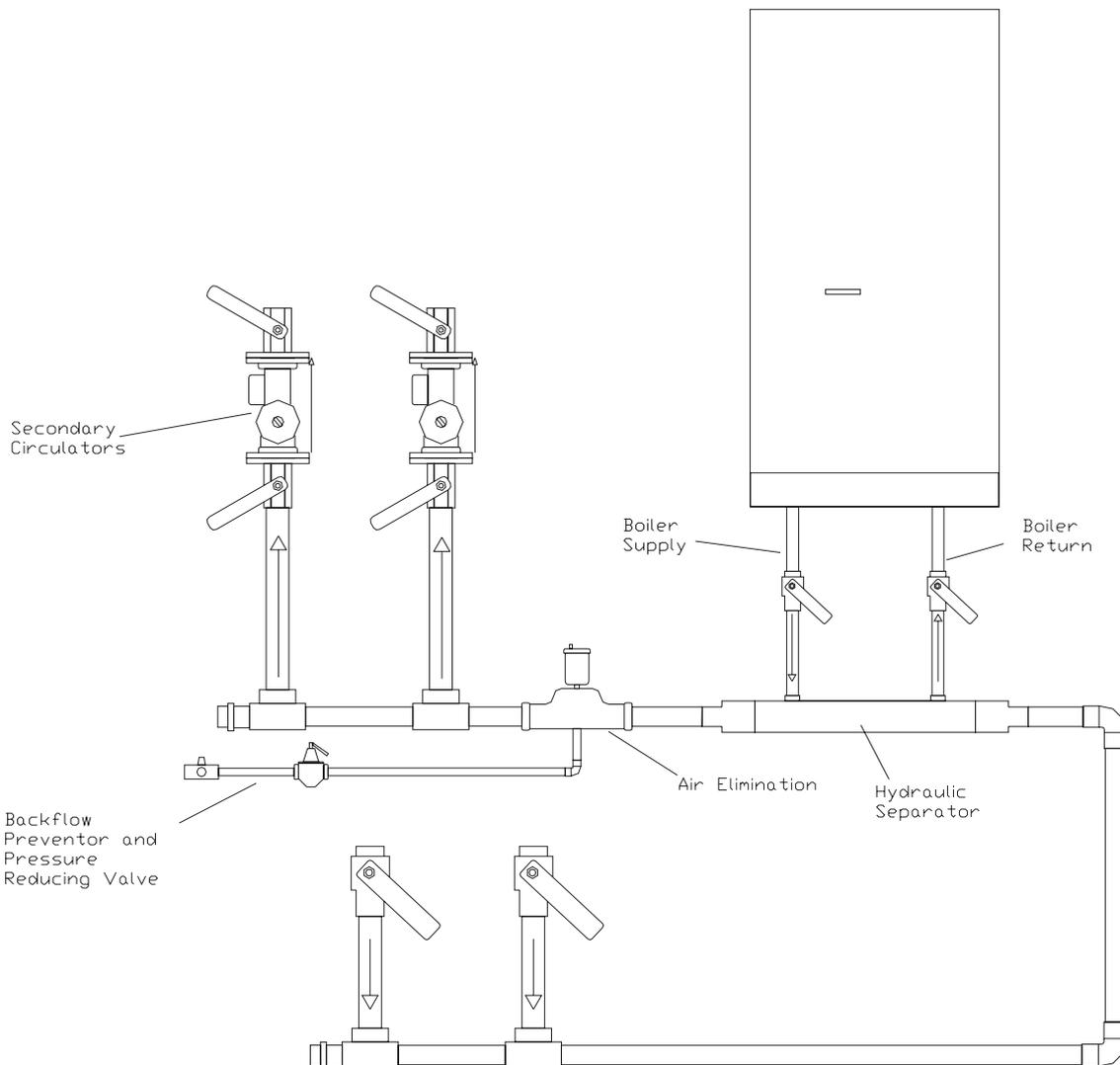


Figure 14.3

14. Piping Cont.

14.2 Primary – Secondary Piping with Zone Valves:

All external piping components are to be supplied by the installer.
It is very important to use primary secondary piping or hydraulic separator before secondary circulators.

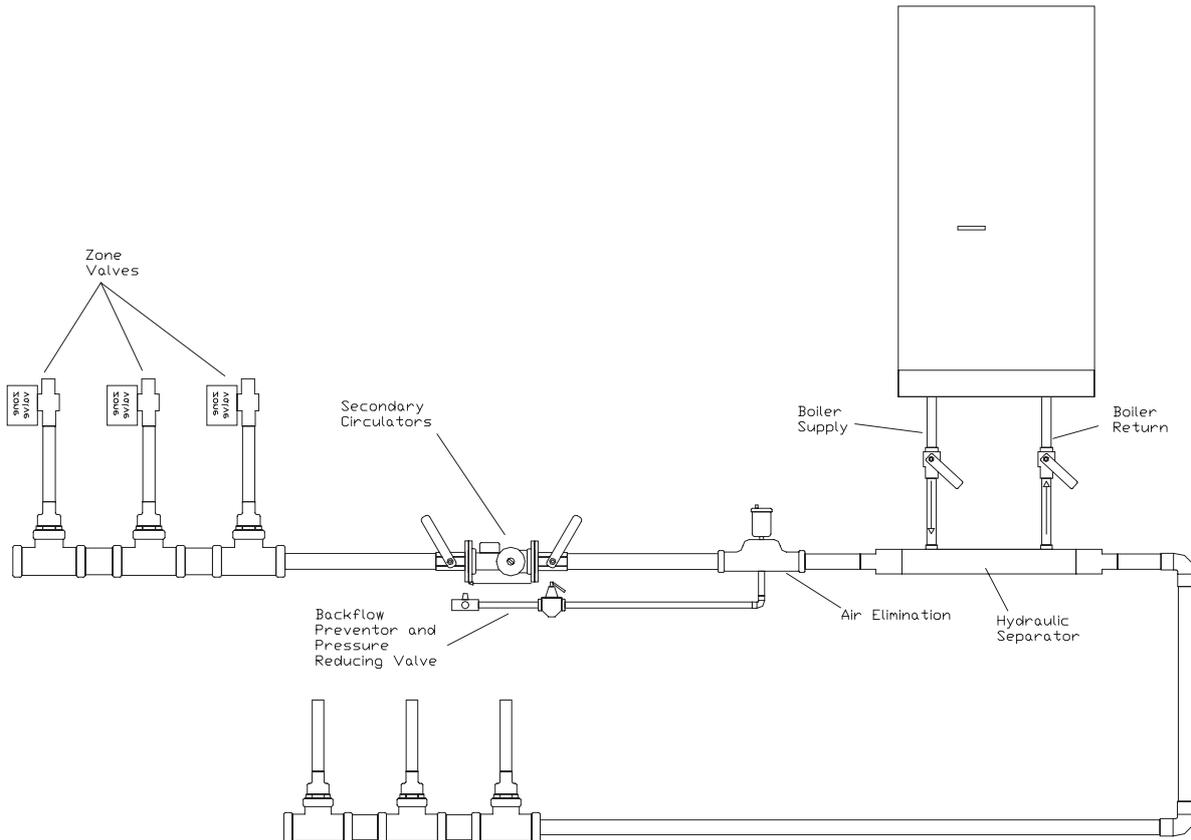


Figure 14.4

14. Piping Cont.

14.3 Manifold Piping with Zone Valves (shown conn. to radiators):

All external piping components are to be supplied by the installer.

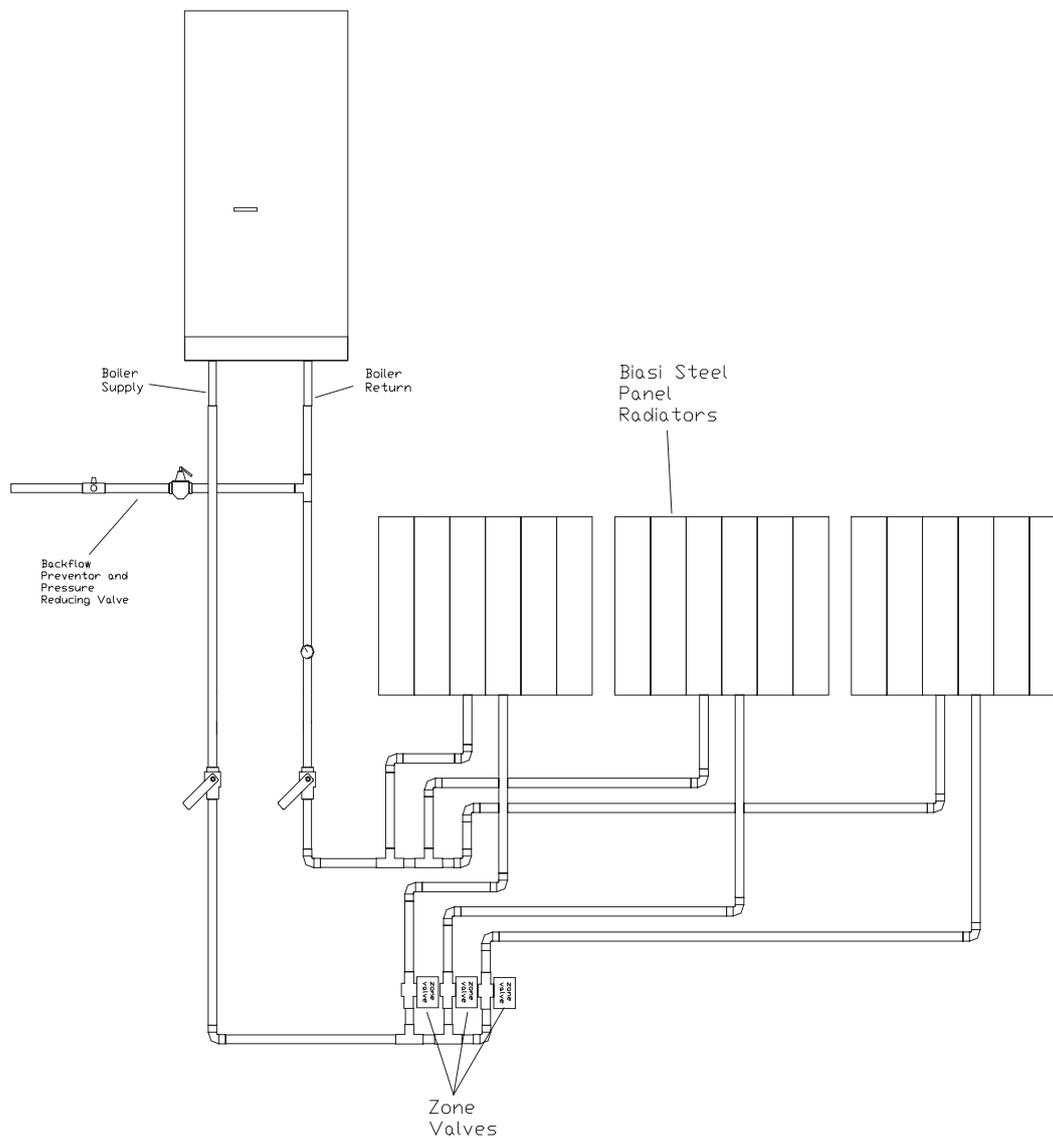


Figure 14.5

15. Commissioning

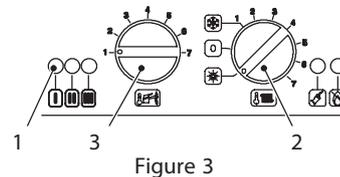
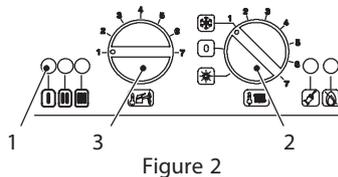
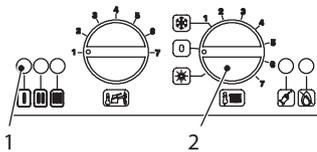
FOR YOUR SAFETY READ BEFORE OPERATING

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 does not have a pilot. It is equipped with an ignition device which automatically lights the burner. Do not try to light the burner by hand.
- B BEFORE OPERATING smell all around the appliance area for gas. Be sure to smell next to the floor because some gas is heavier than air and will settle on the floor.
- WHAT TO DO IF YOU SMELL GAS
- Do not try to light any appliance.
 - Do not touch any electric switch; do not use any phone in your building.
 - Immediately call your gas supplier from a neighbor's phone. Follow the gas supplier's instructions.
- If you cannot reach your gas supplier, call the fire department.
- C Use only your hand to push in or turn the gas control knob. Never use tools. If the knob will not push in or turn by hand, don't try to repair it, call a qualified service technician. Force or attempted repair may result in a fire or explosion.
- D Do not use this appliance if any part has been under water. Immediately call a qualified service technician to inspect the appliance and to replace any part of the control system and any gas control which has been under water.

OPERATING INSTRUCTIONS

1. STOP! Read the safety information above on this label.
2. Turn off all electric power to the appliance.
3. Set the thermostat to lowest setting.
4. This appliance is equipped with an ignition device which automatically lights the burner. Do not try to light the burner by hand.
5. Close main gas shut off valve.
6. 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 don't smell gas, go to next step.
7. Open the main gas shut off valve and the valve on the domestic cold water inlet pipe.
8. Turn on the electricity supply to the boiler, switching on the circuit breaker. The appliance operation light 1 (figure 1) will flash every 4 seconds (stand-by condition).
9. If the boiler is to be used for c.h and d.h.w position the function selector 2 as in figure 2. The appliance operation light 1 will flash every 2 seconds (operating boiler). Position the knobs 2 and 3 for the desired c.h. and d.h.w. temperature (for detailed information see the user manual).
10. If the boiler is to be used for d.h.w. only position the function selector 2 as in figure 3. The appliance operation light 1 will flash every 2 seconds (operating boiler). Position the knob 3 for the desired d.h.w. temperature (for detailed information see the user manual).
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. Turn off all electric power to the appliance if service is to be performed.
2. Turn the boiler off by setting the function selector 2 to the position shown in figure 1.
3. Set the thermostat or other operating control to lowest setting.
4. Close the main gas shut off valve and the valve on the domestic cold water inlet pipe.

1

15. Commissioning

15.1 For proper system operation, make sure that:

- System filling and top ups will be done using softened water to reduce the total hardness. The water must also be conditioned in order to keep the pH within the foreseen threshold in order to prevent corrosion (see the following table).
- Both for new systems as well as when replacing, the system must have efficient systems that eliminate air and impurities up to 5 μm (for ex: Y filters, micro impurity separators and micro air bubble separators);
- Avoid draining system water during ordinary maintenance, even apparently insignificant quantities: for example, when cleaning the filters, provide the system with suitable shut-off valves;
- Always analyze the system water before opening the communication between the new generator and the system in order to determine if the parameters of the water indicate the need to completely drain the system, to use the water already contained in the system or to chemically wash the system, using mains water with the addition of detergent, when it is suspected that the system could be dirty or particularly blocked, and the next time new water is loaded. If the analysis of a sample of the water that will be used for loading the system shows the following values, the system can be used. Otherwise, an inhibitor must be used.

9,6 < pH < 10,5
$\text{Ca}_{++} + \text{Mg}_{++} : < 0,5 \text{ }^\circ\text{F}$
$\text{OH} + 1/2 \text{CO}_3 : \text{de } 5 \text{ \AA } 15 \text{ }^\circ\text{F}$
$\text{P}_2\text{O}_5 : \text{de } 10 \text{ \AA } 30 \text{ mg/l}$
$\text{Na}_2\text{SO}_3 : \text{de } 20 \text{ \AA } 50 \text{ mg/l}$

If the system water is also in contact with aluminum, a pH value <8.5 is required.

15.2 Initial filling of the system:

- Remove the front panel of the case.
- Lift the cap on the automatic air purger valve 3 (Fig 15.1) one full turn and leave open permanently.

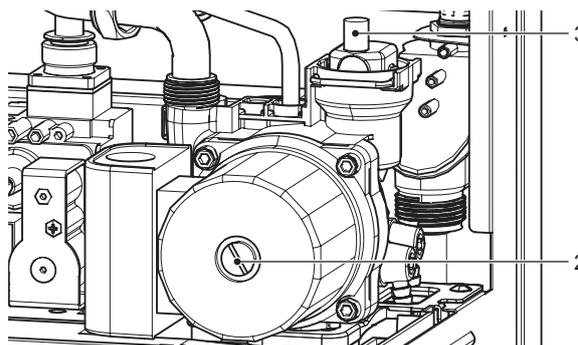


Figure 15.1

- Open the installer supplied automatic fill valve between the cold water inlet and Central Heating System (See 44 on piping diagrams on page 11 of this manual and the section "Refilling procedure" on page 12 of the User manual).
- Open each radiator air vent starting at the lower point and close it only when clear water, free of bubbles, flows out.
- Purge the air from the pump by unscrewing the pump plug 2 (Fig. 15.1); release the pump by turning the rotor in the direction indicated by the arrow on the information plate.
- Close the pump plug.
- Continue filling the system. The actual reading should ideally be 1.3 bar (19 psi) and not less than 0.3 bar (4.3 psi).
- Close all air release valves on the c.h. system.
- Inspect the boiler and the system for water soundness and remedy any leaks discovered.
- **Cold flush the system to remove any loose particles and any system debris**

15. Commissioning Cont.

before starting the boiler for the first time.

- Reassemble the front panel of the case.
- Return fill valve to automatic position.
- Unscrew the condensing heat exchanger air purger valve 1 (Fig. 15.2).

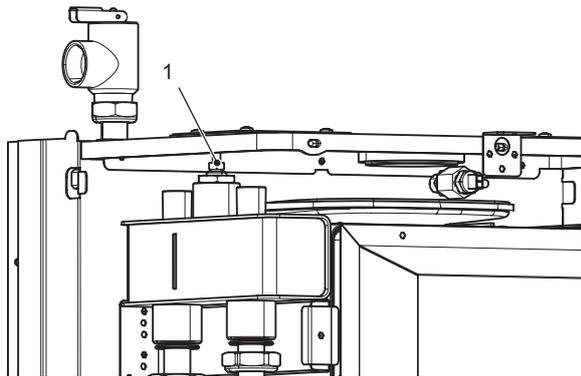


Figure 15.2

15.3 Condensate pipe and traps:

The full length of the condensate pipe should be checked for leaks.

Before running the boiler, ensure that the built in condensate trap and any other trap in the drain system is correctly filled with water.



Fill the built in condensate trap by removing the flue elbow and pouring a cupful of water into the flue outlet (Figure 15.3).

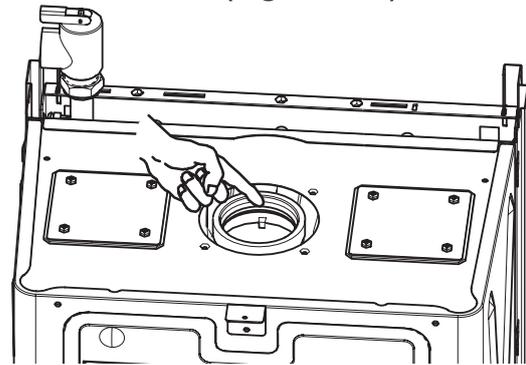


Figure 15.3

An alternative, to avoid the removal of the flue elbow, pour the water through the flue sampling point (Figure 15.4).

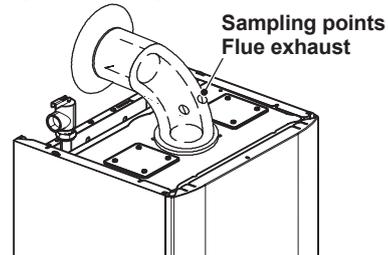


Figure 15.4

15. Commissioning Cont.

15.4 Lighting the boiler:

Note: If external controls are fitted (e.g. room thermostat) ensure they “call for heat”.

WARNINGS

THE BOILER AND ITS GAS CONNECTION MUST BE LEAK TESTED BEFORE THE BOILER IS PLACED IN OPERATION

- Electrically power the boiler safely. The LCD display will show the sequence in Figure 15.5.
- Turn the function selector 7 as shown in Figure 15.6.

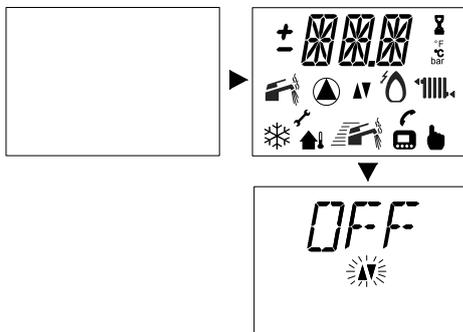


Figure 15.5

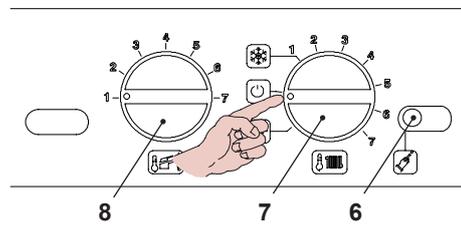


Figure 15.6

The LCD display shows the sequence in Figure 15.7.

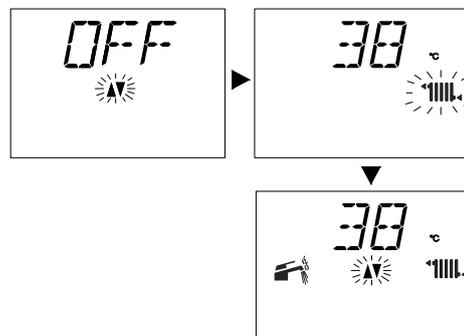


Figure 15.7

15. Commissioning Cont.

The boiler will now go through an ignition sequence and the burner will light.

If during the ignition attempt period the boiler fails to light, the full sequence control p.c.b. will go to lockout and the lock-out signal E1 will appear (See section “Operational Faults” on page 19 of the User manual).

To reset the boiler turn the knob 7 (figure 15.6) on the “U” position and then press and release the boiler reset button 6 (Fig. 15.6).

15.5 Checking the gas pressure at the burner:

This boiler has been tested to the highest quality control standards.

The maximum and minimum gas pressures are already set during this quality control process however the checking procedure must be followed to ensure maximum operating efficiency from the boiler.

Attention

Each time after measuring the gas pressure, carefully reclose the tapping point that was used.

Each time after making gas adjustments, the valve adjustment components must be sealed.

Attention, risk of electrocution.

The boiler is powered during the operations described in this section.

Do not touch any electric parts.

15.6 Gas setting and operations:

- Remove the front panel from the boiler body, see the section “Power Connection” on page 33.

Check the network pressure.

- With the boiler shut off (out of service), check the supply pressure at point C in Figure 15.16 and compare the read value with the value in the Gas supply pressure table in the section “Technical Information” page 9.
- Carefully reclose the tapping point C in Figure 15.16.

Check the min. burner pressure.

- Connect a flue gas analyser to the flue analysis point on the boiler exhausts Figure 15.8.

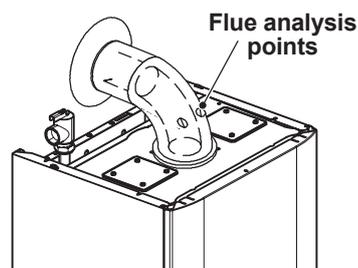


Figure 15.8

- Position the control panel knobs as shown in Figure 15.9

15. Commissioning Cont.

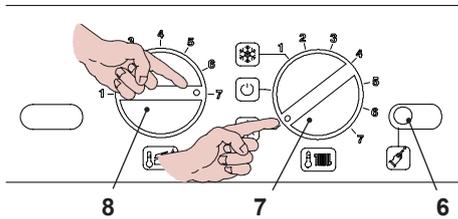


Figure 15.9

- Electrically power the boiler, the following will appear on the LCD display.

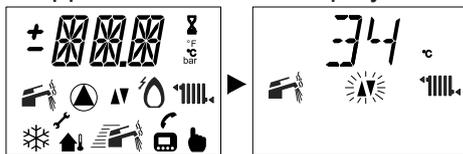


Figure 15.10

- To enter Chimney cleaning mode, enter programming by pressing the reset button 6 in Figure 15.9 for 10 seconds until parameter **P01** appears on the LCD display; the following will appear on the LCD display (the sequence **P01** alternates ---).

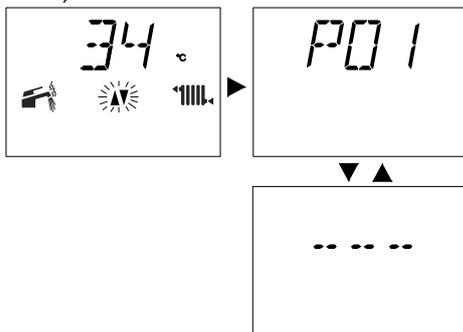


Figure 15.11

- Press the reset button 6 Figure 15.9 to scroll the various parameters until reaching the valid parameter **P09** for the Chimney cleaning mode setting: the following will appear on the LCD display (the sequence **P09** alternates with **00**).

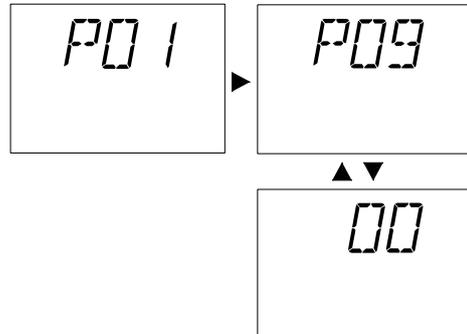


Figure 15.12

- Turn the hot water temperature adjustment knob 8 in Figure 15.14 to the minimum, the following will appear on the LCD display (the sequence **P09** alternates with 01).

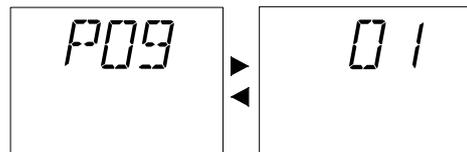


Figure 15.13

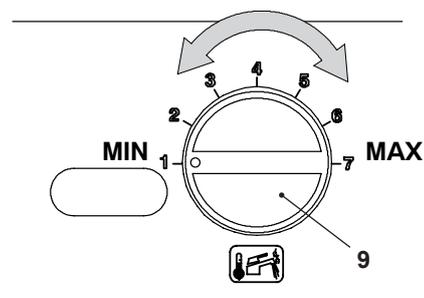


Figure 15.14

- The activation of Chimney cleaning also is indicated on the LCD display by the symbols shown in Figure 15.15 turning on alternately.

15. Commissioning Cont.

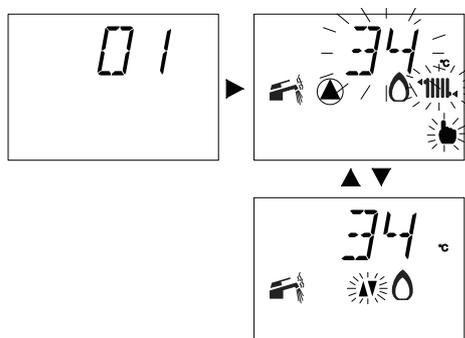


Figure 15.15

- Make sure that the display is indicating a heat request.
- Collect a large amount of domestic hot water by opening the cocks.
- Compare the CO_2 value read on the flue gas analyser with the one in the table **CO_2 at Q. min.** section “Technical Information” page 9.
- To calibrate the boiler CO_2 (burner gas pressure) completely unscrew the protective brass cap B and turn the Allen screw \varnothing 4 mm below Figure 15.16, turning it clockwise increases the CO_2 .

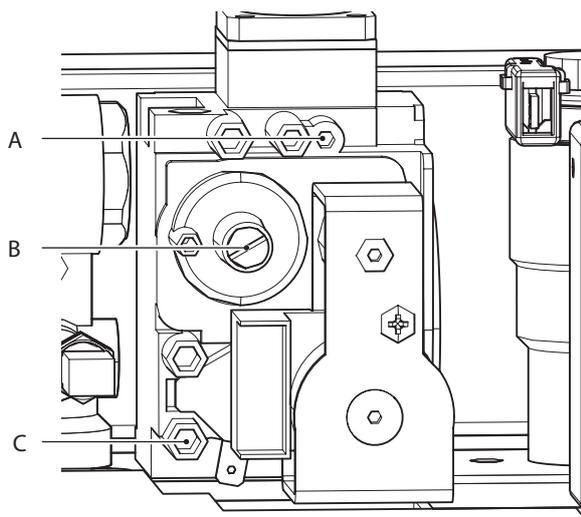


Figure 15.16

Checking the maximum burner pressure.

- Turn the hot water temperature knob 8 to the maximum Figure 15.17 and check the CO_2 value.

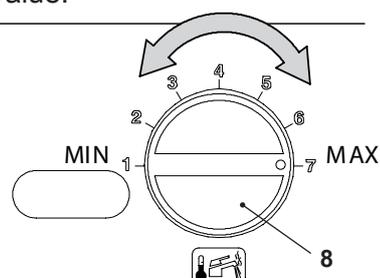


Figure 15.17

- The LCD display signals the variation with the symbols shown in Figure 15.18 turning on alternately. (Example: heating thermal power at maximum).

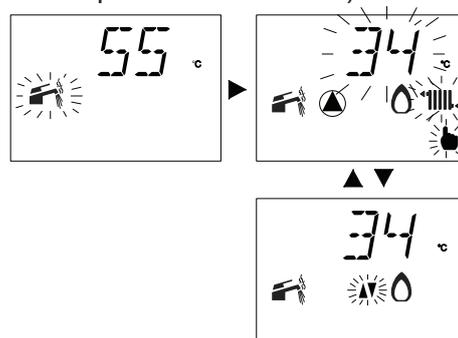


Figure 15.18

- Compare the CO_2 value read on the smoke analyser with the one in the table section “Technical Information” page 9. **CO_2 at Q. nom.**
- If the two values do not coincide, turn the RQ maximum adjustment screw (A in Figure 15.16) on the gas valve and calibrate the CO_2 to the same value shown in the table in the section “Technical Information” page 9. Turning it clockwise decreases the CO_2 .
- Check that the value of the **CO_2 at Q. min.** does not lie outside of the value range in

15. Commissioning Cont.

the table **CO₂ at Q. min.** in the section “Technical Information” page 9.

- Close the domestic hot water cocks.
- Turn off the boiler by positioning selector 7 to “U” Figure 15.19.

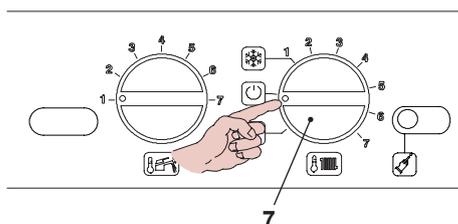


Figure 15.19

When checking the minimum and maximum burner pressures, check the gas flow rate at the meter and compare its value with the gas flow rate data see section “Technical Information” page 9.

Reclose the flue analysis points.

15.7 Setting the external probe K coefficient:

The boiler is set with a K coefficient equal to zero for boiler operation without a connected probe.

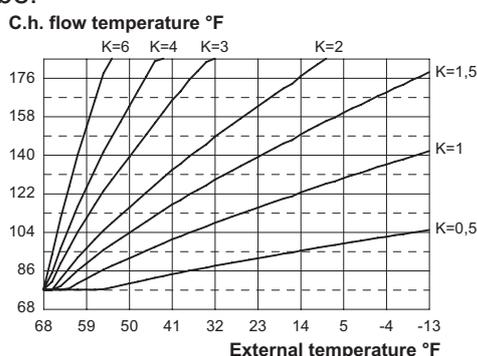


Figure 15.20

The K coefficient is a parameter that raises or lowers boiler delivery temperature as the external temperature changes.

When the external probe is installed, this parameter must be set based on the heating system efficiency to optimise the delivery temperature (Figure 15.20)

Ex. To achieve a delivery temperature to the heating system of 140°F (60°C) with an outdoor temperature of 23°F (-5°C), K must be set at 1.5 (dashed line in Figure 15.20).

Sequence for setting the K coefficient

- Position the handles 8 and 7 indicated in Figure 15.21.

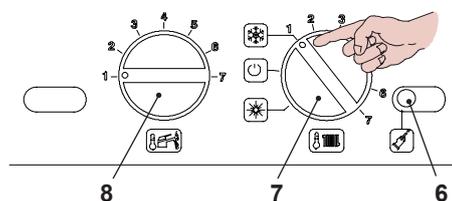


Figure 15.21

- Electrically power the boiler, the following will appear on the LCD display.

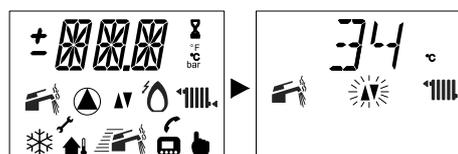


Figure 15.22

- To set the K coefficient, which is determined from Figure 15.22 access programming by pressing the reset button 6 in Figure 15.2 for 15 seconds until parameter **P01** appears on the LCD display; the following will appear on the LCD display (the

15. Commissioning Cont.

sequence **P01** alternates with -- -- --).

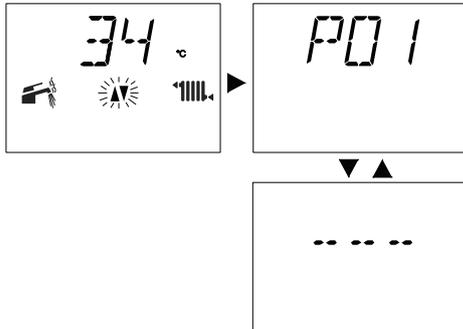


Figure 15.23

- Press the reset button 6, in Figure 15.21, to scroll the various parameters until reaching the valid parameter **P15** for setting the K coefficient; the following will appear on the LCD display (the sequence **P15** alternates with **00**).

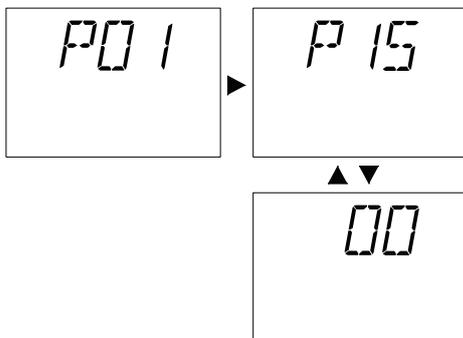


Figure 15.24

- Set the value by turning knob 8 in Figure 15.21 from a minimum of **30** (the sequence **P15** alternates with **30**)

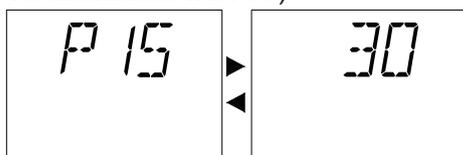


Figure 15.25

to a maximum of **255** based on the

selected K coefficient curve in Figure 15.20.

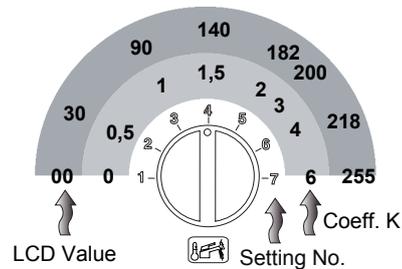


Figure 15.26

- Once the desired value is set, the confirmation that it was stored occurs automatically, after 5 seconds, with **OK** appearing on the LCD display.

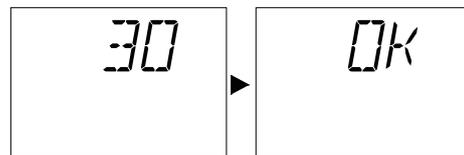


Figure 15.27

- To exit programming, position the function selector/heating temperature adjustment knob 7 as shown in Figure 15.28.

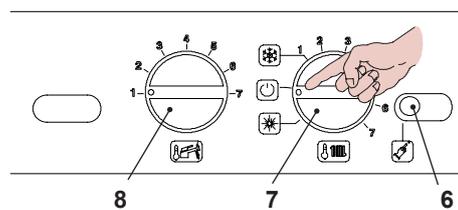


Figure 15.28

Knob 7 must be positioned as shown in Figure 15.29 to respect the trend of the delivery temperature with respect to the set K coefficient.

15. Commissioning Cont.

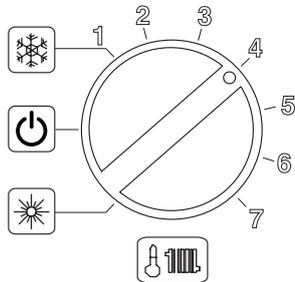


Figure 15.29

Turning knob 7 can change the heating delivery temperature $\pm 27^{\circ}\text{F}$ (15°C) with respect to the one set by the external probe K coefficient.

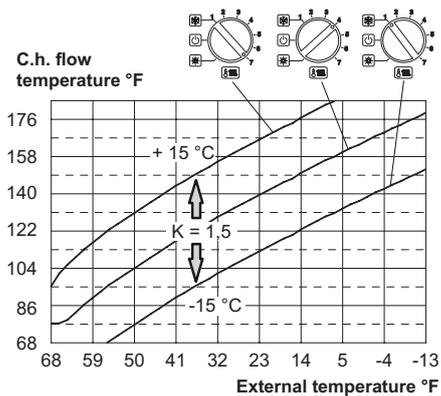


Figure 15.30

The temperature trend as the knob position is changed with **K 1.5** is shown in Figure 15.30.

Sequence for setting the K coefficient with the remote connected

Programming the REMOTE, the K coefficient setting can be selected.

- Power the boiler electrically.
- Press the button P for more than 3 seconds to enter the mode *INFO* (Figure 15.31).

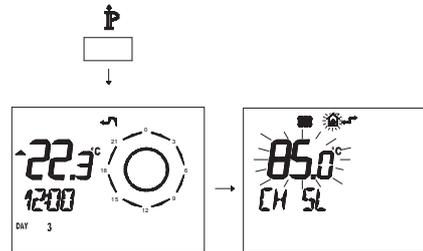


Figure 15.31

Press the button **OK** to display the **K REG** window (Figure 15.32).

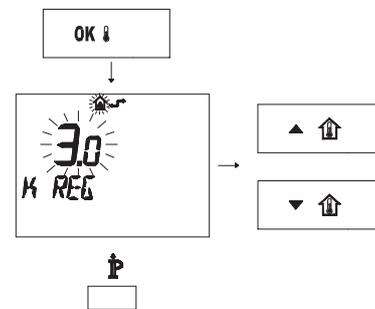


Figure 15.32

The buttons \blacktriangle and \blacktriangledown can be used to change the value.

Press the button P to exit the mode *INFO* (Figure 15.32).

15. Commissioning Cont.

15.8 Labels placement:

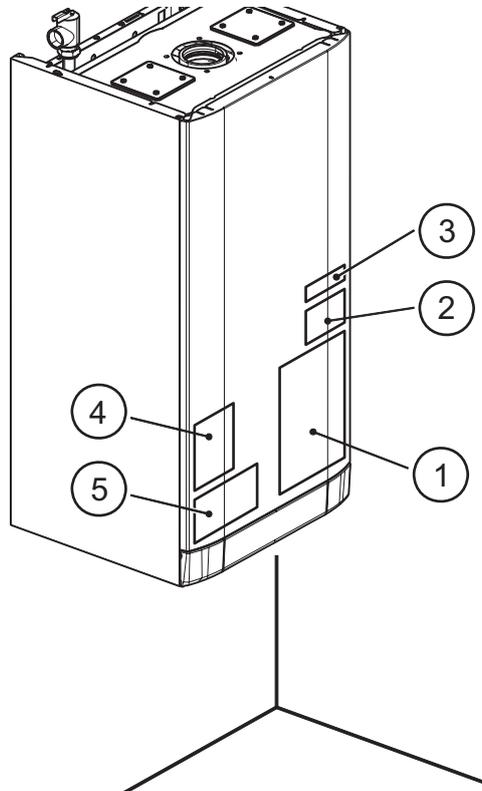


Figure 15.33

Warning: The installation is not complete unless labels supplied are placed on the boiler as shown in Figure 15.33.

All the labels supplied with the boiler are numbered for reference.

According to Figure 15.33 place all the labels on the boiler. Use label numbered as 1 (already installed in the front panel) to begin the placement in the correct way.

15.9 Checking the flue system and combustion:

- The flue system should be visually checked for soundness. Check all clamps, gaskets and fixings are secure and tight.
 - Ensure that the flue terminal is sited correctly in accordance with the flue fitting instructions.
- To check the exhaust gas:
- Remove the plugs indicated (Fig. 15.34).
 - Insert the analyzer probe in the exhaust gas sampling point or in the air intake sampling point.
 - Reference tables are given in the Sections 2 on page 9 of this manual for proper CO₂ levels.

15. Commissioning Cont.

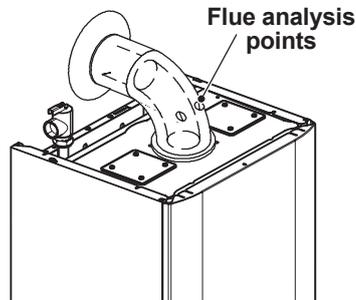


Figure 15.34

15.10 Instructing the user:

- Hand over the User manual, this Installation, Operation and Service manual to the end user and explain how to use the unit in Central Heating mode.
- Take the User step by step through the lighting instructions.
- Show the User how to switch off the appliance quickly and indicate the position of the electric service switch and the boiler on/off switch.
- Explain the proper use and adjustment of all system controls; this will ensure the greatest possible safety and fuel economy.
- Explain the function and use of the function switch.
- Explain how to turn off the appliance for both short and long periods and advise on the precautions necessary to prevent damage should the appliance be inoperative when freezing conditions may occur.
- Fill in the details required on the Boiler Guarantee Certificate and hand to the User advising them to return the correct section for boiler Guarantee registration. Finally, advise the User that, for continued safe and efficient operation, the appliance must be serviced by a competent person at least once a year.

16. Gas Conversion

WARNINGS: Procedures to adapt the boiler to the type of gas available must be carried out by a competent and responsible person. Components used to adapt it to the type of gas available must be genuine parts only.

For instruction on calibrating the boiler gas valve see section “Operations and gas setting” on page 56.

Operations and gas setting

Check that the gas cock mounted on the gas piping to the boiler is closed and that the appliance is not powered.

- Remove the body’s front panel and turn the control panel as shown in section “Dismantling the external panels” to page 60.
- Take off the lid of the sealed chamber.
- Unscrew the connector A to the gas pipe (Figure 16.1).

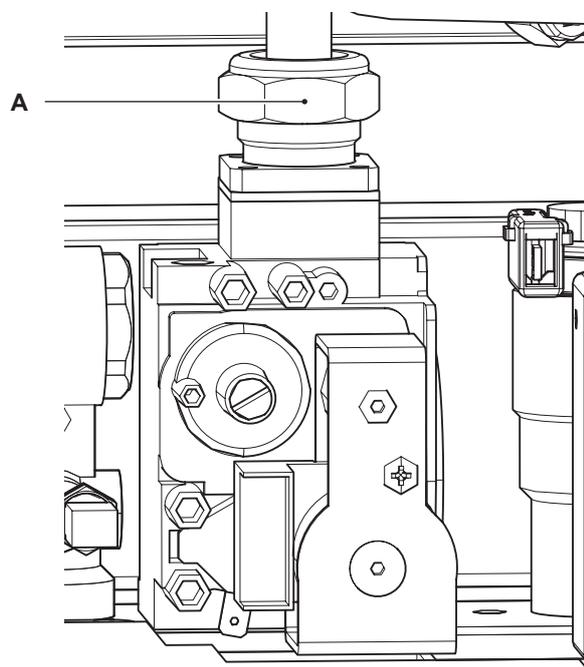


Figure 16.1

- Unscrew the connector B and remove the gas pipe C (Figure 16.2).

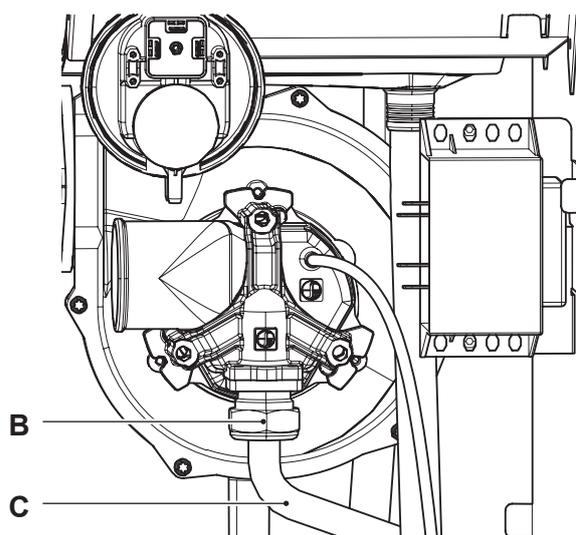


Figure 16.2

- Carry out gas conversion by correctly replacing the gas restrictor (Fig. 16.3), referring to the “Technical Information” section page 8.

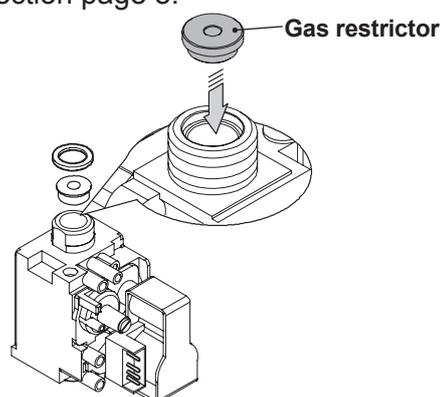


Figure 16.3

Attention, to reassemble repeat the operations carried out in reverse order. Be careful not to damage the ring gasket of the gas pipe when inserting the pipe in the air box (air/gas mixer). After any service operation on the components of

16. Gas Conversion Cont.

the gas circuit check all the connections for gas tightness (Figure 16.1).

The factory boiler is set for functioning with Natural gas (G20).

To set the functioning of the boiler with **LPG (G31)** gas, carry out the following settings:

Gas setting - first step

- Disconnect the electric power supply from the boiler.
- Position the knobs 7 and 8 as shown in Figure 16.4.

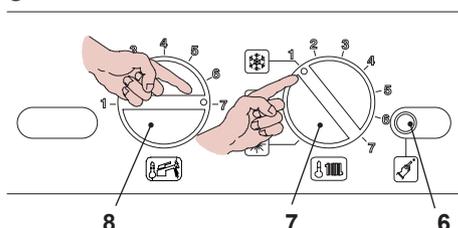


Figure 16.4

- Electrically power the boiler, the following will appear on the LCD display.

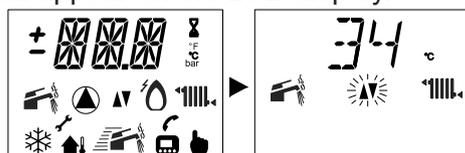


Figure 16.5

- To set the type of gas, enter programming by pressing the reset button 6 in Figure 16.4 for 15 seconds until parameter **P01** appears on the LCD display; the following will appear on the LCD display (the sequence **P01** alternates -- -- --).

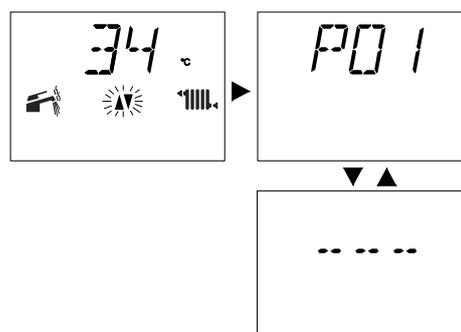


Figure 16.6

- Press the reset button 6 Figure 16.4 to scroll the various parameters until reaching the valid parameter **P05** for setting the type of gas; the following will appear on the LCD display (the sequence **P05** alternates with **01**).

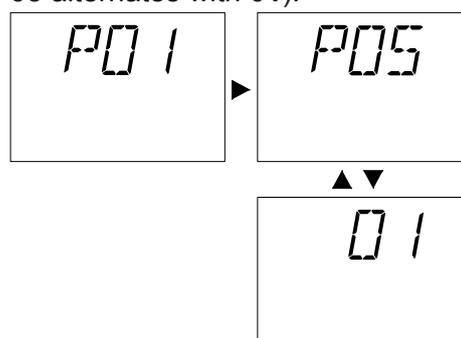


Figure 16.7

- To change the setting, turn knob 8 and position it in the preselected position, see Figure 16.8

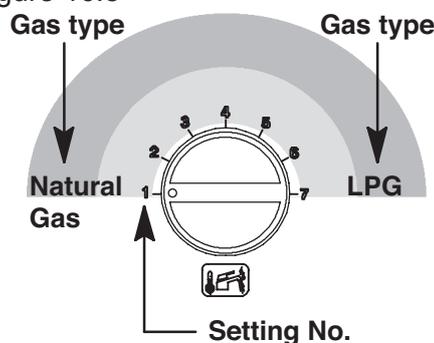


Figure 16.8

16. Gas Conversion Cont.

The following table summarises the correlation between gas type, knob set, LCD display.

GAS	KNOB position	LCD
Natural gas G20	1	01
LPG G30-G31	7	07

Example: If the supplied gas is LPG (G30-G31) and the boiler is setup to operate with natural gas (G20) turn the knob 8 in Figure 16.4 as shown in Figure 16.9.

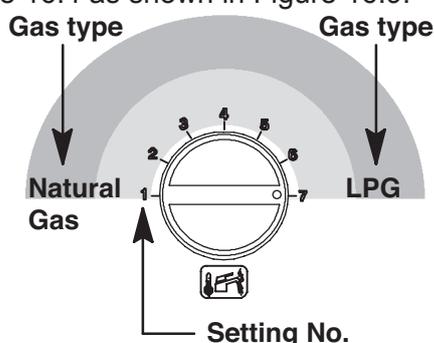


Figure 16.9

- The following will appear on the LCD display (the sequence **P05** alternates with **07**).

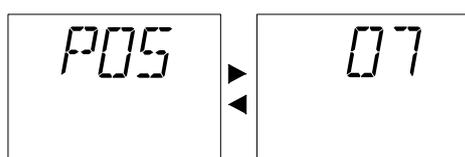


Figure 16.10

- Once the type of gas is set, the confirmation that it was stored occurs automatically, after 5 seconds, with **OK** appearing on the LCD display.

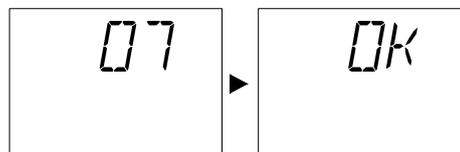


Figure 16.11

Gas setting - second step

- Press the reset button 6 Figure 16.4 to access the valid parameter **P06** for setting the type of gas (second level); the following will appear on the LCD display (the sequence **P06** alternates with **01**).

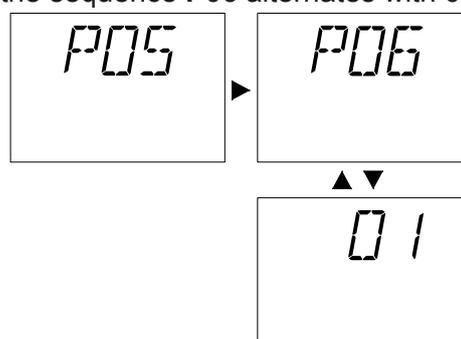


Figure 16.12

- To change the setting, turn the hot water temperature regulation knob 8 in Figure 16.4 to the preselected position see also Figure 16.9.

The following table summarises the correlation between gas type second level, knob set, LCD display.

GAS	KNOB position	LCD
Natural gas G20	1	01
LPG G30-G31	7	07

- The following will appear on the LCD display (the sequence **P06** alternates with **07**).

16. Gas Conversion Cont.

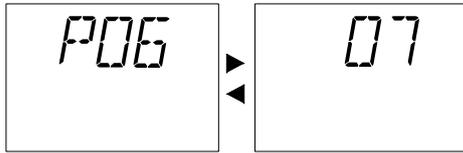


Figure 16.13

- To exit programming, position the function selector 7 to “U” (Figure 16.14), or disconnect the electric power supply from the boiler.

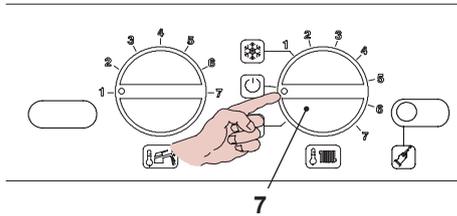


Figure 16.14

- Calibrate the gas valve according to the instructions provided in the section “Operations and gas setting” on page 56.
- Reposition the controls panel and remount the front panel of the body.
- Apply the label indicating the gas nature and pressure value for which the appliance is regulated. The self adhesive label is contained in the conversion kit.

17. Annual Maintenance

17.1 Warnings:

The procedures detailed in this chapter must be carried out only by a professionally qualified person. Thus you are advised to contact an Authorized Service Man.

For efficient and continuous operation of the boiler you are advised to have, at least once a year, maintenance and cleaning done by an Approved Service Person.

Isolate the appliance from the electricity supply by turning off the fused spur isolation switch adjacent to the appliance and turn off the gas cock, before carrying out any procedures, whatsoever, for cleaning, maintenance, opening or dismantling of boiler panels.

17.2 Dismanteling the external panels:

Front Panel:

- Loosen the three screws A (Fig. 17.1)
- Lift and remove the panel.

Side Panels:

- Loosen the screws B (Figure 17.2). Bring the bottom of the panels away from the boiler and lift them, freeing them from the top hooks.
- Take off the front panel of the case, then the sealed chamber lid and the front panel of the combustion chamber.

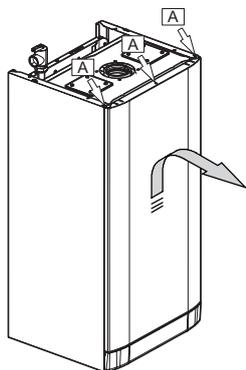


Figure 17.1

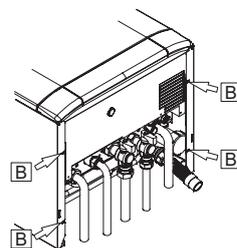


Figure 17.2

17.3 Emptying the d.h.w. system:

- Close the pressure reducing automatic fill valve (43 on Section 4)
- Open the central heating drain cock (F in Fig. 17.3).
- Empty the c.h. system.
- Close the central heating drain cock (F in Fig. 17.3).
- Open the pressure reducing automatic fill valve (43 on Section 4)

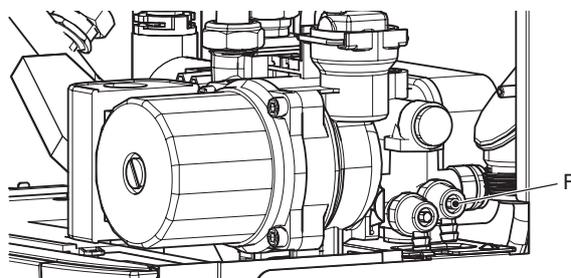


Figure 17.3

17. Annual Maintenance Cont.

17.4 Emptying the Domestic Hot Water circuit:

- Close the inlet valve
- Open the system domestic hot water valves

17.5 Combustion analysis check:

If it is necessary to carry out a combustion analysis remove the plugs indicated in Fig. 17.4.

Reference tables are given in the “Technical Information” section page 9.

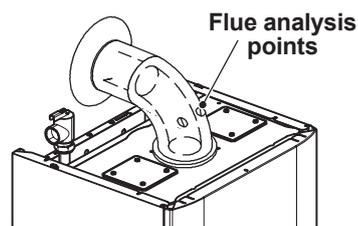


Figure 17.4

17.6 Cleaning the condensing heat exchanger and burner:

To remove the burner-fan group D (Fig. 17.6):

- Take off the front and side panels of the case.
- Remove the sealed chamber lid.
- Disconnect the connectors of the ignition electrodes E and detection electrode F (Fig. 17.6).
- Disconnect the rubber pipe G (Fig. 17.5).
- Unscrew the gas connector H (Fig. 17.6).
- Unscrew the connector I and remove the gas pipe J (Figure 17.5).
- Leave the air box with the air hose clamped to the water pipe.
- Remove the nuts K (Fig. 17.6) and the burner-fan group D.

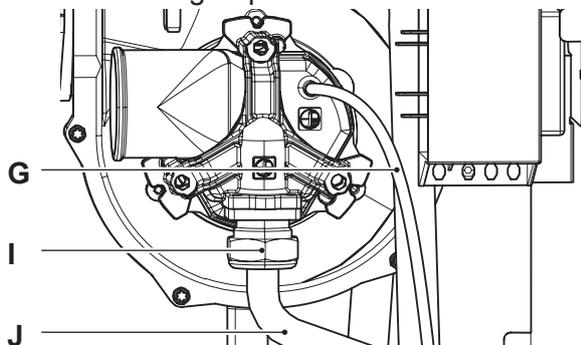


Figure 17.5 (right side of the fan)

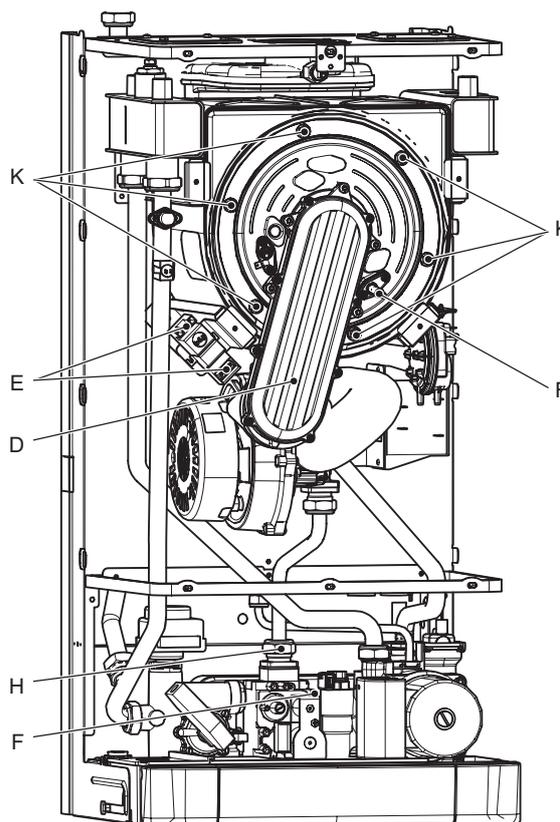


Figure 17.6

- Disconnect the connector of the fan L by pressing the plastic hook M placed on the

17. Annual Maintenance Cont.

rear side of the connector (Fig. 17.7).

If you notice dirt on the coil of the condensing heat exchanger (24 on page 10) brush out it with a bristle paintbrush and remove the dust with a vacuum.

Reassemble the parts carrying out the removal operations in reverse order.

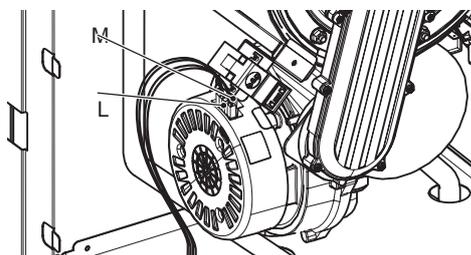


Figure 17.7 (rear view of the fan)

17.7 Checking the pressurization in the expansion vessel:

Empty the central heating systems as described in section 17.3 of this chapter and check that the pressure in the expansion vessel is not less than 14 psi (1 bar).

See also section 13.2 page 40 of this manual.

If the pressure is lower, take steps to correct the pressure level.

17.8 Cleaning the burner:

The burner (23 on page 10) does not need special maintenance, but it is sufficient to dust it with a bristle paintbrush.

To reach the burner do the operations described in the section 17.6 of this manual.

17.9 Checking the flue:

Have the integrity of the flue outlet pipe (33 on page 11) air intake pipe (34 on page 11), checked periodically, at least once a year. During the check, the intake and exhaust screens should be cleaned of any built up debris. To reassemble the vent follow the assembly instructions supplied with the venting system. All gaskets used in the assembly are reusable, however if any need to be replaced, they must be OEM replacements. Silicon lubricant can be used to ease the reassembly of the vent system.

For all the above maintenance operations it is advisable to call an qualified Service person.

17.10 Drain pipe inspection:

Check the soundness and integrity of the condensate drain pipe.

Verify the cleanness and correct filling of the condensate traps.

17.11 Visual inspection of appliance:

Visually inspect all water joints, seals and connections for any evidence of leakage and retighten, grease or replace them as necessary.

17.12 Gas pressures and soundness:

Check appliance for gas soundness. Recheck operational pressures as described in section 15.5 page 48 of this manual.

17. Annual Maintenance Cont.

17.13 Water inhibitor concentration:

Where chemical products are used the level of water treatment should be checked on an annual basis and re treated after full or partial drain down.

A conductivity meter can be used to check the correct concentration of inhibitor in the heating water. See the section 15.1 of this handbook.

17.14 Checking the condensate drain pipe:

The condensate drain system should be checked yearly during a service.

Check:

- That no solid deposits have formed, if so remove them.
- That the condensate drain piping is not clogged, if so clear the clog.

Removal

Unscrew the plug D to clean inside the pipe. Remove the forks E and remove the condensate trap A moving it downwards (Fig. 17.8).

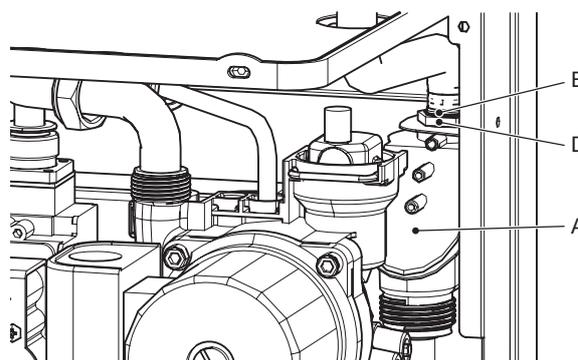


Figure 17.8

17.15 Checking Low Water Cutoff

- If a low water cutoff is installed on a system, it's function should be checked as part of the yearly service. Refer to the low water cutoff manufacturers instructions for maintenance and testing.

17.16 Setting the boiler chimney sweep function:

With the boiler set in chimney sweep mode, it is possible to exclude some boiler automatic functions making check and control operations easier.

- Position the control panel knobs as shown in Figure 17.9.
- Electrically power the boiler, the following will appear on the LCD display.
- To enter Chimney cleaning mode, enter programming by pressing the reset button 6 in Figure 17.9 for 15 seconds

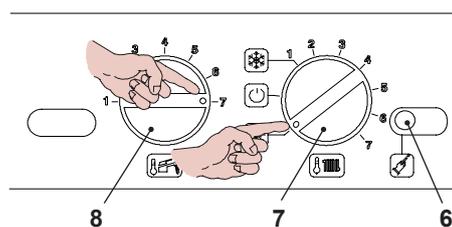


Figure 17.9

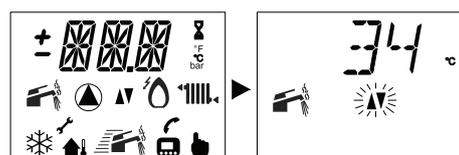


Figure 17.10

17. Annual Maintenance Cont.

until parameter **P01** appears on the LCD display; the following will appear on the LCD display (the sequence **P01** alternates ---).

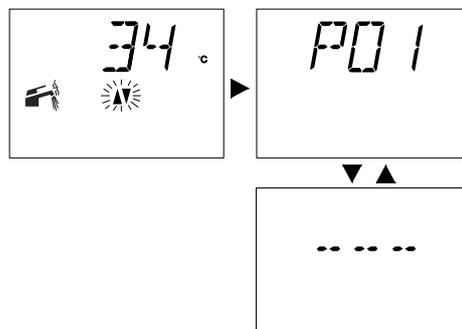


Figure 17.11

- Press the reset button 6 Figure 17.9 to scroll the various parameters until reaching the valid parameter **P09** for the Chimney cleaning mode setting: the following will appear on the LCD display (the sequence **P09** alternates with **00**).

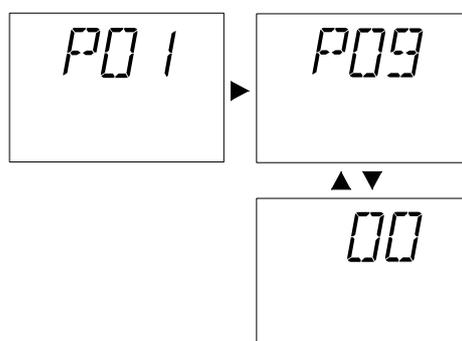


Figure 17.12

- Turn the hot water temperature adjustment knob 8 in Figure 17.14 to the minimum, the following will appear on the LCD display (the sequence **P09** alternates with **01**).

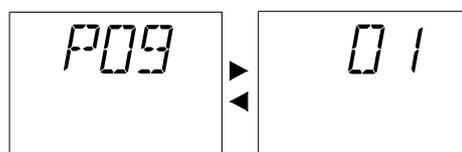


Figure 17.13

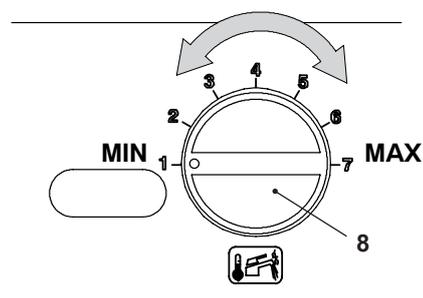


Figure 17.14

- The activation of Chimney cleaning is also indicated on the LCD display by the symbols shown in the following figure

17. Annual Maintenance Cont.

turning on alternately.

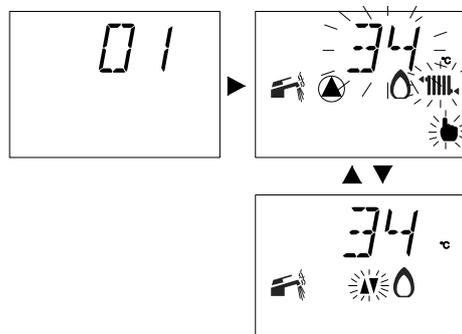


Figure 17.15

- The heating thermal power can be changed by turning the hot water temperature adjustment knob 8 shown in Figure 17.16.

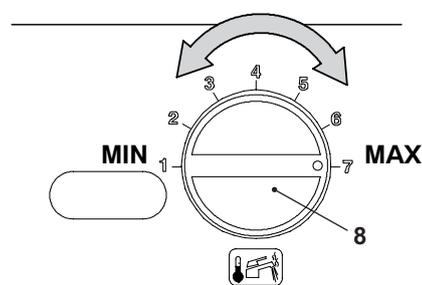


Figure 17.16

- The LCD display signals the variation with the symbols shown in the following figure turning on alternately. (Example: heating thermal power at maximum).

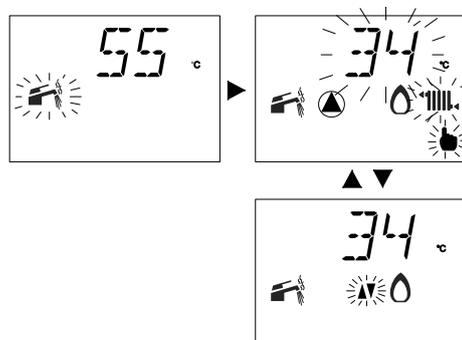


Figure 17.17

- To exit programming, position selector 8 as shown in Figure 17.18.

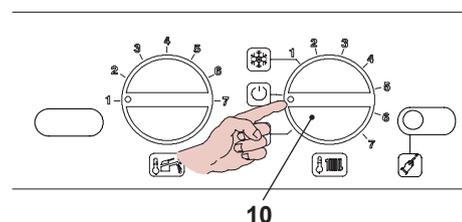


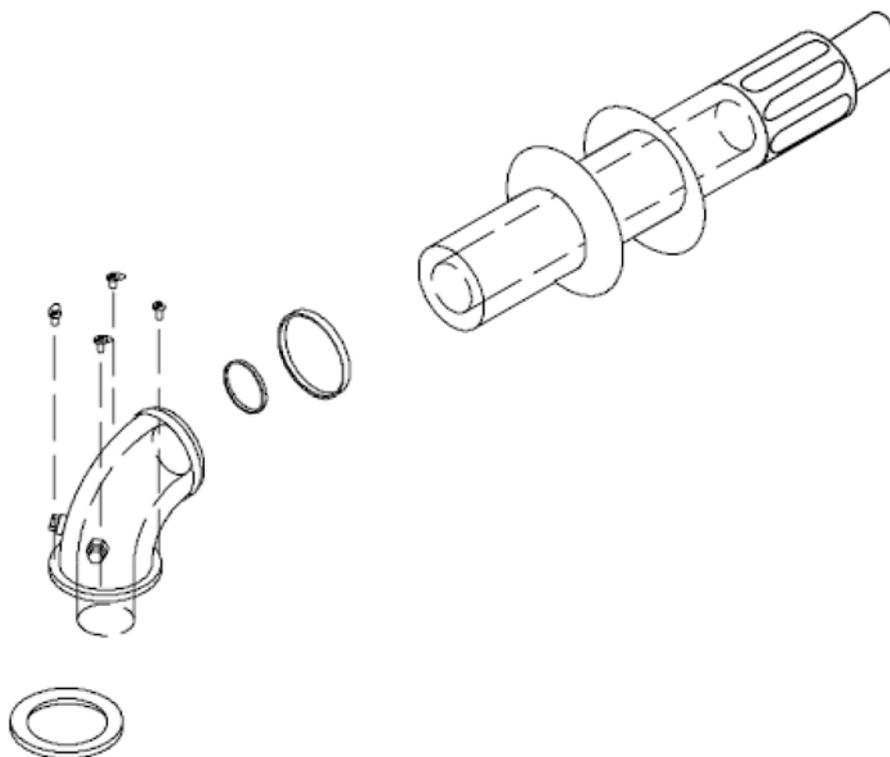
Figure 17.18

After 15 minutes, the boiler exits from the Chimney cleaning setting and returns to its normal settings.

18. Vent Part Spares Cont.

18.2 Coaxial venting:

For any spare parts, please contact QHT Inc. at 800-501-7697.

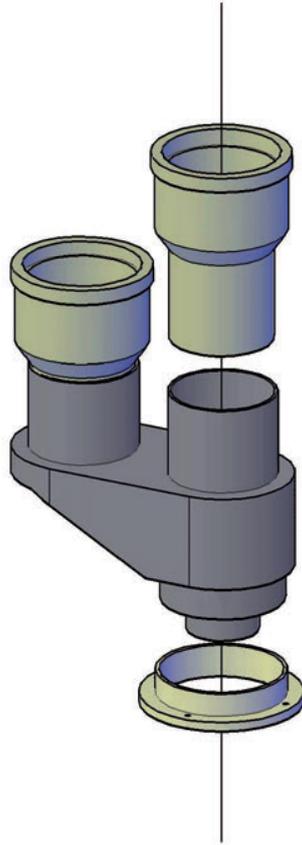


<i>Description</i>	<i>Order Number</i>
Coaxial flue kit	10999.0387.0

18. Vent Part Spares Cont.

18.4 Separate PVC venting:

For any spare parts, please contact QHT Inc. at 800-501-7697.

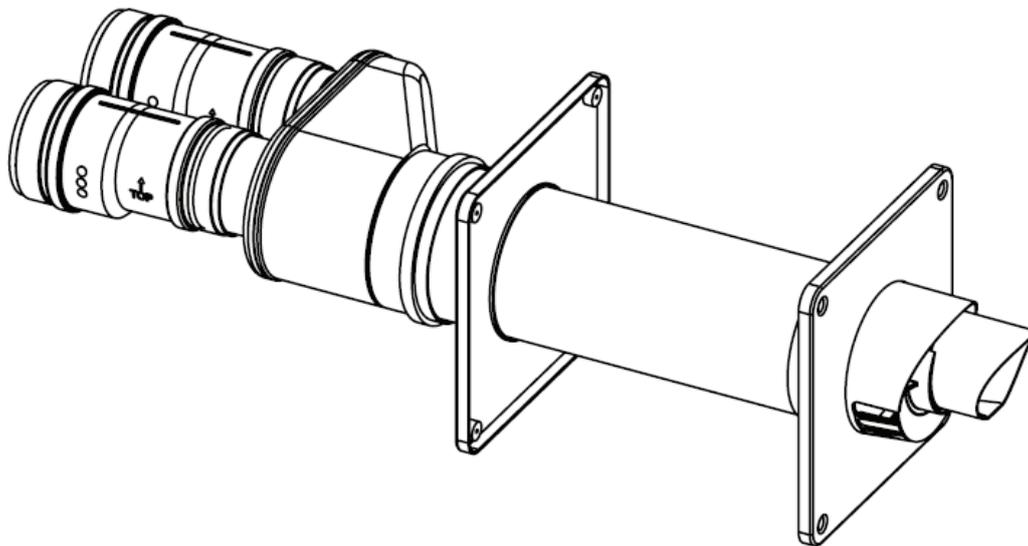


<i>Description</i>	<i>Order Number</i>
PVC Boiler Adapter	PTA5808

18. Vent Part Spares Cont.

18.5 PVC Sidewall venting:

For any spare parts, please contact QHT Inc. at 800-501-7697.

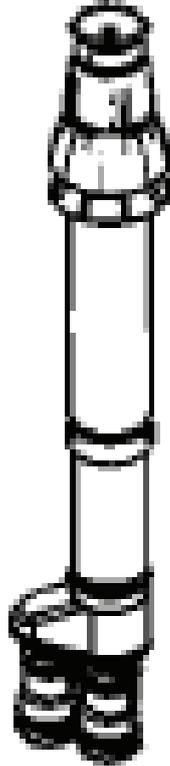


<i>Description</i>	<i>Order Number</i>
PVC Boiler Adapter	RI - 10 0887

18. Vent Part Spares Cont.

18.6 PVC Roof venting:

For any spare parts, please contact QHT Inc. at 800-501-7697.



<i>Description</i>	<i>Order Number</i>
PVC Boiler Adapter	RI - 10 0885

18. Spare Parts

18.x Boiler spares:

For any spare parts, please contact QHT Inc. at 800-501-7697.

Key no.	Description	Spare part code
1	Central heating pressure relief valve	BI1263 133
3	Ignition electrodes	BI1343 101
4	Safety thermostat	BI1172 105
5	Spark generator	BI1805 102
6	Fan	BI1273 117
7	Three-way diverter valve	BI1201 100
8	D.h.w. heat exchanger	BI1001 102
9	Primary circuit flow switch	BI1011 505
10	C.h. temperature probe NTC	BI1442 106
11	D.h.w. temperature probe NTC	BI1001 117
12	Gas valve	BI1253 119
14	Pump	BI1262 137
15	Main circuit drain valve	BI1011 104
16	Automatic air purger valve	BI1212 107
17	Condensate trap	BI1442 104
18	Air hose	BI1253 104
19	Transformer	BI1965 119
20	Air box (air/gas mixer)	BI1253 112
21	Air pressure switch	BI1965 120
22	Flame-detecting electrode	BI1343 103
23	Burner	BI1253 121
24	Condensing heat exchanger	BI1562 100
25	Flue temperature probe NTC	BI1536 104
26	D.h.w. flow switch	BI1271 101
29	C.h. expansion tank	BI1262 100
30	By-pass valve	BI1141 505
37	Condensate drain pipe	BI1442 105

See page 10 for diagram of spare part locations.

19. Installer Notes

System Checkout:

Boiler Model No. _____

Serial No. _____

Original Purchaser:

Installer:

Performance Tests:

GROSS STACK TEMPERATURE _____

ROOM TEMPERATURE (AMBIENT) _____

NET STACK TEMPERATURE _____

CO₂ _____

O₂ _____

SMOKE READING _____

COMBUSTION EFFICIENCY _____

COMMENTS _____



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