

Two stage operation forced draught natural gas/propane burner



The following pages contain information, descriptions and diagrams for the proper installation and wiring of the burner. Please read carefully before attempting final installation.

This manual is to remain with the final installation designation. It is the installer's responsibility to ensure that the burner installation and operation instructions mentioned in this manual are followed and operated within local code authority limits.

RIELLO 40

CODE	MODEL	TYPE
3757313	G900	573T

TABLE OF CONTENTS

Installation instructions and owner's handbook	2
General information	3
Step by step procedure	3
Installation data	4
Serial number identification	4
Burner components identification	4
Burner dimensions	5
Electrode & flame probe adjustments	5
Typical gas train layout	6
Installing the burner	7
Installation of sediment trap & burner supply	8
Wiring diagram	9
Burner head setting	10
Preliminary burner adjustment	11
Pressure working chart	11
Combustion chamber size	12
Combustion checks	12
Burner start-up cycle	12
Start-up cycle diagnostics	13
Resetting the control box and using diagnostics	13
Problem solving guide	15
Owner information & routine maintenance	15
Spare parts	16
Spare parts list	17
Burner start-up form	18

INSTALLATION INSTRUCTIONS AND OWNER'S HANDBOOK

⚠ CAUTION:
All gas burners **MUST** be installed by trained and licensed technicians.

⚠ WARNING:
Installation of this burner must conform with local codes requirements or, in the absence of local codes, with the Standard: National Fuel Gas code ANSI Z223.1-1984, and CAN/CGA B149.1 & 2 AND UL 795. If an external electrical source is utilized, the conversion burner, when installed, must be electrically grounded in accordance with local codes or, in the absence of local codes, with the national Electrical Code, ANSI/NFPA No. 70-1990 and CSA Electrical Code C22.2 No.0 M1982 & C22.2 No 3. 1988.

Authorities having jurisdiction should be consulted before installations are made. The owner is required to retain this manual for future reference.

TECHNICAL SPECIFICATIONS FIRING RATES: HIGH 360,000 TO 900,000 Btu/hr LOW 250,000 TO 490,000 Btu/hr				
	NATURAL GAS		PROPANE	
	HIGH FIRE	LOW FIRE	HIGH FIRE	LOW FIRE
	GAS SUPPLY PRESSURES	MIN. 7" wc MAX. 14" wc	MIN. 7" wc MAX. 14" wc	MIN. 8" wc MAX. 13" wc
MANIFOLD PRESSURES	MIN. 2.3" wc MAX. 3.3" wc	MIN. 0.55" wc MAX. 1.1" wc	MIN. 2.6" wc MAX. 6.0" wc	MIN. 1.7" wc MAX. 3.4" wc
POWER MOTOR CONTROL MODULE	120 Volts 60 Hz 1 phase 233T 4.3 Amps 3250 rpm 325 rad/s. RMG 88.62			

⚠ WARNING:
If the information in these instructions is not followed exactly, a fire or explosion may result causing property damage, personal injury or death.

Do not store or use gasoline or any other flammable vapours or liquid in the vicinity of this or any other appliance.

- ⚠ WHAT TO DO IF YOU SMELL GAS:**
- 1) Do not try to light any appliance.
 - 2) Do not touch electrical switches; do not use any phone in your building.
 - 3) Immediately call your gas supplier from a neighbour's phone.
Follow the gas supplier's instructions.
 - 4) If you cannot reach your gas supplier, call the fire department.

Installation and service must be performed by a qualified installer, service agency or the gas supplier.

GENERAL INFORMATION

Your Riello gas burner comes to you completely assembled and factory wired, ready for installation. Models equipped with the short combustion head have a fixed flange, which bolts directly to the front of the appliance. When equipped with the long combustion head, the burner comes with a universal flange, which when bolted to the appliance, allows the burner to be adjusted for exact positioning in the combustion zone.

STEP-BY-STEP PROCEDURE

- 1) Remove the burner from the carton, taking care not to lose any of the supplied accessories. Check for signs of physical damage.
- 2) Bolt the combustion head and burner to the appliance. Be sure to install the supplied mounting gasket. Ensure that the burner is level (we suggest using a spirit level) and that the combustion head is centred in the appliance port. Refer to page 7 for positioning of combustion head relative to the chamber.
- 3) Check that all gas train connections are tight and make your connections to the incoming gas supply.
 - a) A sediment trap must be provided.
 - b) If not already installed, a manual shutoff valve must be supplied. This valve must be upstream of the burner gas train supply connection.
 - c) A $\frac{1}{8}$ " NPT plugged tapping must be installed immediately upstream of the burner gas train supply connection and must be accessible for a test gauge.
 - d) If required by local codes, provide gas vent lines at the gas regulators and valve (Riello gas trains are equipped with vent limiting orifices).
 - e) Perform required gas pressure test on incoming gas supply lines.

NOTE: Details of sediment trap, manual gas valve and test point can be found in installation of sediment trap and burner supply section.

- 4) Remove the red protective cover by removing the three screws. Make your adjustment of stop gate, (refer to firing rate specifications and settings charts for details). Replace and secure the air cover plate.
- 5) Electrical hookup: 120Volt 60 Hz incoming power lines should be connected to Terminals 1 and 2 on burner terminal block. A manual disconnect switch must be installed in the incoming power lines. Incoming power lines must be rigid conduit or flexible approved cable.



CAUTION:

The hot wire must be connected to the black lead of the relay: neutral to the white lead.

Do not reverse the polarity.

The burner will not operate with the Phase/Neutral reversed, and the control box may be damaged.

Proper earth ground should be connected to the terminal block mounting plate which should be a solid green wire to Earth Ground.

- 6) Start and check the burner functions as follows:
 - a) Make a final check on both the gas and electrical connections.
 - b) Check that all adjustments have been completed.
 - c) Loosen the screw in the manifold gas test point and install a manometer.
 - d) Switch on power.
 - e) Set the thermostat at its highest setting and press the burner reset button. Allow the burner to run through a complete cycle to check control functions.
 - f) Turn on the manual gas valve and reset the safety. At this stage, the burner will open the air shutter and once it is open, the burner will prepurge for aprox. 25 seconds. Allow about 66 seconds for the control module to check all the operating circuits.

It may be necessary to repeat the starting cycle several times to free the gas train of entrapped air. If the burner goes to lockout, reset the safety button.

- 7) With the burner running and flame established, check the manifold gas pressure. Adjust manifold pressure to the correct value for the selected firing rate specified in the FIRING RATE SPECIFICATIONS AND SETTINGS chart. After completing the setting, remove the manometer and tighten the screws.

NOTE: Do not assume the burner is operating at optimum performance.

- 8) Make your final combustion efficiency test and fine tune the fan air damper as necessary. Replace the red protective cover and secure with three screws.
- 9) If the burner is installed on a central warm air furnace, affix the supplied warning labels to the furnace fan cover door (inside and outside).

10) Always do a final set up by checking the gas flow rate by clocking the meter. Do a complete combustion check with proper test equipment to obtain the best and safe CO², O², and CO results. This test must be done by a qualified technician. The maximum CO² level for Natural Gas is 10%. The maximum CO² level for Propane Gas is 12%. The recommended flue gas temperature is from 350 degrees Fahrenheit to 550 degrees Fahrenheit. Fill out the installation data on the label described below and explain the burner's essential functions (starting and stopping) to the owner. Do not forget to give the dealer or service company's name and address.

ADJUSTMENT DATA TAG ANSI Z21-17b-1994		
INPUT C.F.H.		
MANIFOLD PRES.		
AIR DAMPER		
AIR/GAS RATIO No.		
FLUE GAS TEMP.		
O2 LEVEL %		
CO2 LEVEL %		
CO LEVEL P.P.M		
DATE :		
COMPLETED BY		
INSTALLATION CONTRACTOR		

INSTALLATION DATA

Note: This label is supplied in the package with the burner and should be filled out and affixed to the appliance when the conversion burner is installed.

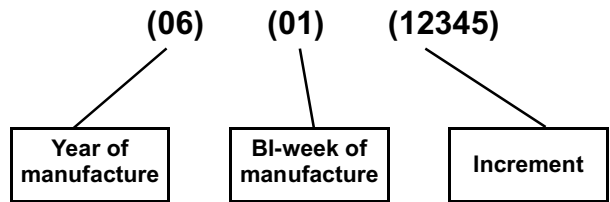
SERIAL NUMBER IDENTIFICATION

Your Riello burner may have been manufactured in more than one location and therefore there are two possible serial number identification.

The Riello 9 character serial number, example,

06 01 12345, is identified as follows:

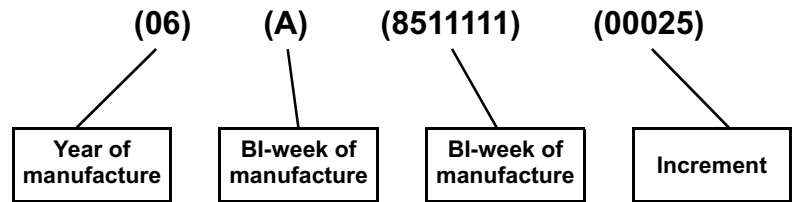
- 06** = Last two digits of the year of manufacture;
- 01** = Week of manufacture;
- 12345** = Increment of 1 for each burner produced – specific to product code – reset to zero each January 1st.



The Riello 15 character serial number, example,

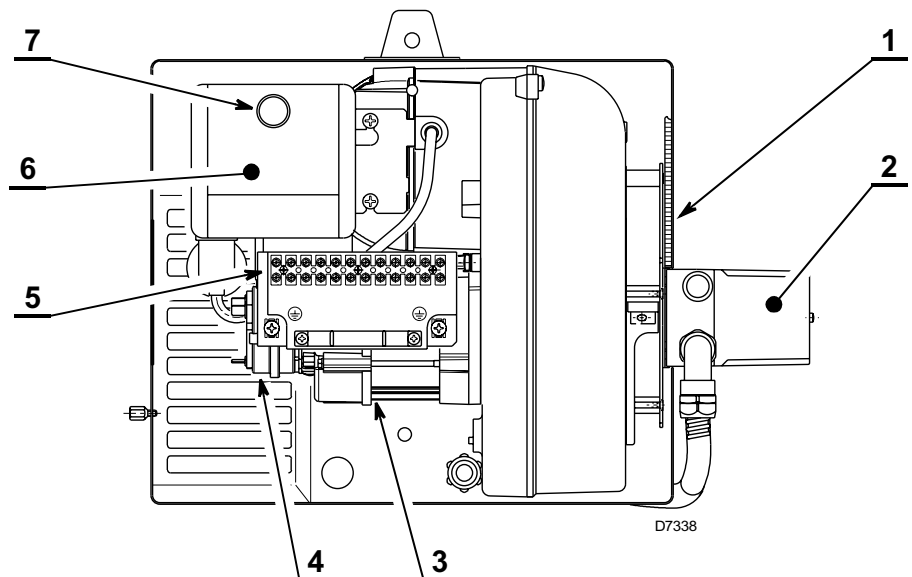
06 A 8511111 00025, is identified as follows:

- 06** = Last two digits of the year of manufacture;
- A** = BI-week of manufacture;
- 8511111** = Burner product code;
- 00025** = Increment of 1 for each burner produced – specific to product code – reset to zero each January 1st.

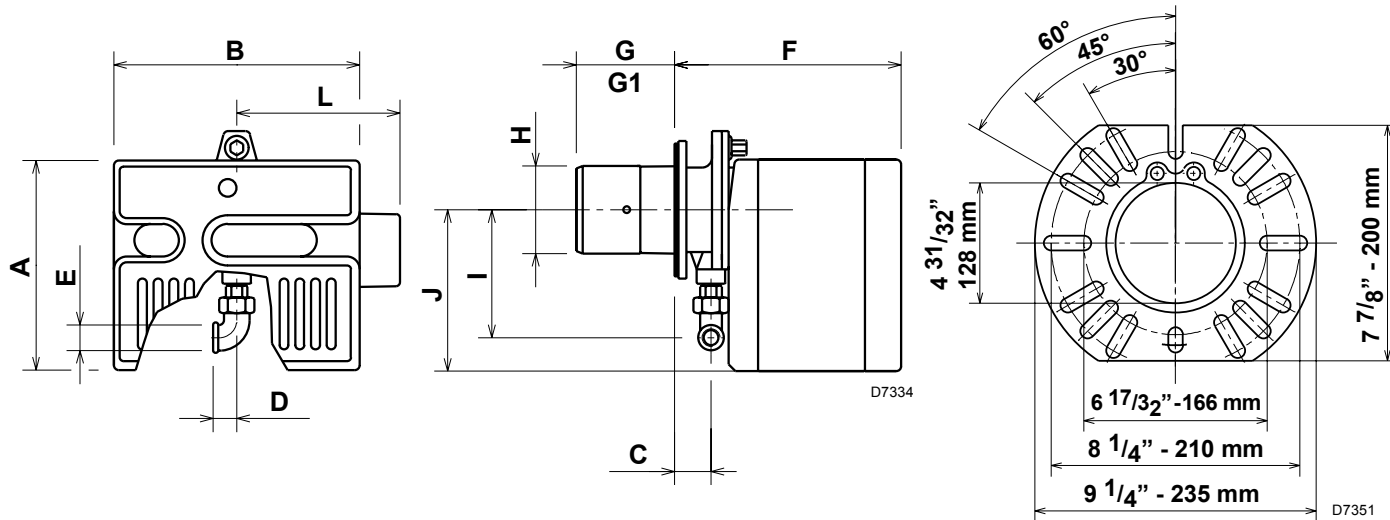


BURNER COMPONENTS IDENTIFICATION

- 1 Air damper
- 2 Servomotor
- 2 Motor
- 4 Air pressure switch
- 5 Wiring terminal block
- 6 Control box RMG 88.62
- 7 Reset button with lock-out lamp



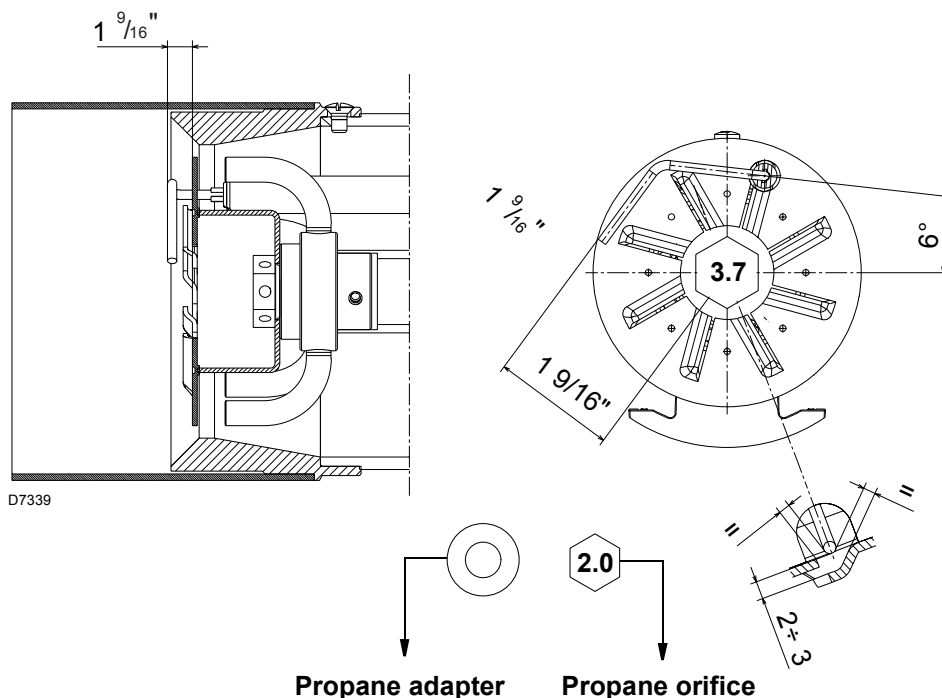
BURNER DIMENSIONS



Model 900	A	B	C	D	E	F	G	G1	H	I	J	L
inches	11 47/64	13 25/32	2 41/64	1 19/64	3/4	15 23/64	4 23/32	10 5/8	4 59/64	5 63/64	9 1/16	3 47/64
mm	298	350	67	33	19	389	120	270	125	152	230	95

NOTE: Actual available insertion length must be measured from tip of end cone to face of mounting gasket.

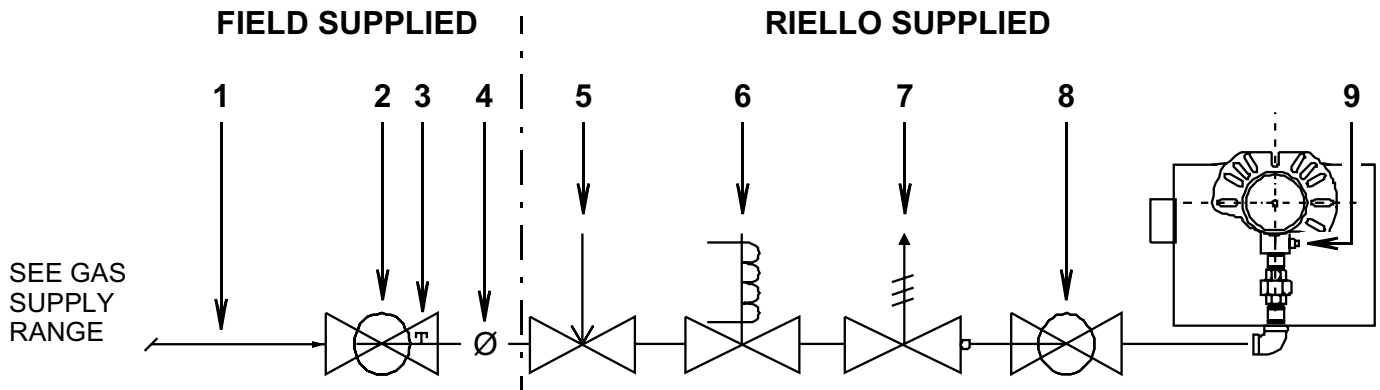
ELECTRODE AND FLAME PROBE ADJUSTMENTS



⚠ WARNING:
 Do not turn the ignition electrode. Leave it as shown in the drawing.
 If the ignition electrode is put near the ionization probe, the amplifier of the control box may be damaged.

TYPICAL GAS TRAIN LAYOUT

This gas train scope of supply meets the minimum controls requirements according to CGA and AGA regulations. Any additional requirements needed to meet local codes are the responsibility of others.



NOTE: ITEMS 5, 6 & 7 COMBINATION GAS VALVE(S) ASSEMBLIES MAY BE UTILIZED WHERE APPROVED

- 1 - GAS SUPPLY & FLOW DIRECTION OF GAS
- 2 - GAS SUPPLY MAIN SHUTOFF MANUAL VALVE (FIELD SUPPLIED)
- 3 - GAS SUPPLY PRESSURE TEST POINT (FIELD SUPPLIED)
- 4 - GAS TRAIN PIPE DIAMETER SIZE(S):
BURNER G900 1" NPT (REDUCED AT COMBUSTION HEAD TO 3/4")
- 5 - GAS APPLANCE PRESSURE REGULATOR
- 6 - SAFETY SHUTOFF GAS VALVE (VS) 120v OPERATED
- 7 - MAIN GAS VALVE 120V OPERATED
BURNER G750 = TWO STAGE V1 - V2
- 8 - FIRING VALVE MANUAL SHUTOFF
- 9 - GAS BURNER MANIFOLD TEST POINT

GAS SUPPLY PRESSURE RANGES:

NATURAL GAS PRESSURE:
min. 7" wc - max. 14" wc

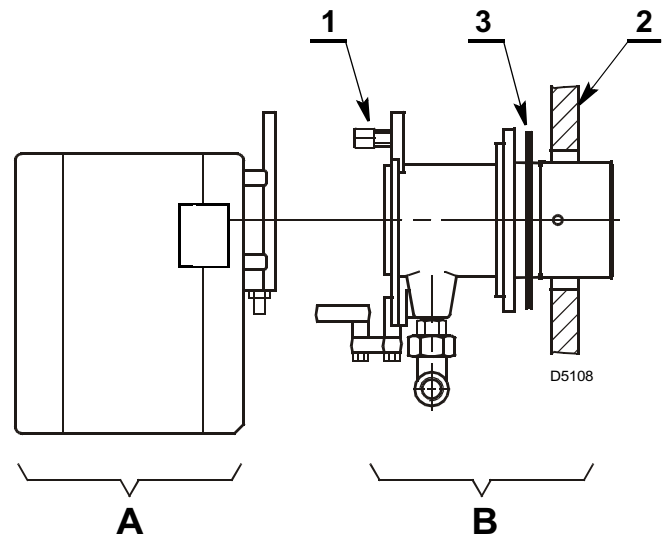
LP PROPANE GAS PRESSURE
min. 8" wc - max. 13" wc

INSTALLING THE BURNER

- A) Burner Chassis
- B) Combustion Head Assembly
- 1) Locking Nut
- 2) Mounting Plate surface
- 3) Insulation Gasket

Separate the combustion head of the burner from the chassis (A) by removing the locknut (1). Install the combustion head into the boiler.

Typical insertion depth, the front edge of the combustion head is flush with the inside surface of the appliance mounting surface (2).



Use this checklist prior to installation:

- 1) Check the input/output requirements of the boiler/furnace.
- 2) Check the physical size of the combustion chamber against the thermal requirements of the application and relate this to the sizing charts.
- 3) Check that there is sufficient air for proper combustion and adequate ventilation. Local codes should be followed.
- 4) Check that you have adequate space for servicing the equipment as per local code. This is required for servicing and periodic maintenance of burner/appliance.
- 5) Prior to burner installation, the chimney must be inspected and must meet local code requirements.
- 6) Barometric draft regulators, when used, should be of the double acting type, and must be installed in accordance with the draft regulator Manufacturer's instructions. Single acting barometric dampers are not permitted.
- 7) The operating instructions tag supplied with the unit must be left in place.

TO START THE BURNER:

Switch on power, open manual gas cocks, set the thermostat above ambient temperature. If the burner does not start, press the illuminated re-set button on the burner safety control.

TO SHUT DOWN BURNER:

Switch off power supply. If burner is switched off for extended periods, close manual gas cocks.

IMPORTANT:

A vent shutoff system shall be applied to a barometric damper installed in the venting system at the time of conversion of the appliance.

This will electrically disconnect the burner should there be a blockage in the vent (chimney).

The installer must identify the main electrical power switch and manual gas shut off valve, for emergency conditions. The burner cover must be in place and secured before the burner is placed in operation.

INSTALLATION OF SEDIMENT TRAP AND BURNER SUPPLY

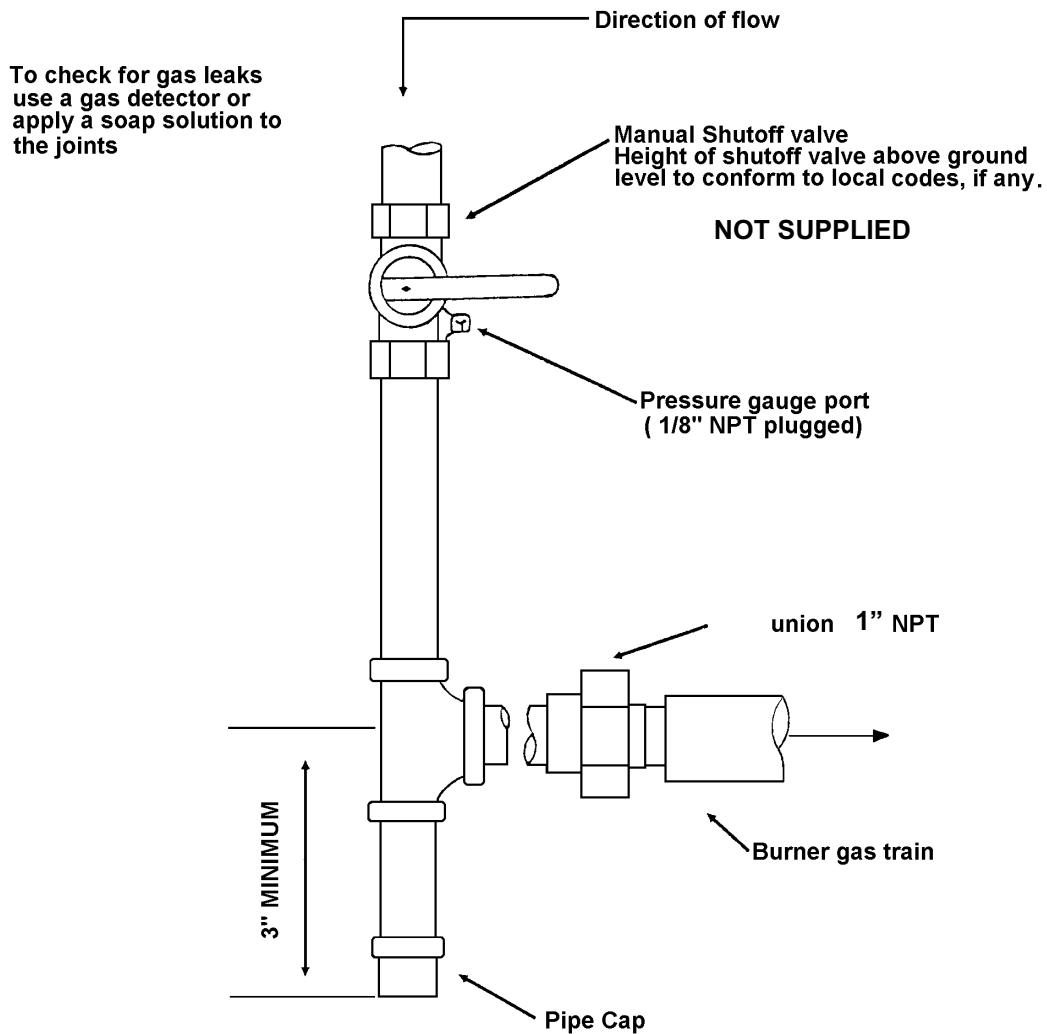
Gas piping to the burner must be $\frac{1}{2}$ -inch minimum. Install only a full-ported shutoff valve. The valve must be located outside the appliance jacket, and the pressure gauge port must be accessible.

PRESSURE TEST-OVER $\frac{1}{2}$ PSIG.

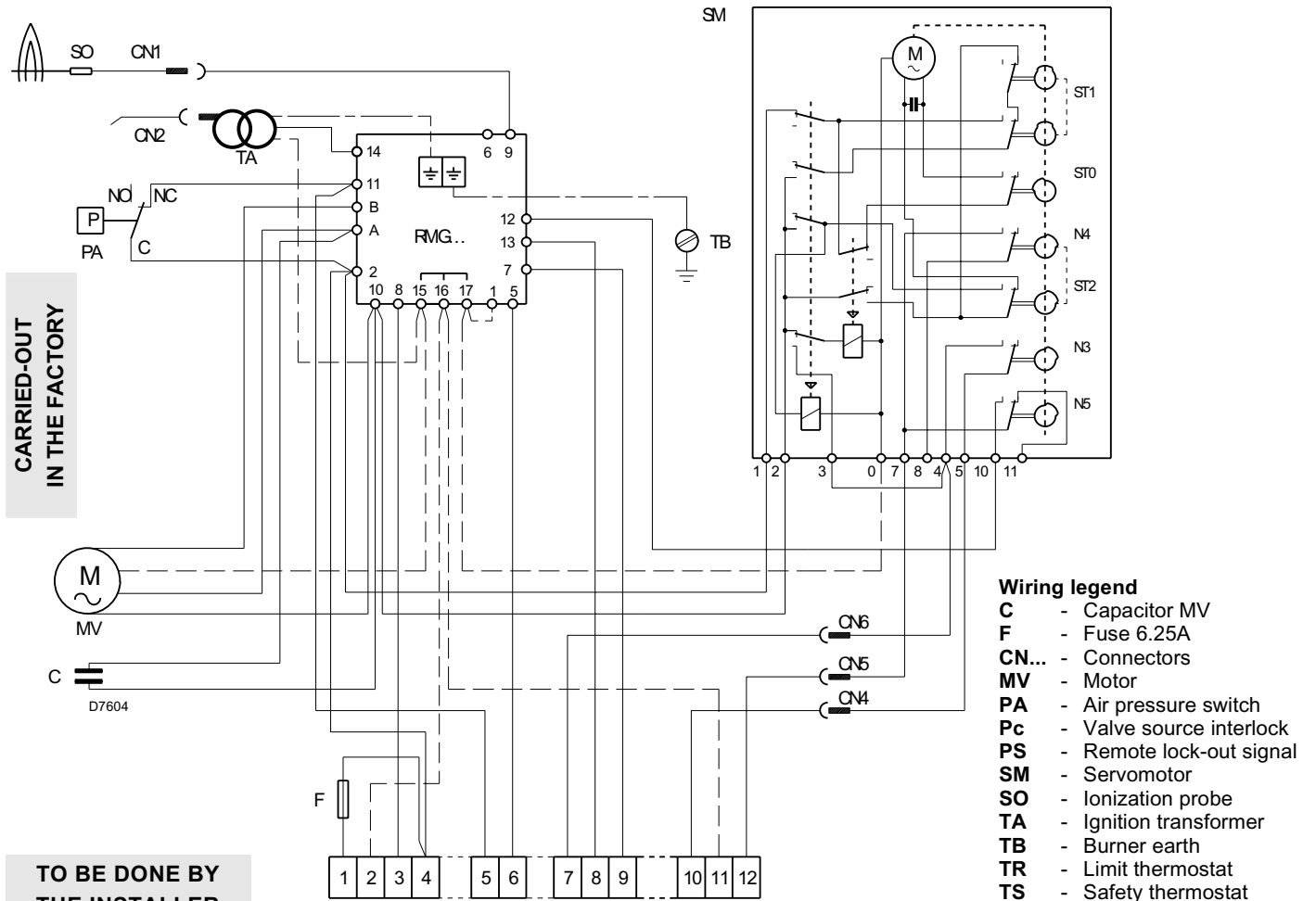
The appliance and its individual shutoff valve must be disconnected from the gas supply piping system during any pressure testing of the system at a test pressure in excess of $\frac{1}{2}$ PSIG.

PRESSURE TEST- $\frac{1}{2}$ PSIG OR LESS

The appliance must be isolated from the gas supply piping system by closing its individual manual shutoff valve during any testing of the gas supply piping system at test pressures equal to or less than $\frac{1}{2}$ PSIG.



WIRING DIAGRAM

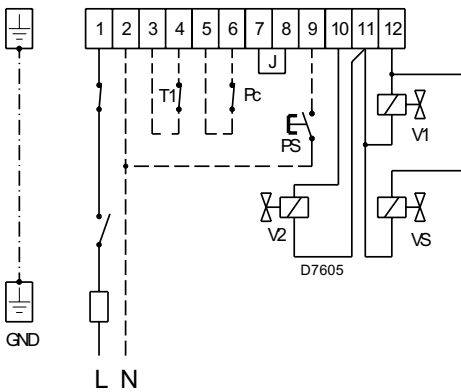


**CARRIED-OUT
IN THE FACTORY**

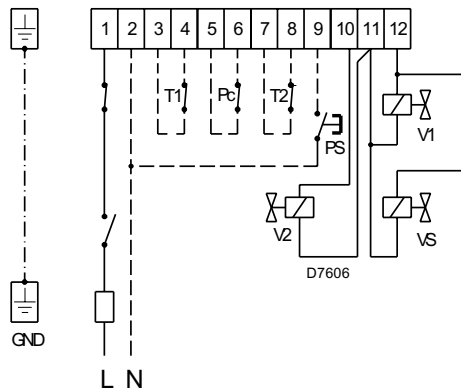
**TO BE DONE BY
THE INSTALLER**

- Wiring legend**
- C** - Capacitor MV
 - F** - Fuse 6.25A
 - CN...** - Connectors
 - MV** - Motor
 - PA** - Air pressure switch
 - Pc** - Valve source interlock
 - PS** - Remote lock-out signal
 - SM** - Servomotor
 - SO** - Ionization probe
 - TA** - Ignition transformer
 - TB** - Burner earth
 - TR** - Limit thermostat
 - TS** - Safety thermostat
 - T2** - 2nd stage thermostat
 - T6A** - Fuse
 - V1** - 1st stage gas valve
 - V2** - 2nd stage gas valve
 - X12** - Terminal board 12 pole

SINGLE STAGE BURNER - LOW FIRE START



TWO STAGE BURNER FIRING



Note: If an external electrical source is utilized, the conversion burner, when installed, must be electrically grounded with a solid green wire to Earth Ground, in accordance with local codes or, in the absence of local codes, with the National Electrical Code ANSI/NFPA 70-1990 and the CSA Electrical Code.

CONTROL CIRCUITS

Burner firing stage may be controlled by either a 120V or 24V control system. The required controls must be connected to the burner as described on the following pages.

120V CONTROL SYSTEM

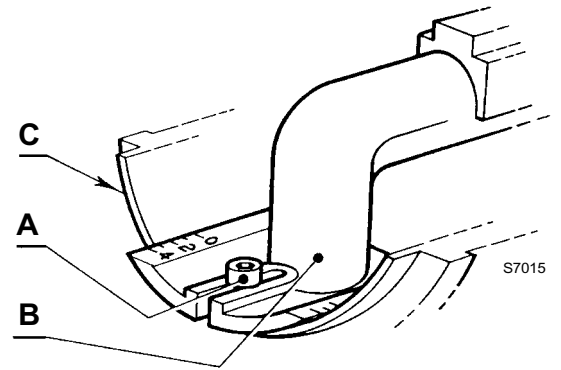
First stage firing is controlled by a 120V operating control wired between terminals 3 and 4 on the terminal block. To control second stage fire on demand only, a second 120V control must be wired between terminals 7 and 8 after removing the factory-installed jumper.

24V CONTROL SYSTEM

First Stage firing is controlled by a 24V operating control wired between terminals 3 and 4 on the terminal block. To control second stage fire on demand only, a second 24V control must be wired between terminals 7 and 8 after removing the factory installed jumper.

COMBUSTION HEAD SETTING

To set combustion head, loosen the Allen screw (A) and move the elbow (B) so that the rear edge of the air tube (C) coincides with the set point number.
Retighten the Allen screw (A).



⚠ Make sure you are using the correct table for either Natural gas or Propane gas.

BURNER SETUP CHART

SPECIFICATIONS 1" GAS TRAIN WITH 6" MINIMUM LINE SUPPLY PRESSURE											
	kBTU Input High Fire	kBTU Input Low Fire	Air Gate Setting	Head Setting	Servomotor set in degrees				Manifold Pressure (inches - wc)		Min Line Pressure (inches - wc)
					A	B	C	D	H	L	
					ST1	N5	ST2	N3			
NATURAL GAS	900		4.7	4.0			38	33	3.3		7
		490	2.4	4.0	20	15				1	7
	800		4.2	3.0			34	29	3		7
		410	2.1	3.0	19	14				0.55	7
	700		3.7	2.0			30	25	2.6		7
		370	2.0	2.0	18	13				0.78	7
	600		3.1	1.0			25	20	2.7		7
		320	1.8	1.0	15	10				0.86	7
	500		2.8	0.5			22	17	2.8		7
		300	1.8	0.5	15	10				1.1	7
	360		2.2	0.0			19	14	2.3		7
	250		1.6	0.0	13	8				1	7
SPECIFICATIONS 1" GAS TRAIN WITH 11" MINIMUM LINE SUPPLY PRESSURE											
PROPANE GAS	900		4.7	5.0			38	33	6		8
		490	3.2	5.0	26	21				3.4	8
	800		4.0	4.0			34	29	4.9		8
		410	2.9	4.0	24	19				2.8	8
	700		3.7	3.0			30	25	4.1		8
		370	2.7	3.0	22	17				2.3	8
	600		3.1	2.0			26	20	3.1		8
		320	2.4	2.0	20	15				1.8	8
	500		2.9	1.0			25	18	2.9		8
		300	2.1	1.0	18	13				1.7	8
	360		2.3	0.0			20	15	2.6		8
	250		2.1	0.0	18	13				2	8

NOTE:

The above settings are a starting point for adjustments ONLY; a qualified gas technician using proper test equipment must do the final adjustments.

Proper CO², O², and CO readings must be taken and be within regulating code requirements.

All the settings above are based on zero (0) over fire-draft.

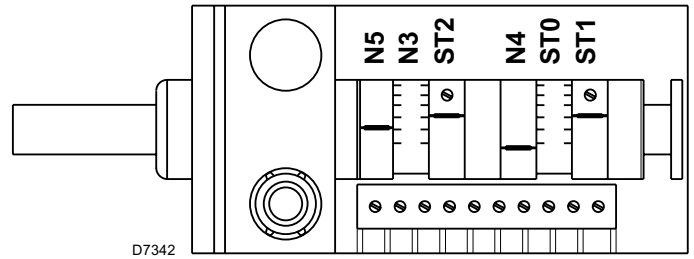
If positive or negative chamber conditions exist some settings changes made be required.

For any referral to valve setting, please check the attached manufacturer valve specification.

PRELIMINARY BURNER ADJUSTMENTS

**STANDBY WAITING FOR CALL FOR HEAT
DO NOT ADJUST THIS SETTING FOR ANY
REASON!!!**

The **ST0** lever is set at the factory and corresponds to the air gate shut position of zero on the.



1st STAGE (LOW FIRE) AIR DAMPER SETTING

The **ST1** lever controls the first stage position of the air damper and must be set at a higher degree setting than the **ST0** Lever.

Lever **N5** controls the opening of the first stage gas Valve and it must be set approximately 5° lower than **ST1**. (Example: if **ST1** is set at 20° then **N5** should be set at approximately 15°).

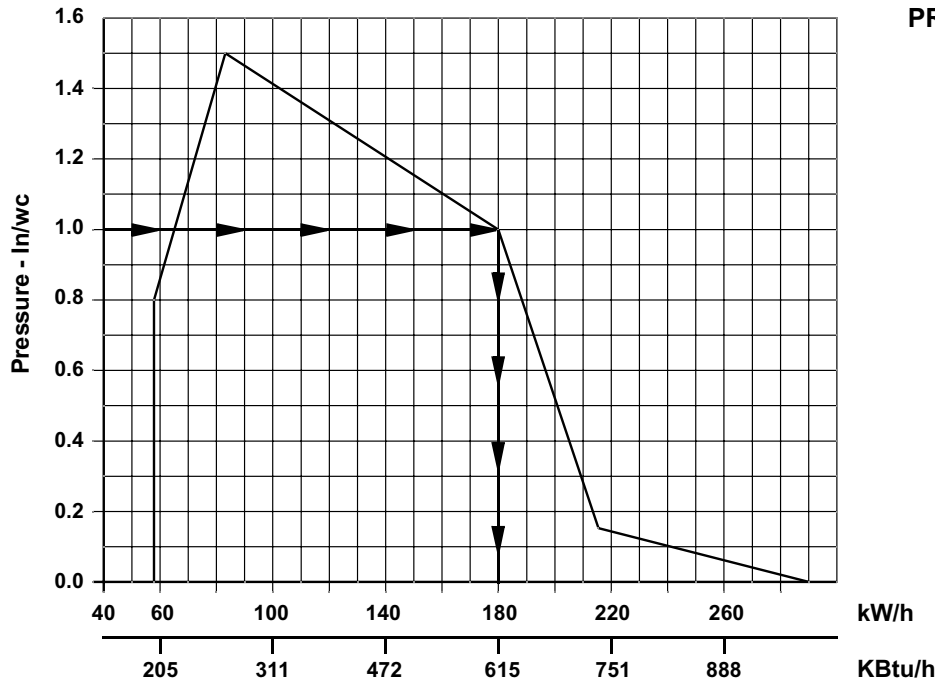
2nd STAGE (HI FIRE) AIR DAMPER SETTING

The **ST2** lever controls the 2nd stage (Hi fire) position of the air damper and must be set at a higher degree setting than the **ST1** Lever.

Lever **N3** controls the opening of the 2nd stage (Hi fire) gas valve and it must be set approximately 5° lower than **ST2**. (Example: if **ST2** is set at 30° then **N3** should be set at approximately 25°).

PRESSURE WORKING CHART

The chart below shows effects of pressure in the combustion zone on the minimum/maximum burner outputs. In this example, with a maximum operating pressure of 1.0 inches water column in the combustion zone, you will be able to obtain a maximum of 615 KBtu/h burner output.

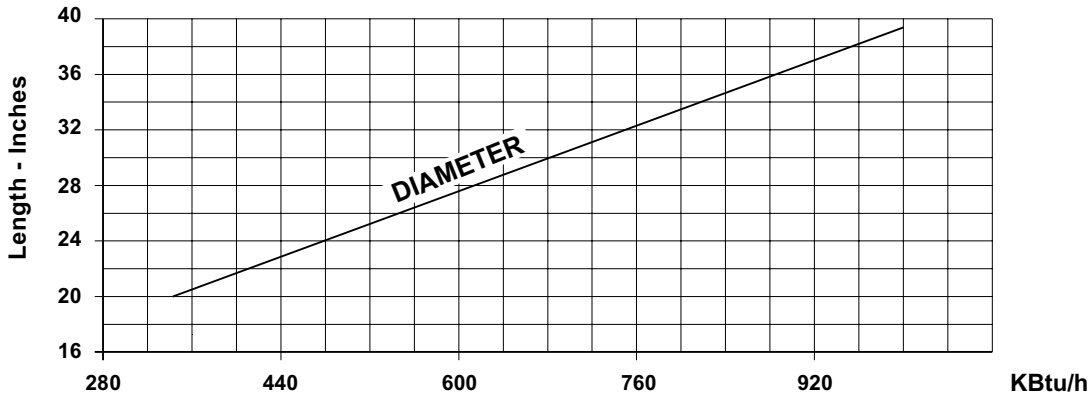


**PRESSURE WORKING CHART
Natural and Propane Gas**

Any change from zero (0) pressure in the combustion zone will affect the KBtu output of the burner. To supply the required input to the appliance, manifold pressure will have to be adjusted to compensate for this condition.

COMBUSTION CHAMBER SIZE

**COMBUSTION CHAMBER SIZE
Recommended Minimum Sizes**



NOTES:

- 1) Sizes shown above are for cylindrical or wet base boilers, or air cooled heat exchangers.
- 2) To size the chamber in applications other than wet base boilers, you must calculate area in square inches of the combustion zone required to give you a grate area or floor area to match the BTU inputs according to local authority.
- 3) Please consult local code requirements for combustion chamber construction and sizing.

COMBUSTION CHECKS

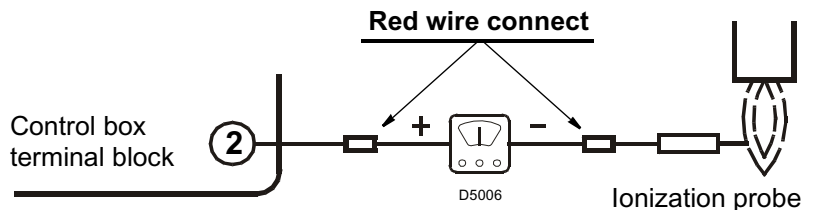
CO₂ It is advisable not to exceed a measured reading of 10% CO₂ for Natural Gas or 12% CO₂ for Propane Gas taken with the burner cover in place, to avoid the risk of the formation of CO due to minor changes in wind/draft conditions which may occur.

CO For safety reasons, the value of .02% (200ppm) free air sample must not be exceeded.

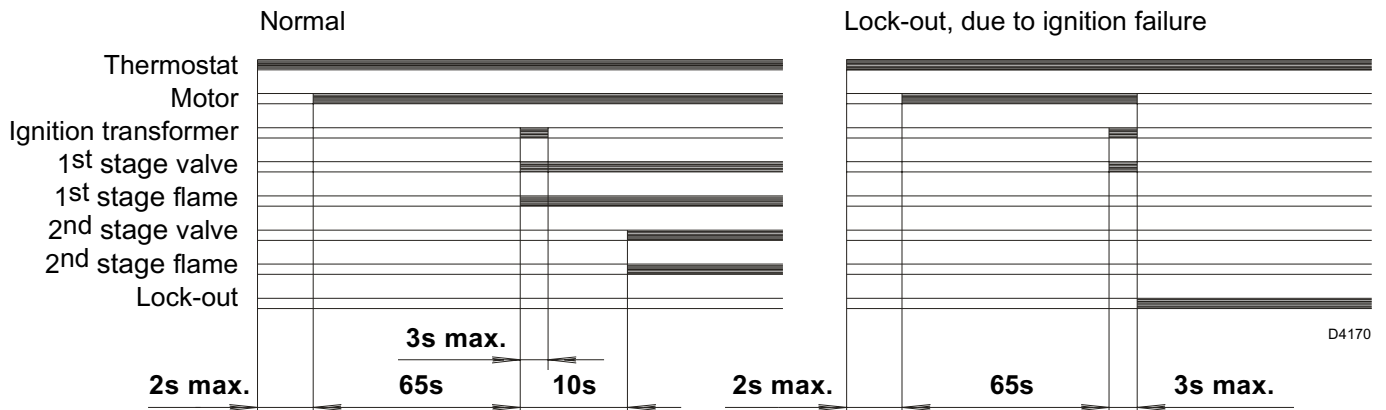
IONIZATION CURRENT

The minimum amount of current necessary for the control box to operate properly is 5 micro Amps DC.

To measure the ionization current, disconnect the red wire connector and insert a DC micrometer in series with control box terminal 2 and the ionization probe, which senses the flame.



BURNER START-UP CYCLE



When flame-failure occurs during working, shut down takes place within one second.

START-UP CYCLE DIAGNOSTICS

During start-up, indication is according to the following table:

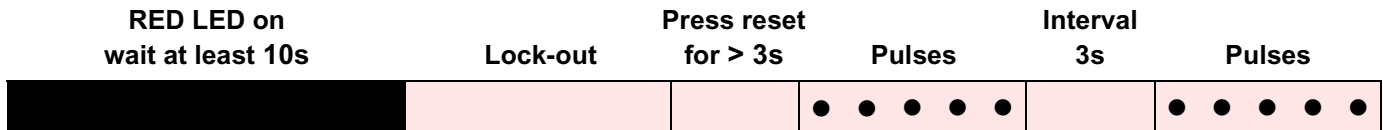
COLOUR CODE TABLE	
Sequences	Colour code
Pre-purging	● ● ● ● ● ● ● ● ● ● ●
Ignition phase	● ○ ● ○ ● ○ ● ○ ● ○ ●
Operation, flame ok	□ □ □ □ □ □ □ □ □ □ □
Operating with weak flame signal.	□ ○ □ ○ □ ○ □ ○ □ ○
Electrical supply lower than ~ 170V	● ▲ ● ▲ ● ▲ ● ▲ ● ▲ ●
Lock-out	▲ ▲ ▲ ▲ ▲ ▲ ▲ ▲ ▲ ▲ ▲
Extraneous light	▲ □ ▲ □ ▲ □ ▲ □ ▲ □ ▲
Index:	○ Off ● Yellow □ Green ▲ Red

RESETTING THE CONTROL BOX AND USING DIAGNOSTICS

The control box features a diagnostics function through which any causes of malfunctioning are easily identified (indicator: **RED LED**).

To use this function, you must wait at least 10 seconds once it has entered the safety condition (**lock-out**), and then press the reset button. The control box generates a sequence of pulses (1 second apart), which is repeated at constant 3-second intervals.

Once you have seen how many times the light pulses and identified the possible cause, the system must be reset by holding the button down for between 1 and 3 seconds.



The methods that can be used to reset the control box and use diagnostics are given below.

RESETTING THE CONTROL BOX

To reset the control box, proceed as follows:

- Hold the button down for between 1 and 3 seconds.
 - The burner restarts after a 2-second pause once the button is released.
 - If the burner does not restart, you must make sure the limit thermostat is closed.

VISUAL DIAGNOSTICS

Indicates the type of burner malfunction causing lock-out.

To view diagnostics, proceed as follows:

- Hold the button down for more than 3 seconds once the red LED (burner lock-out) remains steadily lit.
 - A yellow light pulses to tell you the operation is done.
 - Release the button once the light pulses. The number of times it pulses tells you the cause of the malfunction, indicated in the table below.

SOFTWARE DIAGNOSTICS

Reports the life of the burner by means of an optical link with the PC, indicating hours of operation, number and type of lock-outs, serial number of control box etc ...

To view diagnostics, proceed as follows:

- Hold the button down for more than 3 seconds once the red LED (burner lock-out) remains steadily lit. A yellow light pulses to tell you the operation is done. Release the button for 1 second and then press again for over 3 seconds until the yellow light pulses again. Once the button is released, the red LED will flash intermittently with a higher frequency: only now can the optical link be activated.

Once the operations are done, the control box's initial state must be restored using the resetting procedure described above.

BUTTON PRESSED FOR	CONTROL BOX STATUS
Between 1 and 3 seconds	Control box reset without viewing visual diagnostics.
More than 3 seconds	Visual diagnostics of lock-out condition: (LED pulses at 1-second intervals).
More than 3 seconds starting from the visual diagnostics condition	Software diagnostics by means of optical interface and PC (hours of operation, malfunctions etc. can be viewed)

The sequence of pulses issued by the control box identifies the possible types of malfunction, which are listed in the table below.

SIGNAL	PROBABLE CAUSE
2 pulses ● ●	The flame does not stabilise at the end of the safety time: – faulty ionisation probe; – faulty or soiled gas valves; – neutral/phase exchanged; – faulty ignition transformer – poor burner regulation (insufficient gas).
3 pulses ● ● ●	Minimum air pressure switch does not open: – air pressure switch faulty; – fan motor does not run.
4 pulses ● ● ● ●	Extraneous light.
5 pulses ● ● ● ● ●	“Pc” valve source interlock is open before start-up.
7 pulses ● ● ● ● ● ● ●	Loss of flame during operations: – poor burner regulation (insufficient gas); – faulty or soiled gas valves; – short circuit between ionisation probe and earth.
10 pulses ● ● ● ● ● ● ● ● ● ●	– Wiring error or internal fault.

PROBLEM SOLVING GUIDE

Burner starting difficulties and their causes:

- 1) The burner goes to lockout after the prepurge period because the flame does not ignite.
 - a) Air has not been fully evacuated from the gas lines.
 - b) The gas valve is passing too little gas.
 - c) The ignition spark is irregular or not present.
 - d) The gas valve is defective.
- 2) The burner does not start when there is a call for heat.
 - a) The air pressure switch has failed to return to n.c. contacts.
 - b) There is no gas, or insufficient pressure in the supply lines to activate the optional gas pressure switch (if used).
 - c) There is a blown buss fuse behind the terminal strip.
 - d) The burner has gone off on safety.
 - e) The low voltage contacts or the low voltage relay are defective.
- 3) The burner does not go through prepurge, ignition is established, the burner fires for 2 seconds, then goes to lockout.
 - a) The air pressure switch does not change from normally closed to normally open contacts. This condition exists due to insufficient pressure in the air tube. Moving the firing head towards zero (0) on the stop gate will rectify this problem.
- 4) The burner goes through prepurge, ignition is established, the burner fires for 2 seconds, then goes to lockout.
 - a) The flame rectification rod (flame rod) has shorted to ground or is defective.
 - b) Polarity is reversed or the earth ground is not properly connected.
 - c) The ionization current is weak (lower than 5 micro-amps).

OWNER INFORMATION AND ROUTINE MAINTENANCE

SAFETY LOCKOUT

This burner is equipped with multiple interlocking safety devices. In the event of a failure in the flame, or any blockage of the combustion air supply, the burner will “lock out” in a safety condition. In such an event, an illuminated red button will show on the front of the red cover.

To restart the burner, press the button once only. Should the burner return to the lock out condition, call a qualified service technician or your gas company for assistance. In the case of loss of pressure in the gas supply line, the burner will go off on safety. If supplied with an optional gas pressure switch (or field installed), the burner will simply switch off on low gas pressure, and start up again when the gas pressure returns to normal.

NOTE: Keep the area around the burner free and clear of all combustible materials, gasoline and other flammable vapours and liquids. Do not allow any obstructions, which may prevent the free, flow of air to the burner.

MAINTENANCE

Like all precision equipment, your burner will require periodic maintenance. At an interval of 2 months, you should:

- 1) If your boiler/furnace has an observation port, visually check the flame.
- 2) Check and clean the air intake louver to remove any buildup of fluff, dust, pet hair, etc.

For any maintenance or repairs over and above those listed, contact your service technician or gas company.

THERE ARE NO OWNER SERVICEABLE PARTS INSIDE THE BURNER COVER.

Once a year, you should have the burner checked as indicated below, by your local authorized Riello dealer.

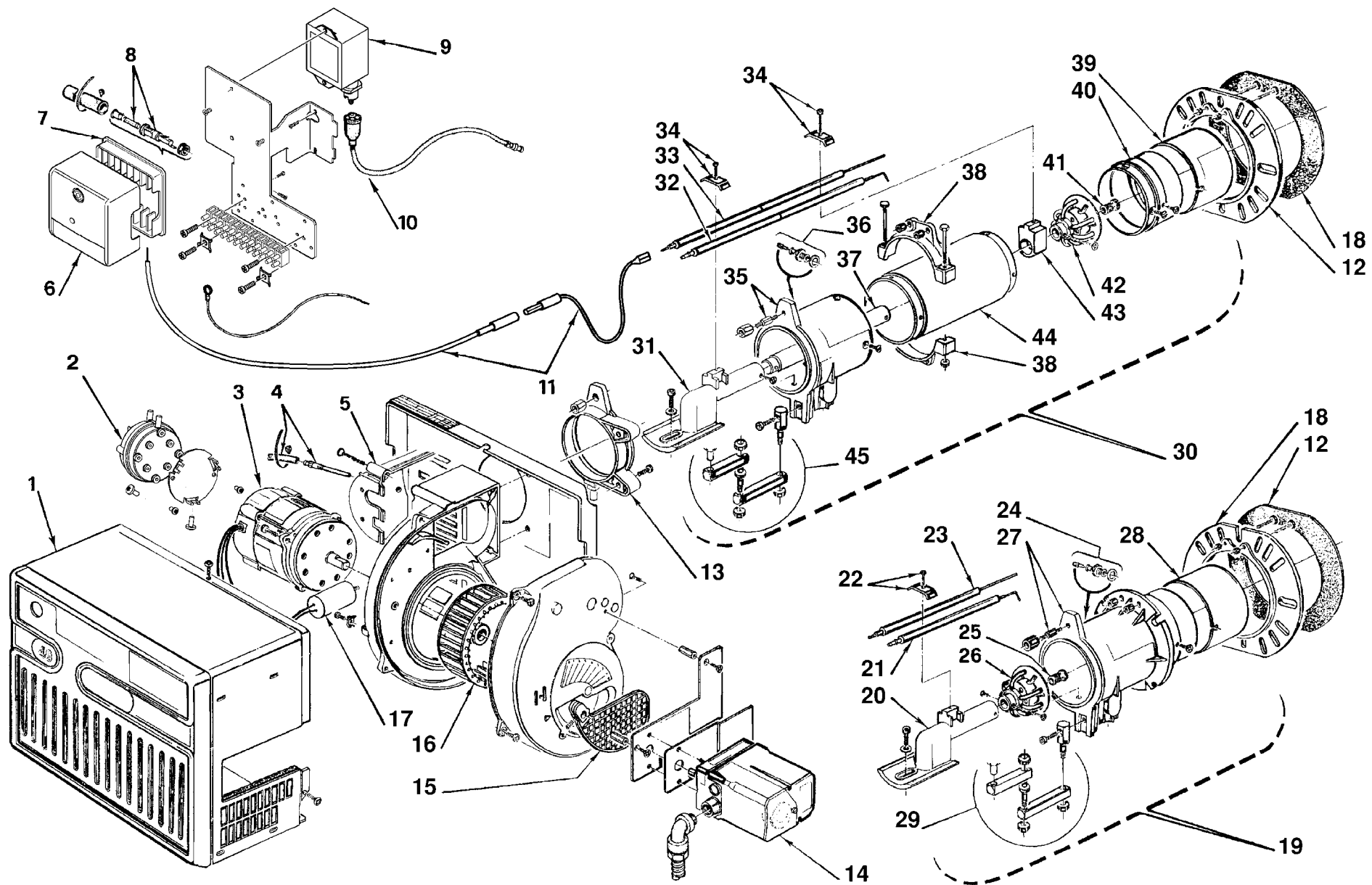
- 1) Check burner distributor head and mixing plates. Clean if necessary.
- 2) Check ignition electrode. Clean, adjust, or replace as necessary.
- 3) Check the flame sensor rod (ionization rod) for dirt or carbon build up. Clean, adjust, or replace as necessary.
- 4) Check manifold gas pressure.
- 5) Check all burner adjustments.
- 6) Generally clean all exposed parts and components.
- 7) Repeat combustion tests.

Your Riello 40 gas burner is only part of your heating system.

Once every year you should have your heating appliance serviced by a qualified service technician.

You should also have the chimney checked, and cleaned if necessary.

SPARE PARTS



SPARE PARTS LIST

No.	CODE	DESCRIPTION	No.	CODE	DESCRIPTION
1	3007521	Burner back cover	19	3950471	Short combustion head (280T1)
2	3020227	Air pressure switch	20	3006697	Drawer assembly elbow
3	3005845	Burner motor	21	3006706	Electrode assembly
4	3007288	Air switch tube and connector	22	3003409	Electrode & ionization clamp
5	3007294	Air plate cover	23	3020209	Ionization assembly
6	3013072	Primary control box	24	3005447	Gas test point
7	3003784	Primary control sub-base	25	3006703	Natural gas orifice
8	3006804	Fuse 6.25A	26	3006700	Distributor head and mixing plate
9	3002462	Transformer - Ignition	27	3007525	Manifold
10	3002461	High voltage lead	28	3006694	End cone
11	3007310	Ionization lead	29	3000870	Hinge assembly
12	3005851	Universal mounting flange			
13	3006689	Chassis mounting collar			
14	3007523	Servomotor	30	3950472	Long combustion head (280T2)
15	3007421	Air damper plate	31	3006697	Drawer assembly elbow
16	3005799	Fan	32	3006962	Electrode assembly
17	3007307	Capacitor 20 µF	33	3020210	Ionization assembly
18	3005852	Mounting gasket	34	3003409	Electrode & ionization clamp
			35	3007526	Manifold
			36	3005447	Gas test point
			37	3007313	Natural gas tube
			38	3005849	Semi flange 2 required
			39	3006694	End cone
			40	3007283	Combustion head connector
			41	3006703	Natural gas orifice
			42	3006700	Distributor head and mixing plate
			43	3007314	Electrode support
			44	3007286	Air tube-long
			45	3000870	Hinge assembly

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Fax: 781-740-2069



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Toll Free: 800-387-3898
Fax: 905-542-1525

BURNER START- UP FORM *

Burner S/N. or Model: _____	Appliance: _____
Installer name: _____	
Company: _____	Installation date: _____
Address: _____	
Phone: _____	Fax: _____
Owner Name: _____	
Address: _____	
Phone: _____	E-mail: _____

Burner Start-up Info	
Gas supply pressure: _____	Manifold pressure: _____
Air setting: _____	Turbolator setting: _____
Draft overfire: _____	Draft breech: _____
CO ₂ : _____ CO: _____ O ₂ : _____	Smoke density: _____ (Bacharach) _____
Ionization reading μ Adc: _____	Input BTU/hr: _____

* This form was designed and provided in the installation manual for reference and also for providing technical information which can be faxed or mailed to our technical hot-line coordinator when technical assistance is required. Please complete this form, fax it or mail it at the address/fax above, or send an e-mail with the information listed below to: techservices@riellocanada.com



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