

**operation  
maintenance  
and  
installation  
instructions**

**G11R G11RE G12R and G12RE Units**

**GAS UNITS**  
501,395M  
11/78

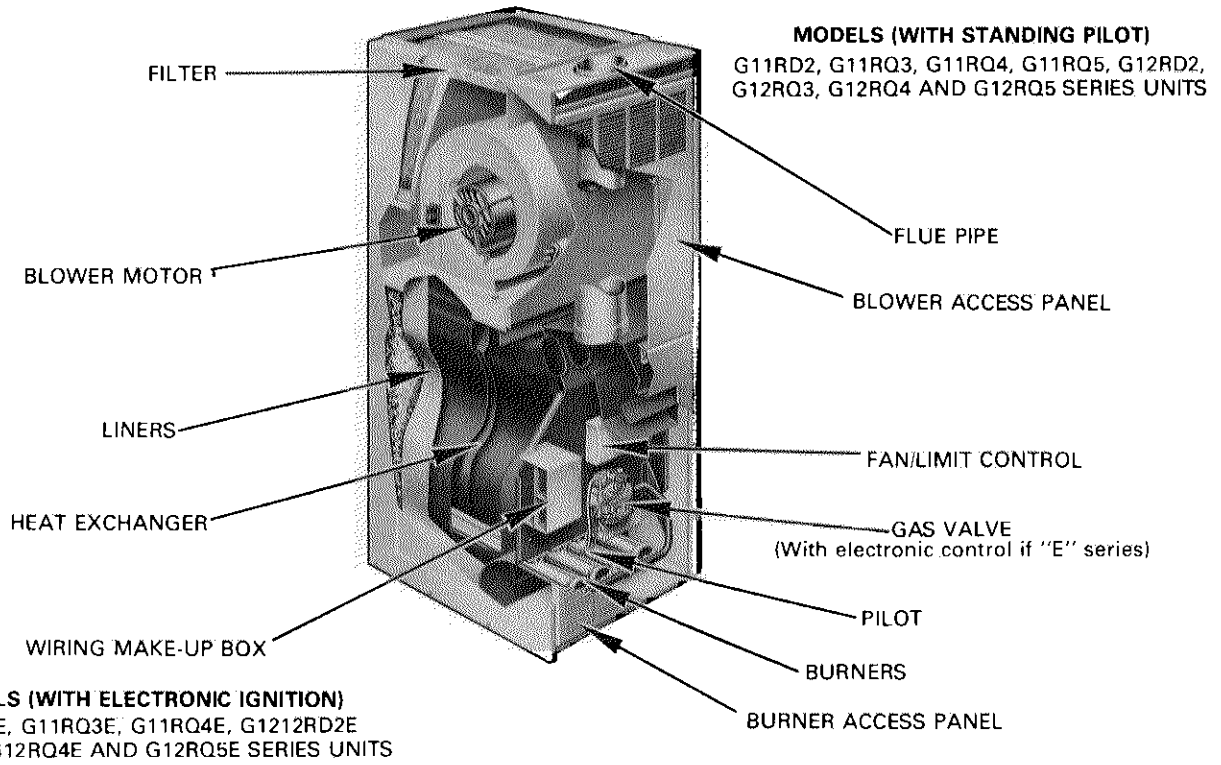
**RETAIN THESE INSTRUCTIONS  
FOR FUTURE REFERENCE**

Supersedes 501,320M

***LENNOX*** Industries Inc.

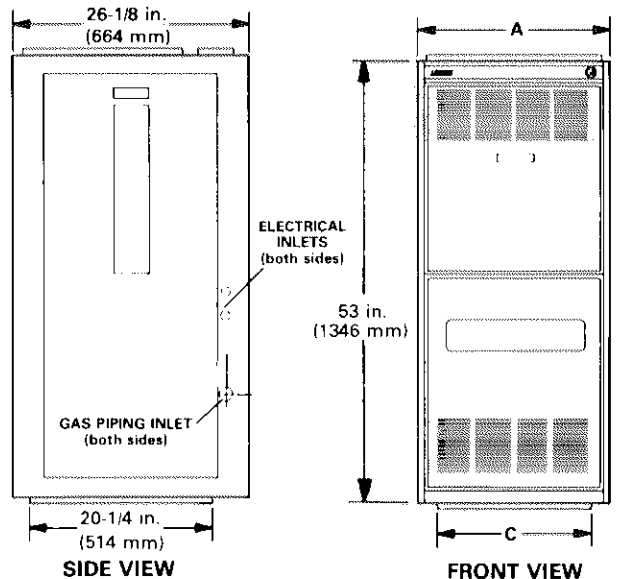
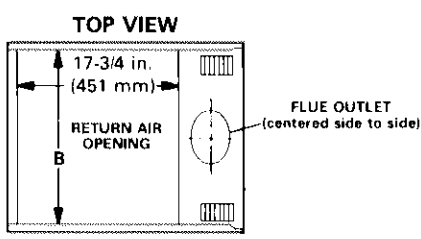
Columbus, Ohio/Decatur, Georgia/Fort Worth, Texas/Sacramento, California/Marshalltown, Iowa/Lennox Industries (Canada) LTD - Calgary, Toronto

# PARTS ARRANGEMENT



**MODELS (WITH ELECTRONIC IGNITION)**  
 G11RD2E, G11RQ3E, G11RQ4E, G1212RD2E  
 G11RQ3E, G12RQ4E AND G12RQ5E SERIES UNITS

## DIMENSIONS



**DIMENSIONS**

Model No.	A	B	C
55- and 82- Series	16-1/4 in. (413 mm)	14 in. (356 mm)	12 in. (305 mm)
110- Series	21-1/4 in. (540 mm)	19 in. (483 mm)	17 in. (432 mm)
137- Series	26-1/4 in. (667 mm)	24 in. (610 mm)	22 in. (559 mm)
165- Series	31-1/4 in. (794 mm)	29 in. (737 mm)	27 in. (686 mm)

## TABLE OF CONTENTS

PARTS ARRANGEMENT — DIMENSIONS..... Page 1  
 CHECK LIST — START-UP — OPERATION — ADJUSTMENTS..... Page 2  
 ANNUAL MAINTENANCE..... Page 3  
 REQUIREMENTS — APPLICATION — INSTALLATION..... Page 4  
 WIRING..... Page 6

# START-UP AND PERFORMANCE CHECK LIST

Job Name \_\_\_\_\_ Job No. \_\_\_\_\_ Date \_\_\_\_\_  
 Job Location \_\_\_\_\_ City \_\_\_\_\_ State \_\_\_\_\_  
 Installer \_\_\_\_\_ City \_\_\_\_\_ State \_\_\_\_\_  
 Unit Model No. \_\_\_\_\_ Serial No. \_\_\_\_\_ Serviceman \_\_\_\_\_

## HEATING SECTION

Unit Serial No. \_\_\_\_\_  
 Electrical Connections Tight?   
 Supply Voltage \_\_\_\_\_ Blower Motor Amps \_\_\_\_\_  
 Blower Motor H.P. \_\_\_\_\_ Make \_\_\_\_\_  
 Blower Motor Lubrication O.K.?   
 Gas Piping Connections Tight & Leak-Tested?   
 Fuel Type: Natural?  LP Gas?   
 Furnace BTU Input \_\_\_\_\_ Line Pressure \_\_\_\_\_

Regulator Pressure (Nat. Only) \_\_\_\_\_  
 Air Shutters Properly Adjusted (If installed) ?   
 Flue Connections Tight?  Proper Draft?   
 Fan Control Checked?   
 Limit Control Cutout \_\_\_\_\_ Temperature Rise \_\_\_\_\_  
 Filters Clean & Secure?   
 Optional automatic vent damper operating properly   
 (Electronic Ignition Units Only)  
**THERMOSTAT**  
 Calibrated?  Properly Set?  Level?

# START-UP - OPERATION - ADJUSTMENTS - MAINTENANCE

## I - START-UP AND OPERATION

**CAUTION** - Before proceeding with lighting instructions, make sure main gas valve and pilot valve at unit have been closed at least five minutes and room thermostat is at lowest setting.

### A - To Light Unit

Refer to lighting instructions on unit rating plate. See Figure 1.

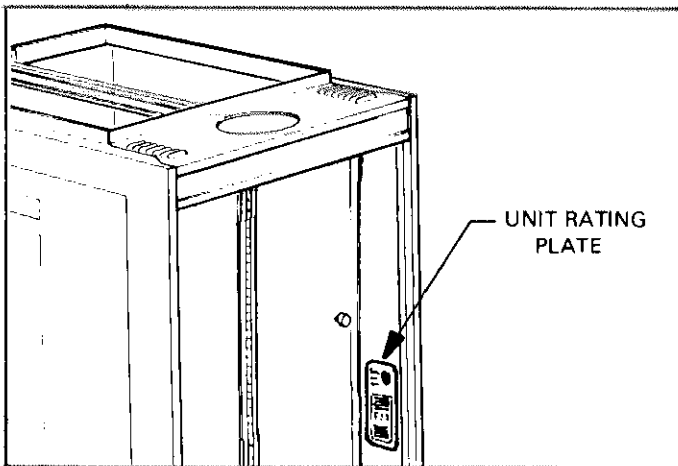


FIGURE 1

### B - Burner Operation

After pilot is lit, set thermostat at desired temperature. If during normal operation pilot goes out, relight according to instructions on unit rating plate.

- 1 - On G11RE and G12RE Series units, the pilot is lighted automatically with each heating demand. When the thermostat demands heat the electronic ignition control lights a pilot burner by spark. Pilot gas is ignited and burns during each running cycle (intermittent pilot). Main burner and pilot gas are extinguished during the "off" cycle. If the pilot gas does not light the main gas valve will not open.

## II - FAILURE TO OPERATE

If unit fails to operate check the following:

- 1 - Is thermostat calling for heat?
- 2 - Is main disconnect switch closed?
- 3 - Is there a blown fuse?
- 4 - Is filter dirty or plugged? Dirty or plugged filters will cause unit to go off on limit control.
- 5 - Is gas turned on at meter?
- 6 - Is pilot lit? (on G11R and G12R Series only)
- 7 - Is manual main shut off valve open?

## III - ADJUSTMENTS

### A - Fan and Limit Control Settings

- 1 - *Limit Controls* - Do not adjust from factory settings.
- 2 - *Fan Control* - Refer to Figure 2 for recommended settings.

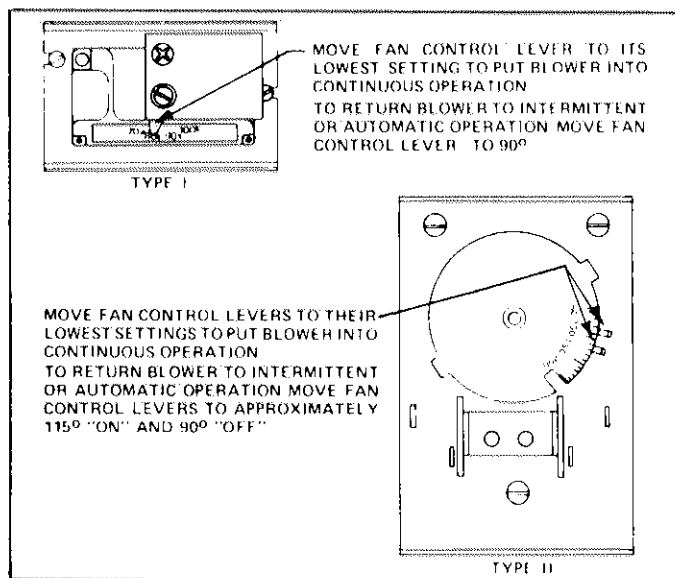


FIGURE 2

### B - Air Shutters (If used)

These units are not factory equipped with air shutters. If air shutters are desired, the optional air shutter package must be ordered for the appropriate size unit. Minor adjustments for flame lifting, burner noise, etc., may be necessary.

### C - Proper Gas Flow

To check for proper gas flow to combustion chamber, determine btu input from the unit rating plate. Divide this input rating by the btu per cubic foot of available gas. Result is the number of cubic feet per hour required. Determine the flow of gas through gas meter for 2 minutes and multiply by 30 to get the hourly flow of gas to burner.

### D - Gas Pressure

- 1 - Check gas line pressure with unit firing at maximum rate. A minimum of 7" w.c. (178mm w.c.) for natural gas or 11" w.c. (299 mm w.c.) for LP gas should be maintained.
- 2 - After line pressure has been checked and adjusted, check manifold pressure (LP) or regulator pressure (natural). Correct regulator pressure for natural gas is 3.5" w.c. (89 mm w.c.). Correct manifold pressure for LP gas is 11" w.c. (279 mm w.c.) To adjust regulator pressure, remove regulator cap and turn adjusting screw out to decrease pressure or in to increase pressure.

### E - Temperature Rise

Adjust blower speed for proper air temperature rise listed on unit

rating plate. To measure this temperature rise, place plenum thermometers in warm air and return air plenums. See Figure 3. Locate thermometer in warm air plenum where thermometer will not "see" heat exchanger, thus picking up radiant heat. Turn thermostat as high as possible to start unit. After plenum thermometers have reached their highest and steadiest readings, subtract the readings. The difference should be within range listed on unit rating plate. If this temperature is low, decrease blower speed; if temperature is high, increase blower speed. Refer to unit wiring diagram for blower speed selection.

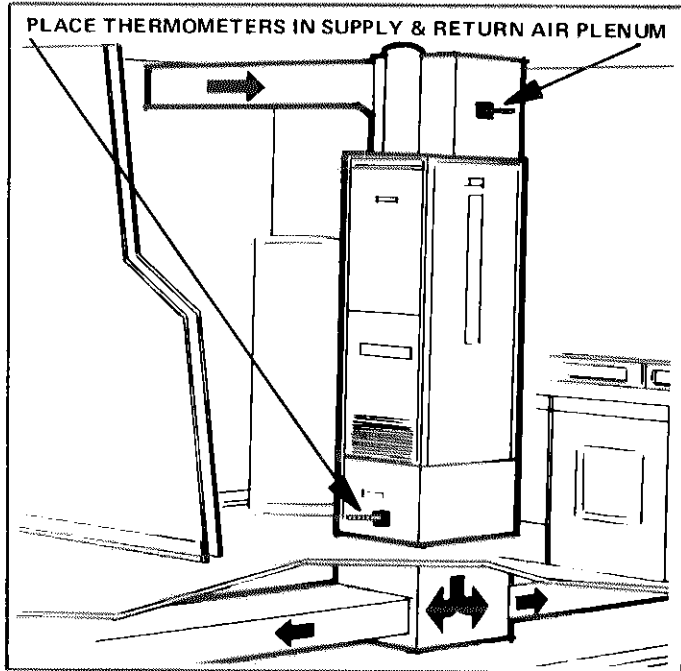


FIGURE 3

#### IV - MAINTENANCE

At the beginning of heating season, the system should be checked as follows:

##### A - Servicing Filter

Filters must be replaced when dirty to assure proper furnace operation. Replace media with 1 inch thick fiberglass of the same size. Refer to Figure 4.

##### B - Lubricate Blower Motor

Always lubricate motor according to manufacturer's lubrication instructions on each motor. If no instructions are provided, use the following as a guide.

- 1 - *Motors Without Oiling Ports* - Prelubricated and sealed. No further lubrication required.

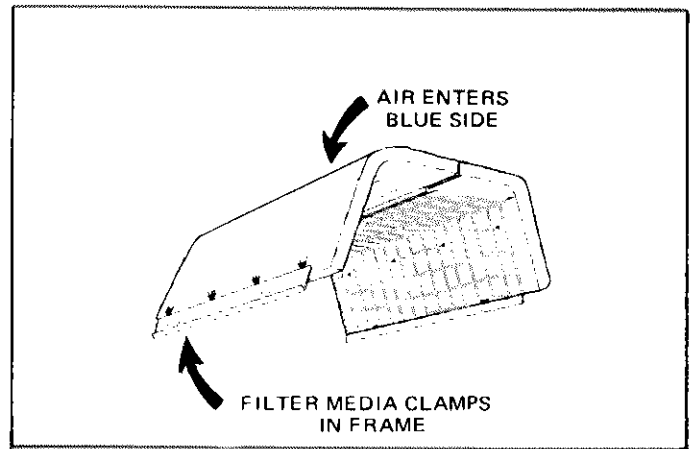


FIGURE 4

- 2 - *Direct Drive Motors With Oiling Ports* - Prelubricated for an extended period of operation. For extended bearing life, relubricate with a few drops of SAE No. 10 non-detergent oil once every two years. It may be necessary to remove blower assembly for access to oiling ports.

*NOTE* - It may be necessary to remove motor from blower assembly for access to oiling ports.

##### C - Blower Adjustment

When blower speed is changed during cooling season, system should be checked for proper temperature rise at the beginning of heating season. To adjust blower motor for proper air temperature rise, refer to section "III - Adjustments".

##### D - Electrical

- 1 - Check all electrical wiring for loose connections and damaged insulation.
- 2 - Check voltage at unit while unit is operating.
- 3 - Check actual amperage draw of blower motor with amperage rating on blower motor nameplate.

##### E - Fan And Limit Control

Check settings and operation of fan and limit control. For recommended settings see section "III - Adjustments".

##### F - Combustion Chamber

- 1 - Check burners for lint, dust and scale. Clean if necessary. If scale was found on the burner ports it could mean the heat exchanger needs cleaning.
- 2 - Check inlet manifold gas pressure. Adjust if required.
- 3 - Check pilot flame and main flame. Clean and adjust if necessary.

##### G - Draft Diverter

Check that flue pipe is not plugged and furnace diverter has proper draft.

- 1 - For G11RE and G12RE Series units equipped with an automatic vent damper, be sure the damper assembly works freely and is in the full open position before the pilot valve opens. Position of the damper blade is indicated by the plastic indicator between the actuator and the vent pipe.

# REQUIREMENTS - APPLICATION - INSTALLATION

## I - SHIPPING AND PACKING LIST

### Package 1 of 1 Contains

- 1 - Assembled Furnace
- 1 - Thermostat (if ordered)
- 1 - Rubber grommet (for electrical make-up)

*NOTE - Additive base for combustible flooring is not furnished and must be ordered separately.*

## II - SHIPPING DAMAGE

Check unit for shipping damage. The receiving party should contact the last carrier immediately if any shipping damage is found.

## III - GENERAL

These instructions are only intended as a general guide, and do not supersede local codes in any way. Authorities having jurisdiction should be consulted before installation.

## IV - REQUIREMENTS

Installation of Lennox gas central furnaces must conform with American National Standard (ANSI-Z223. 1-1974 ) National Fuel Gas Code, manufacturers installation instructions and local municipal codes. Authorities having jurisdiction should be consulted before installation. Air for combustion and ventilation must conform to the methods outlined in ANSI-Z223. 1-1974.

ANSI-Z223.1-1974 National Fuel Gas Code is available from:

American National Standards Institute, Inc.  
1430 Broadway  
New York, New York 10018

Unit is American Gas Association, A.G.A. design certified and Canadian Gas Association (CGA) certified.

Central furnace is certified for installation clearances to combustible material as listed on Appliance rating plate.

Accessibility and service clearances must take precedence over fire protection clearances.

Unit must be adjusted to obtain a temperature rise within the range specified on Appliance rating plate.

When this furnace is used in conjunction with cooling units, it shall be installed in parallel with or on the upstream side of cooling units to avoid condensation in the heating element. With a parallel flow arrangement, the damper (or other means to control the flow of air) shall be adequate to prevent chilled air from entering the furnace and, if manually operated, must be equipped with means to prevent operation of either unit, unless damper is in the full "heat" or "cool" position.

All electrical wiring and grounding for unit must be in accordance with the regulations of the National Electrical Code (ANSI C1-1978/ NFPA 90A and 90B)

The National Electric Code (ANSI C1-1978/NFPA 90A and 90B) is available from:

National Fire Protection Association  
470 Atlantic Avenue  
Boston, Massachusetts 02210

## V - SETTING THE UNIT

Unit installs in (3) ways: on non-combustible flooring, on combustible flooring using an additive base or on a reverse flow cooling cabinet. Do not drag unit across floor to prevent damage to flanges. Set unit as follows:

### A - Installation on Non-Combustible Flooring

- 1 - Cut floor opening keeping in mind the clearances listed on unit rating plate. Also, keep in mind gas supply connections, electrical supply, flue connections and sufficient installation and servicing clearances. See Table 1 for correct floor opening size.
- 2 - Flange warm air plenum and lower into opening.
- 3 - Set unit over plenum.
- 4 - Check to see that an adequate seal is made.

### B - Installation on Combustible Flooring

- 1 - When unit is installed on a combustible floor, an additive base (ordered extra) must be installed between the furnace and floor. See Table 2 for opening size to cut in floor.

TABLE 1

NONCOMBUSTIBLE FLOOR				
Unit	Front to Rear		Side to Side	
	in.	mm	in.	mm
55 and 82- Series	20-1/2	520	12-1/4	311
110- Series	20-1/2	520	17-1/4	438
137- Series	20-1/2	520	22-1/4	565
165- Series	20-1/2	520	27-1/4	692

*NOTE - Floor opening dimensions listed are 1/4" (6 mm) larger than unit openings.*

TABLE 2

ADDITIVE BASE FLOOR OPENING				
Unit	Front to Rear		Side to Side	
	in.	mm	in.	mm
55 and 82- Series	22-7/8	581	14-5/8	371
110- Series	22-7/8	581	19-5/8	498
137- Series	22-7/8	581	24-5/8	625
165- Series	22-7/8	581	29-5/8	752

*NOTE - Floor opening dimensions listed are 1/4" (6 mm) larger than unit openings.*

- 2 - After opening is cut, set additive base into opening.
- 3 - Check fiberglass strips on additive base to make sure they are properly glued and positioned.
- 4 - Lower supply air plenum into additive base until plenum flanges seal against fiberglass strips.
- 5 - Set unit on additive base so unit flanges drop into plenum. Refer to Figure 1.

*NOTE - Be careful not to damage fiberglass strips. Check for a tight seal.*

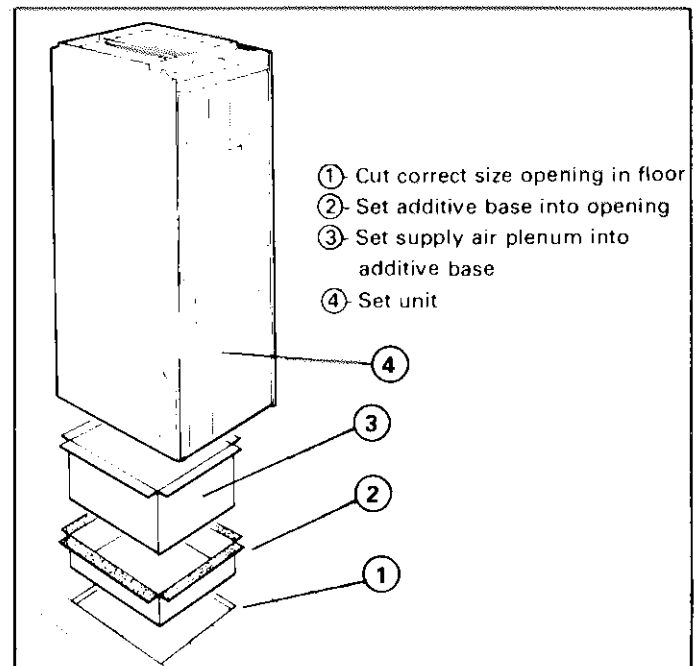


FIGURE 1

### C - Installation On Cooling Cabinet

- 1 - Refer to reverse flow coil Installation Instructions for correctly sized opening in floor and installation of cabinet.
- 2 - When cooling cabinet is in place, install furnace so flanges drop inside cabinet opening.

### VI - INSTALL RETURN AIR PLENUM

The following steps should be taken when installing plenum:

- 1 - Bottom edge of plenum should be flanged with a hemmed edge. See Figure 2.
- 2 - Sealing strips of asbestos or fiberglass may be used.
- 3 - In all cases the plenum should be secured to top flanges of furnace with sheet metal screws.
- 4 - In closet installations, it may be impossible to install sheet metal screws from the outside. If this is the case, make plenum with a removable front and install screws from the inside. See Figure 3.

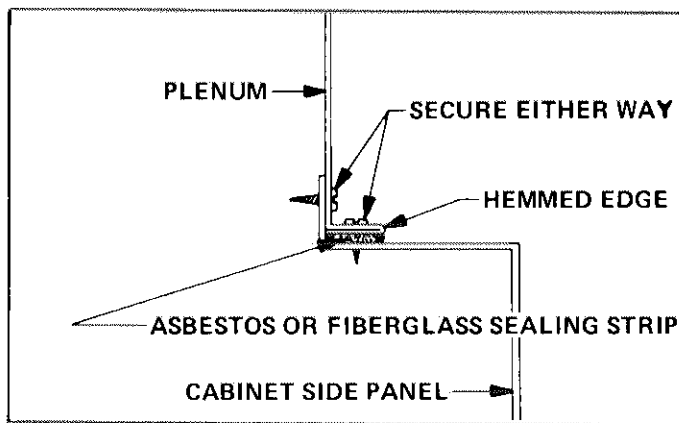


FIGURE 2

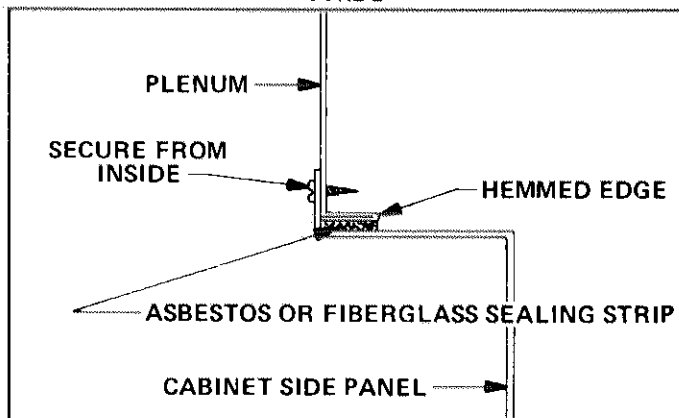


FIGURE 3

### VII - CONNECT DUCT WORK

Install supply and return ductwork as desired.

### VIII - CONNECT FLUE

- 1 - Install flue pipe over the collar on the cabinet top and connect to the chimney using least number of elbows and angles possible. See Figure 4.
- 2 - The flue pipe should have a slight upward slope toward the chimney on all horizontal runs. Approximately 1/4 inch for each 1 foot of horizontal run. The flue pipe or vent connector must be inserted into, but not beyond, the outside wall of the chimney flue. Where two or more appliances vent into a common flue, the area of the common flue should be at least equal to the area of the largest flue or vent connector plus 50% of the combined area of the additional flues or vent connectors.
- 3 - For correct venting procedures, consult ANSI-Z223.1-1974.

*NOTE - For G11RE and G12RE Series units equipped with an automatic vent damper, refer to the automatic Vent Damper Installation Instructions for proper installation procedure.*

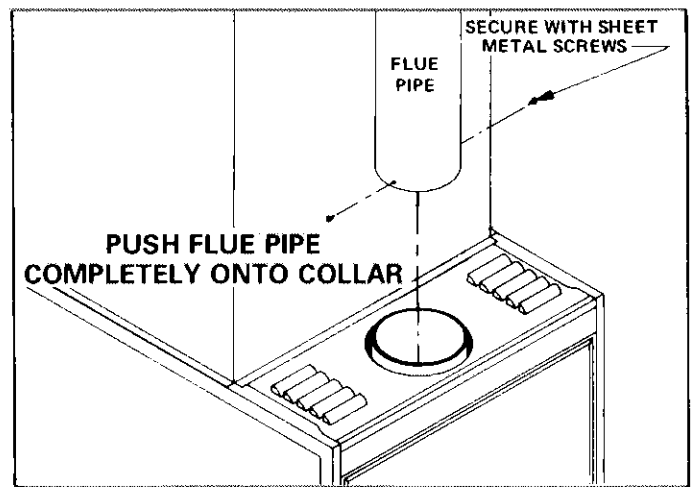


FIGURE 4

### IX - HIGH ALTITUDE

Unit may be fired at full input up to 2000' (609 m) above sea level. If unit is installed at a level higher than 2000' (609 m), unit must be de-rated 4% for each 1000' (304 m) above sea level.

### X - CONNECT GAS SUPPLY

- 1 - This unit is shipped standard for piping to be installed through left side of unit. See Figure 5. All installer must do is connect gas supply to piping assembly.

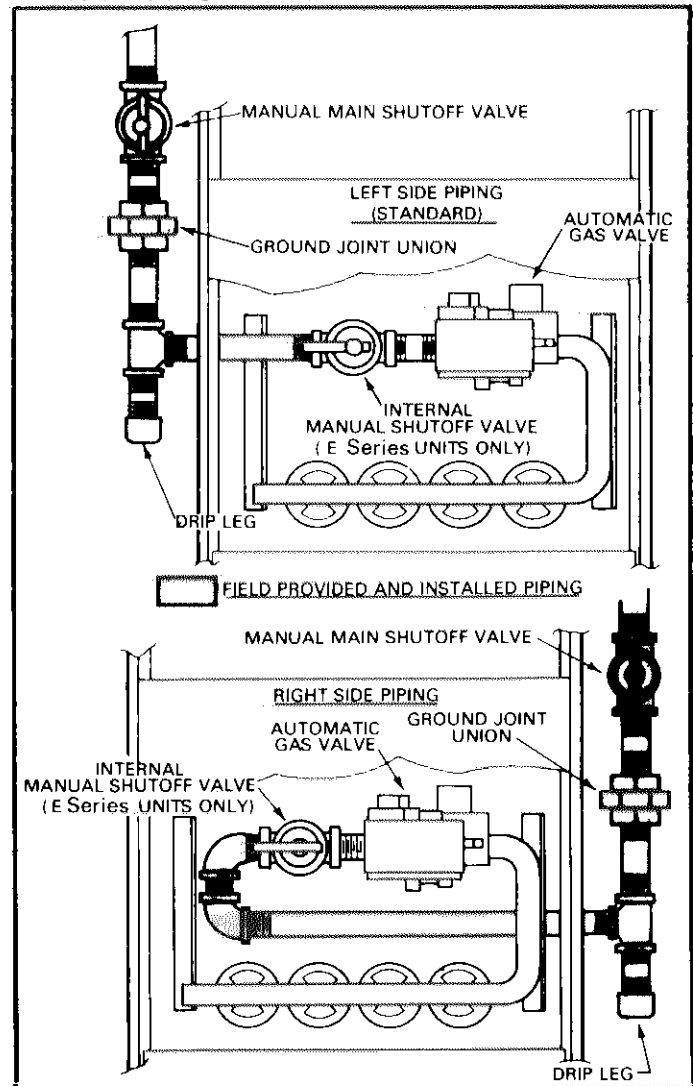


FIGURE 5

- 2 - If piping must be brought through right side of unit, a piping hole is furnished. See Figure 5 for connection.
- 3 - When connecting the gas supply, the length of run from the gas meter must be considered in determining correct pipe size. This is to avoid excessive pressure drop. For the correct sizing of gas delivering piping, consult ANSI-Z223.1-1974.  
A drip leg should be installed in the vertical pipe line to the unit. See Figure 5.

In some localities, codes may require a manual main shut off valve and union (furnished by installer) be installed external to unit. Union must be of the ground joint type.

*NOTE - On LP gas units, compounds used on threaded joints of gas piping must be resistant to the action of LP gas.*

#### **XI - LEAK CHECK PIPING**

After gas piping is completed, carefully check all piping connections (factory and field) for gas leaks. Use a soap solution or other preferred means.

*CAUTION - DO NOT USE MATCHES, CANDLES, FLAME OR OTHER SOURCES OF IGNITION TO CHECK FOR GAS LEAKS.*

#### **XII - COMPLETE WIRING**

All wiring must conform to National Electric Code (NEC).

All line and low voltage connections are wire nut connections. Refer closely to unit wiring diagram. An indoor blower relay is mounted standard in unit. Blower motor speed connections are made at terminal 3 (black) of indoor blower relay and black lead of fan control.

Tape unused motor leads separately.

- 1 - Refer to blower motor nameplate to select proper fuse and wire size.
- 2 - Snaphole plugs are provided on both sides of cabinet to facilitate wiring.
- 3 - Install room thermostat (avoid installing on an outside wall or where radiant heat will affect thermostat) and wire to unit make-up box. Set the adjustable heat anticipator on thermostat according to the setting marked on the heat anticipation sticker or the setting marked on the gas valve

- 4 - Install a separate fused disconnect switch near the unit so power supply can be turned off for servicing.
- 5 - Complete line voltage from disconnect switch to unit make-up box.
- 6 - Install snap plugs in unused wire holes.
- 7 - Multi-tap drive motors are wired for different heating and cooling speeds. Speed may be changed by simply interchanging motor connections at indoor blower relay and fan control. Refer to speed selection chart on unit wiring diagram.

*CAUTION - To prevent motor burnout, never connect more than (1) motor lead to any one connection. Tape unused motor leads separately.*

#### **XIII- CLEAN-UP**

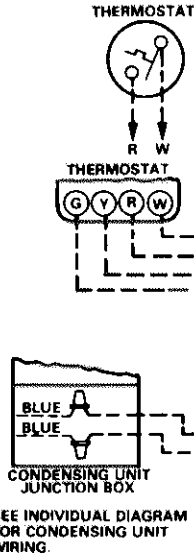
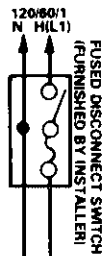
After unit is operating properly:

- 1 - Set room thermostat at desired setting.
- 2 - Leave this instruction with the unit.
- 3 - Pick up all shipping cartons, metal scraps, extra insulation and generally clean-up the installation.

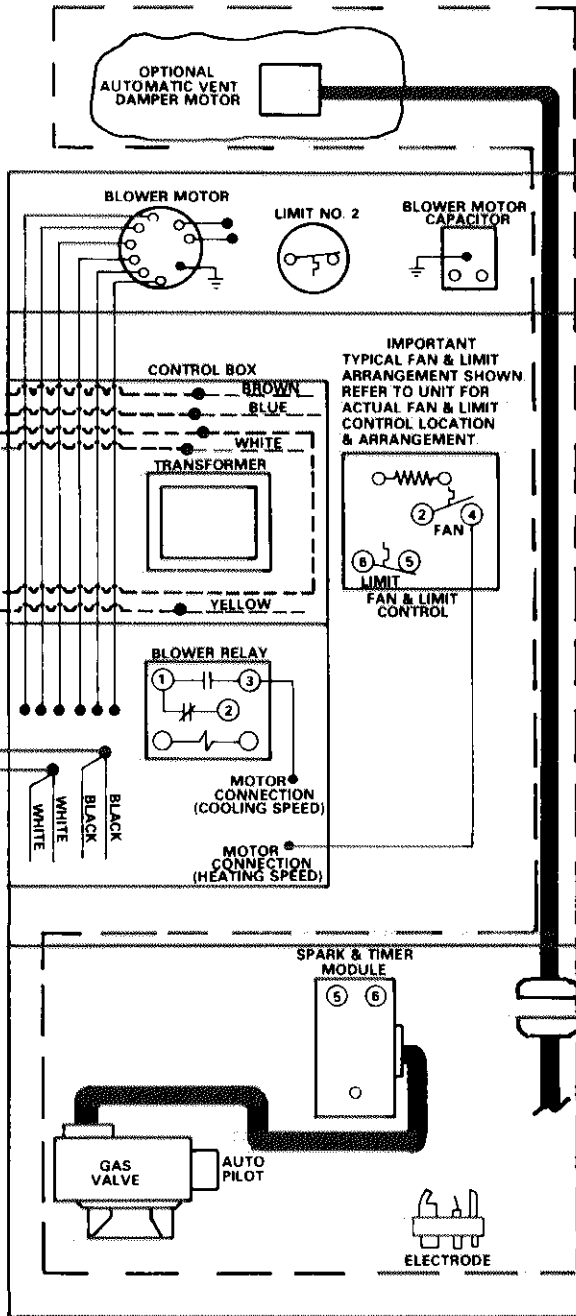
NOTE - AREA WITHIN DOTTED LINES IS FOR "E" SERIES UNITS WITH OPTIONAL LENNOX FLUE DAMPER.

SET THERMOSTAT HEAT ANTICIPATION ACCORDING TO AMPERAGE LISTING ON UNIT GAS VALVE OR USE THE FOLLOWING FOR A GUIDE.

G11R/G12R Series Units.....0.45 amp  
 G11RE/G12RE Series Units.....0.60 amp



NOTE - IF ANY WIRE IN THIS APPLIANCE IS REPLACED, IT MUST BE REPLACED WITH WIRE OF LIKE SIZE, RATING AND INSULATION THICKNESS. IF RATING AND INSULATION IS UNKNOWN, USE SAME SIZE THERMOPLASTIC 105 C WIRE WITH 5/64" INSULATION THICKNESS.



IMPORTANT TYPICAL FAN & LIMIT ARRANGEMENT SHOWN REFER TO UNIT FOR ACTUAL FAN & LIMIT CONTROL LOCATION & ARRANGEMENT.

Q5 MOTOR WIRING SHOWN

**BLOWER SPEED SELECTION**

IMPORTANT - TO PREVENT MOTOR BURNOUT, NEVER CONNECT MORE THAN ONE MOTOR LEAD TO ANY ONE CONNECTION TAPE UNLESS MOTOR LEADS SEPARATELY.

SPEED	BLOWER MOTOR LEAD		
	D2 or Q4	Q3	Q5
LOW	RED	RED	RED
MEDIUM LOW	----	YELLOW	YELLOW
MEDIUM	YELLOW	----	BLUE
MEDIUM HI	----	BROWN	BROWN
HIGH	BLACK	BLACK	BLACK

———— LINE VOLTAGE TO BE INSTALLED  
 - - - - - LOW VOLTAGE TO BE INSTALLED  
 NEC CLASS 2

G11R, G11RE, G12R AND G12RE-2 FIELD WIRING DIAGRAM

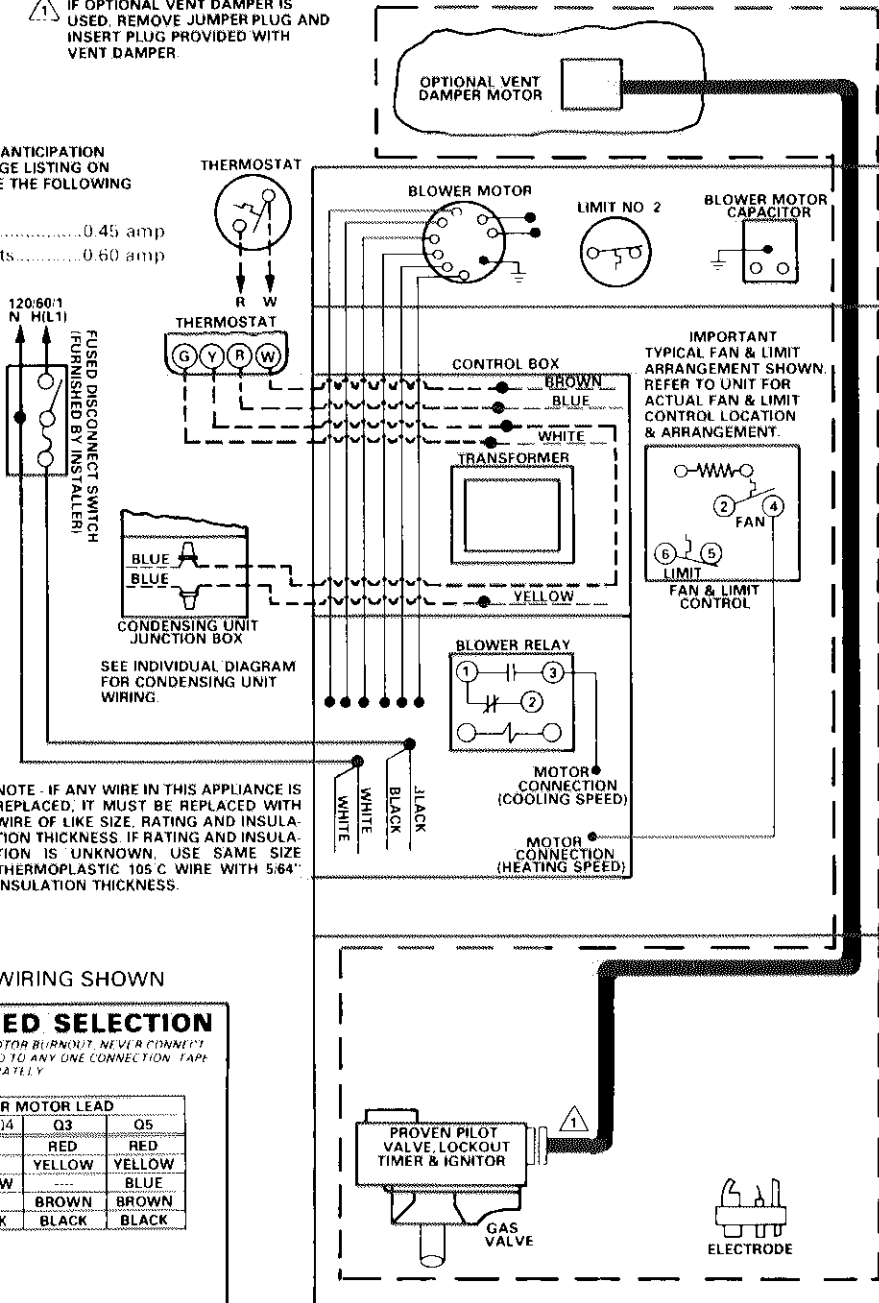


NOTE - AREA WITHIN DOTTED LINES IS FOR "E" SERIES UNITS WITH OPTIONAL LENNOX FLUE DAMPER.

⚠ IF OPTIONAL VENT DAMPER IS USED, REMOVE JUMPER PLUG AND INSERT PLUG PROVIDED WITH VENT DAMPER.

SET THERMOSTAT HEAT ANTICIPATION ACCORDING TO AMPERAGE LISTING ON UNIT GAS VALVE OR USE THE FOLLOWING FOR A GUIDE.

G11R-G12R Series Units.....0.45 amp  
G11RE-G12RE Series Units.....0.60 amp



NOTE - IF ANY WIRE IN THIS APPLIANCE IS REPLACED, IT MUST BE REPLACED WITH WIRE OF LIKE SIZE, RATING AND INSULATION THICKNESS. IF RATING AND INSULATION IS UNKNOWN, USE SAME SIZE THERMOPLASTIC 105 C WIRE WITH 5/64" INSULATION THICKNESS.

Q5 MOTOR WIRING SHOWN

**BLOWER SPEED SELECTION**

IMPORTANT - TO PREVENT MOTOR BURNOUT, NEVER CONNECT MORE THAN ONE MOTOR LEAD TO ANY ONE CONNECTION TAP. USE SEED MOTOR LEADS SEPARATELY.

SPEED	BLOWER MOTOR LEAD		
	D2 or Q4	Q3	Q5
LOW	RED	RED	RED
MEDIUM LOW	---	YELLOW	YELLOW
MEDIUM	YELLOW	---	BLUE
MEDIUM HI	---	BROWN	BROWN
HIGH	BLACK	BLACK	BLACK

----- LINE VOLTAGE TO BE INSTALLED  
- - - - - LOW VOLTAGE TO BE INSTALLED  
NEC CLASS 2

G11R, G11RE, G12R AND G12RE-4 FIELD WIRING DIAGRAM  
"E" Series wiring shown

## XIV - TROUBLESHOOTING

### A - Dash 2 "E" Series Units with White-Rodgers Ignition System

#### 1 - NO SPARK

- a - Check 120 VAC power.
- b - Check 24 VAC secondary at transformer.
- c - Check thermostat setting.
- d - Check for open high limit (Limit to ground).
- e - UNITS WITH OPTIONAL VENT DAMPER -
  - 1 - Allow damper motor to open damper completely.
  - 2 - If damper does not open check for binding, restrictions or faulty damper motor.
  - 3 - With damper motor open, check for 24 VAC at terminal 5 (to ground). If no voltage is present, check back through harness connections and damper motor for fault.
- f - Open thermostat contacts for 30 seconds. Close contacts. Sparking should begin (allow 30 second delay for optional vent damper to open if installed).
- g - Check for proper 1/8"-3/16" (3-5 mm) pilot electrode gap, check high voltage lead for continuity and inspect the electrode ceramic for damage resulting in a short.
- h - Check for proper connection to the timer/ignitor module.
- i - If all steps check okay, replace the timer/ignitor module.

*CAUTION - Be sure all electrical power is off when checking wire connections.*

#### 2 - SPARK BUT NO PILOT FLAME

- a - Be sure main gas is "ON".
- b - Disconnect thermostat from electrical circuit (failure to do so could result in damaged heat anticipator). Simulate heat demand by shorting thermostat wires. If pilot solenoid is operative an opening click will be heard.
- c - If pilot valve opens, check pilot line and orifice for foreign matter.
- d - Check that electrode gap is correct, that spark is jumping to the mercury element and that spark is in pilot gas stream.

#### 3 - PILOT FLAME BUT MAIN VALVE DOES NOT OPEN

- a - Check that gas valve cock is in "ON" position.
- b - Check that mercury element is well within the pilot flame.
- c - Wait approximately 45 seconds from the time the pilot flame lights for mercury switch to heat up properly. After 45 seconds of pilot flame on the mercury element, the mercury switch should open the main valve. Normal time for cooling the mercury switch to start conditions is 30 seconds.
- d - If restart attempts fail to open main valve, replace gas valve.

### B - Dash 4 "E" Series Units with Penn Ignition System

#### 1 - NO SPARK

- a - Check 120 VAC and 24 VAC power supplies.
- b - Check for thermostat demand and check for open limit.
- c - Check all plug connections, cables and terminal connections.
- d - UNITS WITH OPTIONAL VENT DAMPER -
  - 1 - Allow damper motor to open damper completely.
  - 2 - If damper does not open, check for binding, restrictions or faulty damper motor.
  - 3 - Check for 24 VAC at terminal "1" and ground with damper open. If no voltage is present fault is in circuit between the vent damper and G60 control or in the G60 control itself.
- f - For systems without a vent damper, if no voltage is read between terminal "1" and ground, replace the G60 control.
- g - If 24 VAC is present at terminal "1", open the thermostat contacts for 30 seconds. Close contacts. Sparking should begin (allow 30 second delay for optional vent damper to open if installed).
- h - Check for proper 7/64 in. (3 mm) pilot electrode gap, check high voltage lead for continuity and inspect the electrode ceramic for damage resulting in a short.
- i - If all steps check okay, replace the G60 control.

#### 2 - SPARK BUT NO PILOT FLAME

- a - Be sure main gas is "ON".
- b - Check all pilot valve connections.
- c - Determine if pilot gas is reaching pilot burner.

*CAUTION - DO NOT USE MATCH OR OTHER FLAME TO CHECK FOR GAS PRESENCE.*

- d - Make sure pilot tubing is not blocked, spark gap is correct and spark is in gas stream.
- e - Check for 24 VAC between terminal "1" and ground. If 24 VAC is not present, replace G60 control. If 24 VAC is present and all other steps check okay, correct or replace pilot burner.
- f - If pilot gas does not reach pilot burner, replace gas valve.

#### 3 - PILOT FLAME BUT MAIN VALVE DOES NOT OPEN

- a - Check all main valve terminal connections for secure contact.
- b - If sparking continues more than 15 seconds after pilot flame lights, check sensor probe wire connection at terminal "4". Check sensor probe ceramic. Replace if damaged.
- c - Check continuity of sensor probe wire. If no continuity - replace sensor wire.
- d - If continuity exists, disconnect sensor probe wire from terminal "4" and connect a DC micro-amp meter between end of wire and terminal "4". Minimum operating reading is 0.7 micro-amperes with normal current being 1.5 to 2.0 micro-amperes. If reading is above the minimum 0.7 and the main valve does not open, replace the G60 control.
- e - If current reading is below 0.7 micro-amperes replace pilot orifice.