

LENNOX®

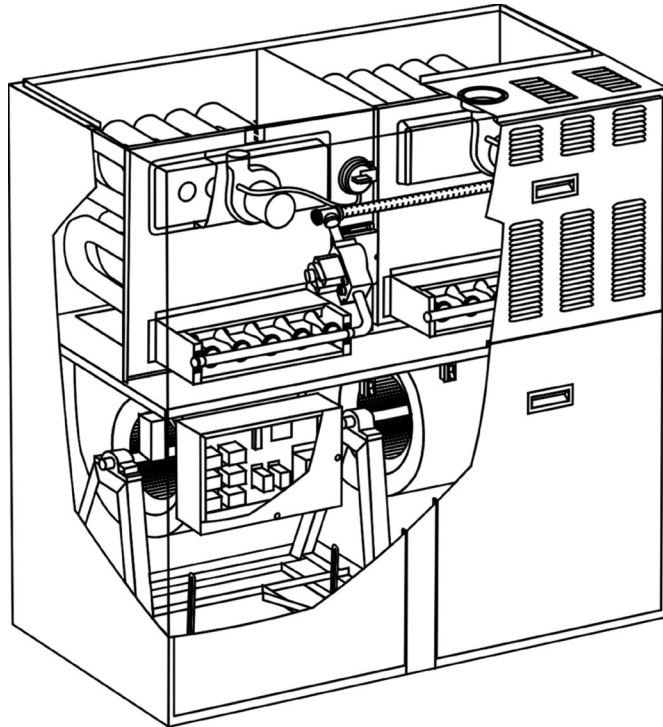
PRODUCT LITERATURE

©2003 Lennox Industries Inc.
Dallas, Texas

503,614M
7/2003
Supersedes 1/98

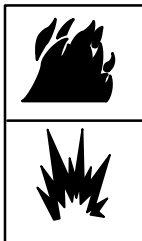
USER'S INFORMATION MANUAL

G24-200 UPFLOW GAS FURNACE



**READ ALL INSTRUCTIONS IN THIS MANUAL
AND RETAIN FOR FUTURE REFERENCE**

TP Technical
Publications
Litho U.S.A.



⚠ WARNING

FIRE OR EXPLOSION HAZARD

Failure to follow safety warnings exactly could result in serious injury, death or property damage.



Do not store or use gasoline or other flammable vapors and liquids in the vicinity of this or any other appliance.

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

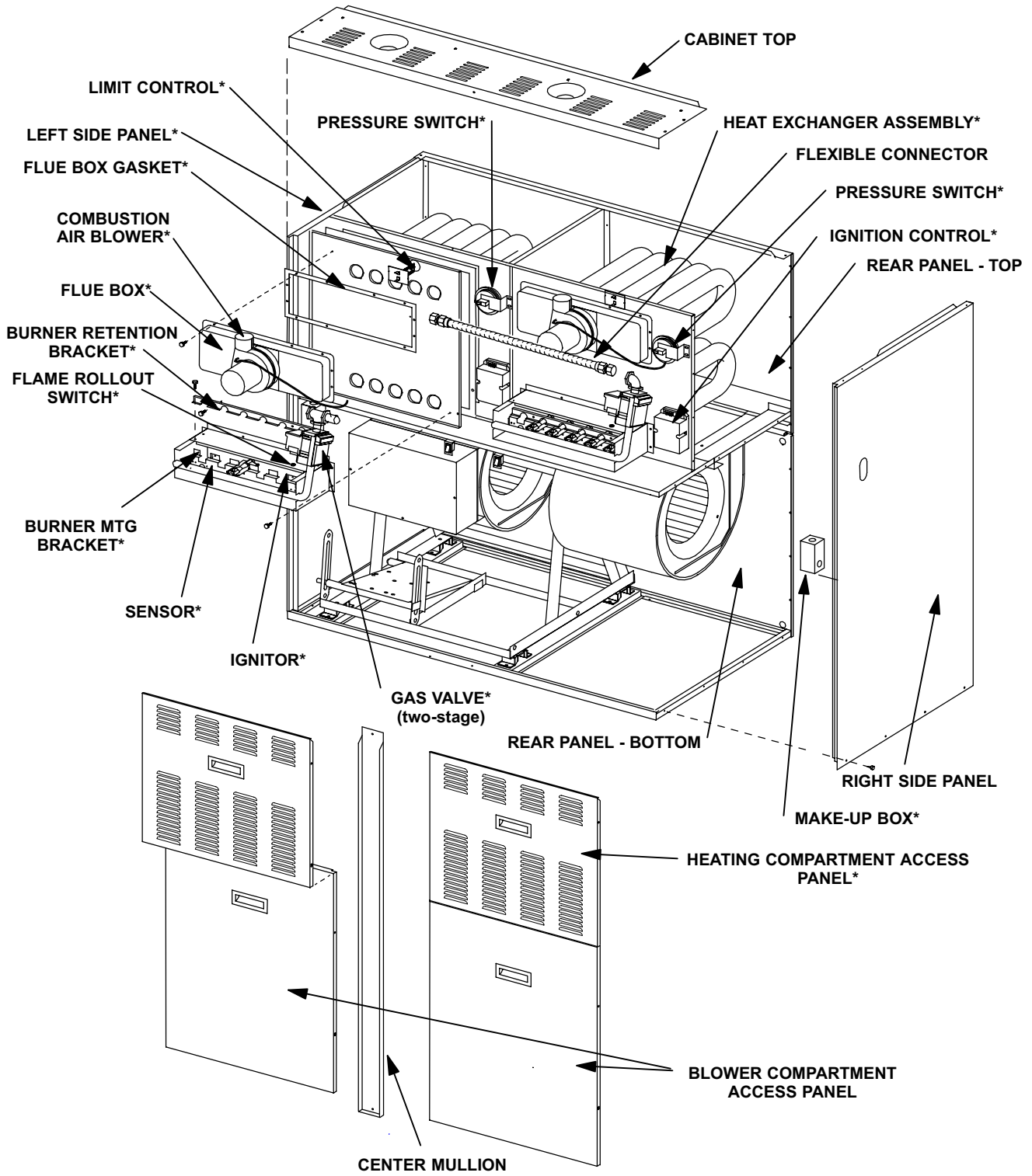
WHAT TO DO IF YOU SMELL GAS:

- Do not try to light any appliance.
- Extinguish any open flames.
- Do not touch any electrical switch; do not use any phone in your building.
- Leave the building immediately.
- 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.

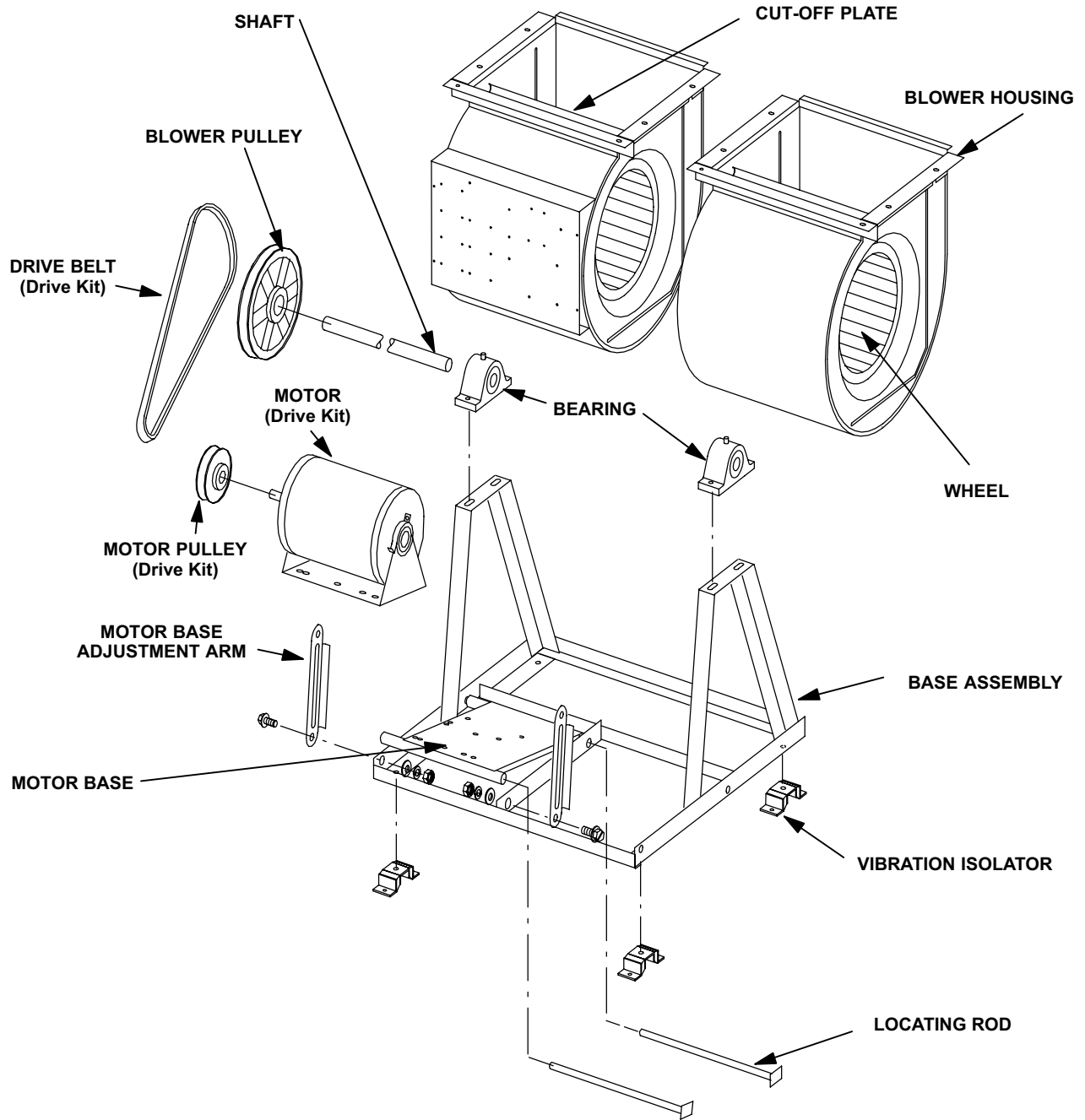


G24-200 HEAT SECTION AND CABINET

(THIS UNIT CONTAINS TWO HEAT SECTIONS. EACH HEAT SECTION CONTAINS ONE OF THESE ITEMS.)



G24-200 BLOWER SECTION



Safety

⚠ WARNING



Electric shock hazard. Can cause injury or death. Before attempting to perform any service or maintenance, turn the electrical power to unit OFF at disconnect switch(es). Unit may have multiple power supplies.

⚠ WARNING

Product contains fiberglass wool.

Disturbing the insulation in this product during installation, maintenance, or repair will expose you to fiberglass wool. Breathing this may cause lung cancer. (Fiberglass wool is known to the State of California to cause cancer.)

Fiberglass wool may also cause respiratory, skin, and eye irritation.

To reduce exposure to this substance or for further information, consult material safety data sheets available from address shown below, or contact your supervisor.

P.O. Box 799900
Dallas, TX 75379-9900

⚠ WARNING



Danger of explosion. Can cause injury or product or property damage. Should the gas supply fail to shut off or if overheating occurs, shut off the gas valve to the furnace before shutting off the electrical supply.

⚠ IMPORTANT

Any additions, changes, or conversions required in order for the appliance to satisfactorily meet the application needs must be made by a Lennox service technician using factory specified and approved parts.

⚠ CAUTION

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

⚠ WARNING



Danger of electrical shock, explosion and fire. Improper servicing could result in dangerous operation, serious injury, death or property damage.

⚠ WARNING



Danger of explosion and fire. Failure to follow safety warnings exactly could result in dangerous operation, serious injury, death or property damage.

⚠ WARNING

Do not use this furnace if any part has been under water. A flood-damaged furnace is extremely dangerous. Attempts to use the furnace can result in fire or explosion. A qualified service agency should be contacted to inspect the furnace and to replace all gas controls, control system parts, electrical parts that have been wet or the furnace if deemed necessary.

⚠ WARNING

SMOKE POTENTIAL

The heat exchanger in this unit could be a source of smoke on initial firing. Take precautions with respect to building occupants and property. Vent initial supply air outside when possible.

⚠ WARNING



Danger of explosion. Can cause injury or death. Do not attempt to light manually. Unit has a direct spark ignition system.

- 1 - Keep the furnace area clear and free of combustible material, gasoline, and other flammable vapors and liquids. If installed in an insulated area, furnace must be kept free of insulating material. Insulating material may be combustible. Inspect furnace venting system to make sure it is in place, physically sound, and without holes, corrosion, or blockage. Inspect furnace return air duct connection to ensure duct is sealed to the furnace and terminates outside the space containing the furnace. Inspect the physical support of the furnace to guarantee that it is sound without sagging, cracks or gaps around base and it maintains seal between base and support.
- 2 - DO NOT obstruct air flow to unit. Unit must receive an unobstructed flow of combustion and ventilating air.

- 3 - DO NOT store chlorine or fluorine products near unit or introduce these products into the combustion air. These products can cause furnace corrosion.

BEFORE LIGHTING 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.

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, do not try to repair it, call a qualified service technician. Force or attempted repair may result in a fire or explosion.

Lighting Information and Operation

- 1 - **STOP!** Read the safety information at the beginning of this section.
- 2 - Set thermostat to the lowest setting. See figure 1.
- 3 - Turn off all electrical power to furnace.
- 4 - This furnace is equipped with two ignition devices which automatically light the burners. Do **not** try to light burners by hand.
- 5 - Remove control access panels.

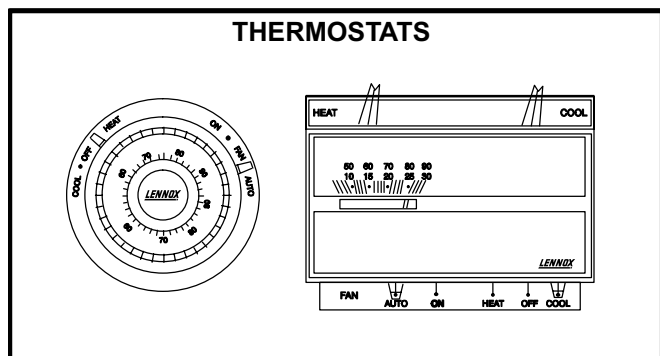


FIGURE 1

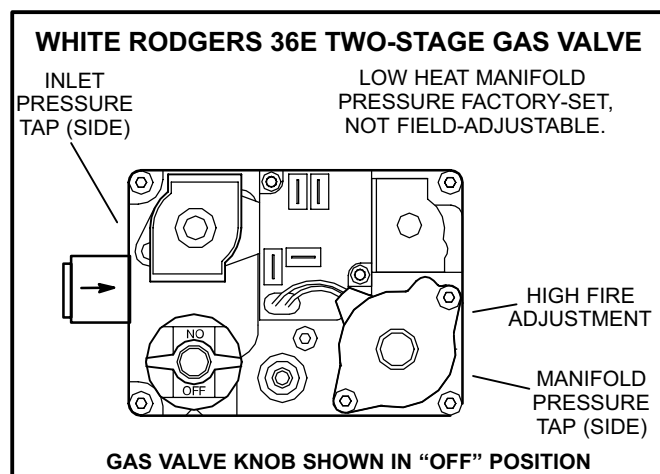


FIGURE 2

- 6 - Perform the following to **both** gas valves: turn knob on gas valve 180° either way to **OFF**. Do not force.

- 7 - Wait five minutes to clear out any gas. If you then smell gas, **STOP!** Immediately call your gas supplier from your neighbor's phone. Follow the gas supplier's instructions. If you don't smell gas go to next step.

- 8 - Perform the following to **both** gas valves: turn knob on gas valve 180° either way to **ON** position.

- 9 - Replace control access panels.

- 10 - Turn on electrical power to furnace.

- 11 - Set thermostat to desired setting.

- 12 - Both combustion air blowers will start. Burners in both heat sections will light after a 30 second pre-purge.

- 13 - If furnace does not light first time (gas line not fully purged) it will attempt up to two more ignitions before locking out.

- 14 - If lockout occurs, repeat steps 1 through 10.

- 15 - If the furnace will not operate, follow the instructions "To Turn Off Gas To Unit" and call your service technician or gas supplier.

B-To Turn Off Gas To Unit

- 1 - Set thermostat to lowest setting.
- 2 - Turn off all electrical power to furnace if service is to be performed.
- 3 - Remove control access panels.
- 4 - Perform the following to both gas valves: White Rodgers 36E series valves: turn knob on gas valve 180° either way to **OFF**. Do not force.

Service Reminder

Call your Lennox service technician if unit is inoperative. Before calling, always check the following to be sure service is required.

- 1 - Check that electrical disconnect switches are **ON**.
- 2 - Check room thermostat for proper setting.
- 3 - Replace any blown fuses or reset circuit breakers.
- 4 - Gas valves should be **ON**.
- 5 - Air filters should not be plugged limiting air flow.
- 6 - Is gas turned on at meter?
- 7 - Is manual main shut-off valve open?

To keep your Lennox gas heating system in peak operating condition year after year, contact your independent Lennox dealer about a planned service program.

Service

A qualified service technician should inspect the complete system each season (heating and cooling). The following maintenance procedures should only be conducted by a qualified service technician. **Do not attempt to service the unit in any way.**

⚠ WARNING

ELECTRICAL SHOCK, FIRE, OR EXPLOSION HAZARD.

Failure to follow safety warnings exactly could result in dangerous operation, serious injury, death or property damage.

Improper servicing could result in dangerous operation, serious injury, death, or property damage. Before servicing, disconnect all electrical power to furnace.

When servicing controls, label all wires prior to disconnecting. Take care to reconnect wires correctly. Verify proper operation after servicing.

Venting System

⚠ WARNING

Asphyxiation Hazard

The exhaust vent for this furnace must be securely connected to the furnace flue collar at all times.

For your safety and to fulfill the terms of the limited warranty, a qualified service technician must annually inspect this furnace and its vent system.

Annually (before heating season) inspect furnace venting system, vent cap, heat exchanger, and burners for corrosion, deterioration, or deposits of debris. Remove any obstructions.

Inspect the furnace for obvious signs of deterioration.

Inspect the furnace venting system to make sure it is in place, physically sound, and without holes, corrosion, or blockage.

Vent pipe must be clear and free of obstructions and must slope upward away from the furnace.

Inspect the furnace return air duct connection to ensure duct is sealed to the furnace and terminates outside the space containing the furnace.

During a seasonal check the service technician will inspect the indoor blower, burner flames and electrical connections along with the venting system.

Burner Flame

⚠ CAUTION

To ensure proper operation, a qualified technician should annually check the burner flame.

Blowers

Check the blower wheels for debris and clean if necessary. The blower motors are prelubricated for extended bearing life. No further lubrication is needed.

Blower shaft bearings are prelubricated. For extended bearing life, relubricate at least once every two years with a lithium base grease, such as Alvania 3 (Shell Oil), Chevron BRB2 (Standard Oil) or Regal AFB2 (Texas Oil). Use a hand grease gun for relubrication. Add only enough grease to purge through the bearings so that a bead of grease appears at the seal lip contacts.

⚠ WARNING

The blower access panel must be securely in place when the blower and burners are operating. Gas fumes, which could contain carbon monoxide, can be drawn into living space resulting in personal injury or death.

Filters

All G24-200 filters are installed external to the unit. Filters should be inspected monthly and cleaned or replaced when necessary to assure proper furnace operation. If optional filter box is used, see figures 3 or 4 for replacement directions. The filter box contains four 16x25 inch (406mmx635mm) filters.

NOTE - Replacement filters must be U.L.C. certified or equivalent for use in Canada.

Flame Rollout Safety Switches

Your Lennox furnace is equipped with two sets of flame rollout safety switches (one in each heat section). Each switch shuts off the gas supply to the heat section it controls when blockage occurs to its heat exchanger. If the furnace fails to operate due to the functioning of one or both of these safety switches, DO NOT attempt to place the furnace into operation. Contact a qualified service technician.

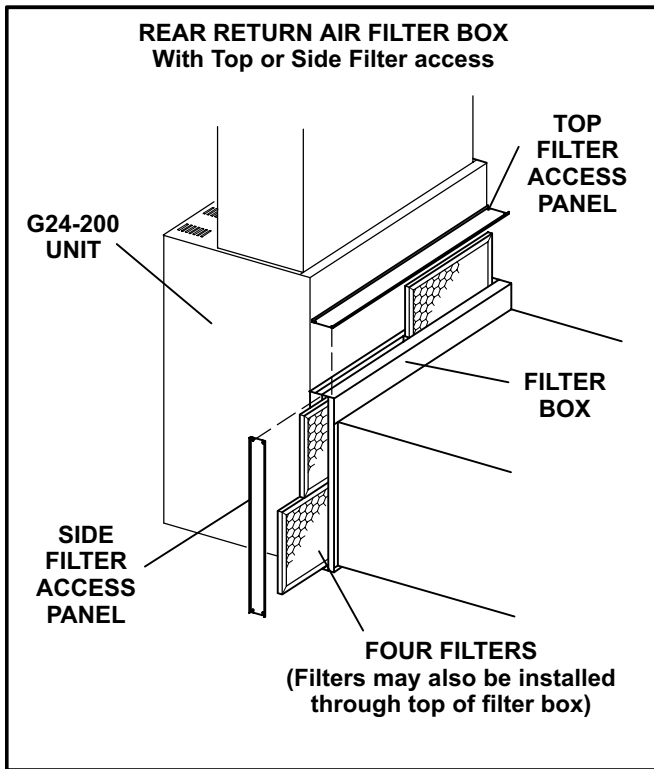


FIGURE 3

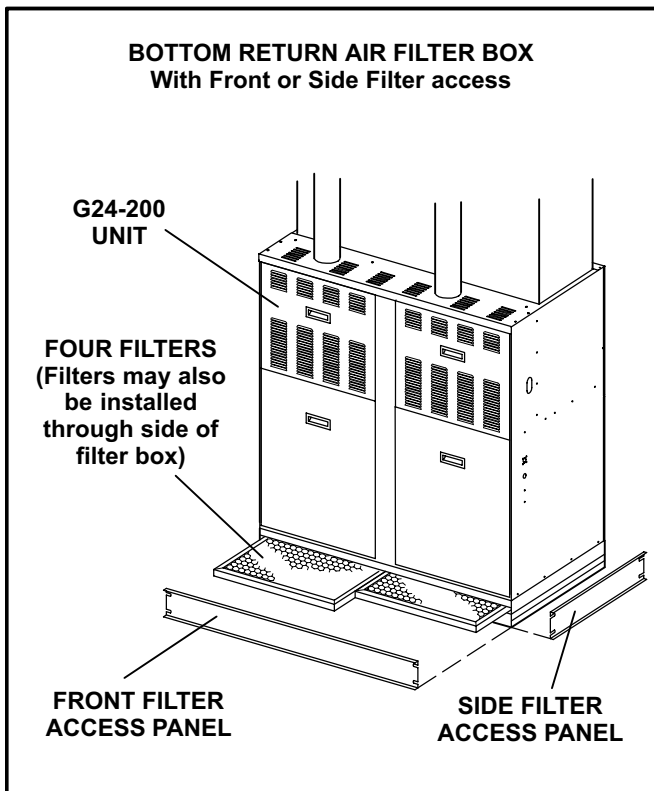


FIGURE 4

Burners (Both heat sections)

Inspect the burners and burner flame at the beginning of each heating season. If necessary, clean the burners as indicated below:

- 1 - Turn off the electrical and gas supply to the furnace.
- 2 - Remove the burner box top.
- 3 - Remove the burner retaining bracket.
- 4 - Remove the burners.
- 5 - Clean the inside of each burner with a bottle brush as shown in figure 5.

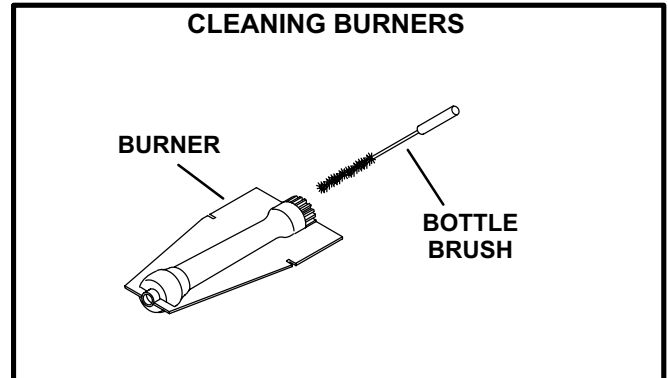


FIGURE 5

- 6 - Check the electrode gap using appropriately sized twist drills or feeler gauges. Gap should be between 0.110 and 0.140 inches (2.79 to 3.56mm).
- 7 - Replace the burners and the burner retaining bracket. Make sure that the burners are properly seated in their slots in the tray and that each burner and manifold orifice is aligned properly.
- 8 - Reinstall the burner box top.
- 9 - Carefully check all piping connections (factory and field) for gas leaks. Use a leak detecting solution or other preferred means.

⚠ IMPORTANT

Some soaps used for leak detection are corrosive to certain metals. Carefully rinse piping thoroughly after leak test has been completed. Do not use matches, candles, flame or other sources of ignition to check for gas leaks.

- 10 - Restore electrical power and gas supply to the furnace. Follow lighting instructions on the front of the unit. Check the appearance of the burner flame, burner pressure, gas flow, and temperature rise. If necessary, make adjustments. See the other unit adjustments section.

Flue And Chimney

Check the flue pipe, chimney and all connections for tightness and to make sure there is no blockage.

Heat Exchangers (Both)

Periodically inspect the heat exchanger tubes and flue box for corrosion. If necessary, clean as indicated below:

- 1 - Turn off the electrical and gas supply to the furnace.
- 2 - Disconnect the wiring to the combustion air fan.
- 3 - Remove the screws securing the flue box to the furnace. Clean the flue box with a wire brush (brass-bristle brush recommended).
- 4 - Disconnect the gas supply piping and the ignitor and sensor wires. Remove the burner assembly from the furnace.

- 5 - Pull a large-bore wire brush (brass-bristle brush recommended) through each heat exchanger tube to clean.
- 6 - Reinstall the flue box using a new gasket.
- 7 - Reconnect the combustion air fan wiring.
- 8 - Reinstall the burner box, ignitor and sensor wires and the gas supply piping.
- 9 - Follow step 10 in the burners section above.

Electrical

- 1 - Check all wiring for loose connections.
- 2 - Check for the correct voltage at the furnace (furnace operating).
- 3 - Check amp-draw on blower motor.
Motor service factor amps _____
Nameplate _____ Actual _____

Repair Parts List

The following repair parts are available through independent Lennox dealers. When ordering parts, include the complete furnace model number listed on the CSA international. rating plate — Example: G24-200. Refer to page 4 and 5 for parts identification.

Cabinet Parts	Electrical Parts	Heating Parts	Blower Parts
Front louver door (2)	Transformer(s)	Heat exchanger (2)	Wheel (2)
Blower access panel (2)	Ignition control board (2)	Main burners	Motor
Cabinet cap	Door interlock (2)	Main burner orifices	Cut-off plate (2)
Cabinet top-rear	Ignition cable (2)	Gas manifold/burner box assembly (2)	Shaft
Cabinet bottom-rear	Ignitor (2)	Gas valve (2)	Motor pulley
Flue adapter (2)	Flame sensor (2)	Flue box (2)	Wheel pulley
	Roll-out switch (2)	Combustion air blower (2)	Belt
	Primary limit (2)	Flexible gas connector	Bearing (2)
	Pressure switch (2)		Vibration isolators (4)
	Blower timing control board		Locating rods (2)
	Accessory relay		
	Blower operation relays		
	Contactors		
	Combustion air blower operation relays		