

# USER'S INFORMATION MANUAL

## (2,4)SG13B Series

### Gas Heating/Electric Cooling Package Unit

#### Congratulations...

...your outdoor heating/cooling package unit is a valuable piece of equipment, designed and manufactured by the most modern methods. Proper care of your unit should result in many years of service and comfort.

To keep your operating costs low and to eliminate unnecessary service calls, we have provided a few guidelines. These guidelines will help you understand how your heating/cooling unit operates and how to maintain it so you can get years of safe and dependable service. Read all the instructions in this manual, and keep all manuals for future reference.

#### GAMA Certified

The Gas Appliance Manufacturers Association (GAMA) symbol verifies that Annual Fuel Utilization Efficiency (AFUE) ratings for our gas package heating/cooling units have been derived from U.S. Government standard tests.



Manufactured By  
**A.A.C.**  
**A Lennox International Inc. Company**  
 421 Monroe Street  
 Bellevue, OH 44811



#### **WARNING**

#### **FIRE OR EXPLOSION HAZARD**

**Failure to follow the 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.**
- **What to do if you smell gas:**
  - **Do not try to light any appliance.**
  - **Do not touch any electrical 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 the gas supplier, call the fire department.**
- **Installation and service must be performed by a qualified installer, service agency or the gas supplier.**

#### **TABLE OF CONTENTS**

IMPORTANT SAFETY INFORMATION .....	2
OPERATING YOUR UNIT .....	3
MAINTENANCE OF YOUR UNIT .....	5
REPAIR PARTS .....	7
WARRANTY .....	8

## IMPORTANT SAFETY INFORMATION

### **WARNING**

#### **ELECTRICAL SHOCK, FIRE, OR EXPLOSION HAZARD**

Failure to follow the 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 unit.
- When servicing controls, label all wires prior to disconnecting. Reconnect wires correctly.
- Verify proper operation after servicing.

For your safety, read the following before operating your gas heating/electric cooling package unit:

1. The area around the unit must be kept clear and free of combustible materials, gasoline, and other flammable vapors and liquids.
2. This unit requires air for combustion and ventilation to ensure both proper and safe operation. Combustion air is brought in through the condenser section. Do not block or obstruct the condenser coil or condenser fan opening.
3. This unit is equipped with an ignition device which automatically lights the burners. See **OPERATING YOUR UNIT** on page 3 for information on lighting and shutting down the unit.
4. Should the gas supply fail to shut off or if overheating occurs, shut off the gas valve to the unit before shutting off the electrical supply.
5. Do not use the unit if any part has been under water. A flood-damaged unit is extremely dangerous. Attempts to use the unit can result in fire or explosion. A qualified service agency should be contacted to inspect the unit and to replace all gas controls, control system parts, electrical parts that have been wet, or the unit if deemed necessary.
6. Examine the unit installation to determine that:
  - A. All flue gas carrying areas external to the unit, such as the vent hood, are clear and free of obstructions.
  - B. Return air duct connection(s) is physically sound and sealed to the unit casing.
  - C. Physical support of the unit is sound without sagging, cracks, gaps, etc.
  - D. There are no obvious signs of deterioration of the unit.
  - E. Burner flames are in good adjustment (see **Burner Flame** beginning on page 6).
8. It is important that you conduct a physical inspection of the unit at least twice a year. It is also recommended that the unit should be inspected by a qualified service agent at least once per year.

## OPERATING YOUR UNIT

These units are equipped with an ignition device which automatically lights the burners. **Do not try to light the burners by hand.**

**Before operating**, smell around furnace area for gas. Be sure to smell near the unit base because some gas is heavier than air and will settle to the lowest point. See **WHAT TO DO IF YOU SMELL GAS** on page 1 if the odor of gas is present.

Use only your hand to slide the gas control switch; **never use tools**. If the switch will not move by hand, don't try to repair it. Call a qualified service technician. **Force or attempted repair may result in a fire or explosion.**

### Lighting Instructions

1. **STOP!** Read the previous safety information.
2. Set the thermostat to the lowest setting.
3. Turn off all electric power to the unit.
4. Remove the burner compartment access panel.
5. This appliance is equipped with an automatic ignition device. **Do not try to light the burners by hand.**
6. Turn the gas control knob, or slide the gas control switch, to "OFF" (see Figure 1).

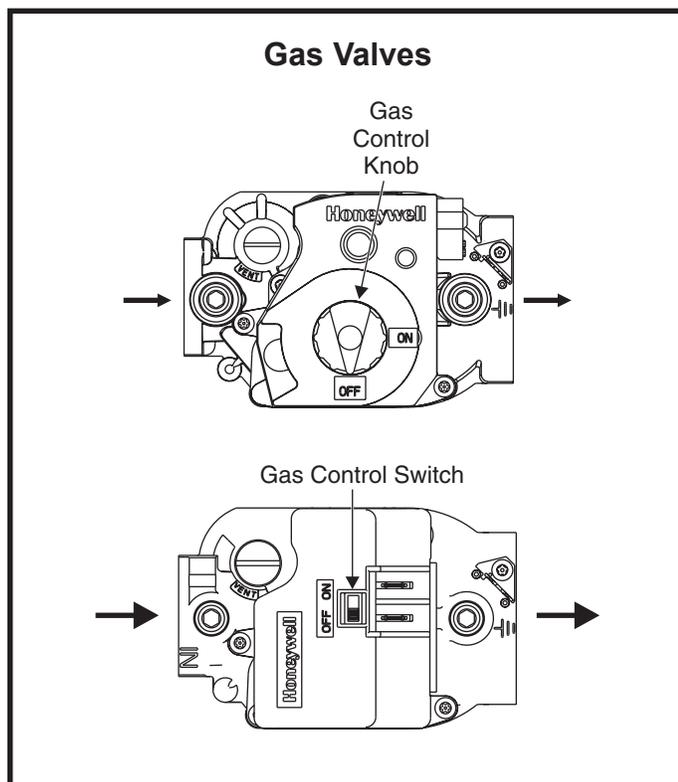


Figure 1

7. Wait 5 minutes to clear out any gas, then smell for gas (including at the bottom of the unit near the ground). If you smell gas, **stop** and follow the directions in **WHAT TO DO IF YOU SMELL GAS** on page 1. If you don't smell gas, continue to next step.
8. Turn the gas control knob, or slide the gas control switch, to "ON".
9. Replace the burner compartment access panel.
10. Turn on all electric power to the unit.
11. Set the thermostat to the desired setting.
12. If the unit will not operate, follow the instructions found below in **To Turn Off Gas to Unit** and call your service technician or gas supplier.

### Operating Sequence

When the thermostat calls for heat, the vent motor will purge the system for 30 seconds (nominal). When the prepurge time has expired, the gas valve will open for direct ignition. When burners are lit, the flame sensor will sense flame and keep the gas valve open. If the flame sensor does not sense that a flame has been established, it will shut off the gas valve. The ignition system is designed to go through three trials for ignition. If flame still has not been established after the third trial, the system will go into lockout. After 1 hour, the system will try three more times.

If the system goes into lockout, it can be reset by turning your thermostat down or off for 10 seconds and then back to the desired point.

When the room thermostat is satisfied, the electrical circuit to the gas valve is opened and the burners are shut off.

### Shutting Down the Unit

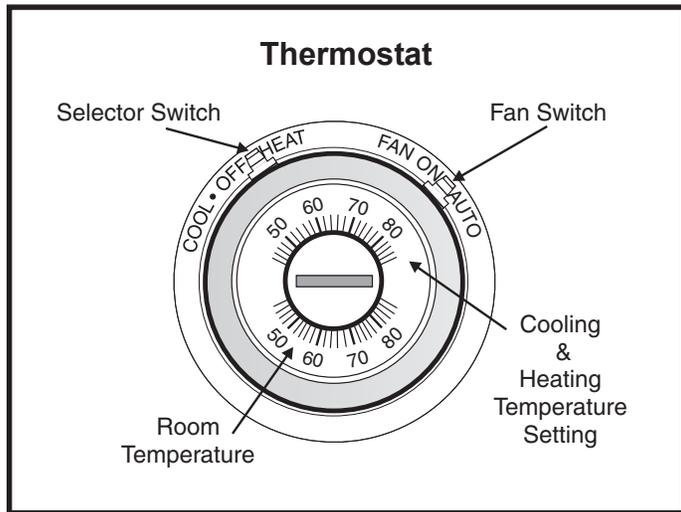
To shut down the unit, set the thermostat to the "OFF" position.

### To Turn Off Gas to Unit

1. Set the thermostat to the lowest setting.
2. Turn off all electric power to the unit if service is to be performed.
3. Remove the burner compartment access panel.
4. Turn the gas control knob, or slide the gas control switch, to "OFF" (see Figure 1). Do not force.
5. Replace the burner compartment access panel.

## Temperature Control

There are many types and styles of thermostats. Yours may look different from the one shown in Figure 2. However, almost all thermostats perform the same basic functions described in the following section.



**Figure 2**

### Thermostat Operation

There are two switches located on the thermostat (see Figure 2). One switch controls the heating and cooling functions. The other switch is for "FAN" operation, either continuous or automatic. On the thermostat is the temperature range for the heating temperature and the cooling temperature desired.

To put the system into operation, push the switch to either "HEAT" or "COOL" position. After choosing the type of operation, move the thermostat dial or lever to select the temperature you would like the system to maintain.

### Fan Operation

You may wish to increase your comfort by setting your system for continuous air circulation of the indoor air. The fan switch on the thermostat permits you to do this.

With the switch in the "ON" position the fan will operate continuously. "AUTO" position gives fan operation only when the unit is in either heating or cooling.

### Unit Operation

If your unit is operating but fails to provide complete comfort, check the following before calling for service:

1. Be sure the thermostat setting is correct.
2. Check to see if the filter is clean.
3. Be sure air can circulate freely throughout your home.

Do not block supply registers or return grilles with furniture or rugs.

4. Keep surface of the outdoor coil free from dirt, lint, paper, or leaves.

If your unit fails to operate, check the following:

1. Be sure the main switch that supplies power to the unit is in the "ON" position.
2. Replace any burned-out fuses or reset circuit breakers.
3. Be sure the thermostat is properly set.

If the unit still does not start, call a qualified service technician.

## MAINTENANCE OF YOUR UNIT

### **▲ WARNING**

Always shut off all power to the unit before attempting any of the following maintenance procedures. Failure to do so may result in personal injury.

There are routine maintenance steps you should take to keep your unit operating efficiently. This maintenance will assure longer life, lower operating costs, and fewer service calls. In addition to the maintenance procedures listed in this manual, there are also other service and maintenance procedures that require the skills of a service person who has specialized tools and training. **Personal injury can result if you are not qualified to do this work.** Please call your dealer when service is needed.

Your unit is designed to give many years of efficient, satisfactory service. However, the varied air pollutants commonly found in most areas can affect longevity and safety. Chemicals contained in everyday household items such as laundry detergents, cleaning sprays, hair sprays, deodorizers, and other products which produce airborne residuals may have an adverse effect upon the metals used to construct your appliance.

The cabinet of the unit can be cleaned with soap and water. Grease spots can be removed with a household cleaning agent.

It is important that you conduct periodic physical inspections of your appliance, paying special attention to the gas burners and the flue outlet. These components are located at the front of the unit. A flashlight will be useful for these inspections. Make one inspection prior to the beginning of the heating season and another during the middle.

When inspecting the flue outlet, be sure to check for evidence of black soot or blockage by leaves or other debris. Clear any blockage that is found. If any soot is found, a qualified service agency should be called should be called immediately.

During your periodic inspections, check for obvious signs of deterioration of the unit. Check that the return and supply ducts attached to the unit are sound and airtight. Check that the unit's physical support and concrete slab or roof curb is sound and not in need of repair. Make sure there are no gaps between the roof curb and the unit where rain could leak in. Snow or debris should not be allowed to accumulate in or around the unit.

As part of your inspection, you should start the unit. The vent motor should start and purge the system for 30 seconds. After the prepurge time, the burners should

ignite. If the burner does not ignite, contact a qualified service technician for assistance.

Should you observe unusual amounts of any of the following conditions, it is important that you call your authorized dealer at once to obtain a qualified service inspection:

- Rust, flakes, or other deposits
- Coatings
- Corrosion

Even if no unusual rust or other conditions are observed, **it is recommended that the unit be inspected and serviced at least once per year by a qualified service technician.** Regular inspections and planned maintenance will assure many years of economical performance from your unit.

### **Combustion and Ventilation Air**

This unit requires air for combustion and ventilation to ensure both proper and safe operation. Combustion air is brought in through the condenser section. Do not block or obstruct the condenser coil or condenser fan opening.

### **▲ WARNING**

Adequate combustion and ventilation air must reach the unit to provide for proper and safe operation. Air openings must be kept free of obstructions. Do not permit overhanging structures or shrubs to obstruct condenser air discharge, combustion air inlet, or vent outlet. Any obstruction may cause improper operation that can result in a fire hazard or carbon monoxide injury.

### **Venting and Unit Support**

Venting of this unit must comply with the unit Installation Instructions. Be sure the installer has followed these requirements. If not, you should request the installer to comply as soon as possible.

Make sure the vent terminal is clear and free of any obstruction. For proper venting terminations, see the Installation Instructions furnished with the unit.

Check to see that the unit cabinet is sound and firmly supported, without sagging. There should be no cracks or gaps.

It is important that the outside area where the vent terminates is kept clear of any obstructions which might block or impede the venting of the unit. Screens in vent terminals should be cleaned periodically. Should venting become blocked at anytime, your unit is equipped with a special safety control to prevent operation of the unit until the

condition has been corrected. Contact your dealer if you desire more information about this important safety feature. Should any unusual conditions be observed during your inspections, call an authorized service dealer immediately.

### Return Air

All return air duct connections must be tight and sealed to unit cabinet. Supply and return air registers must be open when the unit is in operation. Obstructions must not be allowed to block airflow in or out of the registers.

### Filters

Air filters are to be used with this heating/cooling unit. Filters are not factory supplied in the unit. However, a filter frame accessory is available from the manufacturer that allows filters to be installed within the unit. If the filter frame accessory is not used, a filter must be installed in the duct work by the installer. Filters must always be installed ahead of the evaporator coil and must be kept clean or replaced. Dirty filters will reduce the airflow of the unit. Filters should be sized in accordance with Table 1.

Minimum Required Surface Area for Disposable Filters	
Nominal Cooling	Filter Area (sq. ft.)
24,000	2.67
30,000	3.33
36,000	4.00
42,000	4.67
48,000	5.33
60,000	6.67

**Table 1**

### Outdoor Coil

Leaves and other large obstructions should be carefully removed from the outdoor coil surfaces without damaging the fin surface of the coil.

### Lubrication

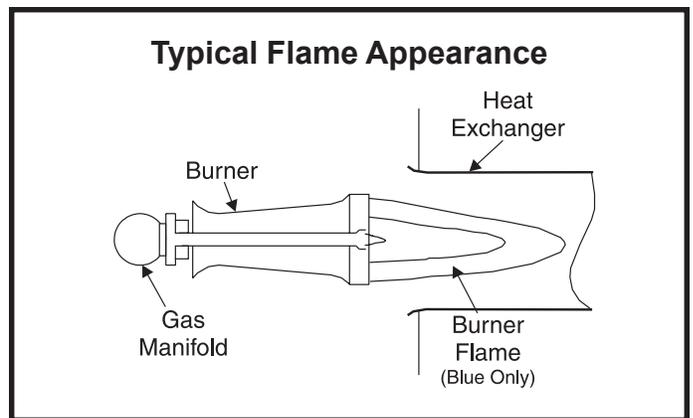
Lubrication of the bearings in the circulating air blower motor and the combustion blower motor is not recommended.

### Blower Assembly

Even with good filters properly in place, blower wheels and motors will become dust laden after long months of operation. The entire blower assembly should be inspected annually. If the motor and wheel are heavily coated with dust, they can be brushed and cleaned with a vacuum cleaner.

### Burner Flame

While the unit is in operation, observe the burner flames. Compare these observations to Figure 3 to determine if proper flame adjustment is present. If your observations indicate improper flame adjustment, call your authorized service dealer for service. **Do not attempt to adjust flame!** Your service representative will perform this adjustment correctly.



**Figure 3**

### Rollout Switch

This unit is equipped with a manual reset high temperature sensor or rollout switch. In the unlikely event of a sustained burner flame rollout, the rollout switch will shut off the flow of gas by closing the gas valve. The switch is located inside the gas burner area. Flame rollout can be caused by blockage of the power vent system, a blocked heat exchanger, or improper gas pressure or adjustment. If this event occurs, the unit will not operate properly. The gas supply to the unit should be shut off and **no attempt should be made to place it in operation.** The system should be inspected by a qualified service technician.

## REPAIR PARTS

The following repair parts are available from your local distributor. When ordering parts, include the complete unit model number and serial number which are printed on the rating plate located on the unit.

### Gas Control Group

Manifold	Orifice
Spark electrode	Ignition wire
Burner	Gas valve
Flame sensor	

### Heat Exchanger Group

Heat exchanger	Burner box
Flue cover	

### Blower Group

Blower assembly	Blower wheel
Blower housing	Capacitor
Blower motor	Blower cutoff

### Inducer Group

Pressure switch	Inducer blower and motor
-----------------	--------------------------

### Electrical Group

Limit switch	Transformer
Fan control board	Rollout switch
Ignition control	

### Cooling Group

Compressor	Coil
Fan motor	Drain pan
Fan blade	Contactactor

## Owner Record

Model # \_\_\_\_\_

Serial # \_\_\_\_\_

Installation Date \_\_\_\_\_

Installed by: \_\_\_\_\_

Dealer \_\_\_\_\_

Address \_\_\_\_\_

Telephone # \_\_\_\_\_

License # \_\_\_\_\_