

HP25 Heat Pump

Congratulations on the purchase of your Lennox HP25 heat pump. Lennox takes pride in manufacturing high quality products that keep you comfortable while saving you energy and money.

The HP25 is a high efficiency heat pump equipped with a scroll compressor. The scroll compressor contributes to the high efficiency in the way it compresses the refrigerant.

This booklet explains the complete heating and cooling system, how to identify the unit's model number, how to operate a typical thermostat, and how to maintain the unit for optimum performance. Keep this booklet and the warranty shipped with the heat pump for future reference.

Thank you again for choosing Lennox.

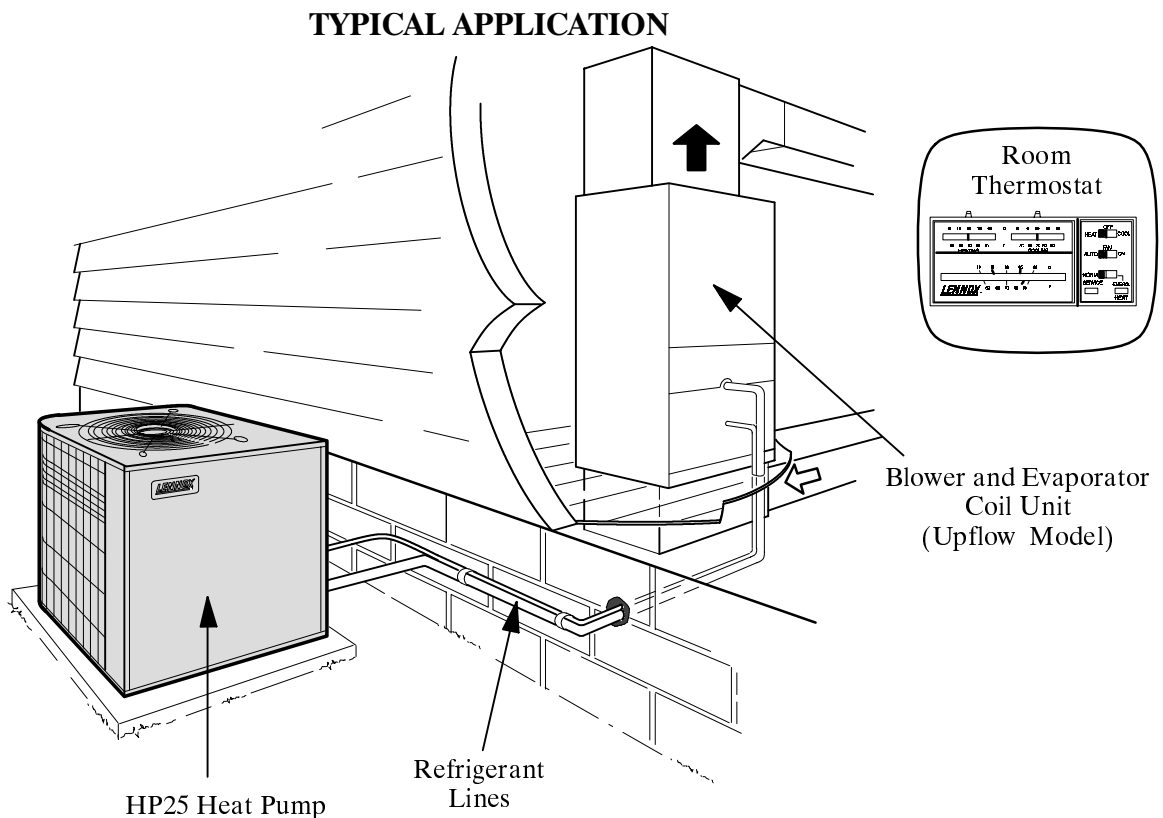
HOW A HEAT PUMP WORKS

As the name heat pump implies, your heat pump system pumps heat out of your house in warm weather and pumps heat into your house in cool weather. The heat pump system works like a furnace and an air conditioner.

The heating and cooling system consists of a heat pump, in this case the HP25, and an indoor unit. The indoor unit, typically, will be an electric furnace. The indoor unit consists of a blower and evaporator coil section along with electric strip heat. The evaporator coil is connected to the HP25 heat pump with refrigerant lines. A gas furnace may be combined with a heat pump and the Lennox FM21 control to serve as a dual fuel system.

Cooling Process

The cooling cycle starts when the thermostat senses that cooling is needed. The heat pump receives a signal from the thermostat and the scroll compressor pumps refrigerant through the heat pump's coils. The fan on the HP25 pulls air over the coils which cools the refrigerant. The refrigerant flows under pressure to the indoor unit's evaporator coil. There, pressure is released and the refrigerant makes the evaporator coil very cold. Air from the indoor unit blower is cooled as it is pulled across the cold coil and water is removed from the air for dehumidification. The air then travels through the duct system to each room. The refrigerant travels back to the heat pump outside. At this point the cooling cycle starts over again and will continue until the thermostat setting has been reached.



HOW A HEAT PUMP WORKS- -Continued

Heating Process

The heating cycle is a reverse of the cooling cycle. A component in the heat pump called the “reversing valve” literally reverses the flow of refrigerant. When the thermostat senses a need for heat, the heat pump’s compressor starts and the reversing valve diverts the refrigerant to the heat pump’s coils. The outdoor fan then draws air across the outdoor coil while the refrigerant absorbs heat from the outside air. The compressor pumps the heated refrigerant to the indoor coil. The indoor blower draws air across the indoor coil. The air absorbs the heat from the indoor coil and the warmed air is then distributed throughout the house. Liquid refrigerant is transported to the outdoor coil where the heating cycle begins again.

COMMONLY ASKED QUESTIONS

Why Does The Heated Air From A Heat Pump Feel Cool?

Temperature rise is the difference between discharge air temperature and the temperature of the air returning to the indoor unit. In heat pump systems, the temperature of the heated discharge air going into the room depends on the outside air temperature. On mild days the temperature rise will be greater because there is more heat in the outside air. However, on the coldest days the temperature rise may be very small and you may notice the heat pump running longer because the outdoor air does not contain sufficient heat to warm the house. At this “balance point” the electric heat will come on to help maintain a comfortable room temperature. Even though the heat pump runs longer on colder days and the electric heat may come on, it will always be more efficient than heating by electric heat only.

What Is Electric Heat?

Your system may be equipped with an auxiliary electric heat system or “strip heat,” which warms air by circulating it across an electric resistance element. The electric element works like the element in a toaster. Because of its lower efficiencies, the auxiliary electric heat will only be used when it is needed most: when the unit is in defrost cycle, when the outdoor temperature is so low that the heat pump cannot meet the heating requirements of the space, when the indoor temperature is much lower than the thermostat setting, or when the heat pump requires service.

What Is The Defrost Cycle?

As outdoor temperatures drop, ice may start to form on the outdoor coil. This is a normal result of proper heat pump operation. The heat pump has an automatic control that will occasionally stop the outdoor fan in order to defrost the outdoor coil. During a normal defrost cycle, steam may rise from the top of the heat pump. Electric heat (if installed) will operate during the defrost cycle.

HOW TO SET THE THERMOSTAT

Your thermostat may vary from this example; however, the operation is similar.

TEMPERATURE SETTING LEVERS

Set the indicator lever on thermostat to desired temperature for heating and cooling modes.

FAN SWITCH

In **AUTO** or **INT** setting, the blower runs only when the thermostat calls for either heating or cooling. The **ON** or **CONT** setting runs the blower continuously, regardless of whether the equipment is heating or cooling. Continuous fan operation tends to increase indoor humidity levels during cooling mode, so the recommended fan switch setting is **AUTO** or **INT**.

SERVICE LIGHT

When this light turns on and off, it's telling you that your heat pump isn't operating at optimum performance levels. This light may come on when you first put the control switch in the heat position or when you move the temperature selector up more than 2 degrees. When the light comes on for these reasons, let your heat pump run for an hour, if the light remains on after that period, see page 7 for steps to take before calling for service.

SYSTEM SWITCH

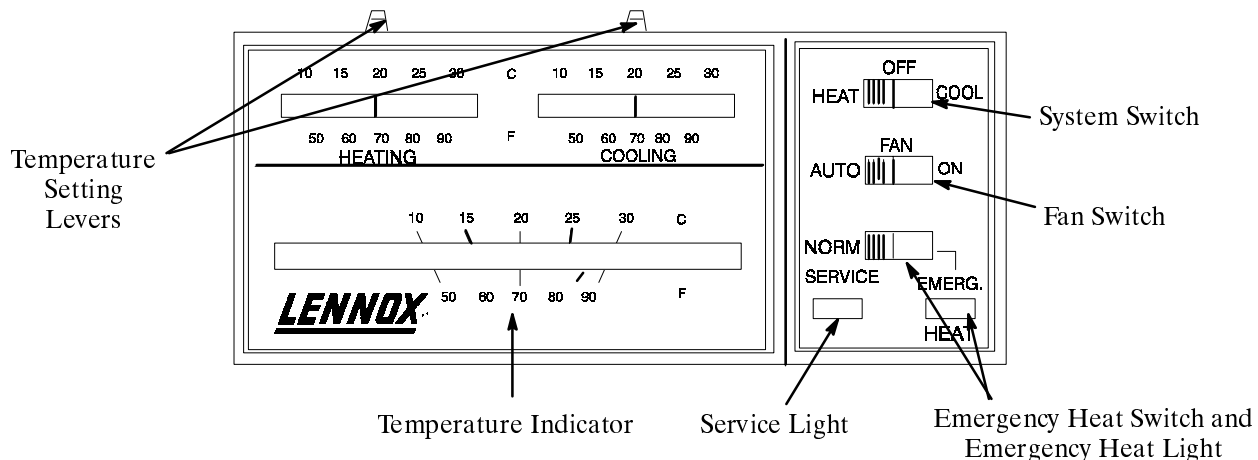
Set the system switch for either heating or cooling. Some thermostats may be equipped with an **AUTO** switch to allow the system to heat or cool depending on the need.

EMERGENCY HEAT SWITCH & EMERGENCY HEAT LIGHT

The emergency heat setting is used when the heat pump is inoperative and optional emergency electric heat is used to warm the house. Place the switch in emergency heat position until the unit can be serviced. The emergency heat light will only be on when the switch is in the emergency heat position. It is a reminder that your heat pump system is not running at peak efficiency.

TEMPERATURE INDICATOR

The temperature indicator needle shows actual room temperature.



PROGRAMMABLE THERMOSTATS

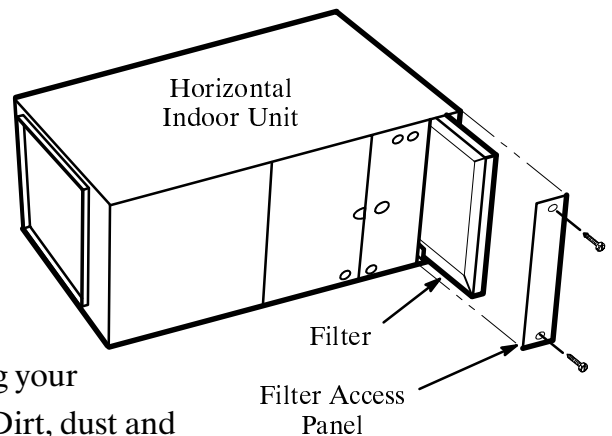
Many systems are installed with a programmable thermostat. These thermostats provide the same **SYSTEM** and **FAN** control as standard thermostats, but also provide the feature of setting certain temperatures for different times of the day or days of the week. Most provide for the selection of both heating and cooling set points (the temperature at which you want that mode to come on). Refer to the separate instructions provided with your programmable thermostat for operation and adjustments.

KEEPING YOUR SYSTEM IN TOP FORM

⚠ WARNING



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



Indoor Unit and Filters

Having a clean filter is the most important step in keeping your new air conditioning system working to its full potential. Dirt, dust and pet hair clog the filter as air cycles through the system. Dirty filters make the equipment work harder which causes the unit to use more energy than normal. A system with dirty filters will not put out cool air! Cleaning or replacing the filter is much less expensive than higher energy bills or damaged equipment.

Have the dealer show you where your unit's filter is located. The filter may be found either in the indoor unit (furnace) or in the wall at the return air grille. If the filter is in the indoor unit, it may be behind an access panel as shown. Always replace the filter with the same type of filter. If you don't know what filter you need, call your Lennox dealer with the model number of the indoor unit. The dealer will be able to tell you what type and size filter you need. Make sure that all the power is **OFF** to the unit before attempting to change filter.

Some filters are re-usable and can be cleaned with a mild soap and water. These filters should be completely dried before returned to the unit or grille. When replacing, look for the airflow direction arrow marked on the filter. Disposable filters can not be cleaned but should be replaced every month. During times of heavy usage, it is beneficial to vacuum the filter in between changes or cleanings.

Your system may include an electronic air cleaner which rids your home of even the smallest particles of dirt, dust and pollen. Ask your Lennox dealer to instruct you on its maintenance.

HP25 Heat Pump

It is important to keep debris and shrubs away from the heat pump. The heat pump pulls air from the sides, over its coils and up through the center where the fan is located. If leaves, trash or shrubs are crowding the unit, airflow is restricted. This causes the unit to work harder and use more energy. Check unit periodically for debris such as lint from dryer exhausts, leaves, plastic grocery bags, etc. The heat pump can be cleaned by first, disconnecting all power to the unit, then gently rinsing off with water from a garden hose. High pressure water can damage the coils and reduce efficiency.

IDENTIFYING THE MODEL NUMBER

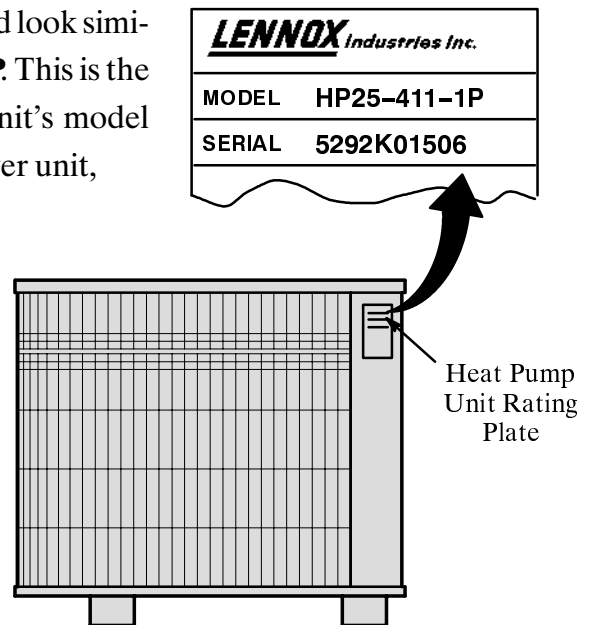
The individual components of your heating and cooling system each have a specific name or model number. It can be found on the unit rating or name plate located on the side of the unit. Every part of the number has some function. It identifies the series, capacity or size, voltage, and the version within the series. If you experience a problem with your unit, you should be prepared to give the unit model number when calling for service. This bit of information aids the service technician in the analysis of the problem. Each unit also has a specific serial number. This number is not usually needed by the technician during an initial call for service.

Locating Lennox Unit Model Number

Locate the unit rating plate on the side of the unit. It should look similar to the one shown. Notice the number that starts with **HP**. This is the model number for the heat pump. The Lennox indoor unit's model number will start with a **G** if it is a gas furnace, a **B** if a blower unit, an **O** if an oil furnace, or a **CB** if a blower coil unit.

The number following the letter(s) describes the line or series of the unit. In this case, the HP25 series heat pump. The set of numbers following the series describes the capacity or size of the unit and the phase used. The number listed after a dash (-) signifies a specific version of the series and the voltage used to operate the unit. Sometimes other letters will be added between the capacity and dash number. These describe certain parts used in the equipment such as specific blowers or refrigerant metering devices.

When you have found the model number, write it down in the place provided on the warranty for future reference.



BEFORE CALLING FOR SERVICE...

- 1 Check to see that electrical disconnect switches are ON.
- 2 Make sure the room thermostat temperature selector is properly set.
- 3 The room thermostat system switch should be in the ON position.
- 4 Replace any blown fuses, or reset circuit breakers.
- 5 Make sure unit access panels are in place.
- 6 Air filter should be clean.
- 7 Write down the unit model number before calling.

To keep your heating and cooling system running in peak operating condition year after year, contact your independent Lennox dealer about a Lennox Planned ServiceSM Program.



Have the Lennox dealer fill out this information for future reference.

Model # _____ Serial # _____

Installer _____ Phone # _____

Date Installed _____ Filter Size and Type _____