

## Troubleshooting Heating Mode

The following tips will help you troubleshoot your heat pump:

**What if...**The outside unit gives off what looks like steam?

**Then...**The process is normal. The steam you see is actually water vapor and occurs during the defrost cycle.

**What if...**The auxiliary heat light on the thermostat is on?

**Then...**The supplementary heaters are providing heat. This usually happens when the outside temperature is lower than the balance point, generally 35°F or less. Or, you adjusted your thermostat up more than 1.5 degrees. That causes supplementary heaters to come on until the thermostat is satisfied.

**What if...**There is little or no airflow from registers.

**Then...**Check for the following: 1) dirty filters (replace them); 2) blower motor or belt failure; 3) possible air leaks from ducts; or 4) the return filter grill may be blocked.

**What if...**The outside unit runs continuously in very cold weather. (All units run continuously below the balance point.)

**Then...**Check for the following: 1) thermostat may be set too high; 2) the refrigerant may be low in the unit; 3) the thermostat may be exposed to a cold draft; 4) the outside unit coils may be blocked by ice or plants; or 5) the thermostat needs adjusting.

## Troubleshooting Cooling Mode

**What if...**The outside unit continuously runs?

**Then...**

- Check the refrigerant level in the unit.
- The thermostat may be set too low or too high.
- The outside coil may be partially blocked.
- The thermostat may be located near a heat source, such as appliances, television, etc.
- There may be dirty filters or too many registers closed, limiting air movement.

**What if...**You are unable to cool the house and reduce the humidity level?

**Then...**

- There may be low refrigerant level in the unit.
- Have the compressor checked.
- A door or window may be open.
- There may be air leaks in the duct system.

*These recommendations do not cover every situation and are intended to only be a guide in helping you understand your heat pump.*



Your Home  
**Heat Pump Guide**

Efficiency Tips for Your Home's  
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Heating and cooling accounts for 56 percent of the average energy bill in a typical U.S. home, making it the largest energy expense for most homes. The majority of homes in the southern United States use heat pumps for heating and cooling.

### Maximize heat pump performance

Proper operation and regular maintenance is key to preventing future problems with your heat pump system and will save you money on your energy bill. Dirt and neglect are the main reasons heating and cooling systems fail. Some simple do-it-yourself maintenance can save you costly repairs before you call a qualified service technician.

- **Ensure proper start up** Before starting your heat pump, be sure electric service has been supplied to the compressor for eight hours in cold weather or two hours at other times. A small heater in the compressor needs to be in operation long enough to keep the oil and refrigerant separated, or the compressor may be damaged. This is also true whenever there is a power outage for an extended period of time, and particularly if the weather is cold. If heat is needed, put the thermostat on emergency heat for about six to eight hours after power is restored.

- **Invest in a programmable thermostat** One of the best ways to save on your home's heating and cooling bill is to control the temperature at which you keep the home. A programmable thermostat is the best way to do so, especially when you are away. Look for a thermostat with an Energy Star® rating. In the winter, save energy by setting the thermostat to 68°F while you are awake and then lower it while you are asleep or away from the house. In the summer, keep the

house warmer than normal while you are away and set the thermostat to 78°F while you are home. If you need extra heating or cooling, use the manual override as it won't erase the preset schedule.

- **Change filters** Every house circulates small amounts of airborne dust, which also circulates through the ducts in your house. Your heat pump filter cleans the air, but it needs to be cleaned or changed regularly. Check the filter every month during heating and cooling seasons.

- **Ensure proper air flow** Getting the proper amount of air across the indoor and outdoor coils is very important. Keep the area around the outside unit clear. Use water pressure from a hose to clean the outside coils once a year. Do not close off individual room supplies. Closing supply registers may restrict airflow through the system resulting in less efficient operation. Keep the return grills free so that unrestricted air can flow back to the indoor unit. Make sure your registers are clean. Wipe them down with a damp cloth.

- **Have a yearly checkup** Have a qualified service person or contractor check the unit at least once a year. A regular checkup by a professional usually costs from \$100-\$150. Don't wait until your heat pump breaks to call for help. Preventive maintenance saves you money in the long run by making your system efficient enough to cut up to 10% from your energy bill.

### Getting to know your heat pump

Heat pumps do not operate like other heating systems. In heating mode, the heat pump removes heat from outside air and transfers it to the inside air. In cooling mode, the heat pump removes heat from inside air and discharges it to the outside air. Heating and cooling modes are controlled automatically by the indoor thermostat setting.

Heat pump coils operate at lower heat levels than fossil fuel systems (natural gas, oil, kerosene, etc.) that operate at much higher temperatures for shorter time periods. Air at the register usually has temperatures ranging from 85°F to 106°F in winter. A properly installed heat pump efficiently maintains a comfortable level by

providing these temperatures.

Even outside winter air contains heat. As outside air temperature drops, the unit runs more to collect and deliver the necessary heat inside your home. Simultaneously, as outdoor temperatures decrease, heat pump efficiency decreases. Even at 17°F, a heat pump is more than 100 percent efficient.

This means for every unit of energy you pay for, you receive greater than one unit of energy for space heating. The heat pump balance point occurs when at full capacity; it supplies all the heat your home requires. As outside temperatures drop below the balance point, supplemental heat assists your heat pump and maintains settings. Supplementary heat is controlled by outdoor and/or inside thermostats.

