

OUTDOOR SPLIT SYSTEM HEAT PUMP

USER'S MANUAL

TWO - STAGE | R-410A | 16 - 19 SEER MODELS

IMPORTANT SAFETY INFORMATION

WARNING:

To avoid possible equipment damage, fire, or death, the following instructions must be observed regarding unit maintenance and operational procedures.

Please read all information in this manual thoroughly and become familiar with the capabilities and use of your appliance before attempting to operate or maintain this unit. Pay attention to all safety warnings and any other special notes highlighted in the manual. Safety markings are used frequently throughout this manual to designate a degree or level of seriousness and should not be ignored.

WARNING indicates a potentially hazardous situation that if not avoided, could result in personal injury or death.

CAUTION indicates a potentially hazardous situation that if not avoided, may result in minor or moderate injury or property damage.

Keep this literature where you have easy access to it in the future. If a problem occurs, check the instructions and follow recommendations given. If these suggestions don't eliminate your problem, call your servicing contractor. Do not attempt to service this unit yourself!

- To achieve optimum performance and minimize equipment failure, it is recommended that periodic maintenance be performed on this unit. The ability to properly perform maintenance on this equipment requires certain mechanical skills and tools. Please consult your dealer for maintenance information and availability of maintenance contracts.
- The area around the cooling unit must be kept clear and free of combustible materials, gasoline, and other flammable vapors and liquids. Do not store or use flammable items such as paint, varnish, or strippers in the vicinity of the unit.
- Do not use the area around the unit as a storage area. This area must be kept clean and clear of loose or exposed insulation materials. Examine the unit's area when it is installed or when insulation is added, since some insulation materials may be combustible.
- Do not use this appliance if any part has been under water. Immediately call a qualified service technician to inspect the unit and to replace any part of the control system and any gas control which has been under water.
- Familiarize yourself with the controls that shut off the electrical power to the unit. If the unit needs to be shut down for an extended period of time, turn off electrical power at the circuit breaker. For your safety always turn off the electrical power before performing service or maintenance on the unit.

WARNING:

- **Under no circumstances should the appliance owner attempt to install and/or service this equipment. Some local codes require licensed installation / service personnel for this type of equipment. Improper installation, adjustment, alteration, service, or maintenance can cause personal injury or property damage. Refer to this manual. For assistance or additional information, consult a qualified installer or service agency.**
- **Read these instructions thoroughly before using the equipment. Follow all precautions and warnings contained within these instructions and on the unit.**
- **Do not store or use gasoline or other flammable vapors and liquids in the vicinity of this or any other appliance.**

DO NOT DESTROY. PLEASE READ CAREFULLY AND KEEP IN A SAFE PLACE FOR FUTURE REFERENCE.

ABOUT THE HEAT PUMP

Your heat pump is a unique, all weather comfort-control appliance that will heat and cool your home year round and provide energy saving comfort. It's often not recognized that heat is always in the air, even when the outside temperature is below freezing. The heat pump uses this basic fact of physics to provide energy saving heat during the winter months. For example, If the outdoor temperature is 47° F (8° C), your heat pump can deliver approximately 3.5 units of heat energy per each unit of electrical energy used, as compared to a maximum of only 1 unit of heat energy produced with conventional electric heating systems.

In colder temperatures, the heat pump performs like an air conditioner run in reverse. Available heat energy outside the home is absorbed by the refrigerant and released inside the home. This efficient process means you only pay for "moving" the heat from the outdoors to the indoor area. You do not pay to generate the heat, as with more traditional means of heating.

During summer, the heat pump reverses the flow of the heat-absorbing refrigerant to become an energy-efficient, central air conditioner. Excess heat energy inside the home is absorbed by the refrigerant and released outside the home.

OPERATING INSTRUCTIONS

Thermostat styles vary. Please refer to the thermostat manufacturer's User manual for detailed programming instructions.

Cooling Operation Only

1. Set the thermostat's system mode to COOL and change the fan mode to AUTO.
2. Set the temperature selector to the desired temperature level. The outdoor fan, compressor, and blower motor will all cycle on and off to maintain the indoor temperature at the desired cooling level.

NOTE: If the temperature level is re-adjusted, or the system mode is reset, the fan and compressor in the outdoor unit may not start immediately. A protective timer circuit holds the compressor and the outdoor fan off for typically 3 to 5 minutes following a previous operation or the interruption of the main electrical power before restarting.

3. When the difference between temperature setpoint and actual room temperature is relatively small, the unit will operate at stage 1 and a lower indoor blower air flow rate is used. When that temperature difference is higher than some value (determined by the specific thermostat used), the unit will operate at Stage 2, and a higher air flow rate will be used. The outdoor equipment will operate at one or more different speeds in each of these stages, depending on the heat pump model.

Heating Operation Only

1. Set the thermostat's system mode to HEAT and change the fan mode to AUTO.
2. Set the temperature selector to the desired temperature level. The compressor, outdoor fan, and blower motor will cycle on and off to maintain the indoor temperature at the desired heating level.

NOTE: If the temperature level is re-adjusted, or the system mode is reset, the fan and compressor in the outdoor unit may not start immediately. A protective timer circuit holds the compressor and the outdoor fan off for typically 3 to 5 minutes following a previous operation or the interruption of the main electrical power before restarting.

3. When the difference between temperature setpoint and actual room temperature is relatively small, the unit will operate at stage 1 and a lower indoor blower air flow rate is used. When that temperature difference is higher than some value (determined by the specific thermostat used), the unit will operate at Stage 2, and a higher air flow rate will be used. The outdoor equipment will operate at one or more different speeds in each of these stages, depending on the heat pump model.

Emergency Heat

Many thermostats include a system operating mode called Emergency Heat (abbreviated EM HT or AUX HT, etc). In this mode, heating is provided solely by the backup means (electric strip heat or gas furnace), and the heat pump is not used. This may typically be selected by the user when there is a problem with the heat pump equipment, when the outdoor temperature is too low for heat pump operation, or for any other reason or preference. Some thermostats automatically revert to backup heating means under certain conditions. Refer to the thermostat manual. The user is advised to avoid using Emergency Heat except under exceptional circumstances, since the energy costs are likely to be significantly higher than with the heat pump

Defrost Operation

During cold weather heat pump operation, the outdoor unit will develop a coating of snow and ice on the heat transfer coil. This is normal and the unit will defrost itself. This unit features Demand Defrost that monitors ambient and coil temperatures to regulate the defrost function accordingly.

At the beginning of the defrost cycle, both the outdoor condenser fan and compressor will turn off. After a brief delay, the compressor will turn on and begin to heat the outdoor coil causing the ice and snow to melt. **NOTE:** While the ice and snow is melting, some steam may rise from the outdoor unit as the warm coil causes the melting frost to evaporate. When defrost is completed, the outdoor fan motor will start, and the compressor will turn off again. After a brief delay, the compressor will start up again and continue normal operation.

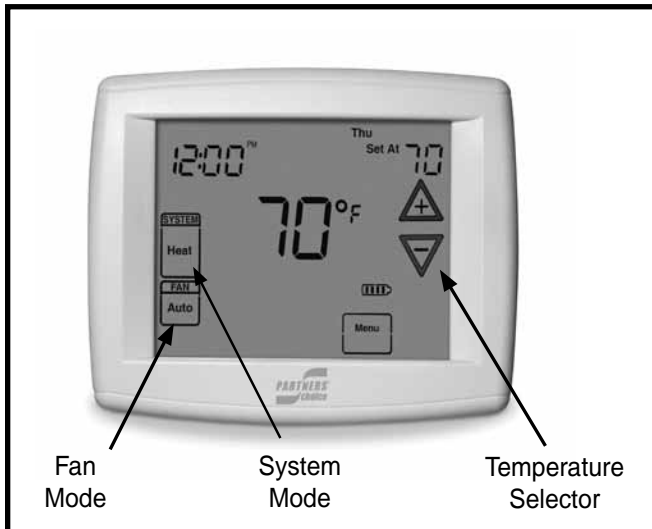


Figure 1. Typical Digital Thermostat

Operating the Heat Pump for Automatic Cooling & Heating (Autochangeover)

1. Set the thermostat system switch to AUTO and the thermostat fan switch to AUTO.

NOTE: Thermostats will vary. Some models will not include the AUTO mode, others will have the AUTO in place of HEAT and COOL, and some will include all three.

2. Set the thermostat temperature to the desired heating and cooling temperature level(s). The outdoor unit and the indoor blower will then cycle on and off in either the heating or cooling mode of operation as required to automatically maintain the indoor temperature within the desired limits.

Operating the Indoor Blower Continuously

Continuous indoor blower operation is typically used to circulate the indoor air to equalize a temperature imbalance due to a solar load, cooking, or fireplace operation.

Set the thermostat fan mode to ON (Figure 1). The indoor blower starts immediately, and will run continuously until the fan mode is reset to AUTO.

Continuous indoor blower operation can be obtained with the thermostat system mode set in any position, including OFF.

Shutting the Heat Pump Off

Change the thermostat's system mode to OFF and the fan mode to AUTO. **NOTE:** The system will not operate, regardless of the temperature selector setting.

TROUBLESHOOTING

Before you call a Technician, check the following:

- Check the thermostat setting. Make sure the system mode and temperature settings are correct.
- Check the electrical panel for tripped circuit breakers.
- Check the filters for dust accumulation.
- Check the unit and make sure it is clean and not covered with grass or leaves.
- If the items above don't resolve your problems, then call your nearest service technician.

HEAT PUMP MAINTENANCE

⚠ WARNING:

This heat pump contains liquid and gaseous refrigerant under pressure. Installation and servicing should only be attempted by qualified, trained personnel thoroughly familiar with the equipment and safe responsible refrigerant handling procedures. Failure to comply with this warning could result in equipment damage, personal injury, or death.

⚠ WARNING:

To prevent electrical shock, personal injury, or death, disconnect all electrical power to the unit before performing any maintenance or service. The unit may have more than one electrical supply.

Proper maintenance is important to achieve optimum performance from the heat pump. The ability to properly perform maintenance on this equipment requires certain mechanical skills and tools. If you do not possess these skills, contact your dealer for maintenance. Consult your local dealer about the availability of maintenance contracts. Routine maintenance should include the following:

Regular Cleaning

⚠ CAUTION:

DO NOT touch any of the internal electrical components while cleaning the unit.

- The area around the unit and the vicinity of any other appliances must be kept clear and free of combustible materials, gasoline, and other flammable vapors and liquids. Do not store or use flammable items such as gasoline, paint, varnish, or strippers in the vicinity of the unit.
- Keep the outdoor unit clean. Hose off periodically and keep unit fins clear of leaves and grass clippings. **Be careful not to damage the aluminum fins.** Clean

the outdoor coil and fins as necessary using a mild detergent and water. Rinse thoroughly with water.

- Keep the outdoor unit clear of obstructions. **DO NOT** obstruct airflow with tall plants or shrubs. Check for and remove any obstructions such as twigs, sticks, etc.
- Inspect the indoor condensate drain and coil at the beginning of each cooling season. Remove any debris.
- Annually inspect the physical support of the unit to ensure that it is physically sound without sagging, cracks, gaps, etc.

Air Filters

WARNING:

Never operate the unit without a filter in the return air system. Dust and lint in the return air can build up on the internal components, resulting in loss of efficiency, equipment damage, and possible fire risk.

- Inspect and clean or replace air filters at the beginning of each heating and cooling season, or more frequently if required. A clogged filter could cause airflow related problems and reduce the overall efficiency of your unit. **Always replace disposable filter(s) installed in your system with the same size filters that are being replaced.**

WARRANTY INFORMATION

A warranty certificate with full details is included with the equipment. Carefully review these responsibilities with your dealer or service company. The manufacturer will not be responsible for any expenses found necessary to correct problems due to improper setup, improper installation, adjustments, improper operating procedure on the part of the user, etc.

Some specific examples of service calls which are not included in the limited warranty are:

- Correcting wiring problems in the electrical circuit supplying the equipment.
- Resetting circuit breakers or other switches.
- Adjusting or calibrating of thermostat.

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