

USER'S MANUAL

GEOTHERMAL HEAT PUMP

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 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.
- Panels should be kept in place at all times. Only trained / qualified personnel should remove the panels when servicing or performing maintenance.

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 service, adjustment, or maintenance may cause explosion, fire, electrical shock or other hazardous conditions which may result in personal injury or property damage.**
- **Read these instructions thoroughly before using the equipment. Follow all precautions and warnings contained within these instructions and on the unit.**
- **Improper installation, adjustment, alteration, service, or maintenance can cause personal injury or property damage. For assistance or additional information, consult a qualified installer or service agency.**
- **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 & KEEP IN A SAFE PLACE FOR FUTURE REFERENCE.

ABOUT THE SYSTEM

Geothermal heating/cooling systems operate via sub-surface conductive heat transfer, using the naturally renewable temperature of the earth's crust as a heat source in the winter, and as a heat sink in the summer.

This unit has been tested for capacity and efficiency and will provide many years of safe and dependable comfort, providing it is properly installed and maintained. With regular maintenance, this unit will operate satisfactorily year after year. Abuse, improper use, and/or improper maintenance can shorten the life of the appliance and create unsafe hazards.

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 tools and mechanical skills.

OPERATING INSTRUCTIONS

Thermostat styles vary. Some models may not include the AUTO mode and others will have the AUTO in place of the HEAT and COOL. Others may include all three. Please refer to the thermostat's User Manual for detailed programming instructions.

The thermostat should be mounted about 5 feet above the floor on an inside wall and not on an outside wall or other location where its operation may be adversely affected by radiant heat from fireplaces, sunlight, or lighting fixtures, and convective heat from warm air registers or electrical appliances.

Cooling Operation Only

1. Set the thermostat's system mode to COOL or AUTO and change the fan mode to AUTO. See [Figure 1](#)
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 approximately three minutes following a previous operation or the interruption of the main electrical power.

Heating Operation Only

1. Set the thermostat's system mode to HEAT or AUTO and change the fan mode to AUTO. See [Figure 1](#).
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

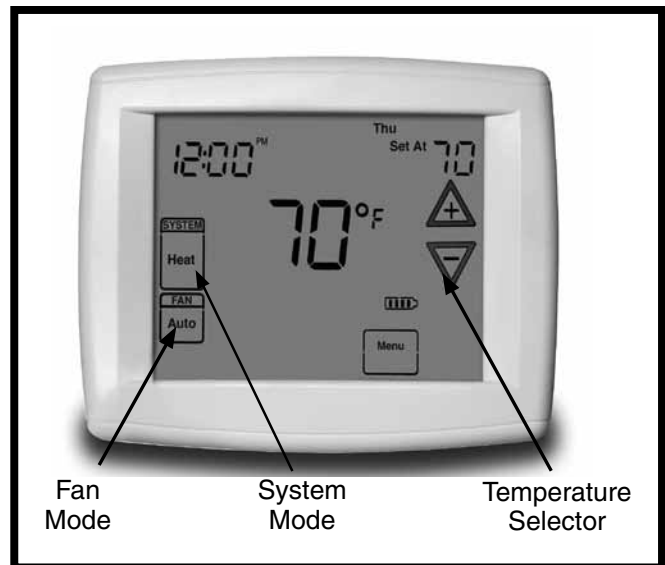


Figure 1. Digital Thermostat

fan off for approximately three minutes following a previous operation or the interruption of the main electrical power.

Emergency Heat

Some thermostats may include a system mode called EM HT or AUX HT, etc. This is a back-up heating mode that should only be used if a problem is suspected. With the mode set to EM HT, etc., the compressor and outdoor fan will be locked off and supplemental heat (electric resistance heating) will be used as a source of heat. Sustained use of electric resistance heat in place of the heat pump will result in an increase in electric utility costs.

Operating the Heat Pump for Automatic Cooling & Heating

1. Set the thermostat system switch to AUTO and the thermostat fan switch to AUTO. See [Figure 1](#)

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

The continuous indoor blower operation is typically used to circulate the indoor air to equalize a temperature unbalance due to a sun load, cooking, or fireplace operation.

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

The 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. See [Figure 1](#). **NOTE:** The system will not operate, regardless of the temperature selector setting

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.
- Inspect the condensate drain 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 only with the same size dimensional filters that are being replaced.**

System Integrity

- The unit should be kept closed and sealed. Check integrity of panel tubing seals. Make sure all panels are in place.
- Check integrity of tubing insulation. Both tubing lines between the unit and indoor air handler should be fully covered with foam insulation.

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.
- If the items above don't resolve your problems, then call your nearest service technician.

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 costs 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.

