



Air Conditioning & Heating

USE AND CARE INSTRUCTIONS

SELF CONTAINED
HEAT PUMP/
AIR CONDITIONING
UNITS



Photo shown is a typical unit and will vary by model and size.

Chas Roberts

AIR CONDITIONING & HEATING

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Important Facts You Should Know About Your Heat Pump

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- During the cooling season, the heat pump operates like a conventional system.
- Do Not turn the air conditioning system off. Part-time cooling is poor economy. If the system is left off during the morning, the home will soak up heat and be more difficult to cool in the afternoon. You can actually save money by letting the thermostat determine when cooling is needed.
- During the hot, dry seasons, we recommend keeping the air conditioner blower on continuously. The air conditioning unit cools more evenly when the blower switch is in the ON position. The blower provides refreshing air movement and even temperatures throughout the home. The blower also circulates air through the filter, which helps remove dust, lint and other pollutants more efficiently.
- Shades, drapes, shutters, or screens should be installed on windows that are exposed to direct sunlight. Also, plant a tree or put up a canopy to protect your windows from the direct sun.
- **During the heating season**, the heat pump will deliver warm air, but not hot air like other systems, and will operate for long periods of time. THIS IS NORMAL. *Remember*, air which is 80 degrees is warm air and will heat the house even though it may feel cool to a hand, which is 98 degrees.
- During the cold weather, frost will accumulate on the outdoor coil. This will cause the heat pump to go into a defrost cycle. During this cycle, the outdoor fan will stop running and you will hear the humming of the compressor and feel cool air coming from the registers. You may also notice steam or water runoff from the outdoor unit and hear a “whooshing” sound. *THIS IS A NORMAL FUNCTION DURING THE DEFROST CYCLE*. Do not turn off the unit, change the temperature, or adjust the thermostat during this cycle. The defrost cycle will last from 1-10 minutes depending on the amount of ice on the coil. Then the unit will return to the heating mode.
- Night setback during the heating season is NOT recommended. The heat pump is not designed to raise space temperatures quickly.
- **For cooling and heating** . . . Leave your thermostat alone. When you have found a temperature that you prefer, it is best to leave the thermostat at that setting.
- Clean or replace the filters frequently. Dirty filters will lower performance and efficiency of your cooling. The filters are usually located at the return grille or at the indoor section of your unit.



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GENERAL INFORMATION

These instructions have been prepared to acquaint you with the unit's care and operation in order that you may enjoy many years of comfort from your new air conditioning or heat pump system. It will give you all the comforts of complete air conditioning - temperature control, dehumidification, circulation, and filtering - you have complete control, yet the unit is as automatic as you desire.

In this pamphlet we have put together the basic principles of our Heat Pumps and Air Conditioners that we feel each owner should know. It also contains hints which might help you to save money in the future.

These instructions are important . . . And there are not many of them. Your unit is a modern air-cooled design which combines simplicity with maximum trouble-free performance. But, like changing the oil in your car . . . or not racing the engine when it's cold . . . Here are a few do's and don'ts for air conditioners and heat pumps as well. So please take a few minutes now and familiarize yourself with the contents of the booklet and keep it handy for future reference.

GOOD AIR CONDITIONING PRACTICES

KEEP FILTERS CLEAN

This is your most important responsibility. A dirty, clogged filter reduces the efficiency of your system, causes erratic performance of controls and can result in damage to the motor, heating element, or to the compressor. **REPLACE OR CLEAN FILTER AT THE BEGINNING OF EACH SEASON AND THEREAFTER AS NEEDED.** On new homes, check filter every week for four weeks to begin with. Sawdust and insulation may be unavoidably introduced into the duct during the installation.

In all cases, inspect your filters at least once a month when the system is in constant operation - replace as needed with the same size and type as removed from the unit. Dirty filter **CHOKES** the airflow to a point where the system cannot do an efficient job. The unit must then run longer to maintain the temperature you have set on the thermostat. This increases your operating costs.

KEEP THE OUTDOOR COIL CLEAN

Have your dealer show you where the outdoor coil is on your air conditioner or heat pump. When the unit is cooling in the summer, this coil does the same job as your car radiator . . . It dissipates the heat which was absorbed by the cooling system. On heat pump models which provide heating in the winter, this outdoor coil absorbs heat from the outside air. Like your car radiator, this coil doesn't work as well when clogged with windblown leaves, papers, or foreign debris. A periodic check will save money on operating costs!

Efficient operation of the heat pump depends on free circulation of air over the outdoor coils. At no time should anything be stacked against the sides of the unit nor should anything ever be draped over it, summer or winter. **DO NOT** plant flowers, vines or shrubbery too near the unit. These will just as effectively block air flow as will stacking things against it. Do not worry about rain falling into the unit . . . it was designed and manufactured for outdoor use.

In areas of heavy snow accumulation snow should not be permitted to bank-up the sides of the outdoor unit.

The most frequent cause of restricted outdoor coil airflow is the build-up of snow and ice resulting from severe weather conditions. As soon as practical after such inclement weather, you should clear the snow and ice from the area around the unit and as much as possible from the wire grilles on the unit.

KEEP WINDOWS AND DOORS CLOSED AS MUCH AS POSSIBLE

Normal air leakage through window sashes, door jambs and other points, will provide a sufficient rate of fresh air intake. When you leave the doors and windows open, you increase the work load on your air conditioner or heat pump. This results in higher operating costs.

DURING THE SUMMER, USE YOUR WINDOWS AND SHADES TO KEEP OUT DIRECT SUNLIGHT

A WORD ABOUT SUMMER HUMIDITY

"It isn't the heat . . . It's the humidity!" How often have you heard that statement? There is a lot of truth in it, so here are a few tips about the moisture in the air which causes that muggy, "close" feeling.

Your unit is designed to do more than cool the air. During the summer, it also removes excess moisture and keeps the humidity down to a comfortable level. It may surprise you to know that an air conditioner "works harder" when removing moisture than when simply cooling the air. Consequently, any steps you take to reduce the moisture load will mean money saved in operating costs. Rooms which have moisture-producing items . . . (examples are clothes dryers, steam tables, etc.) should be vented to the outside with exhaust fans when in use. This will prevent excess accumulation of moisture in other living spaces . . . Moisture which your unit must remove when cooling your building.

BASIC OPERATING PRINCIPLES

COOLING-SUMMER OPERATION (Air Conditioner and Heat Pump)

The cooling system operates similarly to your refrigerator. There are three main parts: (1) the evaporator coil where cold refrigerant absorbs heat from the air which circulates through the duct system in your home; (2) the condenser coil, outdoors, where the heat which was absorbed indoors is discharged from the refrigerant through the system

An air conditioner cannot cool a house off rapidly. It pulls the temperature down slowly. Therefore, do not turn the unit on and expect immediate action. It may take several hours to pull down a hot, moist house when the unit is first installed or anytime it is turned off for a long period of time.

HEAT PUMP-WINTER OPERATION

A heat pump is designed to heat and cool. The operation of your heat pump is entirely automatic. It is controlled by a thermostat which you set at a temperature most comfortable to you. When the inside temperature drops below this setting, your thermostat senses this and turns on the system.

A heat pump acquires its heat from the outside air. At any time the outside temperature approaches 40°F, the outside coil temperature will be below 32°F or below freezing. Frost or ice will begin to form on this coil from the moisture contained in the air. After any continuous run time of 90 minutes, the unit will automatically go into a defrost cycle. Periodically, the unit will automatically defrost itself. When the unit goes into defrost, a "whooshing" sound is audible if you happen to be near the unit. (This same sound can be heard when the unit shuts off during heating operation.) The sound is normal and should be no cause for alarm. It is also normal for steam to come off the outdoor coil during the defrost. Defrost is completely automatic and is controlled by sensors in the outdoor unit.

HEATING-COOLING SYSTEM OPERATION

THERMOSTAT

For the most efficient operation, set the thermostat at the temperature you prefer - and let it take over. Set the SYSTEM lever to "COOL" or "HEAT". Set FAN lever to "AUTO". Everything is automatic. DON'T BE A "THERMOSTAT JIGGLER."

Although outside temperatures may vary 20 to 30 degrees from morning to night, inside temperatures will vary only 6 to 8 degrees during a normal 24 hour period. The operation of your air conditioning unit is automatic. It is controlled by a thermostat which you set at a temperature most comfortable to you (75° to 80° for cooling and 68 to 70 for heating). When the inside temperature changes above or below these cooling or heating settings, your thermostat senses this and turns on the system.

As you no doubt know, setting the thermostat to a position lower than you actually want does NOT make it "cool faster," and the same holds true for heating. The greater the difference between outdoor and indoor temperatures, the greater the operating cost.

HEATING-COOLING SYSTEM OPERATION

The most serious concern of the average new owner of a heat pump is: *"Why does it run so much? Won't it use a lot of electricity?"* the answer is NO, and here's why:

The heat pump produces a low level of heat and uses a modest amount of electricity in the process. It does not get as hot as a gas or oil fired furnace and the air coming from your supply registers will not feel as warm as that from a gas or oil fired furnace.

DEFROSTING

As the unit goes into the defrost cycle, a hissing noise will be heard from the outside unit. The unit continues to run during defrost, except the outdoor fan motor stops, and as the frost is melted, steam will probably emit from the unit. Many times there is also water draining at the bottom of the coil as well. When the coil is defrosted, again a hissing noise will be heard and the unit will reverse back on heat cycle. There is no definite time limit for this cycle (1-7 min.). The lower the outside temperature and the higher the humidity, the longer the defrost cycle will last.

A heat pump, unlike an electric furnace, will not supply extremely hot air from the discharge ducts. Depending on the outside temperature, the air leaving the discharge grille will vary from as low as 75°F, to as high as 110°F. Any air temperature below 98.6°F will feel cool to the human body. This does not mean that your system is not working properly.

NIGHT SETBACK-HEATING CYCLE

A heat pump is not designed for a rapid change of indoor temperature, but is designed to maintain a constant temperature 24 hours a day. If a heat pump is turned down or off at night, it will take several hours to reheat the house. If automatic night setback is desired, it is recommended that an electronic heat pump thermostat with programmed recovery be used because this thermostat will gradually reheat the house.

OPERATING THE THERMOSTAT

HEATING CYCLE:

Switch the System Lever to HEAT. Then set the Temperature Selection Lever to the desired temperature.

COOLING CYCLE:

Switch the system level to COOL. All models have a reset feature which will allow you to reset the unit at the thermostat after some abnormal condition has caused safety switches to turn the unit off. To reset, merely switch the system lever to OFF and back to COOL.

FAN CONTROL

Your thermostat has a Fan Selection lever which will allow you to run the fan continuously or cycle it automatically with the heating or cooling system. Switch the lever to ON for continuous operation and to AUTO for automatic cycling.

Once you recognize this and accept the lower discharge temperature, you will be much more comfortable. Comfort isn't necessarily the result of frequent blasts of hot air, but of a steady, smooth flow of lower temperature air for a longer period of time. That's how your heat pump system does it. At low outdoor temperatures the heat pump may be expected to run continuously. This is a normal operation.



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POWER OFF

Do not shut off the electric power to your air conditioner or heat pump in the spring and fall when neither heating nor cooling is required. This also applies when you are on vacation, or away from home for the weekend, or for a few days. If you do not wish the unit to operate during your absence, turn the thermostat "system" switch to "OFF" but do not open the power switch.

Why? Refrigerant compressors (pumps) are designed to pump gaseous refrigerant only – not liquid. Refrigerant gas is, therefore, constantly flowing in and out of the compressor when the unit is in operation. When it isn't operating, the gas tends to migrate and condense inside the compressor where it definitely isn't wanted. To avoid this, there is an electric heater in, or attached to, the housing of the compressor. This little heater draws very little current and is, therefore, relatively inexpensive to operate.

By causing any liquid refrigerant to revert to the gaseous form, it effectively prevents the accumulation of liquid in the compressor sump and permits the pump to operate only as it should. This "crankcase heater," as it is called in the industry, is fed from the same line service as the compressor motor. Thus, the main power to the outdoor unit should remain on at all times.

POWER OFF DURATION

If the power is removed, for any reason at all, for more than two or three hours, the heat pump should not be restarted until power has been restored to the unit for at least four hours. This gives the crankcase heater time to drive any liquid out of the compressor. Be sure the thermostat is set at "OFF" before power is applied to the outdoor unit.

MAINTENANCE

CLEANING OR REPLACING FILTERS

Filter life will vary depending upon local conditions. If examination of the filters indicates an accumulation of dirt that restricts the passage of light through the filters, they should be cleaned or replaced. Always replace filters with the same size and type filters supplied with your unit. **DIRTY FILTERS WILL AFFECT THE PROPER PERFORMANCE OF YOUR AIR CONDITIONER OR HEAT PUMP AND SHOULD NOT BE NEGLECTED.** Filters are usually located in the return air duct or at the indoor section of your unit. Check with Chas Roberts Air Conditioning for location on your unit.

NOTE: Arrows on the filters must always point in the direction of the air flow through the filter.

CARE OF CABINET

Washing off the coil with a garden hose is permissible as long as the unit is turned off. The surface of the cabinet is finished with a high quality baked-on enamel, especially designed for outdoor use. To further protect and reserve the cabinet, it is recommended that a high grade automobile polish be applied every 6 months.

INSUFFICIENT HEATING OR COOLING

In extremely hot or cold weather your unit will continually deliver its normal supply of conditioned air. If the unit operates but fails to provide sufficient comfort, check the following (before calling a serviceman).

- Be sure thermostat setting is correct.
- Air filters – replace or clean if dirty.
- Be sure air can circulate freely throughout the house – Do not block supply registers or return grilles.
- Keep the surface of the outdoor coil free from dirt, lint, leaves and other foreign matter.

FAILURE TO OPERATE

- Check thermostat for proper temperature and SYSTEM lever is turned to either "COOL" or "HEAT".
- Check to be sure that electrical power is ON. Check the thermostat setting.
- Check for blown fuses and replace. Be sure fuses are the time delay type and are proper size as shown on outdoor unit rating plate.
- Check air circulation at the outdoor unit to be sure it is not obstructed.
- Check to see that filters are clean, and that the air intake on the air conditioner is free from restriction.
- Make sure that all supply registers are open and that rugs or furniture are not obstructing cold air returns.

NOTE: Wait at least 3-5 minutes before restarting the unit to give the pressure a chance to balance out.

If the unit still does not start, or starts but continues to cycle off, it indicates an operating defect. Turn the unit "OFF" and call Chas Roberts Air Conditioning.

SERVICE

At no time should you attempt mechanical adjustments or service on your air conditioner or heat pump unless, of course, you are a qualified heat pump serviceman and only then. The heat pump is much more than the average household appliance and "Do-it-Yourself" service is discouraged. **EVIDENCE OF SELF-SERVICE OR TINKERING WITH AND IN-WARRANTY UNIT MAY VOID THE REMAINDER OF YOUR WARRANTY.**

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AIR CONDITIONING & HEATING

The Most Comfortable Call You Can Make!

Chas Roberts Air Conditioning is proud to be a family owned and operated business, serving Arizona since 1942.

As your HVAC system Installer, we can provide you with services to meet all of your Heating and Air Conditioning needs after you have taken possession of your new home:

- Sales
- Service & Repair
- Extended Warranties
- Preventative Maintenance

We are available to speak with you Monday-Friday 7am to 8pm, Saturday 7am to 5pm, and Sunday 9am to 4pm with extended hours during the summer.

Please call, or visit our website, with all of your HVAC questions or concerns.

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LIMITED WARRANTY

Models: GSC10, GSH10, GSC13, GSH13, GSX13, GSZ13, GSC14, GSH14, GPH, GPC, PCC

This heating or air conditioning unit is warranted by Goodman Manufacturing Company, L.P. ("Goodman") to be free from defects in materials and workmanship under normal use and maintenance as described below:

- **To the original registered owner** and his or her spouse ("owner"), **all parts** are warranted for a period of **10 YEARS** or for so long as the owner owns the home in which the unit was originally installed (whichever ends first), except as provided below. However, this warranty applies only if:
 - 1) The unit is installed in an owner-occupied, single family residence, and
 - 2) The unit is properly registered with Goodman online within 60 days after the original installation. To register, follow the instructions found at www.goodmanmfg.com.
- If the above warranty does not apply, then **all parts** are warranted for a period of **5 YEARS**.

Neither warranty continues after the unit is removed from the location where it was originally installed.

Neither warranty applies to, and no warranty is offered by Goodman on, any unit ordered over the Internet.

The warranty period begins on the date of the original installation. If that date cannot be verified, the warranty period begins three months from the month of manufacture (indicated by the first four digits of the serial number (yyymm)).

As its only responsibility, and your only remedy, Goodman will furnish a replacement part, without charge for the part only, to replace any part that is found to be defective due to workmanship or materials under normal use and maintenance. For warranty credit, the defective part must be returned to a Goodman heating and air conditioning products distributor by a state certified or licensed contractor. Any part replaced pursuant to this warranty is warranted only for the unexpired portion of the warranty term applying to the original part.

This warranty does not apply to labor, freight, or any other cost associated with the service, repair or operation of the unit.

This warranty is in lieu of all other express warranties. **ALL IMPLIED WARRANTIES, INCLUDING BUT NOT LIMITED TO WARRANTIES OF MERCHANTABILITY AND FITNESS FOR PARTICULAR PURPOSE, ARE LIMITED TO THE DURATION OF THIS WARRANTY.** Some states and provinces do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you.

GOODMAN SHALL IN NO EVENT BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES, INCLUDING BUT NOT LIMITED TO EXTRA UTILITY EXPENSES OR DAMAGES TO PROPERTY. Some states and provinces do not allow the exclusion or limitation of incidental or consequential damages, so the above exclusion may not apply to you.

Goodman is not responsible for:

1. Damage or repairs required as a consequence of faulty installation or application.
2. Damage as a result of floods, fires, winds, lightning, accidents, corrosive atmosphere or other conditions beyond the control of Goodman.
3. Use of components or accessories not compatible with this unit.
4. Products installed outside the United States or Canada.
5. Normal maintenance as described in the installation and operating manual, such as cleaning of the coils, filter cleaning and/or replacement and lubrication.
6. Parts not supplied or designated by Goodman.
7. Damage or repairs required as a result of any improper use, maintenance, operation or servicing.
8. Failure to start due to interruption and/or inadequate electrical service.
9. Any damage caused by frozen or broken water pipes in the event of equipment failure.
10. Changes in the appearance of the unit that do not affect its performance.

This warranty gives you specific legal rights, and you may also have other rights that may vary from state to state or province to province.

Installer Name _____

Model # _____

Serial # _____

Installation Date _____

Part No. PWCACHPPB
Printed in USA
05/07

For further information about this warranty, contact Goodman Consumer Affairs at **(877) 254-4729** or by mail to 7401 Security Way, Houston, Texas 77040.

