CLIMATE CONTROL SOLUTIONS

USER'S GUIDE

For HAC-Series Split System Air Conditioners

HAC - Series Split System Air Conditioners

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GENERAL INFORMATION

This manual is intended to be a general guide for care and operation of typical systems and covers the most important features you should be aware of and are responsible for as the user of the equipment.

The HAC outdoor unit may be connected to an indoor blower coil unit, or to an evaporator coil used in conjunction with a gas or oil furnace. A separate owner's manual should be supplied with the indoor section. Therefore, you should request a detailed operation sequence and explanation of any special features from your installer and/or Service Company, and also have them instruct you as to any routine maintenance procedures you are responsible for.

AIR FILTERS

While air filters are not a part of the HAC-Series outdoor section, they are an integral part of the indoor section to which the HAC unit is attached.

Keeping clean air filter(s) is the single most important responsibility of the user of the equipment. Each type of system must be equipped with an air filter(s) in the indoor circulating air system to clean the air, to keep the system itself clean for peak efficiency and capacity, and to prolong the useful life of the equipment. DO NOT operate the system without the proper air filters.

Filters should be inspected at least monthly, and replaced or cleaned (depending on type) as needed. The useful life of an air filter can vary widely depending upon application and use of the equipment, and it is critical to monitor filter condition and establish an acceptable maintenance schedule. Failure to do so will increase operating and repair costs, decrease capacity and efficiency, and shorten the service life of the equipment. A common symptom of a dirty filter in the cooling mode is a freeze-up of the indoor coil.

The air filters used may be a disposable (throw-away) type or may be a cleanable type that can be thoroughly cleaned, rinsed and reused many times. It is important to make sure that the correct filter size and type for your system is always used. If there is any question as to acceptable filter size or type, review the Installation Instructions for the specific equipment involved, if available. Otherwise, consult with your installing dealer or Service Company.

Most equipment can have the filters inspected and serviced by the user with no problems. In some instances, because of equipment design or specific installation conditions, it may be necessary to have this procedure done by a qualified service company. Have your installer or service company show you where the filter(s) are and demonstrate the service procedure or make arrangements for them to provide this service on an as needed basis.

OUTDOOR COIL

The outdoor coil must be kept clean and free of any airborne debris, which can accumulate over time. Large volumes of air are circulated over the coil, and airborne debris such as lint, dust, materials shed from trees, paper or other types of airborne material that can become airborne can collect on the entering coil surface.

The outdoor coil must dissipate heat during the cooling mode, and for a heat pump must also absorb heat during the heating mode. If the coil is dirty and matted with debris, the airflow across the coil will be reduced causing poor performance, increased operating runtime and associated utility bills, and in extreme conditions can shorten the useful life of the equipment.

Depending on the specific equipment involved, the surface that can accumulate debris can be on the opposite side that is exposed to view when standing in front of the machine. Closely review the machine when operating to see which direction or path that the airflow moves through the machine, and if the air inlet side of the coil is hidden, try to observe the back (hidden) side by looking into the side grilles, using flashlight if necessary.

While the user of the equipment needs to be aware of the potential of clogging of the outdoor coil surface, actual cleaning of the outdoor coil should not be attempted under most circumstances. If the user should attempt this procedure on their own, never do so without first having the installing dealer or Service Company instruct you in the proper procedure and technique.

WARNING: Do not open or enter the equipment without first turning off the electrical service disconnect. Failure to do so can result in personal injury due to moving parts and/or electric shock hazard resulting in death.

Other conditions that can cause reduction of airflow across the outdoor coil are flowers, shrubbery or other growth too near the outdoor coil air inlet and outlet openings. These living things, especially as they mature and grow, will be just as effective in blocking the airflow and create the same problems as will stacking things against the equipment. These conditions can be easily managed and controlled by the user, as they do not require actually entering into the equipment enclosure, which should only be done by qualified service technicians.

ROUTINE EQUIPMENT OUTDOOR MAINTENANCE

1. Avoid having any lawn sprinkler spray directly on the equipment, especially if from a brackish water source.
2. In coastal areas locate equipment the furthest distance away from the coastline as feasible.
3. Frequent cleaning and waxing of the cabinet using a good automobile polish will help extend its original appearance.

BASIC OPERATING PRINCIPLES

AIR CONDITIONERS

COOLING MODE

The cooling mode operates similar to a refrigerator, removing heat from inside the conditioned space and rejects it outside of the space being controlled. There are three main parts of the system:

1. The evaporator (indoor) coil where cold refrigerant absorbs heat from the air, which circulates from the conditioned space, through the machine, and is returned to the space at a lower temperature and with some of the humidity (moisture) removed. The moisture exits through a condensate drain system. A motor/blower assembly moves the indoor air through the system.
2. The compressor, which is a sealed pump that moves the refrigerant through the system.
3. The condenser (outdoor) coil where the heat that was absorbed from the indoor space is discharged to the outdoor environment. A motor/fan system moves the outdoor air across the condenser coil.

A properly sized air conditioner cannot cool a structure off rapidly, and instead will pull down the temperature slowly. It also will remove a certain amount of moisture (humidity) from the circulating air stream in

the process. It may take several hours to pull down a hot, moist building or structure on initial start up, or anytime the system has been turned off for a long period of time. It is generally best to set the thermostat at a comfortable temperature and let it control the system as needed, rather than turning it on and off.

Moisture (humidity) removal with a conventional air conditioner (cooling) unit, or heat pump when operating in the cooling mode, is not directly controlled and is a by-product of the unit operating to control temperature in response to the temperature (thermostat) control device. Over-sized equipment can easily control temperature but will have short run-times, thus reducing its ability to remove moisture from the circulating air stream. There are also many additional influences that can affect humidity levels within the conditioned space such as laundry appliances, cooking, showers, exhaust fans, and any other items that can generate moisture or affect its removal from the space. Therefore, while operation of the air conditioning or heat pump system in the cooling mode will remove some amount of moisture as it reduces the air temperature, precise humidity regulation in the conditioned space cannot be assured and additional equipment such as a dedicated dehumidifier may be required.

AUTOMATIC CONTROL SYSTEMS

THERMOSTATS

There are many types of thermostats available to properly control your system, and these can vary in features and some functions.

Approved compatible thermostats are available from Bard Manufacturing Company for all applications, and since these can vary in numerous features and functions, it is not possible to adequately discuss them all in this User's Guide. Many installers also install thermostats other than those offered by Bard, and must determine proper compatibility prior to installation.

In all circumstances have your installer, Service Company or building administrator or maintenance department personnel instruct you as to proper operation of your specific thermostat or temperature control system.

INSUFFICIENT COOLING OR HEATING

In extremely hot or cold weather your system will continue to deliver its normal supply of conditioned air. If the unit operates but fails to provide sufficient comfort, check the following before calling your Service Company:

1. Be sure the thermostat setting is correct.
2. Check the air filters, and replace or clean if dirty.
3. Make sure that air can circulate freely throughout the conditioned space, and that all supply registers and return air grilles are not blocked.
4. Make sure that the outdoor coil is not blocked with any foreign matter, or otherwise restricted with any growth or other items.

FAILURE TO OPERATE

Check the following before calling your Service Company:

1. Be sure the thermostat setting is correct.
2. Check the air filters, and replace or clean if dirty.
3. Make sure that the power supply is “On”.
4. Make sure that air can circulate freely throughout the conditioned space, and that all supply registers and return air grilles are not blocked.
5. Make sure that the outdoor coil is not blocked with any foreign matter, or otherwise restricted with any growth or other items.

LUBRICATION REQUIREMENTS

The outdoor air-moving motors are permanently lubricated, and require no re-oiling.

PERIODIC MAINTENANCE

Periodic maintenance must be conducted on your system to insure maximum performance, especially during peak operating periods and conditions.

1. Keeping the air filters clean and recognizing the importance of a clean outdoor coil are key elements. These are user responsibilities, either all or at least in part, and if they cannot be fulfilled by the user, arrangements should be made with your Service Company.
2. There is a condensate drain system for all air conditioners and this must be kept open and free to convey the condensate generated by the operation of the equipment to a suitable location, typically either an internal drain or outdoor location. Depending upon the specific installation, the user would at least be aware of the dram mechanism and know what to expect. If any questions, it should be reviewed and discussed with your installer and/or Service Company.
3. All heating and cooling systems should have periodic inspections made by a trained professional, who has the experience, knowledge, training, licensing, certifications, and the necessary tools and equipment required to do these tasks properly and in accordance with approved or mandated procedures.
4. The maintenance procedures and frequency of routine service can vary depending upon actual type of equipment in use, type of building or facility, and other factors that can impact how often a machine must be serviced.
5. Proper and routine maintenance and service will protect your investment and help extend the service life of the product, and also help ward off more extensive and expensive repairs.

HELPFUL HINTS AND GOOD OPERATING PRACTICES

The following information will help you enjoy the full comfort and benefits of your Bard cooling and heating system, maximize the performance and efficiency, and help extend the life of your system:

1. Always keep the equipment in peak operating condition with routine scheduled maintenance, especially for the air filters and to assure clean outdoor coil.
2. For most efficient operation, set the thermostat at the temperature you prefer, and then let it take control. If any changes to the settings are required, they should be made in small adjustments and the system be allowed time to respond. Rapid changes either up or down should not be done.
3. Setting the thermostat very high does not make the system heat faster, and setting it very low does not make it cool faster.
4. It is not recommended to turn the system “Off” and then back “On” when you need it. This can allow temperature and humidity to build up in warm weather conditions and force the system to run continuously to try and catch up. If the building is to be unoccupied for a lengthy period, it is best to adjust the thermostat to a reasonable higher (or lower depending upon the season) setting rather than turning it completely off. Upon return, the inside conditions will not be totally out of control, and recovery time to desired conditions would be much shorter.
5. Keep all supply registers open and all returns free and unrestricted. The heating and cooling system is designed to have a certain amount of airflow for proper operation. Therefore, closing off registers, in unused rooms as an example, could reduce airflow below acceptable levels and should not be done without review by your Service Company who can access the overall situation and advise you accordingly.
6. The thermostat is the user’s primary connection to the system, so it is very important to have a thorough understanding of how it works and how to use it properly. Since there are many different types of controls available, and can vary depending upon what type of heating/cooling system you may have. Have your installer or Service Company explain and demonstrate proper operation of the controls.