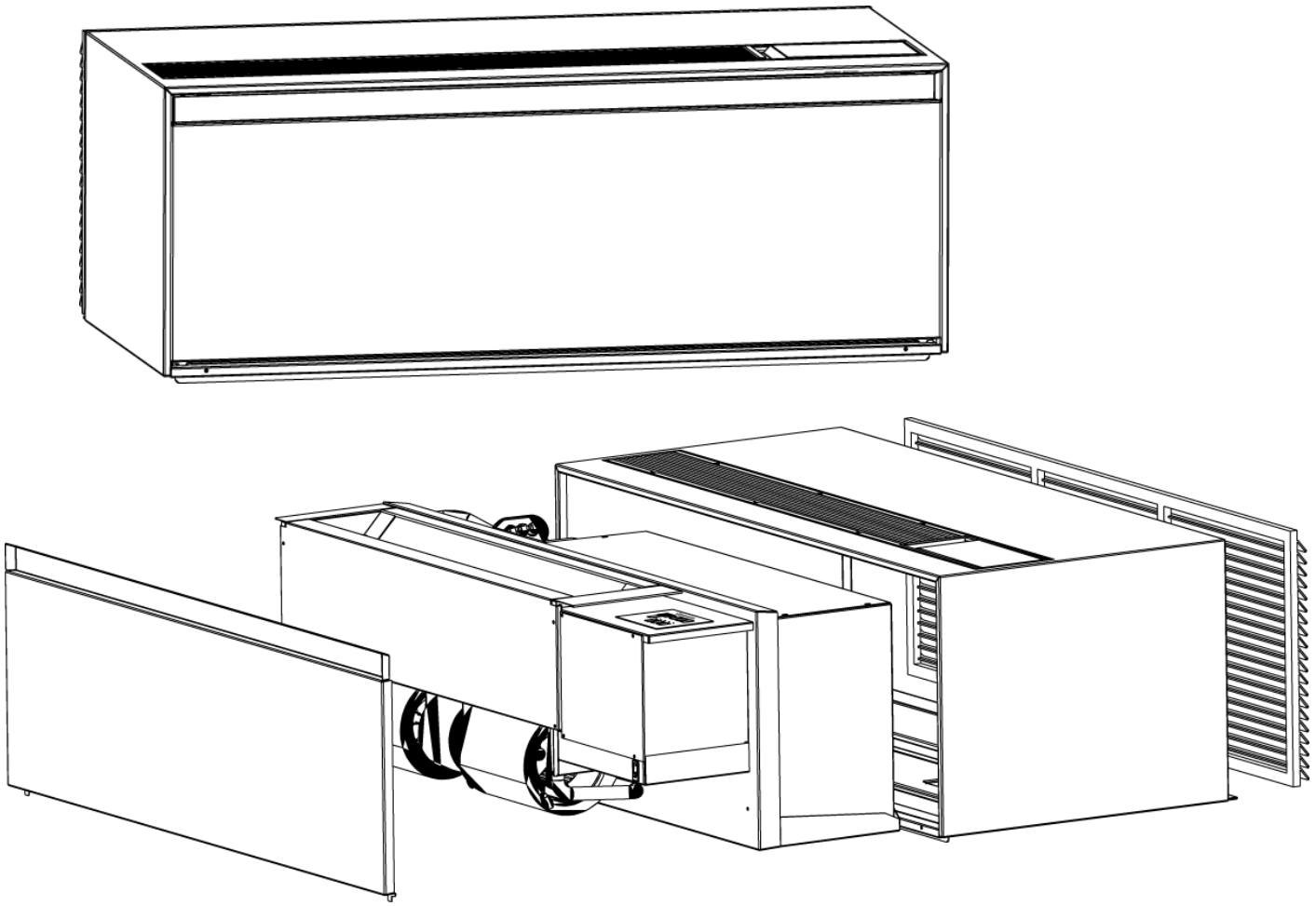
RSHPC SERIES UPFLOW PACKAGED TERMINAL HEAT PUMP (PTHP), AND

ESEC SERIES UPFLOW PACKAGED TERMINAL AIR CONDITIONER (PTAC)

INSTALLATION & OPERATION MANUAL



IMPORTANT:

READ AND SAVE THESE INSTRUCTIONS. INSTALLATION AND WIRING MUST BE IN ACCORDANCE WITH CEC, NEC AND LOCAL ELECTRICAL CODES.

RSHPC Heat Pump
ESEC Heat/Cool

GENERAL INFORMATION

The Applied Comfort PTHP/PTAC is designed and built for through-the-wall installation in either new or existing buildings. The self contained refrigerant system delivers cooling. Resistance heaters provide the heating. Additionally, the SHPC heat pump delivers reverse cycle refrigerant heat when the outdoor temperature is moderately cool.

WARNING: To avoid property damage, bodily injury or death, ensure power is disconnected before any service is attempted. Repairs should be made by qualified service personnel only. The chassis must be installed in accordance with the Authority Having Jurisdiction, and all Local and National Codes, including the National Electrical Code, and the Canadian Electrical Code, as applicable.

WARNING: Potential fire risk – this unit is not intended for use with a duct system.

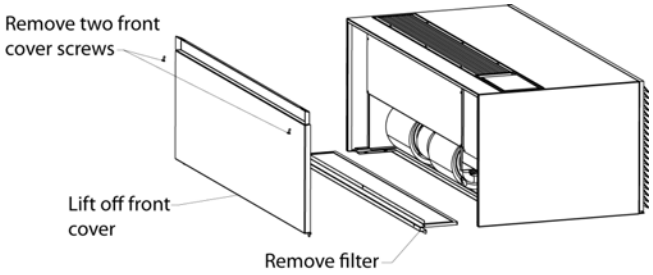
FOR EFFICIENT OPERATION

Air Filter

IMPORTANT: An improperly maintained air filter, or not using a filter at all, will void the warranty.

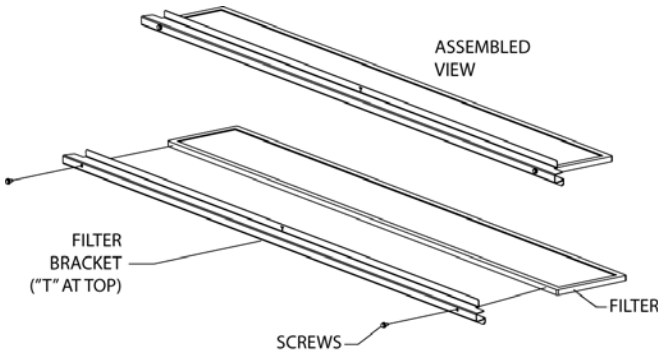
Keep air intake filter clean. Units use a washable air filter located in the filter bed in the bottom of the of the wall sleeve and is true to the Original Equipment Manufacturer's size of 41.5" wide x 5.25" deep x 0.35" thick. The filter is a wall sleeve component and is not provided with the PTHP/PTAC chassis. If it is a replacement situation and the original filter needs replacing or is not even present, the filter is available to order as Part No. ACCRSFILTER.

Washable air filters can be cleaned with soap and water. Inspect and clean the filter a least once a month or more often as conditions dictate. Replace as necessary. A dirty, clogged filter reduces the efficiency of the system. It can also cause erratic performance of controls and can result in damage to the motor and compressor.



The filter holder as shown in the illustration below is shipped with the chassis and must be used to maintain the interlocking feature with the front panel. Proper use of the filter holder ensures that the front panel must be removed in order to access the filter. The front panel is removable by removing two screws at the top of the panel. Be sure the filter bracket flange is behind the front panel before reinstalling the front panel.

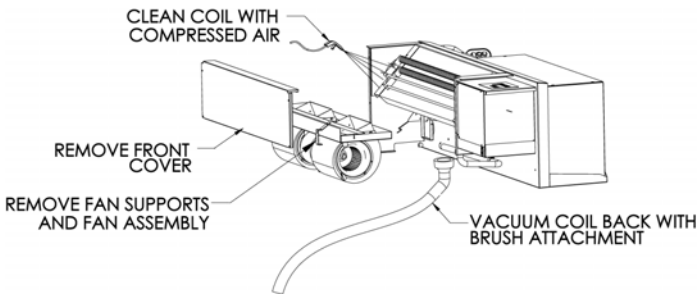
IMPORTANT: Always ensure the air filter is present and properly secured in place. Always reinstall the air filter, front panel, and the two screws as described above. This will prevent unintended or unauthorized air filter removal and ensure safe operation of the unit.



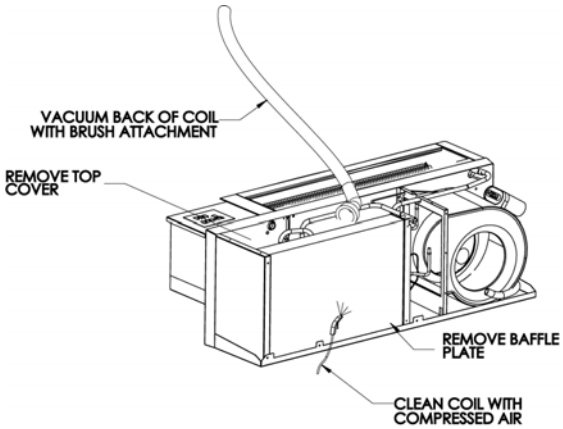
Clean Coils

As part of regular servicing, clean the condenser coil, and evaporator coil at least annually, or more often as dictated by the severity of the particulates and pollutants circulating in the outdoor and indoor operating environments. One suggested method is as follows:

Indoor coil



Outdoor coil



Unimpeded Outdoor Airflow

Do not block off the outside air flow to the unit. The condenser air inlet and outlet must be free of obstructions and of any external influence that would cause the hot discharged condenser air to be re-circulated back into the air intake. Outdoor air is drawn into the condenser section via the air intake on the right side of the rear grill. Hot condenser air is rejected at an angle out of the left portion of the rear grill thereby minimizing air re-circulation back into the intake. Paper, leaves, dirt, or other material blocking airflow, or fouling the condenser coil can impair efficiency and cause serious damage to the compressor.

Oiling

The motors are permanently lubricated and do not require re-oiling.

Unimpeded Indoor Airflow

Ensure that drapes, bed, bedspread, and furniture etc. do not block the indoor air discharge and intake air openings, causing a restricted air flow condition through the indoor air handling section of the unit. Do not place articles on discharge grille – especially liquids.

Reducing Load

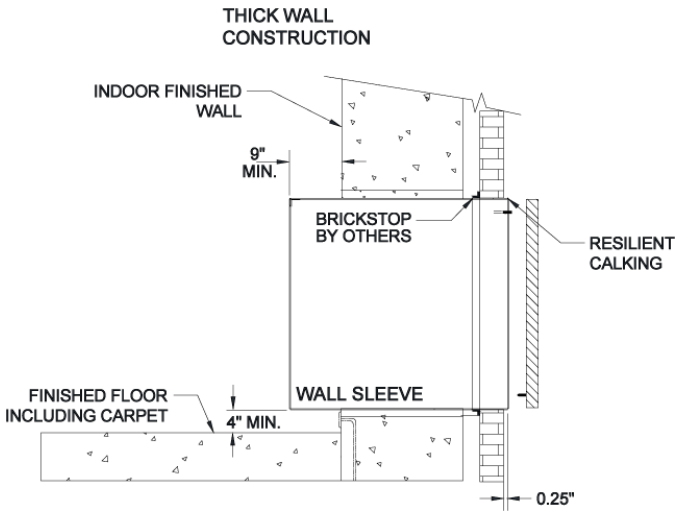
To reduce the cooling load, draw drapes or blinds in the summer, to reflect direct rays from the sun.

To reduce the cooling and heating load, keep windows and doors closed when operating the unit.

WALL SLEEVE CABINET INSTALLATION:

Install the wall sleeve cabinet in strict accordance with the wall sleeve installation instructions, which are supplied with the wall sleeve.

IMPORTANT: The wall sleeve must be installed with a zero to 1/8" per foot slope downward toward the outside to ensure proper water drainage out the back edge of the wall sleeve during overflow conditions, without compromising the ability of the optional indoor drain system to function properly (if used) . The specified slope corresponds to a zero (level) to 1/8 bubble on a carpenter's level. The wall sleeve must also be level from side-to-side.



ELECTRICAL WIRING AND RECEPTACLE

WIRE SIZING

A single outlet branch circuit from the main electrical panel to the receptacle in the wall should be used. Wire sizing shall be in accordance with the minimum circuit ampacity as declared on the unit Rating Plate for the specific chassis. Wire sizing must also take into

account any distance from fuse box or breaker panel to receptacle to prevent excessive voltage drop in undersized wires.

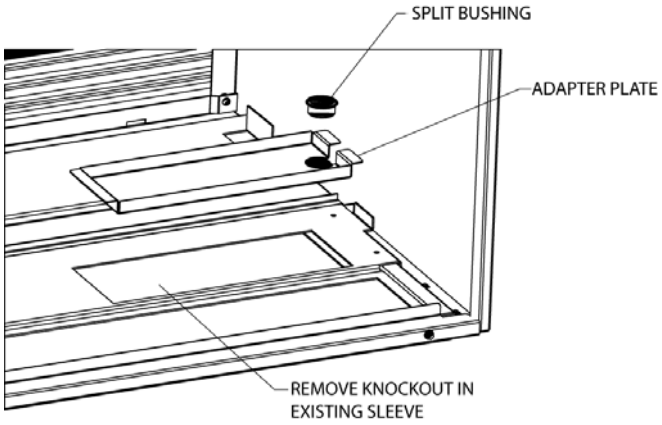
IMPORTANT: Low voltage to the unit will cause compressor starting problems and decrease the performance and reliability of the compressor.

BRANCH CIRCUIT PROTECTION

The Current Rating of branch circuit protection using a Time Delay Fuse or HACR circuit breaker should also be as declared on the unit Rating Plate for the specific chassis being installed.

PLUG AND RECEPTACLE

230-208 Volt units are furnished with either a NEMA 6-15P, NEMA 6-20P, or NEMA 6-30P, non-locking plug depending on the unit ampacity, and hence will require the corresponding NEMA receptacle to be field-provided. The 30 Amp LCDI plug head is too large to fit through the hole provided in the existing installed wall sleeve. In that case break out the larger rectangular knock-out in the sleeve bottom and discard. Install the rectangular adapter plate, which is supplied with every unit using a 30 Amp plug, as shown below.



All 115 Volt units are furnished with a NEMA 5-15P, or 5-20P non-locking plug as applicable. The respective plug will require a NEMA 5-15R or 5-20R receptacle to be field-provided.

All 277 Volt units are furnished with a NEMA 7-20P, 20 Amp non-locking plug and hence will require a NEMA 7-20R receptacle to be field-provided.

NOTE: 277 Volt units are considered to be permanently connected per the National Electrical Code. The plug and cord are considered to be a "connector of convenience" in order to facilitate easy removal of the chassis for servicing. The plug and cord are suitably protected when using the non-optional 277 volt sub-base.

230-208 and 115 volt units are true "cord connected units", and are provided with a service cord of the LCDI (Leakage Current Detection Interrupter) type, intended to be plugged in to a wall receptacle. The LCDI cord is capable of detecting some of the common faults experienced with aging power cords, and when those faults are detected, interrupts power to the cord before a hazardous condition can evolve. The LCDI service cord, with its bulky plug head and inherent mechanical protection, is not intended to be plugged into a receptacle in a subbase.

WARNING: To avoid property damage, bodily injury or death, the unit must be used on a grounded power supply only. The unit will be grounded through the service cord plug and matching receptacle as long as the branch circuit remains grounded.

DO NOT:

- Change the length of the service cord.
- Bend the connector blades or otherwise alter service cord plug configuration.
- Use extension cords.

CHASSIS INSTALLATION

Unpack heat/cool chassis from shipping carton. Check for any shipping damage. Spin the fan wheels manually to confirm free rotation. Inspect refrigerant piping to ensure there is no damage. Report any shipping damage to the carrier immediately.

Check the interior of the installed wall sleeve. Clean out any dirt or debris that may have accumulated. Replace air seals that are damaged or missing.

Optional Condensate Connection

If the wall sleeve is equipped with an indoor condensate drain you will need to make the connection to the field supplied drain system installed under the wall sleeve. The unit's outlet drain connection stub is a 5/8" outside diameter tube for connection to the drain tubing. The outlet drain connection stub is sealed with a rubber plug as shipped from the factory. Ensure the drain lines do not kink or collapse during installation. Follow all applicable local codes and ordinances regarding condensate drainage and proper connection to a drain system, including venting and trapping considerations.

Heating/Cooling Chassis Installation

1. Slide the chassis into the wall sleeve until firmly seated against the seals. Push from the ends of the front cover where they attach to the coil supports. Be careful **NOT** to push the chassis from the electrical box cover or middle of the front coil cover.
2. There is a vertical air seal at the rear of the unit to isolate the air path between the condenser inlet and outlet. These seals will engage and "seal" against the rear grille. However, in some cases, such as when an extra deep wall sleeve is used, or some other sleeve variation is encountered that prevents the vertical seal from engaging against the outdoor grille, steps must be taken to add anti-recirculation baffles to prevent hot condenser air from short-circuiting back into the air intake via the void space created in behind the outdoor grill.
3. If the optional condensate drain kit is used, install the flexible tube from the chassis spigot to the wall sleeve condensate drain by pressing the tube into the drain assembly. **Caution**: when removing the chassis remember first to lift the tube from the drain assembly.
4. If the unit is equipped with **Electronic controls** and touchpad, locate the 24 Volt wiring harness coiled beneath the control box. The harness is employed if a remote 24 Volt AC wall thermostat will be used. If so, connect the multi-wire 24 volt wiring harness to the mating plug protruding beneath the control box, as applicable, following the detailed instructions on the particular wiring diagram affixed to the specific unit being installed. Insulated crimp-on connectors are provided at the end of every connection lead to facilitate connections/insulation.
5. If the unit is equipped with **Mechanical knob controls** this variation cannot be adapted to work with a remote thermostat.
6. Set the manual damper operator in the open or closed position depending on the desired operation.
7. Plug the heat/cool chassis cord into the power receptacle located either in the sub-base or the wall, as applicable.
8. Install the filter and front panel and secure it with the two retaining screws located in its upper corners.

WARNING: Operating the unit without the filter in place can not only damage the unit, but also expose the user to a hazard from rotating parts potentially resulting in bodily injury. The filter is intended to be removable with the use of a tool. The front panel retains the filter, and 2 screws secure the front panel. Always remember to re-install the filter after servicing the chassis, or replacing/cleaning the filters.

9. Wipe unit cabinet/wall sleeve to remove dirt, etc.
10. The unit is now ready for operation, when supplied with power from the distribution panel and wired to a remote thermostat (if applicable).

START-UP CHECKLIST

Note: Once the unit is installed, it should be checked for proper function by qualified service personnel before turning it over to the User.

- Circuit breakers, wire size, and electrical connections tight and correct
- Filter clean and properly in place
- Condenser air inlet and outlet free of obstructions and no short-circuiting of condenser air
- Unit operated for 20 minutes to prove stability
- Controls operation OK
- Unit installed in compliance with all codes and ordinances
- All panels in place and secured with required fasteners
- Mylar overlay applied to cover up touch pad for 24 Volt Remote Thermostat installations.
- Work area clean and free of debris
- Owner or operator instructed on control operation and routine maintenance.

USER CONTROLS - GENERAL

The RSHP/ESEC series is available with advanced-function electronic controls with membrane switch type keypad, or, with conventional knob-actuated electromechanical controls.

ELECTRONIC CONTROLS

The chassis incorporating electronic controls is factory-shipped with an active keypad control and display mounted directly to the control panel. The unit functions are controlled by the user by pressing the keys on the keypad, and reading the display. However, the unit also has the latent ability to be field-converted by qualified service personnel for use with a field-supplied 24 volt AC wall thermostat. These instructions will address both unit-mounted control operation, and remote 24 volt AC wall thermostat operation.

CONTROL AT THE UNIT, KEYPAD/DISPLAY

THE KEYPAD CONTROL

Become familiar with the keypad keys as shown in Figure 1.

Display
Red light emitting diodes (LEDs) display the actual temperature of the air entering the unit at floor level. The display can also be used to indicate the desired set point temperature for room comfort. It is important to remember that the temperature displayed is the temperature sensed at the unit's indoor air inlet and can be significantly different from the bulk room temperature at a distance from the unit.

On/Off Key
Each press of the key toggles the unit from an OFF state to an ON state or from an ON state to an OFF state. Heating and cooling functions, as well as the display, and all indicating LEDs except for the fan indicators, are enabled or disabled with this key. When toggled OFF, the control preserves only two modes active; fan-only, and room freeze protection.

Fan Key
Each press of the Fan Key cycles the fan through three modes of operation; Low Speed, High Speed and Auto. Small green LEDs will indicate the mode. The On/Off key need not be ON to operate the fan and set fan speeds. Auto Mode will cycle the fan on and off, and determine the fan speed, in conjunction with the heating or cooling demand.

Warmer Key
Pressing the Warmer Key will cause the display to show the set point temperature for 3 seconds, and then increases room temperature by 1 degree for every subsequent press of the key.

Cooler Key
Pressing the Cooler Key will cause the display to show set point temperature for 3 seconds, and then decreases room temperature by 1 degree for every subsequent press of the key

°F/°C Key
This key toggles the display between Fahrenheit and Celsius temperature modes, and affects all displayed temperatures.

Heat Key
The Heat Key toggles the unit in and out of heating mode for every press of the key, provided the On/Off Key is ON.

Cool Key
The Cool Key toggles the unit in and out of cooling mode for every press of the key, provided the On/Off Key is ON.

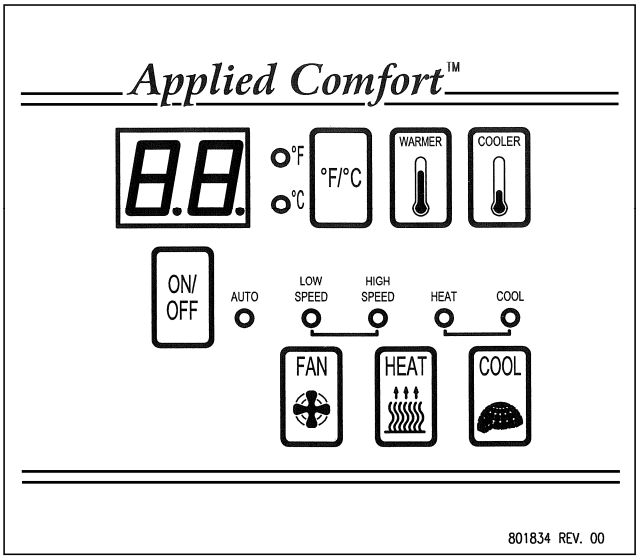


Figure 1

OPERATION USING KEYPAD

When the unit is first plugged in, or when recovering from a power outage, there will be a random 5 to 15 second delay before the electronic control powers up. This minimizes the large electrical surge that would otherwise occur if all units in a building started up at the same time.

To Initiate Heating or Cooling Mode
Press On/Off Key to turn on the LED display and commence full functionality. Push the °F/°C Key to obtain the desired temperature scale. Press the Heat or Cool key as applicable, and the current indoor temperature will be shown on the display.

Set Desired Temperature
Press Cooler or Warmer key as applicable. Each push of the key increases or decreases the set point temperature by 1 degree, as applicable.

Set Fan Mode
Press Fan key to cycle through the fan settings as indicated by the small green circular LEDs. Select continuous High Speed fan, continuous Low Speed fan, or Intermittent Fan by selecting Auto. Auto cycles the fan on and off with the calls for heating or cooling. Auto also sets fan speed according to the amount of heating or cooling demanded. In Auto mode, the fan will start up periodically to establish airflow; air temperature will be sampled, and then the fan will shut off again if there is no demand.

Disable Heating or Cooling, but Initiate Fan-Only
Press On/Off key to turn off LED display. Press Fan key to cycle through the fan settings as indicated by the small circular LEDs. Select continuous High or Low speed. Do not select Auto, as it will turn the fan off.

CONTROL AT THE WALL THERMOSTAT

CONVERSION TO 24V REMOTE THERMOSTAT

Except for the wall thermostat and thermostat cable, everything is included with the unit to field convert a keypad-operated unit to 24 Volt AC wall thermostat operation by qualified service personnel. Specific conversion instructions are detailed on the wiring diagram affixed to each particular unit to be converted. Conversion involves accessing the high voltage wiring compartment and changing a DIP switch setting on the electronic board. Once the DIP switch setting has been changed, operation will be in remote thermostat mode as soon as power is restored to the control.

WARNING: The conversion procedure involves exposure to high voltage electrical circuits in the control box in order to make the necessary change to the DIP switch, and must be performed by qualified service personnel. Failure to do so could result in property damage, personal injury or death. Disconnect electric power to the unit before servicing.

A factory-supplied 24 Volt wiring harness is provided with every unit to facilitate connection to the wall thermostat wiring. One end has a multi-pin connector which mates with a connector exiting the unit. The other end has preinstalled butt splice connectors, which play a dual role in insulating any unused connectors, and can also be used to make the wire connections for wires that are used.

The final step is to apply the masking label provided, to cover up the keypad. The keypad and display will be disabled and no longer be available for control. The masking label markings instruct the user to go to the wall thermostat for controlling the unit.

COMPATIBLE THERMOSTATS

The features of the 24 VAC wall thermostat chosen will dictate the extent of the features available from the unit.

RSHP Heat Pump Units
Heat Pump Units can accommodate these thermostats in either manual or automatic changeover:

- Single Stage Heat/Cool, with additional B terminal to energize reversing valve.
- Two Stage Heat/Cool (but no 2nd stage cooling source is available) using additional B terminal to energize reversing valve for first stage and W to energize second stage.
- Single Stage Heat Pump with Emergency Heat
- Two Stage Heat Pump (no 2nd stage cooling source is available) with Emergency Heat.

Note: For two stage heating applications, the second stage will take priority over the first stage and the stages will never be simultaneously energized.

ESEC Heat/Cool Units
Electric Heat / Cool units can accommodate the following thermostats in either manual or automatic changeover:

- Single Stage Heat/Cool, Single Speed Fan
- Single Stage Heat/Cool, Two Speed Fan

Note: The thermostat selection must be verified to ensure its control logic will always energize a Fan output (G) on a call for heat – also known as an Electric Heat Type Thermostat.

General:

All the above can have single speed or two speed fan control.

The wiring diagrams affixed to the units will guide the specific connection strategies for the particular thermostats used.

THERMOSTAT LOCATION:

Proper functioning of the thermostat depends on accurate room temperature sensing. Be conscious of locating the thermostat where temperatures near the thermostat are not representative of room temperature. For example, do not install the thermostat where it is subjected to direct sunlight, other sources of heat, or to cold drafts, including air discharged from a supply air register. A common error is forgetting to seal the hole in the wall where the thermostat cable passes through, directly behind the thermostat body. Air bleeding from behind the wall can drastically affect the temperature sensed by the thermostat.

REMOTE THERMOSTAT OPERATION

When the unit is first plugged in, or when recovering from a power outage, there will be a random 5 to 15 second delay before the electronic control powers up. The keypad will be totally disabled once the DIP switch has been set for remote mode. The unit will obey the commands from the thermostat only.

The thermostat will automatically maintain the temperature in the room, based on the setting pre-set by the user. If the thermostat has only single fan speed capability, a decision will need to be made as to whether the fan will always run in high speed or low speed, and then the appropriate fan speed wiring connection can be made at the unit.

All the internal control features of the electronic board remain active, except for keyboard and display interface functions and room temperature sampling. Room temperature is detected at the location of the wall thermostat, and is usually a much more accurate representation of bulk room temperature. The thermostat used may have advanced features beyond the basic functions described below. Consult your thermostat Installation and Operating Instructions for further information.

In addition to controlling room temperature, the room thermostat is also used to select whether the unit is to be in heating mode, or cooling mode, or in automatic changeover between the modes. It also determines whether the system is to be ON or OFF, and whether the fan is to run continuously, or to cycle with heating or cooling demand.

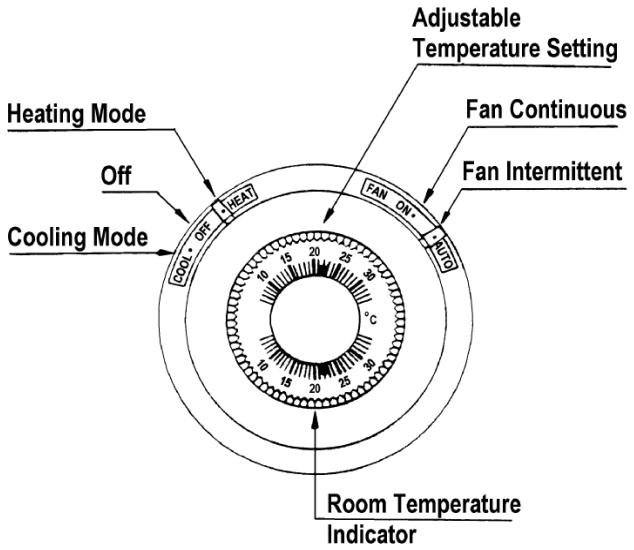


Figure 2

Once a comfortable temperature setting is established, no other adjustments are necessary, except for fan speed, which may or may not be adjustable on your particular thermostat.

CAUTION: One side of the unit's 24-volt control system is grounded. When wiring the thermostat, care must be taken not to ground the wires, or drive a nail through the thermostat wire bundle, thereby potentially burning out the transformer.

WALL THERMOSTAT OPERATION	
Heat	Sets the unit into heating mode. Initiates heating when room temperature falls below set point.
Off	Disables heating and cooling modes, but allows control of fan.
Cool	Sets the unit into cooling mode. Initiates cooling when room temperature rises above set point.
Auto (not shown)	Found on automatic changeover thermostats only. Allows the thermostat to decide whether it should be in the heating or cooling mode. Usually a 4 F° differential or "deadband" will exist between heating and cooling set points to prevent inadvertent rapid switching between modes.
Temperature Setting	Establishes the "set point", or desired room temperature.
Fan On	Synonymous with "Fan Continuous". Fan will continue to run after the heating and cooling function has cycled off. Fan will continue to run even when mode switch is in Off position.
Fan Auto	Synonymous with "Fan Intermittent". Fan will cycle on and off with the heating cycle or cooling cycle, and will not operate between cycles.

ADDITIONAL FEATURES:

Some additional features of the Electronic Control units are as follows:

Room Freeze Protection
This feature is enabled when the unit is shipped from the factory. The feature can be disabled by qualified service personnel. If power is available to the unit, and regardless of whether it is turned ON or OFF, the unit will automatically supply heat to the room with the fan running at low fan speed if the room temperature falls to 50°F (10ºC). The heat will turn off when the room temperature reaches 55°F (13ºC). For the feature to work, the unit must be configured with an electric heater. The feature is enabled whether the unit is configured for keypad or remote thermostat. The protection remains active when the unit is OFF, for either keypad or remote thermostat application, as long as the unit is plugged in, power is available, and a heat source is configured in the unit and is working.

Compressor Short-Cycle Protection
If the electronic control shuts the compressor down for any reason, a 3 minute time delay will elapse before the compressor is allowed to re-start. This prevents compressor overload during re-start due to unequal system refrigerant pressures.

Indoor Coil Freeze Protection
Control of frost on the evaporator coil due to low indoor loads, or cold outdoor ambient temperatures, is provided.

Emergency Heat Switch (RSHPC Heat Pump Only)
If the compressor fails and there is heating demand, heat pump units will have a rocker switch that can switch the unit into electric resistance heat mode, until a repair can be made. Located on the right bottom corner of the control box is a rocker switch used to switch between normal and emergency heat operation. The front cover must be removed to access the switch.

Low Outdoor Temperature Lock-out
If the outdoor temperature is too low for proper compressor operation, cooling operation will be suspended, and also heat pump heating operation (if applicable) will switch over to electric resistance heating mode automatically if there is a demand for heat, until the outdoor temperature rises to an acceptable point, depending on the application.

Indoor Temperature Limiting (Keypad Control Only)
Using the keypad control and display, high and low temperature limits can be established to prevent the user from entering set point temperatures colder or warmer than what the property manager or hotel operator may desire. The temperature limit choices are as follows:

Configuration Code	Low Limit °F (ºC)		High Limit °F (ºC)	
R1	63	(17)	86	(30)
R2	65	(18)	86	(30)
R3	65	(18)	90	(32)
R4	67	(19)	88	(31)
R5	67	(19)	92	(33)
R6	69	(20)	90	(32)
R7	69	(20)	72	(22)

The procedure to set the limits is as follows:

Depress the On/Off key, the °F/°C key, and the Warmer key simultaneously for 5 seconds to enter the limit setup mode. The Warmer and Cooler keys will scroll through the R-values indicated in the above table. Once the desired R-value has been obtained on the display, press the On/Off key to accept the change, and then press it again to effect the change and restore the normal display.

ELECTROMECHANICAL DIAL CONTROLS

Room temperature is controlled on both heating and cooling by the temperature control knob. Clockwise rotation decreases the temperature in the room. Counter-clockwise rotation decreases the temperature in the room.

Rotate the "Temperature" dial a small amount at a time in the direction that you wish the temperature to go. Moving the dial more than ½" at a time may over-compensate, leading to an extreme hot or cold situation. Once a comfortable setting is determined and set, no other adjustments are necessary.

Over-adjusting the thermostat will not increase the rate at which the unit will heat or cool the space; it is merely an on-off switch that responds to temperature.

Fan speeds in heating and cooling operation are controlled by a "Fan Speed" knob. Rotate the knob to the right of "0" for cooling operation, and to the left of "0" for heating operation. Rotation of the knob changes fan speed as follows:

3 = High Speed 2 = Low Speed 1 = Low Speed

ATTENTION: When operating in cooling mode, if the compressor is shut off by rotation of either dial, then wait for 3 minutes before re-starting the compressor.

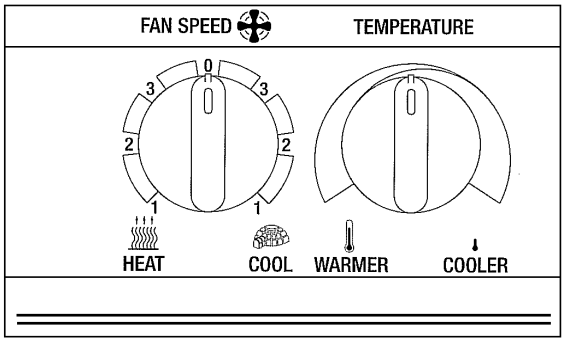


Figure 3

Fan Cycling Switch:

The chassis includes a continuous/intermittent fan feature. Located on the left bottom corner of the control box is a rocker switch used to switch between continuous and intermittent fan operation.

With the rocker switch in the **"Continuous"** position, as indicated by the label on the front of the unit, the indoor fan will continue to operate as long as the unit is switched on in either the heating or cooling mode. The fan will operate continuously at the fan speed selected.

With the rocker switch in the **"Intermittent"** position, and the unit in cooling mode, the indoor fan will operate only when there is a call for cooling by the adjustable thermostat. Similarly with the unit in heating mode, the indoor fan will operate only when there is a call for heating in order to satisfy the heat setting on the adjustable thermostat.

It is recommended that continuous fan operation be selected in the cooling mode to avoid excessive temperature "swings" in the conditioned space.

The most effective indoor temperature sensing and highest comfort levels are achieved when room air is being drawn continuously across the sensing bulb of the unit thermostat. If complaints of large temperature swings in the room are experienced, then switch the unit to continuous fan operation.

The front cover must be removed to access the switch.

Built-in Operating Delay

An adjustable time delay is provided in the control circuitry to manage the changeover from reverse cycle heat to resistance heat, and is factory-set for 3.5 minutes. As a result, in some cases there will be a 3.5 minute delay for reverse cycle heat to initiate. This will occur in the following situation:

When the unit is first plugged in, or if the unit has just been switched to heating mode, reverse-cycle heat (compressor operation) will be delayed for 3.5 minutes. However, the unit will provide heat for the first 3.5 minutes via the resistance heater. Once the initial 3.5 minutes has elapsed, if there is still a call for heat from the thermostat, and if the outdoor temperature is in heat pump range, the compressor will start and cycle normally on the room temperature thermostat within the unit. No further time delays are incurred provided the switch remains in the heating position.

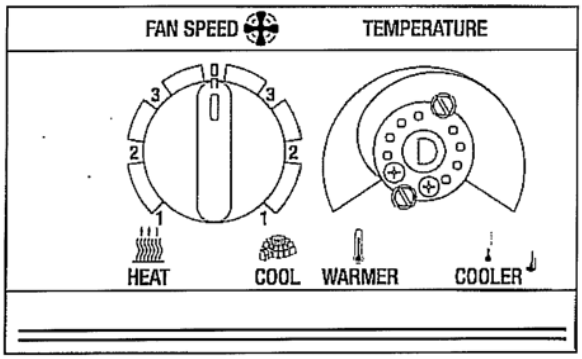
There is no time delay in the cooling mode.

Indoor Coil Freeze Protection
Control of frost on the evaporator coil due to low indoor loads, or cold outdoor ambient temperatures, is provided.

Emergency Heat Switch (RSHPC Heat Pump Only)
If the compressor fails and there is heating demand, heat pump units will have a rocker switch that can switch the unit into electric resistance heat mode, until a repair can be made. Located on the right bottom corner of the control box is a rocker switch used to switch between normal and emergency heat operation. The front cover must be removed to access the switch.

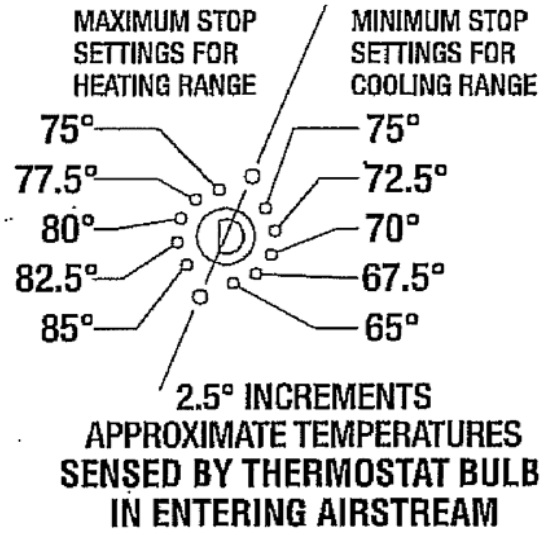
Low Outdoor Temperature Lock-out
If the outdoor temperature is too low for proper compressor operation, cooling operation will be suspended, and also heat pump heating operation (if applicable) will switch over to electric resistance heating mode automatically if there is a demand for heat, until the outdoor temperature rises to an acceptable point, depending on the application.

Thermostat Temperature Limiting Feature



The purpose of temperature limiting is to allow the property owner to control the maximum and minimum temperature that an end-user can obtain during operation of the unit, and can be an important energy saving feature. This is accomplished by limiting the thermostat knobs range of rotation between preset limits set by the property owner. The unit is shipped from the factory allowing a wide range of rotation. Altering the range of rotation is easily done.

Remove the thermostat knob by pulling it with sufficient force—DO NOT PRY. Turn the knob over and observe the plastic rib coming off the side of the knob stem. The rib is designed to engage limiting stop screws that can be arranged to limit the maximum and minimum set-point temperatures for the thermostat. On the dial plate, just below the thermostat shaft you will notice two Phillips head screws (with washers) in “Standard Position” in the above illustration. This allows a wide range of thermostat rotation, representing a range of temperatures between approximately 18°C and 29°C (65ºF and 85ºF). The left screw in Standard Position can be removed and re-inserted in four alternate holes moving in a clockwise direction in order to reduce the maximum allowable set-point temperature for heating. Similarly, the right screw can be relocated in four alternate holes moving in a counter-clockwise direction to increase the minimum allowable set-point for cooling. Moving to the next screw location alters the set point limit by about 1.4ºC (2.5ºF), as shown in the illustration below.



For example, moving the left screw clockwise 4 positions over from Standard Position limits the maximum heating set-point temperature to 29.4ºC – (4 x 1.4ºC) = 23.8ºC (85ºF – (4 x 2.5ºF) = 75ºF). Similarly, moving the cooling set-point right screw counter-clockwise 2 positions over from Standard Position limits the minimum temperature to 18.3ºC + (2 x 1.4ºC) = 21.1ºC (65ºF + (2 x 2.5ºF) = 70º F). Therefore in this example roughly speaking, the end user cannot heat the room to greater than 23.9°C (75ºF) nor cool the room to less than 21.1°C (70ºF) .Experimentation may be necessary to obtain a desirable setting. Keep in mind that the actual thermostat temperature sensing occurs at the sensing bulb in the return air stream, sensing air being pulled in through the bottom of the front panel near the floor.

NOTE : IF THE ROOM TEMPERATURE IS STILL NOT SATISFACTORY AT THE COOLEST THERMOSTAT SETTING, THEN COMPLETELY REMOVE THE RIGHT HAND LIMITING STOP SCREW.

Important: Before reinstalling the knob, manually turn the thermostat shaft so that the rib under the knob will locate in between the stop screws once the knob is installed. Failure to follow this step may cause an unintended temperature range to arise.