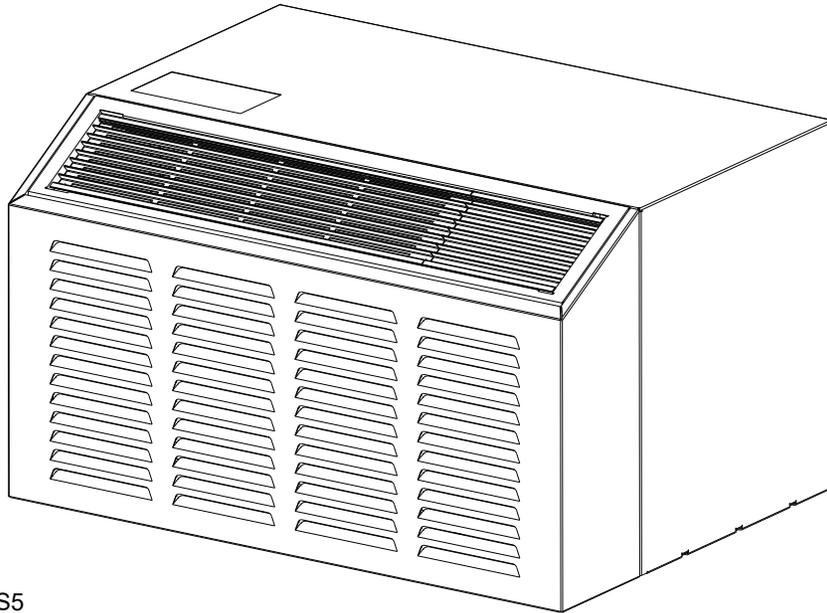


GENUINE COMFORT

PACKAGED TERMINAL

AIR CONDITIONER/HEAT PUMP

INSTALLATION INSTRUCTIONS & OWNER'S MANUAL



MODELS

GCDM09KAC2035HTUS5
GCDM12KCD3045HTUS5
GCDM15KCD3045HTUS5
GCDM09KAC2035CTUS5
GCDM12KCD3045CTUS5
GCDM15KCD3045CTUS5
GCDM09KAC2035HTUD5
GCDM12KCD3045HTUD5
GCDM15KCD3045HTUD5
GCDM09KAC2035CTUD5
GCDM12KCD3045CTUD5
GCDM15KCD3045CTUD5
GCDM12KA25CTUS5
GCDM12KA25CTUD5
GCDM12KA25HTUS5
GCDM12KA25HTUD5

ATTENTION INSTALLING PERSONNEL

As a professional installer you have an obligation to know the product better than the customer. This includes all safety precautions and related items.

Prior to actual installation, thoroughly familiarize yourself with this instruction manual. Pay special attention to all safety warnings.

Often during installation or repair it is possible to place yourself in a position which is more hazardous than when the unit is in operation.

Remember it is your responsibility to install the product safely and to know it well enough to be able to instruct a customer in its safe use.

Safety is a matter of common sense, a matter of thinking before acting. Most dealers have a list of specific good safety practices, follow them.

The precautions listed in this Installation Manual are intended as supplemental to existing practices. However, if there is a direct conflict between existing practices and the content of this manual, the precautions listed here take precedence.

Contents

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TO THE INSTALLER

Retain this manual for future reference. For further assistance please call 1-866-233-4022.

Before leaving the premises, review this manual to be sure the unit has been installed correctly and run the unit for one complete cycle to make sure it functions properly. To obtain technical service or warranty assistance during or after the installation of this unit, contact your local representative.

When calling for assistance, please have the following information ready:

1. Model number
2. Serial number
3. Date of installation

NOTICE: Due to ongoing product development, product designs and specifications may change without notice. Please contact Genuine Comfort for more information.

IMPORTANT NOTES:

Before using this manual, check the serial plate for proper model identification.

The installation and servicing of this equipment must be performed by qualified, experienced technicians only.

Due to policy of continual product improvement, the right is reserved to change specifications and design without notice.

IMPORTANT NOTE TO THE OWNER

This manual is to be used by qualified, professionally trained HVAC technicians only. The manufacturer does not assume any responsibility for property damage or personal injury for improper service procedures or services performed by an unqualified Person.

IMPORTANT NOTE TO THE SERVICER

Read this manual and familiarize yourself with the specific items which must be adhered to before attempting to service this unit. The precautions listed in this Installation Manual are intended as supplemental to existing practices. However, if there is a direct conflict between existing practices and the content of this manual, the precautions listed here take precedence.

THE FOLLOWING WARNINGS ARE VERY IMPORTANT FOR SAFETY. PLEASE READ THEM CAREFULLY BEFORE INSTALLATION!

1. The air conditioner must be installed by certificated installer. It's forbidden to install by those amateurs.
2. Please check whether there is grounding wire in the power supply system before installation. If not, installers should refuse installing and explain the safety principle to users.
3. To avoid electric shock or even death, the socket or terminal blocks for power supply to the air conditioner(include 277V, 115V and 208~230V series and all the units that have LCDI power cord) must connect a Ground Fault Circuit Interrupter.
4. During installation, the wire connection must strictly follow the rule which is zero line and fire line of unit should be connected to the zero line and fire line in the power system. The connection in reverse is forbidden. Please be sure the ground wire is firmly connected otherwise it is possible to result in the electrical shock or death.

RECOGNIZE THIS SYMBOL AS A SAFETY PRECAUTION

WARNING

THIS APPLIANCE IS NOT INTENDED FOR USE BY PERSONS (INCLUDING CHILDREN) WITH REDUCED PHYSICAL, SENSORY OR MENTAL CAPABILITIES, OR LACK OF EXPERIENCE AND KNOWLEDGE, UNLESS THEY HAVE BEEN GIVEN SUPERVISION OR INSTRUCTION CONCERNING USE OF THE APPLIANCE BY A PERSON RESPONSIBLE FOR THEIR SAFETY.

WARNING

CHILDREN SHOULD BE SUPERVISED TO ENSURE THAT THEY DO NOT PLAY WITH THE APPLIANCE.

WARNING

THE MANUFACTURER WILL NOT BE RESPONSIBLE FOR ANY INJURY OR PROPERTY, DAMAGE ARISING FROM IMPROPER SERVICE OR SERVICE PROCEDURES. IF YOU INSTALL OR PERFORM SERVICE ON THIS UNIT, YOU ASSUME RESPONSIBILITY FOR ANY PERSONAL INJURY OR PROPERTY DAMAGE WHICH MAY RESULT, MANY JURISDICTIONS REQUIRE A LICENSE TO INSTALL OR SERVICE HEATING AND AIR CONDITIONING EQUIPMENT.

WARNING

HIGH VOLTAGE
DISCONNECT ALL POWER BEFORE SERVICING OR INSTALLING THIS UNIT. MULTIPLE POWER SOURCES MAY BE PRESENT.
FAILURE TO DO SO MAY CAUSE PROPERTY DAMAGE, PERSONAL INJURY OR DEATH.

1 UNIT FEATURES

This unit has many features which are different than those found on conventional PTAC units. The servicer must be familiar with these features in order to properly handle the unit.

- **LCDI Cords** - Underwriters Laboratories and the National Electric Code (NEC) now require power cords that sense current leakage and can open the electrical circuit to the unit rated at 250 volts or less. In the event that unit does not operate, check the reset button located on or near the head of the power cord as part of the normal troubleshooting procedure.

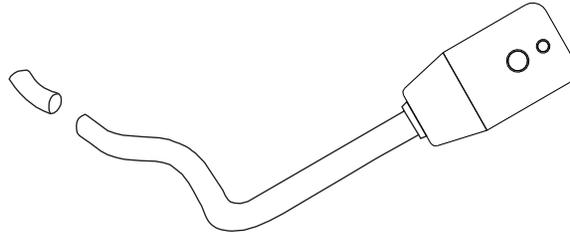
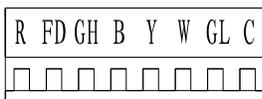


Fig.1-1 LCDI power Cord

- **Automatic 3-minute compressor lockout** - After the compressor cycles off, it will not restart for three minutes.
- **Random restart delay** - To help eliminate power surges after a power outage, the unit is equipped with a two to four minute random restart delay feature. Whenever the unit is plugged in with the master switch turned on and the mode switch set in the cool or heat mode, a random restart will occur. A random restart condition can be avoided by setting the mode switch in the fan only or off position before applying power to the unit.
- **Indication LEDs** - The control panel has LEDs that correspond to fan operation and to indicate unit status. The LEDs next to the selections ON/OFF, FAN, COOL, and HEAT indicate which operational mode is active.
- **Failure Tolerance** - If the unit is in protection mode less than 4 times in one hour, the accumulation times will reset to avoid system failure. Only when the unit enters protection mode more than 4 times in one hour, the system will fail to restart automatically and need manual restart.
- **Standard Physical Dimensions** - The series PTAC is with the same dimensions 32" wide x 16-1/2" high x 18-3/10" deep.

Replacement of older units is made easy.

- **Weather-Protected Electrical Components** - Vital electrical components are protected from the weather by locating them on the indoor side of the weather barrier.
- **Highly Featured Microprocessor Controls** - Microprocessor controls are programmed to interface with the temperature sensors to maximize comfort conditions for the room occupant and provide outstanding features. Thermistors are used to sense small changes in temperature to give excellent room control and allow the microprocessor to monitor and react to changing conditions.
- **Automatic Emergency Heat on Heat Pump Units** - Automatically uses electric resistance heat if the heat pump fails.
- **High-Temperature Heat Pump Operation Protection** - Automatically protects the compressor if heat pump is operated with high indoor coil temperatures. Power to the outdoor fan and the compressor are turned off if the indoor coil gets too hot during heat pump operation to prevent damage to the compressor.
- **Fan Motors Permanently Lubricated** - All units have two fan motors for quiet operation and maximum operating efficiency. Motors are permanently lubricated to reduce maintenance and totally enclosed to keep dirt and water out of the motor windings.
- **Indoor Fan Speed Selections LOW/HIGH** - Unit may be operated in low fan speed or high fan speed. But not all types will configure these two kinds of fan speeds at once.
- **Air duct motor** - used for models with air duct.
- **Rotary Compressor** - Smoother operation for quiet, dependable service and high efficiency.
- **Indoor Coil Frost Control** - Prevents indoor coil from freezing. Frost can form on the indoor coil when the unit is operated in cooling when the outdoor temperature is low. The unit automatically shuts the compressor off until the indoor coil temperature warms to the point where frosting will no longer occur. Then restart the compressor.
- **FD Control (front-desk control)** - The unit can be turned ON/OFF by front desk control switch. The control wire, colored purple, locates in the wall mounted thermostat interface (refer to Fig.3-6 on page 7).



The control logic as below:
 1. Turn ON unit: connect R to FD.
 2. Turn OFF unit: disconnect R to FD.

2 PREPARING FOR THE INSTALLATION

Safety Precautions

1. This unit should be installed by a factory certified technician or a licensed mechanical contractor to ensure proper operation and avoid any safety hazards.
2. Power supply wires must be located in areas where they will not be damaged or cut.
3. Never insert any type of object into the machine inside. Because the fan rotates at a high speed, this may cause injury.
4. Disconnect the power supply from socket-outlet when the machine units are not in use.
5. Disconnect all electric power supplies before servicing.
6. Any type of repairs or maintenance done to the units must be done by a professionally licensed contractor. Any unqualified person should not attempt to repair the units themselves.
7. **WARNING: RISK OF ELECTRIC SHOCK: CAN CAUSE INJURY OR DEATH.**
8. Be sure that the unit is free and clear of any debris around the outside of the unit. Do not place or lean any items on the unit.

WARNING

Moving parts can cause personal injury. Avoid contact with moving parts when testing or servicing the unit.

Electrical supply

- Each unit must have a separate branch circuit protected by a fuse or breaker. Refer to the unit rating plate for the proper wire and breaker or fuse size.
- Use of extension cords is prohibited.
- **DO NOT** connect the GENUINE COMFORT unit to a circuit with an incorrectly sized overcurrent protection device.

Electrical short hazard

Before opening the existing unit:

- Open the power supply disconnect switch. Secure it in an open position during installation. Attach a sign stating, "DO NOT TURN ON".
- On a plug and receptacle connection, unplug the existing unit at the wall outlet.
- **DO NOT** plug in the new unit until installation is complete and the start-up check list has been completed. Failure to comply with the above could result in severe personal injury, death or substantial property damage.

Remove the old chassis

1. Disconnect power or unplug cord before proceeding.
2. Remove the front panel to expose the old chassis.
3. Loosen any tie-down bolts or screws and remove the old chassis.

Check existing wall sleeve

Genuine Comfort replacement PTAC's are to be used with a metal wall sleeve:

- a) Clean the wall sleeve of any dirt.
- b) Repair any damage or rust.
- c) Ensure proper drainage of condensate or rainwater to exterior of building.
- d) Check the back of sleeve is pitched to the outside $\frac{1}{4}$ bubble on level.
- e) Check the sleeve is leveled left to right.
- f) Make sure the wall sleeve is secured in the wall.

Check existing outdoor louver

- Check whether the type of the outdoor louver match the baffle and insulation on the chassis, adjust if it doesn't match.
- Remove any obstructions.

3 INSTALLATION INSTRUCTIONS

To ensure that the unit operates safely and efficiently, it must be installed, operated and maintained according to these installation and operating instructions and all local codes and ordinances or, in their absence, with the latest edition of the National Electric Code. The proper installation of this unit is described in the following sections. Following the steps in the order presented should ensure proper installation.

UNIT ACCESSORIES

This unit is designed for through-the-wall installation in new or existing buildings. To complete the installation of this PTAC, an insulated wall sleeve and an outdoor grille (either the stamped aluminum grille, or the architectural grille) are required.

! WARNING

High Voltage
Disconnect all power before servicing or installing this unit. Multiple power sources may be present. Failure to do so may cause property damage, personal injury or death.

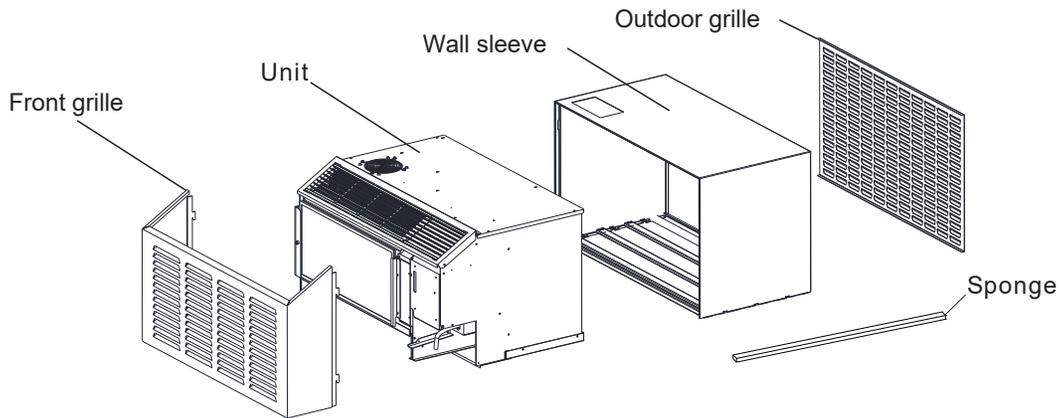


Fig.3-1

WALL SLEEVE ASSEMBLY

Welded integrated wall sleeve is featured by artistic appearance and stable structure. Customers can purchase together with unit. The installation diagram is as follows.

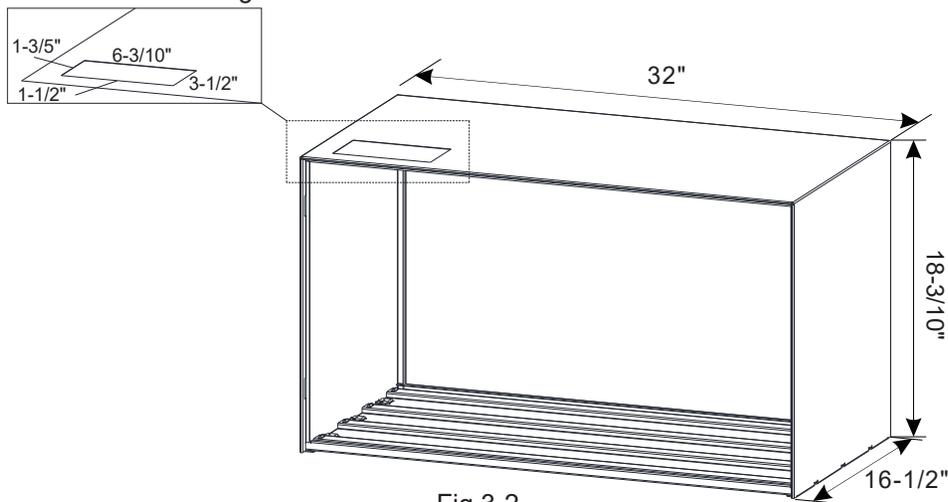


Fig.3-2

Tab.3-1

	sleeve dimensions		
	height	width	depth
NO.1	18-3/10"	32"	16-1/2"

3 INSTALLATION INSTRUCTIONS

- Please note that only ducted models can be used in ducted applications and the non-ducted models cannot be used.
- The unit will correctly line up with the duct knock out on the sleeve with the auxiliary duct fan.

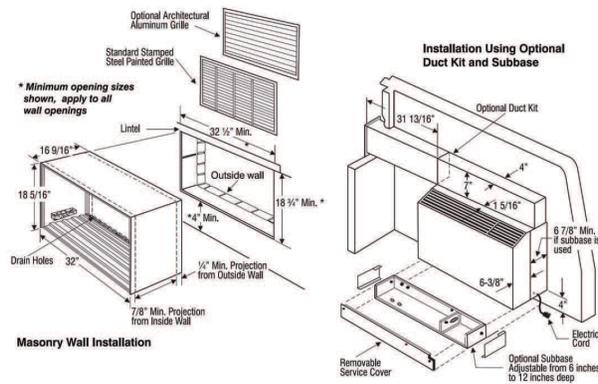


Fig.3-3

REPLACE THE FOAM (If necessary)

- Remove old foam (if any) that is at the bottom near the back of the existing wall sleeve. All other foam within the sleeve should be left installed.
- Replace the removed foam with the white foam provided with the unit. The foam's dimensions are 30-7/10" * 1" * 1/2".

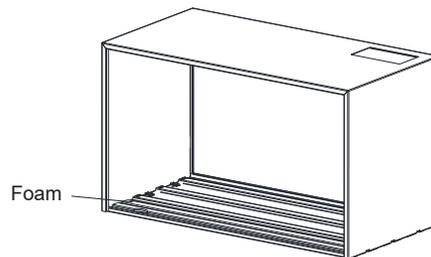


Fig.3-4

SPONGE

The function of the sponge is to prevent condensation water on the surface of the metal plate due to temperature differences. When installing the machine, paste it in the corresponding position.

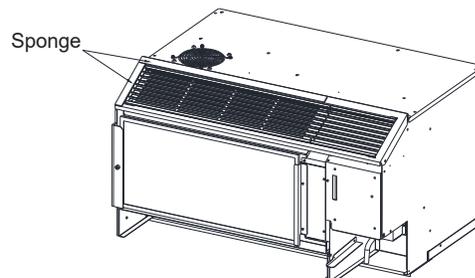


Fig.3-5

CHASSIS INSTALLATION

1. Check the seal foam on the rear of chassis, make sure to avoid ventilation recirculation.
2. Slide the chassis into the sleeve tight to the end of the sleeve.
3. Secure the chassis — tighten any tie down bolts or screws if necessary.

FILTER INSTALLATION

- Filter is installed inside cover near the bottom. It rests on the metal that protrudes around the bottom of the over.
- Make note to have the angled corner near the power cord. This small section is for the power cord to exit the unit.
- Once the filter is in place, the cover can now be installed.

3 INSTALLATION INSTRUCTIONS

COVER INSTALLATION

- Cover will have two tabs on each side which enters into the sleeve's entry points for each tab. Lock in place by inserting and pushing down.
- The cover should fit comfortably with the unit inside the sleeve.

OPTIONAL THERMOSTAT INSTALLATION

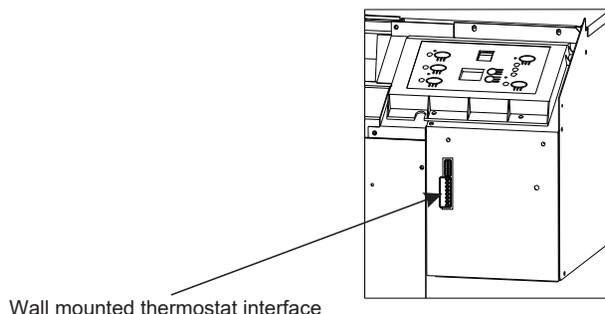
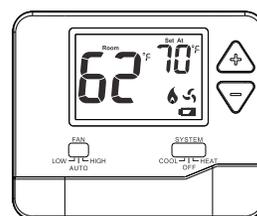
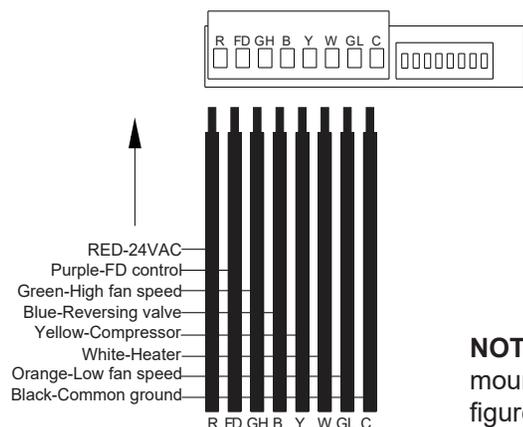


Fig.3-6



Thermostat
Fig.3-7 wall mounted thermostat wiring

NOTE: You should use the Green Connector in the unit for wiring the wall mounted thermostat. The Green Connector definition refers to the above figure. For details of operation, see the “Remote Thermostat Change” instructions chapter on page 11.

Special Control Functions for DIP Switches

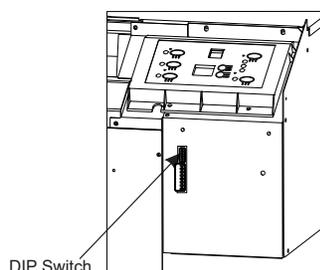
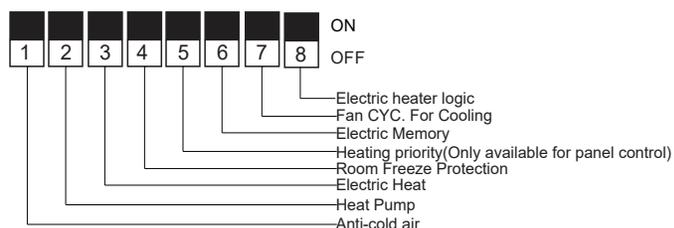


Fig.3-8

Tab.3-2

Switch	Description	Function	Factory Setting
#1	Anti-cold air	ON-Enable; OFF-Disable;	OFF
#2	Heat Pump	ON-Enable; OFF-Disable;	HP : ON AC : OFF
#3	Electric Heat	ON-Enable; OFF-Disable;	With E-HEAT : ON Without E-HEAT : OFF
#4	Heating priority	ON-Heat Pump Prior; OFF-Electric Heat Prior; (Only available for panel control)	HP : ON AC : OFF
#5	Room Freeze Protection	ON-Allows the unit to ensure the indoor room temperature does not fall below 40°F even when turned off; OFF-disable freeze protection.	HP : ON AC : OFF
#6	Electric Memory	ON-Enable; OFF-Disable;	ON
#7	Fan CYC. For Cooling	ON-Enable; OFF-Disable;	OFF
#8	Electric heater logic	ON-Electric heater logic for 9K; OFF-Electric heater logic for 12K/15K;	9K:ON 12K/15K:OF

4 FINAL INSPECTION AND START-UP

#1 Anti-cold air

#1 Anti-cold air Enabled(left) or Disabled(right)

When this switch is Enabled (left), When the temperature of the indoor coil is low, the internal fan automatically switches to low fan to ensure the unit air outlet at a high temperature. When the temperature of the indoor coil increases, the internal fan automatically switches to high fan. This function is designed for human comfort. When switch #2 is Disabled (right), #1 functional failure. For switch #1, the factory default for 15K heat pump model is On, while other models are Off.

#2 Heat Pump Enabled (left) or Disabled (right)

When this switch is disabled (right), heat pump will never operate.

#3 Electric Heat Enable (left) or Disabled (right)

When this switch is disabled (right), electric heater will never operate.

#4 Heating Priority Enable (left) or Disabled (right)

This function is only for heat pump with electric heater model. When this switch is right, electric heat takes priority. When this switch is left, heat pump takes priority.

#5 Room Freeze Protection

The unit must have heating function (cooling only mode does not share this function). When the unit is connected to the power supply, and room temperature is lower than 10°C/50°F for 3 minutes, unit will start heating automatically no matter what the setting mode is. Only when room temperature reaches 13°C/55°F will heating stop.

#6 Electric Power-Off Memory. Enable (left) or Disabled (right)

After power on, the unit will operate the same settings as before power off. The default setting is enabled (left).

#7 Fan CYC. For cooling

The owner may choose either fan cycling or fan continuous mode (cooling mode) based on their preference. The cycle fan only operates when cooling or heating is required, thus conserving energy. When this switch is Enabled (left), in cooling mode, when the indoor ambient temperature reaches the set temperature, the internal fan stops running. When this switch is Disabled (right), in cooling mode, when the indoor ambient temperature reaches the set temperature, and the internal fan runs continuously.

#8 Electric heater logic

When using a plug-in power cord, it is used to control the installation of electric heating with different powers. When this switch is Enabled (left), use a 20A (12AWG) plug-in power cord to turn on 3.5kW electric heating; use a 15A (14AWG) plug-in power cord to turn on 2kW electric heating; if a 30A (10AWG) plug-in power cord is used, a fault is reported [EH]. When this switch is Disabled (right), use a 30A (10AWG) plug-in power cord to turn on 4.5kW electric heating; use a 20A (12AWG) plug-in power cord to turn on 3kW electric heating; use a 15A (14AWG) plug-in power cord to turn on 1.5kW electric heating. The 9K model comes standard with 3.5kW electric heating and the 12K/15K with 4.5kW electric heating as standard.

Check list

1. Ensure the chassis is secured with the sleeve.
2. Unit is installed in compliance with all codes.
3. Circuit breakers and wire sizes are correct.
4. Ensure the electrical supply matches the electrical requirements of the unit, and that the unit is properly grounded.
5. Check whether the electric heat match the power cord.
6. Filter clean and in place.
7. All panels in place.
8. Make sure the chassis is leveled 1/4 bubble towards exterior.
9. Verify that nothing will interfere with the room discharge air or the return air of the units.

Examples:

- Check for curtains or drapes that obstruct the air flow.
- Check for plush carpeting that can obstruct the return air.
- Items like these can cause serious damage to the chassis.
- Ensure work area clean and free of debris.

Start-up

- Plug the power cord to the receptacle.
- Turn on the chassis, and operate all functions.

Wall Thermostat

See wall thermostat instructions to operate thermostat. Test all functions to confirm PTAC unit is working properly.

5 WIRING

! WARNING

High Voltage

Disconnect all power before servicing or installing this unit. Multiple power sources be present. Failure to do so may cause property damage, personal injury or death.

Do not service this unit without first shutting off the power to the unit from the circuit breaker and/or removing the unit cord set plug from the wall outlet.

! WARNING

To avoid the risk of property damage, personal injury or fire, use only copper conductors.

! WARNING

To avoid property damage, personal injury or death due to electrical shock, do not use an extension cord with this unit.

! WARNING

To avoid the risk of property damage, personal injury or fire do not install with power cord stretched or under a strain as this may create loose plug/receptacle connection.

! WARNING

To avoid the risk of personal injury, wiring to the unit must be properly polarized and grounded.

! WARNING

This air conditioner is not meant to provide unattended cooling or life support for persons or animals who are unable react to the failure of this product.

The failure of an unattended air conditioner may result in extreme heat in the conditioned space causing overheating or death of persons or animals.

! WARNING

When the operating voltage is lower than 100V, the air duct fan will not work. If it still does not work after the normal operating voltage is restored, the unit needs to be powered off and restarted.

VOLTAGE MEASUREMENTS

Once the unit is properly wired, measure the unit supply voltage. Voltage must fall within the voltage utilization range given in Tab.5-1.

Tab.5-1

Operating Voltage		
Unit Voltage	Voltage Utilization Range	
Rating	Minimum	Maximum
230/208	187	253



Tandem
230/208V 15Amp



Perpendicular
230/208V 20 Amp



Large tandem
230/208V 30Amp

Fig.5-1

5 WIRING

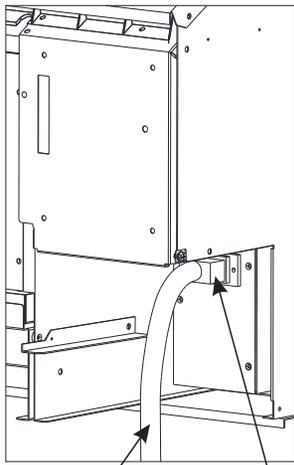
IMPORTANT: Please read following electrical safety data carefully.

! WARNING

ELECTRICAL SHOCK AND/OR UNIT OPERATION AND DAMAGE HAZARD

Failure to follow this warning could result in personal injury or death and/or unit operation and damage.

- Installation must be performed in accordance with the requirements of NEC and CEC by authorized personnel only.
- For personal safety, this unit **MUST BE** properly grounded.
- Protective devices (fuse or circuit breakers) acceptable for unit installations are specified on the nameplate of each unit.
- **Do not** use an extension cord with this unit.
- Aluminum building wiring may present special problems-consult a qualified electrician.
- **When unit is in STOP position, there is still voltage to electrical controls.**
- Disconnect power to unit before servicing by:
 1. Removing power cord (if it has one) from wall receptacle.
 2. Removing branch circuit fuses or turning circuit breakers off at panel.



LCDI Power cord Power Receptacle

Fig.5-2

Electric Heater power selection:

Use different power cord to select electric heater power. The details as show in the following table:

Tab.5-2

LCDI power cord Model	15A	20A	30A
9000BTU/H	2kW	3.5kW	/
12000BTU/H	1.5kW	3kW	4.5kW
15000BTU/H	1.5kW	3kW	4.5kW
12000BTU/H	2.5kW	/	/

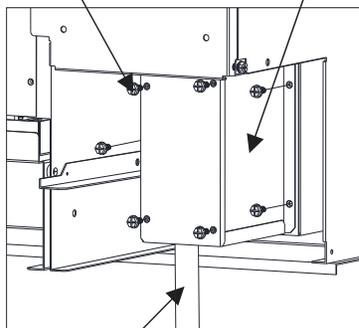


Warning: The electric heater and power cord schemes of all models must be selected in strict accordance with the rules in the table above.



Warning: To ensure safety, the user cannot change the SW1.8 dialing setting. The SW1.8 dialing must be strictly consistent with the factory wiring diagram.

screw Power cord sealing cover



LCDI Power cord

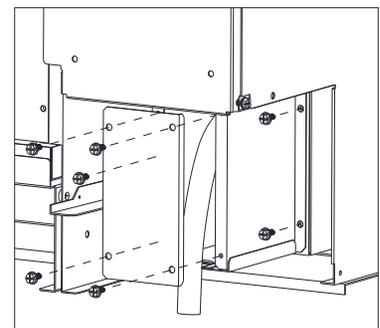
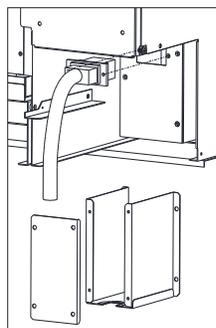


Fig.5-3



Warning: The power cord must be installed by a professional.

5 WIRING

SCHEMATIC DIAGRAM :

The jumper of the power cord plug is connected in the factory according to the matching rules in table 5-2. Schematic diagram of power cord jumper connection is as following:

- (1) 9000BTU/H: 2kW Electric heater with 15A LCDI Power cord
 - 12000BTU/H: 1.5kW Electric heater with 15A LCDI Power cord
 - 12000BTU/H: 2.5kW Electric heater with 15A LCDI Power cord
 - 15000BTU/H: 1.5kW Electric heater with 15A LCDI Power cord
- The jumper connects the middle terminal 5 and the terminal 4.

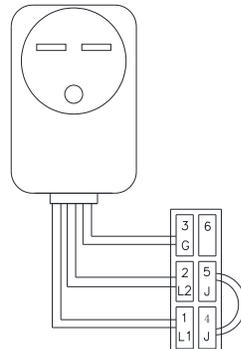


Fig.5-4 15A

- (2) 9000BTU/H: (1.5+2)kW Electric heater with 20A LCDI Power cord
 - 12000BTU/H: 3kW Electric heater with 20A LCDI Power cord
 - 15000BTU/H: 3kW Electric heater with 20A LCDI Power cord
- The jumper connects the middle terminal 5 and the terminal 6.

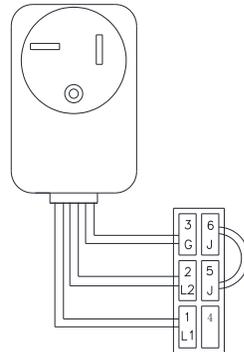


Fig.5-5 20A

- (3) 12000BTU/H: (1.5+3)kW Electric heater with 30A LCDI Power cord
 - 15000BTU/H: (1.5+3)kW Electric heater with 30A LCDI Power cord
- The jumper connects the middle terminal 5 and the terminal 4 and 6.

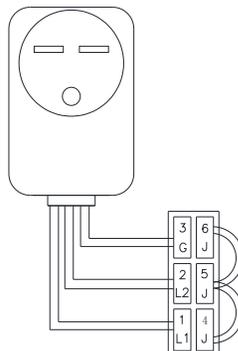


Fig.5-6 30A

6 OPERATING INSTRUCTIONS

OPERATING INSTRUCTIONS-Control Panel

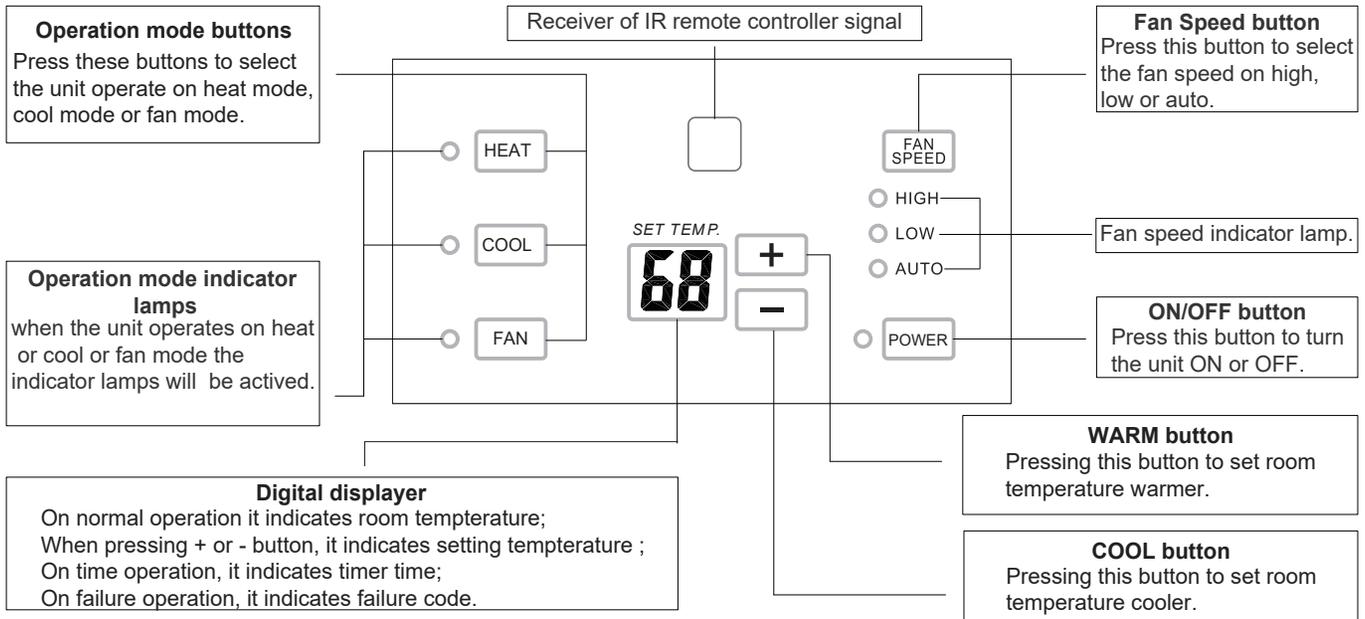


Fig.6-1 Use of unit mounted control panel

SENIOR OPERATION

1) Temperature shift key: Press [+] and [-] button at the same time for 3 seconds, the temperature is shifted between Fahrenheit and centigrade.

2) Temperature setting limiting: Press [+] and [SPEED] button at the same time to enter the maximum and minimum temperature setting. R1~R8 will be display every 3 seconds. Relieve the two keys to ensure the setting effective and the figures will last for 5 seconds. The temperature setting range is between 60°F~90°F as factory default.

Tab.6-1 Temperature setting limiting

R1	R2	R3	R4	R5	R6	R7	R8
Heating Temperature Limits(°F)							
86	86	90	74	92	90	72	90
Cooling Temperature Limits(°F)							
63	65	72	72	67	69	68	60

3) Anti-cold air function: Press the [FAN SPEED] and the [COOL] button at the same time in the shutdown state to realize the switch. When the anti-cold air is turned on, the digital tube displays 1; and when the anti-cold air is turned off, the digital tube displays 0.

4) Remote thermostat change: On standby off mode, press the [HEAT] and [+] button for 3 seconds, the buzzer will chime and LED display will read "P" or "r".

P: unit control panel has control of unit.

r: wall thermostat has control of unit.

6 OPERATING INSTRUCTIONS

OPERATING INSTRUCTIONS-24V Wire thermostat (optaional)

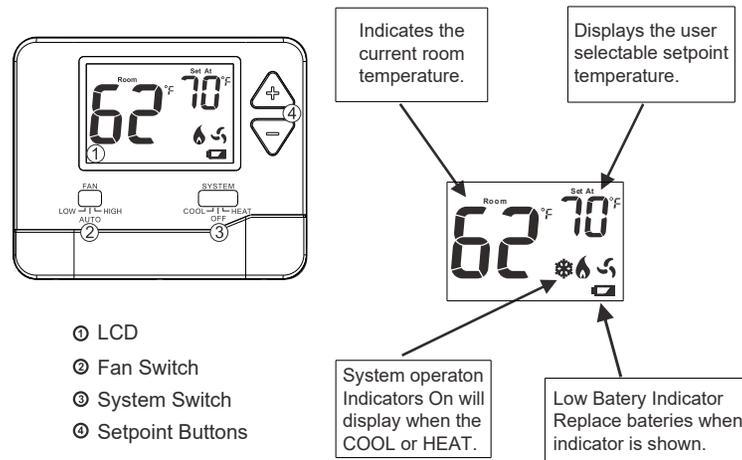


Fig.6-2 Use of unit mounted thermostat

Terminal	1 Heat 1 Cool Conventional System	1 Heat 1 Cool Heat Pump System	2 Heat 1 Cool Heat Pump System
R	Transformer power (cooling)	Transformer power (cooling)	Transformer power (cooling)
C	Transformer common	Transformer common	Transformer common
B	Energized in heating	Heat pump changeover valve energized in cooling	Heat pump changeover valve energized in heating
O	Energized in cooling	Heat pump changeover valve energized in cooling	Heat pump changeover valve energized in cooling
GL	Fan Relay, Low	Fan Relay, Low	Fan Relay, Low
GH	Fan Relay, High	Fan Relay, High	Fan Relay, High
W	First stage of heat	N/A	Second stage of heat
Y	First stage of cool	First stage of heat & cool	First stage of heat & cool

💡 NOTE

C Terminal:

The C(common) terminal does not have to be connected when the thermostat is powered by batteries.

Wire Specifications:

All components of the control system and the thermostat installation must conform to Class II circuits per the NEC code.

COOL/FAN/HEAT MODE OPERATION PROCEDURE

Control panel:

- | Press the ON/OFF button.
- | Press the HEAT/COOL/FAN button, select the operation mode: heat/cool/fan.
- | Press + or - button, to set your desired temperature. The setting temperature range is 60 - 90 °F (16-32°C).
- | Press the FAN SPEED button, to set your desired air flow rate: high/low/auto.

7 VENTILATION CONTROL

The ventilation control lever is located at left side of unit, behind front panel.

NOTE: The vent door shipping tape must be removed before using vent control lever.

When set at close, only the air inside the room is circulated and filtered;

When set at open, some outdoor air will be drawn into room, and this will reduce heating or cooling efficiency.

WARNING

High Voltage

Disconnect all power before servicing or installing this unit. Multiple power sources be present. Failure to do so may cause property damage, personal injury or death.

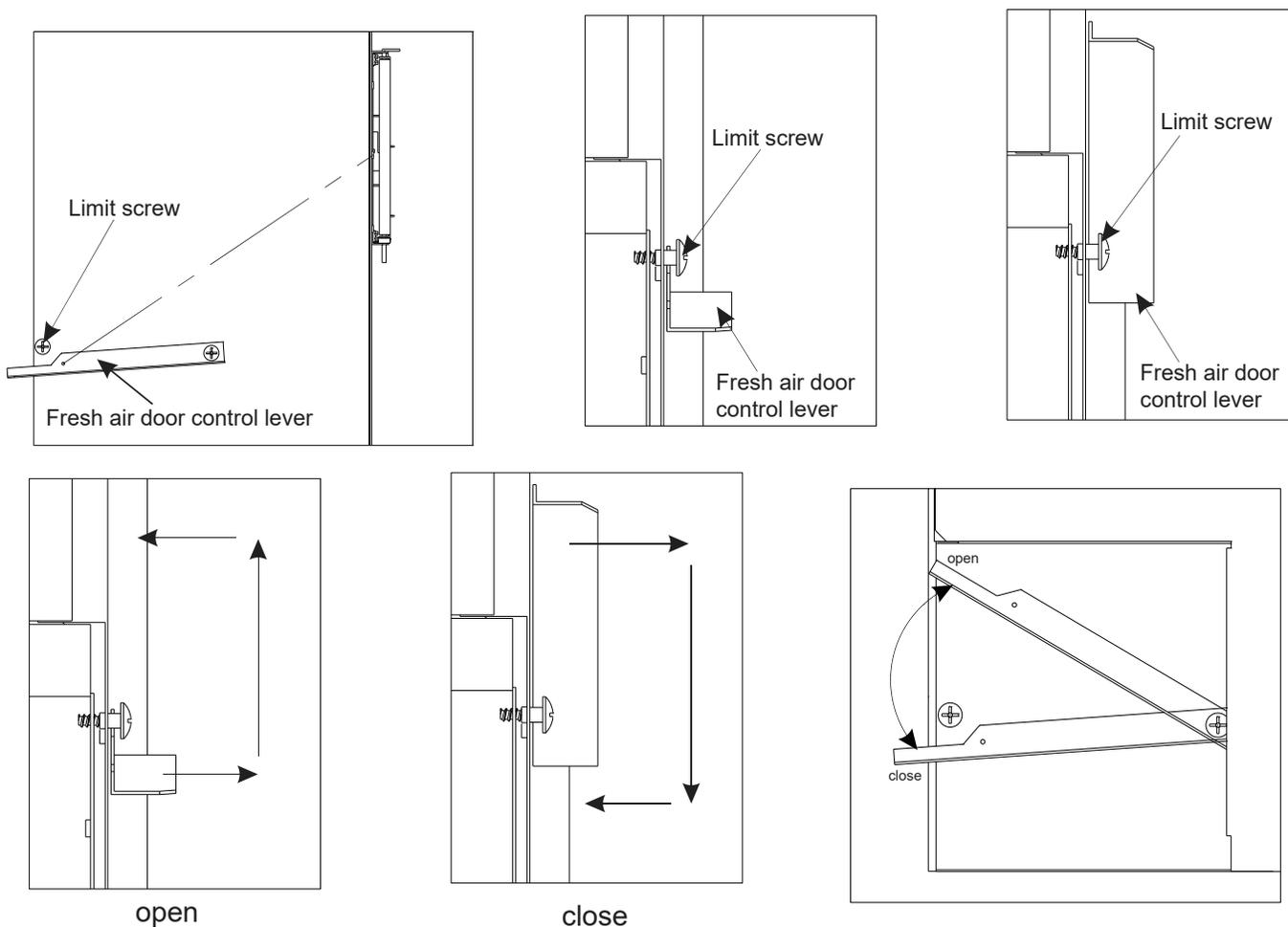


Fig.7-1 Vent door lever positions

The vent control allows outside air to be drawn into the conditioned area. This outside air can provide ventilation when the blower is operating, but it will increase the heating or cooling load and operating costs. To obtain access to the vent control:

1. Open the fresh air door:

Remove the fresh air door control rod from the limit bolt, and rotate the fresh air control rod upward to open the fresh air door;

2. Close the fresh air door:

Rotate the fresh air control lever down to the limit bolt, and rotate it to the limit bolt to fix.

8 MAINTENANCE AND CLEANING

! WARNING

High Voltage

Disconnect all power before servicing or installing this unit. Multiple power sources be present. Failure to do so may cause property damage, personal injury or death.

MONTHLY MAINTENANCE AND CLEANING

Intake Air Filters

To properly maintain the operational performance of your PTAC unit, it is extremely important that the inlet air filters should be cleaned once per month or more often if operated in dusty or dirty locations or conditions. The intake air filters are constructed of durable polypropylene. The “air intake” air filters can be easily inserted into the cabinet front, using the filter guides. Before cleaning the intake filter, turn the unit off by setting the mode switch to the OFF position. Filter should be cleaned as required.

The following procedure is used to remove the intake filter:

1. Remove the front panel;
2. Remove the screws on the guide rail;
3. Push the filter to the left and take out the filter.

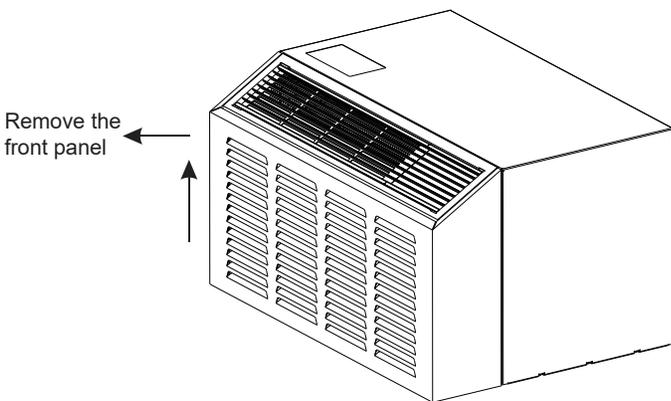


Fig.8-1

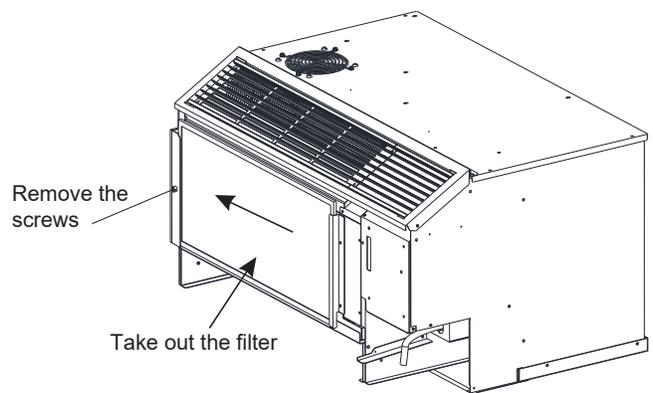


Fig.8-2

Vent Screen

Before cleaning the vent screen, disconnect power to the unit by unplugging the power cord at the wall outlet or subbase, or disconnect power at the fuse box or circuit breaker. If unit is operated with vent door closed, the vent screen does not need to be cleaned.

1. Remove the cabinet front as described in Front Removal.
2. Remove the six screws securing the chassis to the wall sleeve.
3. Slide the chassis out of the wall sleeve far enough so that the vent screen is accessible.
4. Clean the vent screen, slide the chassis back into the wall sleeve, secure it in place with six screws and reinstall the front cabinet.

Cabinet Front

The cabinet front and discharge air grille can be cleaned with a water dampened cloth. Under no circumstances should hydrocarbon-based cleaners (e.g. acetone, benzene, naphtha gasoline, etc.) or ammonia based cleaners be used to clean the front or air grilles. Use care when cleaning the control area.

YEARLY MAINTENANCE AND CLEANING

NOTE: Use a mild biodegradable detergent when cleaning the unit. Special care must be taken to protect the unit's control board and other electrical components from getting any water on them while cleaning. The use of harsh or caustic cleaning agents or materials such as bleach or coil cleaners that are not designed for PTAC products will cause damage or deterioration of the aluminum fin or coil material and is not recommended. Care must be taken not to bend the aluminum fin stock.

8 MAINTENANCE AND CLEANING

Routine scheduled Maintenance

To achieve continuing top performance and high efficiency, establish a “once a year” cleaning/inspection schedule for the unit. Take the unit out of the sleeve and thoroughly clean and rinse. Be sure to include in the yearly cleaning the evaporator coil, and condenser coil, basepan, and drain passages.

Scheduled maintenance can be accomplished by either qualified local maintenance staff or by an authorized servicer. They must follow the instructions described in this manual.

Adverse Operating Conditions Maintenance

Units operating in dusty or corrosive locations; i.e. dusty construction site or sea coast, must be cleaned more often. A minimum of four (4) times a year will maintain proper operational conditions and protect unit components.

Wall sleeve

Clean the wall sleeve while cleaning the unit. The caulking around the sleeve should be checked to make sure that any potential air and water openings around the sleeve are properly sealed. The wall sleeve's level should also be rechecked. Proper leveling for most installations are a 1/4 bubble tilt to the outside and level from right to left.

Contact your sales person for detailed maintenance or cleaning instructions.

WARNING

DO NOT USE COMMERCIAL GRADE COIL CLEANERS. SOME OF THESE CLEANERS MAY CONTAIN ETHYLENE DIAMINE TETRACETIC ACID (EDTA) WHICH CAN SHORTEN THE LIFE OF THE CONDENSER COIL.

Base pan and Condenser coil

Before cleaning the base pan and condenser coil, turn OFF unit mode switch and disconnect power to the unit.

To disconnect power, either unplug the power cord at the wall outlet or subbase, or disconnect power at the fuse box or circuit breaker.

1. Create a water tight seal by tightly covering the entire control panel area and fan motor with plastic. Creating this seal prevents water from entering the control area or the fan motor and damaging the unit.
2. Spray condenser coil and base pan down with water. Next spray a mild biodegradable detergent onto the condenser coil and base pan. Let set for five (5) minutes.
3. Rinse condenser coil and base pan with water again.

NOTE: Ensure water pressure is no higher than that of an ordinary garden hose and the water temperature no higher than 120°F.

4. Tilt the non-compressor side of the unit up no higher than 45 degrees and allow water to drain out the other side of the unit.
5. Remove excess water left in the base pan by wiping the base pan with a dry cloth.
6. Remove the water-tight seal from the motor and control panel area.
7. Reinstall unit back into wall sleeve.
8. Allow unit to dry for 24 hours before reapplying power. When power is reapplied test unit for proper operation.
9. Place a non-acidic algaecide in the base pan to inhibit bacteria growth. Ensure the algaecide is compatible with wet coil operation and is not corrosive to the coil.

CAUTION

HIGH PRESSURE AND HIGH TEMPERATURE CLEANING IS NOT RECOMMENDED. DOING SO COULD DAMAGE THE ALUMINUM FIN STOCK AND ELECTRICAL COMPONENT.

Clearance Check

Clearances around the unit should also be checked to make sure that the intake air and discharge air paths have not become blocked or restricted. A minimum of eight inches clearance is needed from unit to furniture, beds, or other objects for proper operation. Restricted discharge or intake air will reduce the unit's operational performance. In severe airflow restrictions damage can occur to unit components such as the compressor, electric heater or fan motor.

9 NORMAL OPERATING SOUNDS AND CONDITIONS

Water trickling sounds

Water is picked up and distributed over the coil. This improves the efficiency and helps with water removal.

Water dripping

Water will be collected in the base pan during high humidity days. This can cause overflow and drip from the outside of the unit.

Air sounds

The fan cycle switch sets the operational mode of the fan. In the ON position the fan will run continuously whenever power is applied in this mode. In the AUTO position, the fan will cycle on and off with the compressor or electric heater.

Starting delay

You may notice a few minutes delay in the starting if you try to restart the unit too soon after turning it off or if you adjust the thermostat right after the compressor has shut off. This is due to a built-in delay to protect the compressor.

Buzzer Response

The buzzer will chime "Di"(0.1 sec) as response when receiving the effective order from key pad control and remote control.

DIAGNOSTIC CODES

The Diagnostic Maintenance provides detailed information on PTAC control operation and operational status including present modes, failures, airflow restriction warnings, operating temperatures, and past failures. To enter Diagnostic Status Report mode, press and hold the down arrows and, while hold press the FAN SPEED key for a period of five (5) seconds.

The meaning of figure on display pad is as below:

X.X----(0~4: time of protection)

L — is protection mode(1: anti-frost; 2: overheat; 3: high pressure; 4:anti-freezing)

Protective Auto Diagnostics

Failure code	Content of defect
E2	Indoor temperature sensor failure
E3	Indoor coil temperature sensor failure
E4	High temperature protection of air outlet
E5	Outdoor coil temperature sensor failure
E7	Failure of air outlet temperature sensor
E8	Overheating protection/defrosting
E9	High temperature protection of outdoor coil
EE	EEPROM error
EH	Electric Heater Selection Error

10 TROUBLE SHOOTING

POSSIBLE CAUSES	SOLUTIONS
<p>UNIT DOES NOT START</p> <ul style="list-style-type: none"> ● Unit may have become unplugged. ● Fuse may have blown. ● Circuit breaker may have been tripped. ● Unit may be off or in wall thermostat mode. <p>Check section on dipswitch settings to verify dipswitches are set properly.</p> <ul style="list-style-type: none"> ● Unit may be in a protection or diagnostic failure mode. See section on diagnostic codes. ● If in wall thermostat mode, system switch may be off at thermostat. 	<ul style="list-style-type: none"> ● Check that plug is plugged securely in wall receptacle. Note: Plug has a test/reset button on it. Make sure that the plug has not tripped. ● Replace the fuse. ● Reset circuit breaker. ● Turn unit on (bottom right button on keypad). ● Turn unit on to heating or cooling mode at wall thermostat switch.
<p>DISPLAY HAS STRANGE NUMBERS/CHARACTERS ON IT</p>	<ul style="list-style-type: none"> ● The unit may be in a diagnostic condition. Check diagnostic codes --- checking Control section to determine if unit has had a failure. ● The unit may be set for °C (instead of °F), see the “SENIOR OPERATION”.
<p style="text-align: center;">UNIT MAKING NOISES</p>	<ul style="list-style-type: none"> ● Clicking, gurgling and whooshing noises are normal during operation of unit.
<p>UNIT NOT COOLING / HEATING ROOM</p> <ul style="list-style-type: none"> ● Unit air discharge section is blocked. ● Temperature setting is not high or low enough. <p>Note: Setpoint limits may not allow the unit to heat or cool the room to the temperature desired. Check section on dipswitch settings.</p> <ul style="list-style-type: none"> ● Unit air filters are dirty. ● Room is excessively hot or cold when unit is started ● Vent door left open ● Unit may be in a protection or diagnostic failure mode. <p>Check section on Intelligent Self --- checking Control.</p> <ul style="list-style-type: none"> ● Compressor is in time delay. There is a protective time delay (approx. 3 minutes) on starting the compressor after a power outage (or restarting after it has been turned off), to prevent tripping of the compressor overload. 	<ul style="list-style-type: none"> ● Make sure that curtains, blinds or furniture are not restricting or blocking unit airflow. ● Reset to a lower or higher temperature setting. ● Remove and clean filters. ● Allow sufficient amount of time for unit to heat or cool the room. <p>Start heating or cooling early before outdoor temperature, cooking heat or gatherings of people make room uncomfortable.</p> <ul style="list-style-type: none"> ● Close vent door. ● Check DIP switch settings for desired comfort. ● Wait approximately 3 minutes for compressor to start.
<p style="text-align: center;">WATER DRIPPING OUTSIDE</p>	<ul style="list-style-type: none"> ● If a drain kit has not been installed, condensation runoff during very hot and humid weather is normal. If a drain kit has been installed and is connected to a drain system, check gaskets and fittings around drain for leaks and plugs.
<p>WATER DRIPPING INSIDE</p> <ul style="list-style-type: none"> ● Wall sleeve is not installed with slope toward outside. 	<ul style="list-style-type: none"> ● Wall sleeve must be installed level correctly for proper drainage of condensate. Ensure the sleeve is properly leveled according to these installation instructions and make any necessary adjustments.
<p>ICE OR FROST FORMS ON INDOOR COIL</p> <ul style="list-style-type: none"> ● Low outdoor temperature ● Dirty filters 	<ul style="list-style-type: none"> ● Remove and clean filters.
<p>COMPRESSOR PROTECTION</p> <ul style="list-style-type: none"> ● Compressor operation may have been interrupted, so compressor is in a restart protection. 	<ul style="list-style-type: none"> ● Random Compressor restart — Whenever the unit is plugged in, or power has been restarted, a random compressor restart will occur. After a power outage, the compressor will restart after approximately 3 minutes. ● Compressor Protection — To prevent short cycling of the compressor, there is a random startup delay of 3 minutes and a minimum compressor run time of 3 minutes.

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