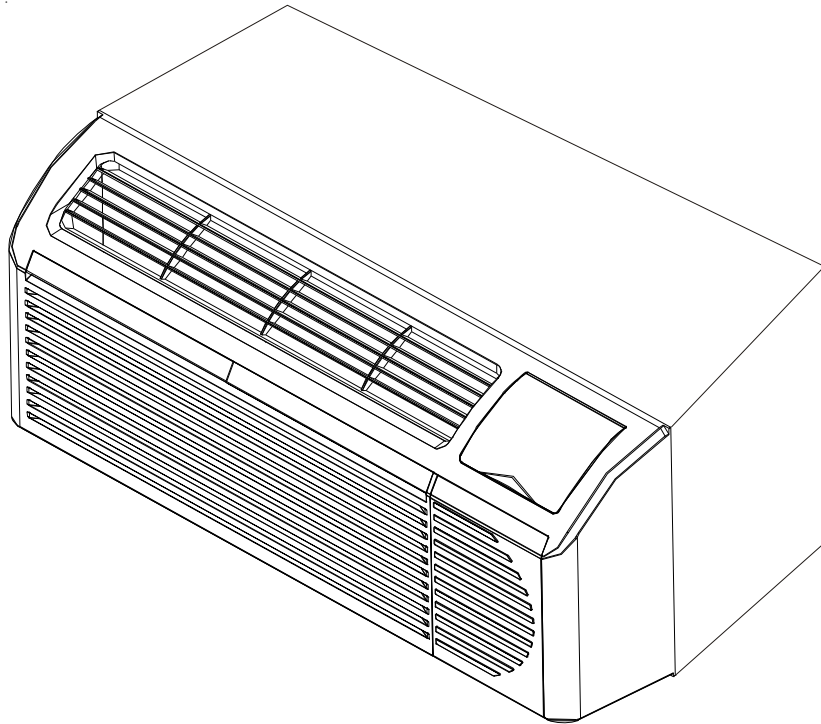




PACKAGE TERMINAL AIR CONDITIONER/HEAT PUMP 50 Hz

INSTALLATION INSTRUCTIONS & OWNER'S MANUAL *Standard with LED Control*



RECOGNIZE THIS SYMBOL AS A SAFETY PRECAUTION.

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.

This manual must be left with the owner of the equipment.

Goodman Manufacturing Company, L.P.
5151 San Felipe, Suite 500 • Houston, TX 77056

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March 2011

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



CONTENTS

UNIT FEATURES	2
ELECTRICAL	4
INSTALLATION	4
SYSTEM CONFIGURATION	8
AUXILIARY CONTROLS	10
OPERATION	14
MAINTENANCE AND CLEANING	15
OBTAINING SERVICE	17
NORMAL OPERATING	
SOUNDS AND CONDITIONS	17
NOMENCLATURE	19

IMPORTANT NOTE TO THE OWNER

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

IMPORTANT NOTES:

Before using this manual, check the serial plate for proper model identification. Write down the model and serial numbers for future reference.

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 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.



**RECOGNIZE THIS SYMBOL
AS A SAFETY PRECAUTION.**



WARNING

GOODMAN 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. MULTIPLE POWER SOURCES MAY 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

THIS AIR CONDITIONER IS NOT MEANT TO PROVIDE UNATTENDED COOLING OR LIFE SUPPORT FOR PERSONS OR ANIMALS WHO ARE UNABLE TO 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. PRECAUTIONS MUST BE TAKEN TO WARD OFF OR GUARD AGAINST SUCH AN OCCURRENCE.

UNIT FEATURES

This unit has many features which are different than those found on standard package terminal air conditioning units. The servicer must be familiar with these features in order to properly service the unit and the owner must familiarize themselves with these features in order to fully understand the operation and capability of the unit.

- **LED Status** - This unit is equipped with an on-board computer that utilizes real time diagnostics to prolong the life of your unit. The LED indicator on the control board (behind the front panel) flashes an error code if the unit has detected a fault condition. In most cases, the unit will automatically clear the fault condition and continue operating with no interruption. If the condition cannot be cleared and an **Fx** failure code is displayed on the digital display, the unit will require service by a qualified servicer.

NOTE: For a detailed list of all error codes and **Fx** conditions, see Table 4.

- **Memory** - If power is lost to the unit, all control settings (set point, mode, fan speed, on/off and configuration) are remembered. When power is restored, the unit will begin in the same mode as when power was lost.

- **Premium Sound** - The unit is equipped with 2 fan motors and a tangential blower wheel for optimum sound quality. To help reduce compressor start-up noise, the indoor fan runs a minimum of 10 seconds before the compressor starts.
- **Random Compressor Restart Delay** - To help eliminate power surges after a power outage, the unit is equipped with a two minute, forty five second (2:45) to three minute, 15 second (3:15) random restart delay feature. Whenever the unit is plugged in or power has been restored, a random compressor restart will occur.
- **Compressor Protection** - To prevent short cycling of the compressor (and to maximize compressor life), there is a random start-up delay of 3 minutes on the compressor and a minimum compressor run time of 3 minutes.
- **Automatic Freeze Protection** - Whenever power is supplied to the unit and freeze protection is activated, and the unit senses the temperature is below 40°F, the fan motor and electric heater are turned on and will warm the room to 50°F. Freeze protection can be turned off, if required, by changing the configuration setting. (See section on System Configuration.)
- **Automatic Quick Warm-up (HP models only)** - When room temperatures fall to 5°F below the set point temperature, the reverse cycle heat is turned off and the electric strip heat is turned on for one cycle, until heating is satisfied.
- **Display and LED Indicators** - The unit has two (2) 8-segment display and 11 LED indicators including: **HIGH, MED, LOW, AUTO, COOL, FAN, HEAT, ON/OFF, SET POINT, INDOOR** and **TIMER**.
 1. **MODE INDICATOR DISPLAY:** When the PTAC unit operates in a certain mode, that corresponding mode indicator will be bright.
 2. The **ON/OFF** indicator is green when the board is **ON** and red when the board is **OFF**.
 3. **FAN SPEED DISPLAY:** When operating at **HIGH, MED, LOW** or **AUTO FAN SPEED**, the corresponding indicator will be bright.
 4. **DISPLAY:** While in **COOLING** or **HEATING** mode, the Dual-8 will display the set point temperature. Ambient temperature will be displayed in cooling and heating modes by setting the dial switch while in **FAN** mode.
 5. If the display has three bits, the Dual-8 will display "ten's digit" + "unit's digit" at first; it will then display "BLANK" + "hundred's digit".
- **Configure Fan to Optimize Selected Application** - PTAC can be optimized to selected application by configuring the fan to run in continuous mode or to cycle on and off with the compressor and electric heater (can be different for both heating and cooling models). In cycle mode, the fan will continue to run after the compressor or electric heater stops, thus helping to blow off any residual heat or cooling left on the coil.
- **Unit Configuration** - Many different configurations are possible by using both the dip switches and the digital keypad, thus allowing you to configure your unit to your exact application. See the section on System Configuration for more details.
- **°F or °C** - This PTAC can be configured to display either Fahrenheit or Celsius.
- **Indoor Temperature Sensor** - Optimize the room temperature sensor reading to your exact application; one for cooling and another for heating.
- **Emergency Heat (HP models only)** - Disables the compressor during heating mode operation (heat only with electric heat).
- **Display Set Point OR Room Temperature** - The unit can be configured to display the room temperature OR set point, only during heating and cooling modes. See the section on System Configuration for more details.
- **Limit the Set Point Range** - The unit can be configured to limit the controlling set point range. The display will always show the complete set point range, but the controlling set point will be limited to the configured minimum and maximum set point selected. See the section on System Configuration for more details.
- **Energy Management (Front Desk Control)** - An input is provided so that the PTAC can be manually disabled from a different location. If the unit detects 24vac on this input, it will automatically turn itself off. If no voltage is detected on the input, the unit will run normally.
- **Wall Thermostat Control** - If a wired wall thermostat is connected to the unit, the unit must be configured to disable the keypad. See the section on Wired Inputs and Dip switches for more details.

ELECTRICAL

 **WARNING**



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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.

 **CAUTION**

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 A LOOSE PLUG/RECEPTACLE CONNECTION.

 **CAUTION**

TO AVOID PROPERTY DAMAGE, PERSONAL INJURY OR DEATH DUE TO ELECTRICAL SHOCK, DO NOT ALTER THE POWER CORD OR USE AN EXTENSION CORD WITH THIS UNIT.

POWER CONNECTION OPTIONS

This unit is shipped with a power cord plug that is compatible for use in Argentina. If the plug shipped on the unit is not suitable for use in your country, remove the plug and install a comparable plug or adapter plug with a minimum capacity of 20 Amps. The new plug must meet all local codes and specifications. *Appropriate power cords are determined by the voltage and amperage of the branch circuit.*

ALL UNITS - WIRE SIZE

Use only the recommended wire size as noted in Table 1 and install on a single, dedicated circuit. All wiring must comply with local and national codes.

NOTE: All units are designed to operate off ONE single dedicated circuit only.

 **CAUTION**

TO AVOID THE RISK OF PROPERTY DAMAGE, PERSONAL INJURY OR FIRE, USE ONLY COPPER CONDUCTORS.

CIRCUIT WIRE SIZES*	
AMPS	AWG WIRE SIZES**
7.0 - 12	14
12.1 - 16	12
16.1 - 24	10

*Single circuit from main box.

** AWG - American Wire Gauge

Based on copper wire at 60° C temperature rating.

Table 1

Suggested Branch Circuit Wire Sizes

GROUNDING

For safety and protection, the unit is grounded through the service cord plug or through a separate ground wire provided on hard wired units. Make sure the branch circuit or general purpose outlet is grounded.

 **CAUTION**

TO AVOID THE RISK OF PERSONAL INJURY, WIRING TO THE UNIT MUST BE PROPERLY POLARIZED AND GROUNDED.

VOLTAGE SUPPLY

Check the voltage supply at the outlet. The voltage range must always be within the ranges found on the data information plate.

INSTALLATION

 **WARNING**

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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.

CHASSIS INSTALLATION

PTAC units are shipped without a wall sleeve. In applications where the unit is a replacement, it is recommended that a **GMC WS900G** wall sleeve be used.

These GMC units can retrofit General Electric, Amana, Trane and Friedrich sleeves/grilles. Make sure the outdoor grille is installed on the sleeve. See Table 2 for details.

For any retrofit sleeve application, the foam seals (factory installed on the outdoor coil) **MUST** provide a good seal between the grille and outdoor coil. These foam seals prevent recirculation of the outdoor coil air exiting the unit.

RETROFIT WALL SLEEVES	
Manufacturer	Wall Sleeve Part #
G.E.	Metal Sleeve RAB71
	Plastic Sleeve RAB77
Amana	Metal Sleeve WS900*
Trane	Metal Sleeve SLV149
Friedrich	T-Series Metal 11-1/2" Deep Wall Sleeve*
	Standard Depth Wall Sleeve 16 x 42 x 13-3/4" PXWS

*FR-SLEEVE-EXT accessory is required for retrofit into Friedrich (T-Series) wall sleeves.

⚠ CAUTION

TO AVOID EQUIPMENT DAMAGE OR IMPROPER OPERATION OF THE UNIT, FOAM SEALS ON THE OUTDOOR COIL MUST MAKE A SEAL BETWEEN THE COIL AND THE GRILLE. OTHERWISE, LOSS OF PERFORMANCE AND/OR PREMATURE DAMAGE TO THE MAJOR COMPONENTS OF THE UNIT CAN RESULT.

Table 2

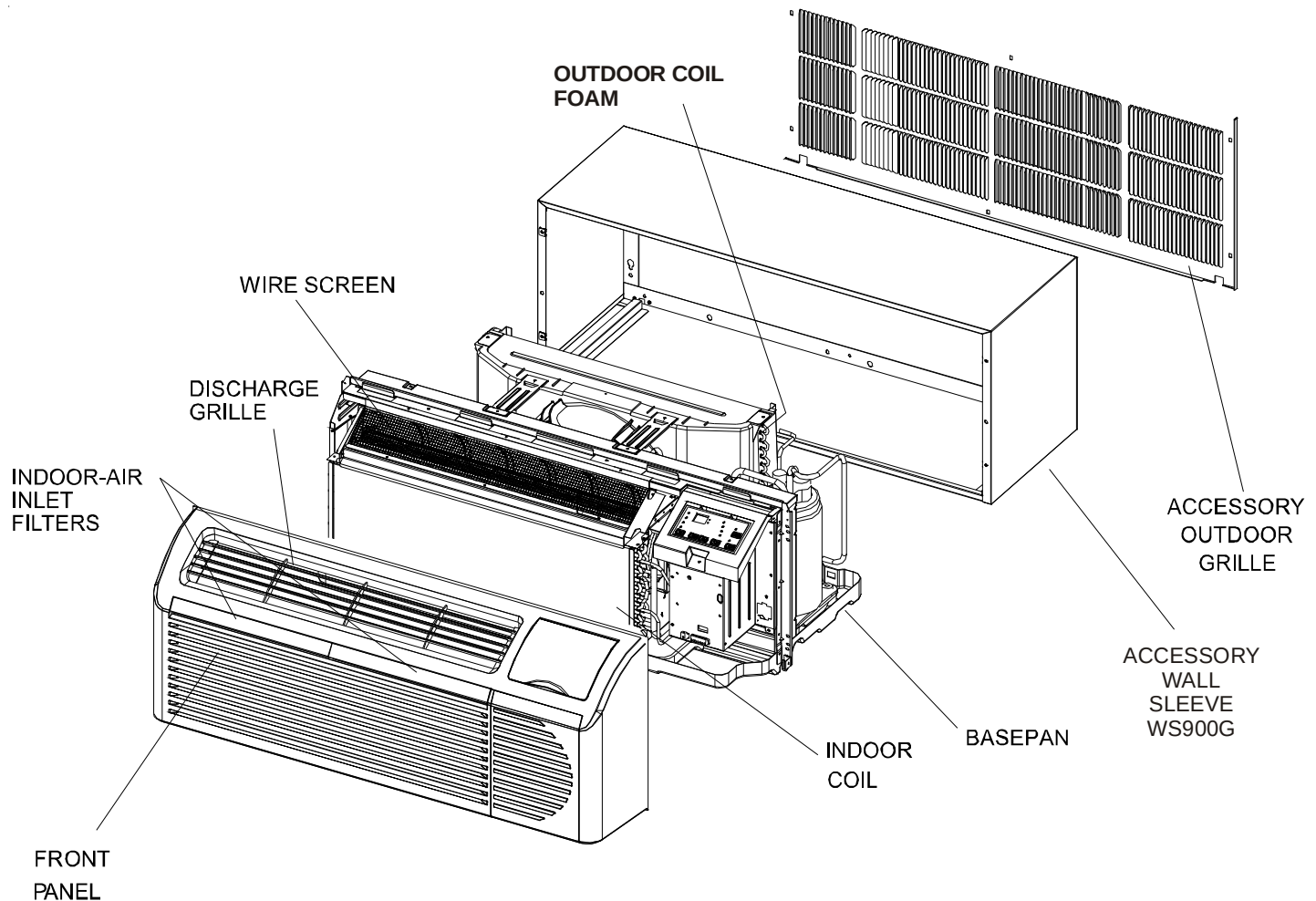
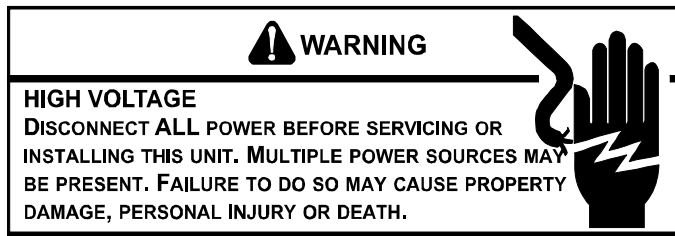


Figure 1

RETRO FIT SLEEVE PREPARATION

IMPORTANT: Inspect wall sleeve prior to installation. Goodman does not assume responsibility for costs or damages due to defects in sleeve or for improper installation.



If present, remove all existing foam baffles that are installed on competitive outdoor grille. See Figure 2.

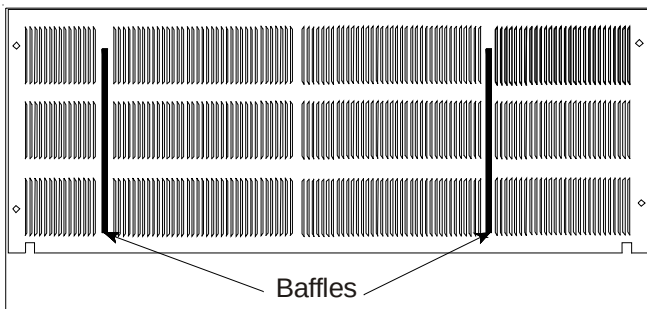


Figure 2

G.E. WALL SLEEVES ONLY:

METAL: G.E. metal sleeve is interchangeable with GMC WS900G Wall Sleeve. See Figure 3.

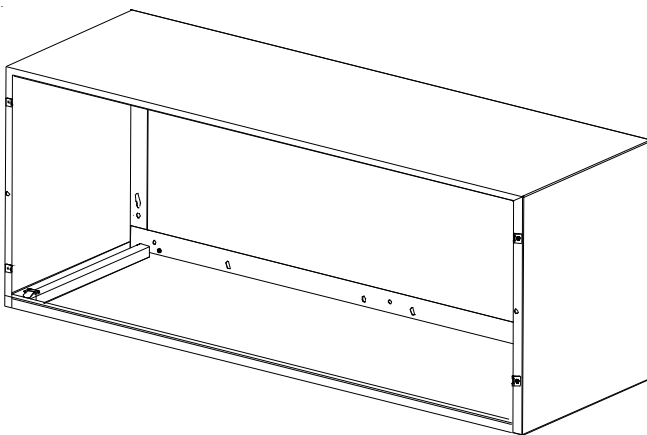


Figure 3

PLASTIC: Remove bottom seal from G.E. plastic wall sleeve. See Figure 4.

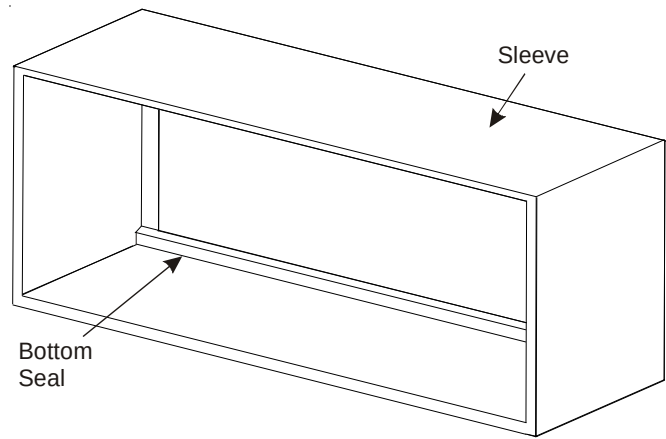


Figure 4

INSTALLATION OF A GMC BRAND WALL SLEEVE USING A NON-GMC GRILLE:

This application has become more common due to prefabricated windows with built-in grilles or renovations where a GMC wall sleeve is used with an existing non-GMC grille. Use of a GMC or Carrier brand wall sleeve with a non-GMC brand grille requires installation of an Accessory Baffle Kit, which ensures a good seal between the unit and the exterior grille to prevent air recirculation. See Figure 5.

Air recirculation is a major contributor to performance loss and premature damage to major components of the unit.

NOTE: GMC stamped grille is interchangeable with Carrier's grille.

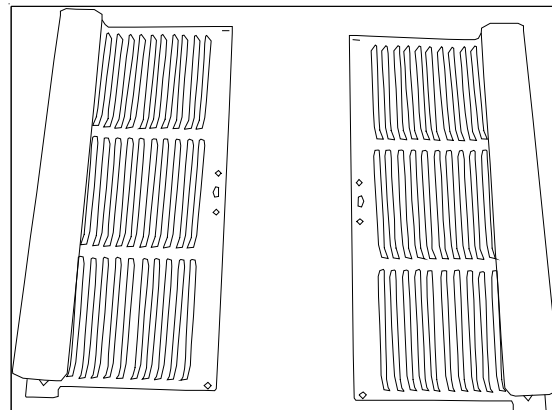


Figure 5

*Contact your unit's supplier to obtain the correct kit.
The actual product may differ from the figure shown above.*

INSTALLING UNIT INTO THE WALL SLEEVE

CAUTION

TO AVOID EQUIPMENT DAMAGE OR IMPROPER OPERATION, REMOVE SHIPPING TAPE AND SCREW. FAILURE TO DO SO WILL PREVENT FRESH AIR VENT DOOR FROM OPENING AND MAY RESULT IN DAMAGE TO THE VENT DOOR CABLE.

1. Carefully remove the shipping tape from the front panel and vent door. See Figure 6.

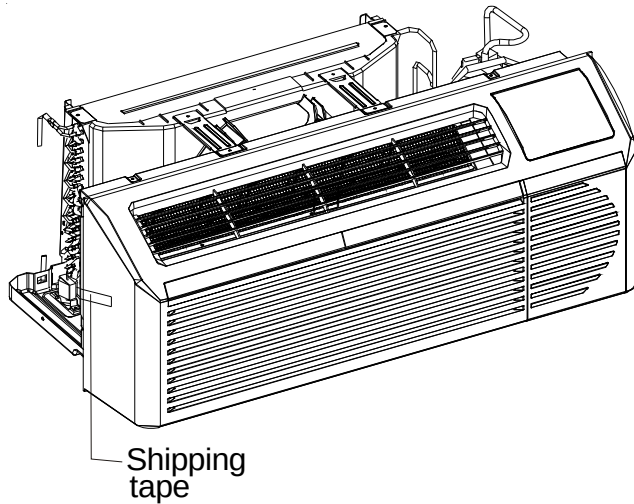


Figure 6

2. Remove shipping screw from the vent door, if present. See Figure 7.

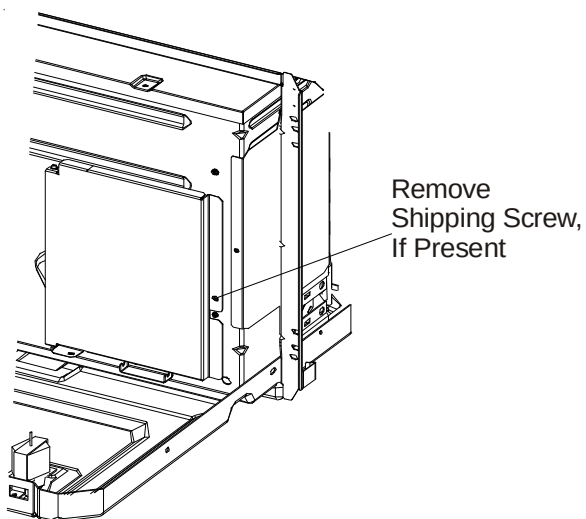


Figure 7

3. Remove front panel by gently pulling out the bottom to release it from the tabs then lifting up. See Figure 8.

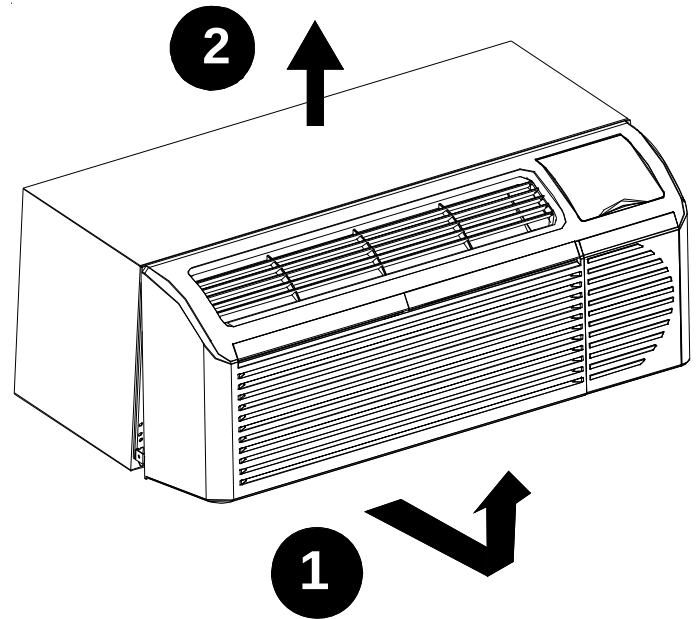


Figure 8

4. Lift unit level and slide unit into the wall sleeve until the foam seal rests firmly against the front of the wall sleeve.
5. Secure with the four supplied screws through the unit's flange holes. See Figure 9.

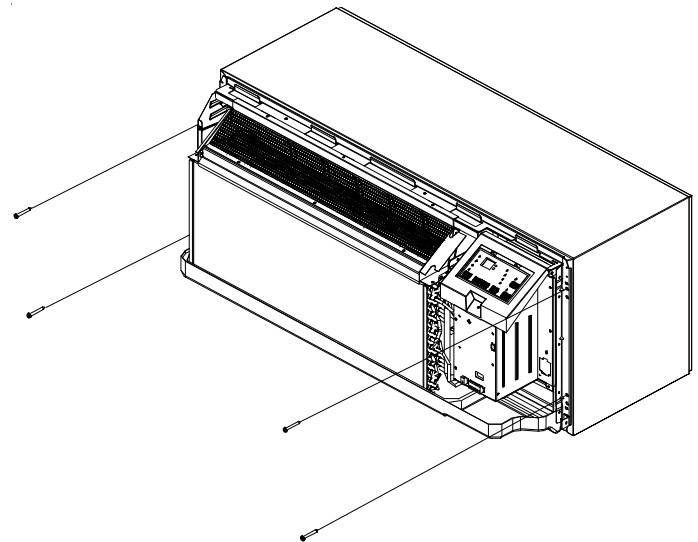


Figure 9

6. To reinstall front panel, place tabs over top rail (1). Push inward at bottom until panel snaps into place (2). See Figure 10.

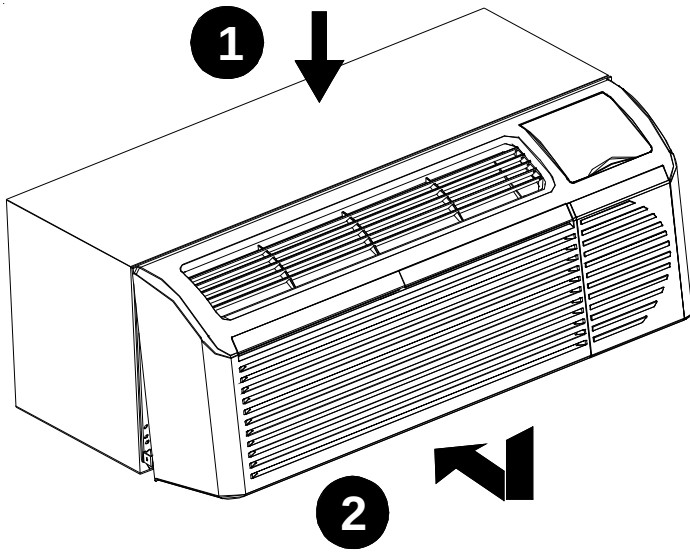


Figure 10

SYSTEM CONFIGURATION

VENTILATION CONTROL

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

NOTE: The vent door shipping hardware must be removed before using the vent control lever. See Figure 7.

When closed, only the air inside the room is circulated and filtered; when open, some outdoor air will be drawn into the room; *this will reduce heating or cooling efficiency. By keeping the vent control closed, room air will be filtered and circulated.*

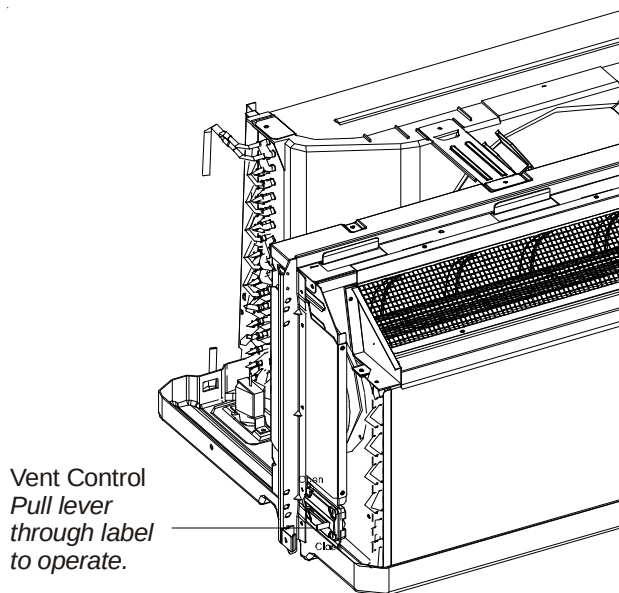


Figure 11

ADJUSTING AIR DIRECTION

1. Remove front panel. See Figure 8.
2. Remove louver screws holding louver insert in place from the back side of the front panel. See Figure 12.

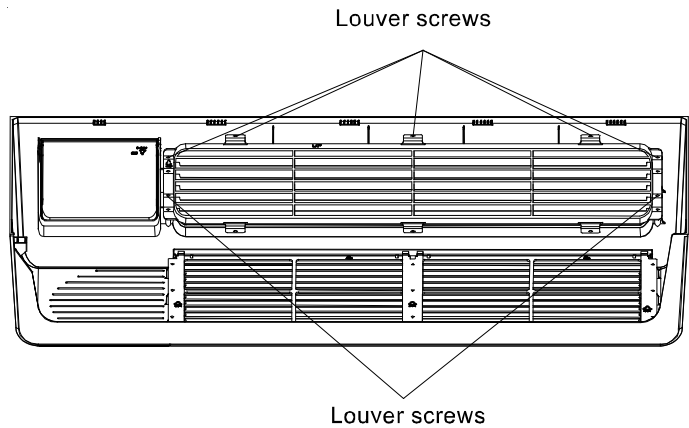


Figure 12

3. Turn louver insert and rotate 180°. See Figures 13A & 13B.

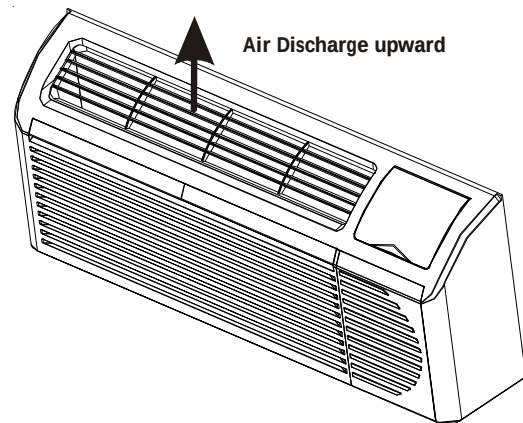


Figure 13A

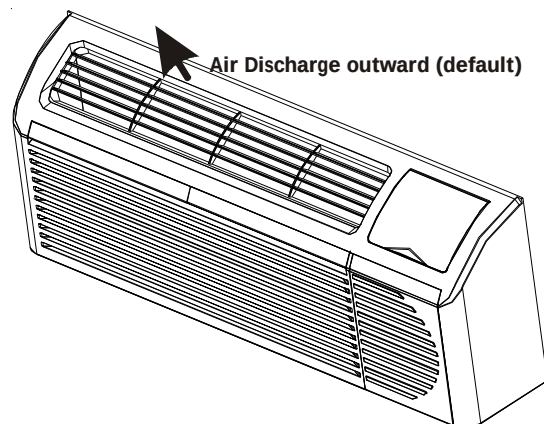


Figure 13B

4. Replace louver insert.
5. Replace screws and front panel.

DIP SWITCHES

Auxiliary dip switch controls are located behind the front panel, through an opening below the control panel. See Figure 14.

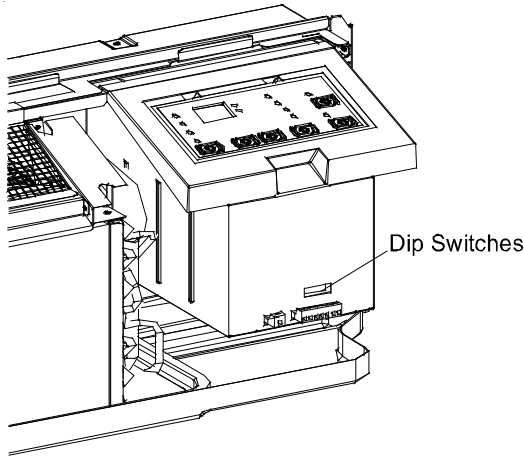


Figure 14

To access the controls, remove front panel. See Figure 8. Dip switches are accessible without opening the control box. The unit must be turned **OFF** to effectively change their status.

Factory settings for dip switches will be in the DOWN position. See Table 3. **NOTE: Use small pocket screwdriver to move dip switches up or down.**

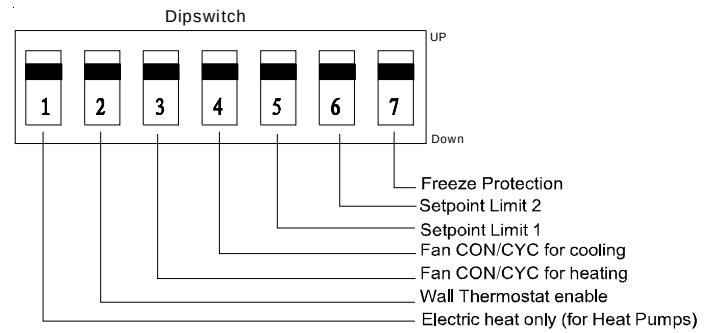


Figure 15

Electric Heating only / Emergency Heat (HP units only)

This setting is typically used for Emergency Heating.

Wall Thermostat Enable

If a wired wall thermostat is connected to the unit, this dip switch must be moved to the Wall Thermostat Enable Position before the wall thermostat will begin controlling the temperature level.

Heat and Cool Fan CON/CYC Dip Switches

Allows the fan to operate in continuous or cycle modes while the unit is in heating or cooling mode (continuous or cycle).

CON (Continuous)

Allows the fan to run continuously to circulate the air even when the temperature setting has been satisfied. This switch helps to maintain the room temperature closer to the thermostat setting. (See Figure 15.)

CYC (Cycle)

Allows the fan to cycle ON and OFF with the compressor or electric heater. The fan stops a short time after the temperature setting is satisfied. (See Figure 15.)

DIPSWITCH FUNCTIONS

NO.	UP		DOWN		DEFAULT	COMMENTS
1	Electric Heat Only		Heat Pump		DOWN	For Heat Pump Unit Only
2	Wall Thermostat Enabled		Control Panel Enabled		DOWN	---
3	Heating		Fan Cycle for Heating		DOWN	---
4	Fan Cycle for Cooling		Fan Continuously Runs for Cooling		DOWN	---
5 & 6	UP / UP 68° - 75° F 20° - 24° C	UP / DOWN 63° - 80° F 18° - 28° C	DOWN / UP 65° - 78° F 19° - 26° C	DOWN / DOWN 61° - 86° F 16° - 30° C (Full Range)	DOWN / DOWN 61° - 86° F 16° - 30° C	Two Configurations (5 & 6) combine to select set point range. When set point limit is set, display always shows full range.
7	Freeze Guard Disabled		Freeze Guard Enabled		DOWN	---

Table 3

Set Point Temperature Limits

Provides a restricted range of temperature control. (See Figure 15.)

Room Freeze Protection

If the unit senses a room temperature below 40°F, the fan motor and electric strip heat will turn on and warm the room to 50°F. The fan stops a short time after the temperature is satisfied. (See Figure 15.)

KEYPAD CONFIGURATION

Keypad Configuration allows further configuration of the system to your desired application. Changes do not take affect until power is cycled on the unit.

To Enter Keypad Configuration

Turn unit on. Within 30 seconds of the unit being powered up, press and hold the **FAN SPEED** button and **COOLER** button for 5 continuous seconds. *If the unit has had power for more than 30 continuous seconds, keypad configuration cannot be entered.*

NOTE: When keypad configuration mode is first entered, it will default to Fahrenheit/Celsius Display mode.

To Scroll Through the Keypad Configuration Options:

Press and release the **FAN SPEED** button. The stored value will be displayed.

To Modify Configuration Settings:

Press and release the **WARMER** or **COOLER** buttons.

To Exit Keypad Configuration:

Keypad Configuration will automatically end 30 seconds after the last button press or when the **MODE** button on the keypad is pressed.

Fahrenheit/Celsius Display Switch

Changes the display between °F and °C. An **F** indicates Fahrenheit display and a **C** indicates Celsius. Default setting is in degrees Fahrenheit.

Indoor Air Temperature Sensor Biasing for Cooling Mode

Also known as an anticipator, the air temperature sensor bias is used to adjust the room air temperature reading when in cooling mode. (Not normally required.)

Indoor Air Temperature Sensor Biasing for Heating Mode

Also known as an anticipator, the air temperature sensor bias is used to adjust the room air temperature reading when in heating mode. (Not normally required.)

Indoor Temperature Display

Changes between showing the set point only on the display during heating and cooling modes (**SP**) or displaying the room temperature during heating and cooling modes (**AA**). **SP** is the default mode.

- **SP** is selected, only the set point will be displayed during heating and cooling modes, regardless of what the real temperature is in the room.

- If **AA** mode is selected, the room temperature will be displayed during heating, cooling and fan only modes.
 - If the mode button has been changed to either heating or cooling modes, the set point will be displayed for 10 seconds. After the 10 seconds, the room temperature will be displayed again.
 - If the **ON/OFF** button is depressed (when the unit is off) and the last mode was either cooling or heating mode, the set point will be displayed for 10 seconds before displaying the room temperature.
 - While in heating and cooling modes, if either the **UP** or **DOWN** set point key is depressed, the display will show the set point for 10 seconds. After the 10 second set point display, the room temperature will be displayed again.
- **O (Calibration Offset)** - Temperature can be set between 6 & -6. For example: If set at -6, with a set point of 70°F, room temperature will be 64°F.

Switch Over Between Emergency Auto Cooling Allowed and Emergency Auto Cooling Rejected

- Press **WARMER** or **COOLER** to switch between the display for Emergency Auto Cooling Allowed and Emergency Auto Cooling Rejected.
- Emergency Auto Cooling Allowed: Displays **CA**
- Emergency Auto Cooling Rejected: Displays **Cd**

AUXILIARY CONTROLS

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 WARNING	
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Wall Thermostat Terminal

Thermostat Wiring Routing

Thermostat wire is field supplied and the recommended wire gauge is 18 to 20 gauge solid thermostat wire.

NOTE: It is recommended that extra wires be run to the unit in the event any wires are damaged during installation.

Thermostat wire should **ALWAYS** be routed around or under but **NEVER** through the wall sleeve (Figure 16). The wire should then be routed behind the front panel to the terminal connector. See Figure 17.

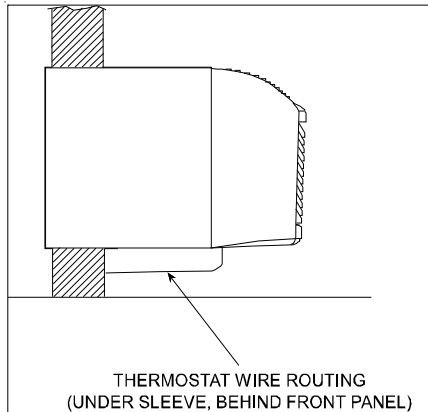


Figure 16

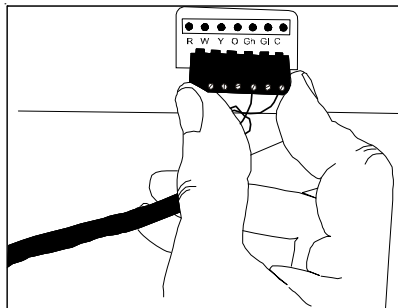


Figure 17

Wiring Thermostat to Unit

Wire wall thermostat as shown in Figures 19A and 19B.

NOTES: Terminal connector can be removed and replaced to simplify wiring.

On heat pump models: anytime there is a second-stage call for heating from the wall thermostat, the unit will automatically switch to electric heating.

Thermostat Wiring Installation

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1. Disconnect power from unit.
2. Gently pull terminal connector to remove.
3. Connect wire from the thermostat to terminals on unit's terminal connector.
4. Reinstall terminal connector.
5. Make sure that the unit is configured to enable the wall thermostat.
6. Replace control panel label with the wall thermostat label (included).
7. Restore power to unit.

IMPORTANT NOTES:

- Refer to the Thermostat Installation Instructions for details on installing the wall thermostat.
- For thermostats with only one fan speed (**ON** or **AUTO**), the fan speed is determined by how the terminal connectors is wired. If **LOW** fan is desired, wire the **G** output from the thermostat to **GL** on the unit's terminal block. If **HIGH** fan is desired, wire the **G** output from the thermostat to **GH** on the unit's terminal block.
- If your thermostat is not working correctly after installation, refer to the Troubleshooting section located in the rear of this manual.

Terminal Connections

The wall thermostat terminal block, located behind the front panel, is easily accessible on the front of the control panel.

CAUTION

TO AVOID THE RISK OF DAMAGE TO THE ELECTRONIC COMPONENTS, CARE MUST BE TAKEN TO WIRE UNIT PROPERLY. COMMON BUSING IS NOT PERMITTED SINCE DAMAGE OR ERRATIC OPERATION MAY RESULT.

Energy Management Input (Front Desk Control)

The controller can handle a switch signal from remote energy management input (**EM** signal or front desk control). Input must be 24 VAC. When the system receives a 24 VAC signal, the unit turns off. Otherwise, the unit runs in normal control. This function is disabled under Freeze Guard protection. See Figures 18 and 19 (A & B) for terminal connections.

LED Status

This PTAC unit will continuously check key components of the unit to ensure they are operating properly. Under normal operation, the unit's status indicator light (**STATUS** on main PCB) will display a steady **ON**.

If there is a minor failure, the unit will correct the fault automatically and the diagnostic code will be flashed on the Status LED that is easily visible when the front panel is removed (see Figure 18).

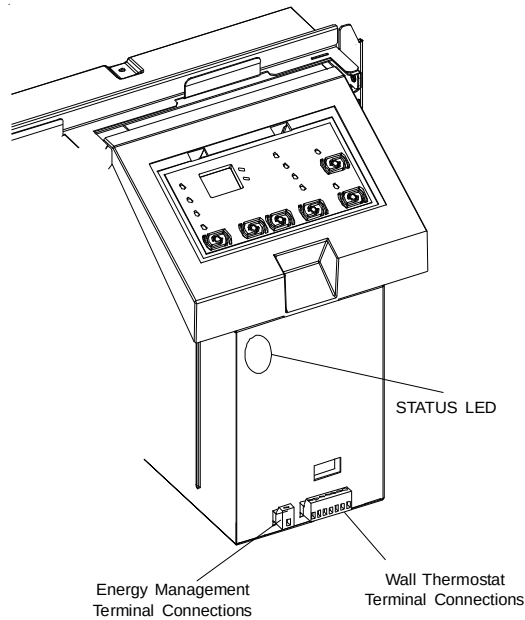


Figure 18

Terminal Connector and Status LED Location

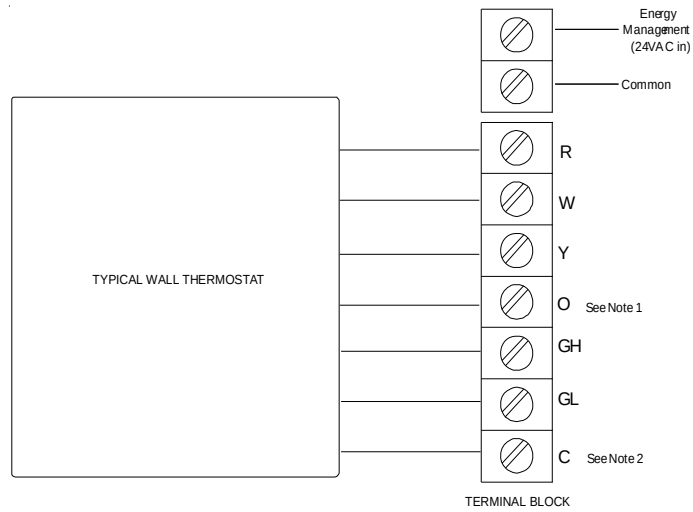
If there is a major problem, the unit will shut down and display a diagnostic failure code on the unit's display. Failure STATUS codes are listed in Table 4.

LED STATUS

	STATUS	DISPLAY
1	Indoor air temp sensor open/short	8-segment displays "F1", with STATUS light flashing 1 time & then off 3 seconds. Repeat.
2	Indoor coil sensor open/short	8-segment displays "F2", with STATUS light flashing 2 times & then off 3 seconds. Repeat.
3	Outdoor coil sensor open/short	8-segment displays "F4", with STATUS light flashing 4 times & then off 3 seconds. Repeat.
4	Freeze Guard protection	8-segment displays "FP"
5	Indoor coil freeze protection	STATUS light flashes 5 times & then off 3 seconds. Repeat.
6	Outdoor coil high temp protection	STATUS light flashes 6 times & then off 3 seconds. Repeat.
7	Defrost (heat pump type)	STATUS light flashes 7 times & then off 3 seconds. Repeat.
8	Indoor coil high temp protection	STATUS light flashes 8 times & then off 3 seconds. Repeat.
9	Thermostat wiring error	STATUS light flashes 9 times & then off 3 seconds. Repeat.
10	High pressure protection (opt.)	8-segment displays "E1". (Highest display grade)

NOTE: When the status light is flashing, it will be ON for 1 second and OFF for an additional second.

Table 4



- NOTES:**
1. Use terminal "O" for heat pump connection only.
 2. Terminal "C" (common) is typically only required for digital thermostats.

Figure 19A Wiring Connections

TERMINAL	DESIGNATION
R	24 VAC
W	Electric Heat
Y	Compressor
O	Reversing Valve
GH	High Fan
GL	Low Fan
C	Common

NOTE: Any illegal input combinations will be captured as thermostat wiring failures and will light the **STATUS LED** indicator on the main board (see LED STATUS section).

NOTE: It is recommended that a **GMC** compatible thermostat be used. If another brand of thermostat is used, be sure **O** signal gives the start-up command in cooling mode and the shut-down command in heating mode. *Please contact Goodman technical support personnel.*

Figure 19B Wiring Connections

OPERATION

Button Functions: Press the button for 3 seconds and the corresponding function will be started. Display starts immediately.

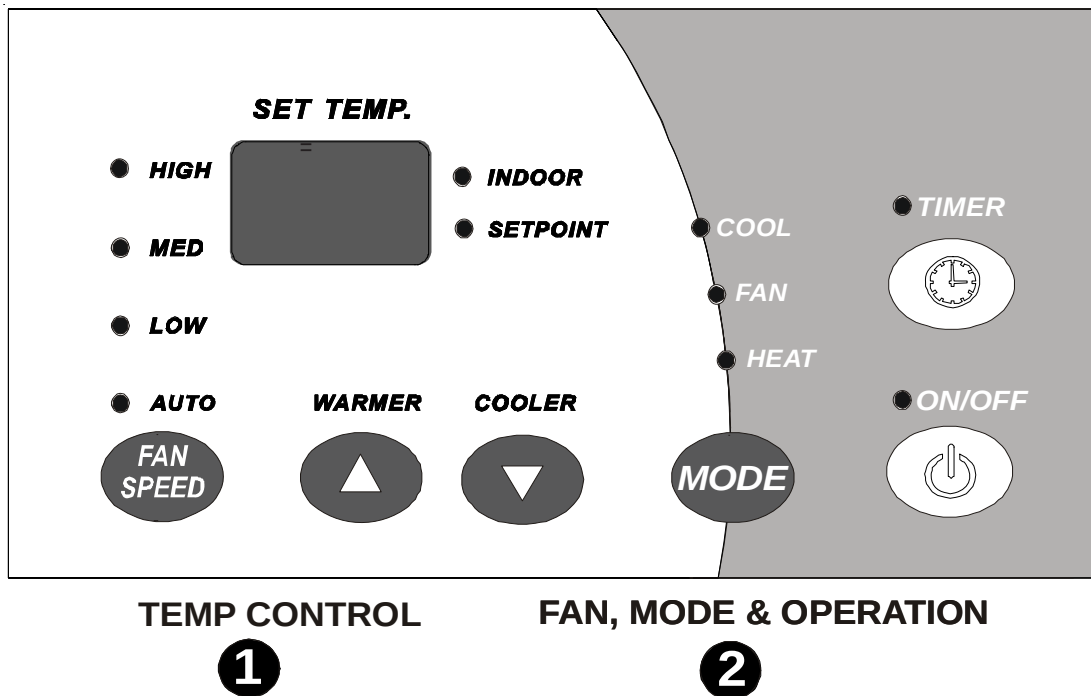


Figure 20

TOUCHPAD CONTROLS

- ON/OFF:** Turns unit off & on.
- MODE:** Use to switch between **COOL**, **FAN** & **HEAT** modes.
- WARMER or COOLER:** Use to increase or decrease temperature or timer setting.
- FAN:** Sets **HIGH**, **MEDIUM**, **LOW** or **AUTO** fan speed.
- TIMER:** Sets timer function.

While unit is off:

1. Press ON/OFF button to turn on the unit. By pressing the **WARMER** or **COOLER** buttons while the unit is off, the indoor temperature will display for 15 seconds. By pressing the **MODE** button while the unit is in the off position, the board will resume the status of operation before powering off (last know setting). *The operation indicator will show green.*

While unit is on:

2. When unit is on, all buttons are valid. *NOTE: In AUTO mode, the unit receives only the signal for turning off the unit.*

Timer function:

The timer function can be set by either buttons on the control panel or by the remote control.

- A. **TIMER ON:** When the unit is off, the **TIMER ON** can be set to automatically come on in from 0.5 (1/2 hr.) to 24 hours at its previous mode and fan setting.
- B. **TIMER OFF:** When the unit is on, the **TIMER OFF** can be set to automatically turn off in 0.5 (1/2 hr.) to 24 hrs. When the **TIMER OFF** time is reached, the system will stop operation.

C. **TIMER SETTING:** By pressing the **TIMER** button, you can set the timer function and the timer icon will be on. The selected time will be displayed and can be adjusted by pressing $\triangle$ or ∇ buttons. The timer can be set from “---” to 24 hours. Five seconds after the timer is set, the timer functions will be activated and the **TIMER** icon will be on. If “---” is displayed, the system will stop timer setting.

D. **TIMER PREVIEW:** When the timer function has been set, press the **TIMER** button to preview the remaining time left on this setting.

4. **AUTO FAN SPEED:** Fan speed can be automatically selected according to different modes and/or indoor temperature.
5. **AUTO COOLING OPERATION:** Emergency cooling (this feature can be turned off and on, as needed for your application). When indoor ambient temperature reaches $>30^{\circ}\text{C}$, the PTAC will begin cooling automatically. When the indoor ambient temperature reaches 27°C , the unit will cease operation.
6. **HIGH PRESSURE PROTECTION FUNCTION:** Optional. This function protects the compressor against damage resulting from high pressure.

MAINTENANCE AND CLEANING


WARNING



HIGH VOLTAGE

TO AVOID PROPERTY DAMAGE, PERSONAL INJURY OR DEATH DUE TO ELECTRICAL SHOCK, CLEAN AIR FILTERS AND COILS REGULARLY. CLOGGED OR SEVERELY RESTRICTED FILTERS OR COILS REDUCE AIRFLOW, WHICH CAN CAUSE DRASTIC EFFICIENCY LOSS AS WELL AS SEVERE COMPONENT DAMAGE TO COMPRESSORS, ELECTRIC HEATER OR FAN MOTOR. IN EXTREME CASES, CLOGGED FILTERS AND/OR COILS MAY CREATE A FIRE HAZARD AND WILL VOID THE WARRANTY


WARNING

SOME LOCAL CONDITIONS AND ENVIRONMENTS CAN CAUSE FUNGI AND OTHER MATERIAL TO GROW INSIDE THE **PTAC** UNIT. THIS MATERIAL WHEN DRIED, AS WELL AS OTHER FOREIGN MATERIAL, SIMILAR TO DRYER LINT IN YOUR CLOTHES DRYER, ARE FIRE HAZARDS. **BE SURE TO THOROUGHLY CHECK AND CLEAN THE UNIT'S COILS, BLOWER WHEEL AND BASEPAN PER THE INSTRUCTIONS CONTAINED IN THIS MANUAL.**

MONTHLY MAINTENANCE AND CLEANING

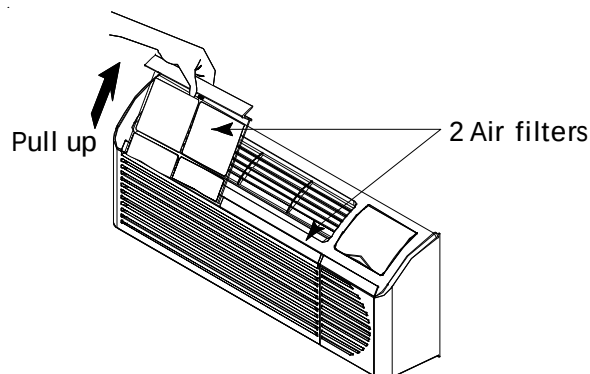
Intake Air Filters

To properly maintain the operational performance of your PTAC unit, it is **extremely** important that the inlet air filters 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 cabinet filter guides. Before cleaning the intake filter, turn the unit off by setting the mode switch to the OFF position. Filters should be cleaned as required.

The following procedure is used to remove the intake filters:

1. Grasp each filter by its molded handle, located on the front edge of the front, below the discharge grill.

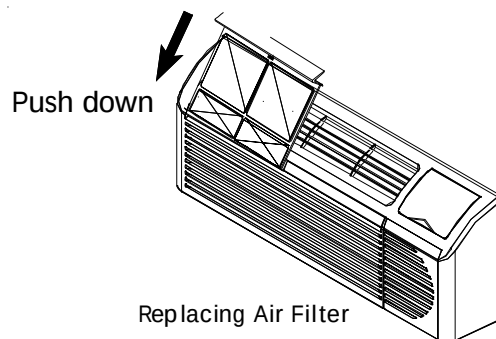
2. Pull the filter straight up and remove.



Removing Air Filter

Figure 21A

3. Clean filter with vacuum or with running water. *Allow filter to dry thoroughly before reinstalling it in the unit.*
- Reverse this procedure to reinstall the filter.



Replacing Air Filter

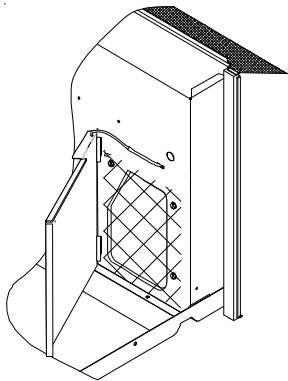
Figure 21B

Intake Filter Removal

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.



Vent - (Left Side Unit)

Figure 22

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 such as Simple Green™ 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.

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 coils, and condenser coils, 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 ¼ bubble tilt to the outside and level from right to left. Contact technical service for detailed maintenance or cleaning instructions.

Basepan and Condenser Coil



CAUTION

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.

Before cleaning the basepan 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 watertight 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 basepan down with water. Next spray a mild **biodegradable** detergent such as Simple Green™ onto the condenser coil and basepan. Let set for five (5) minutes.
3. Rinse condenser coil and basepan 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 basepan by wiping the basepan with a dry cloth.
6. Remove the watertight 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 basepan 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 COMPONENTS.

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.

OBTAINING SERVICE

In the event this unit requires repair or servicing beyond what is covered in this manual, contact an authorized service organization.

To obtain an authorized servicer, contact your sales representative or agency.

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 collect 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

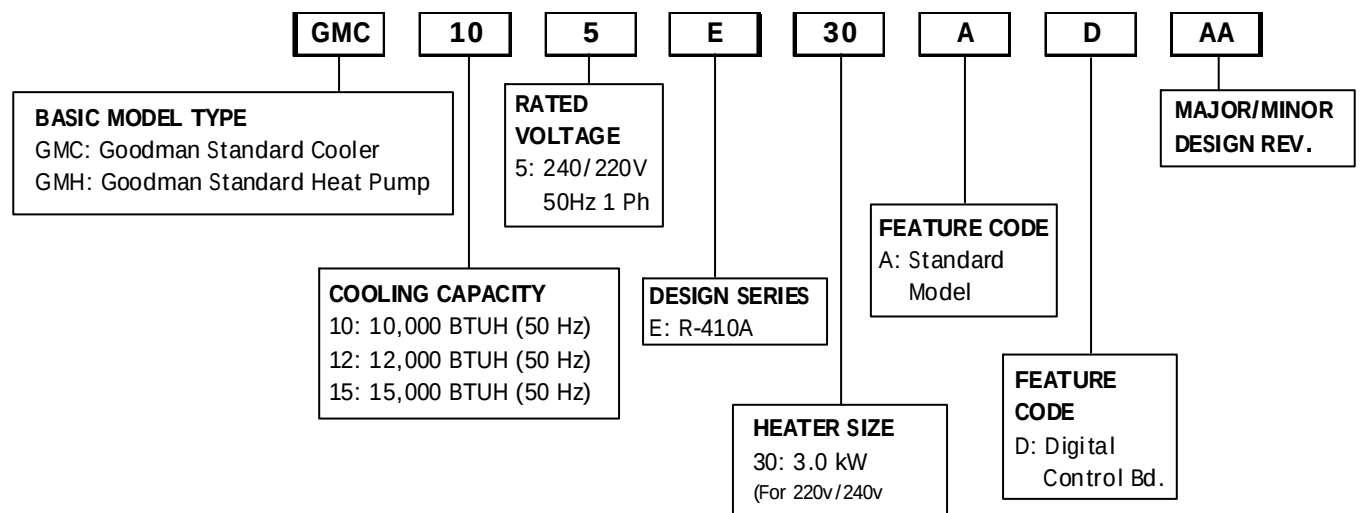
You may notice a few minutes delay in the starting if you try to restart the unit too soon after turning it off or if you adjust the thermostat right after the compressor has shut off. This is due to a built in delay to protect the compressor.

TROUBLESHOOTING

POSSIBLE CAUSES	SOLUTIONS
UNIT DOES NOT START - Unit may be unplugged. - Fuse may have blown. - Circuit breaker may have been tripped - Unit may be off in Wall Thermostat mode. Check section on dipswitch settings to verify dipswitches are set properly. - Unit may be in a protection or diagnostic failure mode. See section on Intelligent Self-Checking Control.	- Check to see if plug is securely seated in wall receptacle. NOTE: Plug has a test/reset button. Make sure the plug has not tripped. - Replace the fuse. - Reset circuit breaker. See Note 1. - Turn unit on (bottom right button on keypad). NOTE: If the unit turns on, the LED will be green. If the unit is off, the LED will be red. If there is no LED on, there is a problem with power or damage to the control.
UNIT IS NOT COOLING/HEATING ROOM - Unit's air discharge section is blocked. - Temperature setting is not high or low enough NOTE: Set Point limits may not allow the unit to heat or cool the room to the temperature desired. Check section on dipswitch settings. - Unit's air filters are dirty. - Room is excessively hot or cold when unit is started. - Vent door is left open. - Unit may be in a protection or diagnostic failure mode. Check section on Intelligent Self-Checking Control. - Compressor is in time delay. To prevent tripping of the compressor overload, there is a protective time delay (approx. 3 minutes) on starting the compressor after a power outage or upon restarting the unit after it has been turned off.	- Make sure that curtains, blinds or furniture are not restricting or blocking the unit's airflow. - Reset thermostat to a lower or higher temperature setting. - Remove and clean filters. - Allow sufficient time for unit to heat or cool the room. Begin heating or cooling early before outdoor temperature, cooking heat or gatherings of people make the room uncomfortable. - Close vent door. - Check dipswitch settings for desired comfort. - Wait approximately 3 minutes for compressor to start.
DISPLAY SHOWS UNUSUAL NUMBERS OR CHARACTERS	- The unit may be in a diagnostic mode. - Check Intelligent Self-Checking Control section to determine if the unit has had a failure. - The unit may be set for °C instead of °F. See the Keypad Configuration section.
UNIT IS MAKING NOISES	Clicking, gurgling and whooshing noises are normal during operation of the unit.
WATER IS DRIPPING OUTSIDE	If a drain kit has not been installed, condensation runoff during very hot and humid weather is normal. See NOTE 2 below. If a drain kit has been installed and is connected to a drain system, check the gaskets and fittings around the drain for leaks and plugs.
WATER IS DRIPPING INSIDE Wall sleeve is not installed correctly.	For proper drainage, the sleeve should be level from side to side and one quarter bubble in the sight glass sloping to the outside. Check that the unit is installed is correctly and make any necessary adjustments.
ICE OR FROST FORMS ON INDOOR COIL - Low outdoor temperature - Dirty filters	- When outdoor temperature is approximately 55°F or below, frost may form on the indoor coil when the unit is in Cooling mode. Switch unit to FAN operation until ice or frost melts. - Remove and clean filters.
COMPRESSOR PROTECTION Power may have cycled, so compressor is in restart protection.	RANDOM COMPRESSOR RESTART - Whenever the unit is plugged in, or power has been restored, 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.

NOTES: 1. If the circuit breaker is tripped or a fuse is blown more than once, contact a qualified electrician.
2. If the unit is installed where condensation drainage could drip in an undesirable location, an accessory drain kit should be installed & connected to the drain system.

NOMENCLATURE



GMC105E30ADAA

GMC125E30ADAA

GMC155E30ADAA

GMH105E30ADAA

GMH125E30ADAA



Goodman Manufacturing Company, L.P.
5151 San Felipe, Suite 500 • Houston, TX 77056
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