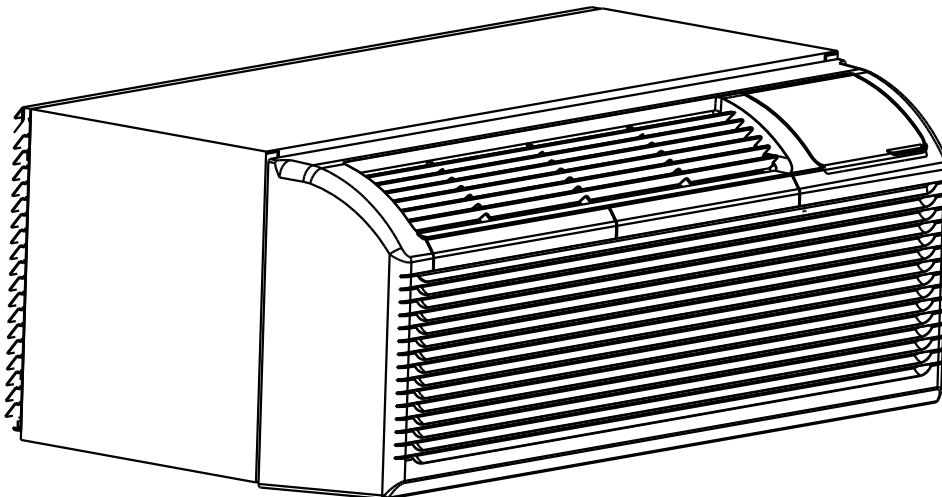


OWNER'S AND INSTALLATION MANUAL

**PACKAGED TERMINAL
AIR CONDITIONER/HEAT PUMP
R32 208/230V 60Hz**

DRPTAC07Y32351A, DRPTAC09Y32351A, DRPTAC12Y32351A,
DRPTAC15Y32351A, DRPTAC15Y32501A, DRPTHP07Y32351A,
DRPTHP09Y32351A, DRPTHP12Y32351A, DRPTHP15Y32351A,
DRPTHP15Y32501A



Model Number:

Serial Number:

Purchase Date:

Installing Contractor Company Name:



TIP

Capture relevant information about your Durastar PTAC equipment before it is installed and write it above for future reference.

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INTRODUCTION

To better serve you, please do the following before contacting customer service:

- If you received a damaged product, immediately contact the retailer or dealer that sold you the product.
- Read and follow this owner's manual carefully to help you use and maintain your air conditioner.
- Read the troubleshooting section of this manual as it will help you diagnose and solve common issues.
- Visit us on the web at www.durastar.com to download product guides and up-to-date information.
- If you need warranty service, our friendly customer service representatives are available via email at questions@durastar.com or by telephone at 1-888-320-0706.

WARNINGS

SYMBOLS USED IN THIS MANUAL



The warning symbol indicates cautionary information for the user. Extra care and precautions should be taken to ensure the user's safety.



The pencil indicates any manufacturer notes relating to surrounding content. These may include further clarifications or call-outs.



A light bulb symbol indicates suggested manufacturer tips for the user to get the most out of the Durastar equipment and to accommodate the best user experience.

IMPORTANT SAFETY PRECAUTIONS

Improper handling can cause serious damage or injury.
Please read the following safety information in its entirety.



CAUTION: Risk of fire/flammable materials



REFRIGERANT SAFETY (R32)

Please reference the R32 Safe Handling section of the Appendix for further safety precautions.

- Do not use means to accelerate the defrosting process or to clean the unit, other than those recommended by the manufacturer.
- The appliance shall be stored in a room without continuously operating ignition sources (for example: open flames, an operating gas appliance or an operating electric heater).
- Do not pierce or burn. Be aware that flammable refrigerants may not contain an odor.
- Compliance with national refrigerant regulations shall be observed.
- Keep ventilation openings clear of obstructions.
- Use caution while handling to prevent damage to the unit. Do not put any holes into the air conditioner for any reason. This can cause damage to the unit or refrigerant leaks.
- Maintenance and cleaning of the unit should be performed by trained personnel. Failure to properly clean the unit can result in damage to the refrigeration system and or the electrical system.
- Servicing should only be performed by technicians properly trained and certified in the use of flammable refrigerants. Any service performed by an unauthorized servicer or individual will void all warranties.
- Maintenance and repair requiring the assistance of other skilled personnel shall be carried out under the supervision of a person competent in the use of flammable refrigerants.
- When storing the appliance, do not put in a room with any open flame appliances, such as gas water heaters or furnaces. Also keep away from electric heaters. Damaged units should be repaired before storage.
- Flammable Refrigerant (R32) is used in the air conditioner. When maintaining or disposing of the air conditioner, the refrigerant shall be recovered properly, and shall not be discharged into the air directly.



OPERATION, CLEANING, AND MAINTENANCE SAFETY PRECAUTIONS

- Children and people with reduced physical, sensory, or mental capabilities, or lack of experience and knowledge, should only use this air conditioner if they are given supervision or instructions concerning use of the air conditioner in a safe way and understand the hazards involved. Children should not play with the air conditioner.
- Never stick fingers or any other body parts into the air conditioner openings. The internal fan may be rotating at high speeds, and may result in injury.
- After removing the filter, do not touch the fins in order to avoid injury.
- Maintenance or repair must be performed by qualified professionals competent in the use of flammable refrigerants. Otherwise, you may experience personal injury or damage to the air conditioner and surrounding property. Please contact a qualified service representative when you need to repair the air conditioner.
- Do not block the air outlet or air inlet. This could cause a malfunction.

- If the below problems occur, please turn off the air conditioner and disconnect power at the circuit breaker immediately. Then contact your dealer or a qualified professional for service.
 - The power cord is overheating or damaged.
 - There is an abnormal sound during operation.
 - The circuit breaker trips frequently.
 - The air conditioner gives off a burning smell.
 - The indoor unit is leaking.
- If the air conditioner operates under abnormal conditions, it may cause malfunctions, electric shock, or fire hazard.
- Do not step on the top panel of the unit, or put heavy objects on the top panel. This could cause damage or personal injury.
- Do not spray water on the indoor unit. This could cause electric shock or a unit malfunction.
- Do not use flammable materials such as hair spray, lacquer, or paint near the air conditioner as they may catch fire.
- Do not operate the air conditioner in places near flammable or combustible gases. Emitted gases may collect around the air conditioner and cause an explosion. There is risk of fire or failure of product. When flammable gas leaks near the unit, turn off the gas and open a window for ventilation, before turning the unit on. Do not use the telephone or turn switches on or off. There is a risk of explosion or fire.
- Do not use fire or a hair dryer to dry the filter. This could cause a deformation or fire hazard.
- Do not wash the air conditioner with water as this could cause an electric shock.
- Disconnect the power supply by turning it off at the circuit breaker when cleaning the air conditioner. Otherwise, you could risk electric shock.
- Always check for gas (refrigerant) leakage after installation or repair of product. Low refrigerant levels may cause the unit to fail.
- Be aware that the refrigerant may be odorless.
- Do not use the product in a tightly closed space for a long time. Oxygen deficiency could occur. The unit should be stored in a well-ventilated area where the room size corresponds to the room area as specified for operation.



ELECTRICAL SAFETY

- Only use the specified power cord. If the power cord is damaged, it must be replaced by the manufacturer, its service agent, or similarly qualified persons in order to avoid a hazard.
- Keep the power plug clean. Remove any dust or grime that accumulates on or around the plug. Dirty plugs can cause fire or electric shock.
- Do not pull the power cord to unplug unit. Hold the plug firmly and pull it from the outlet. Pulling directly on the cord can damage it, which can lead to fire or electric shock.
- Do not connect the air conditioner to a multi-purpose socket. Doing so could cause a fire hazard.
- Do not modify the length of the power supply cord or use an extension cord to power the unit.
- Do not share the electrical outlet with other appliances. Improper or insufficient power supply can cause fire or electrical shock.
- The product must be properly grounded at the time of installation, or electrical shock may occur.
- For all electrical work, follow all local and national wiring standards and regulations. Connect cables tightly, and clamp them securely to prevent external forces from damaging the terminal. Improper electrical connections can overheat and cause fire, and may also cause shock.



POWER SUPPLY CORD

The power supply cord contains a current device that senses damage to the power cord. To test your power supply cord do the following:



NOTE: Some plugs have buttons on the top.

1. Plug in the Air Conditioner.
2. The power supply cord will have TWO buttons on the plug head. Press the TEST button. You will notice a click as the RESET button pops out.
3. Press the RESET button. Again, you will notice a click as the button engages.
4. The power supply cord is now supplying electricity to the unit.

- Do not use this device to turn the unit on or off.
- Always make sure the RESET button is pushed in for correct operation.
- The power supply cord must be replaced if it fails reset when either the TEST button is pushed or it cannot be reset. A new one can be obtained from Durastar.
- If the power supply cord is damaged, it cannot be repaired. It MUST be replaced by one obtained from Durastar.
- Be sure the electrical service is adequate for the model you have chosen. This information can be found on the serial plate, which is located on the side of the cabinet and behind the grille.



RECEPTACLE REQUIREMENTS

The unit's power cord plug will differ, depending on the size of the auxiliary electric heater. The appropriate receptacle is required for the plug specified below.

3.5 kW	5 kW
<p>Plug Type (NEMA) 6-20P</p>	<p>Plug Type (NEMA) 6-30P</p>

INSTALLATION SAFETY

- Installation must be performed by an authorized dealer or specialist. Improper installation can cause water leakage, electrical shock, or fire. (In North America, installation must be performed in accordance with NEC and CEC requirements by authorized personnel only.)
- Installation must be performed according to the installation instructions. Improper installation can cause water leakage, electrical shock, or fire.
- This air conditioner shall be installed in accordance with national and local wiring regulations.
- Contact an authorized service technician for repair or maintenance of this unit.
- Only use the included accessories, parts, and specified parts for installation. Using non-standard parts can cause water leakage, electrical shock, fire, and can cause the unit to fail.
- Install the unit in a firm location that can support the unit's weight. If the chosen location cannot support the unit's weight, or the installation is not done properly, the unit may fall and cause serious injury and damage.

- Install drainage piping according to the instructions in the installation manual. Improper drainage may cause water damage to your home and property.
- For units that have an auxiliary electric heater, do not install the unit within 3 feet (1 meter) of any combustible materials.
- Do not install the unit in a location that may be exposed to combustible gas leaks. If combustible gas accumulates around the unit, it may cause a fire.
- Do not turn on the power until all work has been completed.
- When moving or relocating the air conditioner, consult experienced service technicians for disconnection and re-installation of the unit.
- Do not install the product where it will be exposed to sea wind (salt spray) directly. It may cause corrosion on the product. Corrosion, particularly on the condenser and evaporator fins, could cause product malfunction or inefficient operation.

ADDITIONAL PRECAUTIONS

- Turn off the air conditioner and disconnect the power if you are not going to use it for a long time.
- Turn off and unplug the unit during storms.
- Make sure that water condensation can drain unhindered from the unit.
- Do not operate the air conditioner with wet hands. This may cause electric shock.
- Do not use this device for any other purpose than its intended use.
- Do not climb onto or place objects on top of the outdoor unit.
- Do not allow the air conditioner to operate for long periods of time with doors or windows open, or if the humidity is very high.

OPERATING TEMPERATURES

Your air conditioner is designed to operate in the following indoor and outdoor temperatures. When your air conditioner is used outside of the following temperature ranges, certain safety features may activate and turn off the unit to protect it from damage.

TEMPERATURE RANGES

	COOL mode	HEAT mode
Indoor Air Temperature	62°F - 90°F (17°C - 32°C)	32°F - 80°F (0°C - 27°C)
Outdoor Air Temperature	64°F - 109°F (18°C - 43°C)	23°F - 76°F (-5°C - 24°C)


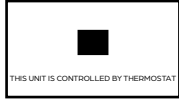
To further optimize the performance of your unit, do the following:

- Keep doors and windows closed.
- Do not block air inlets or outlets.
- Regularly inspect and clean air filters.

ACCESSORIES

INCLUDED INSTALLATION ACCESSORIES

The air conditioning system comes with the following accessories.

Accessory	Quantity	Image
Manual	1	
Wall Thermostat Pad	1-2	

INSTALLATION ACCESSORIES

The following installation accessories can be purchased separately.

- Wall Sleeve Assembly
- Rear Grille
- Drain Kit

TOOLS NEEDED

The following tools are required for installation.

- Phillips screwdriver
- Level
- Wire cutters (optional)

AIR CONDITIONER FEATURES

COMPRESSOR RESTART DELAY

When the compressor restarts, the unit goes into a three minute delay to equalize the refrigerant pressure. This feature extends the overall life of the compressor by preventing the short-cycling of the air conditioner.

MEMORY

The unit is programmed with a memory function. If power is lost, all of the control settings (mode, fan speed, on/off, and configuration) are retained. When power is restored, the unit will start back up in the mode (and configuration) it was in when power was lost.

AUTOMATIC EVAPORATOR FREEZE PROTECTION

If the evaporator temperature gets too low, the compressor will automatically turn off and the indoor fan will turn on to keep the evaporator from freezing.

AUTOMATIC QUICK WARM-UP (FOR HEAT PUMP MODELS ONLY)

If the room temperature falls to 8°F/4.5°C below the set temperature, the reverse cycle heat is shut off and the electric heat is turned on for one cycle, until heating is satisfied.

LED INDICATORS AND BUTTONS

The unit has an easy-to-use touch pad, with LED indicators, that makes operation simple and unit status clear.

UNIT CONFIGURATION

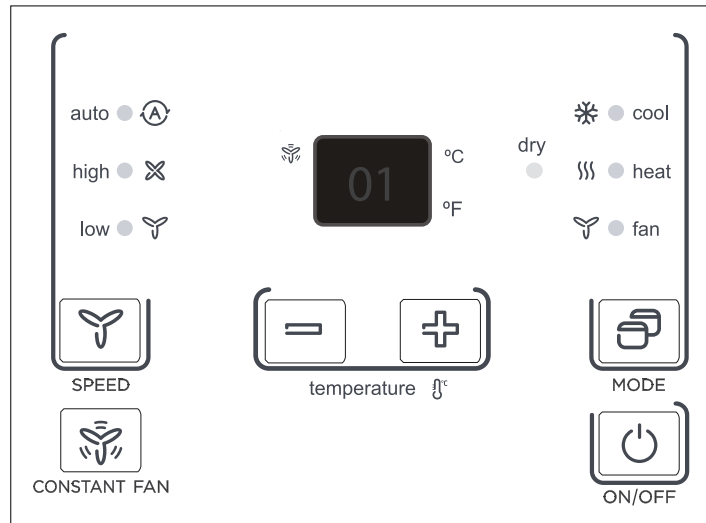
The unit can be configured in several different ways. Optional settings include: °F or °C display, setpoint temperature range, continuous (CON) or cycling (CYC) fan, low temperature protection, wall thermostat control, and front desk control. See the *Dip Switch Configuration* and *Wall Thermostat Terminal* sections for more details.

**TIP**

This unit has many features the servicer should be familiar with in order to properly service the unit.

CONTROL PANEL OPERATION

The control panel keypad will look like the following.



ON/OFF

Press the ON/OFF button to power the unit on or off.

MODE

Push this button to cycle through the modes from COOL-DRY-HEAT-FAN-COOL. The indicator light beside the option will illuminate, identifying the mode selected.

- **COOL:** In COOL mode, any temperature in the setpoint range can be chosen (See *Dip Switch Configuration* for setpoint temperature ranges). Cooling starts when the room temperature is above the setpoint, and stops when the room temperature is 4°F (2°C) below the setpoint.
- **DRY:** In DRY mode, the unit acts as a dehumidifier. Some degree of cooling continues.
- **HEAT:** In HEAT mode, the maximum temperature can be set to is 84°F (29°C). For heat pump models, the unit can alternate between the reverse cycle heat pump and the electric heater according to the difference between the set temperature and the room temperature. The fan motor cycles with the compressor.

NOTE

The heat pump and electric heater cannot be run at the same time. In the following cases, it is normal that the heat pump does not operate:

- When the outdoor temperature is lower than 40°F (4°C) or the room temperature falls to 8°F (4.5°C) below the set temperature.
- During the 3-minute compressor restart delay for short-cycling prevention. The indoor fan motor starts before the compressor and stops after the compressor cycles off.
- When the S1 DIP SWITCH is pushed to the UP (ON) position. This puts the unit in electric heat only mode.
- When frost builds up on the evaporator coils, the unit will defrost automatically and the compressor will cycle off.

- **FAN:** In FAN mode, the unit will display the room temperature. Only the fan will run and all heating and cooling operations are stopped.

UP/DOWN (+ / -)

Push the UP (+) or DOWN (-) button to increase or decrease the temperature setpoint by increments of 1°F (1°C) in COOL or HEAT mode. The set temperature will appear in the display.

CONTROL PANEL OPERATION

**NOTE**

With the unit powered on, press and hold the UP and DOWN buttons together for three (3) seconds to alternate the temperature display between °F & °C.

SPEED (FAN SPEED)

Push this button to cycle through the fan speeds from AUTO--HIGH--LOW--AUTO. The indicator light beside the option will illuminate, identifying the speed selected.

**NOTE**

When you select AUTO mode, the FAN speed will be automatically adjusted at the setting temperature and room temperature.

On DRY mode, the fan speed is controlled at low speed automatically.

CONSTANT FAN

In cooling mode, press the CONSTANT FAN button to turn this function on or off. When the function is turned on, the fan will run continuously. When the function is turned off, the fan will cycle with the compressor and stop when the set temperature is reached.

PANEL LOCKING

To lock/unlock the control panel, press the CONSTANT FAN button and the ON/OFF button together for five (5) seconds. "LL" will display when the control panel is locked.

LED DISPLAY

Shows the set temperature in °F or °C. While in FAN mode, it shows the room temperature.

DISPLAY CODES

Display may show various codes in certain configurations or conditions.

- Control codes:

LC- The unit is controlled by a wall thermostat. Control panel operation is not available.

FC- The unit is in Front Desk Control. Control panel operation is not available.

- Error Codes:

E0- Failure of EEPROM parameter

E3- Fan stall error

E4- Main control & display communication error

AS- Room temperature sensor error

ES- Evaporator temperature sensor error

CS- Condenser temperature sensor error

OS- Outside temperature sensor error

HS- Exhaust temperature sensor error

LE- Wall thermostat error

- Other Codes:

LO- Room temperature is lower than 32°F (0°C)

HI- Room temperature is higher than 99°F (37°C)

FP- Low Temperature Protection

**NOTE**

When an error occurs, unplug the unit for one (1) minute and plug it back in. If error repeats, call for service.

UNIT INSTALLATION

INSTALLATION INSTRUCTIONS

Install the new air conditioner according to these instructions to achieve the best performance. All wall sleeves used to mount the new air conditioner must be in good structural condition and have a rear grille that securely attaches to the sleeve or the flange of the sleeve. To avoid vibration and noise, make sure the unit is installed securely and firmly. When installing the sleeve, make certain there is nothing within 20" of the back that would interfere with heat radiation and exhaust air flow. For existing sleeves, you should measure the wall sleeve dimensions.

Air Conditioner and Wall Sleeve Dimensions

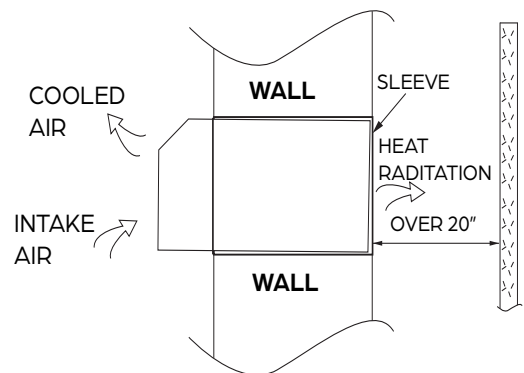
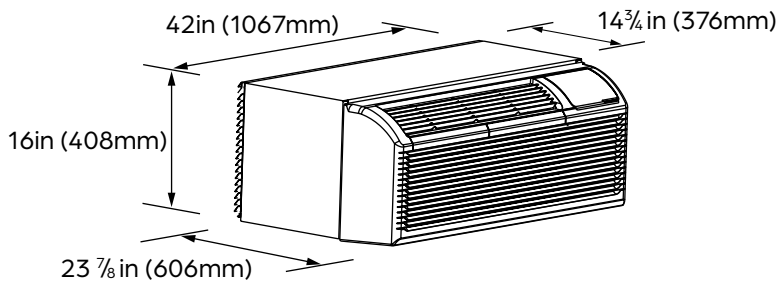
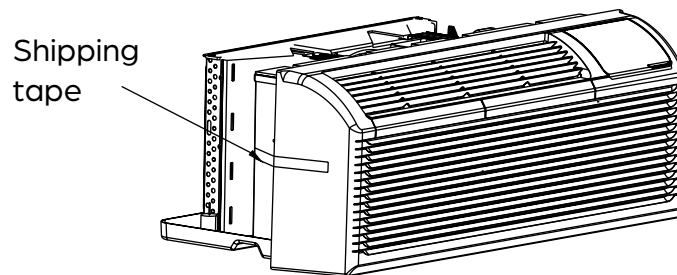


Fig.5

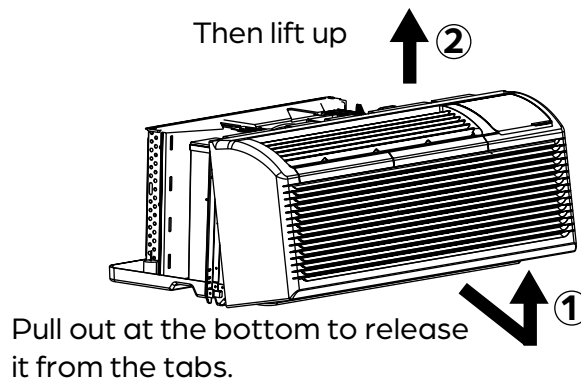
STEP 1:

Carefully remove the shipping tape from the front panel.



STEP 2:

Remove the front panel.



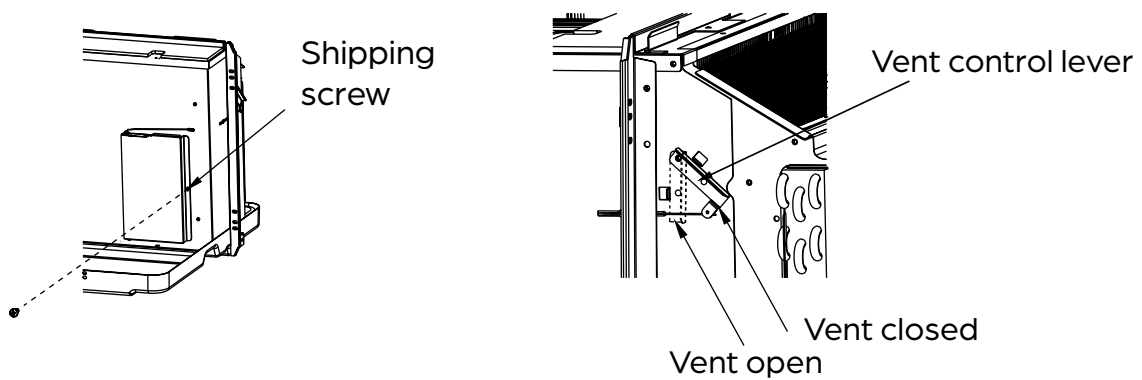
UNIT INSTALLATION

STEP 3:

Remove the shipping screw from the vent door and rotate the vent control lever to either open or closed.

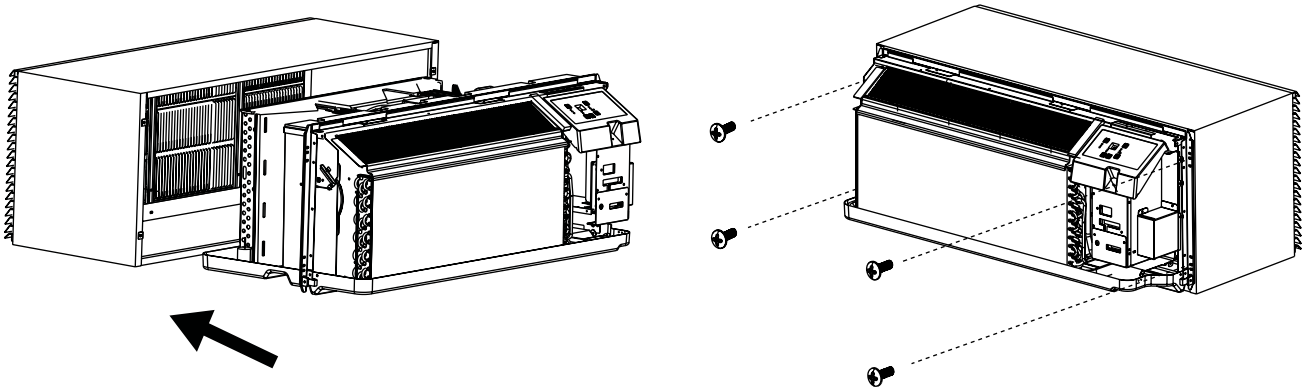
NOTE

When the vent control lever is set at the closed position, only the air inside the room is circulated and filtered. When set at the open position, fresh outdoor air will be drawn into the room. This will reduce heating or cooling efficiency.



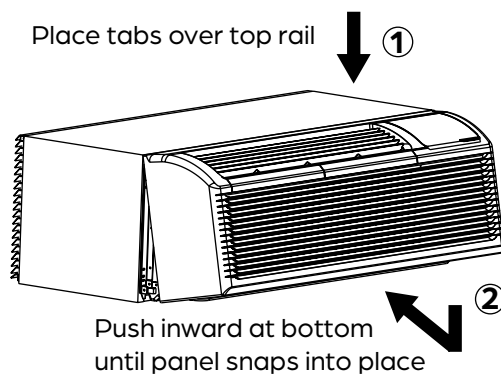
STEP 4:

Lift the unit and slide it into the wall sleeve until it is firmly against the back of the wall sleeve. Secure the unit with the four (4) screws and washers, supplied with the SLEEVE ASSEMBLY (purchased separately), through the corner holes that bracket the unit.



STEP 5:

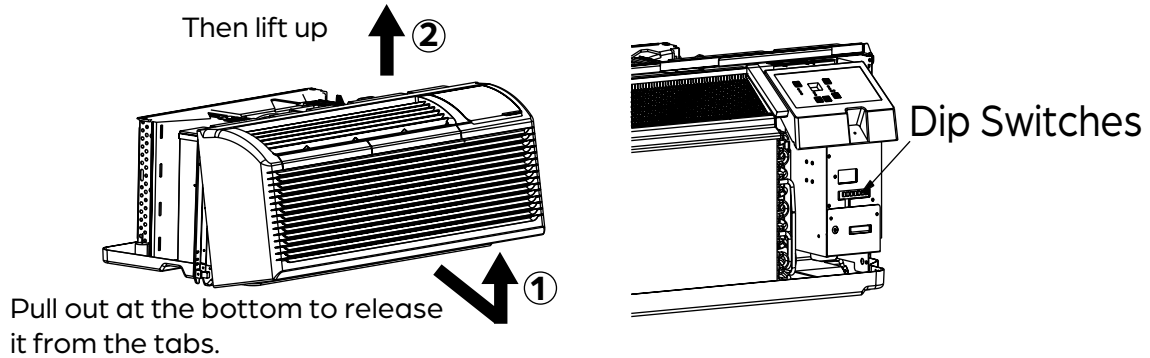
Reinstall the front panel.



DIP SWITCH CONFIGURATION

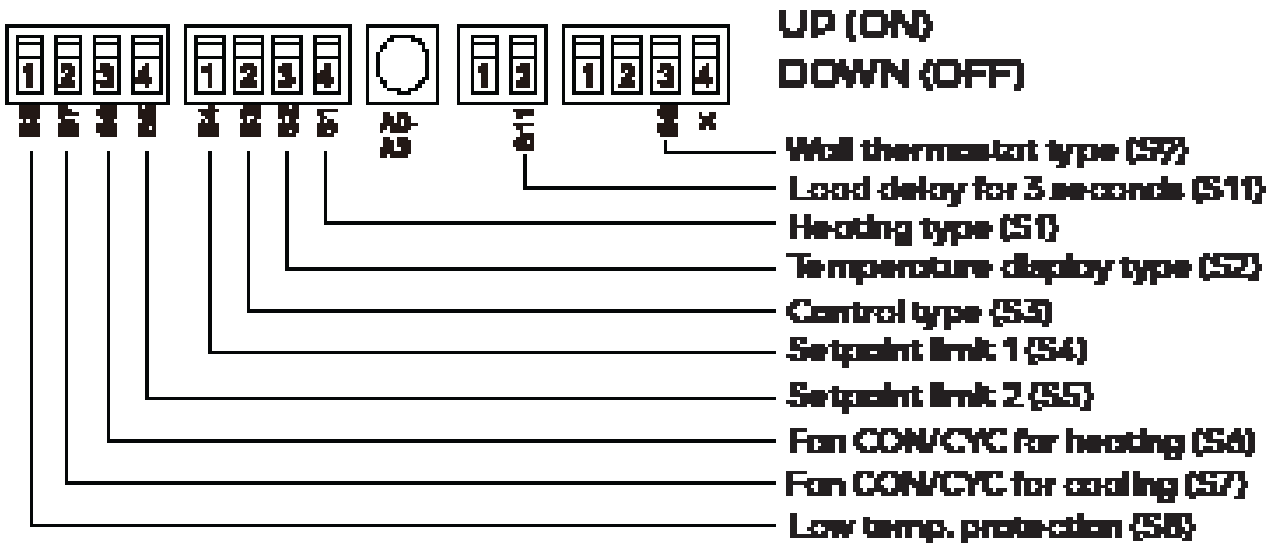
ACCESSING DIP SWITCHES

1. Power off and unplug the unit before making any changes to the Dip Switches.
2. Dip Switch controls are located behind the front panel, through an opening below the control panel. To access, remove the front panel. To access, remove the front panel.



DIP SWITCH CONFIGURATIONS

See the following diagram and table for the configuration and function of each Dip Switch position. Carefully adjust the Dip Switch positions to the desired configuration settings. When you have finished, replace the front panel. The settings will be activated when you turn the unit back on.



DIP SWITCH CONFIGURATION

No.	UP (ON)	DOWN (OFF)	Remarks
S1	Electric Heat Only	Electric Heat and Pump Heat	For Heat Pump unit only
S2	Temperature Display in °F	Temperature Display in °C	
S3	Wall Thermostat Enabled	Control Panel Enabled	S9 must be down to use Wall Thermostat
S4*S5	UP*UP: 61°F-86°F (16°C-30°C) UP*DOWN: 65°F-78°F (17°C-26°C) DOWN*UP: 63°F-80°F (17°C-27°C) DOWN*DOWN: 68°F-75°F (20°C-24°C)		Two configurations (S4*S5) combine to select setpoint range
S6	Fan Continuous Run for Heating	Fan Cycle for Heating	
S7	Fan Continuous Run for Cooling	Fan Cycle for Cooling	
S8	Low Temp Protection Enabled	Low Temp Protection Disabled	Optional
S9	Use Control Panel Only	Use Wall Thermostat Only	S3 must be up to use Wall Thermostat
S11	Load delay for 3 seconds	Normal	Optional

ELECTRIC HEAT ONLY(FOR HEAT PUMP UNITS ONLY):

Enable this setting when the ambient temperature is too low for the heat pump to operate effectively and provide sufficient heating. It will cause the unit to exclusively utilize the electric heater and deactivate the heat pump. This is for heat pump models only.

WALL THERMOSTAT ENABLE:

A wall thermostat can be connected to the unit. To enable a connected wall thermostat, the S3 dip switch must be moved to the UP (ON) position and the S9 dip switch moved to the DOWN (OFF) position.

SETPOINT TEMPERATURE RANGE:

Provides a restricted range of temperature setpoints to conserve energy.

LOW TEMPERATURE PROTECTION (OPTIONAL):

If the unit senses a room temperature below 32°F (0°C), the fan motor and electric heater will turn on and warm the room to 40°F (4.4°C).

FAN CON/CYC FOR HEATING AND COOLING:

Sets the fan to operate continuously (CON) or cycle (CYC) with the compressor while the unit is in heating and cooling modes.

- **CON (CONTINUOUS):** Allows fan to run continuously, circulating air even when the temperature setting has been satisfied. This helps maintain the room temperature closer to the set temperature.
- **CYC (CYCLE):** This setting 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.



NOTE

In HEAT mode, the set temperature does not go higher than 84°F (29°C).

DIP SWITCH CONFIGURATION BY CONTROL PANEL

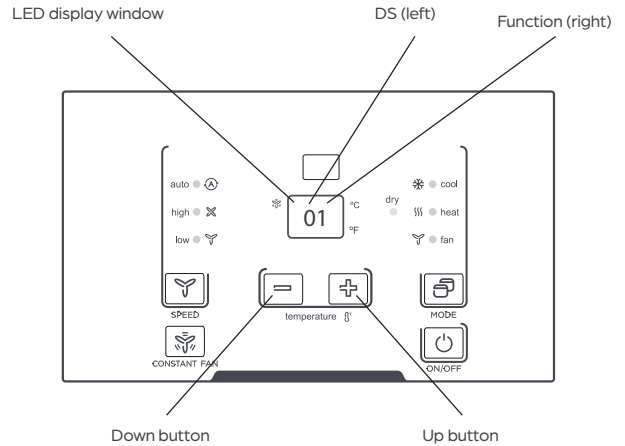


NOTE

To adjust the dip switch configuration by control panel, the unit must be powered off.

DIP SWITCH CONFIGURATION BY CONTROL PANEL

1. Turn off the unit.
2. Press and hold the UP (+) and DOWN (-) buttons together for three (3) seconds to activate the dip switch configuration by the control panel settings mode.
 - The display window will show the settings with two (2) digits: Left for dip switches, right for functions.
 - Press the UP (+) button to set the dip switches (left digit) and the DOWN (-) button to set the functions (right digit).
3. The display window will show "00" when you enter the settings mode. You must set "01" to access the other settings. Make this setting "01" by pressing the DOWN (-) button. Then, press the UP (+) button to access the next setting.
4. After setting "01" you can scroll through and use the table below to make your setting selections.



No.	DS (left)	Functions (right)		Remarks
/	0	1-By Control Panel	0-By Dip Switches	
S1	1	1-Electric Heat Only	0-Electric Heat and Pump Heat	Heat Pump unit only
S2	2	1-Temperature Display in °F	0-Temperature Display in °C	
S3*S9	3	1-Wall Thermostat Enabled	0-Control Panel Enabled	
S4*S5	4	4-62°F-86°F (17°C-30°C); 3-61°F-86°F (16°C-30°C) 2-65°F-78°F (18°C-26°C); 1-63°F-80°F (17°C-27°C); 0-68°F-75°F (20°C-24°C)		
S6	6	1-Fan Continuous Run for Heating	0-Fan Cycle for Heating	Not available when wall thermostat enabled
S7	7	1-Fan Continuous Run for Cooling	0-Fan Cycle for Cooling	
S8	8	1-Low Temp Protection Enabled	0-Low Temp Protection Disabled	Optional
SW7	A	1-Front Desk Control Disabled	0-Front Desk Control Enabled	Optional
Sw11	B	1-Load Delay for 3 Seconds	0-Normal	Optional

NOTE

Pressing the UP (+) and DOWN (-) buttons together for three (3) seconds or performing no operation within 30 seconds will exit the dip switch configuration by control panel and the unit will save the last settings.

To activate Front Desk Control, the "A0" setting must be selected and the "SW7" dip switch must be in the DOWN (OFF) position.

WALL THERMOSTAT TERMINAL



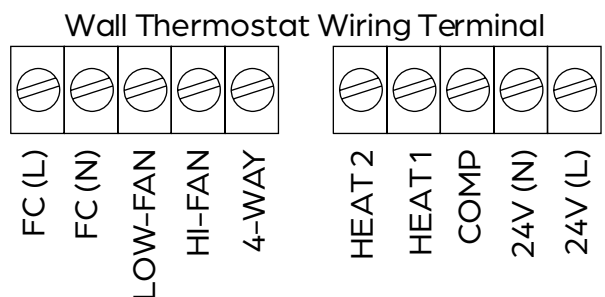
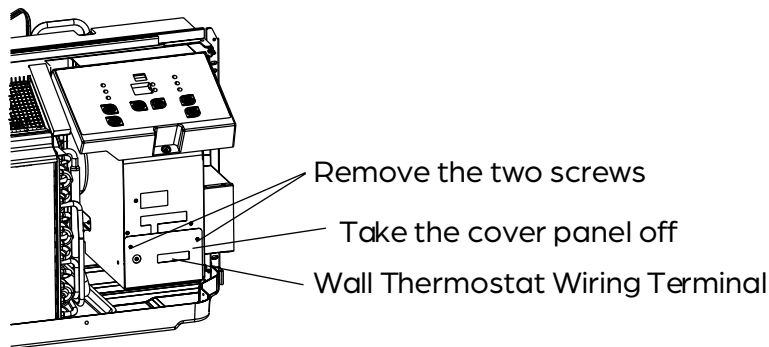
IMPORTANT: Only trained, qualified personnel should access the electrical panel on the unit and install electrical accessories. Please contact your local electrical contractor, dealer, or distributor for assistance.



CAUTION: UNIT DAMAGE HAZARD! Failure to follow this caution may result in equipment damage or improper operation. Improper wiring may damage unit electronics. Common busing is not permitted. Damage or erratic operation may result.

WALL THERMOSTAT WIRING TERMINAL

To access the Wall Thermostat terminal, remove the two (2) screws as shown below and take the cover panel down. Refer to the diagram and table below for terminal designation.



TERMINAL	DESIGNATION
FC (L)	Front desk control terminal L
FC (N)	Front desk control terminal N
LOW-FAN	Low fan speed
HI-FAN	High fan speed
4-WAY	4-way valve; Reverse cycle (Energized in Heat) For heat pump models
HEAT 2	Electrical heater 2
HEAT 1	Electrical heater 1
COMP	Compressor
24V (N)	24VAC terminal N (Neutral), Common
24V (L)	24VAC terminal L (Line)

WALL THERMOSTAT TERMINAL



IMPORTANT: Only trained, qualified personnel should access electrical panel on unit and install electrical accessories. Please contact your local electrical contractor, dealer, or distributor for assistance.

THERMOSTAT INSTALLATION

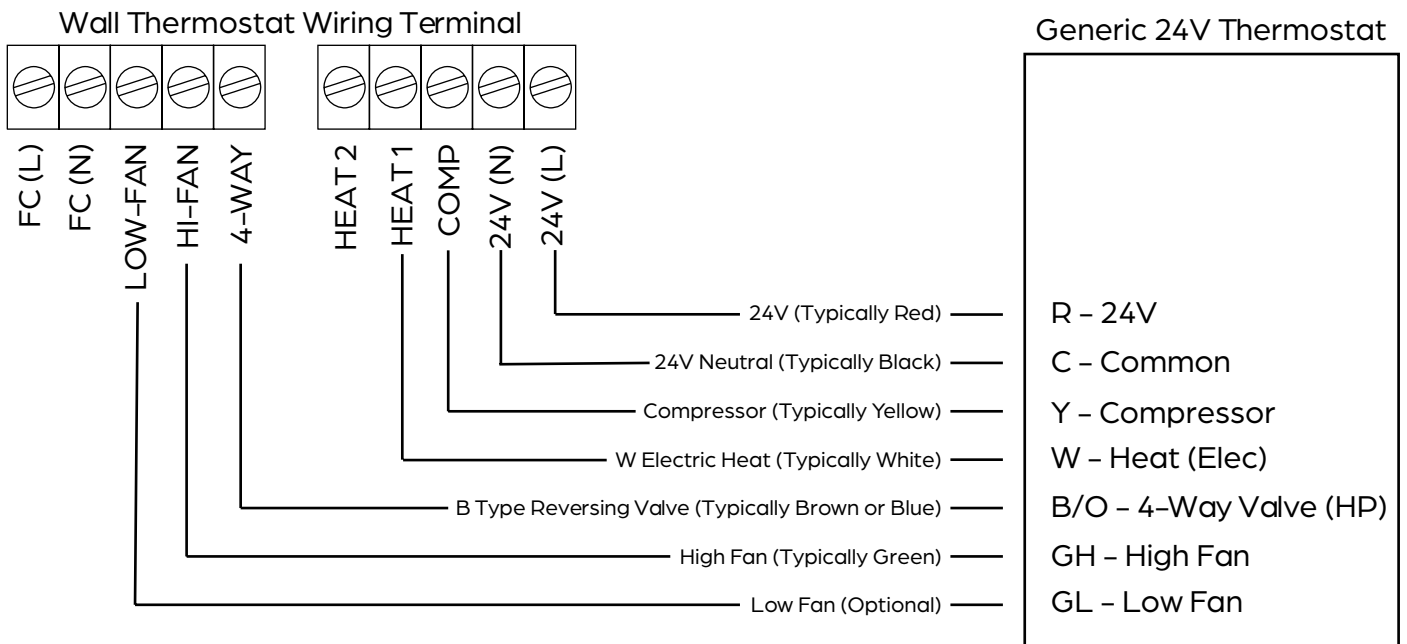
Refer to your thermostat's installation instructions for details on installing a wall thermostat.

Thermostats must have:

- 24V AC power and common?
- Single stage cooling (Compressor & 1 fan speed input)
- Single stage heating (W output)

For PTHP (heat pump) units, thermostats must also have:

- Dual stage heating (W output for electric heat and B type reversing valve output for heat pump)



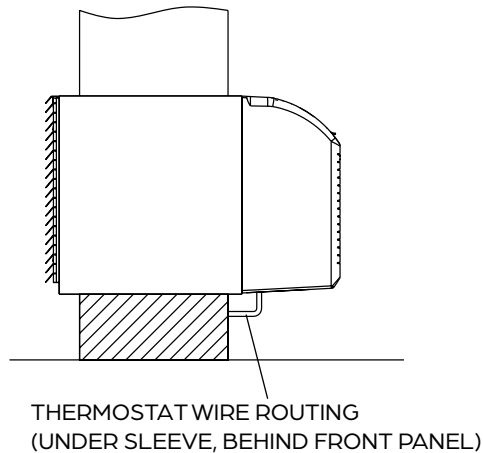
NOTE

- Only connect to the 4-Way terminal on heat pump units with the correct dual stage heating output.
- For thermostats with only one fan speed output (on or auto), the fan speed is determined by the terminal it is wired to. If Low fan is desired, wire the G output from the thermostat to the LOW-FAN terminal. If High fan is desired, wire the G output to the HI-FAN terminal.
- The setpoint temperature range of the thermostat must match the setpoint temperature range of the unit.
- The type of thermostat must match the unit type: PTHP (heat pump) or PTAC (no heat pump).
- Do not remove the control panel.

WALL THERMOSTAT TERMINAL

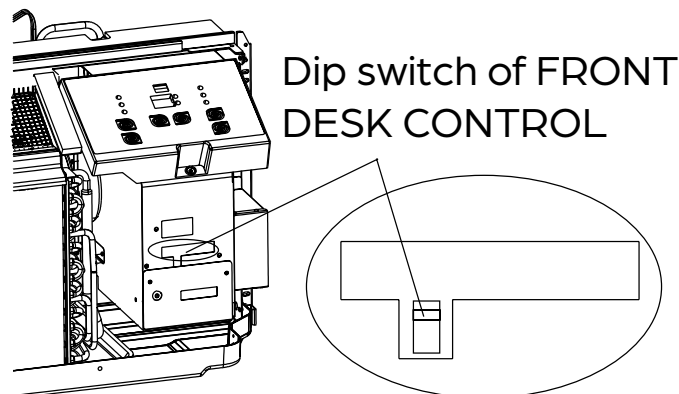
THERMOSTAT WIRE ROUTING

Thermostat wire is field supplied. Recommended wire gauge is 18 to 20 gauge solid thermostat wire. Thermostat wire should always be routed around or under, NEVER through, the wall sleeve. The wire should then be routed behind the front panel to the terminal connector.



FRONT DESK CONTROL

This feature allows a switch to be installed to remotely turn off the unit for energy savings. The switch input must be 24VAC and wired to the FC(L) and FC(N) terminals. When the unit receives the 24VAC signal, it will run as normal. When the signal stops, the unit will turn off. To activate this feature, the Front Desk Control dip switch shown below must be in the DOWN (OFF) position.



CARE AND CLEANING



CAUTION: UNIT DAMAGE HAZARD! Failure to follow this caution may result in equipment damage or improper operation. **DO NOT** operate unit without filters in place. If a filter becomes torn or damaged, it should be replaced immediately. Operating without filters in place or with damaged filters will allow dirt and dust to reach indoor coil and reduce cooling, heating, airflow, and efficiency of the unit. Airflow restriction may cause damage to the unit.

AIR FILTERS:

IMPORTANT: TURN OFF UNIT BEFORE CLEANING!



TIP

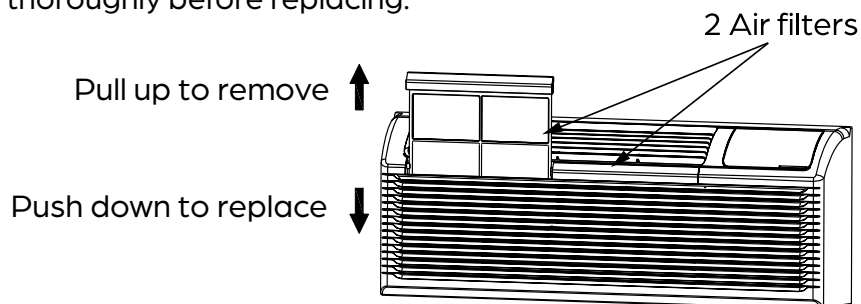
The most important thing you can do to maintain unit efficiency is to clean the filters once every two (2) weeks or as required. Clogged filters reduce cooling, heating, and airflow.

Keeping Filters clean will:

- Decrease cost of operation.
- Save energy.
- Prevent clogged indoor coil.
- Reduce risk of premature component failure.

To Clean Air Filters:

1. Turn unit off.
2. Remove filters from the front panel.
3. Vacuum off heavy dust and debris.
4. Run water through filter.
5. Allow to air dry thoroughly before replacing.



FRONT PANEL AND CASE:

1. Turn off the unit and disconnect the power supply.
2. To clean, use water and a mild detergent. **DO NOT** use bleach or abrasives. Some commercial cleaners may damage the plastic parts. Allow to air dry thoroughly before turning on.

OUTDOOR COIL:

Coil on the outdoor side of the unit should be checked regularly. Unit will need to be removed to inspect dirt build-up that will occur on the inside of the coil. If clogged with dirt and soot, the coil should be professionally cleaned. Clean inside and outside of the outdoor coils regularly.



NOTE

- Never use a high-pressure spray to clean any part of the unit.
- Never use a hair/clothes dryer or other means to speed up drying.

CARE AND CLEANING

VENT DOOR FILTER:

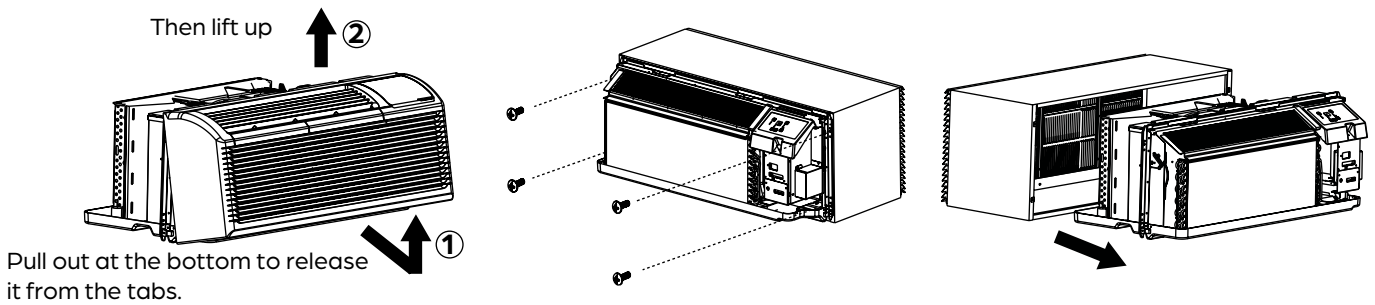
IMPORTANT: TURN OFF UNIT BEFORE CLEANING!



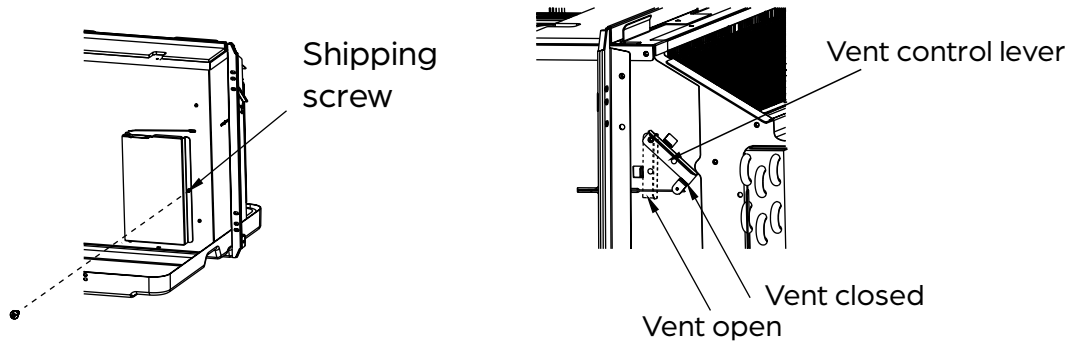
TIP

Vent filter should be cleaned twice a year or as required.

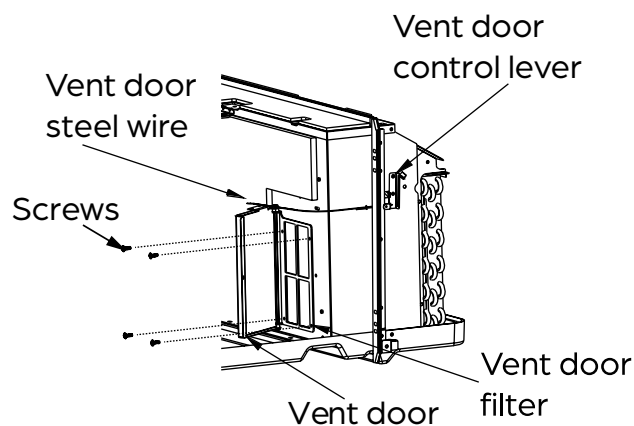
1. To access the Vent Door Filter, remove the unit from the wall sleeve by taking the front panel off, removing the four (4) corner screws, and pulling out.



2. Make sure the shipping screw is removed from the vent door and rotate the vent control lever to the open position.



3. Remove the vent door and filter by removing the four (4) screws from the filter and disconnecting the steel wire from the top of the vent door.
4. Clean the filter and dry thoroughly before replacing.
5. Replace filter and vent door by reinstalling the four (4) screws to the filter and reconnecting the steel wire to the top of the vent door.



TROUBLESHOOTING

SAFETY PRECAUTIONS



This unit contains a flammable refrigerant (R32). Please refer to all safety precautions before troubleshooting the unit.

If ANY of the following conditions occurs, turn off your unit immediately!

- The power cord is damaged or abnormally warm
- You smell a burning odor
- The unit emits loud or abnormal sounds
- A power fuse blows or the circuit breaker frequently trips
- Water or other objects fall into or out of the unit

DO NOT ATTEMPT TO FIX THESE YOURSELF! CONTACT AN AUTHORIZED SERVICE PROVIDER IMMEDIATELY!

COMMON ISSUES

The following problems are not a malfunction and in most situations will not require repairs.

ISSUE	POSSIBLE CAUSES
DISPLAY HAS STRANGE NUMBERS/ CHARACTERS ON IT	The unit may be in a protection mode.
	The unit may be set to display in Celsius (rather than Fahrenheit).
UNIT MAKING NOISES	Clicking, gurgling, and whooshing noises are normal during operation of unit.
WATER DRIPPING OUTSIDE	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.

PROBLEM	POSSIBLE CAUSES	SOLUTION
WATER DRIPPING INSIDE	Wall sleeve is not installed level.	Wall sleeve must be installed level for proper drainage of condensation. Check that installation is level and make any necessary adjustments.
RANDOM COMPRESSOR RESTART	Power may have cycled, so compressor is in a restart protection.	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 three (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.
ELECTRIC HEATING FAILURE	Evaporator coil is dirty or clogged.	Check the evaporator coil regularly. Have the evaporator coil cleaned by a professional technician once every three (3) months.

TROUBLESHOOTING

PROBLEM	POSSIBLE CAUSES	SOLUTION
UNIT DOES NOT START	Unit may have become unplugged.	Check that plug is plugged securely in wall outlet. Plug has a test/reset button on it. Make sure that the plug has not tripped.
	Fuse may have blown.	Replace the fuse.
	Circuit breaker may have been tripped.	Reset circuit breaker.
	Unit may be off.	Turn unit on (bottom right button on keypad).
	Unit may be in a protection mode.	
UNIT NOT COOLING/ HEATING ROOM	Unit air discharge section is blocked.	Make sure that curtains, blinds, or furniture are not restricting or blocking unit airflow.
	Temperature setting is not high or low enough.	Reset to a lower or higher temperature setting.
	Unit air filters are dirty.	Remove and clean filters.
	Room is excessively hot or cold when unit is started.	Allow sufficient amount of time for unit to heat or cool the room. Start heating or cooling early before outdoor temperature, cooking heat or gatherings of people make room uncomfortable.
	Vent door left open.	Close vent door.
	Unit may be in a protection mode.	Check dip switch and wall thermostat settings for desired comfort.
	Compressor is in time delay.	Wait approximately 3 minutes for compressor to start.
ICE OR FROST FORMS ON INDOOR COIL	Low outdoor temperature.	When outdoor temperature is approximately 55 F or below, frost may form on the indoor coil when unit is in Cooling mode. Switch unit to FAN operation until ice or frost melts.
	Dirty filters.	Remove and clean filters.

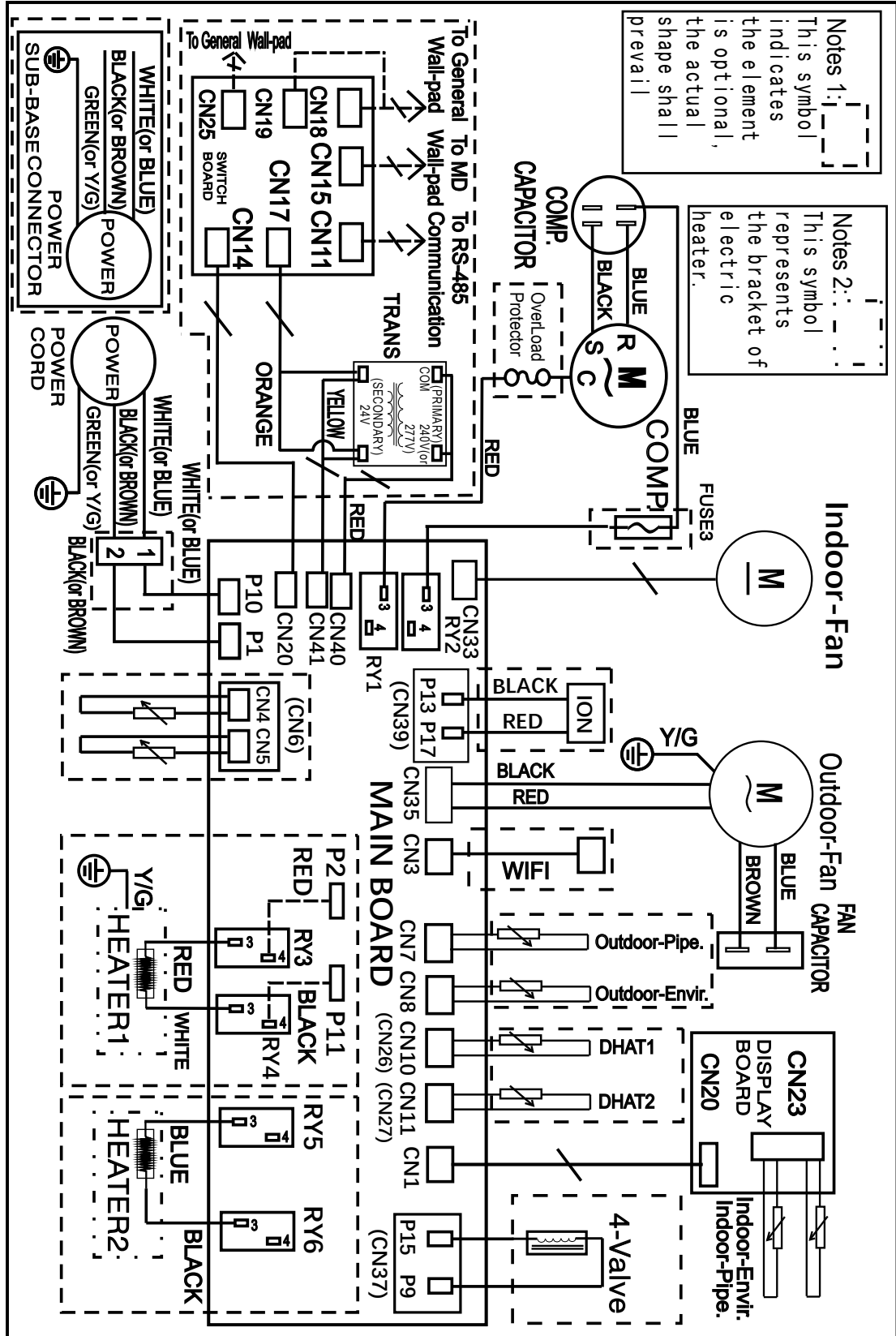
NOTE



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

Wiring Diagram

All PTAC/PTHP Models



WARRANTY

Durastar PTAC Limited Warranty

WHAT IS COVERED:

Subject to all of the terms of this Limited Warranty, including, but not limited to, the specific exclusions set forth below and subject to the Manufacturer's right to inspect and validate the warranty claim as set forth below, the Manufacturer ("Durastar") will repair or replace, at its option, your Durastar Packaged Terminal Air Conditioner or Packaged Terminal Heat Pump ("Product"). This Warranty applies to the original purchaser only, and only covers defects in materials or workmanship experienced during operation of the product under normal service, maintenance, and usage conditions. This Warranty applies to the use of the Product within the United States of America while it remains at the original installation site and is not assignable or transferable to any subsequent purchaser or user. All products and parts replaced by Durastar under Warranty service become the property of Durastar. Durastar may request the original Product or part be returned in exchange for the replacement. Replacement product, parts, or repairs are warranted for the unexpired portion of the original warranty period. The warranty period commences from the date of original retail purchase and is subject to any conditions set forth as follows:

For a period of ONE (1) YEAR from the date of original retail purchase, Durastar will repair or replace, free of charge (including labor), any Product or parts that fail due to a defect in materials or workmanship. During this period, Durastar will provide a labor allowance for labor performed by an authorized Durastar PTAC servicer that does not exceed the price of Product replacement.

For a period of TWO (2) THROUGH FIVE (5) YEARS from the date of original retail purchase, Durastar will repair or replace, free of charge (including labor), any part of the sealed refrigerant system (compressor, evaporator, condenser, and connected tubing) that fails due to a defect in materials or workmanship. During this period, Durastar will provide a labor allowance for labor performed by an authorized Durastar PTAC servicer that does not exceed the price of unit replacement. Replacement of refrigerant remains Owner's responsibility.

For a period of TWO (2) THROUGH FIVE (5) YEARS from the date of original retail purchase, Durastar will repair or replace, free of charge, the following parts that fail due to a defect in materials or workmanship: Fan motors, circuit board, heaters, capacitors, thermistors, solenoids, blower wheels, switches, and auxiliary controls. During this five-year limited parts warranty, Durastar will not be responsible for any labor or additional expenses.

WHAT IS NOT COVERED – The following limitations apply to the coverage of this Warranty. This Warranty does not cover:

- Labor charges for installation, setup, or training to use the Product.
- Damage caused by shipping or improper handling, improper voltage or any other misuse, including abnormal service, handling, or usage, or installation
- Damage caused by improper installation of the Product by anyone other than an authorized PTAC servicer.
- Cosmetic damage such as scratches and dents.
- Normal wear and tear on parts or replacement of parts designed to be replaced, including but not limited to filters, the front cover, and control panel.
- Transportation or freight charges incurred in connection with warranty service.
- Service trips to deliver, pick-up, or repair; install the product; or to instruct in proper usage of the product.
- Damages or operating problems resulting from misuse, abuse, operation outside environmental

WARRANTY

specifications, uses contrary to instructions provided in the owner's manual, accidents, acts of God, vermin, fire, flood, improper installation, unauthorized service, maintenance negligence, unauthorized installation or modification.

- Damage or failure due to operating the Product in a corrosive coastal environment, or in an environment containing corrosive chemical agents or other hazardous chemicals.
- Products that have been modified to perform outside of specifications without the prior written permission of Durastar.
- Products lost in shipment, or theft.
- Products sold AS IS or from an unauthorized reseller.
- Products with serial numbers that have been removed, defaced, or invalidated.
- Damage from other than normal use.
- Replacement or repair of household fuses, circuit breakers, wiring, or plumbing.
- Damage to personal property from use of product.
- Damage from service other than from an authorized Durastar repair servicer.
- Filters, front cover, control panel and all attachments, accessories, and disposable parts.
- Any damage caused by frozen or broken water pipes in the event of equipment failure
- Any service charges not specifically identified as normal such as normal service area or hours.
- Any special or consequential damages arising out of the use of the product.
- Expedited freight charges, unless pre-approved in writing by Durastar.

OBTAINING WARRANTY SERVICE: To submit a Warranty Claim, contact Durastar Customer Support for troubleshooting assistance and warranty service at www.Durastar.com or call 1-888-320-0706. Before contacting Customer Support you are required to have your model number, serial number, and proof of purchase available upon request. A Durastar authorized representative must confirm that your Product is eligible for warranty service as defined herein. For warranty credit for labor covered by this Warranty, the labor must be performed by an authorized Durastar PTAC servicer. The Product must be installed in its original location and fully accessible. Rated electrical power must be available at the unit location. If a repair cannot be completed on-site, it may be necessary to remove, repair, and return the unit. If on-site service is not available, Durastar may, at its option, arrange to transport the Product to and from a Durastar authorized service center. Durastar is not responsible for unit removal, replacement, or relocation of the unit if it is inaccessible or cannot be repaired on-site. Parts determined by Durastar to be covered under this Warranty (if required to be returned) must be returned to the point of purchase. Durastar is not responsible for damage resulting from shipper mishandling or improper packaging. Products received without a return authorization number will be refused.

EXCLUSIONS AND LIMITATION OF LIABILITY

THIS WARRANTY IS IN LIEU OF ANY OTHER WARRANTY, EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION, ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. TO THE EXTENT ANY IMPLIED WARRANTY IS REQUIRED BY LAW, IT IS LIMITED IN DURATION TO THE EXPRESS WARRANTY PERIOD ABOVE. NEITHER THE MANUFACTURER NOR ITS DISTRIBUTORS SHALL BE LIABLE FOR ANY INCIDENTAL, CONSEQUENTIAL, INDIRECT, SPECIAL, OR PUNITIVE DAMAGES OF ANY NATURE, INCLUDING WITHOUT LIMITATION, LOST REVENUES OR PROFITS, OR ANY OTHER DAMAGE WHETHER BASED IN CONTRACT, TORT, OR OTHERWISE. IN NO EVENT AND UNDER NO CIRCUMSTANCE OF ANY TYPE OR KIND SHALL THE SELLER, MANUFACTURER, AND/OR DISTRIBUTOR BE LIABLE FOR ANY REASON, UNDER ANY THEORY, FOR MORE THAN THE BASIC COST OF THE PRODUCT TO THE PURCHASER OR END USER. SOME STATES DO NOT ALLOW THE EXCLUSION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE EXCLUSION MAY NOT APPLY TO YOU. THIS WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS. YOU MAY HAVE OTHER RIGHTS THAT VARY FROM STATE TO STATE.

APPENDIX

R32 Safe Handling



CAUTION: Risk of fire/flammable materials



IMPORTANT: Read this section carefully before installing or operating your new air conditioning unit.

WARNINGS

- Servicing shall only be performed as recommended by the equipment manufacturer. Maintenance and repair requiring the assistance of other skilled personnel shall be carried out under the supervision of a person competent in the use of flammable refrigerants.
- DO NOT modify the length of the power cord or use an extension cord to power the unit.
- DO NOT share a single outlet with other electrical appliances. Improper power supply can cause fire or electrical shock.
- Please follow the instruction carefully to handle, install, clear, service the air conditioner to avoid any damage or hazard. Flammable Refrigerant R32 is used within the air conditioner.
- When maintaining or disposing the air conditioner, the refrigerant (R32) shall be recovered properly. Do not discharge to the air directly.
- Compliance with national gas regulations shall be observed.
- Keep ventilation openings clear of obstruction.
- The appliance shall be stored so as to prevent mechanical damage from occurring.
- The appliance shall be stored in a well-ventilated area where the room size corresponds to the room area as specified for operation.
- Any person who is involved with working on or breaking into a refrigerant circuit should hold a current valid certificate from an industry-accredited assessment authority, which authorizes their competence to handle refrigerants safely in accordance with an industry recognised assessment specification.
- No open fire or device-like switch which may generate spark/arcing shall be around the air conditioner to avoid causing ignition of the flammable refrigerant used. Please follow the instructions carefully to store or maintain the air conditioner to prevent mechanical damage from occurring.
- Do not use means to accelerate the defrosting process or to clean, other than those recommended by the manufacturer.
- The appliance shall be stored in a room without continuously operating ignition sources (for example: open flames, an operating gas appliance) and ignition sources or (for example: an operating electric heater) close to the appliance.
- Do not pierce or burn.
- Be aware that the refrigerants may not contain an odor.

TRANSPORT OF EQUIPMENT CONTAINING FLAMMABLE REFRIGERANTS

See transport regulations.

MARKING OF EQUIPMENT USING SIGNS

See local regulations.

DISPOSAL OF EQUIPMENT USING FLAMMABLE REFRIGERANTS

See national regulations.

STORAGE OF EQUIPMENT/APPLIANCES

The storage of equipment should be in accordance with the manufacturer's instructions.

STORAGE OF PACKED (UNSOLD) EQUIPMENT

Storage package protection should be constructed such that mechanical damage to the equipment inside the package will not cause a leak of the refrigerant charge. The maximum number of pieces of equipment permitted to be stored together will be determined by local regulations.

INFORMATION ON SERVICING

1. CHECKS TO THE AREA

Prior to beginning work on systems containing flammable refrigerants, safety checks are necessary to ensure that the risk of ignition is minimized. For repair to the refrigerating system, the following precautions shall be complied with prior to conducting work on the system.

2. WORK PROCEDURE

Work shall be undertaken under a controlled procedure so as to minimise the risk of a flammable gas or vapor being present while the work is being performed.

3. GENERAL WORK AREA

All maintenance staff and others working in the local area shall be instructed on the nature of work being carried out. Work in confined spaces shall be avoided. The area around the workspace shall be sectioned off. Ensure that the conditions within the area have been made safe by control of flammable material.

4. CHECKING FOR PRESENCE OF REFRIGERANT

The area shall be checked with an appropriate refrigerating detector prior to and during work, to ensure the technician is aware of potentially flammable atmospheres. Ensure that the leak detection equipment being used is suitable for use with flammable refrigerants, i.e. non-sparking, adequately sealed or intrinsically safe.

5. PRESENCE OF FIRE EXTINGUISHER

If any hot work is to be conducted on the refrigeration equipment or any associated parts, appropriate fire extinguishing equipment shall be available. Have a dry powder or CO2 fire extinguisher adjacent to the charging area.

6. NO IGNITION SOURCES

No person carrying out work in relation to a refrigerating system which involves exposing any pipe work that contains or has contained flammable refrigerant shall use any sources of ignition in such a manner that it may lead to the risk of fire or explosion. All possible ignition sources, including cigarette smoking, should be kept far away from the site of installation, repairing, removing, and disposal, during which flammable refrigerant can possibly be released to the surrounding space. Prior to work taking place, the area around the equipment is to be surveyed to make sure that there are no flammable hazards or ignition risks. No Smoking signs shall be displayed.

7. VENTILATED AREA

Ensure that the area is in the open or that it is adequately ventilated before breaking into the system or conducting any hot work. A degree of ventilation shall continue during the period that the work is carried out. The ventilation should safely disperse any released refrigerant and preferably expel it externally into the atmosphere.

8. CHECKS TO THE REFRIGERATING EQUIPMENT

Where electrical components are being changed, they shall be fit for the purpose and to the correct specification. At all times the manufacturer's maintenance and service guidelines shall be followed. If in doubt consult the manufacturer's technical department for assistance. The following checks shall be applied to installations using flammable refrigerants:


- The actual refrigerant charge is in accordance with the room size where the refrigerant containing parts are installed;
- The ventilation machinery and outlets are operating adequately and are not obstructed;
- If an indirect refrigerating circuit is being used, the secondary circuit shall be checked for the presence of refrigerant;
- Marking to the equipment continues to be visible and legible. Markings and signs that are illegible shall be corrected;
- Refrigerating pipe or components are installed in a position where they are unlikely to be exposed to any substance which may corrode refrigerant containing components, unless the components are constructed of materials which are inherently resistant to being corroded or are suitably protected against being so corroded.

9. CHECKS TO ELECTRICAL DEVICES

Repair and maintenance to electrical components shall include initial safety checks and component inspection procedures. If a fault exists that could compromise safety, then no electrical supply shall be connected to the circuit until it is satisfactorily dealt with. If the fault cannot be corrected immediately but it is necessary to continue operation, an adequate temporary solution shall be used. This shall be reported to the owner of the equipment so all parties are advised.

Initial safety checks shall include:

- That capacitors are discharged: this shall be done in a safe manner to avoid possibility of sparking;
- That there no live electrical components and wiring are exposed while charging, recovering or purging the system;
- That there is continuity of earth bonding.

 **NOTE**
The use of silicon sealant may inhibit the effectiveness of some types of leak detection equipment.

REPAIRS TO SEALED COMPONENTS

1. During repairs to sealed components, all electrical supplies shall be disconnected from the equipment being worked upon prior to any removal of sealed covers, etc. If it is absolutely necessary to have an electrical supply to equipment during servicing, then a permanently operating form of leak detection shall be located at the most critical point to warn of a potentially hazardous situation.
2. Particular attention shall be paid to the following to ensure that by working on electrical components, the casing is not altered in such a way that the level of protection is affected.

This shall include damage to cables, excessive number of connections, terminals not made to original specification, damage to seals, incorrect fitting of glands, etc.

Ensure that apparatus is mounted securely. Ensure that seals or sealing materials have not degraded such that they no longer serve the purpose of preventing the ingress of flammable atmospheres. Replacement parts shall be in accordance with the manufacturer's specifications.

REPAIR TO INTRINSICALLY SAFE COMPONENTS

Intrinsically safe components do not have to be isolated prior to working on them.

Do not apply any permanent inductive or capacitance loads to the circuit without ensuring that this will not exceed the permissible voltage and current permitted for the equipment in use.

Intrinsically safe components are the only types that can be worked on while live in the presence of a flammable atmosphere. The test apparatus shall be at the correct rating. Replace components only with parts specified by the manufacturer. Other parts may result in the ignition of refrigerant in the atmosphere from a leak.

CABLING

Check that cabling will not be subject to wear, corrosion, excessive pressure, vibration, sharp edges or any other adverse environmental effects. The check shall also take into account the effects of aging or continual vibration from sources such as compressors or fans.

DETECTION OF FLAMMABLE REFRIGERANTS

Under no circumstances shall potential sources of ignition be used in the searching for or detection of refrigerant leaks. A halide torch (or any other detector using a naked flame) shall not be used. The following leak detection methods are deemed acceptable for systems containing flammable refrigerants.

Electronic leak detectors shall be used to detect flammable refrigerants, but the sensitivity may not be adequate, or may need re-calibration. (Detection equipment shall be calibrated in a refrigerant-free area). Ensure that the detector is not a potential source of ignition and is suitable for the refrigerant used. Leak detection equipment shall be set at a percentage of the LFL of the refrigerant and shall be calibrated to the refrigerant employed and the appropriate percentage of gas (25 % maximum) is confirmed.

Leak detection fluids are suitable for use with most refrigerants but the use of detergents containing chlorine shall be avoided as the chlorine may react with the refrigerant and corrode the copper pipe-work.

If a leak is suspected, all naked flames shall be removed/extinguished. If a leakage of refrigerant is found which requires brazing, all of the refrigerant shall be recovered from the system, or isolated (by means of shut off valves) in a part of the system remote from the leak. Removal of refrigerant shall be according to Removal and Evacuation.

REMOVAL AND EVACUATION

When breaking into the refrigerant circuit to make repairs – or for any other purpose—conventional procedures shall be used. However, for flammable refrigerants it is important that best practices be followed, since flammability is a consideration. The following procedure shall be adhered to:

- a) safely remove refrigerant following local and national regulations.
- b) purge the circuit with inert gas.
- c) evacuate
- d) purge with inert gas
- e) open the circuit by cutting or brazing.

The refrigerant charge shall be recovered into the correct recovery cylinders if venting is not allowed by local and national codes. For appliances containing flammable refrigerants, the system shall be purged with oxygen-free nitrogen to render the appliance safe for flammable refrigerants. This process might need to be repeated several times.

Compressed air or oxygen shall not be used for purging refrigerant systems. For appliances containing flammable refrigerants, refrigerants purging shall be achieved by breaking the vacuum in the system with oxygen-free nitrogen and continuing to fill until the working pressure is achieved, then venting to atmosphere, and finally pulling down to a vacuum (optional for A2L). This process shall be repeated until no refrigerant is within the system (optional for A2L). When the final oxygen-free nitrogen charge is used, the system shall be vented down to atmospheric pressure to enable work to take place. Ensure that the outlet for the vacuum pump is not close to any potential ignition sources and that ventilation is available.

CHARGING PROCEDURES

In addition to conventional charging procedures, the following requirements shall be followed.

- Ensure that contamination of different refrigerants does not occur when using charging equipment
- Hoses or lines shall be as short as possible to minimize the amount of refrigerant contained in them
- Cylinders shall be kept in an appropriate position according to the instructions.
- Ensure that the refrigeration system is earthed prior to charging the system with refrigerant.
- Label the system when charging is complete (if not already).
- Extreme care shall be taken not to overfill the refrigeration system.
- Prior to recharging the system it shall be pressure tested with nitrogen.
- The system shall be leak tested on completion of charging but prior to commissioning.
- A follow up leak test shall be carried out prior to leaving the site.

DECOMMISSIONING

Before carrying out this procedure, it is essential that the technician is completely familiar with the equipment and all its detail. It is recommended good practice that all refrigerants are recovered safely. Prior to the task being carried out, an oil and refrigerant sample shall be taken in case analysis is required prior to re-use of reclaimed refrigerant. It is essential that electrical power is available before the task is commenced.

- Become familiar with the equipment and its operation.
- Isolate the system electrically.
- Before attempting the procedure ensure that:
 - Mechanical handling equipment is available, if required, for handling refrigerant cylinders.
 - All personal protective equipment is available and being used correctly.
 - The recovery process is supervised at all times by a competent person.
 - Recovery equipment and cylinders conform to the appropriate standards.
- Pump down the refrigerant system, if possible.
- If a vacuum is not possible, make a manifold so that refrigerant can be removed from various parts of the system.
- Make sure that cylinder is situated on the scales before recovery takes place.
- Start the recovery machine and operate in accordance with instructions.
- Do not overfill cylinders. (No more than 80 % volume liquid charge).
- Do not exceed the maximum working pressure of the cylinder, even temporarily.

- When the cylinders have been filled correctly and the process completed, make sure that the cylinders and the equipment are removed from site promptly and all isolation valves on the equipment are closed off.
- Recovered refrigerant shall not be charged into another refrigeration system unless it has been cleaned and checked.

LABELLING

Equipment shall be labelled stating that it has been de-commissioned and emptied of refrigerant. The label shall be dated and signed.

Ensure that there are labels on the equipment stating the equipment contains flammable refrigerant.

RECOVERY

When removing refrigerant from a system, either for servicing or decommissioning, it is recommended good practice that all refrigerants are removed safely. When transferring refrigerant into cylinders, ensure that only appropriate refrigerant recovery cylinders are employed. Ensure that the correct number of cylinders for holding the total system charge is available. All cylinders to be used are designated for the recovered refrigerant and labelled for that refrigerant (i.e. special cylinders for the recovery of refrigerant).

Cylinders shall be complete with pressure relief valve and associated shut-off valves in good working order. Empty recovery cylinders are evacuated and, if possible, cooled before recovery occurs.

The recovery equipment shall be in good working order with a set of instructions concerning the equipment that is at hand and shall be suitable for the recovery of flammable refrigerants. In addition, a set of calibrated weighing scales shall be available and in good working order. Hoses shall be complete with leak-free disconnect couplings and in good condition.

Before using the recovery machine, check that it is in satisfactory working order, has been properly maintained and that any associated electrical components are sealed to prevent ignition in the event of a refrigerant release. Consult manufacturer if in doubt. The recovered refrigerant shall be returned to the refrigerant supplier in the correct recovery cylinder, and the relevant Waste Transfer Note arranged.

Do not mix refrigerants in recovery units and especially not in cylinders.

If compressors or compressor oils are to be removed, ensure that they have been evacuated to an acceptable level to make certain that flammable refrigerant does not remain within the lubricant. The evacuation process shall be carried out prior to returning the compressor to the suppliers. Only electric heating to the compressor body shall be employed to accelerate this process. When oil is drained from a system, it shall be carried out safely.

Non-duct connected appliances containing A2L refrigerants with the supply and return air openings in the conditioned space may have the body of the appliance installed in open areas such as false ceilings not being used as return air plenums, as long as the conditioned air does not directly communicate with the air of the false ceiling.

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