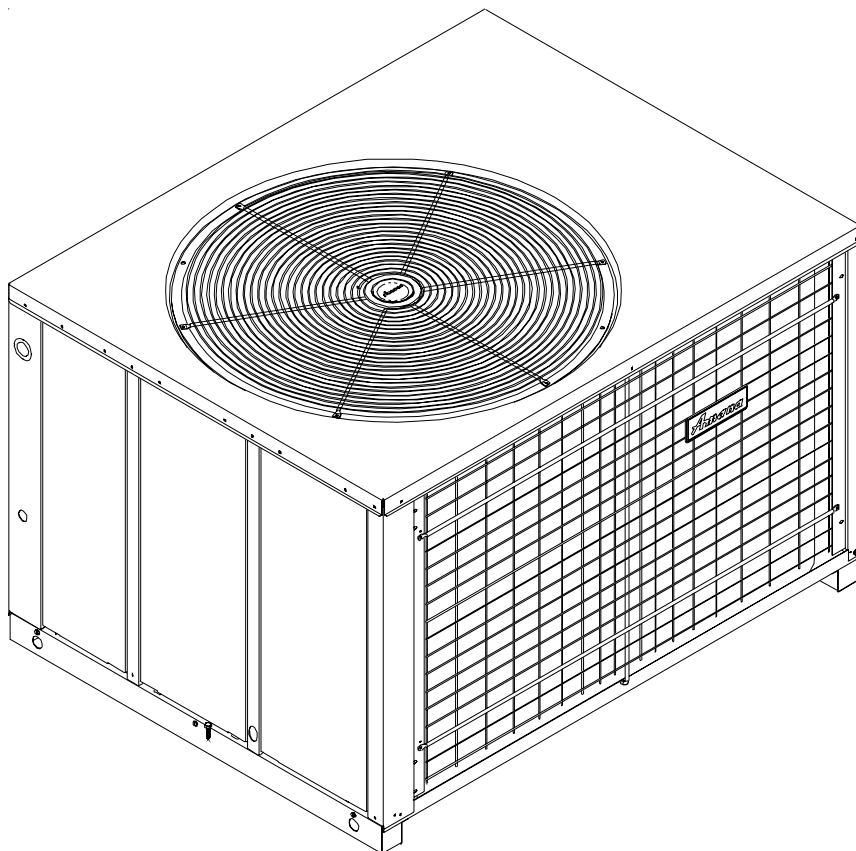


PACKAGE HEAT PUMP INSTALLATION INSTRUCTIONS

Installer: Affix literature adjacent to the unit.

Heating & Air Conditioning
Amana
LASTS AND LASTS AND LASTS.™



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*NOTE: Please contact your distributor or our website for the applicable product data book referred to in this

SAFETY INSTRUCTIONS

RECOGNIZE SAFETY SYMBOLS, WORDS, AND LABELS

The following symbols and labels are used throughout this manual to indicate immediate or potential safety hazards. It is the owner's and installer's responsibility to read and comply with all safety information and instructions accompanying these symbols. Failure to heed safety information increases the risk of personal injury, property damage, and/or product damage.



WARNING - Hazards or unsafe practices which COULD result in severe personal injury or death.



CAUTION - Hazards or unsafe practices which COULD result in minor or moderate personal injury, product damage, property damage.



TO PREVENT PROPERTY DAMAGE, PERSONAL INJURY OR DEATH, DO NOT USE THIS UNIT IF ANY PART OF THE UNIT HAS BEEN UNDER WATER. IMMEDIATELY CALL A QUALIFIED SERVICE TECHNICIAN TO INSPECT THE UNIT AND TO REPLACE ANY PART OF THE CONTROL SYSTEM WHICH HAS BEEN UNDER WATER.



TO PREVENT PROPERTY DAMAGE, PERSONAL INJURY OR DEATH DUE TO IMPROPER INSTALLATION, ADJUSTMENTS, ALTERATIONS, SERVICE OR MAINTENANCE, CONSULT THIS MANUAL, THE SERVICE MANUAL, A QUALIFIED INSTALLER OR A SERVICE AGENCY.



THIS PRODUCT CONTAINS OR PRODUCES A CHEMICAL(S) WHICH MAY CAUSE DEATH OR SERIOUS ILLNESS AND WHICH ARE KNOWN BY THE STATE OF CALIFORNIA TO CAUSE CANCER, BIRTH DEFECTS OR OTHER REPRODUCTIVE HARM.

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.

GENERAL INFORMATION

To The Installer

Before installing this unit please read this manual and the Product Data Book applicable to your model* to familiarize yourself on the specific items which must be adhered to such as maximum external static pressure to unit, air temperature rise, minimum or maximum CFM and motor speed connections.

To The Owner

It is important to complete the owner registration card and mail it immediately. This will assist us in contacting you if any service or warranty information should change in the future. When completing the registration card, be sure to include the Model, Manufacturing and Serial Numbers, plus the installation date.

The warranty certificate is also supplied with the unit. Read the warranty carefully and note what is covered. Keep the warranty certificate in a safe place so you can find it if necessary.

If additional operating instructions are required, call the dealer where the purchase was made. Keep this literature in a safe place for future reference.

UNIT PLACEMENT



WARNING

TO PREVENT PROPERTY DAMAGE, EQUIPMENT DAMAGE, PERSONAL INJURY OR DEATH, THE FOLLOWING POINTS MUST BE OBSERVED WHEN INSTALLING THE UNIT.

ALL INSTALLATIONS:

GROUND LEVEL INSTALLATIONS ONLY:

- When the unit is installed on the ground adjacent to the building, a level concrete (or equal) base is recommended. Prepare a base the same physical size as the unit or slightly larger and 3 inches thick.
- The base should also be located where no runoff of water from higher ground can collect in the unit.

ROOFTOP INSTALLATIONS ONLY:

- To avoid possible personal injury or property damage, the roof must have sufficient structural strength to carry the weight of the unit(s) and snow or water loads as required by local codes.
- If horizontal air delivery is used, the unit may be installed directly on wood floors or on Class A, Class B, or Class C roof covering material.
- To avoid possible personal injury, a safe, flat surface for service personnel must be provided.
- If vertical air discharge is used and the unit is installed on combustible flooring or class A, B, or C roofing material, then the Amana® brand roof curb (PRC06A1 or PRC08A1) is required.

This unit is approved only for an outdoor installation. To assure that your unit operates safely and efficiently, it must be installed, operated, and maintained in accordance with these installation and operating instructions, all local building codes and ordinances. The heating and cooling capacities of the unit should be greater than

or equal to the design heating and cooling loads of the area to be conditioned. The loads should be calculated by an approved method or in accordance with A.S.H.R.A.E. Guide or Manual J - Load Calculations published by the Air Conditioning Contractors of America. Obtain from:

American National Standards Institute
1430 Broadway
New York, NY 10018

TRANSPORTATION DAMAGE

All units are securely packed in shipping containers tested according to International Safe Transit Association specifications. The carton should be checked upon arrival for external damage. If damage is found, a request for inspection by carrier agent should be made in writing immediately.

The unit should be carefully inspected upon arrival for damage and bolts or screws which may have loosened in transit. In the event of damage, the consignee should:

1. Make notation on delivery receipt of any visible damage to shipment or container.
2. Notify carrier promptly and request an inspection.
3. In case of concealed damage, carrier should be notified as soon as possible-preferably within 5 days.
4. File the claim with the following supporting documents within the 9 month statute of limitations.
 - a. Original Bill of Lading, certified copy, or indemnity bond.
 - b. Original paid freight bill or indemnity in lieu thereof.
 - c. Original invoice or certified copy thereof, showing trade and other discounts or reductions.
 - d. Copy of the inspection report issued by carrier representative at the time damage is reported to the carrier. The carrier is responsible for making prompt inspection of damage and for a thorough investigation of each claim. The distributor or manufacturer will not accept claims from dealers for transportation damage.

NOTE: When inspecting the unit for transportation damage, remove all packaging materials. Recycle or dispose of the packaging material according to local codes.

RIGGING AND HANDLING



CAUTION

TO PREVENT PROPERTY DAMAGE, THE UNIT SHOULD REMAIN IN AN UPRIGHT POSITION DURING ALL RIGGING AND MOVING OPERATIONS. TO FACILITATE LIFTING AND MOVING WHEN A CRANE IS USED, PLACE THE UNIT IN AN ADEQUATE CABLE SLING.

IMPORTANT: If using bottom discharge with roof curb, ductwork should be attached to the curb prior to installing the unit. Ductwork dimensions are shown in Amana® brand roof curb installation instructions.

Refer to the Roof Curb Installation Instructions for proper curb installation. Curbing must be installed in compliance with the National Roofing Contractors Association Manual.

NOTE: Lower unit carefully onto roof mounting curb. While rigging unit, center of gravity may cause condenser end to be lower than supply air end.

*NOTE: Please contact your distributor or our website for the applicable product data book referred to in this manual.

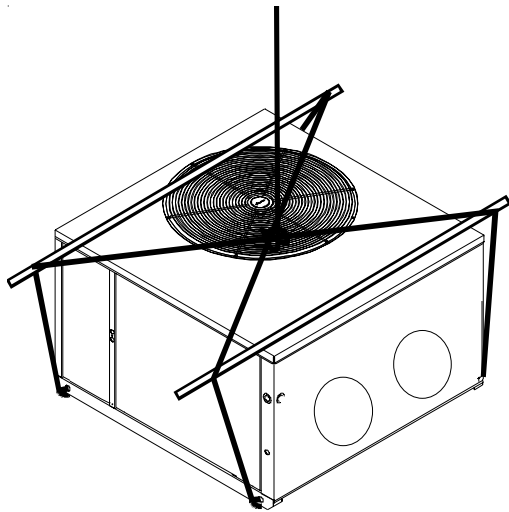


Figure 1 - Rigging

DUCT CONNECTIONS

To ensure proper operation, ensure the blower motor is oriented as shown in Figure 5 for horizontal airflow installations.

HORIZONTAL AIRFLOW INSTALLATIONS

(24, 30, 36, 42 AND PHB48 MODELS)

Two three-inch collar connections and two square flanges are shipped with the unit. The collar connections are located in the return air opening of the unit. The square flanges are inside the unit blower compartment. The square flanges can be used for either connecting 16x16 ductwork to the unit or used with a Horizontal Duct Cover kit (CHK001A).

To install the collar connections, remove the two collars, reverse and snap them back into place in the outlet and inlet openings. Be sure the flanges are to the outside of the unit. Secure with screws provided.

HORIZONTAL AIRFLOW INSTALLATIONS

(PHD48/60 and PHB60 models only)

These units are equipped with 14x14 square supply and return air openings for horizontal air flow. The openings are flanged for ease of duct connection. A 16x16 Horizontal Duct Cover kit (CHK001A) can be used with the clips provided with the unit.

THERMOSTAT PLACEMENT

Thermostat should be mounted 5 feet above the floor, on a vibration free inside wall in a room or a hallway that has good air circulation. Movement of air should not be obstructed by furniture, door, draperies, etc. The thermostat should not be mounted where it will be affected by drafts, hot or cold water pipes or air ducts in walls, radiant heat from fireplace, lamps, the sun, television, etc. Consult the Instruction Sheet packaged with thermostat for mounting instructions.



WARNING

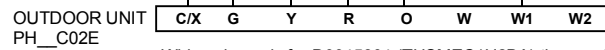
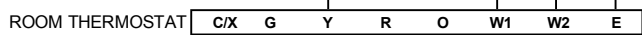
TO AVOID PERSONAL INJURY OR DEATH, DISCONNECT THE ELECTRICAL POWER BEFORE ELECTRICALLY CONNECTING THE UNIT.

THERMOSTAT WIRING

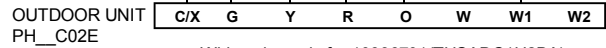
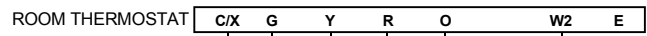
When an electric heater is installed, the thermostat wiring will be made at the heater accessory box.

If a unit is installed without electric heaters, the low voltage wiring to the blower section can be cut, either in the control box area or in the blower section, to allow splicing-in of field-installed wiring, or connect to terminal strip in unit control box.

See the unit wiring diagram for electrical connections.

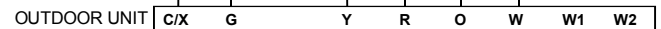
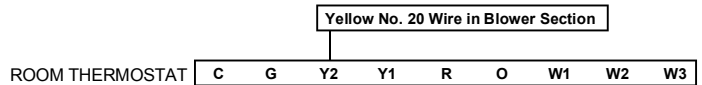


Wiring shown is for D9945804 (THSMC1H2BA) thermostat.



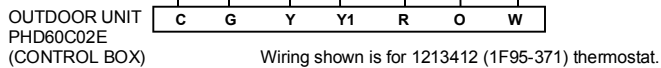
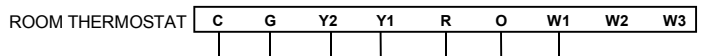
Wiring shown is for 10636701 (THSADC1H2BA) or 10636702 (THSMDC1H2BA) thermostat

PHD60 TWO-STAGE



Wiring shown is for 1213412 (1F95-371) thermostat.

NOTE: If Electric Heater Kit is not installed or low voltage connection is made in unit control box, connect as follows.



Wiring shown is for 1213412 (1F95-371) thermostat.

Figure 2 - Typical Thermostat and Unit 24 Volt Wiring Hoo2kup

ELECTRICAL CONNECTIONS

NOTE: The units are designed for operation on 60 Hz current and at the voltages shown on the rating plate. All internal wiring in the unit is complete. The power supply may be brought into the contactor (refer to unit wiring diagram supplied with unit). Ensure 24 volt wiring is connected between the unit control panel and the room thermostat. Refer to Figure 2 for proper thermostat wiring and Figures 3 and 4 shows the low voltage field connection.

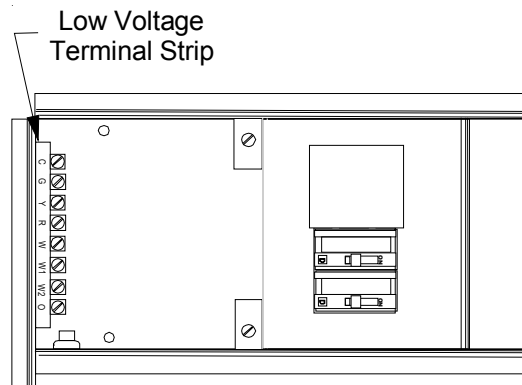


Figure 3 - Low Voltage Connection Heater Kit Control Box

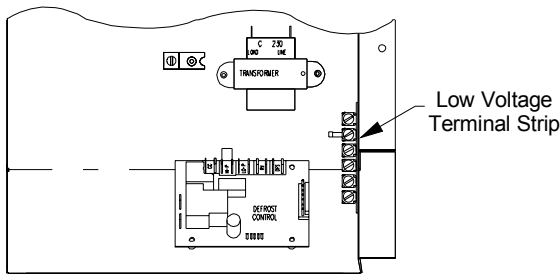


Figure 4 - Low Voltage Connection Unit Control Box

Refer to the unit wiring diagram for electrical connections. When installed, the unit must be electrically grounded in accordance with local codes or in the absence of local codes, with the National Electrical Code, ANSI/NFPA No. 70, and/or the CSA C22.1 Electrical Code, if an external source is utilized.

WARNING

TO AVOID PERSONAL INJURY OR DEATH DUE TO ELECTRIC SHOCK, WIRING MUST BE PROPERLY GROUNDED.

CAUTION

TO AVOID PROPERTY DAMAGE OR PERSONAL INJURY DUE TO FIRE, USE ONLY COPPER CONDUCTORS.

CAUTION

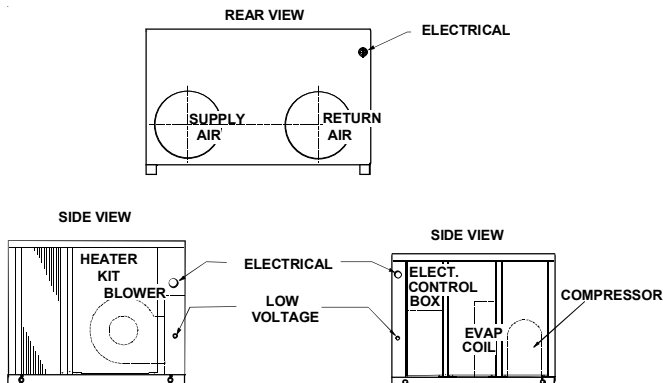
TO PREVENT IMPROPER AND DANGEROUS OPERATION DUE TO WIRING ERRORS, LABEL ALL WIRES PRIOR TO DISCONNECTION WHEN SERVICING CONTROLS. VERIFY PROPER OPERATION AFTER SERVICING.

The best protection for the wiring is the lowest rated fuse or circuit breaker which will supply power to the unit during normal operation without nuisance trips. Such a device will provide maximum circuit protection. **DO NOT EXCEED THE MAXIMUM OVERCURRENT DEVICE SIZE SHOWN ON UNIT DATA PLATE.**

All line voltage connections must be made through weatherproof fittings. All exterior power supply and ground wiring must be in approved weatherproof conduit. Low voltage wiring from the unit control panel to the thermostat requires coded cable.

FLEXIBLE WIRING SETUP

Line and low voltage wiring can enter the unit from either side.



For knockout locations, see dimension drawing in the Product Data Book applicable to your model*. Use the Single Point wiring kit to add further flexibility to the installation wiring.

UNIT VOLTAGE

The unit transformer is factory connected for 230V operation. If the unit is to operate on 208V, reconnect the transformer primary lead as shown on the unit wiring diagram.

CIRCULATING AIR AND FILTERS

DOWNSHOT AIRFLOW CONVERSION

Units are shipped from the factory ready for horizontal airflow. These units can be easily converted from horizontal to downshot airflow delivery. If conversion to vertical airflow is necessary, proceed as follows:

BLOWER ROTATION

The first step in the conversion is to rotate the blower assembly for downshot airflow. After rotating the blower assembly, the blower motor must be oriented as shown in Figure 7 with the motor wires at the bottom. This keeps condensate from puddling inside the blower motor and causing motor failure. If the motor is not oriented correctly, loosen the motor belly band and rotate the motor to the correct position, then retighten the motor belly band.

1. Cut insulation around bottom openings and remove panels from the bottom of the unit, saving the screws holding the panels in place.
2. From the rear of the unit, remove the four screws securing the blower assembly in place and loosen the two screws directly below the duct opening (Figure 5).

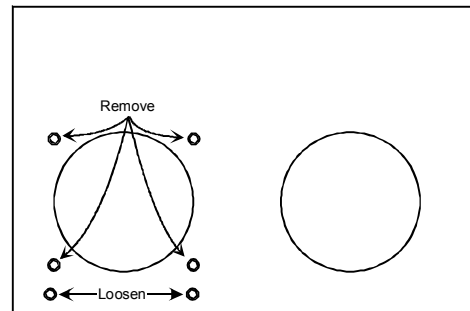


Figure 5 - Duct Removal

3. Remove the clamp securing the blower assembly to the bottom of the unit. The clamp and screws may be discarded (Figure 6).

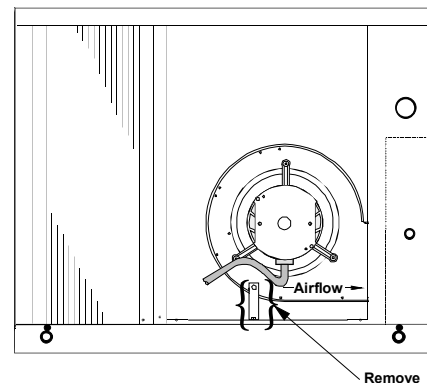


Figure 6 - Clamp Removal

4. Rotate the blower assembly 90° clockwise, setting the blower assembly outlet on the bottom of the unit and secure with two screws removed in step 2 (Figure 7).
5. Tighten the two screws below the duct opening that were loosened in step 2.

NOTE: To keep condensate from collecting inside the blower motor, ensure the motor is oriented with its leads exiting at the bottom of the motor (Figures 5 and 6).

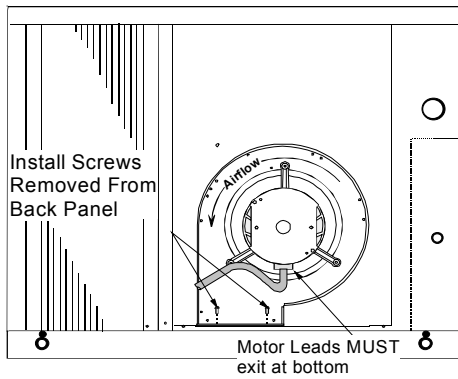


Figure 7 - Vertical Blower Assembly

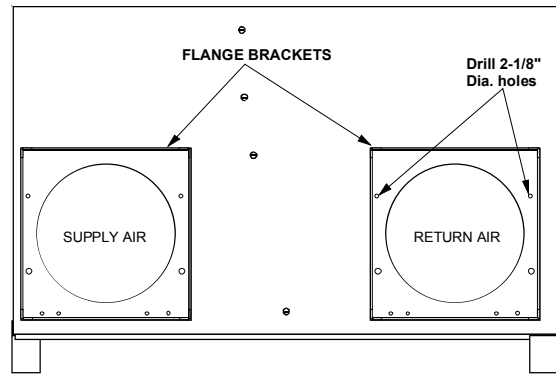


Figure 9 - Flange Bracket Installation

- Align the horizontal duct covers (Figure 10) over the flange brackets just installed and secure with screws included in the Horizontal Duct Cover kit.

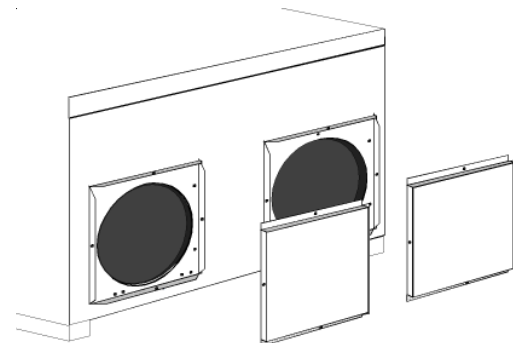


Figure 10 - Horizontal Duct Cover Alignment

PHD48/60 AND PHB60 MODELS:

- Install cover clips (included with unit) on the inner flange sides using existing flange hole (Figure 11).
- With self-drilling screws provided, attach clips to the unit.

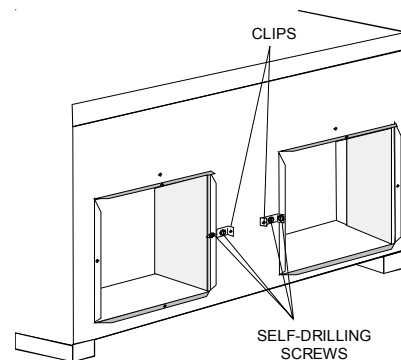


Figure 11 - Cover Clip Installation

- Attach 16x16 horizontal covers using screws provided with kit to the outer duct opening flange and cover clip holes (Figure 12).
- Secure the center of the top flat cover flange to the unit using a self-drilling screw included with the unit.

HORIZONTAL DUCT COVER INSTALLATION

The second step in the downshot airflow conversion is to install Horizontal Duct Covers. Horizontal Duct Covers are an accessory, and can be purchased from your authorized dealer. The kit number is CHK001A.

Models 24, 30, 36, 42, and PHB48 require that the supply and return air openings be converted to square. Flanges are shipped with these units to complete this conversion.

Models PHD48/60 and PHB60 supply and return air openings are square and do not require a flange conversion. They do, however, require that cover clips (included with the unit) be installed to ensure a secure fit of the Horizontal Duct Covers.

24, 30, 36, 42 AND PHB48 MODELS:

- Remove and set aside the four supply air side screws (Figure 8).
- Remove and set aside the two return air side screws.

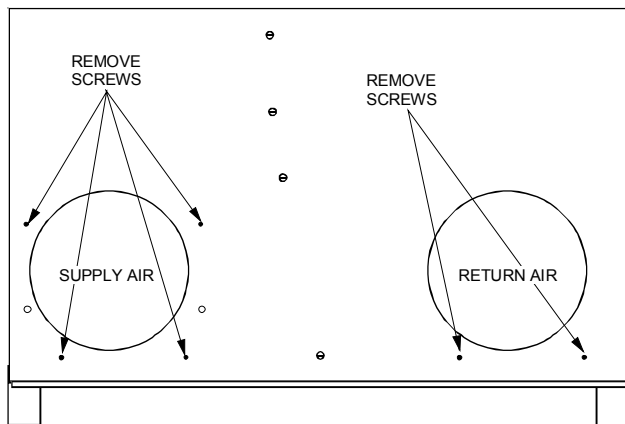


Figure 8 -Supply Air Side Screws Removal

- Center flange bracket (Figure 9) and unit openings. Attach flange brackets to the unit using the removed screws in Step 1. Retighten screws.
- Drill two 1/8" diameter holes on the return air side as indicated in Figure 9.
- Secure the return air side flange bracket with the two self-tapping screws included with the unit.

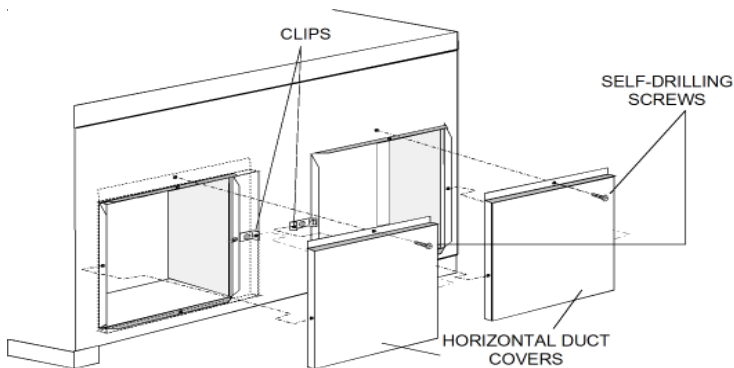


Figure 12 - Horizontal Duct Cover Installation

DUCTWORK

Duct systems and register sizes must be properly designed for the C.F.M. and external static pressure rating of the unit. Ductwork should be designed in accordance with the recommended methods of Air Conditioning Contractors of America Manual D (Residential) or Manual Q (Commercial). All ductwork exposed to the outdoors must include a weatherproof barrier and adequate insulation.

A duct system should be installed in accordance with Standards of the National Board of Fire Underwriters for the Installation of Air Conditioning, Warm Air Heating and Ventilating Systems. Pamphlets No. 90A and 90B.

The warm air supply duct from the unit through a wall fabricated of combustible material may be installed without clearance. However, minimum clearances for the unit must be observed as shown in Product Data Book applicable to your model*.

The outlet duct should be provided with an access panel.

For vertical airflow, the ductwork should be attached to the roof curb prior to installing the unit. Ductwork dimensions are shown in the PRC roof curb installation manual.

If desired, supply and return duct connections to the unit may be made with flexible connections to reduce possible unit operating sound transmission.

FILTERS



CAUTION

TO AVOID PROPERTY DAMAGE DUE TO FIRE AND LOSS OF EQUIPMENT EFFICIENCY OR EQUIPMENT DAMAGE DUE TO DUST AND LINT BUILD UP ON INTERNAL PARTS, NEVER OPERATE UNIT WITHOUT A FILTER INSTALLED.

Even though a return air filter is not supplied with this unit, there must be a means of filtering all return air.

Refer to Product Data Book applicable to your model* for filter size information.

If using the Over/Under Transition Kit, the filter(s) may be located in the return air duct(s) or return air filter grille(s). Filters installed external to the unit should be sized in accordance with their manufacturer recommendations. A throwaway filter must be sized for a maximum face velocity of 300 feet per minute.

FILTER INSTALLATION

Important: When installing a filter, the air flow arrows on the filter must point toward the circulating air blower.

CONDENSATE DRAIN

CONDENSATE DRAIN CONNECTION

An external condensate drain trap is required with this unit. See your distributor for details. For proper unit operation, the trap must

be filled either before a cooling startup or during a unit "cycle-off" after 20 minutes of running on first cycle. This drain can be extended using 3/4" PVC piping.

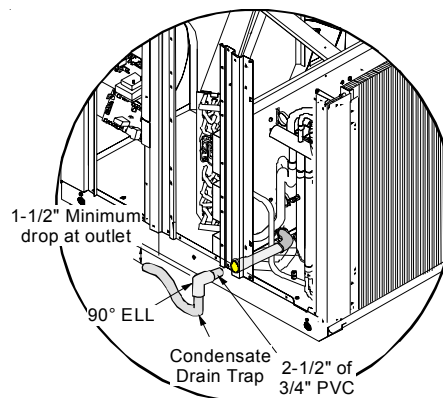


Figure 13 - Condensate Drain Connection

NORMAL SEQUENCE OF OPERATION

NOTE: There is a fan delay on initial power to unit before the low voltage board resets and is operational.

1. Thermostat calls for heating or cooling. The compressor and outdoor fan are energized.
2. Approximately 10 seconds later, the indoor fan starts.
3. The unit will deliver heating or cooling to the conditioned space until the thermostat is satisfied.

NOTE: PHD60 Two-Stage Cooling

If the room temperature is 4°F higher than thermostat setpoint, the indoor fan will run at high speed, and the compressor at full load. If the room temperature is within 2°F of thermostat setpoint; the indoor fan will shift to low speed and the compressor will unload to a lower capacity.

4. The compressor and outdoor fan will be de-energized when the thermostat opens.
5. The indoor fan continues to run for approximately 30 seconds after the thermostat is satisfied. This allows additional cooling from the indoor coil to be transferred to the conditioned space. Then, the indoor fan stops.

STARTUP AND ADJUSTMENT



WARNING

TO PREVENT PERSONAL INJURY OR DEATH, ALWAYS DISCONNECT THE ELECTRICAL POWER BEFORE INSPECTING OR SERVICING THE UNIT. SINCE ALL OF THE COMPRESSOR PROTECTION DEVICES RESET AUTOMATICALLY, THE CONTACTOR AND OUTDOOR FAN MAY BE ENERGIZED WHEN RESET.



CAUTION

THIS UNIT MUST NOT BE USED AS A "CONSTRUCTION HEATER" DURING THE FINISHING PHASES OF CONSTRUCTION ON A NEW STRUCTURE. THIS TYPE OF USE MAY RESULT IN PREMATURE FAILURE OF THE UNIT DUE TO EXTREMELY LOW RETURN AIR TEMPERATURES AND EXPOSURE TO VERY DIRTY ATMOSPHERES.

COMPRESSOR PROTECTION DEVICES

The PHB**C and PHD**C compressor includes components which are designed to protect the compressor against abnormal operating conditions.

OPERATING INSTRUCTIONS

1. Turn on the electrical power supply to the unit.
2. Place the room thermostat selector switch in the COOL or HEAT position (or AUTO if available, and if automatic changeover from cooling to heating is desired).
3. Set the room thermostat to the desired temperature.

MAINTENANCE



WARNING

TO AVOID PERSONAL INJURY OR DEATH DUE TO ELECTRICAL SHOCK, DISCONNECT ELECTRICAL POWER BEFORE PERFORMING ANY MAINTENANCE.

REPLACING OR CLEANING FILTER

A return air filter is not supplied with this unit; however, there must be a means of filtering all of the return air. The filter(s) may be located in the return air duct(s), or return air filter grille(s). Consult with your installing dealer for the actual location of the return air filter(s) for your unit.

Dirty filters are the most common cause of inadequate heating or cooling performance. Filter inspection should be made at least every two months; more often if necessary because of local conditions and usage.

Dirty throwaway filters should be discarded and replaced with a new, clean filter. Dirty permanent filters should be washed with water, thoroughly dried and sprayed with a filter adhesive before being reinstalled. (Filter adhesives may be found at many hardware stores.) Permanent filters should last several years; however, should one become torn or uncleanable, it should be replaced.

MAINTAINING CABINET FINISH

Use a fine grade automotive wax on the cabinet finish to maintain the finish's original high luster. This is especially important in areas with high ultraviolet radiation.

CLEAN OUTSIDE COIL (QUALIFIED SERVICER ONLY)

The coil with the outside air flowing over it should be inspected annually and cleaned as frequently as necessary to keep the finned areas free of lint, hair and debris.

CONDENSER AND EVAPORATOR MOTORS

Bearings on the evaporator motor and the condenser motor are permanently lubricated. No additional oiling is required.



WARNING

TO AVOID PERSONAL INJURY OR DEATH DUE TO ELECTRICAL SHOCK, DO NOT REMOVE ANY INTERNAL COMPARTMENT COVERS OR ATTEMPT ANY ADJUSTMENT.



CAUTION

VERIFY PROPER OPERATION AFTER SERVICING.

ACCESSORIES

Horizontal Duct Covers (CHK001A)
Single Point Power Connection (SPK**A)
Roof Curb - Heat Pump (PRC06A1)
Roof Curb - Universal (PRC08A1)
Over-Under to Side by Side (PDTR06A)

Additional accessories, as described above, can be purchased to fit specific application needs. Accessories can be ordered by the part numbers in the table and each accessory includes its own separate instructions.

REPLACEMENT PARTS

Refer to the description in the Parts Catalog when ordering any part. Be sure to provide the unit model, manufacturing, and serial numbers with the order.

NOTE: Details for installing and wiring electric heater kits and single point wiring kits are contained in the installation instructions for these accessories.

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