

INSTALLATION INSTRUCTIONS

SINGLE PACKAGE AIR CONDITIONER - SINGLE STAGE, R-410A



IMPORTANT

ATTENTION INSTALLERS:

It is your responsibility to know this product better than your customer. This includes being able to install the product according to strict safety guidelines and instructing the customer on how to operate and maintain the equipment for the life of the product. Safety should always be the deciding factor when installing this product and using common sense plays an important role as well. Pay attention to all safety warnings and any other special notes highlighted in the manual. Improper installation of the furnace or failure to follow safety warnings could result in serious injury, death, or property damage.

These instructions are primarily intended to assist qualified individuals experienced in the proper installation of this appliance. Some local codes require licensed installation/service personnel for this type of equipment. Please read all instructions carefully before starting the installation. Return these instructions to the customer's package for future reference.

DO NOT DESTROY. PLEASE READ CAREFULLY & KEEP IN A SAFE PLACE FOR FUTURE REFERENCE.

TABLE OF CONTENTS

IMPORTANT SAFETY INFORMATION.....	2
GENERAL INFORMATION.....	3
Before You Install this Unit.....	3
Locating the Air Conditioner.....	3
Minimum Clearance Requirements.....	4
Air Duct System	4
Rooftop Installation.....	5
AIR CONDITIONER INSTALLATION.....	6
Unpacking the Unit.....	6
Installing Return & Supply Air Collars (Optional)	6
Supply Duct.....	6
Return Duct	6
Locating & Installing the Return Air Assembly.....	6
Connecting the Return & Supply Air Flexible Ducts.....	6
Locating & Installing the Supply Damper(s).....	7
Condensate Drainage.....	7
ELECTRICAL CONNECTIONS	7
Pre-Electrical Checklist.....	7
Line Voltage	7
Grounding	8
Overcurrent Protection.....	8
Thermostat / Low Voltage Connections	8
Cooling Only Thermostat.....	8
Heat / Cool Thermostat	8
Blower Speed.....	9
START UP & ADJUSTMENTS	9
Pre-Start Checklist.....	9
Start-Up Procedure	9
System Cooling	9
System Heating	9
AIR CONDITIONER MAINTENANCE.....	10
REFRIGERANT CHARGING	10
Charging the Unit.....	10
Safety switches	10
FIGURES & TABLES.....	11
Figure 9. Unit Dimensions.....	11
Table 2. Physical Data	11
Table 3. Blower Data.....	12
Wiring Diagrams	13
Figure 10. Wiring Diagram (1.5, 2, & 2.5 Ton Models).	13
Figure 11. Wiring Diagram (3, 3.5, 4, & 5 Ton Models)	14
INSTALLATION CHECKLIST.....	16
REPLACEMENT PARTS	16

IMPORTANT SAFETY INFORMATION

Please read all instructions before servicing this equipment. Pay attention to all safety warnings and any other special notes highlighted in the manual. Safety markings are used frequently throughout this manual to designate a degree or level of seriousness and should not be ignored. **WARNING** indicates a potentially hazardous situation that if not avoided, could result in personal injury or death. **CAUTION** indicates a potentially hazardous situation that if not avoided, may result in minor or moderate injury or property damage.

WARNING:

ELECTRICAL SHOCK, FIRE OR EXPLOSION HAZARD

Failure to follow safety warnings exactly could result in serious injury, death or property damage.

Improper servicing could result in dangerous operation, serious injury, death or property damage.

- Before servicing, disconnect all electrical power to the indoor blower.
 - When servicing controls, label all wires prior to disconnecting. Reconnect wires correctly.
 - Verify proper operation after servicing.
-

WARNING:

These units are fully charged with R-410A refrigerant and ready for installation. When a system is installed according to these instructions, no refrigerant charging is required. If repairs make it necessary for evacuation and charging, it should only be attempted by qualified, trained personnel thoroughly familiar with this equipment. Some local codes require licensed installation service personnel to service this type of equipment. Under no circumstances should the equipment owner attempt to install and/or service this equipment. Failure to comply with this warning could result in equipment damage, personal injury, or death.

WARNING:

Do not place combustible material on or against the unit cabinet. Do not place combustible materials, including gasoline and any other flammable vapors and liquids, in the vicinity of the unit.

CAUTION:

This unit uses R-410A refrigerant. DO NOT use any other refrigerant in this unit. Use of another refrigerant will damage the unit.

WARNING:

The information listed below must be followed during the installation, service, and operation of this unit. Unqualified individuals should not attempt to interpret these instructions or install this equipment. If you do not possess mechanical skills or tools, call your local dealer for assistance. Failure to follow safety recommendations could result in possible damage to the equipment, serious personal injury or death.

- Before beginning the installation, verify that the unit model is correct for the job. The unit model number is printed on the data label.
- This equipment contains liquid and gaseous refrigerant under high pressure. **DO NOT USE ANY PORTION OF THE CHARGE FOR PURGING OR LEAK TESTING.** Installation or servicing should only be performed by qualified trained personnel thoroughly familiar with this type equipment.
- Installation of equipment may require brazing operations. Installer must comply with safety codes and wear appropriate safety equipment (safety glasses, work gloves, fire extinguisher, etc.) when performing brazing operations.
- This unit is designed for outdoor installations only and should be located in a position as shown on [page 4](#). Unit dimensions are shown in [Figure 9 & Table 2, \(page 11\)](#).
- The installer should become familiar with the units wiring diagram before making any electrical connections to the unit. See the unit wiring label or [Figure 10 \(page 13\)](#) and [Figure 11 \(page 14\)](#).
- Follow all precautions in the literature, on tags, and on labels provided with the equipment. Read and thoroughly understand the instructions provided with the equipment prior to performing the installation and operational checkout of the equipment.
- Use caution when handling this appliance or removing components. Personal injury can occur from sharp metal edges present in all sheet metal constructed equipment.

REQUIREMENTS & CODES

- All electrical wiring must be completed in accordance with local, state and national codes and regulations and with the National Electric Code (ANSI/NFPA 70) or in Canada the Canadian Electric Code Part 1 CSA C.22.1.
- The installer must comply with all local codes and regulations which govern the installation of this type of equipment. Local codes and regulations take precedence over any recommendations contained in these instructions. Consult local building codes and the National Electrical Code (ANSI C1) for special installation requirements.
- Air Ducts must be installed in accordance with the standards of the National Fire Protection Association "Standards for Installation of Air Conditioning and Ventilation Systems" (NFPA 90A), "Standard for Installation of Residence Type Warm Air Heating and Air Conditioning Systems" (NFPA 90B), these instructions, and all applicable local codes.

- Verify the required speed from the airflow data found in [Table 3, \(page 12\)](#). Place appropriate wire on the appropriate motor speed tap for the required airflow.

GENERAL INFORMATION

This packaged air conditioner is designed only for outdoor ground level installations and can be readily connected to the high static duct system of a home. This unit has been tested for capacity and efficiency in accordance with AHRI Standards and will provide many years of safe and dependable comfort, providing it is properly installed and maintained. Abuse, improper use, and/or improper maintenance can shorten the life of the appliance and create unsafe hazards.

To achieve optimum performance and minimize equipment failure, it is recommended that periodic maintenance be performed on this unit. The ability to properly perform maintenance on this equipment requires certain mechanical skills and tools.

Before You Install this Unit

- ✓ The cooling load of the area to be conditioned must be calculated and a system of the proper capacity selected. It is recommended that the area to be conditioned be completely insulated and vapor sealed.
- ✓ Check the electrical supply and verify the power supply is adequate for unit operation. If there is any question concerning the power supply, contact the local power company.
- ✓ All units are securely packed at the time of shipment and upon arrival should be carefully inspected for damage prior to installing the equipment at the job site. Verify coil fins are straight. If necessary, comb fins to remove flattened or bent fins. Claims for damage (apparent or concealed) should be filed immediately with the carrier.
- ✓ Please consult your dealer for maintenance information and availability of maintenance contracts. Please read all instructions before installing the unit.

Locating the Air Conditioner

- Survey the job site to determine the best location for mounting the outdoor unit. Select a solid, level position, preferably on a concrete slab, slightly above the grade level, and parallel to the home. If possible, select a site for the unit that is as close as possible to the proposed return grille location. Unit dimensions are shown in [Figure 9 & Table 2, \(page 11\)](#). **DO NOT PLACE UNIT UNDER THE HOME.**
- The unit should be located with consideration of minimizing the length of the supply and return ducts. If practical, place the air conditioner and its ducts in an area where they will be shaded from the afternoon sun, when the heat load is greatest.
- The length of the supply and return ducts should be kept to a minimum with no sharp radius bends.
- Overhead obstructions, poorly ventilated areas, and areas subject to accumulation of debris should be avoided. The hot condenser air must be discharged up and away from the home, and if possible, in a direction with the prevailing wind. Do not place the unit in a confined space. See [Figure 9 & Table 2, \(page 11\)](#) for unit dimensions.
- Sufficient clearance for unobstructed airflow through the outdoor coil must be maintained in order to achieve rated performance.
- Consideration should also be given to availability of electric power, service access, noise, and shade.

Minimum Clearance Requirements

Sufficient clearance for unobstructed airflow through the outdoor coil must be maintained in order to provide room for proper servicing and achieve rated performance. See Figure 1 for minimum clearances to obstructions.

Service Access Clearance:

Blower and electrical control access panels.....	24"
Compressor compartment access panel.....	24"
Clearance from top of unit	72"
Clearance around condenser coil area to Wall or shrubs (excludes duct panel side).....	12"

Clearances to Combustibles:

Combustible base - wood or Class A, B, or C roof covering material	0"
Supply & return air ducts	0"
Duct connection side	0"

Air Duct System

Air ducts must be installed in accordance with the standards of the National Fire Protection Association "Standard for Installation of Air Conditioning and Ventilation Systems" (NFPA 90A), "Standard for Installation of Residence Type Warm Air Heating and Air Conditioning Systems" (NFPA 90B), these instructions, and all applicable codes. NFPA publications are available by writing to: National Fire Protection Association, Batterymarch Park, Quincy, ME 02269 or visit www.NFPA.org on the web.

- Design the duct work according to methods described by the Air Conditioning Contractors of America (ACCA).
- The supply duct system, including the number and type of registers, will have much more effect on the performance of the system than any other factor. The duct must be sufficiently large to conduct an adequate amount of air to each register. See Figure 2.
- Duct work should be attached directly to the unit flanges for horizontal applications.

- For highly resistive duct systems it may be necessary to add an additional return air duct and or supply to achieve maximum performance and prevent coil icing and refrigerant flood back.
- **The air conditioning output of the system will not cool the home if air is lost to the outside through leaks in the duct system. Ducts that are collapsed or restricted by foreign objects will also prevent adequate air flow.**
- All duct work passing through unconditioned space must be properly insulated to minimize duct losses and prevent condensation. Use insulation with an outer vapor barrier. Refer to local codes for insulation material requirements.

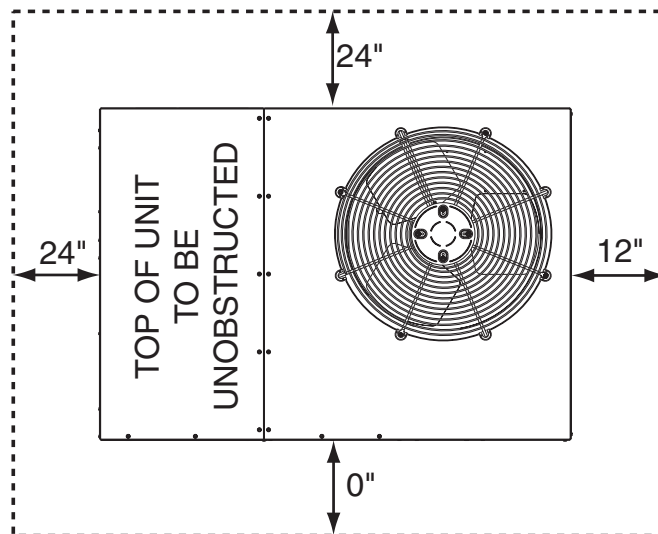


Figure 1. Minimum Unit Clearances

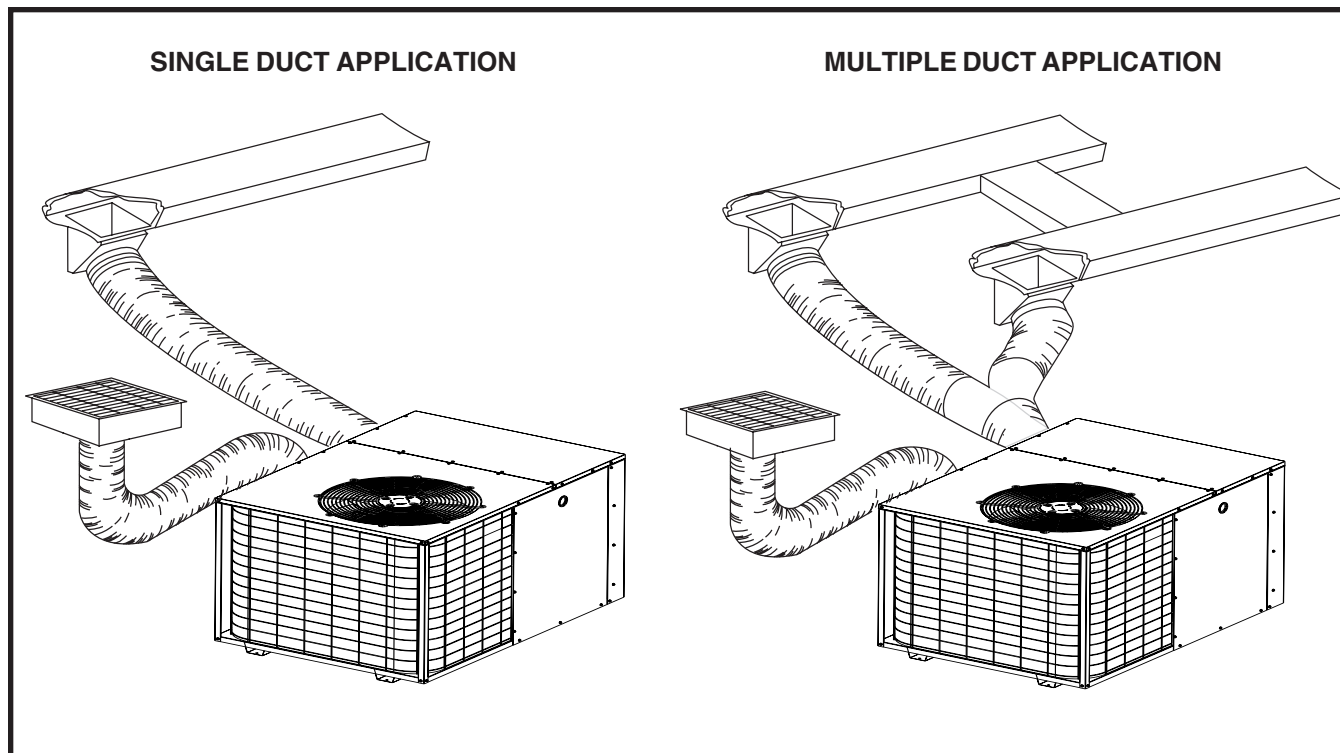


Figure 2. Single & Multiple Duct Applications

Rooftop Installation

Rooftop installations must follow local building codes or applicable safety codes and requirements:

- Prepare a supporting rack that is adequately designed to support and handle the unit weight and minimum wind loads. Reinforce the roof area for the installation if required. For unit weights, see [Table 2 \(page 11\)](#).
- The unit should be lifted using slings and spreader bars. Make sure the rigging slings and bars are in good shape and can withstand and handle the static and dynamic loads. Refer to [Table 2](#) for unit weights.
- The spreader bars are necessary for proper load stability and to prevent the unit's cabinet from being damaged. The slings should run thru the unit's bottom channels (see [Figure 3](#)) and should be adequately protected against cabinet metal edges. **NOTE:** Appropriate protection should be used between the strap and the sheet metal edge of the unit.
- The rigging must be located outside of the unit's center of gravity. Refer to [Figure 9 \(page 8\)](#) and [Table 2](#) for center of gravity locations.

CAUTION:

All panels must be securely in place when rigging and hoisting.

WARNING:

To avoid the risk of property damage or personal injury, it is the rigger's responsibility to ensure that whatever means are used to hoist the unit are safe and adequate.

WARNING:

Never hoist the unit over people or stand below the rigged unit. The roof top unit must remain in an upright position all the time.

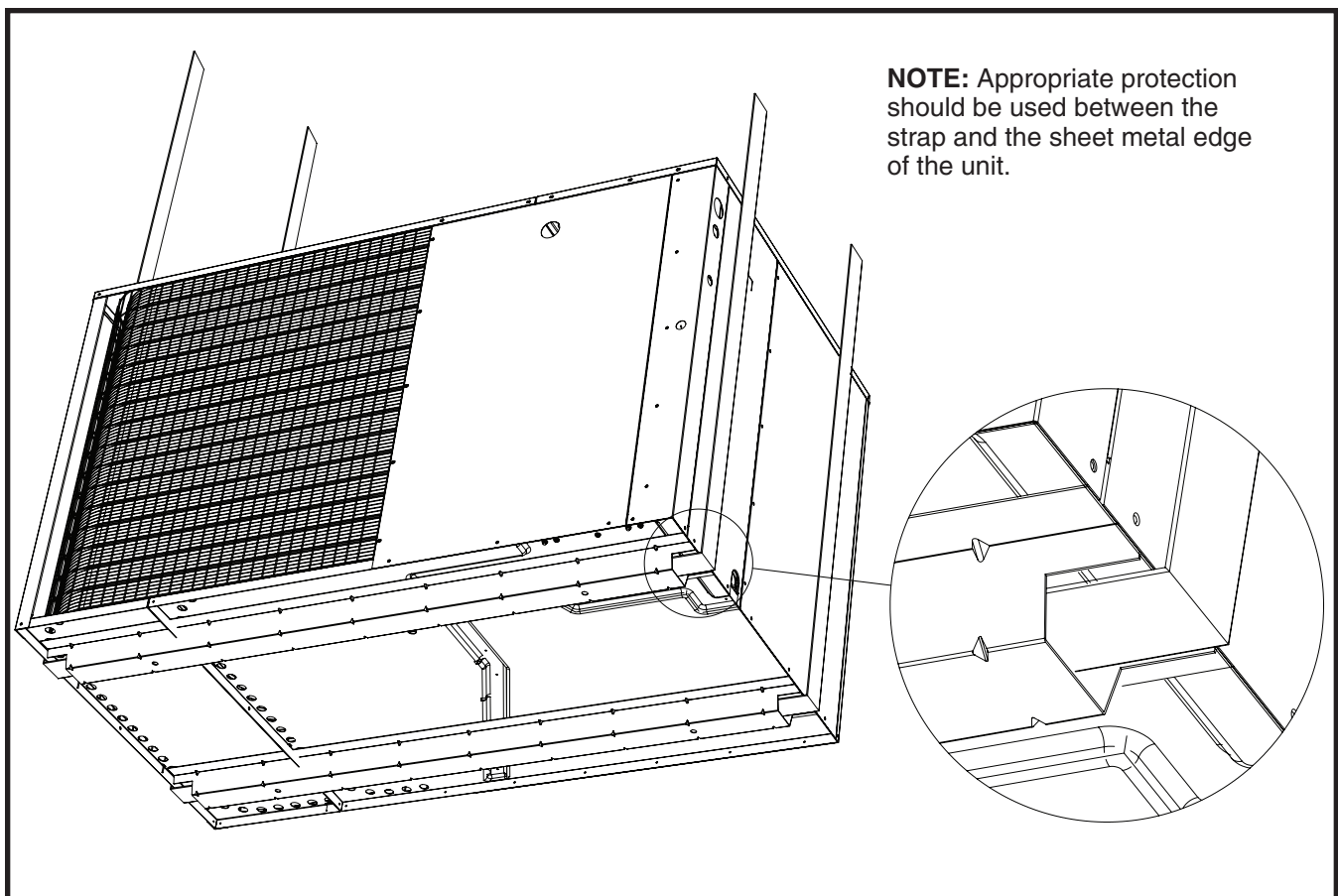


Figure 3. Slings and Bottom Channels

AIR CONDITIONER INSTALLATION

Unpacking the Unit

It is recommended that the unit be unpacked at the installation site to minimize damage due to handling.

CAUTION:

Do not tip the unit on its side. Oil may enter the compressor and cause damage.

1. Remove the bands from around the unit.
2. Unfold the top and bottom cap flanges.
3. Carefully remove the top cap and tube.

Installing Return & Supply Air Collars (Optional)

Supply and return collars are not supplied with the unit but are offered as accessory item. Check with your distributor for pricing and availability. They can be easily positioned over the unit openings and secured with sheet metal screws. See [Figure 4 & Table 2, \(page 11\)](#).

- The diameter of the return duct collar is 12" for 1.5 - 3 Ton models, and 14" for 3.5 - 5 Ton models.
- The diameter of the supply duct collar is 12".
- Before permanently installing the collars, it is recommended you pre-fit them over the openings first to determine best fit and alignment.

Supply Duct

1. Assemble the collar by overlapping the two ends.
NOTE: One end of the collar is slotted and the opposite end has two small holes. Position the end with small screw holes underneath the slotted end.
2. Fasten the collar ends with two self drilling sheet metal screws.
3. Position the collar over the opening and align the 4 holes in the collar with the 4 holes (or dimples depending on model) in the rear panel.
4. Using self-drilling screws (10-16x.5), secure the collar to the rear panel.

Return Duct

1. Assemble the collar by overlapping the two ends.
NOTE: One end of the collar is slotted and the opposite end has two small holes. Position the end with small screw holes underneath the slotted end.
2. Fasten the collar ends with two self drilling sheet metal screws.
3. Position the collar over the opening. Align the four holes in the collar with the four dimples or holes (depending on unit model) in the panel.
4. Secure the collar to the rear panel using self tapping screws (10-16x.5).

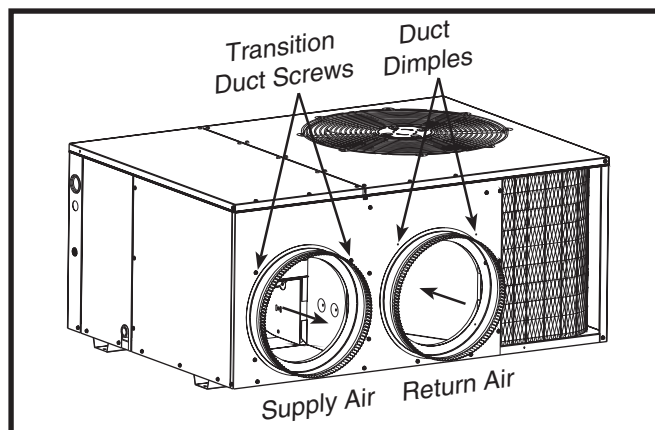


Figure 4. Return & Supply Air Collars

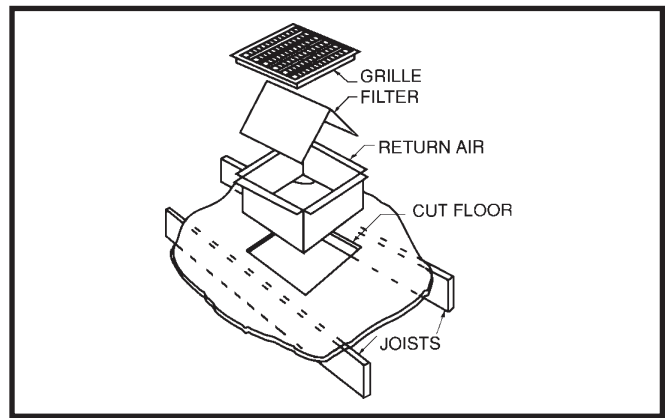


Figure 5. Return Air Box

Locating & Installing the Return Air Assembly

To simplify installation, locate and install the return air assembly first. If desired, the return opening can be located inside a closet with louvered doors that has an open area equal to or greater than a 12" x 20" grille. The return air grille can be placed in the wall of a closet and the air ducted into the filter box through a boxed-in area at the closet floor level ([Figure 5](#)). **Verify the filter is readily accessible.**

NOTE: The return air box with grille and filter should not be located in heavy traffic areas like hallways or center of rooms. A good spot is in a corner or under a table, if a minimum two inch clearance is available.

1. Start the installation from under the home by cutting a small hole in the subfloor. Determine how the floor joist location will affect cutting the opening needed for the return air box.
NOTE: Floor joists are generally located on 16" centers, leaving 14-3/8" between joists.
2. After measuring the return air box (approximately 12-1/4" x 20-1/4"), cut the hole through the floor so that the box will fit between the floor joists. Care should be taken when cutting through carpeting to avoid snags. **NOTE:** In most installations it will be necessary to cut a similar hole in the fiberboard directly under the hole in the floor. However, if the floor is more than ten inches deep, it will only be necessary to cut a hole for the collar on the return air box or for the insulated duct.
3. Set the box into the opening and fasten with screws or nails.
4. Install the filter and return air grille in the air box.

Connecting the Return & Supply Air Flexible Ducts

- Flexible ducts may be cut to the required length and spliced with sheet metal sleeves and clamps. **Keep all ducts as short and straight as possible. Avoid sharp bends.** Please follow all instructions packed with duct.
- Flexible ducts can be secured to the corresponding fittings with the clamps provided with the ducts. **NOTE:** To prevent a loss in cooling capacity, make sure all connections are tight.
- Ducts may be spliced with sheet metal sleeves and clamps.
- After the inner duct is connected to the proper fitting, the insulation and plastic sleeve should be pulled over the connection and clamped.
- Homes with multiple supply ducts (or special applications), a Y fitting is available to divide the supply air so it can be ducted to different areas of the home for more efficient cooling.

NOTE: For maximum performance, insulate the Y fitting.

Locating & Installing the Supply Damper(s)

CAUTION:

If installing this air conditioning system in conjunction with a furnace, a damper must be installed in the furnace base assembly to prevent cold air from being discharged around the heat exchanger. Damage to the heat exchanger and asphyxiation may occur if a damper is not installed.

Check with the furnace manufacturer for damper requirements. Failure to install the required furnace damper may invalidate code agency listing and limited warranty on the furnace.

When locating the supply damper(s), carefully check floor joists and frame members that could interfere with the installation of the damper or flexible duct. Ideally, the damper should be located in the bottom of the main duct, forward of center of the home, at least three feet from the nearest register. See [Figure 6](#). The round supply opening in the slanted side of the damper should face the side of the home where the air conditioner is located.

1. Locate the center of the heat duct by cutting a small hole in the fiberboard below the duct at the desired location.
2. Cut a hole approximately 3/4" larger than the damper opening in the fiberboard.
3. Cut a 9-1/8" x 13-1/8" hole in the duct and bend over all tabs flat on the inside of the heat duct.
4. Insert the damper into the duct and bend over all tabs flat on the inside of the heat duct.
5. Seal the opening between the fiberboard and damper or flexible duct.

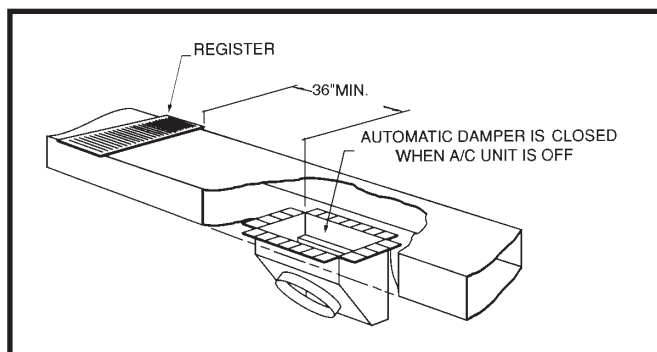


Figure 6. Supply Damper

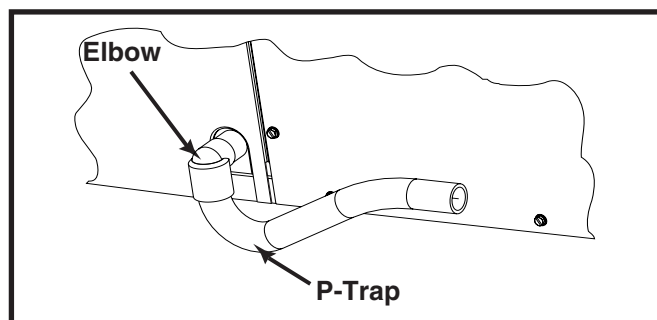


Figure 7. Drain Trap

Condensate Drainage

A 3/4" condensate fitting extends out of the side of the unit ([Figure 7](#)). The drain trap, shipped in the electrical compartment, must be installed to prevent water from collecting inside the unit.

1. Thread the elbow provided with the unit into the drain connection until hand tight.
2. Connect the condensate tubing onto the fitting, forming a trap near the drain connection.
3. Route the condensate tube from the trap to a suitable drain.

NOTE: For proper drainage, make sure the trap is level to the ground and tubing outlet is below trap level.

ELECTRICAL CONNECTIONS

WARNING:

ELECTRICAL SHOCK, FIRE OR EXPLOSION HAZARD

Failure to follow safety warnings exactly could result in serious injury, death or property damage.

Improper servicing could result in dangerous operation, serious injury, death or property damage.

- Before servicing, disconnect all electrical power to the indoor blower.
- When servicing controls, label all wires prior to disconnecting. Reconnect wires correctly.
- Verify proper operation after servicing.

- All electrical connections must be in compliance with all applicable local codes and ordinances, and with the current revision of the National Electric Code (ANSI/NFPA 70).
- For Canadian installations the electrical connections and grounding shall comply with the current Canadian Electrical Code (CSA C22.1 and/or local codes).

Pre-Electrical Checklist

- ✓ Verify that the voltage, frequency, and phase of the supply source match the specifications on the unit rating plate.
- ✓ Verify that the service provided by the utility is sufficient to handle the additional load imposed by this equipment. Refer to the unit wiring label for proper high and low voltage wiring.
- ✓ Verify factory wiring is in accordance with the unit wiring diagram [Figure 11 \(page 13\)](#) and [Figure 12 \(page 14\)](#). Inspect for loose connections.

Line Voltage

- A wiring diagram is located on the inside cover of the electrical box of the unit. The installer should become familiar with the wiring diagram before making any electrical connections to the unit.
- An electrical disconnect must be located within sight of and readily accessible to the unit. This switch shall be capable of electrically de-energizing the unit.
- Line voltage to the unit should be supplied from a dedicated branch circuit containing the correct fuse or circuit breaker for the unit. Incoming field wiring and minimum size of electrical conductors and circuit protection must be in compliance with information listed on the unit data label. Any other wiring methods must be acceptable to authority having jurisdiction.
- Provide power supply for the unit in accordance with the unit wiring diagram, and the unit rating plate. Connect the line-voltage leads to the terminals on the contactor inside the control compartment. Extend leads through power wiring hole ([Figure 8](#)). Connect L1 & L2 directly to the contactor.

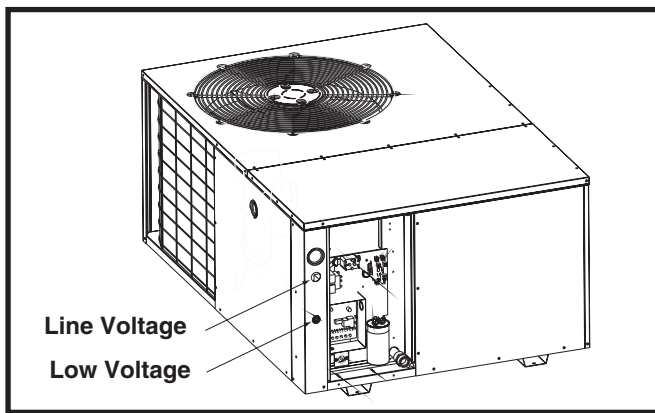


Figure 8. Power Entry

- The unit requires both power and control circuit electrical connections. Refer to the wiring diagrams (Figure 11 (page 13) & Figure 12 (page 14)) for identification and location of unit field wiring interfaces. Make all electrical connections in accordance with all applicable codes and ordinances.
- Use only copper wire for the line voltage power supply to this unit. Use proper code agency listed conduit and a conduit connector for connecting the supply wires to the unit. Use of rain tight conduit is recommended.
- 208/230 Volt units are shipped from the factory wired for 230 volt operation. For 208V operation, remove the lead from the transformer terminal marked 240V and connect it to the terminal marked 208V.
- Optional equipment requiring connection to the power or control circuits must be wired in strict accordance of the NEC (ANSI/NFPA 70), applicable local codes, and the instructions provided with the equipment.

Grounding

WARNING:

The unit cabinet must have an uninterrupted or unbroken electrical ground to minimize personal injury if an electrical fault should occur. Do not use gas piping as an electrical ground!

This unit must be electrically grounded in accordance with local codes or, in the absence of local codes, with the National Electrical Code (ANSI/NFPA 70) or CSA C22.1 Electrical Code. Ground the air conditioning unit using the green grounding screw provided in the control panel.

Overcurrent Protection

Overcurrent protection must be provided at the branch circuit distribution panel and sized as shown on the unit rating label and according to applicable local codes. Generally, the best fuse or breaker for any heat pump is the smallest size that will permit the equipment to run under normal usage and provide maximum equipment protection. Properly sized fuses and breakers also prevent nuisance trips during unit startup.

NOTE: If a fuse blows or a breaker trips, always determine the reason. Do not arbitrarily install a larger fuse or breaker and do not, in any case, exceed the maximum size listed on the data label of the unit.

Thermostat / Low Voltage Connections

- The unit is designed to operate from a 24 VAC Class II control circuit. The control circuit wiring must comply with the current provisions of the NEC (ANSI/NFPA 70) and with applicable

local codes having jurisdiction. Thermostat connections should be made in accordance with the instructions supplied with the thermostat and the indoor equipment.

- The low voltage wires must be properly connected. Route 24V control wires through the sealing grommet near the power entrance. See Figure 8. Recommended wire gauge and wire lengths for typical thermostat connections are listed in Table 1.
- Single stage or two-stage heating thermostats can be used with this equipment depending on optional accessories installed with the unit. Select a thermostat that operates in conjunction with the installed accessories.
- The thermostat should be mounted about 5 feet above the floor on an inside wall. DO NOT install the thermostat on an outside wall or any other location where its operation may be adversely affected by radiant heat from fireplaces, sunlight, lighting fixtures or convective heat from warm air registers or electrical appliances. Refer to the thermostat manufacturer's instruction sheet for detailed mounting information.

Cooling Only Thermostat

Connect the **red & yellow** wires from the unit to the **R & Y** terminals on the thermostat subbase. Connect the **green** wire to the **yellow** wire at the unit. See Figure 9.

Heat / Cool Thermostat

For the highest efficiency, the use of a 2-stage Heating/Cooling thermostat is recommended. The heat/cool thermostat prevents simultaneous operation of the heating and cooling units and is equipped with an ON-AUTO fan mode that allows the home owner to operate the indoor blower when only air circulation is desired. Connect the red, yellow, green and brown/orange low voltage wires to the **R or RC, Y, G, W or W2** (if applicable) terminals on the thermostat base. The black wire is the 24 volt common required on some thermostats. See Figure 9 (page 8).

WIRE GAUGE	RECOMMENDED MAXIMUM WIRE LENGTH (FT) FROM UNIT TO THERMOSTAT
22	45
20	70
18	115
16	180

Table 1. Control Wiring (24V)

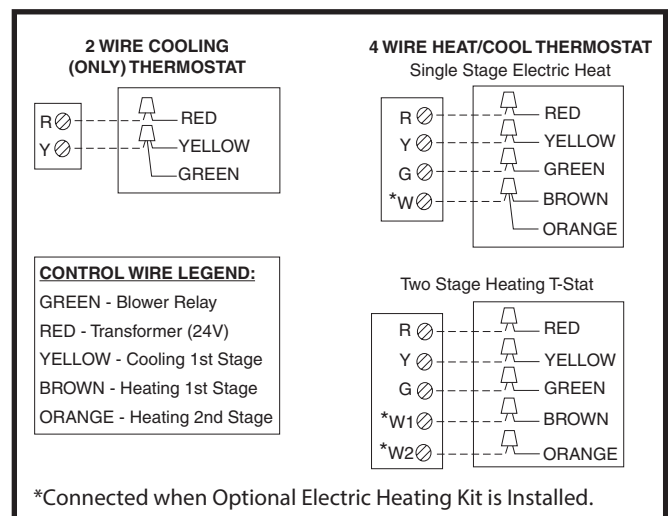


Figure 9. Low Voltage Connections

Blower Speed

For optimum system performance and comfort, it may be necessary to change the factory speed setting. See [Table 3, \(page 12\)](#) for factory settings.

WARNING:

To avoid electric shock, personal injury, or death, turn off the electric power at the disconnect or the main service panel before making any electrical connections.

CAUTION:

Label all wires prior to disconnection when servicing controls. Wiring errors can cause improper and dangerous operation. Verify proper operation after servicing.

CAUTION:

To avoid personal injury or property damage, make certain that the motor leads cannot come into contact with any metal components of the unit.

1. Disconnect all electrical power to the unit and remove the service panel.
2. Locate the orange and red wires terminated to the blower motor. **NOTE:** The orange wire controls cooling operation and the red wire controls the heating operation.
3. Verify the required speed from the airflow data found in [Table 3, \(page 12\)](#). Place appropriate wire on the appropriate motor speed tap for the required airflow.
4. Check all factory wiring as shown in the wiring diagram and inspect the connections to make sure none of them loosened during shipping or installation.

START UP & ADJUSTMENTS

Pre-Start Checklist

The following check list should be observed prior to starting the unit.

- ✓ Verify the unit is level and allows proper condensate drainage.
- ✓ Verify the outdoor coil and top of the unit are free from obstructions and debris, and all equipment access/control panels are in place. Unit must be installed with the proper clearances shown in [Figure 1 \(page 4\)](#).
- ✓ Verify that the duct work is sealed to prevent air leakage.
- ✓ Verify that the line voltage power leads are securely connected and the unit is properly grounded. Check the condenser fan to make sure it turns freely.
- ✓ Verify the thermostat is wired correctly and installed in a proper location. Make sure the low voltage wires are securely connected to the correct leads on the low voltage terminal strip.
- ✓ Verify that the power supply branch circuit overcurrent protection is sized properly.
- ✓ To achieve rated capacity and efficiency the compressor must be exposed to refrigerant for at least 24 hours prior to running. After unit startup, the compressor must run for a minimum of 12 hours.

Start-Up Procedure

CAUTION:

If the unit is equipped with a crankcase heater, allow 24 hours prior to continuing the start up procedures to allow for heating of the refrigerant compressor crankcase. Failure to comply may result in damage and could cause premature failure of the system. This warning should be followed at initial start up and any time the power has been removed for 12 hours or longer.

The control circuit thermostat may consist of an anti-short cycle timer that will not let the compressor re-start before 5 minutes have elapsed.

1. Set the system mode to OFF and the temperature mode to its highest setting.
2. Turn power on at the disconnect switch.
3. Set the system mode to ON or COOL.
4. Set the temperature mode below room temperature. Verify that the indoor blower, outdoor fan, and compressor energize and the cooling function starts.
5. Verify the discharge air grilles are adjusted and the system air is balanced.
6. Verify the duct work has no air leaks.
7. Verify the condensate drain is installed correctly and functions properly.
8. Set the temperature mode above room temperature. The unit should stop.
9. Instruct the homeowner on unit and thermostat operation and filter servicing.

Air Circulation

Leave the thermostat system mode on OFF, and set the fan mode to ON. Blower should run continuously. Check the air delivery at the supply registers and adjust register openings for balanced air distribution. Examine ducts for leaks or obstruction if insufficient air is detected.

Set the thermostat fan mode to AUTO. The blower should stop running.

System Cooling

Set the thermostat's system mode to COOL and the fan mode to AUTO. Lower the thermostat temperature selector below the existing room temperature. Allow the cooling system to operate for several minutes and check for the discharge of cool air at the supply registers.

System Heating

(Available only when Electric heat is supplied) Set the thermostat's system mode to HEAT and the fan mode to either AUTO (intermittent air) or to ON (continuous air). Raise the thermostat's temperature selector above the existing room temperature and check the following:

1. The compressor and outdoor fan should not run.
2. The blower will run according to the thermostat's fan mode setting.

AIR CONDITIONER MAINTENANCE

WARNING:

To prevent electrical shock, personal injury, or death, disconnect all electrical power to the unit before performing any maintenance or service. The unit may have more than one electrical supply.

Proper maintenance is important to achieve optimum performance from the air conditioner. The ability to properly perform maintenance on this equipment requires certain mechanical skills and tools. If you do not possess these skills, contact your dealer for maintenance. Consult your local dealer about the availability of maintenance contracts.

Routine maintenance should include the following:

- Inspect and clean or replace air filters at the beginning of each heating and cooling season, or more frequently if required.
- Inspect the condensate drain and outdoor coil at the beginning of each cooling season. Remove any debris. Clean the outdoor coil and louvers as necessary using a mild detergent and water. Rinse thoroughly with water.
- Inspect the electrical connections for tightness at the beginning of each heating and cooling season. Service as necessary.

CAUTION:

The unit should never be operated without a filter in the return air system. Replace disposable filters with the same type and size.

- Do not add additional oil to motors unequipped with oil tubes. The compressor is hermetically sealed at the factory and does not require lubrication.

REFRIGERANT CHARGING

Charging the Unit

CAUTION:

This air conditioner contains liquid and gaseous refrigerant under pressure. Adjustment of refrigerant charge should only be attempted by qualified, trained personnel thoroughly familiar with the equipment and safe responsible refrigerant handling procedures. Under no circumstances should the homeowner attempt to install and/or service this equipment. Failure to comply with this warning could result in equipment damage, personal injury, or death.

NOTE: The refrigerant charge can be checked and adjusted through the service ports provided external to the unit. Use only gage line sets which have a "Schrader" depression device present to actuate the valve.

If the outdoor temperature is above 65 degrees F or higher:
Charge the system following the steps below:

1. With the system operating at steady state, measure the superheat at suction line service valve.
2. Measure the outdoor dry bulb temperature (F) and indoor wet bulb temperature (F).

NOTE: The charging tables are on the inside of the unit's electrical control access panel. The tables provide superheat targets for the units.

3. Adjust the charge to match the target superheat.
4. The system should be charged so that the measured superheat is within ± 1 F of the target listed in the table.

Note:

- If your measured superheat at the suction valve is **LESS THAN** the recommended superheat value in the table then **REMOVE** refrigerant.
- If your measured superheat at the suction valve is **GREATER THAN** the recommended superheat value in the table then **ADD** refrigerant.

If the outdoor temperature is below 65 degrees F:

After leak checking the system, and evacuating the system, perform the following steps:

1. weigh in the charge amounts recommended and printed on the unit rating plate, the rating plate can be found on the exterior panel of the unit.
2. Return to the system when the outdoor temperature is 65 degrees F or higher and follow the steps defined at "If the outdoor temperature is 65 degrees F or higher" section above.

Safety switches

The high-pressure switch is factory-installed and located in the liquid line internal to the unit. The switch is designed to protect the system when very high pressures occur during abnormal conditions. Under normal conditions, the switch is closed. If the liquid pressure rises above 650 psig, the switch will open and de-energize the unit. The switch will close again when the liquid pressure decreases to 460 psig.

FIGURES & TABLES

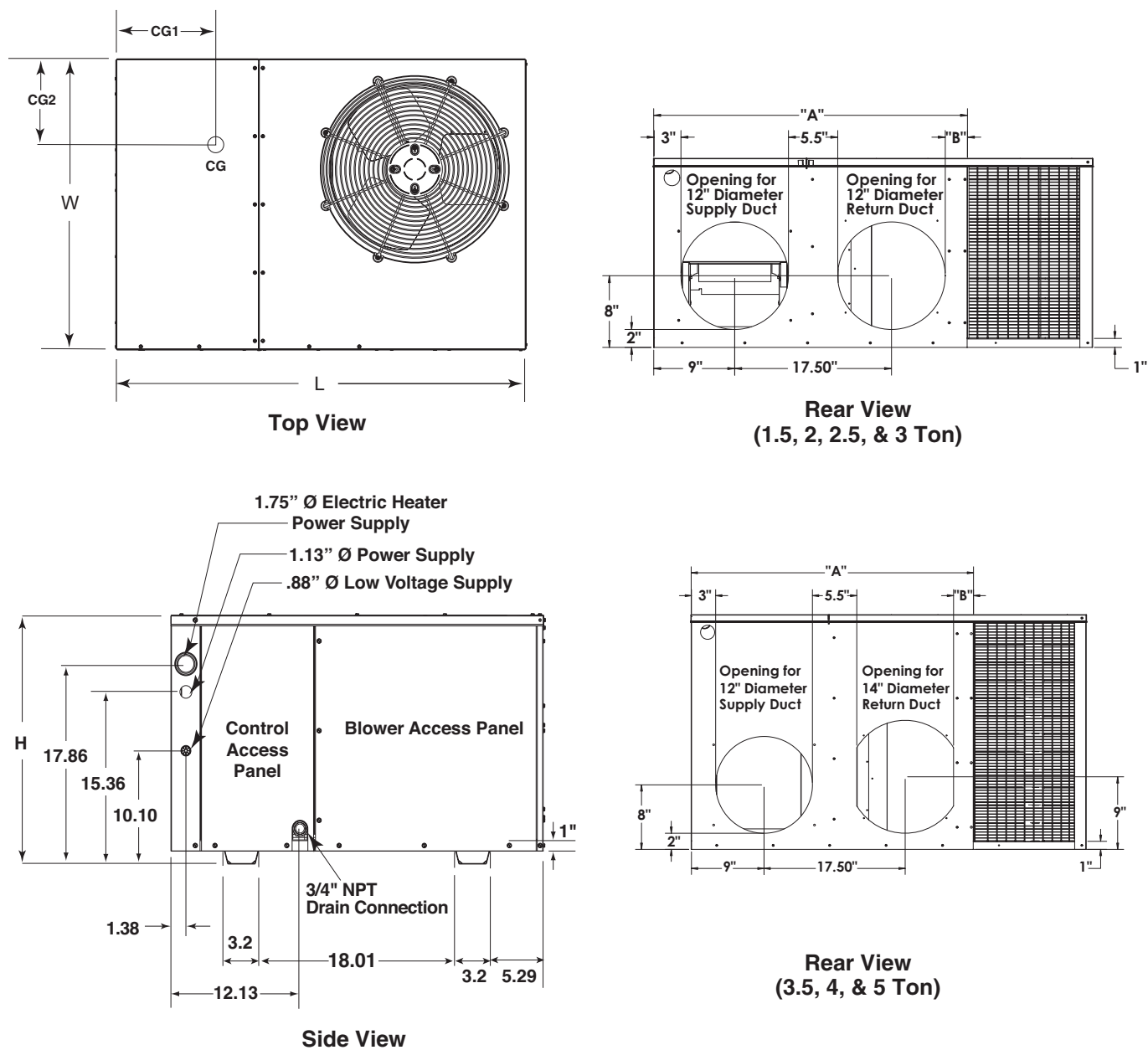


Figure 10. Unit Dimensions

P94RD MODEL	LENGTH -L-	WIDTH W	HEIGHT -H-	-A-	-B-	-CG1-	-CG2-	SHIPPING WEIGHT (LBS)	NET WEIGHT (LBS)
018K	49	35	22.2	35.02	2.48	18.1	14.8	238	226
024K	49	35	22.2	35.02	2.48	18.1	14.8	237	225
030K	49	35	22.2	35.02	2.48	18.1	14.8	243	231
036K	49	35	22.2	35.02	2.48	18.1	14.8	246	234
042K	49	35	30.2	35.02	2.48	18.7	14.3	303	289
048K	49	35	30.2	35.02	2.48	18.7	14.3	304	290
060K	63	35	38.2	35.02	2.48	23.5	14.0	394	378

Table 2. Physical Data

HEAT RISE DATA (BASED ON NOMINAL 10KW ELECTRIC HEAT KIT)																	
UNIT	BLOWER SETTING	EXTERNAL STATIC PRESSURE DROP - INCHES WATER COLUMN															
		0.1		0.2		0.3		0.4		0.5		0.6		0.7		0.8	
		CFM	HEAT RISE	CFM	HEAT RISE	CFM	HEAT RISE	CFM	HEAT RISE	CFM	HEAT RISE	CFM	HEAT RISE	CFM	HEAT RISE	CFM	HEAT RISE
018K	Tap T1	468	68	455	69	423	75	388	81	325	97	270	-	203	-	147	-
	Tap T2	789	40	760	42	716	44	647	49	578	55	526	60	463	68	417	76
	Tap T3*	969	33	947	33	899	35	852	37	781	40	715	44	660	48	597	53
	Tap T4**	1,160	27	1,128	28	1,094	29	1,049	30	1,004	31	950	33	877	36	814	39
	Tap T5	1,292	24	1,258	25	1,216	26	1,178	27	1,124	28	1,077	29	1,022	31	963	33
024K	Tap T1	789	40	760	42	716	44	647	49	578	55	526	60	463	68	417	76
	Tap T2	969	33	947	33	899	35	852	37	781	40	715	44	660	48	597	53
	Tap T3*	1,160	27	1,128	28	1,094	29	1,049	30	1,004	31	950	33	877	36	814	39
	Tap T4**	1,292	24	1,258	25	1,216	26	1,178	27	1,124	28	1,077	29	1,022	31	963	33
	Tap T5	1,436	22	1,400	23	1,363	23	1,324	24	1,275	25	1,226	26	1,179	27	1,125	28
030K	Tap T1	937	34	917	34	866	36	819	39	744	42	676	47	624	51	561	56
	Tap T2**	1,160	27	1,128	28	1,094	29	1,049	30	1,004	31	950	33	877	36	814	39
	Tap T3	1,292	24	1,258	25	1,216	26	1,178	27	1,124	28	1,077	29	1,022	31	963	33
	Tap T4*	1,436	22	1,400	23	1,363	23	1,324	24	1,275	25	1,226	26	1,179	27	1,125	28
	Tap T5	1,570	20	1,535	21	1,494	21	1,458	22	1,416	22	1,372	23	1,322	24	1,273	25
036K	Tap T1	1166	27	1124	28	1077	29	1018	31	954	33	903	35	825	38	764	41
	Tap T2**	1289	25	1,252	25	1210	26	1161	27	1120	28	1071	30	1013	31	954	33
	Tap T3	1460	22	1,415	22	1385	23	1335	24	1275	25	1,225	26	1,170	27	1120	28
	Tap T4*	1618	20	1,580	20	1543	20	1508	21	1478	21	1,443	22	1,388	23	1,345	23
	Tap T5	1635	19	1,598	20	1560	20	1527	21	1500	21	1,467	22	1,412	22	1,370	23
042K	Tap T1	1,342	24	1,301	24	1,260	25	1,221	26	1,181	27	1,139	28	1,100	29	1,055	30
	Tap T2**	1,507	21	1,465	22	1,425	22	1,388	23	1,349	23	1,310	24	1,262	25	1,227	26
	Tap T3	1,759	18	1,724	18	1,690	19	1,650	19	1,613	20	1,571	20	1,532	21	1,488	21
	Tap T4*	1,928	16	1,891	17	1,857	17	1,819	17	1,778	18	1,740	18	1,705	19	1,664	19
	Tap T5	2,047	15	2,015	16	1,982	16	1,950	16	1,912	17	1,881	17	1,836	17	1,795	18
048K	Tap T1	1,491	21	1,445	22	1,410	22	1,364	23	1,327	24	1,285	25	1,244	25	1,195	26
	Tap T2**	1,623	19	1,580	20	1,546	20	1,499	21	1,454	22	1,416	22	1,368	23	1,336	24
	Tap T3	1,736	18	1,702	19	1,668	19	1,631	19	1,594	20	1,550	20	1,508	21	1,465	22
	Tap T4*	1,878	17	1,839	17	1,806	17	1,768	18	1,726	18	1,690	19	1,657	19	1,609	20
	Tap T5	2,027	16	1,991	16	1,963	16	1,932	16	1,890	17	1,854	17	1,807	17	1,766	18
060K	Tap T1	1,382	23	1,341	24	1,298	24	1,267	25	1,232	26	1,185	27	1,151	27	1,116	28
	Tap T2**	1,512	21	1,459	22	1,443	22	1,400	23	1,367	23	1,335	24	1,298	24	1,271	25
	Tap T3	1,734	18	1,700	19	1,670	19	1,642	19	1,606	20	1,575	20	1,543	20	1,509	21
	Tap T4*	2,006	16	1,981	16	1,946	16	1,914	17	1,885	17	1,844	17	1,813	17	1,776	18
	Tap T5	2,147	15	2,124	15	2,097	15	2,060	15	2,022	16	1,988	16	1,954	16	1,916	16

NOTES

Temperature rises shaded gray are for reference only. These conditions are not recommended.

* Denotes factory set cooling speed

** Denotes factory set electric heating speed

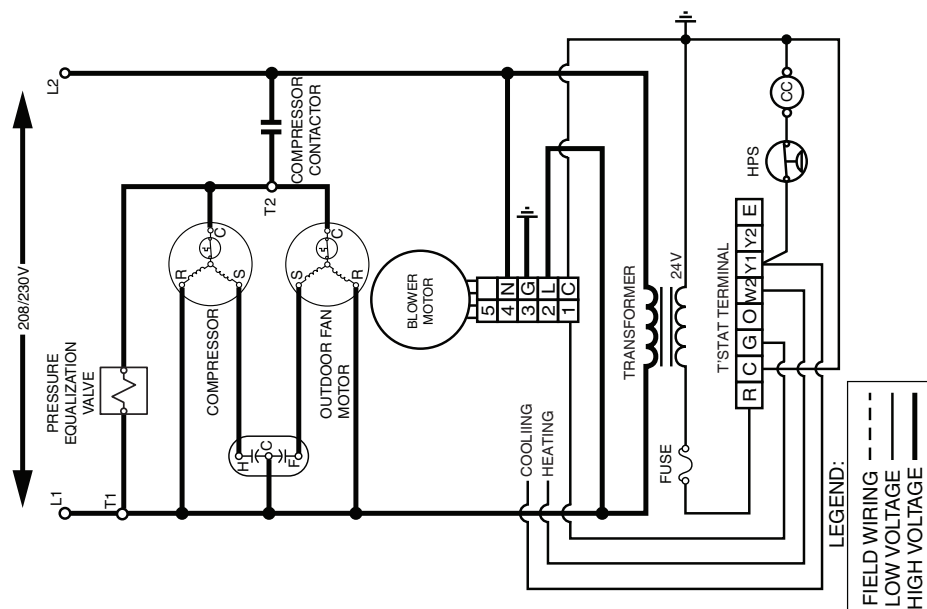
Table 3. Blower Data

WIRING DIAGRAM

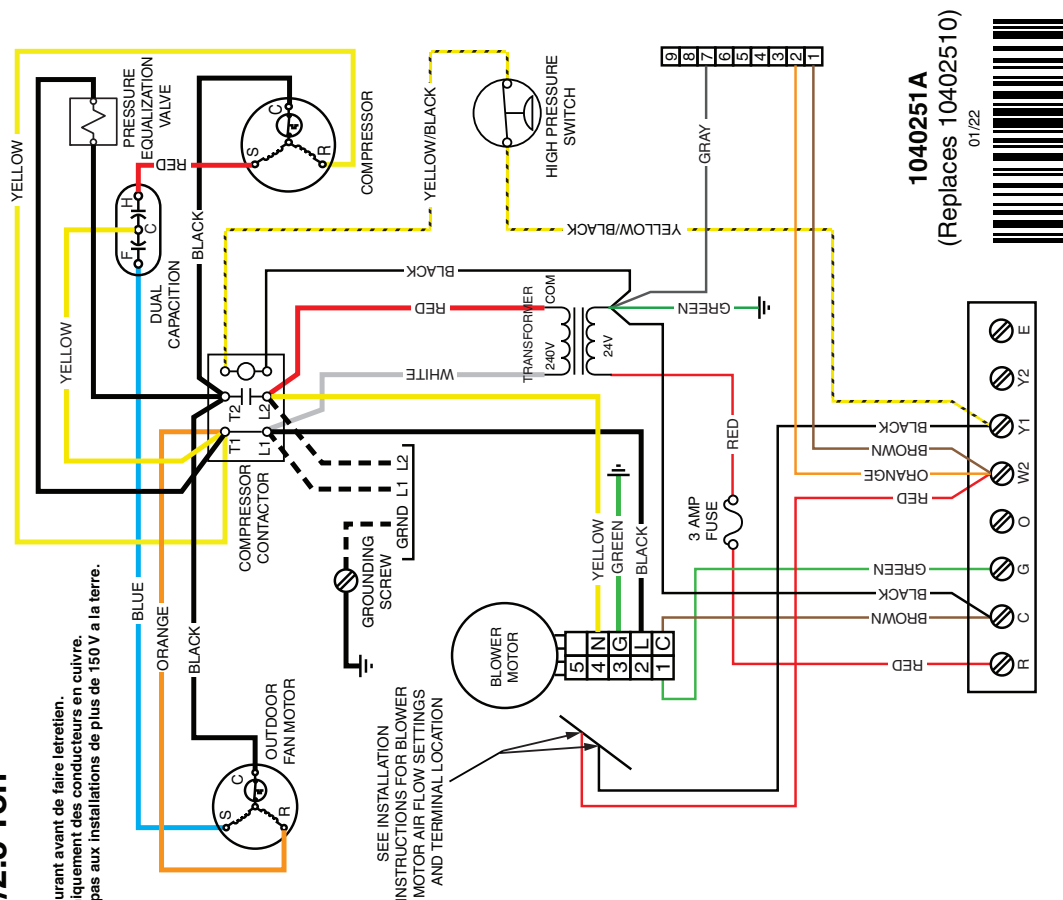
Packaged Air Conditioner - Single Phase 1.5/2/2.5 Ton

NOTES:

1. Disconnect all power before servicing.
2. For supply connections use copper conductors only.
3. Not suitable on systems that exceed 150 V to ground.
4. For replacement wires use conductors suitable for 105° C.
5. See installation instructions for blower motor airflow settings and terminal locations.



1. Couper le courant avant de faire le retrait.
2. Employer uniquement des conducteurs en cuivre.
3. Ne convient pas aux installations de plus de 150 V à la terre.



1040251A
(Replaces 10402510)



Figure 11. Wiring Diagram (1.5, 2, & 2.5 Ton Models)

WIRING DIAGRAM

Packaged Air Conditioner - Single Phase 3/3.5/4/5 Ton

NOTES:

1. Disconnect all power before servicing.
2. For supply connections use copper conductors only.
3. Not suitable on systems that exceed 150 V to ground.
4. For replacement wires use conductors suitable for 105° C.
5. See installation instructions for blower motor airflow settings and terminal locations.

1. Couper le courant avant de faire le rétro.
2. Employez uniquement des conducteurs en cuivre.
3. Ne convient pas aux installations de plus de 150 V à la terre.

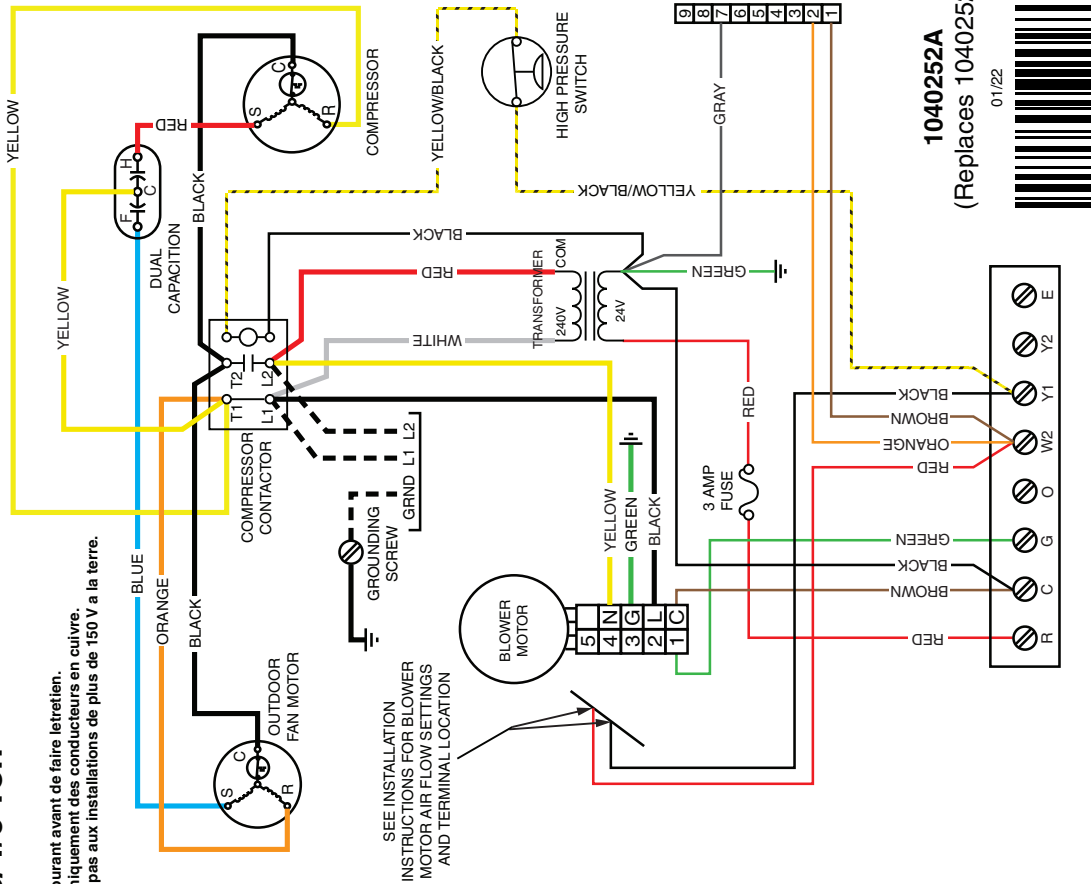
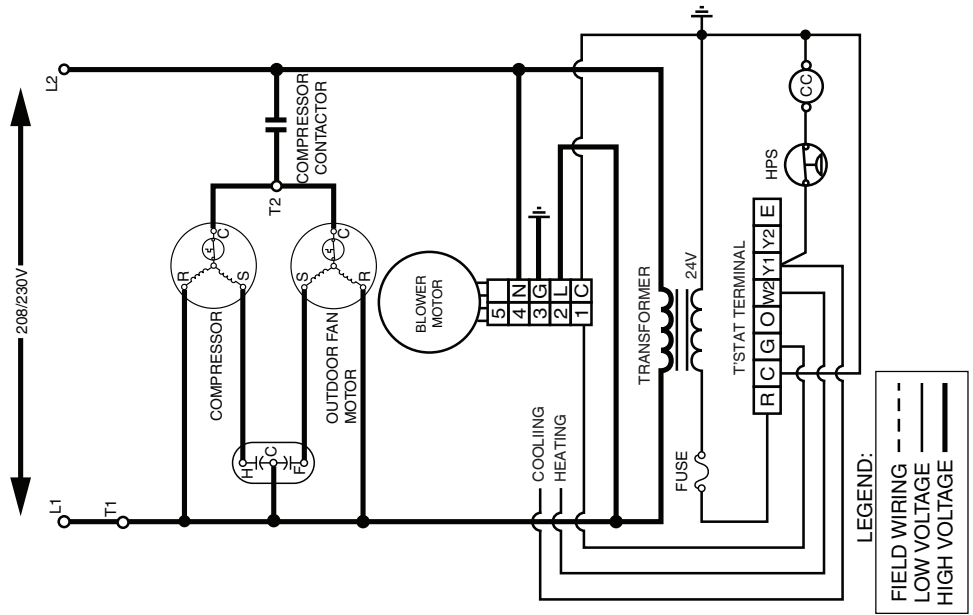


Figure 12. Wiring Diagram (3, 3.5, 4, & 5 Ton Models)

INSTALLATION CHECKLIST

INSTALLATION ADDRESS:		
CITY _____	STATE _____	
UNIT MODEL # _____		
UNIT SERIAL # _____		
Unit Installed Minimum clearances per Figure 1 (page 4) ?	YES	NO
INSTALLER NAME:		
CITY _____	STATE _____	
Has the owner's information been reviewed with the customer?	YES	NO
Has the Literature Package been left with the unit?	YES	NO

REFRIGERATION SYSTEM		
Was unit given 24 hr warm up period for crankcase heaters (if equipped)?	YES	NO
Stage-1 Liquid Pressure (high side) _____		
Stage-1 Suction Pressure (low side) _____		

ELECTRICAL SYSTEM		
Electrical connections tight?	YES	NO
Line voltage polarity correct?	YES	NO
Has the thermostat been calibrated?	YES	NO
Is the thermostat level?	YES	NO
Is the heat anticipator setting correct? (If Applicable)	YES	NO
Rated Voltage: _____ VOLTS		
L1-L2 Volts: _____ VOLTS		

REPLACEMENT PARTS

Replacement parts are available through your distributor. Please have the complete model and serial number of the unit when ordering replacement parts.

ELECTRICAL:

- Capacitors
- Compressors
- Contactors
- Pressure Switches
- Temperature Limit Switches
- Thermostats
- Time Delay Relays
- Transformers

MOTORS:

- Blower Motor
- Fan Motor

COMPONENTS:

- Blower Assembly
- Cabinet Panels
- Expansion Valves
- Fan Grille
- Filter/Driers

