

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.

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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 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.

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.

- 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 CI) for special installation requirements.
- 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.
- 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.
- Use caution when handling this appliance or removing components. Personal injury can occur from sharp metal edges present in all sheet metal constructed equipment.
- This unit is designed for outdoor installations only and should be located in a position as shown on page 6.
- 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.
- The installer should become familiar with the units wiring diagram before making any electrical connections to the unit. See the unit wiring label or Figures 10 - 12 (pages 13 - 15).

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 A.H.R.I. 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. **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 (page 12) 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 Clearances

Blower access panel side	24"
Electrical compartment access panel side	12"
Clearance between overhang & top of unit.....	72"
Clearance around condenser coil area to wall or shrubs (excludes duct panel side)	12"

Clearances to Combustible Materials

Supply and return air ducts	0"
Duct connection side	0"

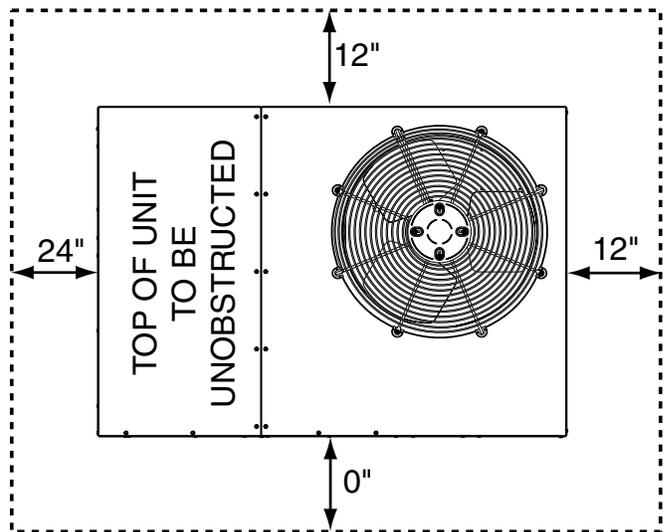


Figure 1. Minimum Unit Clearances

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 (page 5).

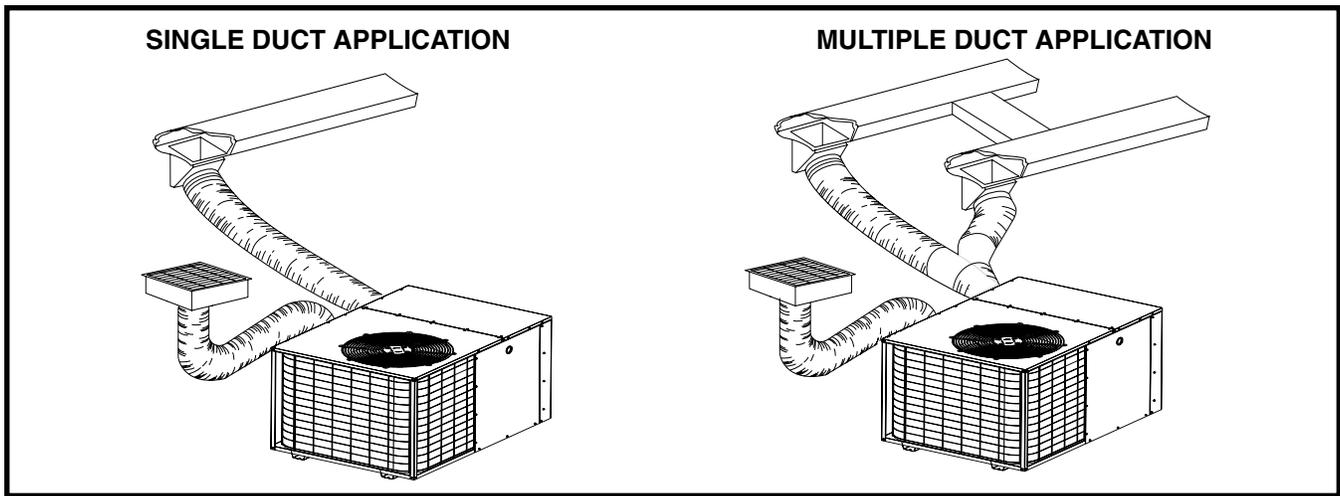


Figure 2. Single & Multiple Duct Applications

- 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.

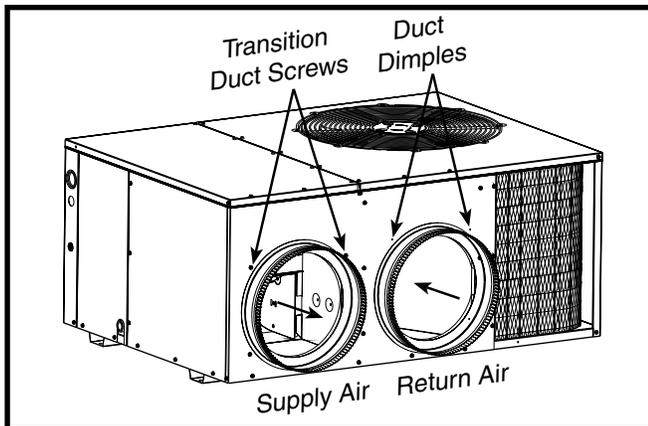


Figure 3. Return & Supply Air Collars

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 cylinders and cause starting trouble. If unit has been set on its side, restore to upright position and do not run for several hours. Then run unit for a few seconds. Do this three or four times with five minutes between runs.

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

If the supply and return collars are supplied with the unit, they will be located in the supply duct. They can be easily positioned over the unit openings (Figure 3) and secured with sheet metal screws. Return and supply duct opening sizes are listed on page 12. **NOTE:** Before permanently installing the collars, it is recommended you pre-fit them over the openings first to determine alignment and best fit.

Supply Duct

1. Position the supply duct collar so the edge of the unit opening fits between the flange and the bead.
2. Overlap the collar ends keeping the small screw holes underneath.
3. Align the holes in the crimped area and install one screw. **NOTE:** It may be necessary to loosen the four screws that hold the transition duct in order to install the supply fitting. Re-tighten when installation is complete.
4. Tap collar (if necessary) to ensure engagement with unit opening and install second screw.

5. Tighten first screw and rotate collar clockwise so joint is near three o'clock position.

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 unit 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 drilling screws (10-16x.5).

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 4). **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

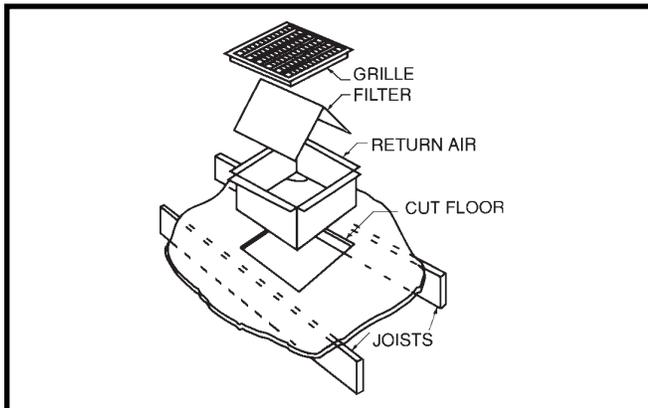


Figure 4. Return Air Box

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 can be connected to the corresponding fittings with the clamps provided with the ducts. See Figure 9 (page 12). **NOTE:** To prevent a loss in cooling capacity, make sure all connections are tight.
- The flexible ducts may be cut to the required length, see instructions packed with duct. Keep all ducts as short and straight as possible. Avoid sharp bends.
- 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 (Figure 5, page 7) should be located in the bottom of the main duct, forward of center of the home, at least three feet from the nearest register. 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.

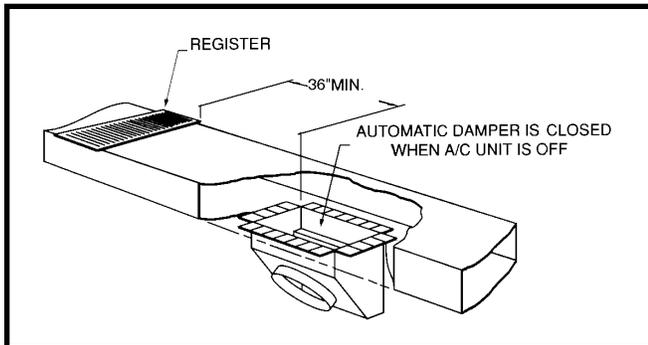


Figure 5. Supply Damper

Condensate Drainage

A 3/4" condensate fitting extends out of the side of the unit (Figure 6). 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.

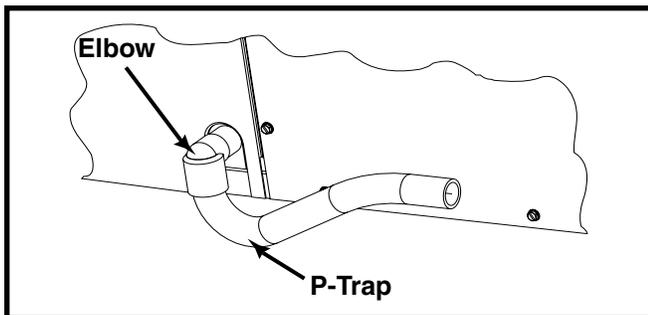


Figure 6. Drain Trap

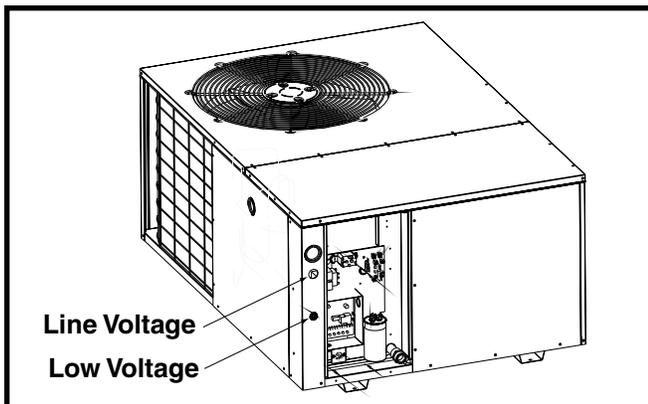


Figure 7. Power Entry

ELECTRICAL CONNECTIONS

WARNING:

ELECTRICAL SHOCK, FIRE OR EXPLOSION HAZARD

Failure to follow safety warnings exactly could result in serious injury 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 (Figures 10 - 12, pages 13 - 15). 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 7, page 7). Connect L1 & L2 directly to the contactor.

- The unit requires both power and control circuit electrical connections. Refer to the wiring diagram / schematic (Figures 10 - 12, pages 13 - 15) for identification and location of unit field wiring interfaces. Make all electrical connections in accordance with all applicable codes and ordinances.
- 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. See the unit rating plate for minimum circuit ampacity and maximum overcurrent protection limits.
- Use only copper wire for the line voltage power supply to this unit as listed in Table 1. 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.

Overcurrent Protection

Generally, the best fuse or breaker for any air conditioner 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. **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.**

COPPER WIRE SIZE — AWG (1% Voltage Drop)				
Supply Wire Length-Feet				Supply Circuit Ampacity
200	150	100	50	
6	8	10	14	15
4	6	8	12	20
4	6	8	10	25
4	4	6	10	30
3	4	6	8	35
3	4	6	8	40
2	3	4	6	45
2	3	4	6	50
2	3	4	6	55
1	2	3	4	60

Wire Size based on N.E.C. for 60° type copper conductors.

Table 1. Copper Wire Size

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 (Figure 7, page 7) near the power entrance. Recommended wire gauge and wire lengths for typical thermostat connections are listed in Table 2 (page 9).
- 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 8.

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

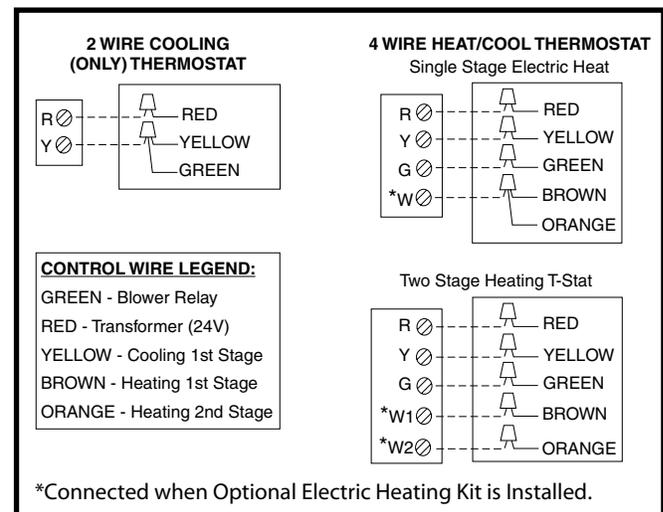


Figure 8. Low Voltage Connections

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 8.

Blower Speed - PSC Motor

⚠ WARNING:

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

For optimum system performance and comfort, it may be necessary to change the factory speed setting.

1. Disconnect all electrical power to the unit and remove the service panel.
2. Place the desired blower speed lead on the **COM** terminal of the fan control board. Use another wire tie (field supplied) to bundle the remaining motor leads.
3. Verify the required speed from the airflow data found in Table 3 (page 10). 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.

Thermostat Wire Gauge	Recommended T-Stat Wire Length (Unit to T-Stat)	
	2-Wire (Heating)	5-Wire (Heating/Cooling)
24	55	25
22	90	45
20	140	70
18	225	110

Table 2. Thermostat Wire Gauge

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.

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.

Start-Up Procedure

NOTE: The control circuit thermostat may consist of an anti-short cycle timer that will not let the compressor re-start before 3 - 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.

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.

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		0.9	
		CFM	HEAT RISE	CFM	HEAT RISE	CFM	HEAT RISE	CFM	HEAT RISE	CFM	HEAT RISE	CFM	HEAT RISE	CFM	HEAT RISE	CFM	HEAT RISE	CFM	HEAT RISE
024K	Low*	840	38	800	39	760	42	705	45	645	49	565	56	460	69	265	119	230	137
	High**	1140	28	1100	29	1045	30	975	32	905	35	815	39	700	45	535	59	305	104
030K	Low	840	38	800	39	760	42	705	45	645	49	565	56	460	69	265	119	230	137
	High†	1140	28	1100	29	1045	30	975	32	905	35	815	39	700	45	535	59	305	104
036K	Low†	1340	24	1315	24	1280	25	1245	25	1210	26	1165	27	1110	28	1065	30	1005	31
	High	1520	21	1490	21	1460	22	1415	22	1380	23	1325	24	1280	25	1210	26	1120	28
042K	Low†	1410	22	1380	23	1360	23	1330	24	1295	24	1260	25	1215	26	1160	27	1075	29
	Med	1805	18	1775	18	1740	18	1700	19	1655	19	1595	20	1535	21	1465	22	1390	23
	High	2140	15	2090	15	2035	16	1985	16	1935	16	1865	17	1785	18	1710	18	1625	19
048K	Low**	1410	22	1380	23	1360	23	1330	24	1295	24	1260	25	1215	26	1160	27	1075	29
	Med*	1805	18	1775	18	1740	18	1700	19	1655	19	1595	20	1535	21	1465	22	1390	23
	High	2140	15	2090	15	2035	16	1985	16	1935	16	1865	17	1785	18	1710	18	1625	19

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

† Denotes Factory cooling & electric heating speed

Table 3. P7 Series Blower Data

Adjustment of Refrigerant Charge

⚠ 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.

- 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.
- 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.

Charging the Unit in AC Mode with Outdoor Temperatures Above 55° F

1. With the system operating at steady-state, measure the liquid refrigerant pressure in psig at the service valve.
2. Measure the liquid refrigerant temperature (° F) at the service valve.
3. For the temperature measured, determine the required liquid refrigerant pressure from Tables 4 - 8 (pages 16 - 17).
 - If the pressure measured in step 1 is greater than the required liquid refrigerant pressure determined in step 3, then there is too much charge in the system. Remove refrigerant and repeat steps 1 through 3 until the system is correctly charged.
 - If the pressure measured in step 1 is less than the required liquid refrigerant pressure determined in step 3, then there is too little charge in the system. Add refrigerant and repeat steps 1 through 3 until the system is correctly charged.

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

COMPONENT FUNCTIONS

High Pressure Switch (HPS) - 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 575 psig, the switch will open and de-energize the unit. The switch will close again when the liquid pressure decreases to 460 psig.

Low Pressure Switch (LPS) - The low-pressure switch is factory-installed and located in the suction line internal to the unit. The switch is designed to protect the compressor from a loss of charge. Under normal conditions, the switch is closed. If the suction pressure falls below 5 psig, the switch will open and de-energize the unit. The switch will close again when the suction pressure increases above 20 psig.

REPLACEMENT PARTS

Replacement parts are available through all Nordyne distributors. Please have the complete model and serial number of the unit when ordering replacement parts.

Electrical

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

Motors

- Blower Motor
- Fan Motor

Components

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

FIGURES & TABLES

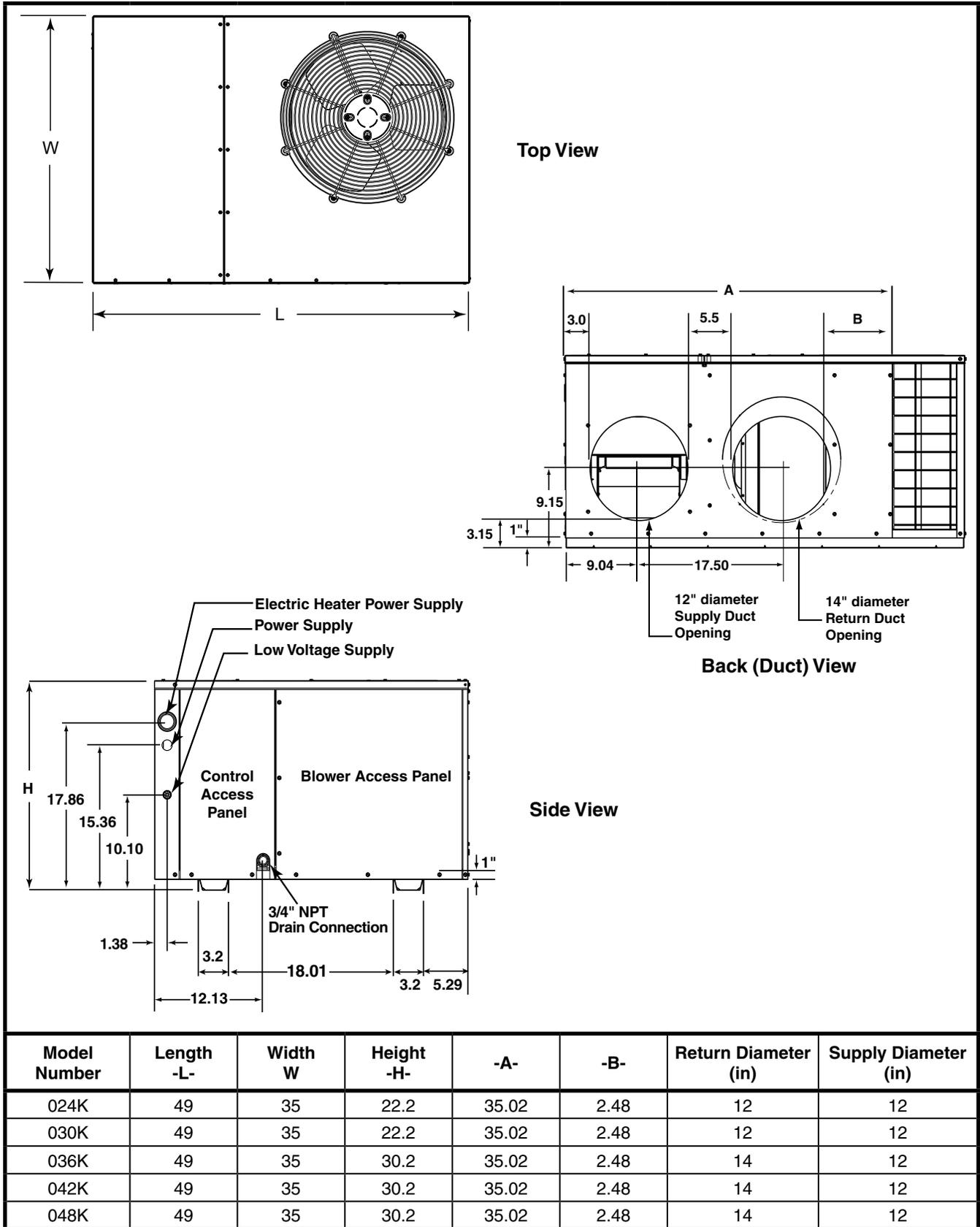


Figure 9. Physical Data & Unit Dimensions

WIRING DIAGRAMS

WIRING DIAGRAM

Packaged Air Conditioner - Single Phase

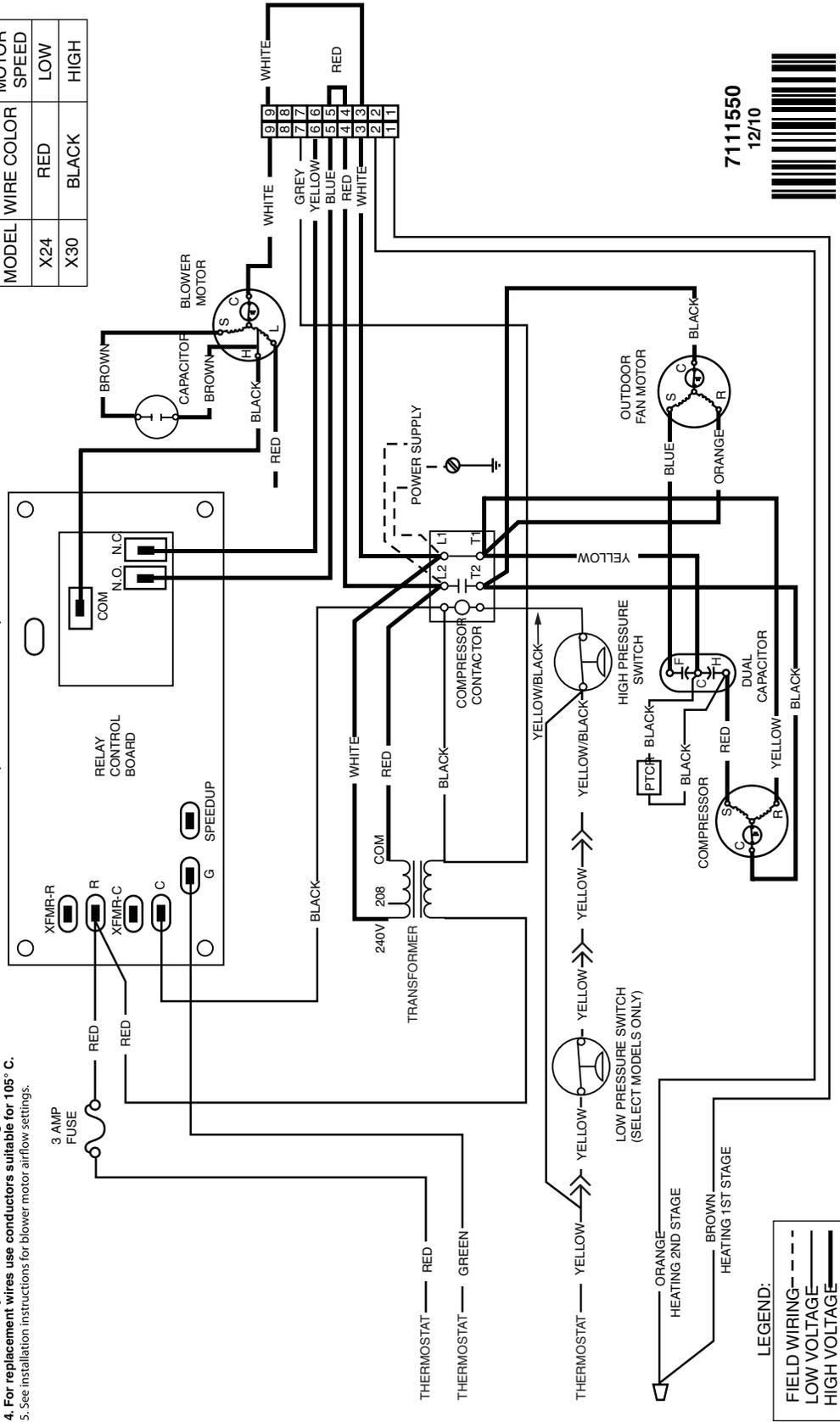
208/240V

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.

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

FACTORY SET BLOWER SPEED	MOTOR SPEED
MODEL X24	RED
MODEL X30	BLACK
	LOW
	HIGH



7111550
12/10

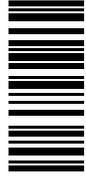


Figure 10. Wiring Diagram for 2 & 2.5 Ton Models

WIRING DIAGRAM

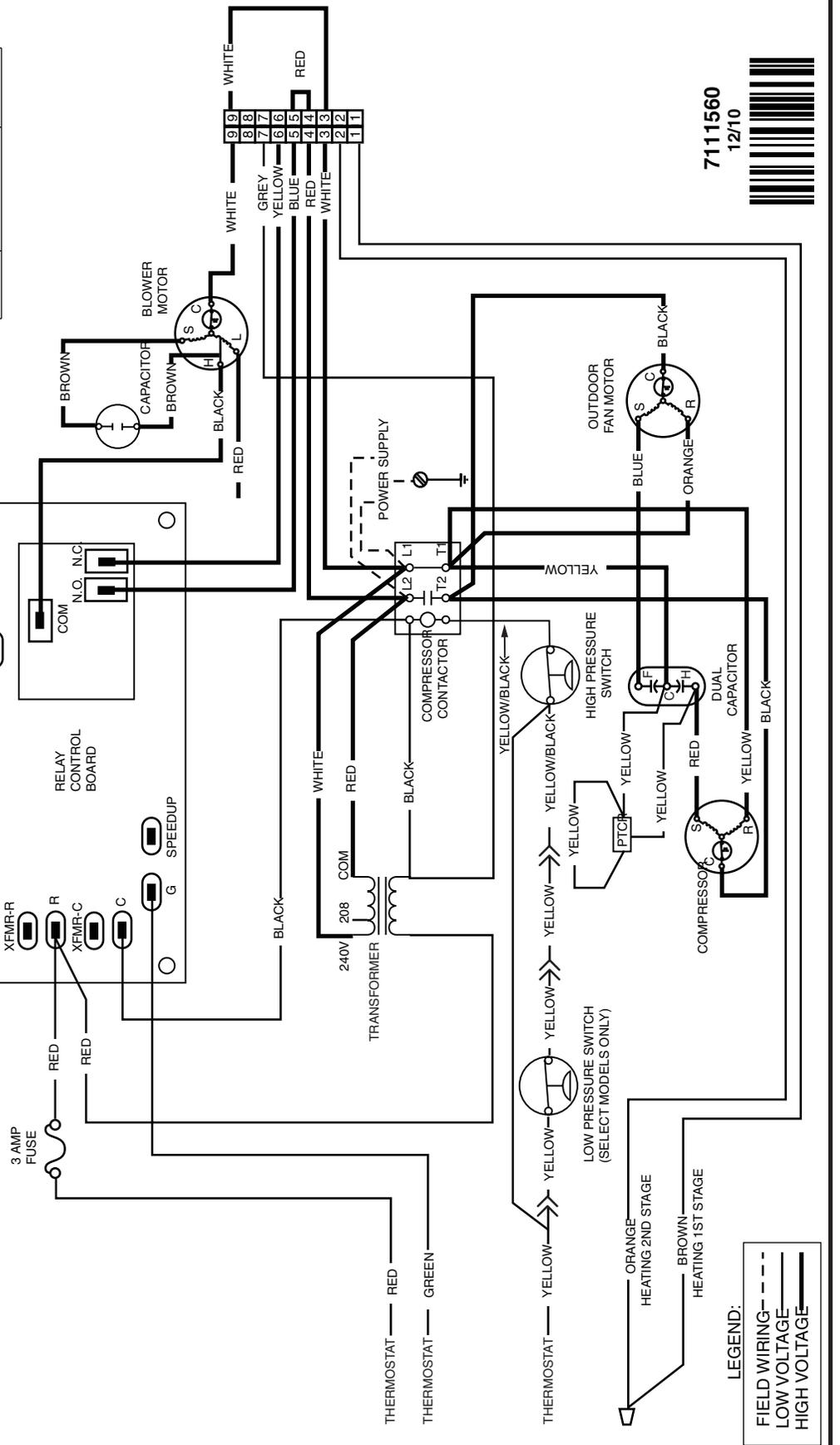
Packaged Air Conditioner - Single Phase

208/240V

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.

FACTORY SET BLOWER SPEED	MOTOR SPEED
MODEL	WIRE COLOR
X36	RED
	LOW



7111560
12/10

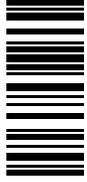


Figure 11. Wiring Diagram for 3 Ton Models

WIRING DIAGRAM

Packaged Air Conditioner - Single Phase

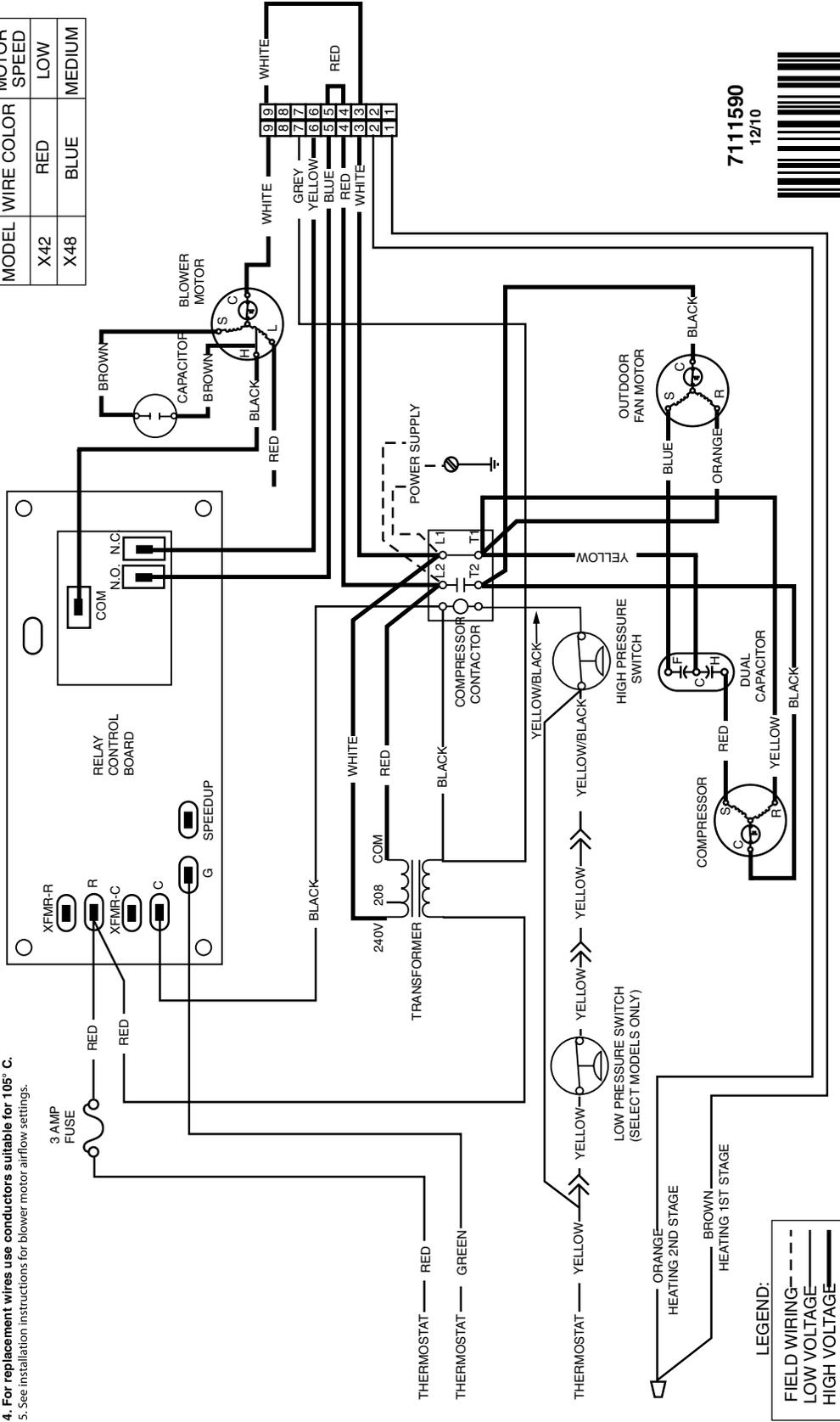
208/240V

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.

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

FACTORY SET BLOWER SPEED	MOTOR SPEED
MODEL X42	RED
MODEL X48	BLUE
	LOW
	MEDIUM



7111590
12/10



Figure 12. Wiring Diagram for 3.5 & 4 Ton Models

REFRIGERANT CHARGING TABLES

LEGEND

- Shaded boxes indicate flooded conditions.
- Rated design values. The suction pressure will vary from design value if outdoor air flow, entering dry bulb, or entering wet bulb temperatures vary.

NOTES:

1. All pressures are listed psig and all temperatures in °F
2. Discharge temperatures greater than charted values indicate an undercharged system.

Suct. Press.	OUTDOOR TEMPERATURE (° F)															
	70		75		80		85		90		95		100		105	
	Liq. Press.	Dis. Temp.	Liq. Press.	Dis. Temp.	Liq. Press.	Dis. Temp.	Liq. Press.	Dis. Temp.	Liq. Press.	Dis. Temp.	Liq. Press.	Dis. Temp.	Liq. Press.	Dis. Temp.	Liq. Press.	Dis. Temp.
133	259	120														
135	261	125	281	126												
137	264	131	283	131	302	131										
139	269	130	285	136	304	136	324	137								
141	272	133	290	137	307	141	326	141	345	142						
143			293	140	311	143	328	146	347	147	367	148				
145					314	146	332	149	349	151	369	153	388	154		
147							336	153	353	155	371	157	390	158	410	160
149							339	156	357	159	374	161	392	162	412	164
151									360	163	378	165	395	166	414	168
153											381	169	399	171	417	172
155													402	175	420	176
157															423	181
159																

Table 4. Charging Table for 2 Ton Units (024K Series)

Suct. Press.	OUTDOOR TEMPERATURE (° F)															
	70		75		80		85		90		95		100		105	
	Liq. Press.	Dis. Temp.	Liq. Press.	Dis. Temp.	Liq. Press.	Dis. Temp.	Liq. Press.	Dis. Temp.	Liq. Press.	Dis. Temp.	Liq. Press.	Dis. Temp.	Liq. Press.	Dis. Temp.	Liq. Press.	Dis. Temp.
134	265	129														
136	268	135	289	135												
138	270	140	291	140	313	140										
140	273	143	294	145	315	145	337	146								
142	277	146	297	148	317	150	339	150	361	151						
144			301	151	321	153	341	155	363	155	385	156				
146					324	157	345	158	365	160	387	160	409	161		
148							348	162	369	163	389	165	411	165	433	167
150							352	166	372	167	392	169	413	169	435	170
152									375	171	396	173	416	174	437	174
154											399	177	420	178	440	179
156													423	182	444	183
158															447	188
160																

Table 5. Charging Table for 2.5 Ton Units (030K Series)

Suct. Press.	OUTDOOR TEMPERATURE (° F)															
	70		75		80		85		90		95		100		105	
	Liq. Press.	Dis. Temp.	Liq. Press.	Dis. Temp.	Liq. Press.	Dis. Temp.	Liq. Press.	Dis. Temp.	Liq. Press.	Dis. Temp.	Liq. Press.	Dis. Temp.	Liq. Press.	Dis. Temp.	Liq. Press.	Dis. Temp.
135	258	124														
137	260	130	282	129												
139	262	135	285	134	307	134										
141	265	140	287	139	309	139	331	138								
143	268	142	290	144	311	144	334	143	356	143						
145			293	147	314	148	336	148	358	147	380	147				
147					318	151	339	152	360	152	382	152	405	152		
149							342	155	363	156	385	156	407	156	429	156
151							346	159	367	160	388	160	409	160	431	160
153									370	163	391	164	413	164	433	164
155											395	168	416	168	437	168
157													419	173	440	173
159															444	177
161																

Table 6. Charging Table for 3 Ton Units (036K Series)

Suct. Press.	OUTDOOR TEMPERATURE (° F)															
	70		75		80		85		90		95		100		105	
	Liq. Press.	Dis. Temp.	Liq. Press.	Dis. Temp.	Liq. Press.	Dis. Temp.	Liq. Press.	Dis. Temp.	Liq. Press.	Dis. Temp.	Liq. Press.	Dis. Temp.	Liq. Press.	Dis. Temp.	Liq. Press.	Dis. Temp.
132	257	131														
134	259	136	280	135												
136	262	142	282	140	303	140										
138	267	140	284	145	305	145	326	145								
140	271	142	290	146	307	149	328	149	348	149						
142			293	149	312	151	330	154	351	154	371	154				
144					315	155	334	157	353	158	373	158	394	159		
146							338	160	357	162	375	163	396	163	417	164
148							341	164	360	166	379	167	398	167	419	168
150									363	169	382	171	401	171	421	172
152											386	175	405	176	424	176
154													408	180	427	181
156															430	185
158																

Table 7. Charging Table for 3.5 Ton Units (042K Series)

Suct. Press.	OUTDOOR TEMPERATURE (° F)															
	70		75		80		85		90		95		100		105	
	Liq. Press.	Dis. Temp.	Liq. Press.	Dis. Temp.	Liq. Press.	Dis. Temp.	Liq. Press.	Dis. Temp.	Liq. Press.	Dis. Temp.	Liq. Press.	Dis. Temp.	Liq. Press.	Dis. Temp.	Liq. Press.	Dis. Temp.
132	271	126														
134	273	132	294	131												
136	275	137	296	136	317	136										
138	281	134	298	141	319	141	341	141								
140	285	137	304	141	322	145	343	145	364	146						
142			308	144	327	147	345	150	366	150	388	151				
144					330	150	350	153	368	155	390	155	411	156		
146							353	156	372	158	392	159	413	160	435	162
148							357	160	376	162	395	163	415	164	437	166
150									379	166	399	168	418	169	439	170
152											402	172	421	173	441	174
154													425	177	444	178
156															448	182
158																

Table 8. Charging Table for 4 Ton Units (048K Series)

INSTALLATION / PERFORMANCE CHECKLIST

INSTALLATION ADDRESS:		
CITY-----	STATE-----	
UNIT MODEL #-----		
UNIT SERIAL #-----		
Unit Installed Minimum clearances per Figure 1 (page 4)?	YES	NO
INSTALLER NAME:		
CITY-----	STATE-----	

REFRIGERATION SYSTEM:		
Was unit given 24 hr warm up period for crankcase heaters (if applicable)?	YES	NO
Stage-1 Liquid Pressure (High Side) -----		
Stage-1 Suction Pressure (low side)-----		
Has the owner's information been reviewed with the customer?	YES	NO
Has the Literature Package been left with the unit?	YES	NO

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

⚠ WARNING:

PROPOSITION 65 WARNING: This product contains chemicals known to the state of California to cause cancer, birth defects or other reproductive harm.



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