

INSTALLATION INSTRUCTIONS

SINGLE PACKAGE AIR CONDITIONER - 3-PHASE, 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 using 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 C1) 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 4](#).
- 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 [Figure 10 \(page 12\)](#).

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. **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 \(page 11\)](#) 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 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"

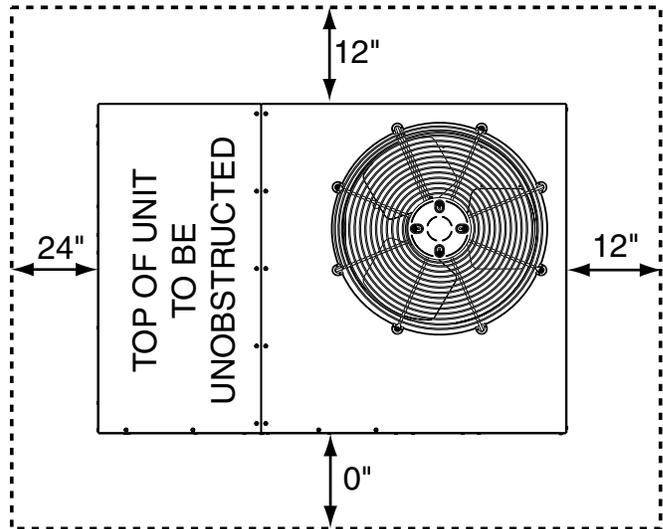


Figure 1. Minimum Unit Clearances

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 \(page 5\)](#).

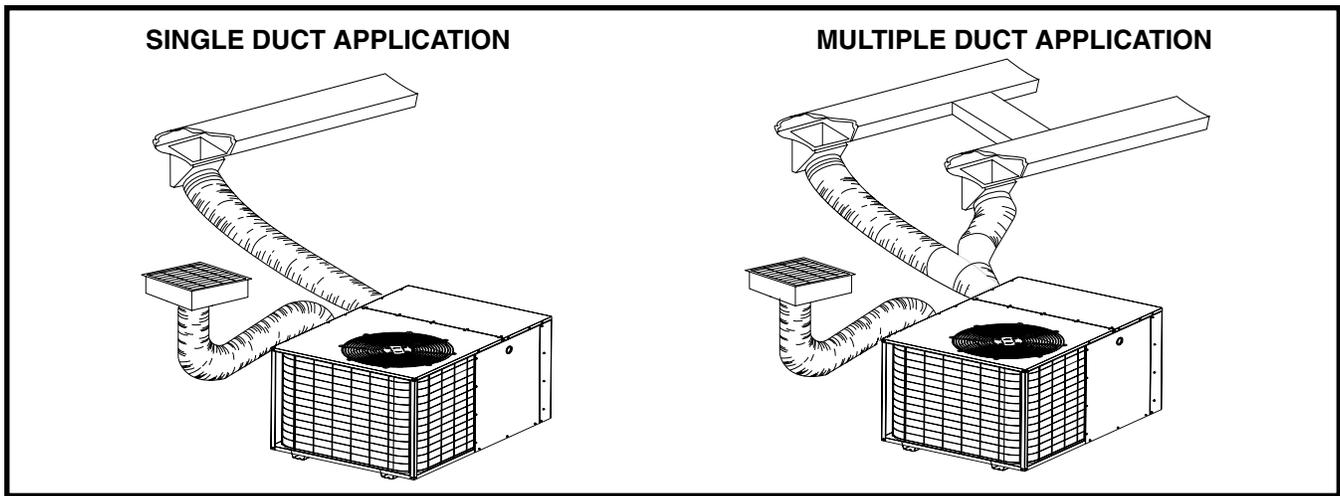


Figure 2. Single & Multiple Duct Applications

- 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.

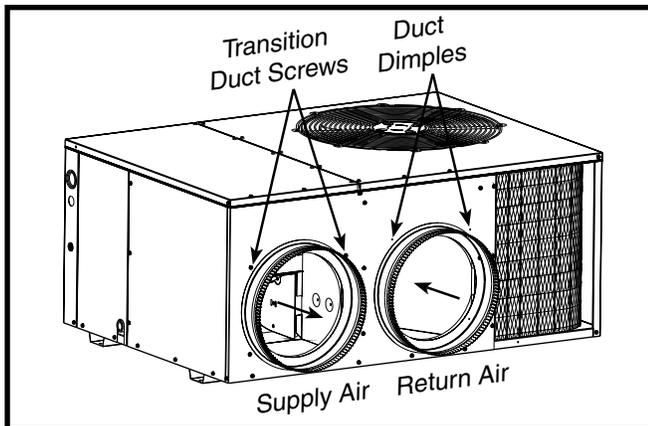


Figure 3. Return & Supply Air Collars

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 11. **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 3 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

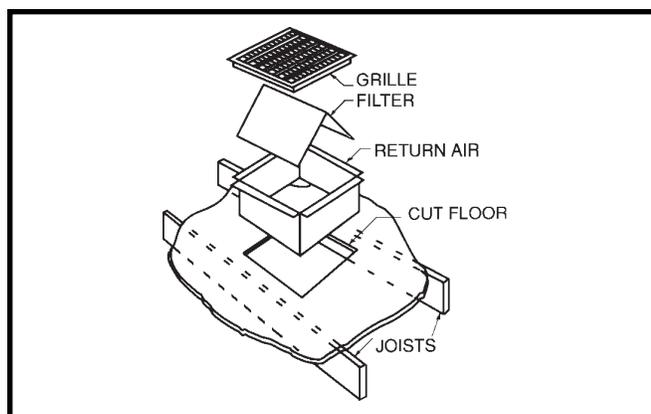


Figure 4. Return Air Box

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 11). **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.

- 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.
- Insert the damper into the duct and bend over all tabs flat on the inside of the heat duct.
- Seal the opening between the fiberboard and damper or flexible duct.

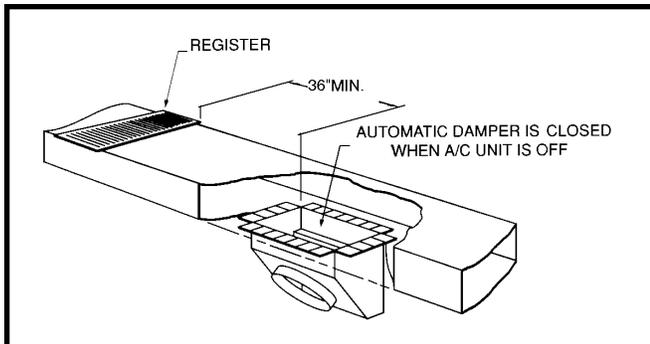


Figure 5. Supply Damper

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.

- Thread the elbow provided with the unit into the drain connection until hand tight.
- Connect the condensate tubing onto the fitting, forming a trap near the drain connection.
- 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.

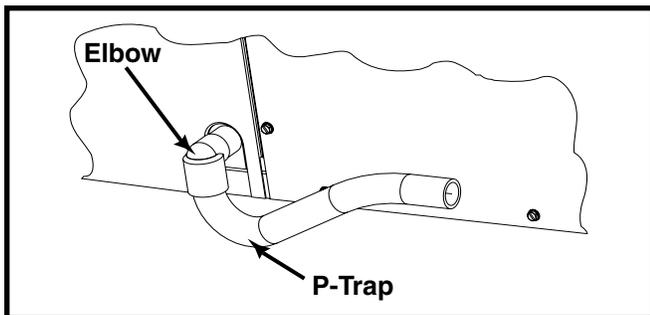


Figure 6. Drain Trap

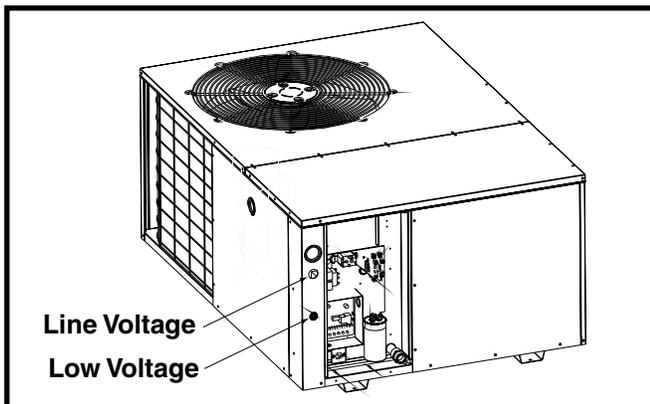


Figure 7. Power Entry

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 (Figure 10 (page 12)). Inspect for loose connections.
- ✓ Phase balance on 3 phase units must always be checked. See Unbalanced 3-Phase Supply Voltage section (page 8).

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.
- 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). Connect L1, L2, & L3 directly to the contactor.
- 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.

- The unit requires both power and control circuit electrical connections. Refer to the wiring diagram / schematic (Figure 10 (page 12)) 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.

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.

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

Overcurrent Protection

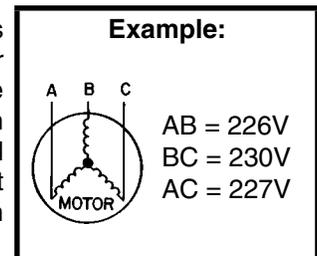
Generally, the best fuse or breaker for any air conditioner is the smallest size that will permit the equipment to run under normal usage and provide maximum equipment protection. Properly sized fuses and breakers also prevent nuisance trips during unit startup.

IMPORTANT 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.

Unbalanced 3-Phase Supply Voltage

Voltage unbalance occurs when the voltages of all phases of a 3-phase power supply are no longer equal. This unbalance reduces motor efficiency and performance. Some underlying causes of voltage unbalance may include: Lack of symmetry in transmission lines, large single-phase loads, and unbalanced or overloaded transformers. A motor should never be operated when a phase imbalance in supply is greater than 2%. Perform the following steps to determine the percentage of voltage imbalance:

1. Measure the line voltages of your 3 phase power supply where it enters the building and at a location that will only be dedicated to the unit installation (at the units circuit protection or disconnect).



2. Determine the average voltage in the power supply.

In this example, the measured line voltages were 226, 230, and 227. The average would be 228 volts (226 + 230 + 227 = 683 / 3 = 228).

3. Determine the maximum deviation:

Example:
From the values given in step 1, the BC voltage (230V) is the greatest difference in value from the average:
230 - 228 = 2 ← Highest Value
228 - 226 = 2
228 - 227 = 1

4. Determine percent of voltage imbalance by using the results from steps 2 & 3 in the following equation.

Example:

$$100 \times \frac{2}{228} = 0.88\%$$

$$\% \text{ Voltage Imbalance} = 100 \times \frac{\text{max voltage deviation from average voltage}}{\text{average voltage}}$$

The amount of phase imbalance (0.88%) is satisfactory since the amount is lower than the maximum allowable 2%. Please contact your local electric utility company if your voltage imbalance is more than 2%.

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.
- 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.

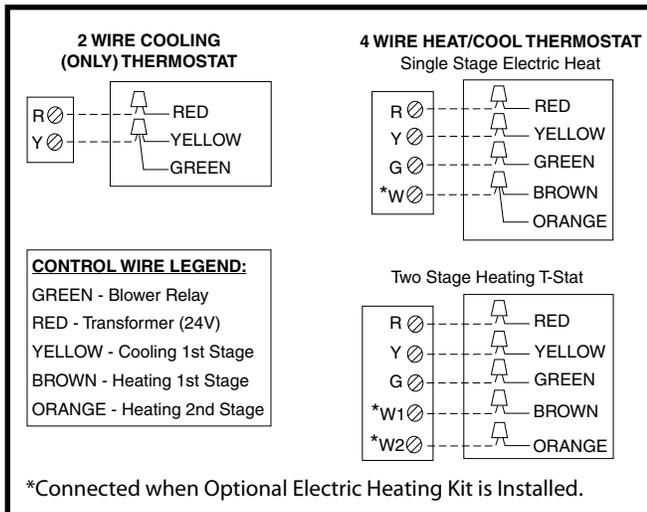


Figure 8. Low Voltage Connections

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

Table 2. Thermostat Wire Gauge

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 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.

Reverse Rotation Verification

After making all of the power connections to the unit, the rotation of the compressor must be checked. If the rotation is in the wrong direction, the compressor will make an abnormally loud noise. To check the rotation perform the following steps:

1. Make sure the outside power disconnect is in the OFF position.
2. Set the indoor thermostat to a set point that will call for cooling.
3. Return to the outside power disconnect and switch it to the ON position. If the compressor is making an abnormally loud noise, immediately switch the outside power disconnect to the OFF position.
4. Switch any two of the three power leads at the power connections to the unit.
5. Return to the outside power disconnect and switch it to the ON position.
6. Verify that the compressor is now running properly.

Blower Speed - ECM 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. Locate the orange and red wires terminated to the blower motor. **NOTE:** The orange wire controls cooling operation
3. 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

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.

Charging the Unit in AC Mode

(with Outdoor Temperatures Above 55° F)

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.

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 [Table 3, \(page 13\)](#).
- 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.

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

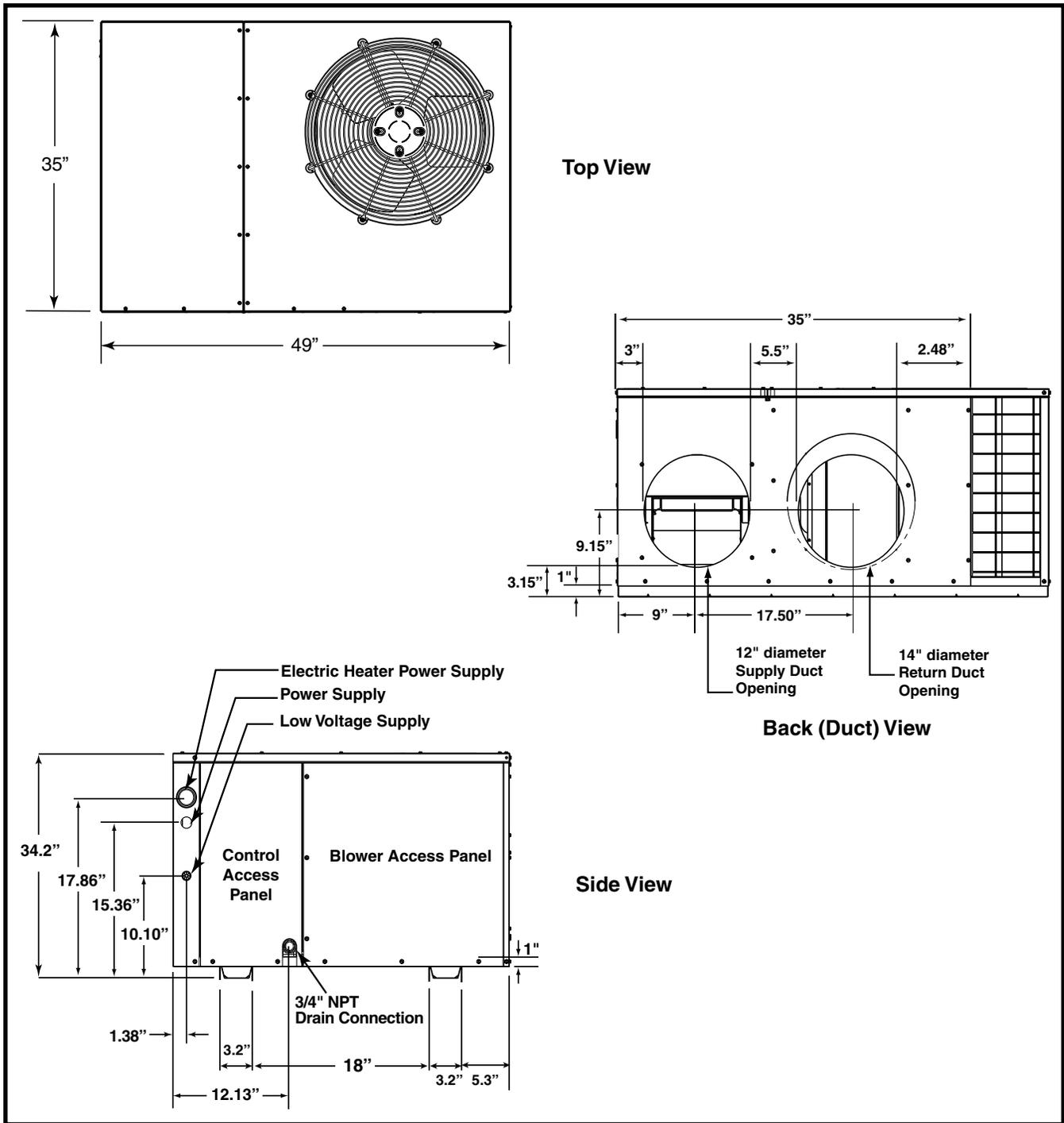


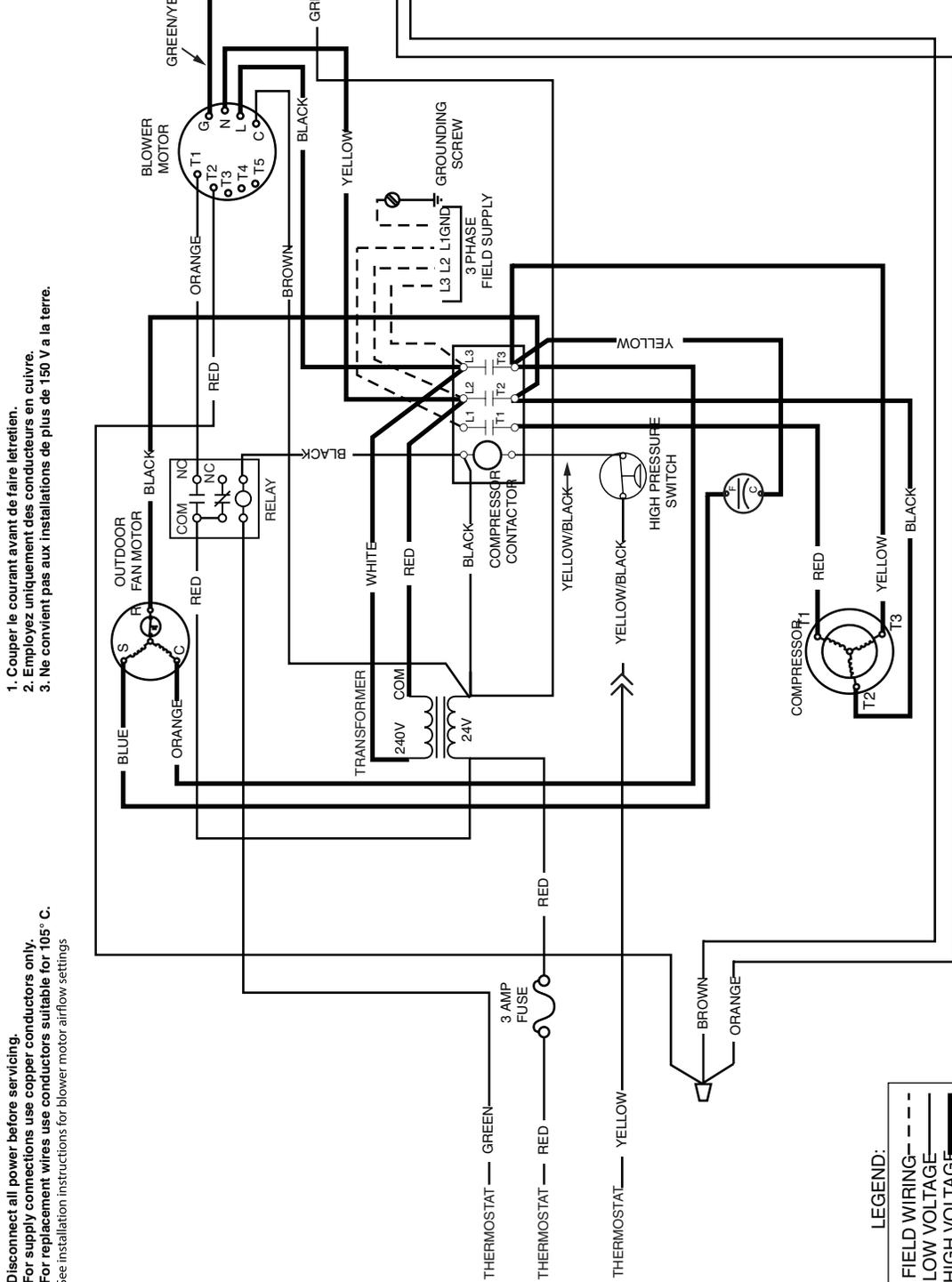
Figure 9. Physical Data & Unit Dimensions

WIRING DIAGRAM

Packaged Air Conditioner - Three Phase

NOTES:

1. Disconnect all power before servicing.
2. For supply connections use copper conductors only.
3. For replacement wires use conductors suitable for 105° C.
4. See installation instructions for blower motor airflow settings.



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Figure 10. Wiring Diagram for 5 Ton Models

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.
124	269	136														
126	271	141	294	140												
128	273	146	296	146	320	145										
130	277	148	299	151	322	150	346	150								
132	281	151	302	153	324	155	348	154	371	155						
134			306	156	328	158	350	159	373	159	397	159				
136					331	161	353	163	375	163	399	164	422	164		
138							357	166	379	167	401	168	424	168	448	169
140							360	170	382	171	404	172	426	172	450	173
142									386	175	408	176	430	176	452	176
144											411	180	433	181	455	181
146													437	185	459	185
148															462	190
150																

Table 3. Charging Table

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.

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
- 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

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 _____	
Has the owner's information been reviewed with the customer?	YES	NO
Has the Literature Package been left with the unit?	YES	NO

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

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	
L1-L3 Volts: _____	VOLTS	
L2-L3 Volts: _____	VOLTS	
Avg. Volts: _____	VOLTS	
Max. deviation of voltage from avg. volts: _____	VOLTS	
% Volt imbalance: _____	VOLTS	

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