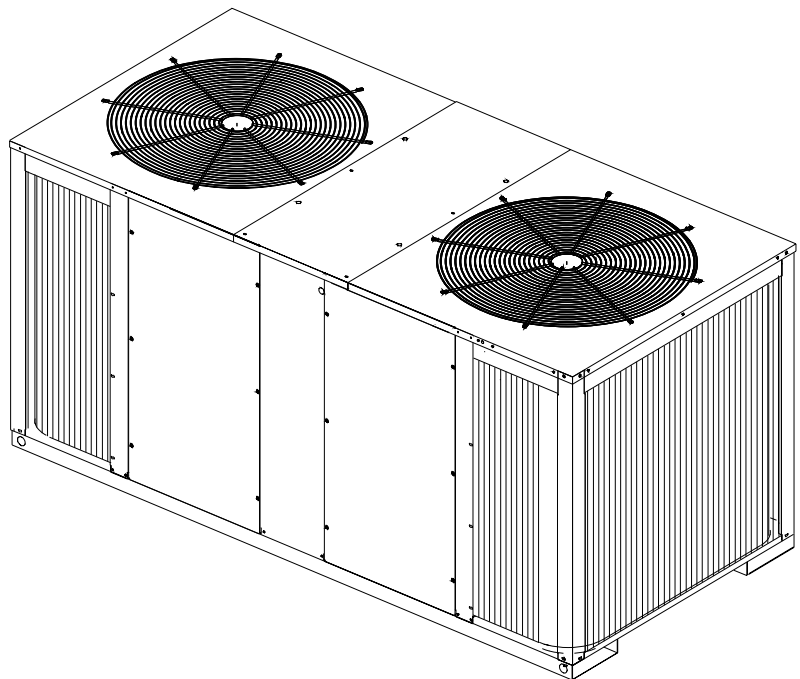




TRANE®

Installation Owner Diagnostics

Split System Cooling Condensers Model CTA 7 1/2 to 15 Tons



Models

"A" and later Design Sequence

CTA

- 090A***A — 60 HZ
- 120A***A — 60 HZ
- 120B***A — 60 HZ
- 180B***A — 60 HZ

September 2007

PKG-SVX17A-EN

Notice

Overview of Manual

Note: One copy of this document ships inside each unit and is customer property. It must be retained by the unit's maintenance personnel.

This booklet describes proper installation, operation, and maintenance procedures for air cooled systems. By carefully reviewing the information within this manual and following the instructions, the risk of improper operation and/or component damage will be minimized.

It is important that periodic maintenance be performed to help assure trouble free operation. A maintenance schedule is provided at the end of this manual. Should equipment failure occur, contact a qualified service organization with qualified, experienced HVAC technicians to properly diagnose and repair this equipment.

NOTICE:

Warnings and Cautions appear at appropriate sections throughout this manual. Read these carefully.



WARNING– Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.



CAUTION – Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.

CAUTION – Indicates a situation that may result in equipment or property-damage-only accidents.

IMPORTANT NOTE: All phases of this installation must comply with the NATIONAL, STATE & LOCAL CODES. In addition to local codes, the installation must conform with National Electric Code -ANSI/NFPA NO. 70 LATEST REVISION.

*Note: **Do Not release refrigerant to the atmosphere!** If adding or removing refrigerant is required, the service technician must comply with all federal, state, and local laws.*

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Model Number Description

Model Number Description

All products are identified by a multiple-character model number that precisely identifies a particular type of unit. An explanation of the alphanumeric identification code is provided below. Its use will enable the owner/operator, installing contractors, and service engineers to define the operation, specific components, and other options for any specific unit.

When ordering replacement parts or requesting service, be sure to refer to the specific model number, serial number, and DL number (if applicable) stamped on the unit nameplate.

Split System Condensing Model Nomenclature

C T A 0 9 0 A 1 0 0 A A
1 2 3 4 5 6 7 8 9 10 11 12

Digits 1,2,3 - Product Type

CTA = Remote Air-Cooled Condenser

Digits 4,5,6 - Nominal Gross Cooling Capacity (MBh)

090 = 090 MBh-used with
3 & 5T SCRH
120 = 120 MBh - used with
7.5 & 10T SCRH
180 = 180 MBh - used with
12 & 15T SCRH

Digits 7 - Major Development Sequence

A = 1 Refrig Cir.(3, 5, 7.5T SCRH)
B = 2 Refrig Cir. (10, 12, 15T SCRH)

Digits 8 - Electrical Characteristics

1 = 208-230/60/1
2 = 460/60/1
8 = 575/60/1

Digits 9,10 - Factory Installed Options

00 = Packed Stock
0A = Coated Coil

Digits 11 - Minor Design Sequence

A = First

Digits 12 - Service Digit

A = First

Unit Dimensions

Figure 1 — CTA090A

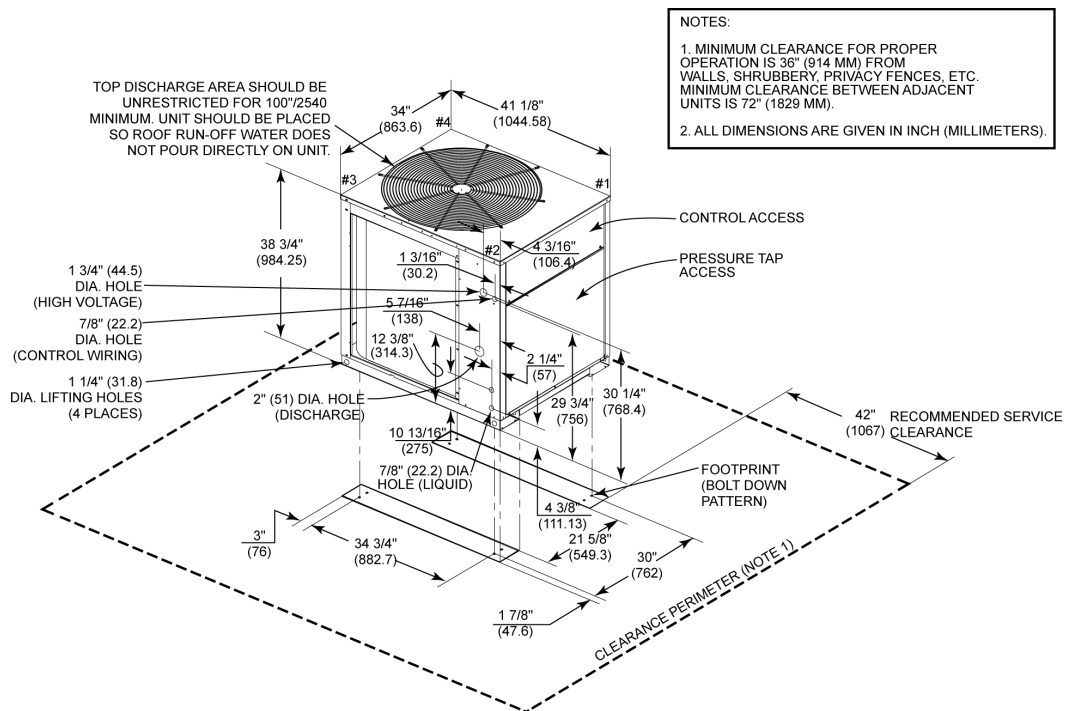
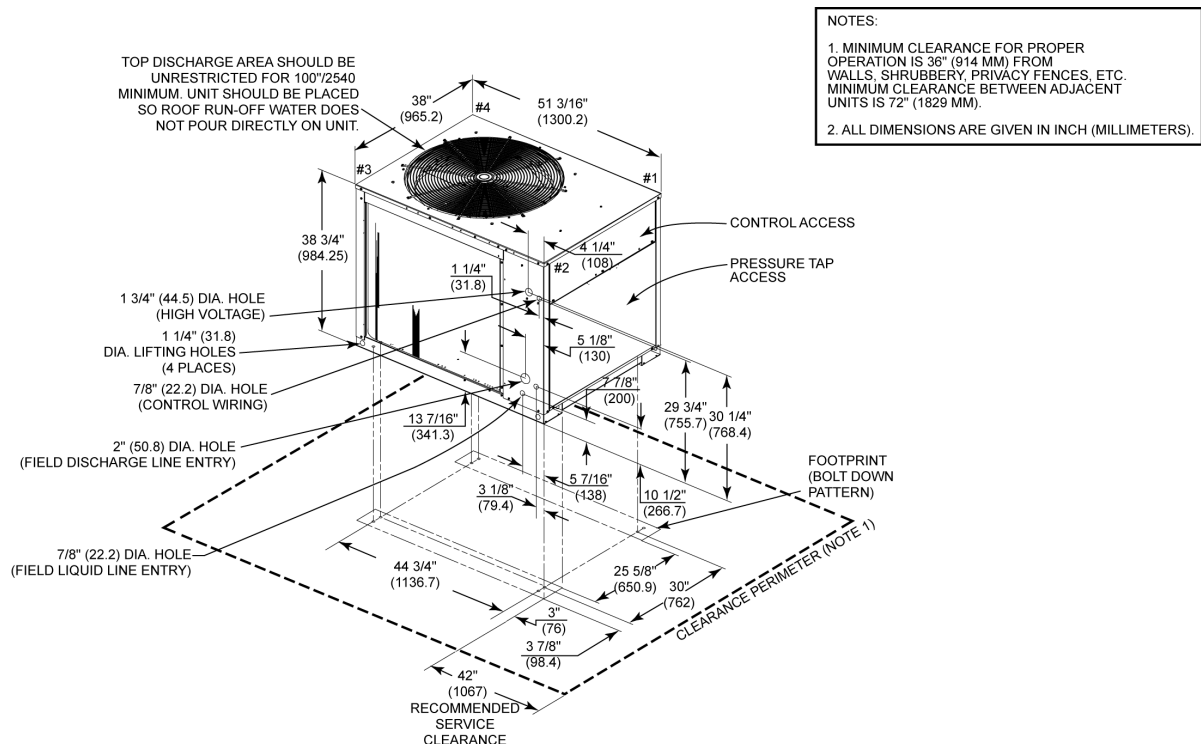
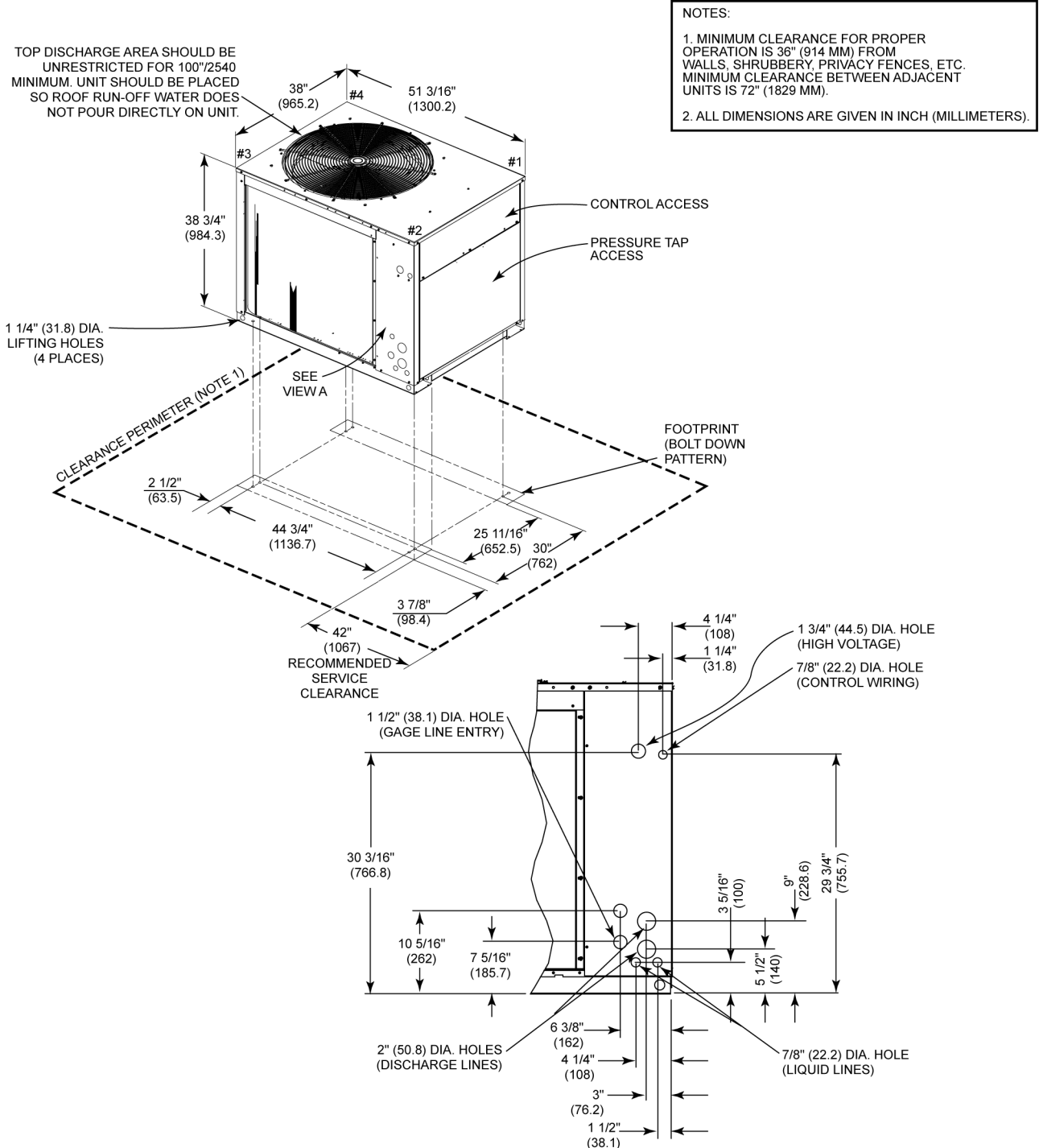


Figure 2 — CTA120A



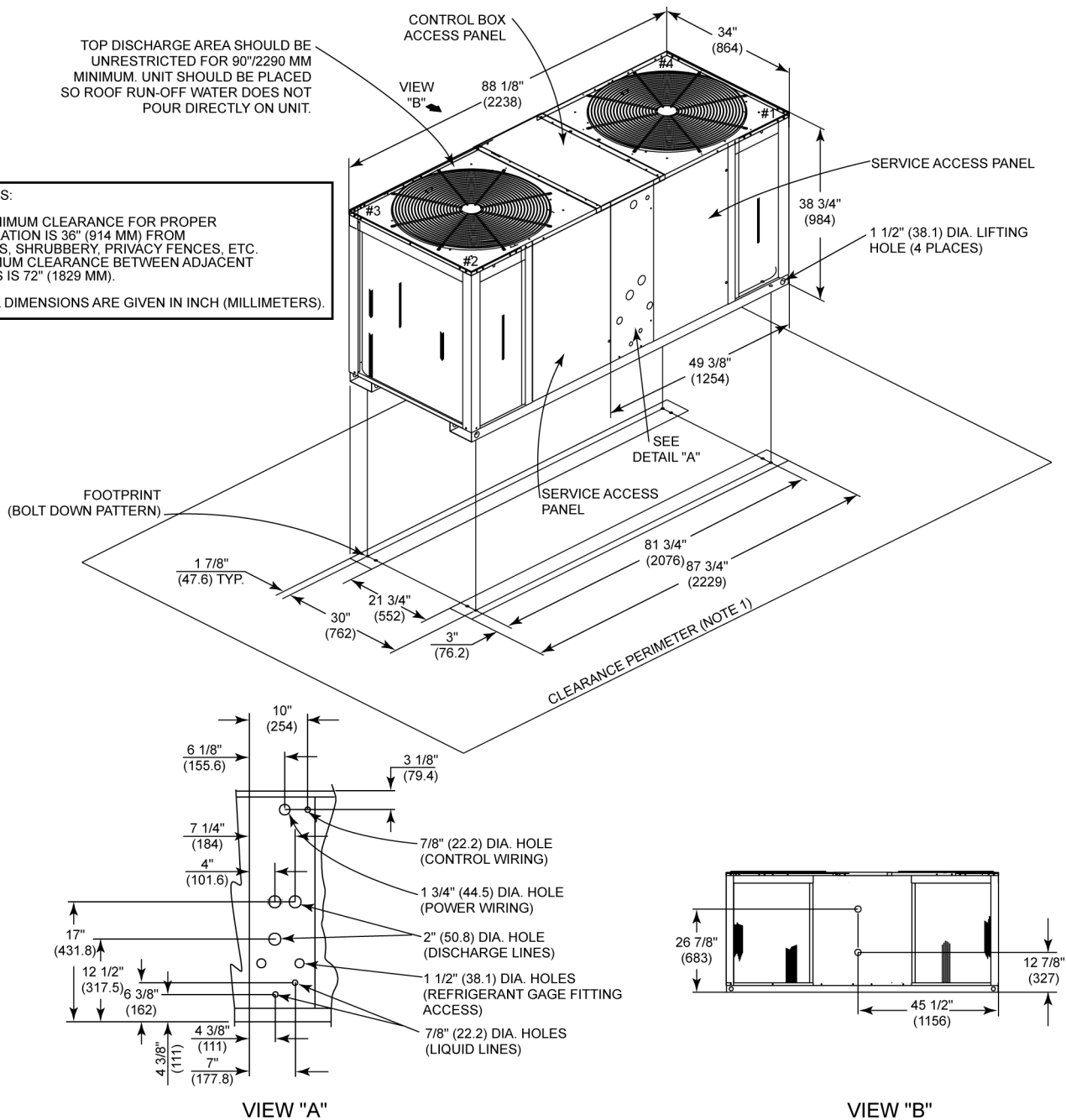
Unit Dimensions

Figure 3 — CTA120B



Unit Dimensions

Figure 4 — CTA180B





Electrical Data

Table 1: CTA Unit Electrical Data

Model Number	Basic Unit Characteristics				Outdoor Fan Motor			
	Electrical Characteristics	Allowable Voltage Range	Minimum Circuit Ampacity	Maximum Fuse Size	Qty.	HP	Amps FLA	Amps LRA
CTA090A1	208-230/60/1	187-254	15	15	1	1/2	3.1	8.1
CTA090A2	460/60/1	414-506	15	15	1	1/2	1.6	3.7
CTA090A8	575/60/1	518-632	15	15	1	1/2	1.2	3.0
CTA120A1	208-230/60/1	187-254	15	15	1	1	6.0	17.0
CTA120A2	460/60/1	414-506	15	15	1	1	2.7	7.0
CTA120A8	575/60/1	518-632	15	15	1	1	2.0	5.7
CTA120B1	208-230/60/1	187-254	15	15	1	1	6.0	17.0
CTA120B2	460/60/1	414-506	15	15	1	1	2.7	7.0
CTA120B8	575/60/1	518-632	15	15	1	1	2.0	5.7
CTA180B1	208-230/60/1	187-254	15	15	2	1/2	3.1	8.1
CTA180B2	460/60/1	414-506	15	15	2	1/2	1.6	3.7
CTA180B8	575/60/1	518-632	15	15	2	1/2	1.2	3.0

Installation

Installation procedures should be performed in the sequence that they appear in this manual. Do not destroy or remove the manual from the unit. The manual should remain weather-protected with the unit until all installation procedures are complete.

Note: It is not the intention of this manual to cover all possible variations in systems that may occur or to provide comprehensive information concerning every possible contingency that may be encountered during an installation. If additional information is required or if specific problems arise that are not fully discussed in this manual, contact your local Sales office.

Note: “Warnings” and “Cautions” appear at appropriate places in this manual. Your personal safety and the proper operation of this machine require that you follow them carefully. The Company assumes no liability for installations or servicing performed by unqualified personnel.

Installation Checklist

An “Installation Checklist” is provided at the end of the installation section of this manual. Use the checklist to verify that all necessary installation procedures have been completed. Do not use the checklist as a substitute for reading the information contained in the manual. Read the entire manual before beginning installation procedures.

Unit Inspection

Inspect material carefully for any shipping damage. If damaged, it must be reported to, and claims made against the transportation company. Compare the information that appears on the unit nameplate with ordering and submittal data to insure the proper unit was shipped. Available power supply must

be compatible with electrical characteristics specified on component nameplates. Replace damaged parts with authorized parts only.

Inspection Checklist

To protect against loss due to damage incurred in transit, complete the following checklist upon receipt of the unit.

- Inspect individual pieces of the shipment before accepting the unit. Check for obvious damage to the unit or packing material.
- Inspect the unit for concealed damage before it is stored and as soon as possible after delivery. Concealed damage must be reported within 15 days. If concealed damage is discovered, stop unpacking the shipment. Do not remove damaged material from the receiving location. Take photos of the damage if possible. The owner must provide reasonable evidence that the damage did not occur after delivery.
- Notify the carrier’s terminal of damage immediately by phone and by mail. Request an immediate joint inspection of the damage by the carrier and the consignee.
- Notify the sales representative and arrange for repair. Do not repair the unit until the damage is inspected by the carrier’s representative.

Initial Leak Test

All **CTA** units are shipped with a holding charge of nitrogen in each circuit. Remove the service access panel(s) shown in Figures 1 to 4. Locate the discharge or liquid line gauge ports for each circuit. Install gauges to determine if the circuits are still pressurized. If not, the charge has escaped. Repair as required to obtain a leak-free circuit.

Lifting Recommendations

Before preparing the unit for lifting, estimate the approximate center of gravity for lifting safety. Because of placement of internal components, the unit weight may be unevenly distributed. Approximate unit weights are given in Table 2.

Table 2: Unit and corner weights (lbs)

Model	Ship Net		Corner Weights			
	Max.	Max.	#1	#2	#3	#4
CTA090A	254	210	59	63	39	49
CTA120A	325	281	62	85	57	77
CTA120B						
CTA180B	532	447	100	105	124	118



WARNING

Heavy Objects!
Do not use cables (chains or slings) except as shown. Each of the cables (chains or slings) used to lift the unit must be capable of supporting the entire weight of the unit. Lifting cables (chains or slings) may not be of the same length. Adjust as necessary for even unit lift. Other lifting arrangements may cause equipment or property-only damage. Failure to properly lift unit could result in death or serious injury. See details below.

The crated unit can be moved using a forklift of suitable capacity. For lifting the unit, attach lifting straps or slings securely to the lifting holes at each corner. Use spreader bars to protect the unit casing from damage. Test lift the unit to determine proper balance and stability.

CAUTION

Equipment Damage!
Use spreader bars to prevent lifting straps from damaging the unit. Install bars between lifting straps. Failure to properly lift unit may result in crushing unit cabinet or damaging unit finish.

Installation

Clearances

Provide enough space around the unit to allow unrestricted access to all service points. Refer to Figure 1 through Figure 4 for unit dimensions and minimum required service and free air clearances. Observe the following points to insure proper unit operation.

A. Do not install the unit under a low overhang. Condenser discharge must not be restricted. See Notes in Figure 1 through Figure 4.

NOTICE: Do not obstruct condenser discharge air. This can result in warm air recirculation through the coil.

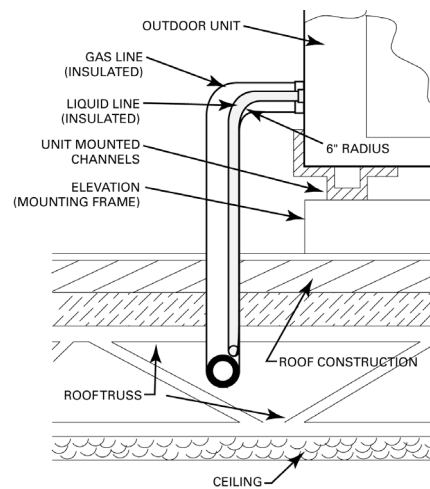
B. Do not locate the unit in a position where runoff water can fall into the fan discharge openings.

C. Condenser intake air is supplied from three or four sides of the unit. Adhere to the minimum required clearances given in Figure 1 through Figure 4.

Unit Mounting

Rooftop Mounting: If the unit will be roof mounted, determine for certain that the structure is strong enough to support the unit and any required accessories. Unit weights are given in Table 2. The unit should be elevated on a level, field fabricated four-inch steel or wood 4" x 4" mounting frame. Complete the frame and secure it into position before lifting the unit to the roof. The mounting frame must support a minimum of three of the unit's four sides and should span roof supports to distribute the load on the roof.

Figure 5 Roof Mounted Unit



WARNING

Structural Failure!
Ensure that the roof structure supports are strong enough to support the weight of the unit and any accessories. Failure to do this could result in death or serious injury due to structural failure and could seriously damage the unit and the building.

Ground Level Mounting

"For ground level installation, the unit base should be adequately supported and hold the unit near level. The installation must meet the guidelines set forth in local codes." The support should extend two inches beyond the unit base channels at all points. The unit and support must be isolated from any adjacent structure to prevent possible noise or vibration problems. Any ground level location must comply with required clearances given in Figure 1 through Figure 4.

Holes must be made in the structure to run refrigerant lines. For the majority of ground-level installations, the holes can be made in the header that rests on top of the foundation. Alternatively, these holes may also be made in the foundation itself. On roof-mounted units, refrigerant lines should enter the building as close to the unit as possible; preferably within three to four inches of the refrigerant connection on the unit, plus a six-inch (long radius) 90 degree "L" entering the building (See Figure 5).

Refrigerant Piping Guidelines

A. Maximum recommended line lengths: (per circuit)
Maximum linear length.....200 Ft. (w/o accumulator)
Maximum discharge line lift.....200 Ft.
Maximum liquid line lift.....60 Ft.

B. Maximum allowable pressure drops (R-410A):
Discharge line.....10 psi
Liquid line (without subcooler)...50 psi

Route refrigerant piping for minimum linear length, minimum number of bends and fittings (no reducers) and minimum amount of line exposed to outdoor ambients.

C. Recommended line sizes:
CTA090, 120A (single circuit)
CTA120B, 180B (dual circuit)

Discharge line - 7/8 inch sealed type L refrigerant tubing.
Liquid line - 1/2 inch sealed type L refrigerant tubing.

Installation

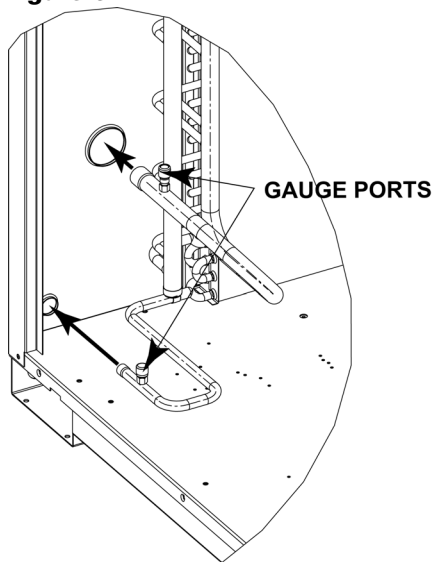
Note: Insulate all refrigerant piping and connections.

Refrigerant Piping Procedures (Outdoor Units)

Each CTA unit ships with a holding charge of dry nitrogen. The nitrogen should be removed and the entire system evacuated (at the proper time) to avoid possible contamination.

1. Remove the service access panel.
2. Locate the liquid and discharge lines. Check that the piping connection stubs on the valves (Figure 6) line up properly with the holes in the unit cabinet.

Figure 6



3. Locate the gauge ports on the discharge and liquid lines. Depress the valve core to release the nitrogen from the unit.

Note: If nitrogen is not released from the unit, there is a leak in the system. Locate the leak and repair before proceeding with the installation.

4. Unbrazed the tube seal caps to reveal the line braze connections.



WARNING:

Hazardous Pressures!
Coil has a nitrogen holding charge. Do not remove seal caps by heating the caps while coil is under pressure. Depress the gauge port valve cores to gradually relieve nitrogen holding charge. Remove valve cores before removing the tubing seal caps. Failure to properly relieve pressure could result in death or serious injury.

CAUTION:

Equipment Damage!
Do not remove the seal caps from refrigerant connections until prepared to braze refrigerant lines to the connections. Excessive exposure to atmosphere may allow moisture or dirt to contaminate the system, damaging valve seals and causing ice formation in system components.

5. Cut, fit and braze tubing, starting at the outdoor unit and work toward the indoor unit.

Note: Use long radius bells for all 90 degree bends.

All brazing should be done using a 2 to 3 psig dry nitrogen purge flowing through the pipe being brazed (Figure 6).



WARNING:

Hazardous Pressures!
When using dry nitrogen cylinders for pressurizing units for leak testing, always provide a pressure regulator on the cylinder to prevent excessively high unit pressures. Never pressurize unit

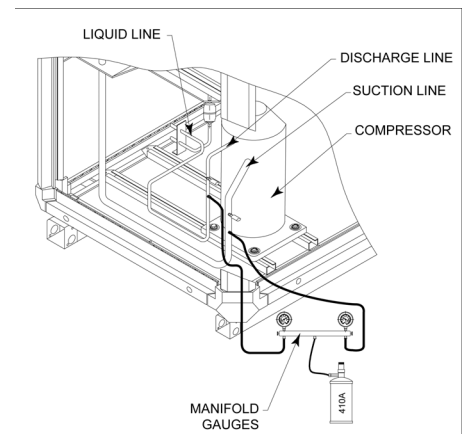
above the maximum recommended unit test pressure as specified in applicable unit literature. Failure to properly regulate pressure could result in a violent explosion, which could result in death or serious injury or equipment or property-only-damage.

CAUTION:

Equipment Damage!
Wet-wrap all valves and protect painted surfaces from excessive heat. Heat can damage system components and the unit finish.

6. Shut off nitrogen supply.
7. Shut off the manifold valve for the line that is connected to the discharge line gauge port.

Figure 7



Refrigerant Piping Procedure (Indoor Unit)

Once liquid and discharge lines are complete to the refrigerant connections on the indoor unit, depress the gauge port valve cores on the suction and discharge lines to gradually relieve nitrogen holding charge.

Installation



WARNING:

Hazardous Pressures!

Coil has a nitrogen holding charge. Do not remove seal caps by heating the caps while coil is under pressure. Depress the gauge port valve cores to gradually relieve nitrogen holding charge. Remove valve cores before removing the tubing seal caps. Failure to properly relieve pressure could result in death or serious injury.

1. Remove both seal caps from the indoor unit connection stubs.

CAUTION:

Equipment Damage!

Do not remove the seal caps from refrigerant connections until prepared to braze refrigerant lines to the connections. Excessive exposure to atmosphere may allow moisture or dirt to contaminate the system, damaging valve seals and causing ice formation in system components.

2. Turn nitrogen supply on. Nitrogen enters through liquid line gauge port.



WARNING:

Hazard of Explosion and Deadly Gases!

Never solder, braze or weld on refrigerant lines or any unit components that are above atmospheric pressure or where refrigerant may be present. Always remove refrigerant by following the guidelines established by the EPA Federal Clean Air Act or other state or local codes as appropriate. After refrigerant removal, use dry nitrogen to bring system back to atmospheric pressure before opening system

for repairs. Mixtures of refrigerants and air under pressure may become combustible in the presence of an ignition source leading to an explosion. Excessive heat from soldering, brazing or welding with refrigerant vapors present can form highly toxic gases and extremely corrosive acids. Failure to follow all proper safe refrigerant handling practices could result in death or serious injury.

3. Braze the liquid line connections.
4. Open the gauge port on the discharge line and then braze the discharge line to the connection stub. Nitrogen will bleed out the open gauge port on the discharge line.
5. Shut off nitrogen supply.

Leak Check

After the brazing operation of the outdoor and indoor refrigerant lines is complete, check the field brazed connections for leaks. Pressurize the system through the gauge port with dry nitrogen to 200 psi. Use soap bubbles or other leak-checking methods to ensure that all field joints are leak free. If not, release pressure, repair and repeat the leak test.

System Evacuation

1. After completion of leak check, replace suction, liquid and discharge valve cores, and evacuate the system.
2. Attach appropriate hoses from the manifold gauge to suction and discharge line gauge ports.

Note: Unnecessary switching of hoses can be avoided and complete evacuation of lines leading to a sealed system can be accomplished with manifold center hose and connecting branch hose to cylinder of R-410A and vacuum pump.

3. Attach center hose of manifold gauges to the vacuum pump.

4. Evacuate the system to hold a 350 micron vacuum.
5. Close off the valve to the vacuum pump and observe the micron gauge. If gauge pressure rises above 500 microns in one (1) minute, evacuation is incomplete or the system has a leak.
6. If vacuum gauge does not rise above 500 microns in one (1) minute, the evacuation should be complete.
7. With vacuum pump and micron gauge blanked off, open the valve on R-410A cylinder and allow refrigerant pressure to build up to 100 psig.
8. Close valve on the R-410A supply cylinder. Close valves on the manifold gauge. Set and remove the refrigerant charging hoses from the discharge and suction gauge ports.
9. Leak test the entire system. Using proper procedures and caution, repair any leaks found and repeat the leak test.

Refrigerant Charging Procedure

If charging by weight, refer to refrigerant charges that are provided in Table 3. If additional refrigerant is needed because of length of line, calculate the requirements using Table 4. Charge by weight through the gauge port on the suction line in the indoor unit. When charging is complete, replace the cap on the gauge port.

Insulating and Isolating Refrigerant Lines

Insulate the entire discharge line with refrigerant piping insulation. Also insulate any portion of the liquid line exposed to temperature extremes. Insulate and isolate liquid and discharge lines from each other. Isolate refrigerant lines from the structure and any ductwork.

Note: To prevent possible noise or vibration, be certain to isolate refrigerant lines from the building.

Installation

Table 3: CTA Refrigerant Charge

Model	Refrigerant Charge (R-410A)*
CTA090A w/SCRH030	18.1 lbs
CTA090A w/SCRH050	19.9 lbs
CTA120A w/SCRH075	20.8 lbs
CTA120B w/SCRH100	11.9 lbs (Ckt. #1 & #2)
CTA180B w/SCRH120	16.8 lbs. (Ckt. #1) 16.0 lbs. (Ckt. #2)
CTA180B w/SCRH150	17.5 lbs. (Ckt. #1) 16.9 lbs. (Ckt. #2)

* Sufficient operating charge for listed unit and 33 feet of nominally sized refrigerant piping.

Table 4: Additional Refrigerant

Tubing Sizes		Additional Tubing Length	Additional Refrig.
Discharge	Liquid		
7/8"	1/2"	15 ft.	1.3 lbs
7/8"	1/2"	25 ft.	2.2 lbs
7/8"	1/2"	32 ft.	2.8 lbs
7/8"	1/2"	40 ft.	3.5 lbs

Note: Amounts shown are based on 0.087 lbs of refrigerant per foot of 7/8" and 1/2" lines.

Note: For tubing over 40 feet, calculate the additional refrigerant needed, based on notes above.

Gaseous Charging

This procedure is accomplished with the unit operating. Electrical connections must be complete. Do not proceed until the system is ready to operate.

Procedure

1. Connect R-410A drum with gauge manifold to the gauge ports (pressure taps) on the compressor discharge and suction lines (Figure 7).

Note: On the CTA units, the service access panel must be installed when the unit is running and being charged.



WARNING:

Hazardous Energy Sources!
Use extreme caution while servicing the unit when the control box access panel is removed and power is applied to the unit. Failure to observe all safety precautions could result in death or serious injury.

2. Turn on power to the unit. Allow the system to run for five to ten minutes to stabilize operating conditions.
3. Measure airflow across the indoor coil. Compare the measurements with the fan performance data in the Data/Submittal.
4. Check suction line superheat and condenser sub-cooling to ensure the unit is operating properly.
5. Disconnect all power to the unit.



WARNING:

Hazardous Voltage w/Capacitors!
Disconnect all electrical power, including remote disconnects and discharge all motor start/run capacitors before servicing. Follow proper lockout/tagout procedures to ensure the power cannot be inadvertently energized. Verify with an appropriate voltmeter that all capacitors have discharged. Failure to disconnect power and discharge capacitors before servicing could result in death or serious injury.

Note: For additional information regarding the safe discharge of capacitors, see PROD-SVB06A-EN or PROD-SVB06A-FR.

6. Remove the charging system from the unit and replace all access panels.

Electrical Wiring

CTA field wiring consists of providing power supply to the unit, installing the system indoor thermostat and providing low voltage system interconnecting wiring. Access to electrical connection locations is shown in Figures 1 through 4.

Unit Power Supply

The installer must provide line voltage circuit(s) to the unit main power terminals as shown by the unit wiring diagrams in Figures 9 and 10 on page 15. Power supply must include a disconnect switch in a location convenient to the unit. Ground the unit according to local codes and provide flexible conduit if codes require and/or if vibration transmission may cause noise problems.

CAUTION:

Use Copper Conductors Only!
Unit terminals are not designed to accept other types of conductors. Failure to use copper conductors may result in equipment damage.

CAUTION:

All wiring must comply with applicable local and national NEC codes. Type and location of disconnect switches must comply with all applicable codes.



WARNING:

Ground Wire!

All field-installed wiring must be completed by qualified personnel. All field-installed wiring must comply with NEC and applicable local codes. Failure to follow this instruction could result in death or serious injuries.



WARNING:

Grounding Required!

Follow proper local and state electrical code on requirements for grounding. Failure to follow code could result in death or serious injury.

Wiring Low Voltage

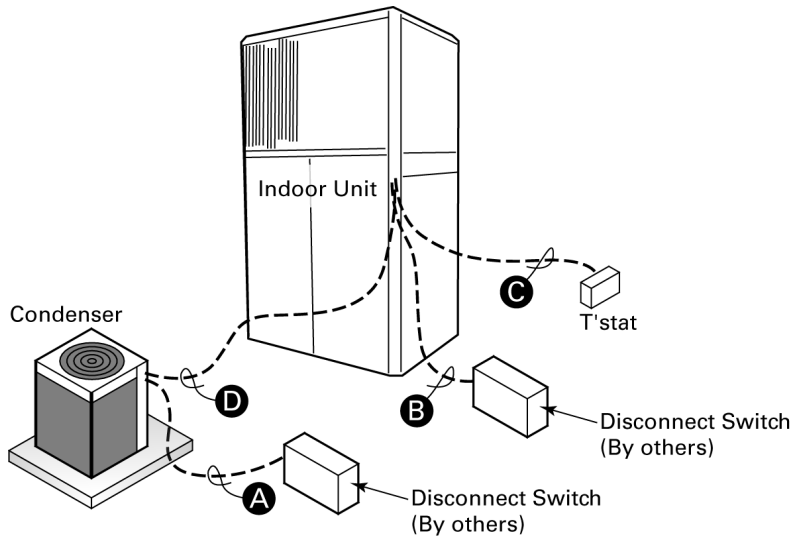


Figure 8: Typical Field Wiring

Note:

1. Wiring shown with dashed lines is to be furnished and installed by the customer. All customer supplied wiring must be copper only and must conform to NEC and local electrical codes. Codes may require line of sight between disconnect switch and unit.

CTA090A/S(C,I)RH030

CTA090A/S(C,I)RH050

CTA120A/S(C,I)RH075

CTA120B/S(C,I)RH100

Field Wiring:

- A — 2 power wires. Line voltage for single phase
- B — 3 power wires. Line voltage for 3 phase; 2 wires for single phase
- C — Cooling only thermostat: 3 wires, 24 volts.
 - Digital thermostat: add 1 additional wire, 24 volts.
- D — 2 control wires, 24 volts.

CTA180B/S(C,I)RH120

CTA180B/S(C,I)RH150

Field Wiring:

- A — 2 power wires. Line voltage for single phase
- B — 3 power wires. Line voltage for 3 phase
- C — Cooling only thermostat: 4 wires, 24 volts.
- D — 3 control wires, 24 volts.



WARNING:

Hazardous Voltage w/Capacitors! Disconnect all electrical power, including remote disconnects and discharge all motor start/run capacitors before servicing. Follow proper lockout/tagout procedures to ensure the power cannot be inadvertently energized. Verify with an appropriate voltmeter that all capacitors have discharged. Failure to disconnect power and discharge capacitors before servicing could result in death or serious injury.

Note: For additional information regarding the safe discharge of capacitors, see PROD-SVB06A-EN or PROD-SVB06A-FR.

Determine proper wire sizes and unit protective fusing requirements by referring to the unit nameplate. Field wiring diagrams for accessories are shipped with the accessory.

Field Wiring

Figure 9 - Field Wiring for CTA090A, CTA120A, and CTA120B

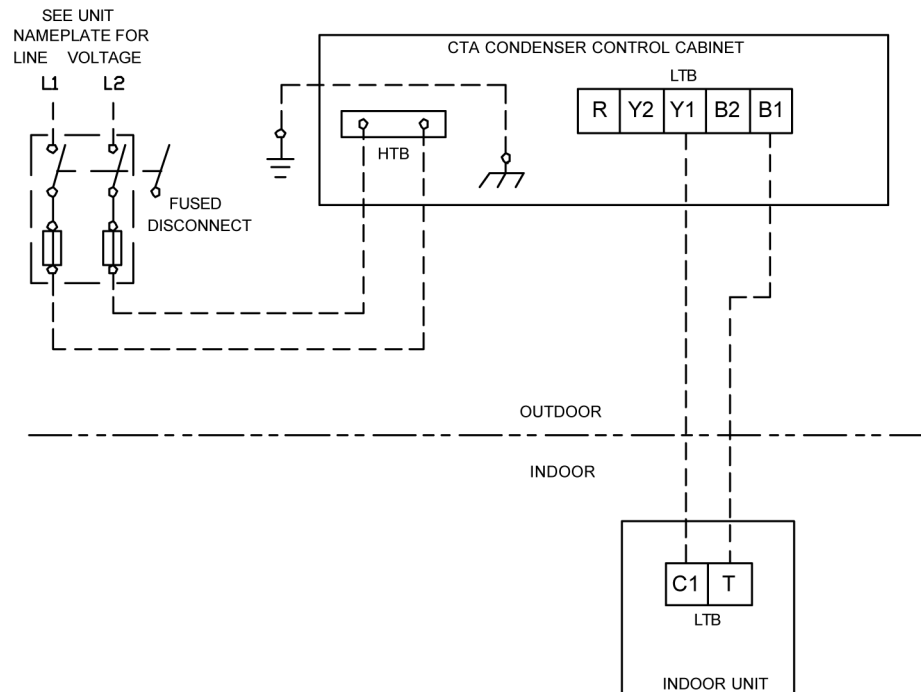
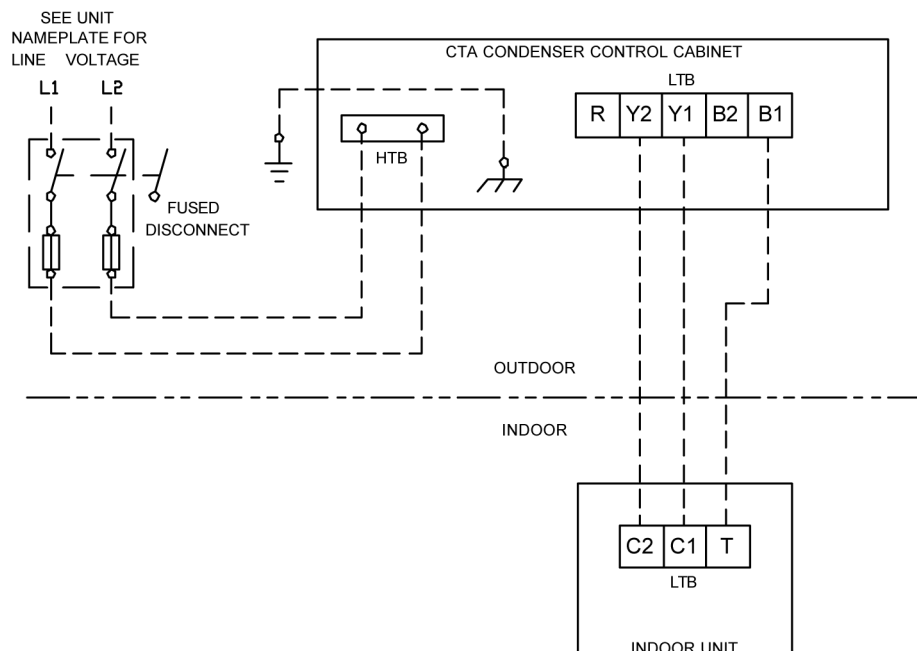
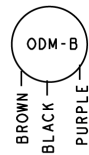
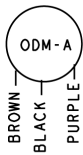
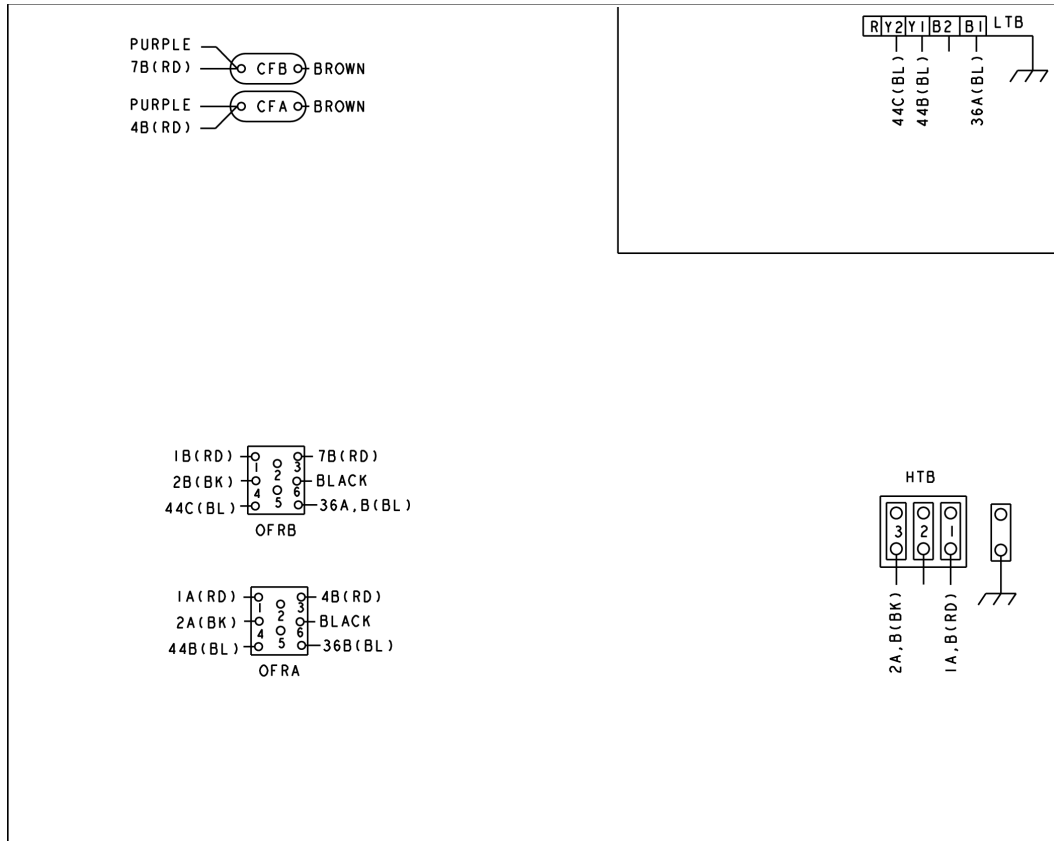


Figure 10 - Field Wiring for CTA180B



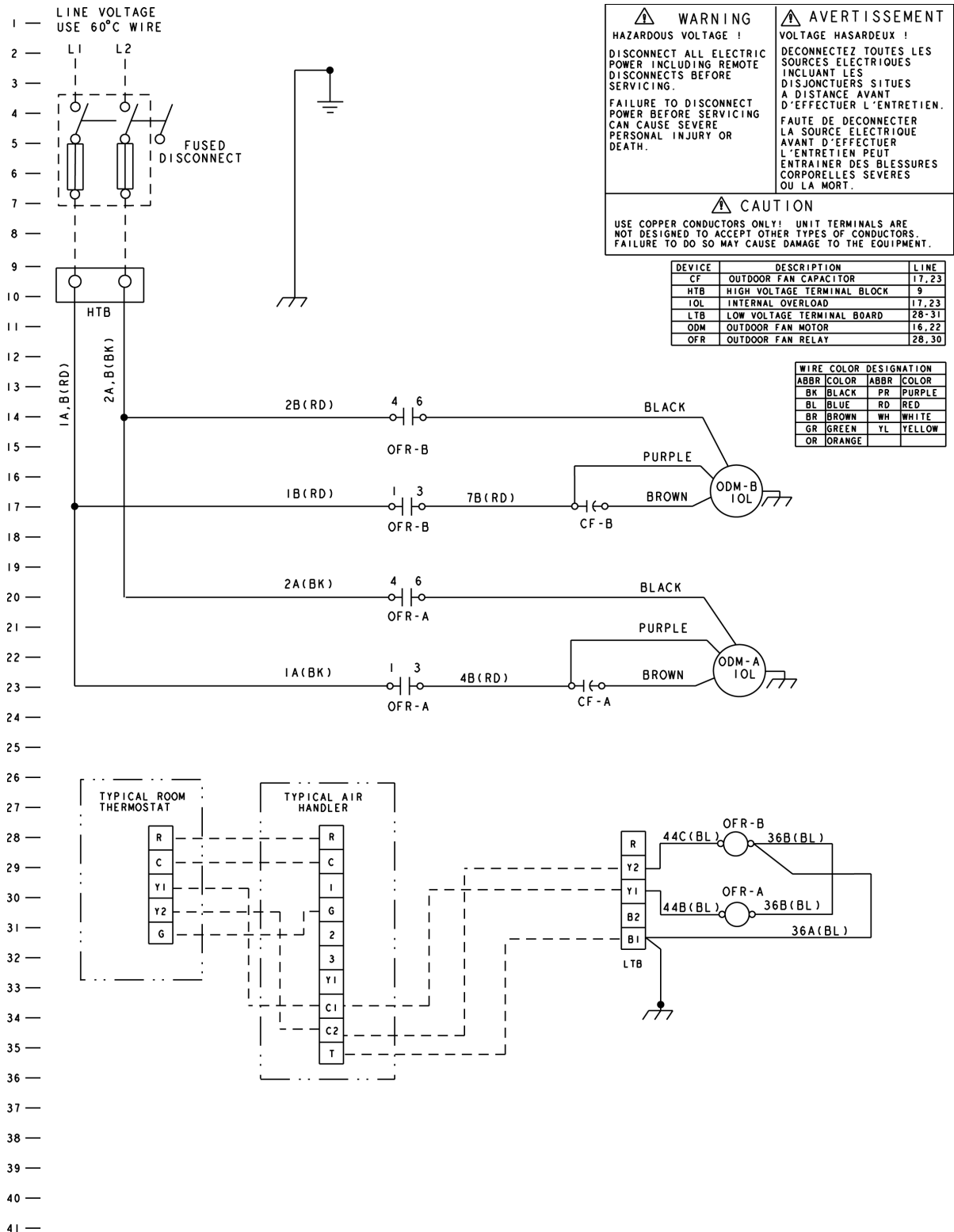
Wiring



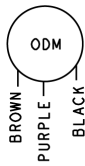
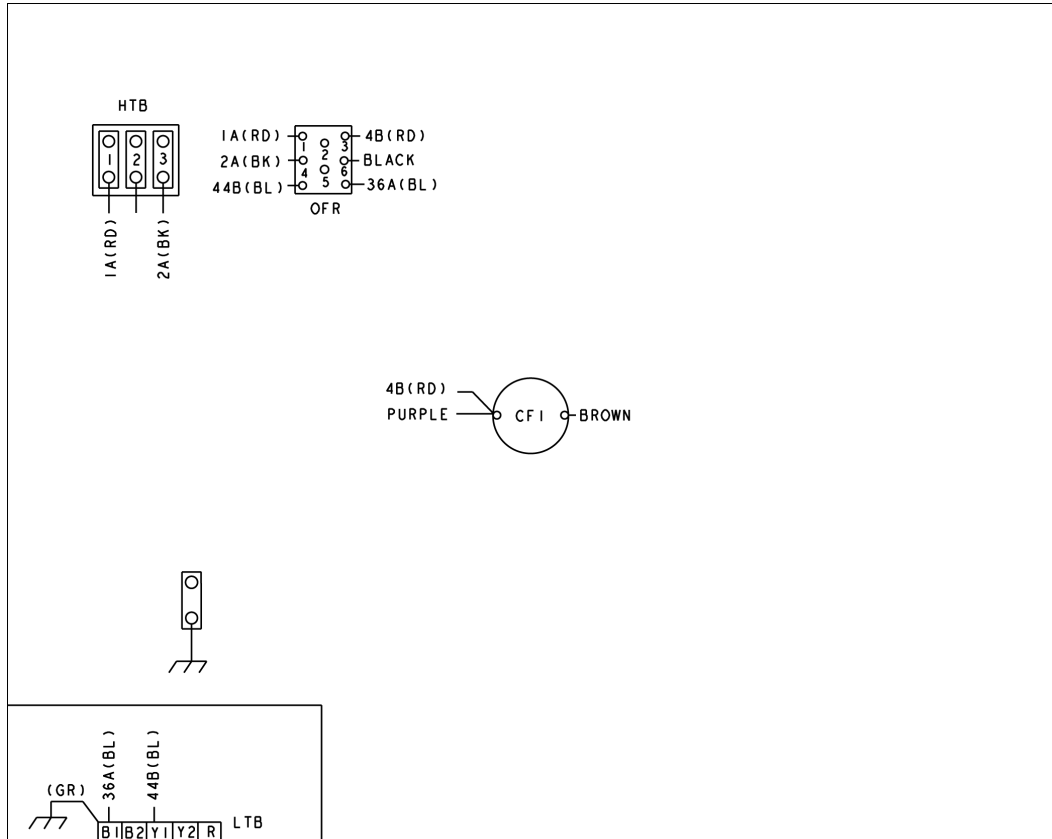
NOTES:

1. LOW VOLTAGE WIRING MUST BE 18 AWG MIN.

Wiring



Wiring



NOTES:
 1. LOW VOLTAGE WIRING MUST BE 18 AWG MIN.

CTA090A
CTA120A
CTA120B

Refrigeration Diagram

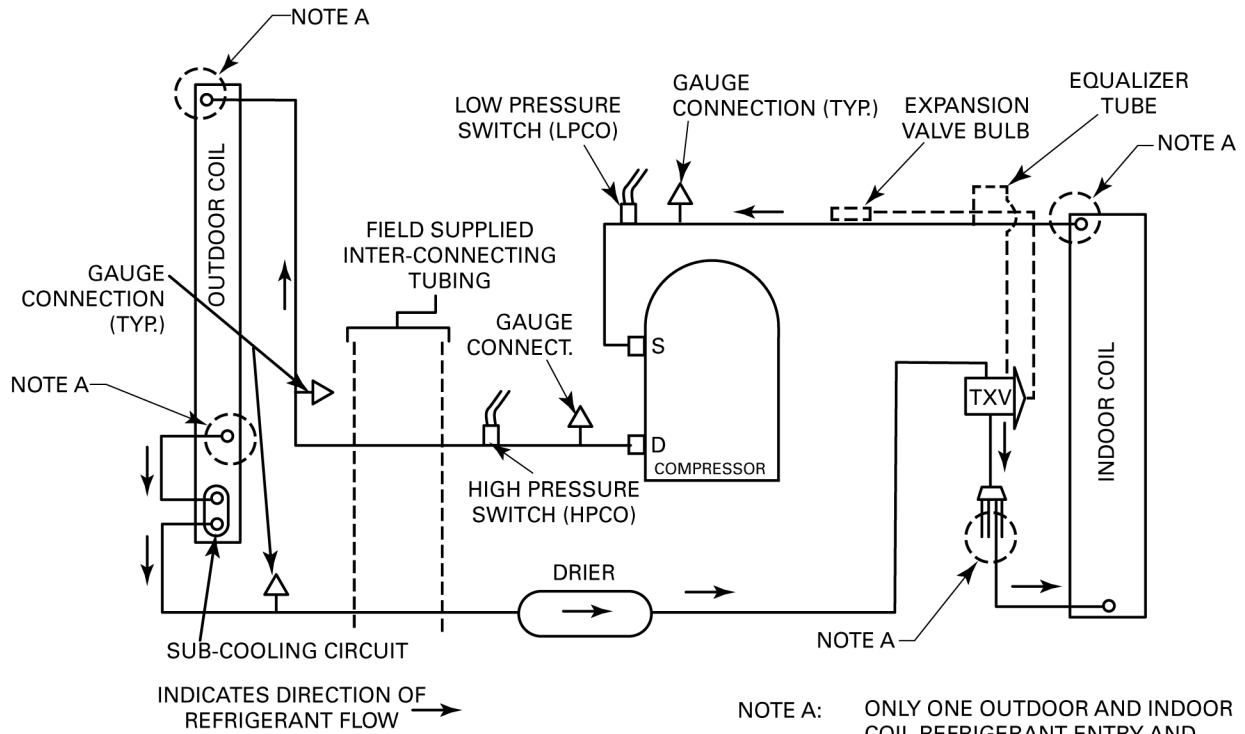


Figure 11: Typical Split System Cooling Diagram

System Pre-Start Procedure

Installation Checklist

Complete this checklist once the unit is installed to verify that all recommended procedures have been accomplished before starting the system. Do not operate the system until all items covered by this checklist are complete.

- Inspect unit location for proper required service clearances.
- Inspect unit location for proper free air clearances.
- Inspect unit location for secure, level mounting position.

Refrigerant Piping

- Performed initial leak test?
- Connected properly sized and constructed liquid and discharge lines to the connection stubs at both the indoor and outdoor units?
- Insulated the entire discharge line?
- Insulated portions of liquid line exposed to extremes in temperature?
- Evacuated each refrigerant circuit to 350 microns?
- Charged each circuit with proper amount of R-410A?

Electrical Wiring



WARNING:

Hazardous Voltage w/Capacitors!

Disconnect all electrical power, including remote disconnects and discharge all motor start/run capacitors before servicing. Follow proper lockout/tagout procedures to ensure the power cannot be inadvertently energized. Verify with an appropriate voltmeter that all capacitors have discharged. Failure to disconnect power and discharge capacitors before servicing could result in death or serious injury.

Note: For additional information regarding the safe discharge of capacitors, see PROD-SVB06A-EN or PROD-SVB06A-FR.

- Provided unit power wiring (with disconnect) to proper terminals in the unit control section?
- Installed system indoor thermostat?
- Installed system low voltage interconnecting wiring to proper terminals of outdoor unit, indoor unit and system thermostat?



System Pre-Start Procedure

Unit Start-Up

Once the unit is properly installed and pre-start procedures are complete, start the unit by turning the System Switch on the indoor thermostat to either HEAT, COOL or AUTO. The system should operate normally.

Sequence of Operation

General

Operation of the system cooling (and optional heating) cycles is controlled by the position of the system switch on the room thermostat. Once the system switch is placed in either the **HEAT** or **COOL** position, unit operation is automatic. The optional automatic changeover thermostat, when in the **AUTO** position, automatically changes to heat or cool with sufficient room temperature change.

Evaporator Fan (Indoor Supply Air)

The evaporator fan is controlled by an **ON/AUTO** switch on the room thermostat. With the switch positioned at **AUTO** and the system operating in the cooling mode, fan operation coincides with the cooling run cycles. If the system is equipped with heat and is operating in the heating mode while the fan switch is at **AUTO**, fan operation coincides with the heating run cycles. When the fan switch is positioned at **ON**, fan operation is continuous.

Cooling Mode

When the room thermostat system switch is positioned at **COOL** and the fan switch is at **AUTO**, the condenser fan relay energizes on a call for cooling. When the contacts of the condenser fan relay close, operation of the condenser fan begins. The evaporator fan contactor also energizes on a call for cooling and initiates evaporator fan operation.

On units with dual circuits, the second stage of cooling is initiated as a result of the 2-stage thermostat calling for additional cooling.

Maintenance



WARNING:

Hazardous Service Procedures! The maintenance and troubleshooting procedures recommended in this section of the manual could result in exposure to electrical, mechanical or other potential safety hazards. Always refer to the safety warnings provided throughout this manual concerning these procedures. When possible, disconnect all electrical power including remote disconnects before servicing. Follow proper lockout/tagout procedures to ensure the power can not be inadvertently energized. When necessary to work with live electrical components, have a qualified licensed electrician or other individual who has been trained in handling live electrical components perform these tasks. Failure to follow all of the recommended safety warnings provided, could result in death or serious injury.

Maintenance

Perform all of the indicated maintenance procedures at the intervals scheduled. This will prolong the life of the unit and reduce the possibility of costly equipment failure.

Monthly

Conduct the following maintenance inspections once per month.



WARNING:

Hazardous Voltage w/Capacitors! Disconnect all electrical power, including remote disconnects and discharge all motor start/run capacitors before servicing. Follow proper lockout/tagout procedures to ensure the power cannot be inadvertently energized. Verify with an appropriate voltmeter that all capacitors have discharged. Failure to disconnect power and discharge capacitors before servicing could result in death or serious injury.

Note: For additional information regarding the safe discharge of capacitors, see PROD-SVB06A-EN or PROD-SVB06A-FR.

1. Inspect air filters and clean if necessary.
2. Check unit wiring to ensure all connections are tight and that the wiring insulation is intact.
3. Check drain pans and condensate piping to insure they are free of obstacles.
4. Manually rotate the indoor fan to insure proper operation.
5. Inspect the evaporator and condenser coils for dirt and debris. If the coils appear dirty, clean them.
6. With the unit operating in the cool-

ing mode, check the suction and discharge pressures. Record these readings on the "Maintenance Log."

7. Observe indoor fan operation and correct any unusual or excessive vibration. Clean blower wheels as needed.

Annually (Cooling Season)

The following maintenance procedures must be performed at the beginning of each cooling season to insure efficient unit operation.

1. Perform all of the monthly maintenance inspections.
2. With the unit operating, check unit superheat and record the reading in the *Maintenance Log*.
3. Remove any accumulation of dust and/or dirt from the unit casing.
4. Remove corrosion from any surface and repaint. Check the gasket around the control panel door to insure it fits correctly and is in good condition to prevent water leakage.
5. Inspect the evaporator fan belt. If it is worn or frayed, replace it.
6. Inspect the control panel wiring to insure that all connections are tight and that the insulation is intact.
7. Check refrigerant piping and fittings for leaks.



Warranty

CTA

Warranty Information

Standard Warranty

The standard split system cooling condenser warranty is Trane's parts-only warranty, running 12-months from startup, not to exceed 18-months from shipment.

Extended Warranty

The *optional* extended warranty is a second through fifth year warranty. The time starts at the end of standard 1-year coverage through the fifth year.

These extended warranties apply only to new equipment installed in domestic Trane Commercial Systems Group sales territories and must be ordered prior to start-up.



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For more information, contact your local Trane office or e-mail us at comfort@trane.com

Literature Order Number	PKG-SVX17A-EN
Date	September 2007
Supersedes	SS-SVN11A-EN October 2004

Trane has a policy of continuous product and product data improvement and reserves the right to change design and specifications without notice.

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