Carrier

WeatherExpert®
50JC04-06
Ultra High Efficiency Single Package Rooftop Cooling Only/Electric Heat Unit with Puron® (R-410A)

Installation Instructions

CONTENTS

SAFETY CONSIDERATIONS

Improper installation, adjustment, alteration, service, maintenance, or use can cause explosion, fire, electrical shock or other conditions which may cause personal injury or property damage. Consult a qualified installer, service agency, or your distributor or branch for information or assistance. The qualified installer or agency must use factory-authorized kits or accessories when modifying this product. Refer to the individual instructions packaged with the kits or accessories when installing.

Follow all safety codes. Wear safety glasses and work gloves. Use quenching cloths for brazing operations and have a fire extinguisher available. Read these instructions thoroughly and follow all warnings or cautions attached to the unit. Consult local building codes and appropriate national electrical codes (in U.S.A., ANSI/NFPA70, National Electrical Code (NEC); in Canada, CSA C22.1) for special requirements.

It is important to recognize safety information. This is the safety-alert symbol ⚠. When you see this symbol on the unit and in instructions or manuals, be alert to the potential for personal injury.

Understand the signal words DANGER, WARNING, CAUTION, and NOTE. These words are used with the safety-alert symbol. DANGER identifies the most serious hazards which **will** result in severe personal injury or death. WARNING signifies hazards which **could** result in personal injury or death. CAUTION is used to identify unsafe practices, which **may** result in minor personal injury or product and property damage. NOTE is used to highlight suggestions which **will** result in enhanced installation, reliability, or operation.

⚠ DANGER

ELECTRICAL SHOCK HAZARD

Failure to follow this warning will result in personal injury or death.

Before performing service or maintenance operations on unit, turn off main power switch to unit and install lock(s) and lockout tag(s). Ensure electrical service to rooftop unit agrees with voltage and amperage listed on the unit rating plate. Unit may have more than one power switch.

⚠ WARNING

UNIT OPERATION AND SAFETY HAZARD

Failure to follow this warning could cause personal injury, death and/or equipment damage.

R-410A refrigerant systems operate at higher pressures than standard R-22 systems. Do not use R-22 service equipment or components on R-410A refrigerant equipment.

⚠ WARNING

PERSONAL INJURY AND ENVIRONMENTAL HAZARD

Failure to follow this warning could cause personal injury or death.

Relieve pressure and recover all refrigerant before system repair or final unit disposal.

Wear safety glasses and gloves when handling refrigerants. Keep torches and other ignition sources away from refrigerants and oils.

⚠ CAUTION

PERSONAL INJURY HAZARD

Failure to follow this caution may result in personal injury.

Sheet metal parts may have sharp edges or burrs. Use care and wear appropriate protective clothing, safety glasses and gloves when handling parts and servicing air conditioning equipment.

MODEL NUMBER NOMENCLATURE AND DIMENSIONS

See Fig. 1 for 50JC model number nomenclature. See Fig. 2 (on pages 4-6) for unit dimensional drawings and service clearance dimensions.

Rated Indoor Airflow

Table 1 lists the rated indoor airflow used for the AHRI efficiency rating for the units covered in this document.

Table 1 — Rated Indoor Airflow

MODEL NUMBER	RATED INDOOR AIRFLOW (cfm)
50JC04**	1125
50JC05**	1430
50JC06**	2000

Position:	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Example:	5	0	J	C	-	V	0	6	A	2	A	5	-	3	A	0	A	0

Unit Heat Type
50 = Electric/Electric Packaged Rooftop

Model Series - WeatherExpert®
JC = Ultra High Efficiency

Heat Options
- = No Heat
A = Low Electric Heat
B = Medium Electric Heat
C = High Electric Heat

Refrig. Systems Options
V = Variable Speed Cooling Capacity
W= Variable Speed Cooling Capacity with Humidi-MiZer® System

Cooling Tons
04 = 3 ton
05 = 4 ton
06 = 5 ton

Sensor Options
A = None
B = RA (Return Air) Smoke Detector
C = SA (Supply Air) Smoke Detector
D = RA + SA Smoke Detector
E = CO_2
F = RA Smoke Detector and CO_2
G = SA Smoke Detector and CO_2
H = RA + SA Smoke Detector and CO_2
J = Condensate Overflow Switch
K = Condensate Overflow Switch and RA Smoke Detector
L = Condensate Overflow Switch and RA and SA Smoke Detectors
M = Condensate Overflow Switch and SA Smoke Detector
N = Condensate Overflow Switch and CO_2
P = Condensate Overflow Switch w/ CO_2 + RA Smoke Detector
Q = Condensate Overflow Switch w/ CO_2 + SA Smoke Detector
R = Condensate Overflow Switch w/ CO_2 + RA and SA Smk. Det.

Vane Axial Fan - Indoor Fan Options
1 = Direct Drive EcoBlue™ — Standard Static
2 = Direct Drive EcoBlue — Medium Static
3 = Direct Drive EcoBlue — High Static

Coil Options - Round Tube/Plate Fin Condenser Coil (Outdoor - Indoor - Hail Guard)
A = Al/Cu — Al/Cu
B = Precoat Al/Cu — Al/Cu
C = E-coat Al/Cu — Al/Cu
D = E-coat Al/Cu — E-coat Al/Cu
E = Cu/Cu — Al/Cu
F = Cu/Cu — Cu/Cu
M = Al/Cu — Al/Cu — Louvered Hail Guard
N = Precoat Al/Cu — Al/Cu — Louvered Hail Guard
P = E-coat Al/Cu — Al/Cu — Louvered Hail Guard
Q = E-coat Al/Cu — E-coat Al/Cu — Louvered Hail Guard
R = Cu/Cu — Al/Cu — Louvered Hail Guard
S = Cu/Cu — Cu/Cu — Louvered Hail Guard

Voltage
1 = 575/3/60
5 = 208-230/3/60
6 = 460/3/60

Design Revision
- = Factory Design Revision

Base Unit Controls
3 = SystemVu™ Controls — Standard all units

Air Intake / Exhaust Options
A = None
B = EconoMi$er® 2 Temperature Economizer with Barometric Relief
F = EconoMi$er 2 Enthalpy Economizer with Barometric Relief
U = Ultra Low Leak EconoMi$er 2 Temperature Economizer with Barometric Relief
W= Ultra Low Leak EconoMi$er 2 Enthalpy Economizer with Barometric Relief

Service Options (Foil-Faced Insulation Standard)
0 = None
1 = Unpowered Convenience Outlet
2 = Powered Convenience Outlet
3 = Hinged Access Panels
4 = Hinged Access Panels and Unpowered Convenience Outlet
5 = Hinged Panels and Powered Convenience Outlet
6 = MERV 8 High Efficiency Filters
7 = MERV 8 High Efficiency Filters and Unpowered Convenience Outlet
8 = MERV 8 High Efficiency Filters and Powered Convenience Outlet
9 = MERV 8 High Efficiency Filters and Hinged Panels
A = MERV 8 High Efficiency Filters, Hinged Panels and Unpowered Convenience Outlet
B = MERV 8 High Efficiency Filters, Hinged Panels and Powered Convenience Outlet

Electrical Options
A = None
B = HACR Breaker
C = Non-Fused Disconnect (NFD)
D = Thru-The-Base (TTB) Connections
E = HACR Circuit Breaker and TTB
F = Non-Fused Disconnect and TTB
N = Phase Monitor Protection
P = Phase Monitor and HACR
Q = Phase Monitor and NFD
R = Phase Monitor and TTB
S = Phase Monitor and HACR and TTB
T = Phase Monitor and NFD and TTB

Factory Assigned
0 = Standard
1 = LTL

Fig. 1 — 50JC 04-06 Model Number Nomenclature (Example)

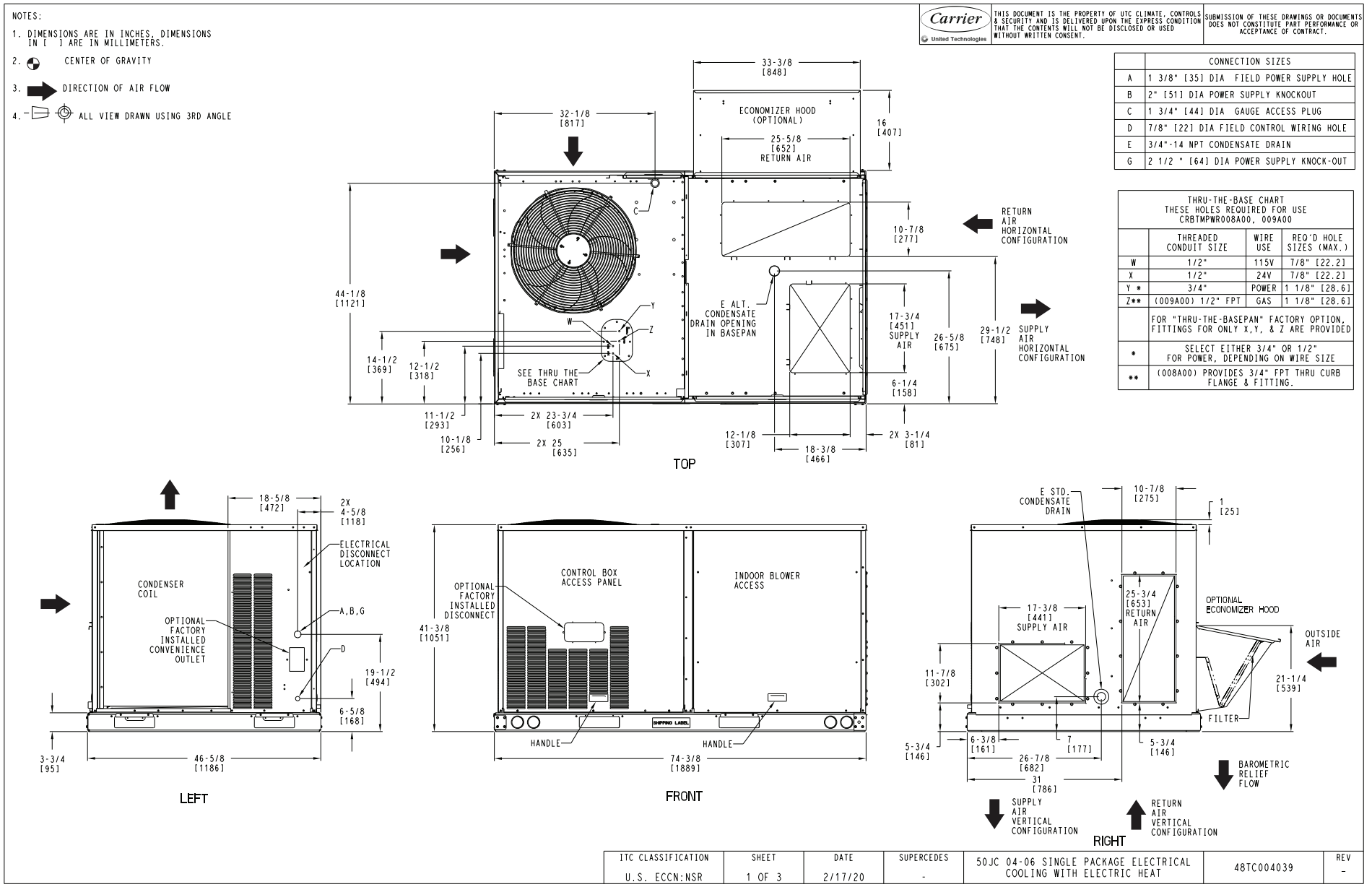
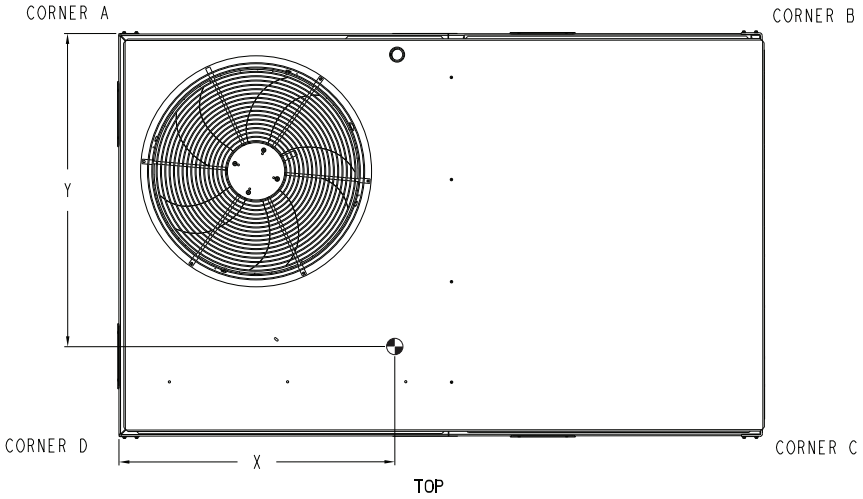
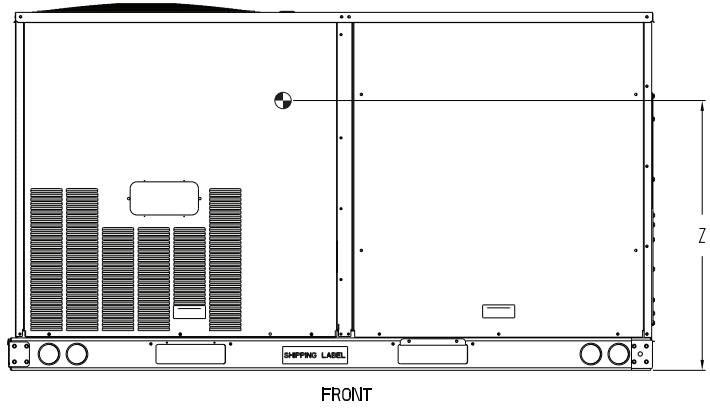


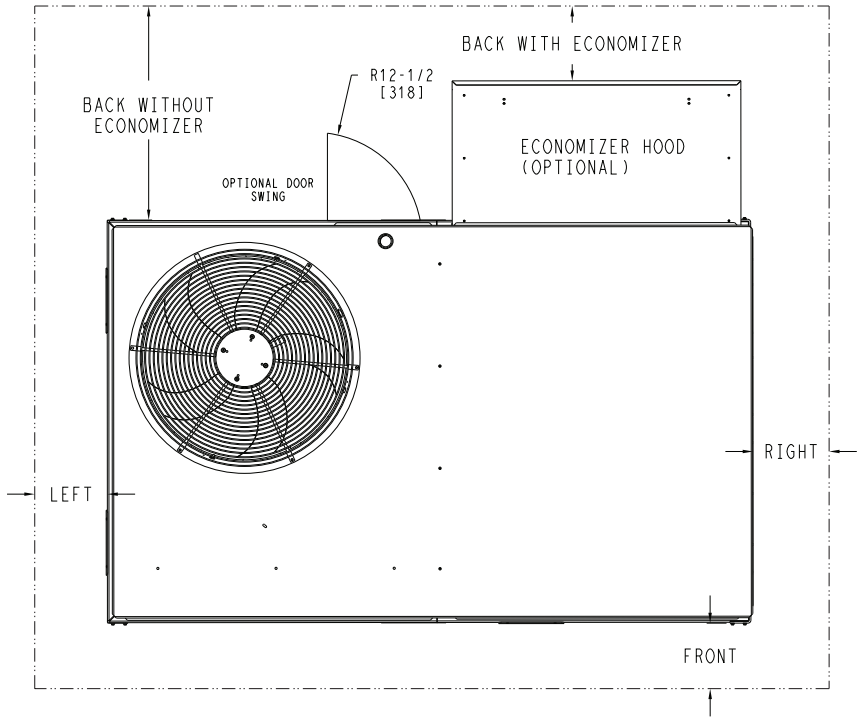
Fig. 2 — 50JC 04-06 Unit Dimensional Drawing

UNIT	STD. UNIT WEIGHT *		CORNER WEIGHT (A)		CORNER WEIGHT (B)		CORNER WEIGHT (C)		CORNER WEIGHT (D)		SUPPLY OPENING C.G.		HEIGHT
	LBS.	KG.	LBS.	KG.	LBS.	KG.	LBS.	KG.	LBS.	KG.	X	Y	Z
50JC**04	542	246	136	62	119	54	134	61	153	69	34 3/4 [883]	24 3/4 [629]	19 3/4 [502]
50JC**05	565	256	142	64	125	57	140	64	158	72	34 7/8 [886]	24 5/8 [625]	19 1/2 [495]
50JC**06	567	257	144	65	126	57	138	63	159	72	34 5/8 [879]	24 1/2 [622]	19 1/2 [495]

*- STANDARD UNIT WEIGHT IS WITHOUT ELECTRIC HEAT AND WITHOUT PACKAGING.
FOR OTHER OPTIONS AND ACCESSORIES REFER TO THE PRODUCT DATA CATALOG.







NOTE:

1. FOR ALL MINIMUM CLEARANCES LOCAL CODES OR JURISDICTIONS MAY PREVAIL.

	CLEARANCE		
	SERVICE WITH:	SERVICE WITH:	OPERATING
SURFACE	CONDUCTIVE BARRIER	NONCONDUCTIVE BARRIER	CLEARANCE
FRONT	48 [1219mm]	36 [914mm]	18 [457mm]
LEFT	48 [1219mm]	42 [1067mm]	18 [457mm]
BACK W/O HOOD	48 [1219mm]	42 [1067mm]	18 [457mm]
BACK W/HOOD	36 [914mm]	36 [914mm]	18 [457mm]
RIGHT	36 [914mm]	36 [914mm]	18 [457mm]
TOP	72 [1829mm]	72 [1829mm]	72 [1829mm]

ITC CLASSIFICATION	SHEET	DATE	SUPERCEDES			REV
U.S. ECCN:NSR	2 OF 3	2/17/20	-	50JC 04-06 SINGLE PACKAGE ELECTRICAL COOLING WITH ELECTRIC HEAT	48TC004039	-

Carrier United Technologies
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Fig. 2 — 50JC 04-06 Unit Dimensional Drawing (cont)

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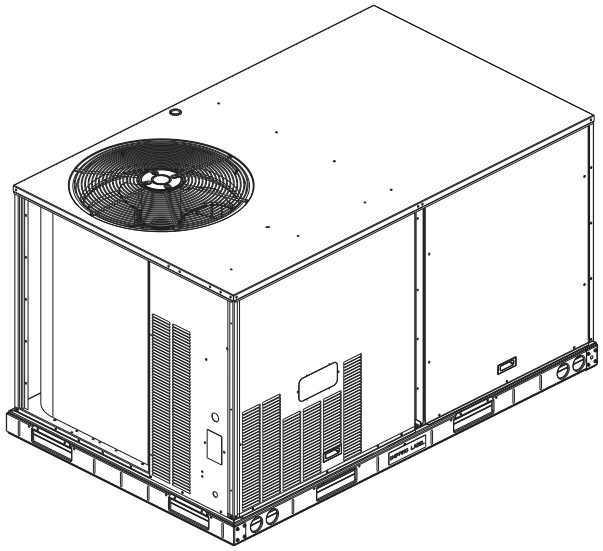
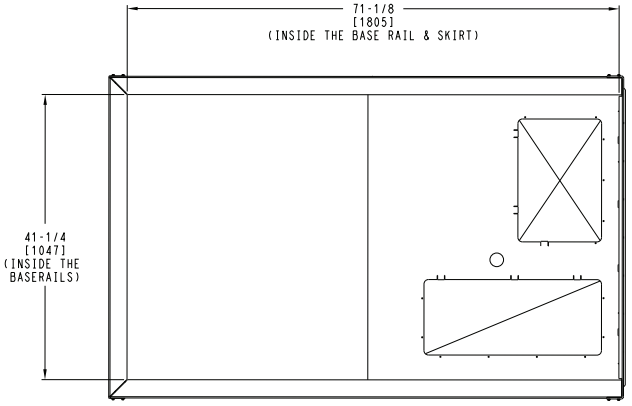
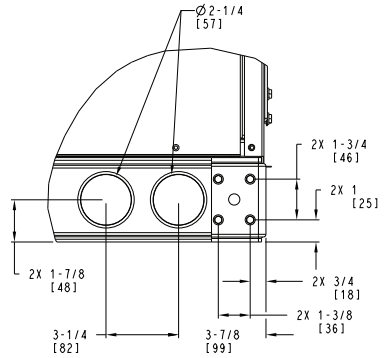


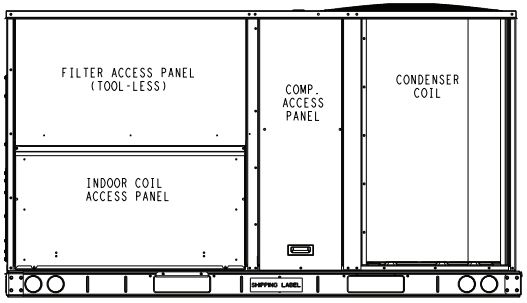


INSIDE BASERAIL DIMENSIONS

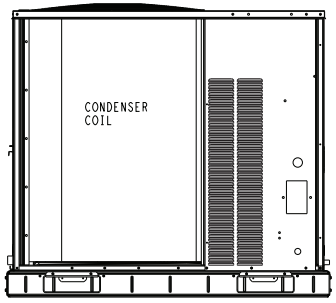
BOTTOM



DETAIL A
TYP 4 PLCS



BACK



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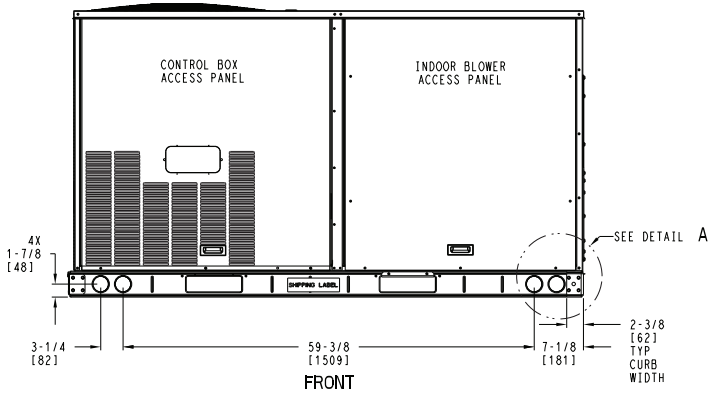


FRONT

ITC CLASSIFICATION	SHEET	DATE	SUPERCEDES			REV
U.S. ECCN:NSR	3 OF 3	2/17/20	-	50JC 04-06 SINGLE PACKAGE ELECTRICAL COOLING WITH ELECTRIC HEAT	48TC004039	-

Fig. 2 — 50JC 04-06 Unit Dimensional Drawing (cont)

INSTALLATION

Jobsite Survey

Complete the following checks before installation.

1. Consult local building codes and the NEC (National Electrical Code) ANSI/NFPA 70 for special installation requirements.
2. Determine unit location (from project plans) or select unit location.
3. Check for possible overhead obstructions which may interfere with unit lifting or rigging.

Step 1 — Plan for Unit Location

Select a location for the unit and its support system (curb or other) that provides for the minimum clearances required for safety (including clearance to combustible surfaces), unit performance and service access below, around and above unit as specified in unit drawings. See Fig. 2 on page 5.

NOTE: Consider also the effect of adjacent units.

Unit may be installed directly on wood flooring or on Class A, B, or C roof-covering material when roof curb is used.

Do not install unit in an indoor location. Do not locate air inlets near exhaust vents or other sources of contaminated air.

Although unit is weatherproof, avoid locations that permit water from higher level runoff and overhangs to fall onto unit.

Select a unit mounting system that provides adequate height to allow installation of condensate trap per requirements. Refer to Step 10 — Install External Condensate Trap and Line on page 12 for required trap dimensions.

ROOF MOUNT

Check building codes for weight distribution requirements. Unit operating weight is shown in Table 2.

Table 2 — Operating Weights

50JC-*	UNIT LB (KG)		
	04	05	06
Base Unit	542 (246)	565 (256)	567 (257)
Economizer			
Vertical	50 (23)	50 (23)	50 (23)
Horizontal	80 (36)	80 (36)	80 (36)
Humidi-MiZer® System	27 (10)	34 (13)	34 (13)
Cu Fins	25 (11)	43 (20)	56 (25)
Powered Outlet	32 (15)	32 (15)	32 (15)
Curb			
14 in. (356 mm)	110 (50)	110 (50)	110 (50)
24 in. (610 mm)	145 (66)	145 (66)	145 (66)

Step 2 — Plan for Sequence of Unit Installation

The support method used for this unit will dictate different sequences for the steps of unit installation. For example, on curb-mounted units, some accessories must be installed on the unit before the unit is placed on the curb. Review the following for recommended sequences for installation steps:

CURB-MOUNTED INSTALLATION

1. Install curb
2. Install field-fabricated ductwork inside curb
3. Install accessory thru-base service connection package (affects curb and unit) (refer to accessory installation instructions for details)
4. Prepare bottom condensate drain connection to suit planned condensate line routing (refer to Step 10 — Install External Condensate Trap and Line on page 12 for details)
5. Rig and place unit
6. Install outdoor air hood
7. Install condensate line trap and piping
8. Make electrical connections
9. Install other accessories

PAD-MOUNTED INSTALLATION

1. Prepare pad and unit supports
2. Check and tighten the bottom condensate drain connection plug
3. Rig and place unit
4. Convert unit to side duct connection arrangement
5. Install field-fabricated ductwork at unit duct openings
6. Install outdoor air hood
7. Install condensate line trap and piping
8. Make electrical connections
9. Install other accessories

FRAME-MOUNTED INSTALLATION

Frame-mounted applications generally follow the sequence for a curb installation. Adapt the sequence as required to suit specific installation plan.

Step 3 — Inspect Unit

Inspect unit for transportation damage. File any claim with transportation agency.

Confirm before installation of unit that voltage, amperage and circuit protection requirements listed on unit data plate agree with power supply provided.

On units with hinged panel option, check to be sure all latches are snug and in closed position.

Locate the carton containing the outside air hood parts. Do not remove carton until unit has been rigged and located in final position.

Step 4 — Provide Unit Support

ROOF CURB MOUNT

Accessory roof curb details and dimensions are shown in Fig. 3. Assemble and install accessory roof curb in accordance with instructions shipped with the curb.

Curb should be level. This is necessary for unit drain to function properly. Unit leveling tolerances are shown in Fig. 4. Refer to Accessory Roof Curb Installation Instructions for additional information as required.

Install insulation, cant strips, roofing felt, and counter flashing as shown. *Ductwork must be attached to curb and not to the unit. The accessory thru-the-base power connection package must be installed before the unit is set on the roof curb.*

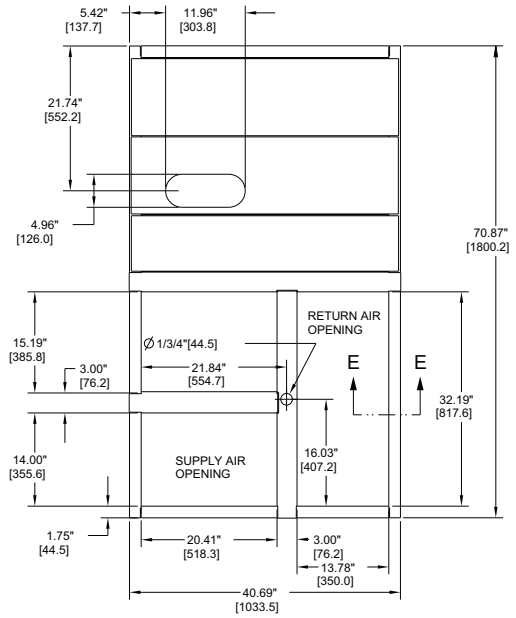
If electric and control wiring is to be routed through the basepan, attach the accessory thru-the-base service connections to the basepan in accordance with the accessory installation instructions.

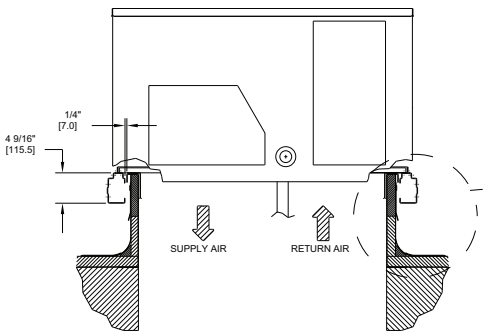
NOTE: The gasketing of the unit to the roof curb is critical for a watertight seal. Install gasket supplied with the roof curb as shown in Fig. 3. Improperly applied gasket can also result in air leaks and poor unit performance.

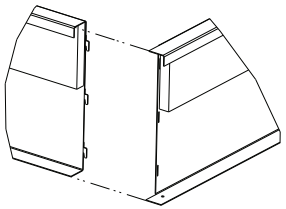
ROOF CURB ACCESSORY #	A
CRRFCURB001A01	14" [356]
CRRFCURB002A01	24" [610]

NOTES:
1. ROOFCURB ACCESSORY IS SHIPPED DISASSEMBLED.
2. INSULATED PANELS: 25.4 [1"] THK. POLYURETHANE FOAM, 44.5 [1-3/4] # DENSITY.
3. DIMENSIONS IN [ ] ARE IN MILLIMETERS.
4. ROOFCURB: 18 GAGE STEEL.
5. ATTACH DUCTWORK TO CURB. (FLANGES OF DUCT REST ON CURB).
6. SERVICE CLEARANCE 4 FEET ON EACH SIDE.
7. ▨ DIRECTION OF AIR FLOW.
8. CONNECTOR PACKAGE CRBTMPWR001A01 IS FOR THRU-THE-CURB GAS TYPE PACKAGE CRBTMPWR003A01 IS FOR THRU-THE-BOTTOM TYPE GAS CONNECTIONS.

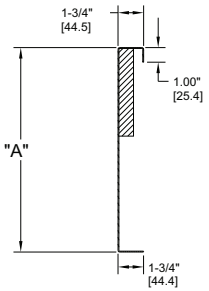
CONNECTOR PKG. ACC.	GAS CONNECTION TYPE	GAS FITTING	POWER WIRING FITTING	CONTROL WIRING FITTING	ACCESSORY CONVENIENCE OUTLET WIRING CONNECTOR
CRBTMPWR001A01	THRU THE CURB	3/4" [19] NPT	3/4" [19] NPT	1/2" [12.7] NPT	1/2" [12.7] NPT
CRBTMPWR003A01	THRU THE BOTTOM	1/2" [12.7] NPT			







VIEW "B"
CORNER DETAIL



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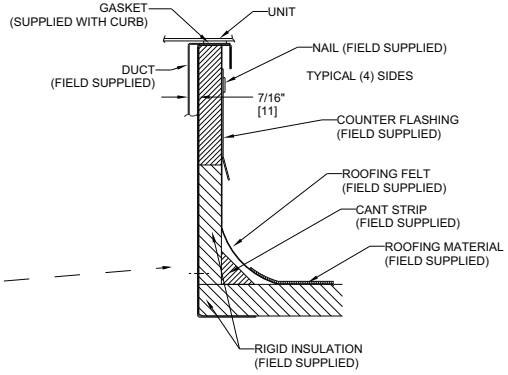
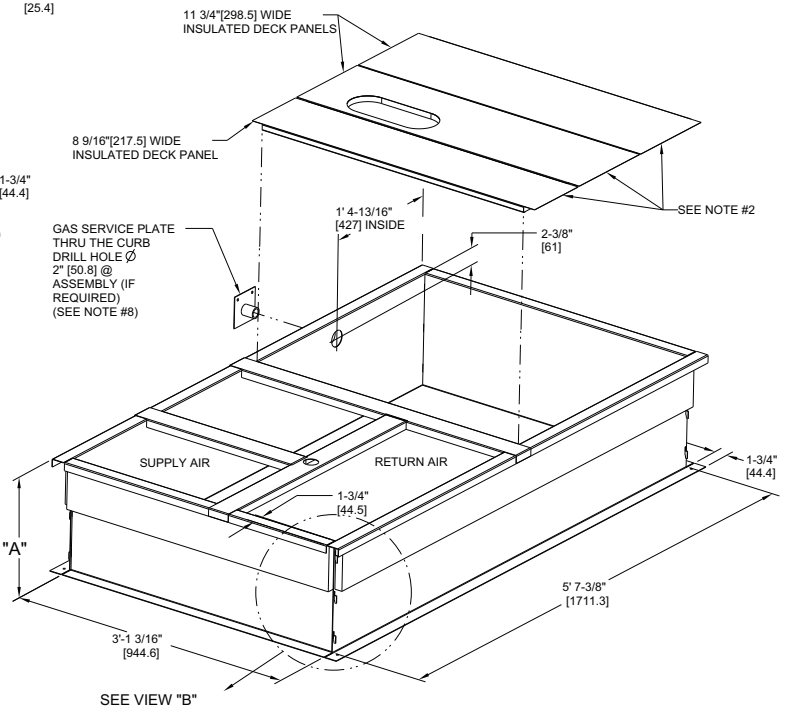


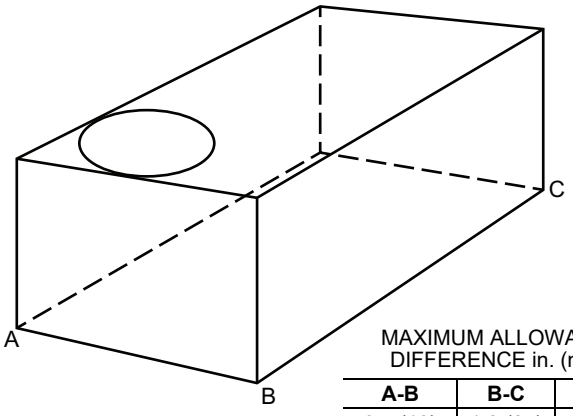


CERTIFIED DRAWING

REV	REVISION RECORD	DATE	BY	CHK'D	APP'D	ECN NO.
A	OVERALL DIM. 5'-7 3/8" WAS 5'-7 7/8; 18GA MATERIAL WA 16 GA.; NAIL FIELD SUPPLIED WAS WITH CURB	04/22/13	MMC	-	-	1067898

DRAWING RELEASE LEVEL: PRODUCTION			
THIRD ANGLE PROJECTION	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON: 1 DEC ± - 2 DEC ± - 3 DEC ± - ANG ± °		
MATERIAL - - -	AUTHORIZATION NUMBER 1041738	TITLE: CURB ASY, ROOF	
ENGINEERING REQUIREMENTS T-005, Y-002	ENGINEERING - - MANUFACTURING - -	SIZE D	DRAWING NUMBER 48TC400427 SHEET 5 OF 5 REV B
WEIGHT: -	DRAFTER MMC 06/17/11 CHECKER - -		
SURFACE FINISH - MFG/PURCH PURCH	MODEL (INTERNAL USE ONLY)	NEXT DRAWING - SCALE N/A	DISTRIBUTION MMC

Fig. 3 — Roof Curb Details



MAXIMUM ALLOWABLE DIFFERENCE in. (mm)

A-B	B-C	A-C
0.5 (13)	1.0 (25)	1.0 (25)

Fig. 4 — Unit Leveling Tolerances

SLAB MOUNT (HORIZONTAL UNITS ONLY)

Provide a level concrete slab that extends a minimum of 6 in. (150 mm) beyond unit cabinet. Install a gravel apron in front of condenser coil air inlet to prevent grass and foliage from obstructing airflow.

NOTE: Horizontal units may be installed on a roof curb if required.

ALTERNATE UNIT SUPPORT (IN LIEU OF CURB OR SLAB MOUNT)

A non-combustible sleeper rail can be used in the unit curb support area. If sleeper rails cannot be used, support the long sides of the unit with a minimum of 3 equally spaced 4 in. x 4 in. (102 mm x 102 mm) pads on each side.

Step 5 — Field Fabricate Ductwork

Cabinet return-air static pressure (a negative condition) shall not exceed 0.35 in. wg (87 Pa) with economizer or 0.45 in. wg (112 Pa) without economizer.

For vertical ducted applications, secure all ducts to roof curb and building structure. *Do not connect ductwork to unit.*

Fabricate supply ductwork so that the cross sectional dimensions are equal to or greater than the unit supply duct opening dimensions for the first 18 in. (458 mm) of duct length from the unit basepan.

Insulate and weatherproof all external ductwork, joints, and roof openings with counter flashing and mastic in accordance with applicable codes.

Ducts passing through unconditioned spaces must be insulated and covered with a vapor barrier.

If a plenum return is used on a vertical unit, the return should be ducted through the roof deck to comply with applicable fire codes.

⚠ CAUTION

PROPERTY DAMAGE HAZARD

Failure to follow this caution may result in damage to roofing materials.

Membrane roofs can be cut by sharp sheet metal edges. Be careful when placing any sheet metal parts on such roof.

UNITS WITH ACCESSORY OR OPTIONAL ELECTRIC HEATERS

All installations require a minimum clearance to combustible surfaces of 1 in. (25 mm) from duct for first 12 in. (305 mm) away from unit.

Outlet grilles must not lie directly below unit discharge.

⚠ WARNING

PERSONAL INJURY HAZARD

Failure to follow this warning could cause personal injury.

For vertical supply and return units, tools or parts could drop into ductwork and cause an injury. Install a 90 degree turn in the return ductwork between the unit and the conditioned space. If a 90 degree elbow cannot be installed, then a grille of sufficient strength and density should be installed to prevent objects from falling into the conditioned space. Due to electric heater, supply duct will require 90 degree elbow.

Step 6 — Rig and Place Unit

Keep unit upright and do not drop. Spreader bars are required. Rollers may be used to move unit across a roof. Rigging materials under unit (cardboard or wood) must be removed PRIOR to placing the unit on the roof curb. Level by using unit frame as a reference. See Table 2 on page 7 and Fig. 5 for additional information.

Lifting holes are provided in base rails as shown in Fig. 5. Refer to rigging instructions on unit.

Rigging materials under the unit (cardboard or wood to prevent base pan damage) must be removed PRIOR to placing the unit on the roof curb.

Before setting the unit onto the curb, recheck gasketing on curb.

⚠ CAUTION

UNIT DAMAGE HAZARD

Failure to follow this caution may result in equipment damage.

All panels must be in place when rigging. Unit is not designed for handling by fork truck when packaging is removed.

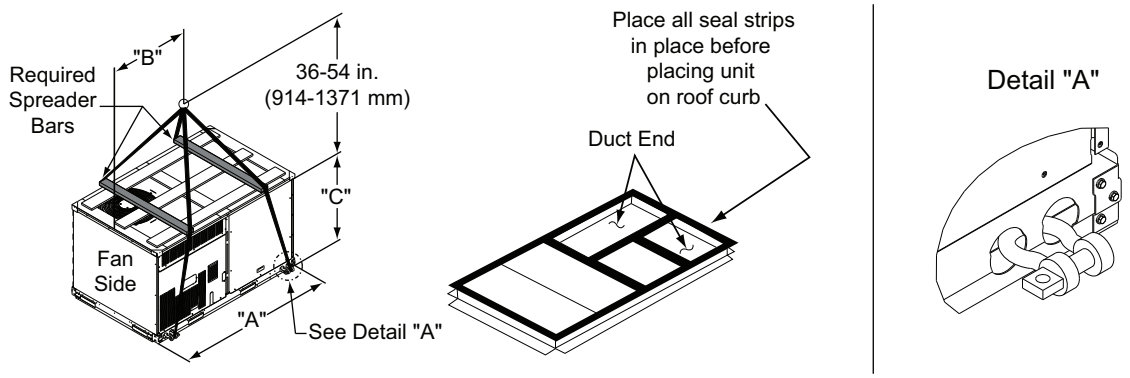
If using top crate as spreader bar, once unit is set, carefully lower wooden crate off building roof top to ground. Ensure that no people or obstructions are below prior to lowering the crate.

POSITIONING ON CURB

Position unit on roof curb so that the following clearances are maintained: 1/4 in. (6.4 mm) clearance between the roof curb and the base rail inside the front and rear, 0.0 in. clearance between the roof curb and the base rail inside on the duct end of the unit. This will result in the distance between the roof curb and the base rail inside on the condenser end of the unit being approximately 1/4 in. (6.4 mm).

Although unit is weatherproof, guard against water from higher level runoff and overhangs.

After unit is in position, remove rigging skids and shipping materials.



NOTE(S):
1. SPREADER BARS ARE REQUIRED. Top damage will occur if spreader bars are not used.
2. Hook rigging shackles through holes in base rail, as shown in Detail A. Holes in base rails are centered around the unit center of gravity. Use wooden top to prevent rigging straps from damaging unit.

UNIT	MAXIMUM WEIGHT		DIMENSIONS					
			A		B		C	
	lb	kg	in.	mm	in.	mm	in.	mm
50JC-*04	928	421	74.5	1890	34.8	885	41.5	1055
50JC-*05	979	444	74.5	1890	34.8	885	41.5	1055
50JC-*06	981	445	74.5	1890	34.8	885	41.5	1055

Fig. 5 — Rigging Details

Step 7 — Convert to Horizontal and Connect Ductwork (When Required)

Unit is shipped in the vertical duct configuration. Unit without factory-installed economizer or return-air smoke detector option may be field-converted to horizontal ducted configuration. To convert to horizontal configuration, remove screws from side duct opening covers (see Fig. 6) and remove covers. Use the screws to install the covers on vertical duct openings with the insulation-side down. The panels must be inserted into the notches on the basepan to properly seal. The notches are covered by the tape used to secure the insulation to the basepan and are not easily seen. See Fig. 7 for position of the notches in the basepan. Seals around duct openings must be tight. Secure with screws as shown in Fig. 8. Cover seams with foil duct tape.

Field-supplied flanges should be attached to horizontal duct openings and all ductwork should be secured to the flanges. Insulate and weatherproof all external ductwork, joints, and roof or building openings with counter flashing and mastic in accordance with applicable codes.

Do not cover or obscure visibility to the unit's informative data plate when insulating horizontal ductwork.

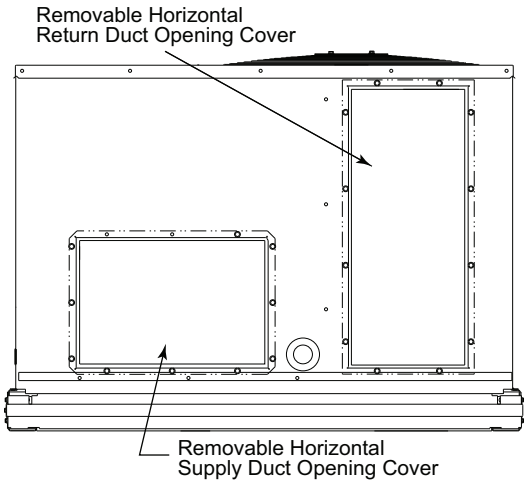


Fig. 6 — Horizontal Conversion Panels

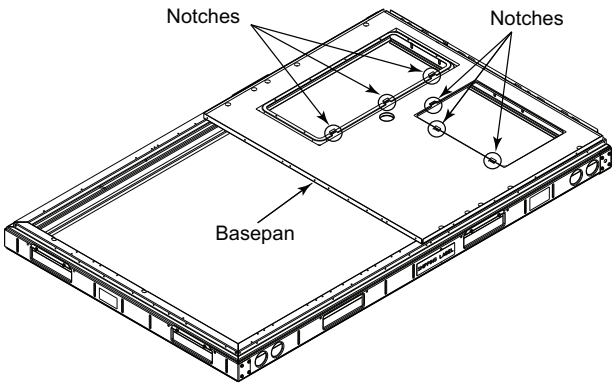


Fig. 7 — Location of Notches

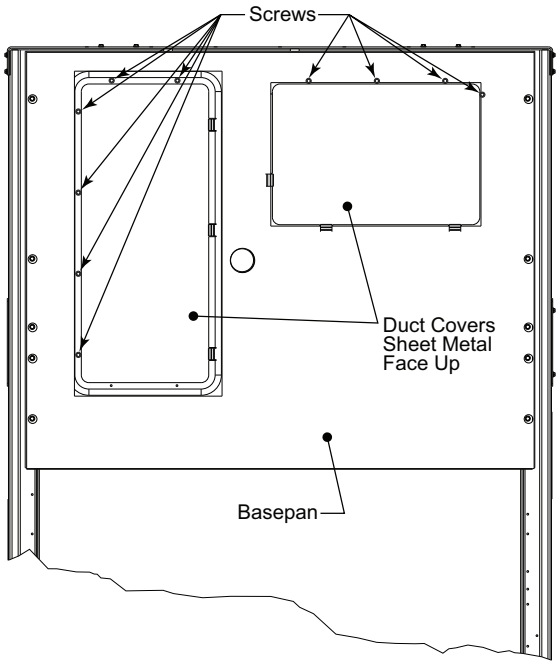


Fig. 8 — Horizontal Duct Panels In Place

Step 8 — Install Outside Air Hood

ECONOMIZER HOOD PACKAGE REMOVAL AND SETUP (FACTORY OPTION)

The hood is shipped in knock-down form and must be field assembled. The indoor coil access panel is used as the hood top while the hood sides, divider and filter are packaged together, attached to a metal support tray using plastic stretch wrap, and shipped in the return air compartment behind the indoor coil access panel. The hood assembly's metal tray is attached to the basepan and also attached to the damper using 2 plastic tie-wraps.

1. To gain access to the hood, remove the filter access panel. See Fig. 9.

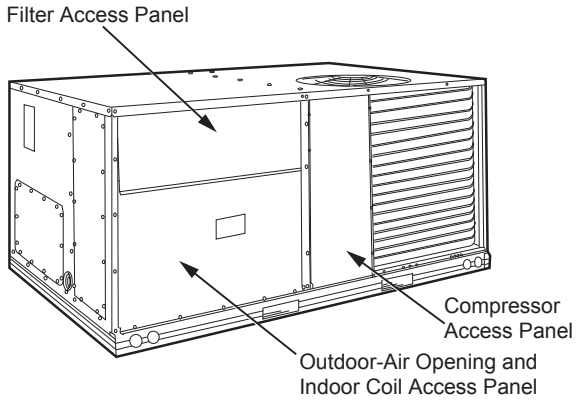


Fig. 9 — Typical Access Panel Locations

2. Locate the (2) screws holding the metal tray to the basepan and remove. Locate and cut the (2) plastic tie-wraps securing the assembly to the damper. See Fig. 10. Avoid damaging any wiring or cutting tie-wraps securing any wiring.

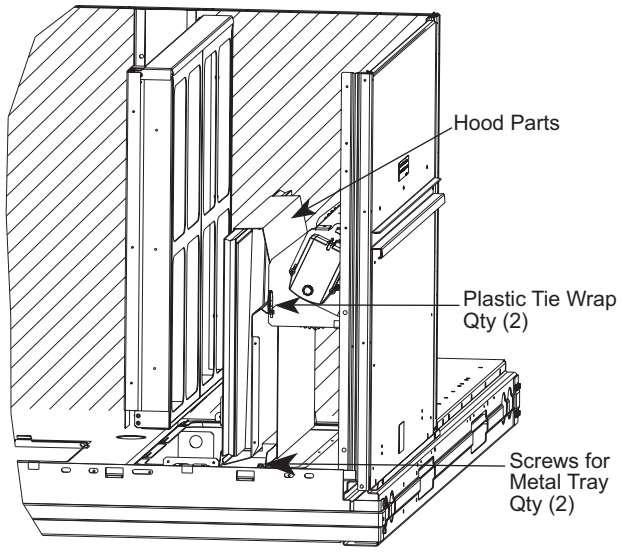


Fig. 10 — Economizer Hood Parts Location

3. Carefully lift the hood assembly (with metal tray) through the filter access opening and assemble per the steps outlined in the following section, "Economizer Hood".

ECONOMIZER HOOD

NOTE: If the power exhaust accessory is to be installed on the unit, the hood shipped with the unit will not be used and must be discarded. Save the aluminum filter for use in the power exhaust hood assembly.

1. The indoor coil access panel will be used as the top of the hood. Remove the screws along the sides and bottom of the indoor coil access panel. See Fig. 11.

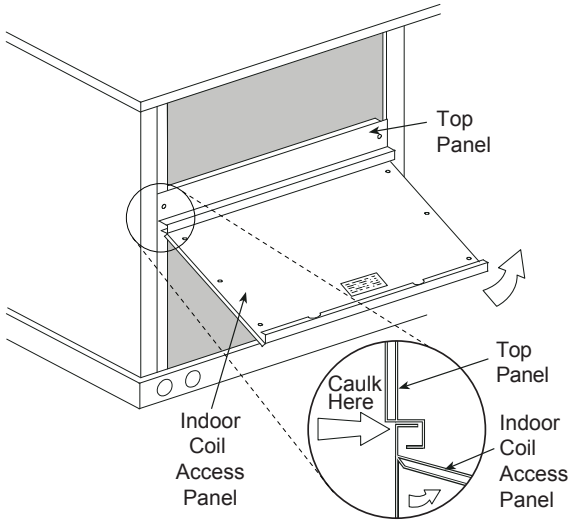


Fig. 11 — Indoor Coil Access Panel Relocation

2. Swing out indoor coil access panel and insert the hood sides under the panel (hood top). Use the screws provided to attach the hood sides to the hood top. Use screws provided to attach the hood sides to the unit. See Fig. 12.

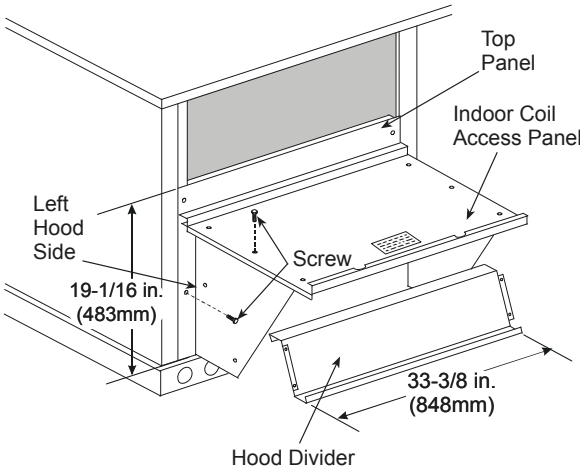


Fig. 12 — Economizer Hood Construction

3. Remove the shipping tape holding the economizer barometric relief damper in place (economizer only).
4. Insert the hood divider between the hood sides. See Fig. 12 and 13. Secure hood divider with 2 screws on each hood side. The hood divider is also used as the bottom filter rack for the aluminum filter.
5. Open the filter clips which are located underneath the hood top. Insert the aluminum filter into the bottom filter rack (hood divider). Push the filter into position past the open filter clips. Close the filter clips to lock the filter into place. See Fig. 13.
6. Caulk the ends of the joint between the unit top panel and the hood top.
7. Replace the filter access panel.

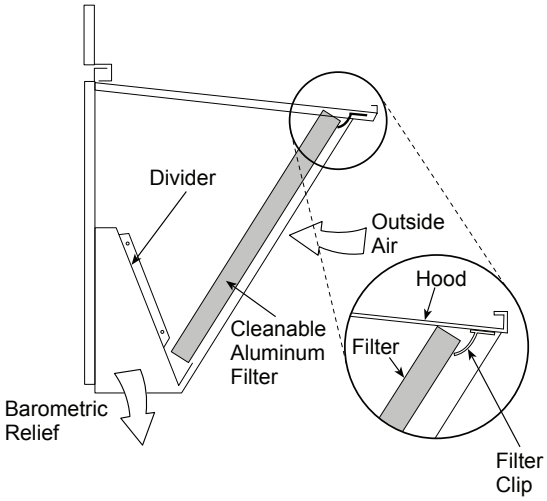


Fig. 13 — Economizer Filter Installation

Step 9 — Units with Hinged Panels Only

If the unit does not have hinged panels, skip this step and continue to Step 10.

Relocate latch shipped inside the compressor compartment behind the hinged compressor door to location shown in Fig. 14 after unit installation.

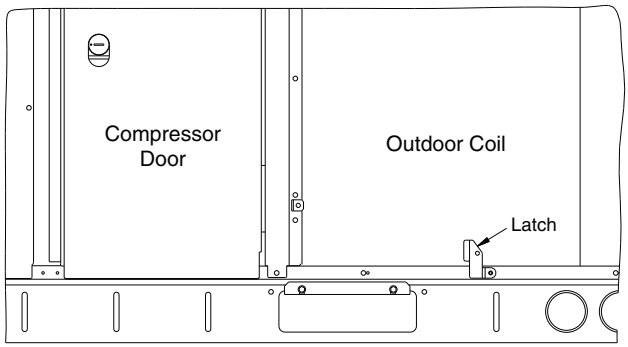


Fig. 14 — Compressor Door Latch Location

Step 10 — Install External Condensate Trap and Line

The unit has one 3/4 in. condensate drain connection on the end of the condensate pan and an alternate connection on the bottom. See Fig. 15. Unit airflow configuration does not determine which drain connection to use. Either drain connection can be used with vertical or horizontal applications.

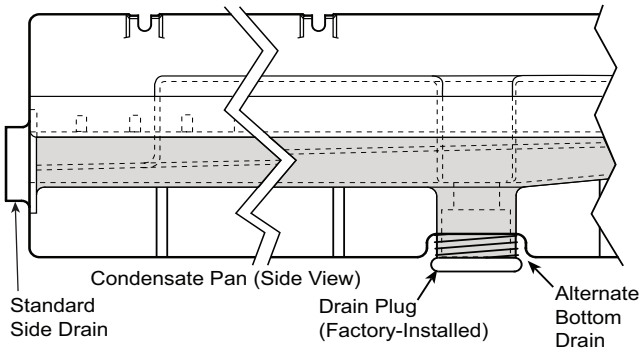
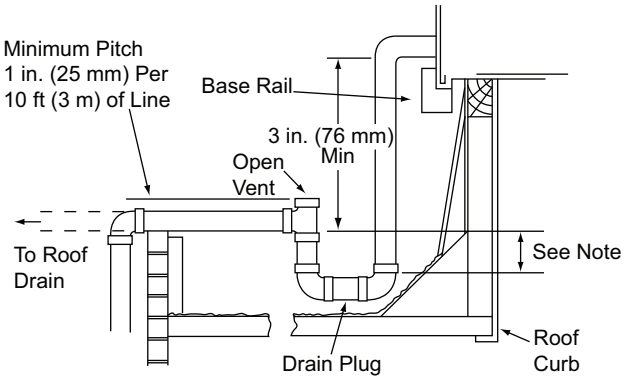


Fig. 15 — Condensate Drain Pan (Side View)

When using the standard side drain connection, ensure that the red plug in the alternate bottom connection is tight. Do this before setting the unit in place. The red drain pan plug can be tightened with a 1/2 in. square socket drive extension.

To use the alternate bottom drain connection, remove the red drain plug from the bottom connection (use a 1/2 in. square socket drive extension) and install it in the side drain connection.

The piping for the condensate drain and external trap can be completed after the unit is in place. See Fig. 16.



NOTE: Trap should be deep enough to offset maximum unit static difference. A 4 in. (102 mm) trap is recommended.

Fig. 16 — Condensate Drain Pan Piping Details

All units must have an external trap for condensate drainage. Install a trap at least 4 in. (102 mm) deep and protect against freeze-up. If drain line is installed downstream from the external trap, pitch the line away from the unit at 1 in. per 10 ft (25 mm per 3 m) of run. Do not use a pipe size smaller than the unit connection (3/4 in.).

Step 11 — Make Electrical Connections

⚠ WARNING

ELECTRIC SHOCK HAZARD

Failure to follow this warning could result in personal injury or death.

Unit cabinet must have an uninterrupted, unbroken electrical ground to minimize the possibility of personal injury if an electrical fault should occur. This ground may consist of electrical wire connected to unit ground lug in control compartment, or conduit approved for electrical ground when installed in accordance with NEC; ANSI/NFPA 70, latest edition (in Canada, Canadian Electrical Code CSA [Canadian Standards Association] C22.1), and local electrical codes.

NOTE: Field-supplied wiring shall conform with the limitations of minimum 63°F (33°C) rise.

FIELD POWER SUPPLY

If equipped with optional powered convenience outlet, the power source leads to the convenience outlet's transformer primary are not factory connected. Installer must connect these leads according to required operation of the convenience outlet. If an always-energized convenience outlet operation is desired, connect the source leads to the line side of the unit-mounted disconnect. (Check with local codes to ensure this method is acceptable in your area.) If a de-energize via unit disconnect switch operation of the convenience outlet is desired, connect the source leads to the load side of the unit disconnect. On a unit without a unit-mounted disconnect, connect the source leads to compressor contactor C pressure lugs with unit field power leads. See Convenience Outlets on page 15 for power transformer connections.

The field power wires are connected to the unit at line-side pressure lugs on compressor contactor C (see wiring diagram label for control box component arrangement) or at factory-installed option non-fused disconnect switch or HACR. Maximum wire size is no. 2ga AWG (copper only) per pole on contactors, no. 2ga AWG (copper only) per pole on optional disconnect or HACR, and 4/0 AWG (copper only, see Fig. 17) per pole on terminal or fuse blocks on units with single point box. See Fig. 18 and unit label diagram for field power wiring connections.

NOTE: Unit may be equipped with short test leads (pigtails) on the field line connection points on contactor C or optional disconnect switch. These leads are for factory-run test purposes only; remove and discard before connecting field power wires to unit connection points. Make field power connections directly to line connection pressure lugs only.

UNITS WITH FACTORY-INSTALLED NON-FUSED DISCONNECT OR HACR

The factory-installed optional non-fused disconnect (NFD) or HACR switch is located in a weatherproof enclosure located under the main control box. The manual switch handle and shaft are shipped in the disconnect or HACR enclosure. Assemble the shaft and handle to the switch at this point. Discard the factory test leads (see Fig. 18).

⚠ WARNING

FIRE HAZARD

Failure to follow this warning could result in personal injury, death, or property damage.

Do not connect aluminum wire between disconnect switch and unit. Use only copper wire.

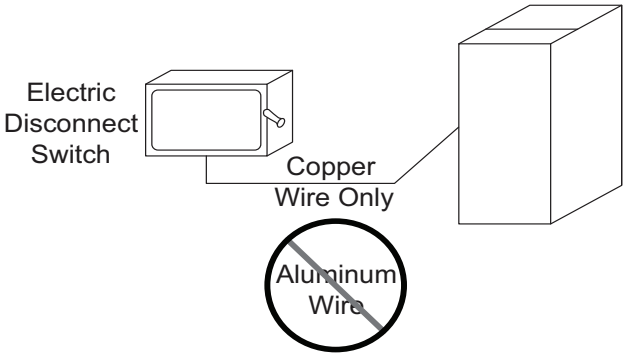
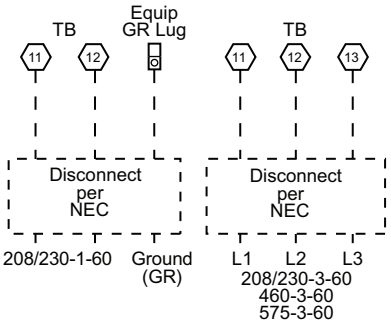


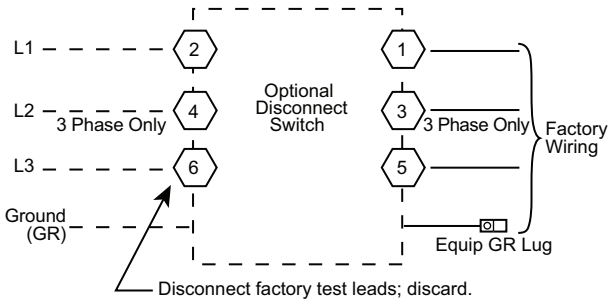
Fig. 17 — Disconnect Switch and Unit

Connect field power supply conductors to LINE side terminals when the switch enclosure cover is removed to attach the handle.

Units Without Single Point Box, Disconnect or HACR Option



Units With Disconnect or HACR Option



Units With Electric Heat Option with Single Point Box and Without Disconnect or HACR Option

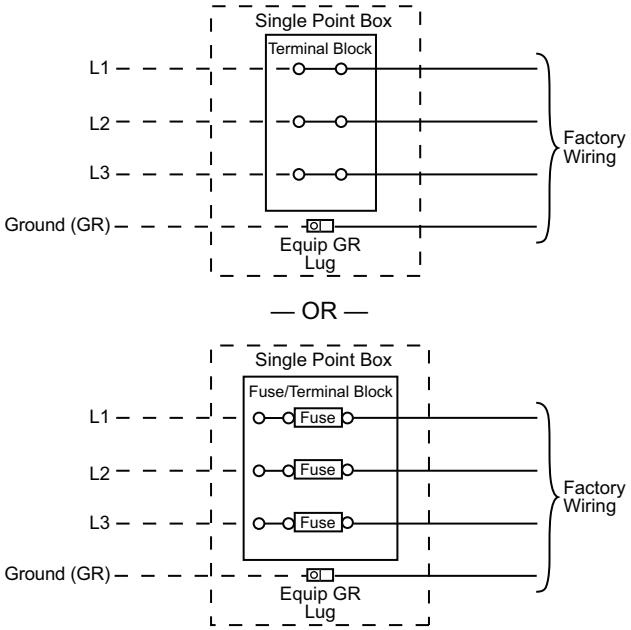


Fig. 18 — Power Wiring Connections

Field-Install the NFD Shaft and Handle

1. Remove the control box access panel. The NFD enclosure is located below the control box (see Fig. 19).
2. Remove (3) cap head screws that secure the NFD enclosure front cover — (2) on the face of the cover and (1) on the left side cover. See Fig. 20.
3. Remove the front cover of the NFD enclosure.
4. Make sure the NFD shipped from the factory is at OFF position (the arrow on the black handle knob is at OFF).
5. Insert the shaft with the cross pin on the top of the shaft in the horizontal position. See Fig. 20.
6. Measure from the tip of the shaft to the top surface of the black pointer; the measurement should be 3.75 to 3.88 in. (95 to 99 mm).
7. Tighten the locking screw to secure the shaft to the NFD.
8. Turn the handle to the OFF position with red arrow pointing at OFF.
9. Install the handle on to the painted cover horizontally with the red arrow pointing to the left.
10. Secure the handle to the painted cover with (2) screws and lock washers supplied.
11. Engaging the shaft into the handle socket, re-install (3) hex screws on the NFD enclosure.
12. Re-install the unit front panel.

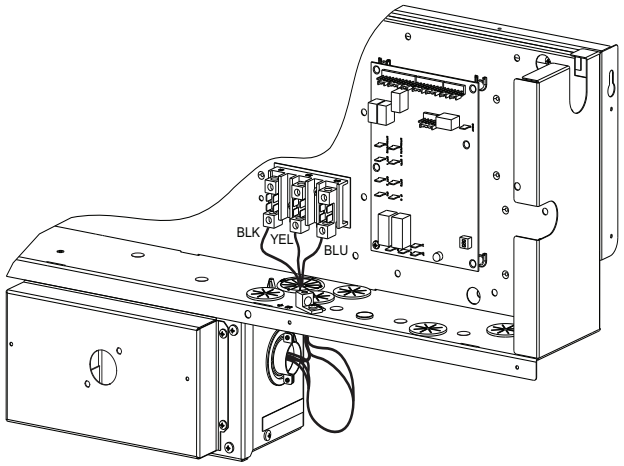


Fig. 19 — NFD Enclosure Location

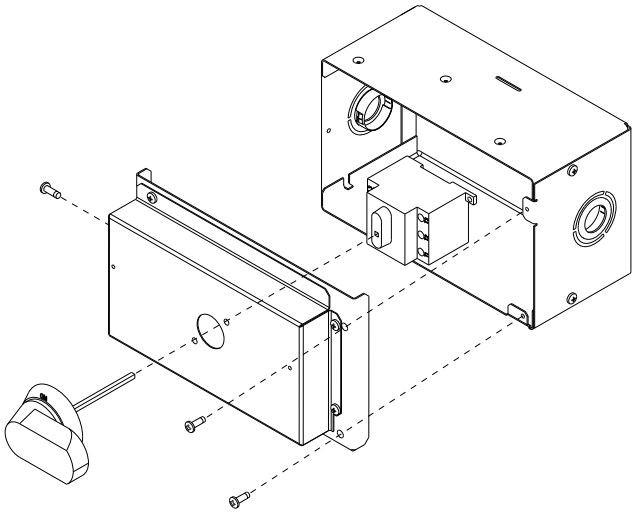


Fig. 20 — NFD Handle and Shaft Assembly

Field-Install the HACR Shaft and Handle

1. Remove the control box access panel. The HACR enclosure is located below the control box (see Fig. 21).
2. Remove (3) cap head screws that secure the HACR enclosure — (2) on the face of the cover and (1) on the left side cover. See Fig. 22.
3. Remove the front cover of the HACR enclosure.
4. Make sure the HACR shipped from the factory is at OFF position (the white arrow pointing at OFF).
5. Insert the shaft all the way with the cross pin on the top of the shaft in the horizontal position. See Fig. 22.
6. Tighten the locking screw to secure the shaft to the HACR.
7. Turn the handle to the OFF position with red arrow pointing at OFF.

8. Install the handle on to the painted cover horizontally with the red arrow pointing to the left.
9. Secure the handle to the painted cover with (2) screws and lock washers supplied.
10. Engaging the shaft into the handle socket, re-install (3) hex screws on the HACR enclosure.
11. Re-install the unit front panel.

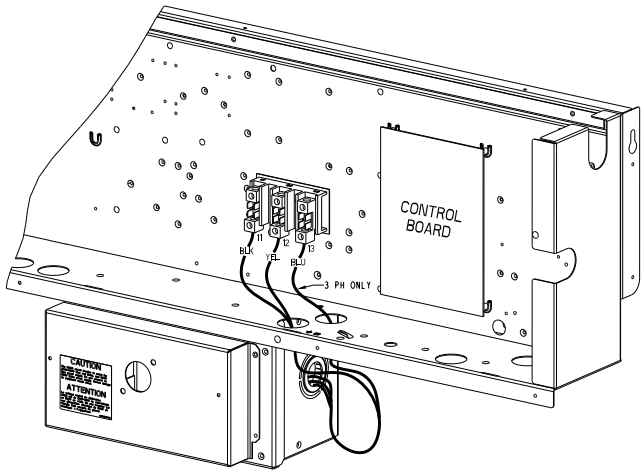


Fig. 21 — HACR Enclosure Location

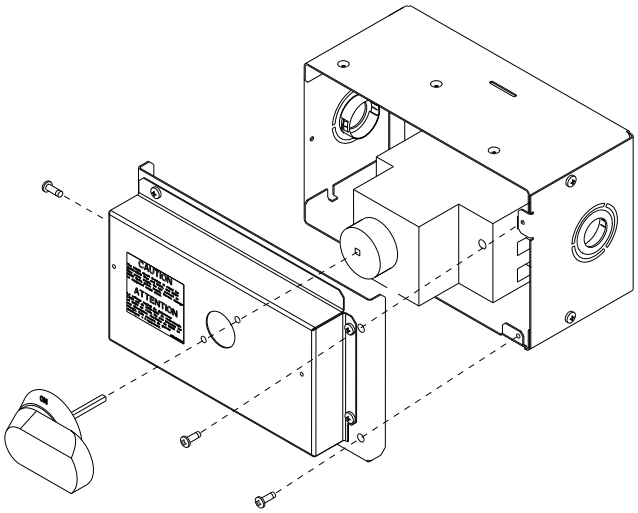


Fig. 22 — HACR Handle and Shaft Assembly

UNITS WITHOUT FACTORY-INSTALLED NON-FUSED DISCONNECT OR HACR

When installing units, provide a disconnect switch per NEC (National Electrical Code) of adequate size. Disconnect sizing data is provided on the unit informative plate. Locate on unit cabinet or within sight of the unit per national or local codes. Do not cover unit informative plate if mounting the disconnect on the unit cabinet.

ALL UNITS

All field wiring must comply with NEC and all local codes. Size wire based on MCA (Minimum Circuit Amps) on the unit informative plate. See Fig. 18 and the unit label diagram for power wiring connections to the unit power terminal blocks and equipment ground. Maximum wire size is no. 2ga AWG (copper only) per pole on contactors, no. 2ga AWG (copper only) per pole on optional disconnect or HACR, and 4/0 AWG (copper only) per pole on terminal or fuse block on units with single point box. See Fig. 18 and unit label diagram for field power wiring connections.

Provide a ground fault and short circuit over-current protection device (fuse or breaker) per NEC Article 440 (or local codes). Refer to unit informative data plate for MOCP (Maximum Over-Current Protection) device size.

NOTE: Units ordered with factory installed HACR do not need an additional ground fault and short circuit over-current protective device unless required by local codes.

All field wiring must comply with the NEC and local requirements.

All units except 208/230v units are factory wired for the voltage shown on the nameplate. *If the 208/230v unit is to be connected to a 208v power supply, the control transformer must be rewired by removing the black wire with the 1/4 in. female spade connector from the 230v connection and moving it to the 200v 1/4 in. male terminal on the primary side of the transformer. Refer to unit label diagram for additional information. Field power wires will be connected at line-side pressure lugs on the power terminal block or at factory-installed option non-fused disconnect.*

NOTE: Check all factory and field electrical connections for tightness.

CONVENIENCE OUTLETS

⚠ WARNING

ELECTRICAL OPERATION HAZARD

Failure to follow this warning could result in personal injury or death.

Units with convenience outlet circuits may use multiple disconnects. Check convenience outlet for power status before opening unit for service. Locate its disconnect switch, if appropriate, and open it. Lock-out and tag-out this switch, if necessary.

Two types of convenience outlets are offered on 50JC models: non-powered and unit-powered. Both types provide a 125-v GFCI (ground-fault circuit interrupter) duplex receptacle rated at 15A behind a hinged waterproof access cover, located on the end panel of the unit. See Fig. 23.

Figure 24 shows the Convenience Outlet Utilization label which is located below the convenience outlet.

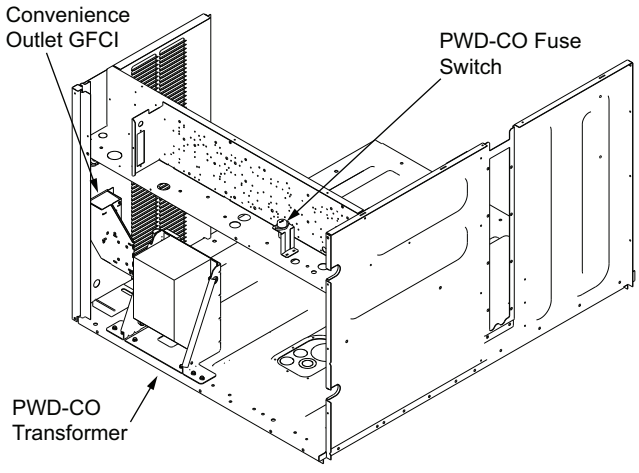


Fig. 23 — Convenience Outlet Location

NOTICE

Convenience Outlet Utilization

Maximum Continuous use: 15 Amps for receptacle outlets, and 8 Amps for factory supplied transformers

50HJ542739 | C

Fig. 24 — Convenience Outlet Utilization Notice Label

Installing Weatherproof Cover

A weatherproof while-in-use cover for the factory-installed convenience outlets is now required by UL standards. This cover cannot be factory-mounted due its depth; it must be installed at unit installation. For shipment, the convenience outlet is covered with a blank cover plate.

The weatherproof cover kit is secured to the basepan underneath the control box. See Fig. 25.

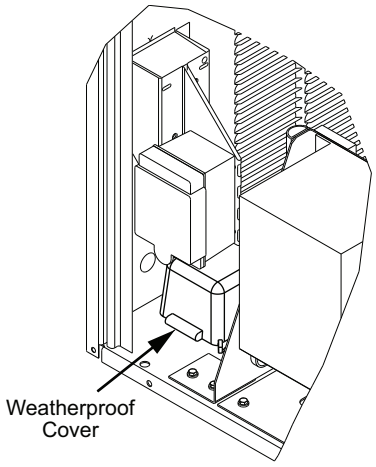


Fig. 25 — Weatherproof Cover — Shipping Location on Units with Factory-Installed DDC

⚠ WARNING

ELECTRICAL OPERATION HAZARD

Failure to follow this warning could result in personal injury or death.

Using unit-mounted convenience outlets: Units with unit-mounted convenience outlet circuits will often require that two disconnects be opened to de-energize all power to the unit. Treat all units as electrically energized until the convenience outlet power is also checked and de-energization is confirmed. Observe National Electrical Code Article 210, Branch Circuits, for use of convenience outlets.

1. Remove the blank cover plate at the convenience outlet; discard the blank cover.
2. Loosen the 2 screws at the GFCI duplex outlet, until approximately 1/2 in. (13 mm) under screw heads is exposed. Press the gasket over the screw heads.
3. Slip the backing plate over the screw heads at the keyhole slots and align with the gasket; tighten the 2 screws until snug (do not over-tighten).
4. Mount the weatherproof cover to the backing plate as shown in Fig. 26.
5. Remove 2 slot fillers in the bottom of the cover to permit service tool cords to exit the cover.
6. Check for full closing and latching.

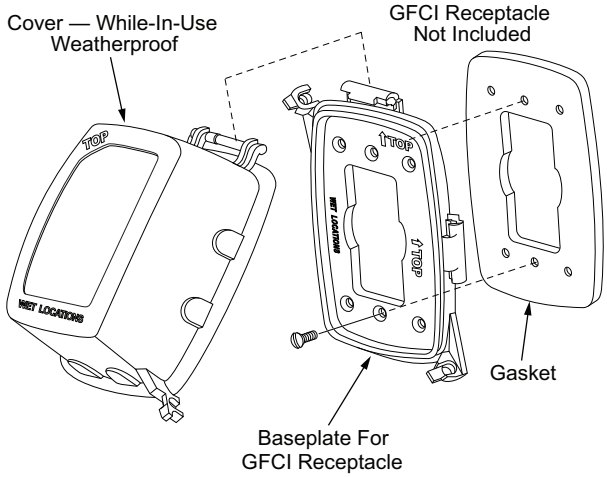


Fig. 26 — Weatherproof Cover Installation

Non-Powered Convenience Outlet

This type requires the field installation of a general-purpose 125-v 15A circuit powered from a source elsewhere in the building. Observe national and local codes when selecting wire size, fuse or breaker requirements, and disconnect switch size and location. Route 125-v power supply conductors into the bottom of the utility box containing the duplex receptacle.

Unit-Powered Convenience Outlet

A unit-mounted transformer is factory-installed to step down the main power supply voltage to the unit to 115-v at the duplex receptacle. This option also includes a manual switch with fuse, located in a utility box and mounted on a bracket behind the convenience outlet; access is through the unit's control box access panel. See Fig. 23.

The primary leads to the convenience outlet transformer are not factory-connected. Selection of primary power source is a customer option. If local codes permit, the transformer primary leads can be connected at the line-side terminals on the unit-mounted non-fused disconnect or HACR breaker switch; this will provide service power to the unit when the unit disconnect switch or HACR switch is open. Other connection methods will result in the convenience outlet circuit being de-energized when the unit disconnect or HACR switch is open. See Fig. 27.

Using Unit-Mounted Convenience Outlets

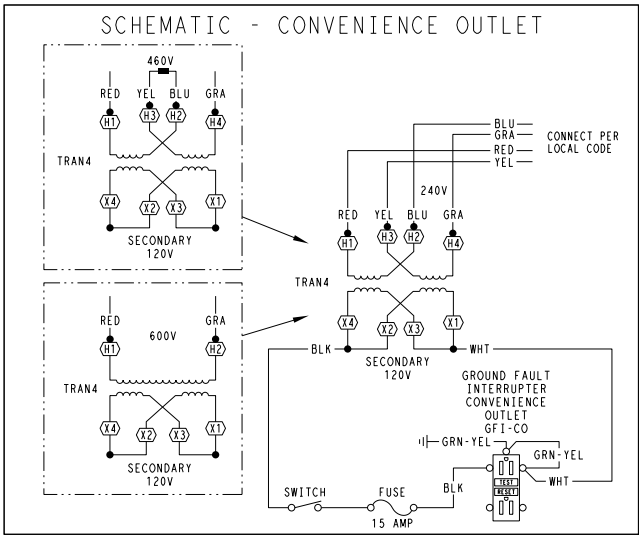
Units with unit-mounted convenience outlet circuits will often require that 2 disconnects be opened to de-energize all power to the unit. Treat all units as electrically energized until the convenience outlet power is also checked and de-energization is confirmed. Observe National Electrical Code Article 210, Branch Circuits, for use of convenience outlets.

Fuse On Power Type

The factory fuse is a Bussman[1] "Fusetron" T-15, non-renewable screw-in (Edison base) type plug fuse.

Test the GFCI receptacle by pressing the TEST button on the face of the receptacle to trip and open the receptacle. Check for proper grounding wires and power line phasing if the GFCI receptacle does not trip as required. Press the RESET button to clear the tripped condition.

1. Third-party trademarks and logos are the property of their respective owners.



UNIT VOLTAGE	CONNECT AS	PRIMARY CONNECTIONS	TRANSFOMER TERMINALS
208, 230	240	L1: RED + YEL L2: BLU + GRA	H1 + H3 H2 + H4
460	480	L1: RED Splice BLU + YEL L2: GRA	H1 H2 + H3 H4
575	600	L1: RED L2: GRA	H1 H2

Fig. 27 — Powered Convenience Outlet Wiring

HACR AMP RATING

The amp rating of the HACR factory-installed option is based on the size, voltage, indoor motor and other electrical options of the unit as shipped from the factory. If field-installed accessories are added or changed in the field (for example, power exhaust, ERV), the HACR may no longer be of the proper amp rating and therefore will need to be removed from the unit. See unit nameplate and label on factory-installed HACR for the amp rating of the HACR that was shipped with the unit from the factory (Fig. 28). See unit nameplates for the proper fuse, HACR or maximum over-current protection device required on the unit with field installed accessories.

⚠ CAUTION

The HACR circuit breaker is rated for 240V/480V Wye and Delta, and 600V Wye power supply. Do not connect to 600V Delta power supply. Severe damage to equipment would occur.

⚠ ATTENTION

Le voltage nominal du disjoncteur CACR est de 240V/480V en étoile-triangle, et 600V en étoile. Ne pas brancher sur une alimentation électrique de 600V en triangle. Cela causera de graves dommages à l'équipment.

48TM503700

Fig. 28 — HACR Caution Label

FACTORY OPTION THRU-BASE CONNECTIONS

This service connection kit consists of a 1/2 in. electrical bulkhead connector and a 3/4 in. electrical bulkhead connector, connected to an "L" bracket covering the embossed (raised) section of the unit basepan in the condenser section (see Fig. 29 for shipping position).

The 3/4 in. bulkhead connector enables the low-voltage control wires to pass through the basepan. The 1/2 in. bulkhead connector allows the high-voltage power wires to pass through the basepan. See Fig. 30.

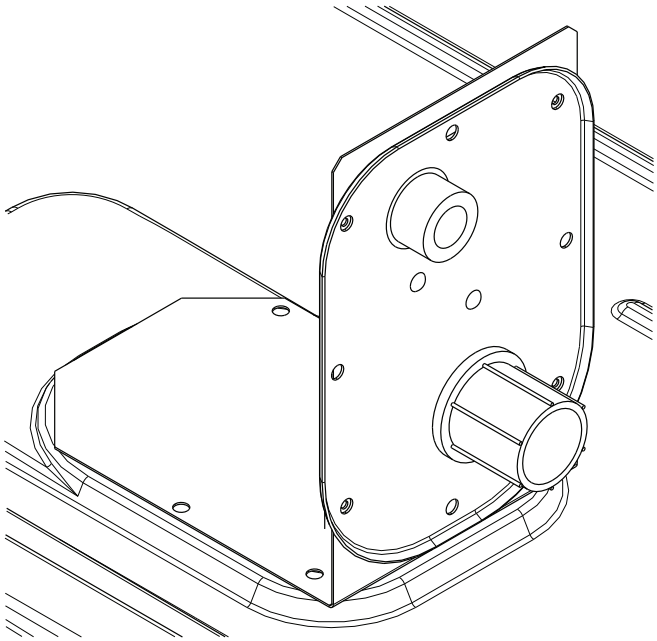


Fig. 29 — Thru-the-Base Fitting Assembly (Shown in Shipping Position)

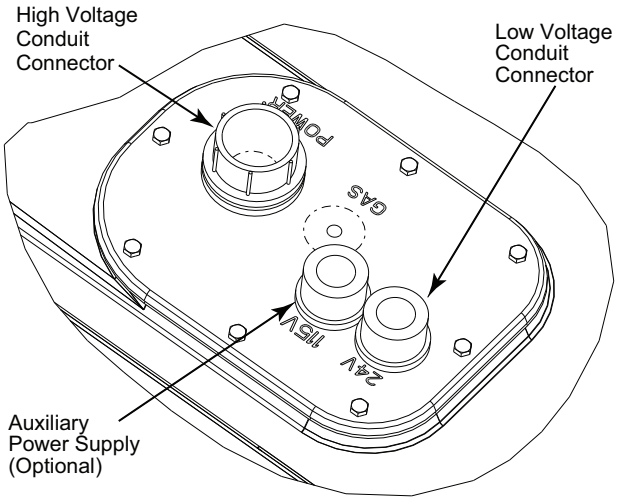


Fig. 30 — Thru-Base Connection Fittings

1. Remove the "L" bracket assembly from the unit.
2. Remove connector plate assembly from the "L" bracket and discard the "L" bracket, but retain the washer head screws and the gasket (located between the "L" bracket and the connector plate assembly).

NOTE: Take care not to damage the gasket, as it is reused in the following step.

3. Place the gasket over the embossed area in the basepan, aligning the holes in the gasket to the holes in the basepan. See Fig. 30.
4. Install the connector plate assembly to the basepan using 8 of the washer head screws.

NOTE: If electrical connections are not going to occur at this time, tape or otherwise cover the fittings so that moisture does not get into the building or conduit in the interim.

Check tightness of connector lock nuts before connecting electrical conduits.

Field-supplied and field-installed liquid-tight conduit connectors and conduit may be attached to the connectors on the basepan. Pull correctly rated high voltage and low voltage through appropriate conduits to maintain separation between low voltage and high voltage wires in accordance with UL and NEC requirements. Connect the power conduit to the internal disconnect (if unit is so equipped) or to the external disconnect (through unit side panel). Remove one of the two knockouts located on the bottom left side of the unit control box. Use this hole for the control conduit.

UNITS WITHOUT THRU-BASE CONNECTIONS (ELECTRICAL CONNECTIONS)

1. Install power wiring conduit through side panel openings. Install conduit between disconnect and control box.
2. Install power lines to terminal connections as shown in Fig. 18 on page 14.

Voltage to compressor terminals during operation must be within voltage range indicated on unit nameplate. On 3-phase units, voltages between phases must be balanced within 2% and the current within 10%. Use the formula shown in the example below to determine the percent of voltage imbalance. Operation on improper line voltage or excessive phase imbalance constitutes abuse and may cause damage to electrical components. Such operation would invalidate any applicable Carrier warranty.

Example: Supply voltage is 230-3-60

FIELD CONTROL WIRING

The 50JC unit comes standard with SystemVu controls. An external space sensor or conventional thermostat is required (field-supplied).

SPACE TEMPERATURE SENSOR (SPT)

There are 2 types of space temperature sensors available from Carrier, resistive input non-communicating (T-55, T-56 and T-59) and Rnet communicating (ZS) sensors. Each type has a variety of options consisting of: timed override button, set point adjustment, a LCD screen, combination of humidity or CO_2 sensing and communication tie in. Space temperature can be also be written to from a building network or zoning system.

Figure 31 shows the wiring connections from the accessory space temperature sensors to the SystemVu MBB.

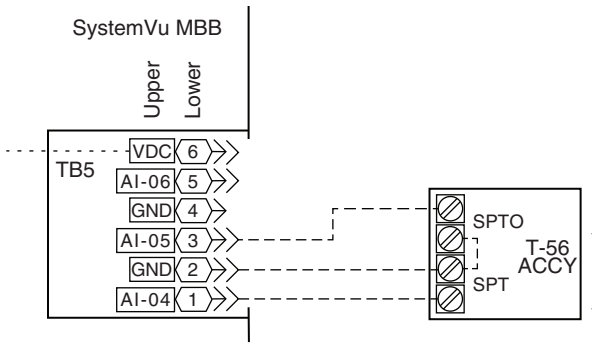


Fig. 31 — Typical Low Voltage SPT Connections

Resistive Non-Communicating Sensor Wiring

For sensor with set point adjustment up to 1000 ft (305m), use 3-conductor shielded cable 20 gauge wire to connect the sensor to the controller. For non set point adjustment (slidebar) or return air duct sensor, an unshielded, 18 or 20 gauge, 2-conductor, twisted pair cable may be used.Refer to Fig. 32 and 33 for typical connections at the sensor.

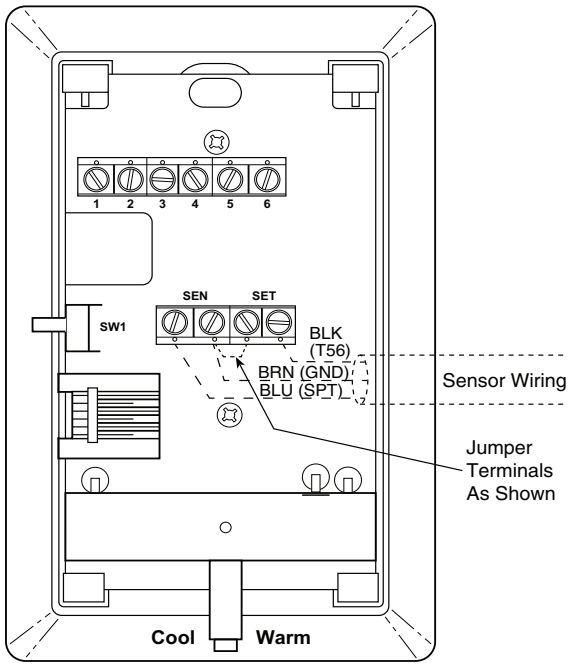


Fig. 32 — Space Temperature Sensor Typical Wiring (33ZCT56SPT)

Space Temperature Sensor (T-55)

The T-55 space temperature sensor (part no. 33ZCT55SPT) is a field-installed accessory. The sensor is installed on a building interior wall to measure room air temperature. The T-55 sensor also includes an override button on the front cover to permit occupants to override the Unoccupied Schedule (if programmed).

TB5-1 Sensor Input

TB5-2 Sensor Common

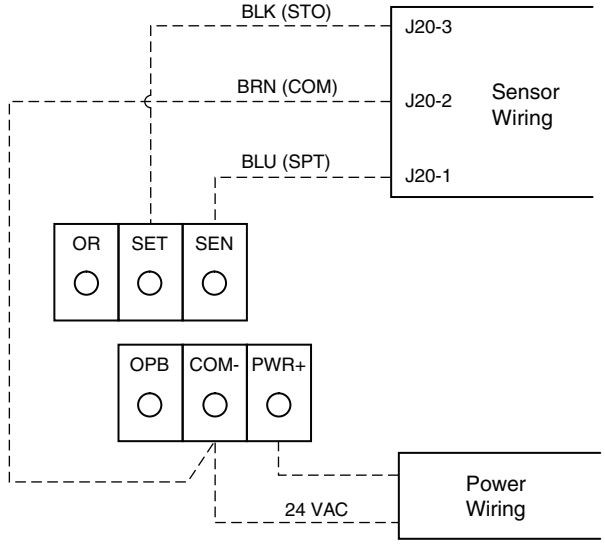
Space Temperature Sensor (T-56)

The T-56 space temperature sensor (part no. 33ZCT56SPT) is a field-installed accessory. This sensor includes a sliding scale on the front cover that permits an occupant to adjust the space temperature set point remotely. The T-56 sensor also includes an override button on the front cover to allow occupants to override the unoccupied schedule (if programmed).

TB5-1 Sensor Input

TB5-2 Sensor Common

TB5-3 Setpoint Offset Input



NOTE: Must use a separate isolated transformer.

Fig. 33 — Space Temperature Sensor Typical Wiring (33ZCT59SPT)

ZS Space Sensors

The ZS Standard, Plus, or Pro can be wired into J20 or J24 of the SystemVu controller. J20 provides an easy field connection plug. A maximum of 5 ZS sensors can be connected but a separate power supply may be needed. Use the ZS SENSOR CFG menu (***SETTINGS → NETWORK SETTINGS***) when setting up the ZS sensors in SystemVu. The Sensor addresses have to be unique and set in the actual sensors via DIP also. The Typical default for the ZS Sensor is address 1. Follow the ZS installation instruction for further details on the sensors. ZS sensor data can be monitored on the SystemVu controller display in the ZS Sensor Info menu (***INPUTS → NETWORK → ZS SENSOR INFO***).

NOTE: Additional ZS sensors must be addressed. Use the jumpers on the ZS sensor's circuit board and refer to the sensor installation instructions for addressing.

For Rnet wiring up to 500ft (152m), use 18 AWG 4 conductor unshielded plenum rated cable. The SystemVu controller J20-RNET connection has a 4 pin PCB connector. Fig. 34 shows sensor Rnet wiring.

J20-1 Sensor Common

J20-2 Sensor Positive (+)

J20-3 Sensor Negative (-)

J20-4 Sensor +12 vdc Power

THERMOSTAT

Select a Carrier-approved accessory thermostat. When electric heat is installed in the 50JC unit, the thermostat must be capable of energizing the G terminal whenever there is a space call for heat (energizing the W1 terminal). The accessory thermostats listed on the unit price pages can provide this signal but they are not configured to enable this signal as shipped.

Install the accessory thermostat according to installation instructions included with the accessory.

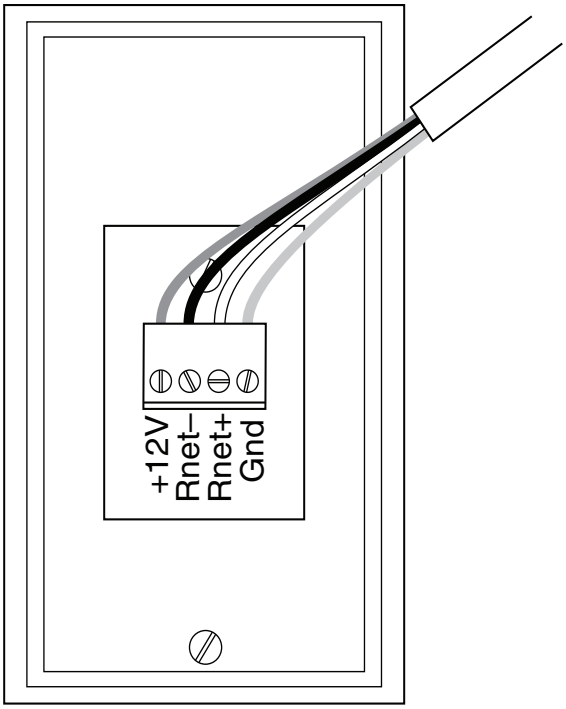
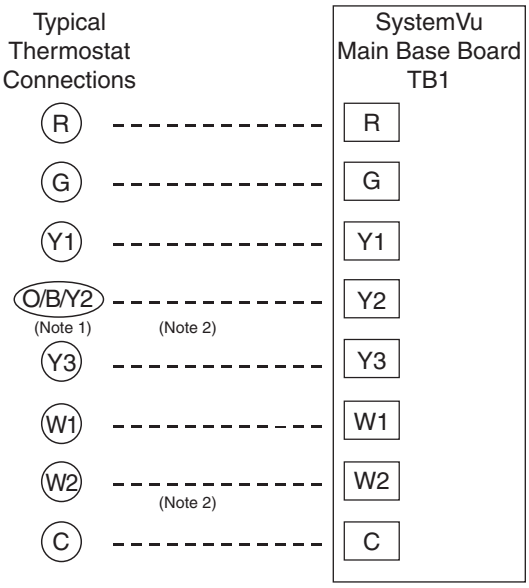


Fig. 34 — Typical Rnet Communication Sensor Wiring

Locate the thermostat accessory on a solid wall in the conditioned space to sense average temperature in accordance with the thermostat installation instructions.

If the thermostat contains a logic circuit requiring 24-v power, use a thermostat cable or equivalent single leads of different colors with minimum of 7 leads. If the thermostat does not require a 24-v source (no "C" connection required), use a thermostat cable or equivalent with minimum of 6 leads. See Fig. 35. Check the thermostat installation instructions for additional features which might require additional conductors in the cable.



NOTES:
1. Typical multi-function marking. Follow manufacturer's configuration instructions to select Y2.
2. Y2 to Y2 connection required on single-stage cooling units when integrated economizer function is desired.
3. W2 connection not required on units with single-stage heating.

– – – Field Wiring

Fig. 35 — Low-Voltage Thermostat Connections

For wire runs up to 50 ft (15 m), use no. 18 AWG (American Wire Gauge) insulated wire [35°C (95°F) minimum]. For 50 to 75 ft (15 to 23 m), use no. 16 AWG insulated wire [35°C (95°F) minimum]. For over 75 ft (23 m), use no. 14 AWG insulated wire [35°C (95°F) minimum]. Wire sizes larger than no. 18 AWG cannot be directly connected to the thermostat and will require a junction box and splice at the thermostat.

Thermostat Wiring, Units Without Thru-Base Connection Kit

Pass the thermostat control wires through the hole provided in the corner post; then feed the wires through the raceway built into the corner post to the control box. Pull the wires over to the terminal strip on the lower-left corner of the SystemVu MBB. See Fig. 36.

NOTE: If thru-the-bottom connections accessory is used, refer to the accessory installation instructions for information on routing power and control wiring.

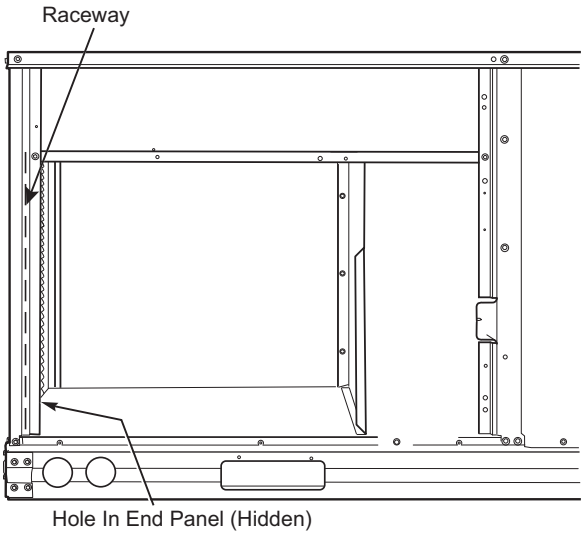


Fig. 36 — Field Control Wiring Raceway

HEAT ANTICIPATOR SETTINGS

Set heat anticipator settings at 0.14 amp for the first stage and 0.14 amp for second-stage heating, when available.

HUMIDI-MIZER® CONTROL CONNECTIONS

Humidi-MiZer Space RH Controller

The Humidi-MiZer dehumidification system requires a field-supplied and field-installed space relative humidity control device. This device may be a separate humidistat control (contact closes on rise in space RH above control set point). See Fig. 37. The humidistat is normally used in applications where a temperature control is already provided (units with SystemVu™ control).

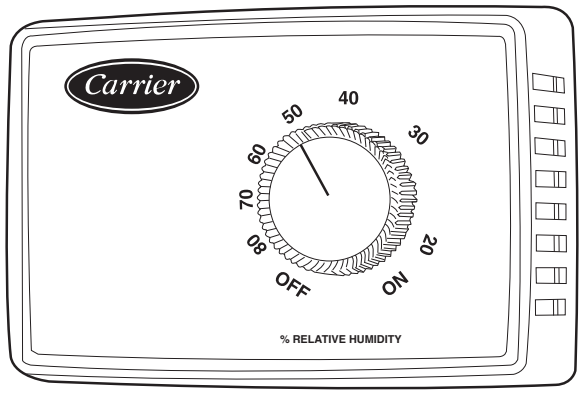


Fig. 37 — Accessory Field-Installed Humidistat

Connecting the Carrier Humidistat (HL38MG029)

1. Route the humidistat 2-conductor cable (field-supplied) through the hole provided in the unit corner post.
2. Feed wires through the raceway built into the corner post (see Fig. 36) to the 24v barrier located on the left side of the control box. The raceway provides the UL-required clearance between high-voltage and low-voltage wiring.
3. Connect one of the leads from the 2-conductor cable to the HUM terminal on the SystemVu MBB. Connect the other lead to the R terminal on the UCB. See Fig. 38.

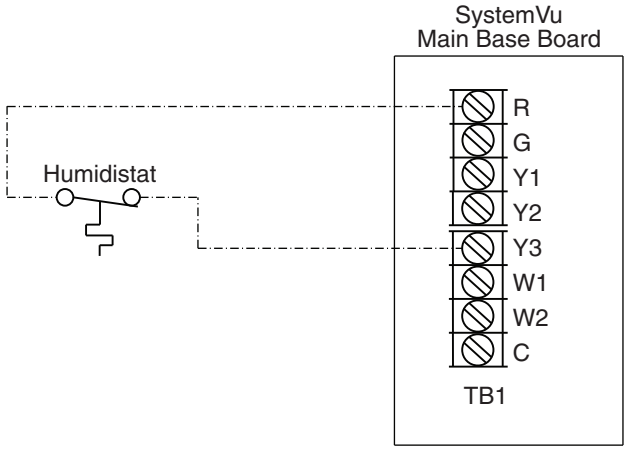


Fig. 38 — Humidistat Connections to MBB

ELECTRIC HEATERS

The 50JC units may be equipped with factory or field installed electric heaters. The heaters are modular in design, with heater frames holding open coil resistance wires strung through ceramic insulators, line-break limit switches and a control contactor. One or 2 heater modules may be used in a unit.

Heater modules are installed in the compartment below the indoor (supply) fan outlet. Access is through the indoor access panel. See Fig. 39-41.

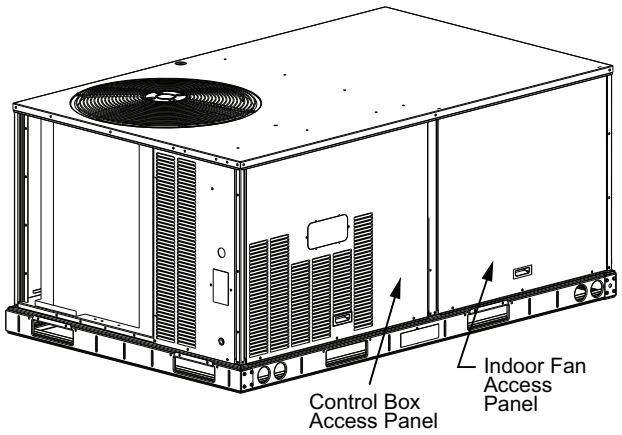


Fig. 39 — Typical Access Panel Location (3-5 Ton)

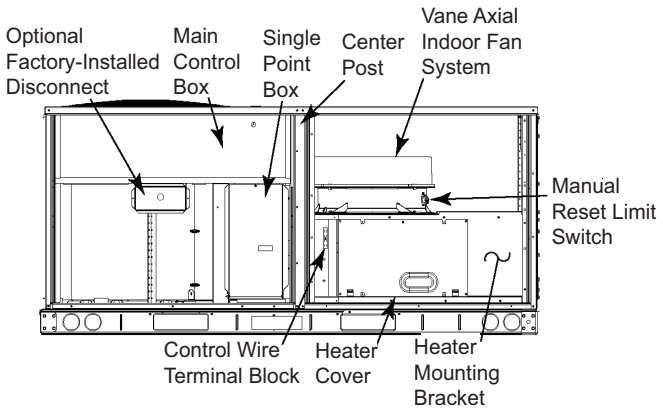


Fig. 40 — Typical Component Location

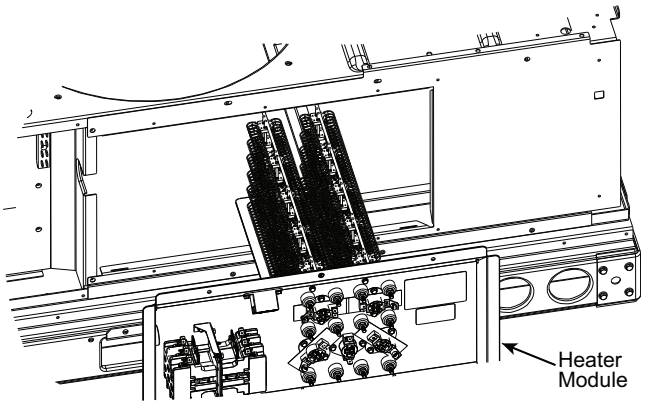


Fig. 41 — Typical Module Installation

Not all available heater modules may be used in every unit. Use only those heater modules that are UL listed for use in a specific size unit. Refer to the label on the unit cabinet for the list of approved heaters.

Refer to the *Small Roof Top Units Accessory Electric Heater and Single Point Box* installation instructions for further details.

Single Point Boxes and Supplementary Fuses

When the unit MOCP device value exceeds 60-A, unit-mounted supplementary fuses are required for each heater circuit. These fuses are included in accessory single point boxes, with power distribution and fuse blocks. The single point box will be installed directly under the unit control box, just to the left of the partition separating the indoor section (with electric heaters) from the outdoor section. The single point box has a hinged access cover. See Fig. 42. The single point box also includes a set of power taps and pigtails to complete the wiring between the single point box and the unit's main control box terminals. Refer to the *Small Roof Top Units Accessory Electric Heater and Single Point Box* installation instructions for details on tap connections on the field-installed electric heat accessory.

All fuses on 50JC units are 60-A. (Note that all heaters are qualified for use with a 60-A fuse, regardless of actual heater ampacity, so only 60-A fuses are necessary.)

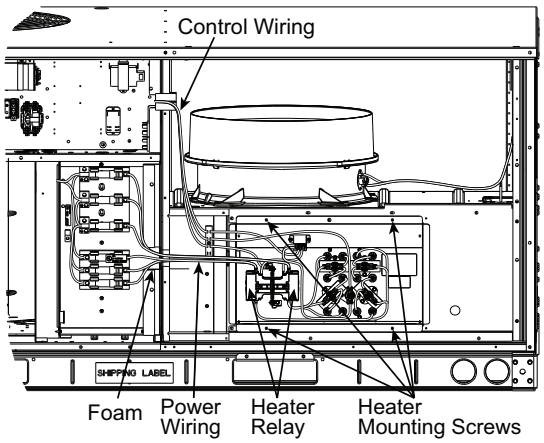


Fig. 42 — Typical Single Point Installation

Low-Voltage Control Connections

Pull the low-voltage control leads from the heater module — VIO and BRN (2 of each if a 2-circuit heater module is installed; identify for circuit no. 1) — to the 4-pole terminal board TB4 located on the heater bulkhead to the left of the Heater module. Connect the VIO lead from Heater circuit no. 1 to terminal TB4-1. For 2 stage heating, connect the VIO lead from Heater circuit no. 2 to terminal TB4-2. See Fig. 43.

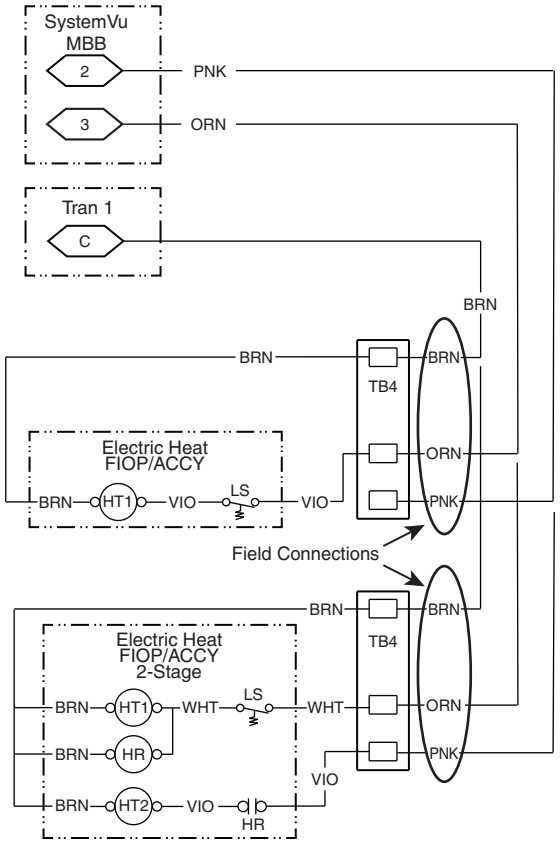


Fig. 43 — Accessory Electric Heater Control Connections

UNITS WITH COPELAND ZPV COMPRESSOR

With the introduction of the Ultra High Efficiency Variable Speed JC unit, it is necessary to determine the power supply of the system before installing the product. With some power supplies, it may be necessary to add an additional transformer to ensure proper operation of the variable speed compressor.

Technical Information

The type of power supply can be identified by measuring the incoming voltage with a volt meter. The following measurements will help in determining the type of power supply. All measurements referenced are approximate, your actual field measurements may vary slightly from the numbers provided in these installation instructions:

- L1 to ground
- L2 to ground
- L3 to ground

3-Phase Wye Power Supply

This type of power supply is the most common. To determine if the unit is using this power supply measure incoming power readings as follows:

208/230 VOLT SYSTEMS

L1 to Ground	120 volts
L2 to Ground	120 volts
L3 to Ground	120 volts

480 VOLT SYSTEMS

L1 to Ground	277 volts
L2 to Ground	277 volts
L3 to Ground	277 volts

The 3-Phase Wye power supply will not require further modification to allow the VFD to function properly.

Corner Grounded Delta Power Supply

This type of power supply is less common. To determine if the unit is using this power supply measure typical incoming power readings as follows:

208/230 VOLT SYSTEMS

L1 to Ground	208/230 volts
L2 to Ground	0 volts
L3 to Ground	208/230 volts

480 VOLT SYSTEMS

L1 to Ground	480 volts
L2 to Ground	0 volts
L3 to Ground	480 volts

NOTE: With a Corner Grounded Delta, 2 legs will read voltages that are the same (or approximately the same) and one leg will read 0 volts. The leg that reads 0 volts is normally leg 2 (L2).

This type of power supply may require modification for the variable speed compressor and associated components to function properly. Carrier/Emerson recommends the installation of an isolation Delta-Wye transformer to ensure proper equipment function and longevity.

High-Leg Power Supply

NOTE: Also known as “Wild-Leg” or “Stinger-Leg.”

This type of power supply is the least common. It is often located in older power systems. Typical voltage readings for High-Leg Power:

208/230 VOLT SYSTEMS

L1 to Ground	120 volts
L2 to Ground	208/230 volts
L3 to Ground	120 volts

480 VOLT SYSTEMS

L1 to Ground	277 volts
L2 to Ground	415 volts
L3 to Ground	277 volts

NOTE: Higher voltages appear on one leg with normal voltages on the other 2 legs.

Installation of a Delta-Wye transformer is required to operate the variable speed compressor and associated components in conjunction with High-Leg power supplies. Failure to do so will result in premature component failure.

TYPICAL UNIT WIRING DIAGRAMS

See Fig. 44-46 for examples of typical unit control and power wiring diagrams. These wiring diagrams are mounted on the inside of the unit control box cover.

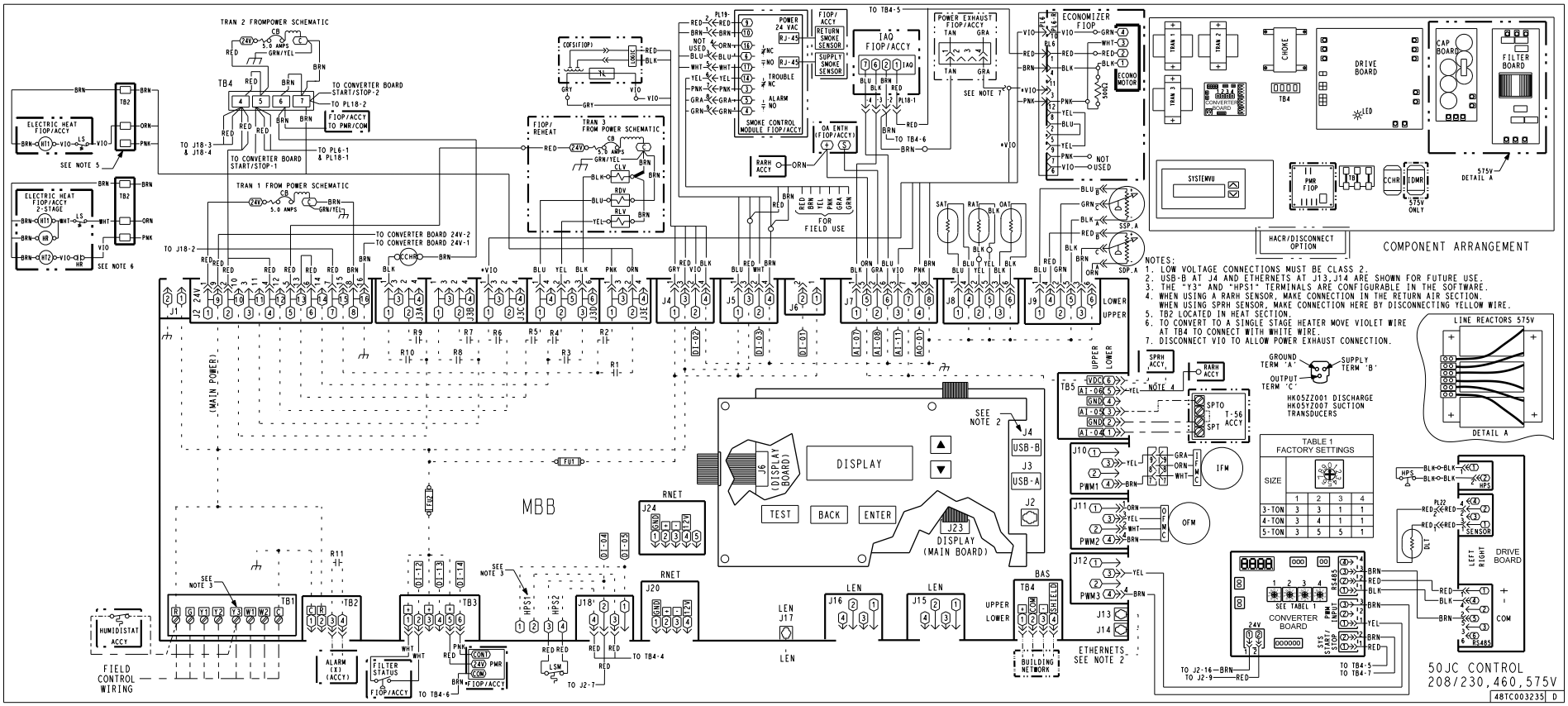


Fig. 44 — Typical 50JC04-06 Control Wiring Diagram

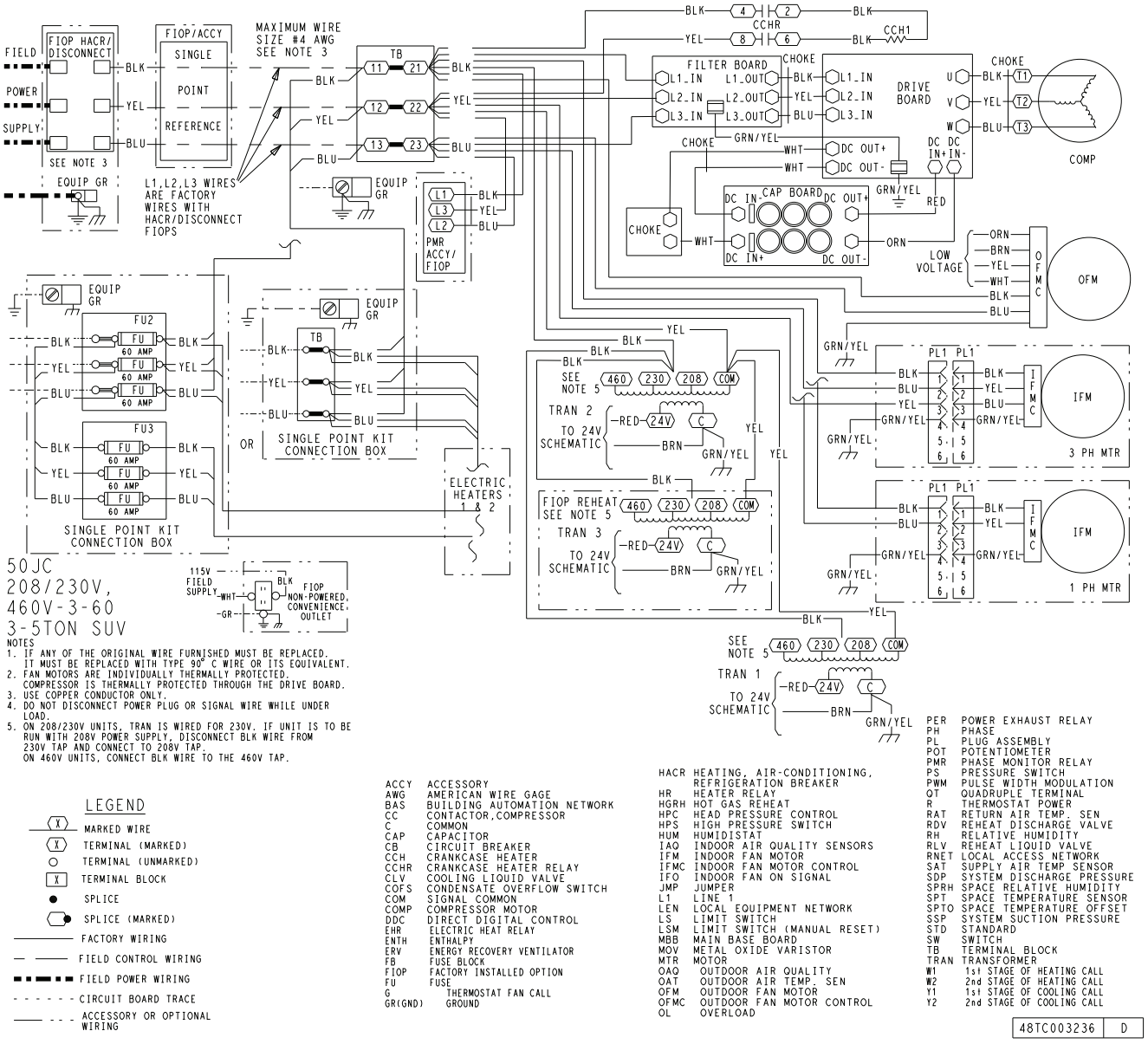


Fig. 45 — Typical 50JC04-06 Power Wiring Diagram (208/230, 460V Unit Shown)

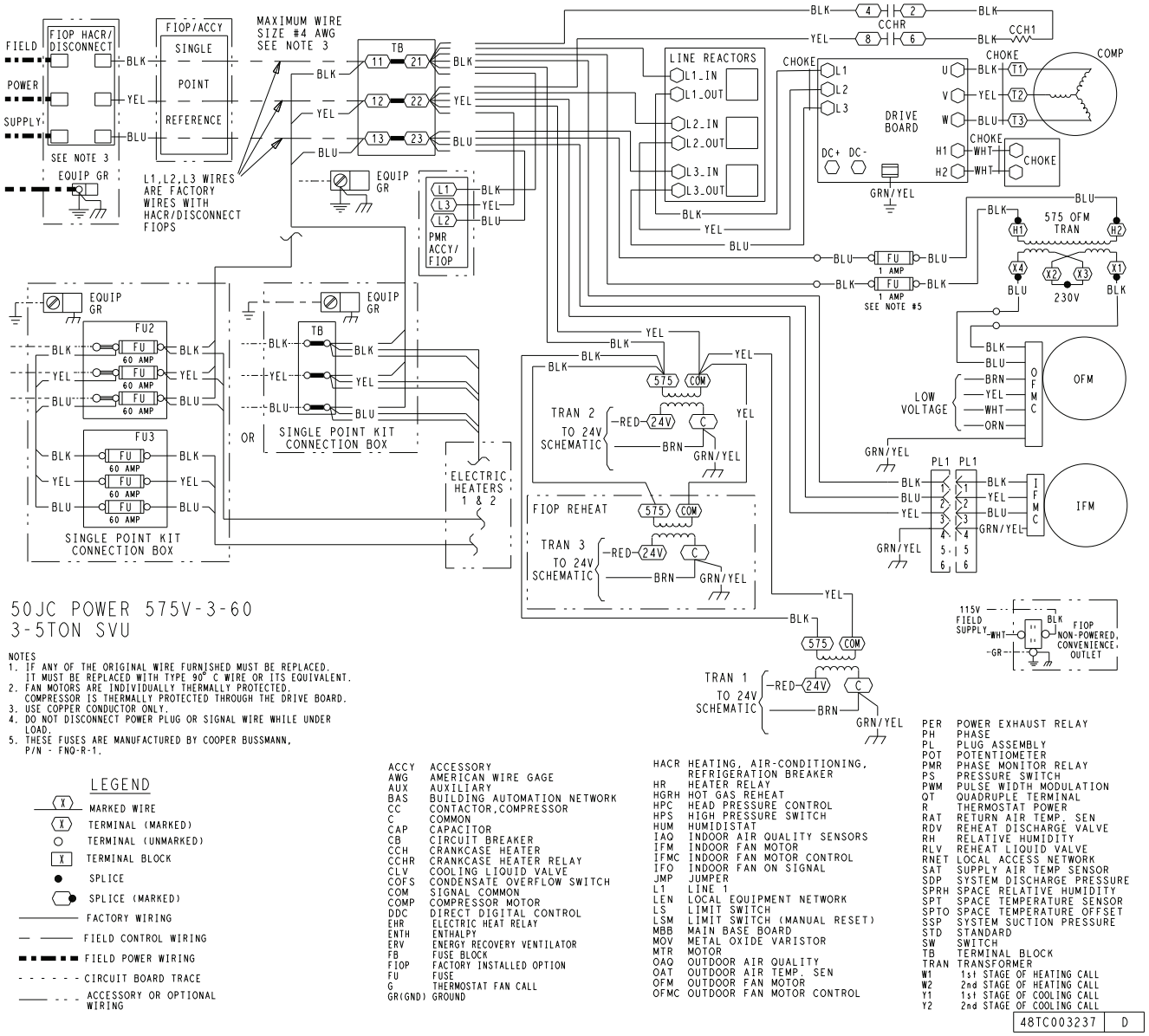


Fig. 46 — Typical 50JC04-06 Power Wiring Diagram (575V Unit Shown)

SystemVu™ Controller

For details on operating 50JC**04-06 units equipped with the factory-installed SystemVu controller option, refer to the *48/50JC Series Single Package Rooftop Units with SystemVu Controller Controls, Start-up, Operation and Troubleshooting* manual.

Controller Options

LOW AMBIENT

Refer to the *48/50JC 04-06 Single Package Rooftop Units with SystemVu Controller Controls, Start-up, Operation and Troubleshooting* manual for details on adjusting "Cooling Lock-Out" setting and configure for the specific job requirements.

Smoke Detectors

Smoke detectors are available as factory-installed options on 50JC models. Smoke detectors may be specified for supply air only, for return air without or with economizer, or in combination of supply air and return air. Return-air smoke detectors are arranged for vertical return configurations only. All components necessary for operation are factory-provided and mounted. The unit is factory-configured for immediate smoke detector shutdown operation; additional wiring or modifications to unit control board may be necessary to complete the unit and smoke detector configuration to meet project requirements.

Units equipped with factory-optional return-air smoke detectors require a relocation of the sensor module at unit installation. See Fig. 47 for the as-shipped location.

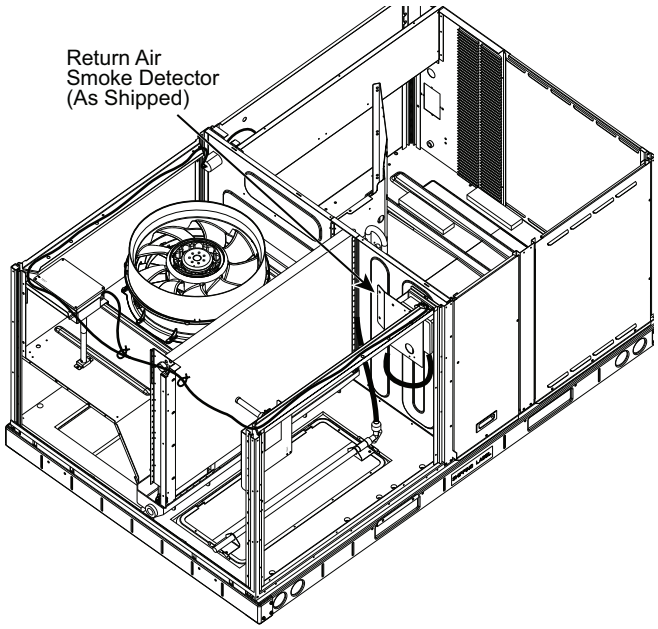


Fig. 47 — Return-Air Smoke Detector, Shipping Position

Completing Return Air Smoke Sensor Installation

1. Unscrew the 2 screws holding the return-air smoke detector assembly. See Fig. 48, Step 1. Save the screws.
2. Turn the assembly 90 degrees and then rotate end to end. Make sure that the elbow fitting is pointing down. See Fig. 48, Step 2.
3. Screw the sensor and detector plate into its operating position using screws from Step 1. See Fig. 48, Step 3.
4. Connect the flexible tube on the sampling inlet to the sampling tube on the basepan.

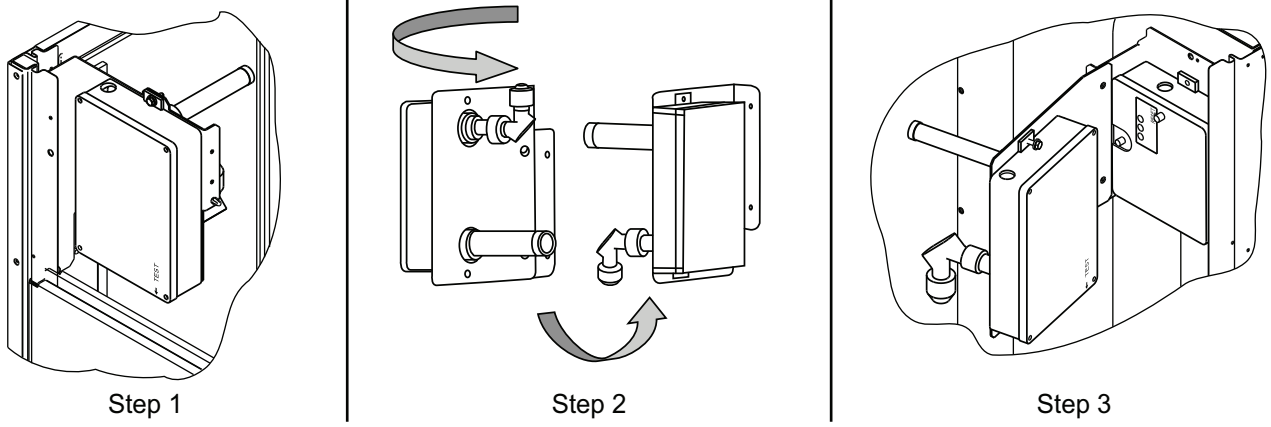


Fig. 48 — Completing Installation of Return Air Smoke Sensor

Additional Application Data

Refer to the application data document *"Factory Installed Smoke Detectors for Small and Medium Rooftop Units 2 to 25 Tons"* for discussions on additional control features of these smoke detectors including multiple unit coordination.

Step 12 — Adjust Factory-Installed Options

SMOKE DETECTORS

Smoke detector(s) will be connected to the SystemVu Main Base Board at J5.

Step 13 — Install Accessories

Available accessories include:

- Roof curb
- Thru-base connection kit (must be installed before unit is set on curb)
- Electric heaters and single-point connection kits
- Manual outside air damper
- Two-position motorized outside air damper
- EconoMi$er2
- Power Exhaust
- Differential dry-bulb sensor
- Outdoor enthalpy sensor
- Differential enthalpy sensor
- CO_2 sensor
- Louvered hail guard
- Phase monitor control

Refer to separate installation instructions for information on installing these accessories.

Step 14 — Fan Speed Set Up

SYSTEMVU™ CONTROLS

The Fan Speed settings are accessed through the SystemVu interface.

1. Check the job specifications for the cfm (cubic feet per minute) and ESP (external static pressure) required.
2. Using the chart on the fan speed set up labels (see Fig. 49), calculate the rpm from the cfm and ESP for the base unit plus any field accessories (as listed on the label).
3. If installing any accessories listed at the bottom of the Set Up Label, add accessory rpm to base unit rpm in upper portion of label.

   NOTE: The fan speed set up labels are located on the High Voltage cover in the Control Box.
4. Press any key on the SystemVu interface to activate the display backlight and then press the MENU key.
5. Using the UP and DOWN arrow keys highlight SETTINGS and then press ENTER.
6. Use the DOWN arrow key highlight the UNIT CONFIGURATIONS menu then press ENTER.
7. Highlight UNIT CONFIGURATIONS then press ENTER.
8. Highlight INDOOR FAN and then press ENTER.
9. Refer to the job specifications to set the following, determining the values per the Rpm Calculator label (see Fig. 49). Use the UP and DOWN arrow keys and the BACK key to set the values. Press ENTER after setting each value to continue to the next selection.

- IDF VENT SPD
- IDF HEAT SPD
- IDF LOW COOL SPD
- IDF HIGH SPD
- IDF FREE COOL SPD

For further details, see the *JC Series Single Package Rooftop Units with SystemVu Controller Controls, Start-up, Operation and Troubleshooting* manual.

SystemVu™

FAN SPEED SETUP (RPM)

MAIN MENU:

SETTINGS

→ UNIT CONFIGURATIONS

→ INDOOR FAN

- → IDF VENT SPD -RPM
- → IDF HEAT SPD -RPM
- → IDF HIGH COOL SPD -RPM
- → IDF FREE COOL SPD -RPM

↓ DETERMINE RPM FROM BELOW ↓

48TC003136 REV. A

RPM Calculator

UNIT MODEL NUMBER / CFM	ESP in. wg 0.2	0.4	0.6	0.8	1.0	1.2	1.4	1.6	1.8	2.0
1500	1301	1477	1639	1788	1925	2054	2174	2289		
1625	1381	1544	1699	1843	1976	2101	2220	2332		
1750	1463	1615	1763	1902	2031	2152	2268	2378		
1875	1548	1688	1828	1962	2087	2206	2318			
2000	1633	1764	1897	2025	2146	2262	2372			
2125	1720	1842	1967	2090	2208	2320				
2250	1808	1921	2040	2157	2271	2380				
2375	1897	2003	2115	2227	2336					
2500	1987	2068	2191	2298						
Field Accessories:										
Economizer	66	66	66	66	66	66	66	66		
1 Stage E Heat	80	80	80	80	80	80	80	80		
2 Stage E Heat	107	107	107	107	107	107	107	107		

Fig. 49 — Example of Fan Speed Set Up Labels for SystemVu™ Controls

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START-UP CHECKLIST FOR 50JC04-06 SINGLE PACKAGE ROOFTOP COOLING ONLY/ELECTRIC HEAT UNIT

(Remove and use for job file)

NOTE: To avoid injury to personnel and damage to equipment or property when completing the procedures listed in this start-up checklist, use good judgment, follow safe practices, and adhere to the safety considerations/information as outlined in preceding sections of this Installation Instruction document.

I. PRELIMINARY INFORMATION

MODEL NO. _____
JOB NAME _____
SERIAL NO. _____
ADDRESS _____
START-UP DATE _____
TECHNICIAN NAME _____
ADDITIONAL ACCESSORIES

_____

II. PRE-START-UP:

Verify that all packaging materials have been removed from unit	(Y/N) _____
Verify installation of outdoor air hood	(Y/N) _____
Verify that condensate connection is installed per installation instructions	(Y/N) _____
Verify that all electrical connections and terminals are tight	(Y/N) _____
Check that indoor-air filters are clean and in place	(Y/N) _____
Check that outdoor air inlet screens are in place	(Y/N) _____
Verify that unit is level	(Y/N) _____
Check outdoor fan propeller for location in housing/orifice and verify setscrew is tight	(Y/N) _____
Verify that scroll compressors are rotating in the correct direction	(Y/N) _____
Verify installation of thermostat/space sensor	(Y/N) _____
Verify configuration values for electronic controls	(Y/N) _____
Verify that crankcase heaters have been energized for at least 24 hours	(Y/N) _____

III. START-UP

ELECTRICAL

Supply Voltage		L1-L2_____	L2-L3_____	L3-L1_____
Compressor Amps	— Speed 1, 2500 rpm	L1_____	L2_____	L3_____
	— Speed 2, High, 4500 rpm	L1_____	L2_____	L3_____
Electric Heat Amps (if equipped)		L1_____	L2_____	L3_____
Supply Fan Amps at Max Speed		L1_____	L2_____	L3_____

TEMPERATURES

Outdoor-Air Temperature	_____°F DB (Dry Bulb)	_____°F WB (Wet Bulb)
Return-Air Temperature	_____°F DB	_____°F WB
Cooling Supply Air	_____°F DB	_____°F WB
Electric Heat Supply Air	_____°F	_____°F

PRESSURES

Refrigerant Suction	Circuit A	_____psig	Circuit A Superheat	_____°F
Refrigerant Discharge	Circuit A	_____psig	Circuit A Subcooling	_____°F

Verify refrigerant charge using charging charts (Y/N) _____

GENERAL

Economizer minimum vent and changeover settings to job requirements (Y/N) _____

IV. HUMIDI-MIZER® SYSTEM START-UP

STEPS

1. Use Service Test mode to turn on cooling.
   Turn on COOL TEST CMP SPD to 4500 rpm under Cool Test menu (Y/N) _____

   OBSERVE AND RECORD

A. Suction pressure	_____ psig	_____ psig	
B. Discharge pressure	_____ psig	_____ psig	
C. Entering air temperature	_____ °F	_____ °F	
D. Liquid temperature at outlet or reheat coil	_____ °F	_____ °F	

   E. Confirm correct rotation for compressor (Y/N) _____
   F. Check for correct ramp-up of outdoor fan motor as condenser coil warms (Y/N) _____
2. Check unit charge per charging chart (Y/N) _____
3. Switch unit to HIGH-LATENT mode (SUBCOOL) by turning Humidi-MiZer test to SUBCOOL under the COOL TEST menu (Y/N) _____

   OBSERVE

   A. Reduction in suction pressure (5 to 7 psi expected) (Y/N) _____
   B. Discharge pressure unchanged (Y/N) _____
   C. Liquid temperature drops to 50 to 55°F range (Y/N) _____
   D. CLV solenoid energized (valve closes for no flow) (Y/N) _____
4. Switch unit to DEHUMID (REHEAT) by turning Humidi-MiZer test to REHEAT under the COOL TEST menu (Y/N) _____

   OBSERVE

   A. Suction pressure increases to normal cooling level (Y/N) _____
   B. Discharge pressure decreases 30 to 50 psi (Y/N) _____
   C. Liquid temperature returns to normal cooling level (Y/N) _____
   D. CLV solenoid energized, valve closes for no flow (Y/N) _____
   E. RDV solenoid energized, valve opens for flow (Y/N) _____
5. Switch unit to OFF by turning Humidi-MiZer test to OFF under the COOL TEST menu, and Compressor and outdoor fan stop, CLV and RDV solenoids de-energized (Y/N) _____

CUT ALONG DOTTED LINE

CUT ALONG DOTTED LINE

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