

CRHEATER101A00-CRHEATER112A00,
 CRHEATER103B00,CRHEATER104B00,
 CRHEATER113B00-CRHEATER116B00
 CRHEATER117A00-CRHEATER119A00
 CRHEATER128B00,CRHEATER129B00
 CRHEATER264A00-CRHEATER269A00,
 CRHEATER288A00-CRHEATER299A00
 CRHEATER301A00,CRHEATER308A00
 CRHEATER316A00-CRHEATER322A00
 CRSINGLE037A00-CRSINGLE054A00

**SMALL ROOFTOP UNITS
 ACCESSORY ELECTRIC HEATER
 AND SINGLE POINT BOX
 ELECTRIC COOLING
 AND HEAT PUMP
 SELECT 3 to 15 TONS**

Installation Instructions

TABLE OF CONTENTS

SAFETY CONSIDERATIONS	1
PACKAGE USAGE	2
PACKAGE CONTENTS	2
GENERAL	6
GENERAL INSTALLATION SEQUENCE	9
SECTION 1 INSTALLATION, SMALL-MEDIUM CABINET	10
Disconnect field power supply	10
Installing Electric Heater CRHEATER101A00-109A00, 110A-112A00, 103B00, 104B00, 113B00-116B00, 117A00, 128B00, 129B00, 264A00-269A00, 297A00-299A00, 301A00, 308A00, 316A00-322A00	14
SECTION 2 INSTALLATION, LARGE CABINET	19
Installing Single Point Box (CRSINGLE047A00, 049A00-054A00	19
Installing Electric Heater (CRHEATER288A00- 296A00)	20
UNIT POWER SUPPLY WIRING - ALL UNITS	29
APPENDIX A: AC-1, AC-2 COOLING APPLICATIONS ...	31
APPENDIX B: AC-3 50LC COOLING APPLICATIONS ...	47
APPENDIX C: HP-1, HP-2 HEAT PUMP APPLICATIONS	54
APPENDIX D: ELECTRIC HEATER DATA	72

IMPORTANT: Read these instructions completely before attempting to install this accessory.


SAFETY CONSIDERATIONS

Installation and servicing of air-conditioning equipment can be hazardous due to system pressure and electrical components. Only trained and qualified service personnel should install, repair, or service air-conditioning equipment.


Untrained personnel can perform the basic maintenance functions. All other operations should be performed by trained service personnel.

When working on air-conditioning equipment, observe precautions in the literature, tags and labels attached to the unit, and other safety precautions that may apply.

Follow all safety codes. Wear safety glasses and work gloves.

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, and CAUTION. 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 a hazard 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.

 **WARNING**

ELECTRICAL SHOCK HAZARD

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

Turn off all power to unit and install lockout tag. Power can come to unit from multiple sources. Verify power is off with a meter or probe.

 **CAUTION**

CUT 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 units.

**PACKAGE USAGE
CARRIER MODELS**

MODEL NUMBER	CHASSIS GROUP	UNIT SIZES
50HC	AC-2	04-14
50HCQ	HP-2	04-12
50KC	AC-1	04-06
50KCQ	HP-1	04-06
50LC	AC-3	04-12
50TC	AC-1	04-16
50TCQ	HP-1	04-14

BRYANT MODELS

MODEL NUMBER	CHASSIS GROUP	UNIT SIZES
547J	HP-1	04-06
548J	HP-1	04-14
549J	HP-2	04-12
551J	AC-2	04-14
558J	AC-1	04-16
559J	AC-1	04-06

ICP MODELS

MODEL NUMBER	CHASSIS GROUP	UNIT SIZES
RAH	AC-2	036-150
RAS	AC-1	036-180
RAX	AC-1	036-060
RHH	HP-1	036-150
RHS	HP-2	036-120
RHX	HP-1	036-060

AC: Cooling Only (air conditioner)
 HP: Heat Pump
 1 - Standard Efficiency
 2 - High Efficiency
 3 - Ultra High Efficiency

**PACKAGE CONTENTS-
ELECTRIC HEATERS**

**CRHEATER101A00-112A00,103B00,
104B00,113B00-116B00,117A00-119A00,
128B00,129B00,264A00-269A00,297A00,
298A00,301A00,308A00, 316A00-321A00**

QTY	CONTENTS
1	Heater module
1	Heater slider track*
4	Screws*
1	Wiring label
1	Red wire (10 gage)†
1	Splice connector†
1	Wire tie†
1	Label, Max Temp/Static
1	Heater Cover**

*Not included with CRHEATER101A00-109A00, 297A00, 298A00, 301A00.
 †Supplied with electric heater packages CRHEATER101A00, 102A00, 103B00, 104B00 only.
 ** Supplied with package CRHEATER301A00, 128B00, 129B00 only.

**ELECTRIC HEATERS
CRHEATER288A00-296A00, 299A00,
322A00**

QTY	CONTENTS
1	Heater module
1	Heater slide track
4	Screws
1	Wiring label
1	Label, Max Temp/Static

CRSINGLE037A00

ITEM DESCRIPTION	QUANTITY
Single Point Box Housing Assembly (Height 18-in/449 mm)	1
Terminal block	1
Conductors, Tap, #10	3
Rain shield with conduit seal	1
Screws, #10 x 1/2-in	12
Wire ties	7
Tube clamp	1
Seal strip	1

CRSINGLE038A00

ITEM DESCRIPTION	QUANTITY
Single Point Box Housing Assembly (Height 18-in/449 mm)	1
Terminal block/Fuse holder	1
Fuse block	1
Fuses, 60-A class RK5	6
Power distribution harness	1
Conductors, Tap, #10	3
Rain shield with conduit seal	1
Screws, #10 x 1/2-in	12
Wire ties	7
Tube clamp	1
Seal strip	1

CRSINGLE039A00

ITEM DESCRIPTION	QUANTITY
Single Point Box Housing Assembly (Height 18-in/449 mm)	1
Terminal block/Fuse holder	1
Fuse block	2
Fuses, 60-A class RK5	9
Power distribution harness	1
Conductors, Tap, #10	3
Rain shield with conduit seal	1
Screws, #10 x 1/2-in	12
Wire ties	7
Tube clamp	1
Seal strip	1

CRSINGLE040A00

ITEM DESCRIPTION	QUANTITY
Single Point Box Housing Assembly (Height 18-in/449 mm)	1
Terminal block/Fuse holder	1
Fuse block	1
Fuses, 60-A class RK5	4
Power distribution harness	1
Conductors, Tap, #10	2
Rain shield with conduit seal	1
Screws, #10 x 1/2-in	12
Wire ties	7
Tube clamp	1
Seal strip	1

CRSINGLE041A00

ITEM DESCRIPTION	QUANTITY
Single Point Box Housing Assembly (Height 18-in/449 mm)	1
Terminal block/Fuse holder	1
Fuse block	1
Fuses, 60-A class RK5	6
Power distribution harness	1
Conductors, Tap, #10	2
Rain shield with conduit seal	1
Screws, #10 x 1/2-in	12
Wire ties	7
Tube clamp	1
Seal strip	1

CRSINGLE042A00

ITEM DESCRIPTION	QUANTITY
Single Point Box Housing Assembly (Height 25-in/639 mm)	1
Terminal block	1
Conductors, Tap, #10	3
Rain shield with conduit seal	1
Screws, #10 x 1/2-in	8
Wire ties	7
Seal strip	1

CRSINGLE043A00

ITEM DESCRIPTION	QUANTITY
Single Point Box Housing Assembly (Height 25-in/639 mm)	1
Terminal block/Fuse holder	1
Fuse block	1
Terminal block (TB-10)	2
Fuses, 60-A class RK5	6
Power distribution harness	1
Conductors, Tap, #10	6
Screws, #8 x 1/2-in	2
Rain shield with conduit seal	1
Screws, #10 x 1/2-in	8
Wire ties	7
Seal strip	1

CRSINGLE044A00

ITEM DESCRIPTION	QUANTITY
Single Point Box Housing Assembly (Height 25-in/639 mm)	1
Terminal block	1
Fuse block	2
Fuses, 60-A class T (600v)	6
Power distribution harness	1
Conductors, Tap, #10	3
Rain shield with conduit seal	1
Screws, #10 x 1/2-in	8
Wire ties	7
Seal strip	1

CRSINGLE045A00

ITEM DESCRIPTION	QUANTITY
Single Point Box Housing Assembly (Height 25-in/639 mm)	1
Terminal block/fuse holder	1
Fuse block	2
Fuses, 60-A class RK5	9
Power distribution harness	1
Conductors, Tap, #10	6
Terminal block (TB10)	2
Screws, #8 x 1/2-in	2
Rain shield with conduit seal	1
Screws, #10 x 1/2-in	8
Wire ties	7
Seal strip	1

CRSINGLE046A00

ITEM DESCRIPTION	QUANTITY
Single Point Box Housing Assembly (Height 25-in/639 mm)	1
Terminal block/fuse holder	1
Fuse block	3
Fuses, 60-A class RK5	12
Power distribution harness	1
Conductors, Tap, #10	3
Rain shield with conduit seal	1
Screws, #10 x 1/2-in	8
Wire ties	7
Seal strip	1

CRSINGLE047A00

ITEM DESCRIPTION	QUANTITY
Single Point Box Housing Assembly (Height 33-in/845 mm)	1
Terminal block	1
Conductors, Tap, #10	3
Rain shield, small	1
Rain shield with conduit seal	1
Screws, #10 x 1/2-in	8
Wire ties	7
Seal strip	1

CRSINGLE048A00

ITEM DESCRIPTION	QUANTITY
Single Point Box Housing Assembly (Height 25-in/639 mm)	1
Terminal block	1
Fuse block	3
Fuses, 60-A class RK5	9
Power distribution harness	1
Conductors, Tap, #10	3
Rain shield with conduit seal	1
Screws, #10 x 1/2-in	8
Wire ties	7
Seal strip	1

CRSINGLE049A00

ITEM DESCRIPTION	QUANTITY
Single Point Box Housing Assembly (Height 33-in/845 mm)	1
Terminal block/Fuse holder	1
Fuse block	1
Fuses, 60-A class RK5	6
Power distribution harness	1
Conductors, Tap, #10	8
Terminal block (TB10)	2
Screws, #8 x 1/2-in	2
Rain shield, small	1
Rain shield with conduit seal	1
Screws, #10 x 1/2-in	8
Wire ties	7
Seal strip	1

CRSINGLE050A00

ITEM DESCRIPTION	QUANTITY
Single Point Box Housing Assembly (Height 33-in/845 mm)	1
Terminal block	1
Fuse block	2
Fuses, 60-A class T (600v)	6
Power distribution harness	1
Conductors, Tap, #10	3
Rain shield, small	1
Rain shield with conduit seal	1
Screws, #10 x 1/2-in	8
Wire ties	7
Seal strip	1

CRSINGLE051A00

ITEM DESCRIPTION	QUANTITY
Single Point Box Housing Assembly (Height 33-in/845 mm)	1
Terminal block/fuse holder	1
Fuse block	2
Fuses, 60-A class RK5	9
Power distribution harness	1
Conductors, Tap, #10	8
Terminal block (TB10)	2
Screws, #8 x 1/2-in	2
Rain shield, small	1
Rain shield with conduit seal	1
Screws, #10 x 1/2-in	8
Wire ties	7
Seal strip	1

CRSINGLE052A00

ITEM DESCRIPTION	QUANTITY
Single Point Box Housing Assembly (Height 33-in/845 mm)	1
Terminal block	1
Fuse block	3
Fuses, 60-A class T (600v)	9
Power distribution harness	1
Conductors, Tap, #10	3
Rain shield, small	1
Rain shield with conduit seal	1
Screws, #10 x 1/2-in	8
Wire ties	7
Seal strip	1

CRSINGLE053A00

ITEM DESCRIPTION	QUANTITY
Single Point Box Housing Assembly (Height 33-in/845 mm)	1
Terminal block	1
Fuse block	4
Fuses, 60-A class RK5	12
Power distribution harness	1
Conductors, Tap, #10	8
Terminal block (TB10)	2
Screws, #8 x 1/2-in	2
Rain shield, small	1
Rain shield with conduit seal	1
Screws, #10 x 1/2-in	8
Wire ties	7
Seal strip	1

CRSINGLE054A00

ITEM DESCRIPTION	QUANTITY
Single Point Box Housing Assembly (Height 33-in/845 mm)	1
Terminal block	1
Fuse block	5
Fuses, 60-A class RK5	15
Power distribution harness	1
Conductors, Tap, #10	8
Terminal block (TB10)	2
Screws, #8 x 1/2-in	2
Rain shield, small	1
Rain shield with conduit seal	1
Screws, #10 x 1/2-in	8
Wire ties	7
Seal strip	1

GENERAL

Puron® Units

This installation instruction manual describes the installation of electric heaters and associated fuse block/field power termination kits (single point box or SPB) on select small rooftop units in nominal cooling capacities from 3 to 15 tons. These rooftop units use Puron refrigerant (R-410A). See Package Usage tables on page 2 for applicable unit models. Unit types include cooling units (AC) and heat pumps (HP) distributed over several chassis sizes. Unit types AC-1, AC-2, HP-1, HP-2 are identified. Unit type AC-3 consists of a single model — Carrier 50LC.

This information does not include selection data. Refer to project plans, job submittals and selection programs for heater and field power termination/SPB kit usage.

Some electric heaters used on these Puron (R-410A) units may also be installed in earlier R-22 rooftop units. Refer to Form 50-8SI or IIK-548-36-49 for installation instructions on heater packages CRHEATER101A00 through 119A00 with earlier models. Contact your local distributor office for a copy of this form.

Electric Heaters

Heaters are shipped with one heater per carton. The carton is marked with a Sales Package Number. On all heaters except CRHEATER101A00 through 119A00, 103B00, 104B00, 113B00 through 116B00, 128B00, and 129B00, the heater Model Number (as marked on the heater infoplate) is the same as the Sales Package number. On CRHEATER101A00 through 119A00, 103B00, 104B00, 113B00 through 116B00, 128B00, and 129B00, the value in position 9 of the part number differs between the sales package part number (value is 1 and bare heater model number (value is 0). (See Table 1.)

The heaters are modular in design, with heater frames holding open coil resistance wires strung through ceramic insulators, limit switches and one or two control contactors. Power conductors are attached. One or two 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. Heater modules slide into the compartment on tracks along the bottom of the heater opening. (See Fig. 17.) Some heaters are "keyed" with a restrictor bar on the heater frame or restrictor plate on the back of the heater mounting plate to be able to go in only one slot. These keyed heaters have been designed and qualified to go only into the designated slot. Do not remove the key for the purpose of putting the heater in the wrong slot. Placing a keyed heater in the wrong slot could lead to overheating and unit damage from the heater not operating properly.

NOTE: The following heaters do not use the slide track: CRHEATER101A00-109A00, 297A00, 298A00, 301A00.

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 and the unit data plate for the list of approved heaters. (See Fig. 1 and 2.) See Appendix D for electric heater module data.

Single Point Boxes and Fuses

The Single Point Box (SPB) kits provide a field power termination location plus an enclosure for heater fuses when required by code. The SPBs are installed under the unit's main control box and include a cover plus all internal wiring. Minimum components of the SPB are a field power terminal block with tap conductors (to connect to the unit's main control box field terminals). Maximum component population includes up to five fuse blocks.

Fuses for electric heater circuits are required and provided when the unit's MOCP exceeds 60-A or when the total heater Full Load Amp value exceeds 48-A. When fuses are required and provided, the cooling circuit is also provided with fuse protection; some units require minor wiring changes in the main control box (see section on TB10 terminal blocks).

No Fuses

If the unit's MOCP device rating is 60-A or less, then the MOCP device is recognized as providing the required overcurrent protection to the heater and no internal fusing is required. If two heater modules are installed, a single point box that contains only a field power terminal block is required. See tables at the beginning of Appendix A, B and C for where-used information on the single point boxes and for connections Figure number.

Units with Factory Installed HACR

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. When field installed accessory electric heaters are added or changed in the unit, 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. See unit nameplates for the proper fuse, HACR or maximum over-current protection device required on the unit with field installed electric heat.

Single Point Box Contents

See Package Content tables for a list of components included in each single point box kit. Note the height differences and their use in specific size units.

Control Wiring

Heater modules contain one or two heater control contactors. If two heater modules are installed, or a two-circuit heater module is installed, the cooling unit (AC type) can be connected for one-stage or two-stage heating control. On all heat pump units (HP type), all heater contactors will be connected to provide second-stage heating control.

Table 1 – Heater Model Number

Bare Heater Model Number	C	R	H	E	A	T	E	R	0	0	1	A	0	0
Heater Sales Package PNO Includes: Bare Heater Carton and packing materials Installation sheet	C	R	H	E	A	T	E	R	1	0	1	A or B	0	0



Carrier Corporation 7310 West Morris Street Indianapolis, IN 46231 U.S.A.		MODEL 50KC-A06A2A5A0A0A0								
COMPR A	QTY	VOLTS AC	PH	HZ	RLA	LRA	REF. SYSTEM R410A	TEST PRESSURE GAGE		
COMPR B	1	208/230	3	60	15.6	110	10.7 LBS	4.9 kg	HI 650 PSI 4482 kPa	
COMPR C							LBS	kg	LO 450 PSI 3103 kPa	
FAN MTR	QTY	VOLTS AC	PH	HZ	FLA	CHARGE SYSTEM PER INSTALLATION INSTRUCTIONS SUITABLE FOR OUTDOOR INSTALLATION				
OUTDOOR	1	208/230	1	60	1.5					
INDOOR	1	208/230	3	60	5.2					
PWR.EXH.										
ELC.HEAT										
OTHER										
POWER SUPPLY	208/230	VOLT	3	PH	60	HZ	MIN. CKT. AMPS	MAX FUSE OR HACR BREAKER PER NEC	40	MINIMUM UNIT DISCONNECT
PERMISSIBLE VOLTAGE AT UNIT	253	MAX	187	MIN	26.2	MAX OVERCURRENT PROTECTION DEVICE	-	26	144	
DOWN SUPPLY	MIN CLEARANCE TO COMBUSTIBLE MATERIALS 1 INCHES 25 mm. FOR FIRST 12 INCHES 305 mm. OF DUCT WHEN ELECTRIC HEATER IS INSTALLED									
SIDE SUPPLY	MIN CLEARANCE TO COMBUSTIBLE MATERIALS 1 INCHES 25 mm. FOR FIRST 12 INCHES 305 mm. OF DUCT WHEN ELECTRIC HEATER IS INSTALLED									
*FOR INSTALLATION ON COMBUSTIBLE FLOORING OR CLASS A,B, OR C ROOFING MATERIAL										
ACCESSORY HEATER MODEL NUMBER	CHECK HERE	VOLTS	PH	HZ	HEATER FLA	MIN CKT AMPS	FUSE OR HACR BREAKER PER NEC	MAXIMUM OVERCURRENT PROTECTION DEVICE	SINGLE PT. BOX MODEL NUMBER	MINIMUM UNIT DISCONNECT
102A		208/240	3	60	13.6/15.6	26.2/26.2	40/40	-/-	-	FLA 26/26 LRA 144/144
104B		208/240	3	60	21.9/25.3	33.9/38.1	40/40	-/-	-	31/35 144/144
105A		208/240	3	60	33.4/38.5	48.3/54.6	50/60	-/-	037	44/50 144/144
104B+104B		208/240	3	60	43.8/50.5	61.3/69.6	70/70	-/-	038	56/64 144/144
104B+105A		208/240	3	60	55.2/63.8	75.5/86.3	80/90	-/-	038	69/79 144/144
INSTALLER NOTE: 1. INSTALL ACCESS HEATER PER INSTALL INSTR ENCLOSED WITH HEATER. MARK SPACE "CHECK HERE" FOR MODEL USED USE MIN CKT AMPS & MAX OVER-CURRENT DEVICE AMPS LISTED FOR HEATER. IF NO HEATER IS USED MARK SPACE "CHECK HERE" FOR NONE. 2. HEATERS ARE MANUFACTURED BY EMERSON HEATING PRODUCTS OR TUTCO ELECTRIC.										
COOLING		CAPACITY Btu/Hr		CAPACITY kW		EER		COP		
HP HEATING		59000		17.2		13				
THIS EQUIPMENT COMPLIES WITH THE 2004 REQUIREMENTS OF ASHRAE 90.1										

Fig. 1 - Typical Unit Informative Data Label

C10531

	MODEL	50KC-A06A2A5A0A0A0	
	REFRIGERANT CHARGE	R410A	

ELECTRICAL DATA FOR ACCESSORY POWER EXHAUST ONLY

ACCESSORY POWER EXHAUST MODEL NUMBER	CHECK HERE	VOLTS	PH	HZ	POWER EXHAUST FLA	MIN CKT AMPS	FUSE OR HACR BREAKER PER NEC	MAXIMUM OVERCURRENT PROTECTION DEVICE	MINIMUM UNIT DISCONNECT
CRPWREXH_						28.1	40	-/-	FLA 28 LRA 146

ELECTRICAL DATA FOR ACCESSORY POWER EXHAUST INSTALLED
IN COMBINATAION WITH ELECTRIC HEATER

ACCESSORY HEATER MODEL NUMBER	CHECK HERE	VOLTS	PH	HZ	HEATER FLA	MIN CKT AMPS	FUSE OR HACR BREAKER PER NEC	MAXIMUM OVERCURRENT PROTECTION DEVICE	MINIMUM UNIT DISCONNECT
102A		208/ 240	3	60	13.6/ 15.6	28.1/28.4	40/40	-/-	FLA 28/28 LRA 146/146
SINGLE PT BOX MODEL NUMBER	-								
104B		208/ 240	3	60	21.9/ 25.3	36.3/40.5	40/45	-/-	FLA 33/37 LRA 146/146
SINGLE PT BOX MODEL NUMBER	-								
105A		208/ 240	3	60	33.4/ 38.5	50.6/57.0	60/60	-/-	FLA 47/52 LRA 146/146
SINGLE PT BOX MODEL NUMBER	037								
104B+104B		208/ 240	3	60	43.8/ 50.5	63.6/72.0	70/80	-/-	FLA 59/66 LRA 146/146
SINGLE PT BOX MODEL NUMBER	038								
104B+105A		208/ 240	3	60	55.2/ 63.8	77.9/88.6	80/90	-/-	FLA 72/82 LRA 146/146
SINGLE PT BOX MODEL NUMBER	038								
									FLA LRA
SINGLE PT BOX MODEL NUMBER									

INSTALLER NOTE:

1. INSTALL ACCESS. HEATER AND/OR POWER EXHAUST PER INSTALL INSTR ENCLOSED WITH HEATER AND POWER EXHAUST. MARKSPACE "CHECK HERE" FOR MODEL USED. USE MIN CKT AMPS AND MAX OVER CURRENT DEVICE AMPS LISTED FOR HEATER AND POWER EXHAUST.
2. HEATERS ARE MANUFACTURED BY EMERSON HEATING PRODUCTS OR TUTCO ELECTRIC.



50TC-A06A2A5A0A0A0





ARI Standard 210/240TM
Unitary Air Conditioners

Fig. 2 - Typical Unit Informative Data Label, Power Exhaust Installed

C10532

Terminal Block TB10 (208/230-V Units)

Two small terminal blocks (designated TB10) are included in these single-point boxes used on select 208/230-3-60 units.

SPB PNO CRSINGLE
043A00
045A00
049A00
051A00
053A00
054A00

TB10 is a small single-pole terminal block, 2-1/2 in. (63 mm) long with seven ¼-in. male quick-connect terminals. One or two terminal blocks are used to aid in rearranging the unit's base cooling power circuit into two circuits, each under 60-A MOCP. On units using both TB10 blocks, the indoor fan motor is separated into the second circuit. On units using only a single TB10 block, Compressor 2 is separated into the second circuit.

On the largest units and on all AC-3 (50LC) units, the TB10 blocks are not used and may be discarded. The tap conductors from fuse blocks FU2 and FU3 are connected in parallel to the main control box's power terminal block. See unit-SPB connection figures in the Appendix section. The following tables indicate TB10 use on AC-1, AC-2, HP-1 and HP-2 units using these single point boxes:

AC-1

AC-1	SPB	TB10 Qty
08 (090,091)	043A 045A	2
09 (101,102)	049A 051A	2
12 (120,121)	049A 051A	2
14 (150)	049A 051A	1
16 (180)	049A 051A 053A	NR

AC-2

AC-2	SPB	TB10 Qty
07 (072)	043A	2
08 (090)	049A 051A	2
09 (102)	049A 051A	2
12 (120)	049A 051A	1
14 (150)	049A 051A	NR

HP-1

HP-1	SPB	TB10 Qty
08 (090)	049A 051A 053A	2
09 (102)	049A 051A 053A	2
12 (120)	049A 051A 053A 054A	1
14 (150)	051A 053A 054A	NR

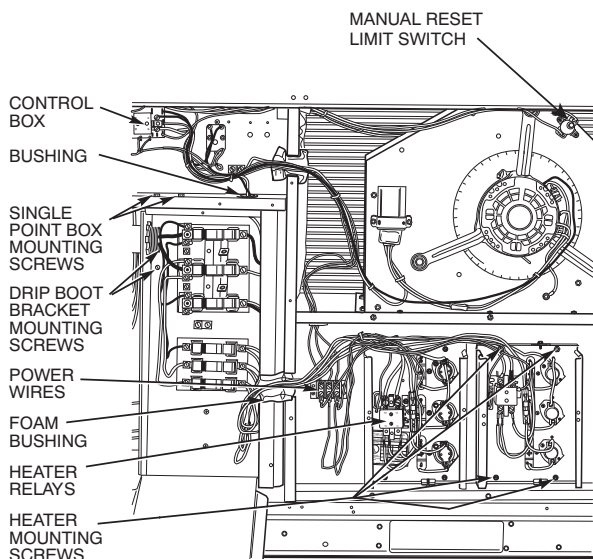
HP-2

HP-2	SPB	TB10 Qty
07 (072)	043A 045A	2
08 (090)	049A 051A 053A	2
09 (102)	049A 051A 053A 054A	1
12 (120)	049A 051A 053A 054A	NR

GENERAL INSTALLATION SEQUENCE

1. Pre-stage heater packages and single point boxes by placing the required component cartons at each unit.
2. Check the heater sales package number and single point box part number (if used) against the part numbers on the unit's infoplate. See Fig. 1 and 2 for typical data.
3. Disconnect power wiring into unit control box from factory-installed disconnect switch or HACR breaker and withdraw wiring from control box.
4. Install the single point box and connect power wiring tap conductors to field power terminals in main control box.
5. Install the electric heater module(s) and connect heater power conductors to single point box or main unit control box per appropriate connections figure. (See Appendix A, B and C.)
6. Connect the heater control contactors to unit terminal block TB4.
7. Mark the unit infoplate to indicate which heater module(s) have been installed.

8. Note the required wire size ampacity for the field power supply conductors as marked on the unit info plate as MIN CKT AMPS for accessory heater(s) plus convenience outlet and power exhaust when provided. Select and install suitable field power conductors from external safety disconnect to unit power connection points, or confirm wiring already provided is suitable for required MIN CKT AMPS.



C13467

Fig. 3 - Typical Single Point Kit Installation

UNIT SPECIFIC INSTALLATION INSTRUCTIONS

The unit-specific installation instructions are presented in two sections, grouped by common chassis and control box design. Section 1 covers smaller chassis models and starts on page 10. Section 2 covers the large chassis models and starts on page 18. See table below for section assignment for specific unit types and sizes.

Unit Size	Group AC-1	AC-2	AC-3	HP-1	HP-2
04, 036					
05, 048	SECTION 1 UNITS				
06, 060	SECTION 1 UNITS				
07, 072					
08, 090					
09, 102					
11					
12, 120					
14, 150	SECTION 2 UNITS				
16, 180	SECTION 2 UNITS				

SECTION 1 INSTALLATION, SMALL-MEDIUM CABINET

Product Groups/Sizes included in this section:

AC-1 04-14 (036-150)

AC-2 04-12 (036-120)

AC-3 04-07

HP-1 04-12 (036-120)

HP-2 04-09 (036-102)

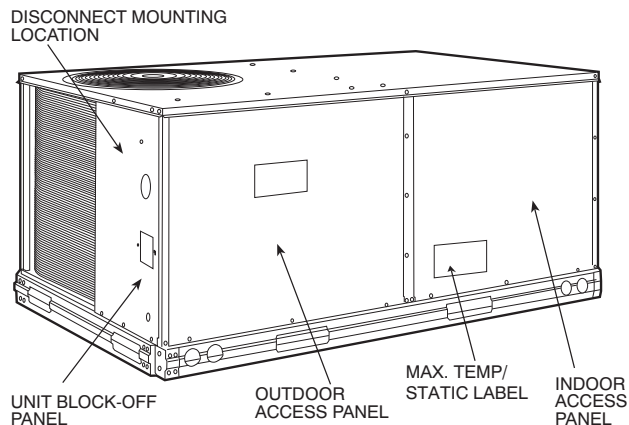
Check sales packages – Following the project drawing schedule tables or submittal documents, select the scheduled heaters and single point boxes (if used) and place at each unit.

Compare the sales package number(s) for scheduled heater modules against the approved usage table on the unit's info plate. See Fig. 1 and 2 for typical plate data. If the scheduled heater usage does not appear on the unit info plate label, STOP. Contact the project engineer or the local distributor sales office for clarification.

Open the cartons and inspect for damage.

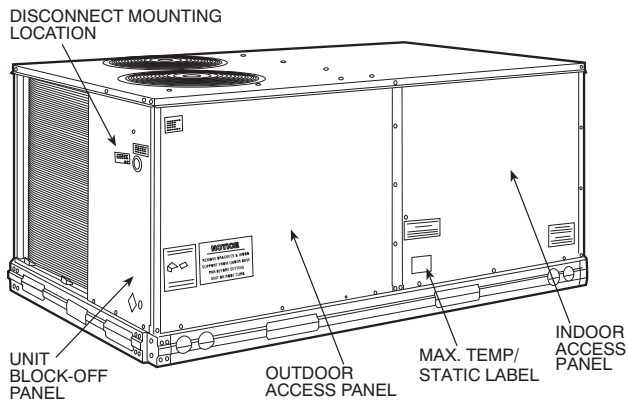
Disconnect field power supply

1. Disconnect power to the unit. Lock-out/tag-out on unit disconnect switch.
2. Remove the outdoor access panel, control box cover, and indoor access panels from the unit. Save screws. See Fig. 4-6.
3. Use a voltmeter to check that no power is present at unit terminal block.



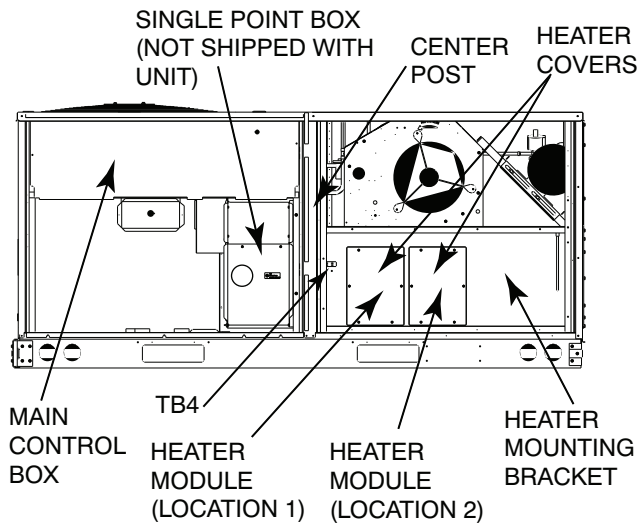
C11510

Fig. 4 - Typical Access Panel Location
(AC-1/HP-1 04-07/036-072, HP-2 04-06/036-060,
AC-2,3 04-06/036-060)



C11511

Fig. 5 - Typical Access Panel Location
(AC-1 08-14/090-150, AC-2 07-12/072-120, AC-3 07,
HP-1 08-12/090-120, HP-2 07-09/072-102)



C11514

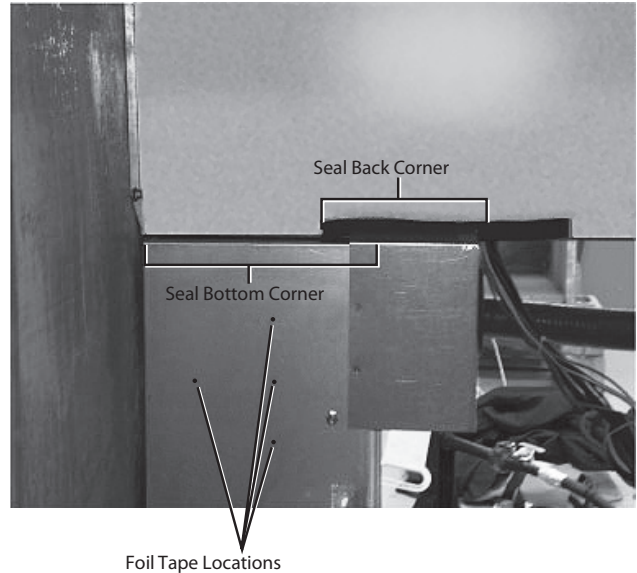
(All units except large [3 outdoor fan] cabinet)

Fig. 6 - Typical Component Location

4. Remove control box cover and center post. Save screws. (See Fig. 6.)
5. If unit does not have the factory-installed disconnect or HACR option or has not had field power wiring connected, skip to Step 6.
When unit is equipped with factory-installed disconnect or HACR or has field power wiring connected, disconnect the power leads at the control box terminals and withdraw the conductors from the control box.
6. Add seal strip to the rear bottom corner of the control panel as shown in Fig. 7. Foil tape open screw holes on the back of the single point box as shown in Fig. 7. Different single point boxes will have different screw holes open.
7. All bushings in the area of the control box where the single point box (SPB) mounts, must be removed prior to securing the SPB to the control box. (See Fig. 8.) Also, for units installed in the snow belt, all unplugged holes in the bottom of the control

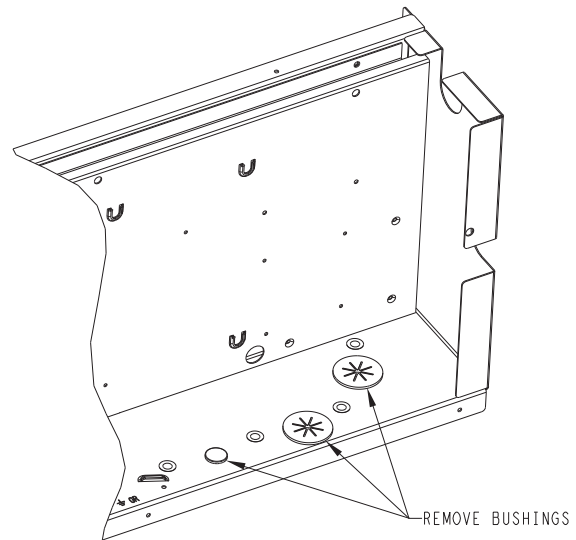
box which are not used must be plugged before installing the SPB. Use foil tape or reinstall the bushings from the outside of the control box prior to securing the SPB. (See Fig. 9.)

8. Remove the single point box cover. Secure single point box to the underside of the control box with the 2 screws provided. (See Fig. 3.) Re-install bushing on the SPB tap conductors. (See Fig. 9.)
9. Secure the rainshield (conduit drip boot bracket) assembly to the back of the single point box with 2 of the screws provided. (See Fig. 3.) The channel portion of the bracket assembly extends to the top panel behind the control box. Secure all wires to bracket with field-supplied wire tie as shown. (See Fig. 13.)



C101085

Fig. 7 - Seal Strip and Foil Tape Locations



C09005

Fig. 8 - Control Box - Bushings to Remove

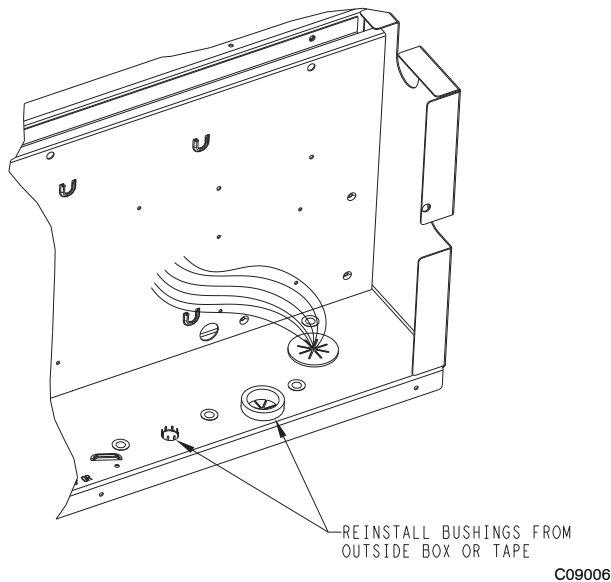


Fig. 9 - Bushings Replaced from Outside Control Box

10. Connect power tap conductors to unit main control box.

a. **Single point boxes with two or three tap conductors**--Route the tap conductors (with bushing added per Step 5) into the unit main control box. Connect the power tap conductors to the designated terminals in the unit's control box for field power connections. Refer to the wiring diagram in the unit, to unit installation instructions for Field Power Wiring Connections or to Appendix A, B or C.

b. **Single point boxes with six tap conductors**
(CRSINGLE043A00, 045A00, 049A00, 051A00, 053A00 and 054A00)

These single point boxes include two sets of three-lead power tap conductors connected to two separate fuse blocks, at FU2 and FU3.

These kits also include two terminal blocks (TB10A and TB10B) and attachment screws; the TB10 block usage will be two, one or none, based on base unit.

Refer to TB10 usage tables on page 9 to determine quantity required for this unit.

(1.) Units requiring TWO TB10 terminal blocks

Mount these terminal blocks in the unit's control box next to compressor contactor C1. (See Fig. 10 and Appendix A or C.)

Locate two 42-in (1067 mm) BLU and YEL wires with single insulated female terminal shipped in a bag with this kit.

At the single point box, locate the BLU tap conductor on fuse block FU2 (upper block); disconnect and discard. Connect the 42-in BLU wire to FU2.

At the single point box, locate the YEL tap conductor on fuse block FU3 (second block); disconnect and discard. Connect the 42-in YEL wire to FU3.

In the unit control box, relocate these wires:
At IFC terminal 13, disconnect Compressor 1 BLU and Compressor 2 ORN leads; reconnect at TB10A. At C1 terminal 13, disconnect ID Fan YEL lead; reconnect at TB10B. At C1 terminal 11, disconnect BLK jumper; reconnect to IFC terminal 11.

Route the first set of tap conductors (attached at upper fuse block, with bushing per Step 5) into the main control box; connect at:

BLK: C1 terminal 11

YEL: C1 terminal 13

BLU (long lead with terminal): TB10A

Route the second set of tap conductors (attached at second fuse block) into the main control box; connect at:

BLK: IFC terminal 11

YEL (long lead with terminal): TB10B

BLU: IFC terminal 13

(2.) Units requiring ONE TB10 terminal block

Locate two 42-in (1067 mm) BLU and YEL wires with single insulated female terminal shipped in a bag with this kit.

At the single point box, locate the BLU tap conductor on fuse block FU3 (second block); disconnect and discard. Connect the 42-in BLU wire to FU3.

Mount one TB10 terminal block in the unit's control box between compressor contactors C1 and C2. (See Fig. 10.)

Relocate these wires:

At IFC terminal 13, disconnect Compressor 2 ORN and OFM BLU leads; reconnect at TB10.

Remove these leads:

At C1-11, remove BLK jumper to C2-11.

Discard.

At C1-13, remove YEL jumper to C2-13.

Discard.

Route the first set of tap conductors (attached at upper fuse block, with bushing per Step 5) into the main control box; connect at:

BLK: C1 terminal 11

YEL: C1 terminal 13

BLU: IFC terminal 13

Route the second set of tap conductors (attached at second fuse block) into the main control box; connect at:

BLK: C2 terminal 11

YEL: C2 terminal 13

BLU: TB10

(3.) Units requiring NO TB10 terminal block

Route the first set of tap conductors (attached at upper fuse block, with bushing per Step 5) into the main control box.

Route the second set of tap conductors (attached at second fuse block) into the main control box.

Connect both sets of tap conductors to unit terminal block TB1; connect at:
 BLK: terminal 11
 YEL: terminal 12
 BLU: terminal 13

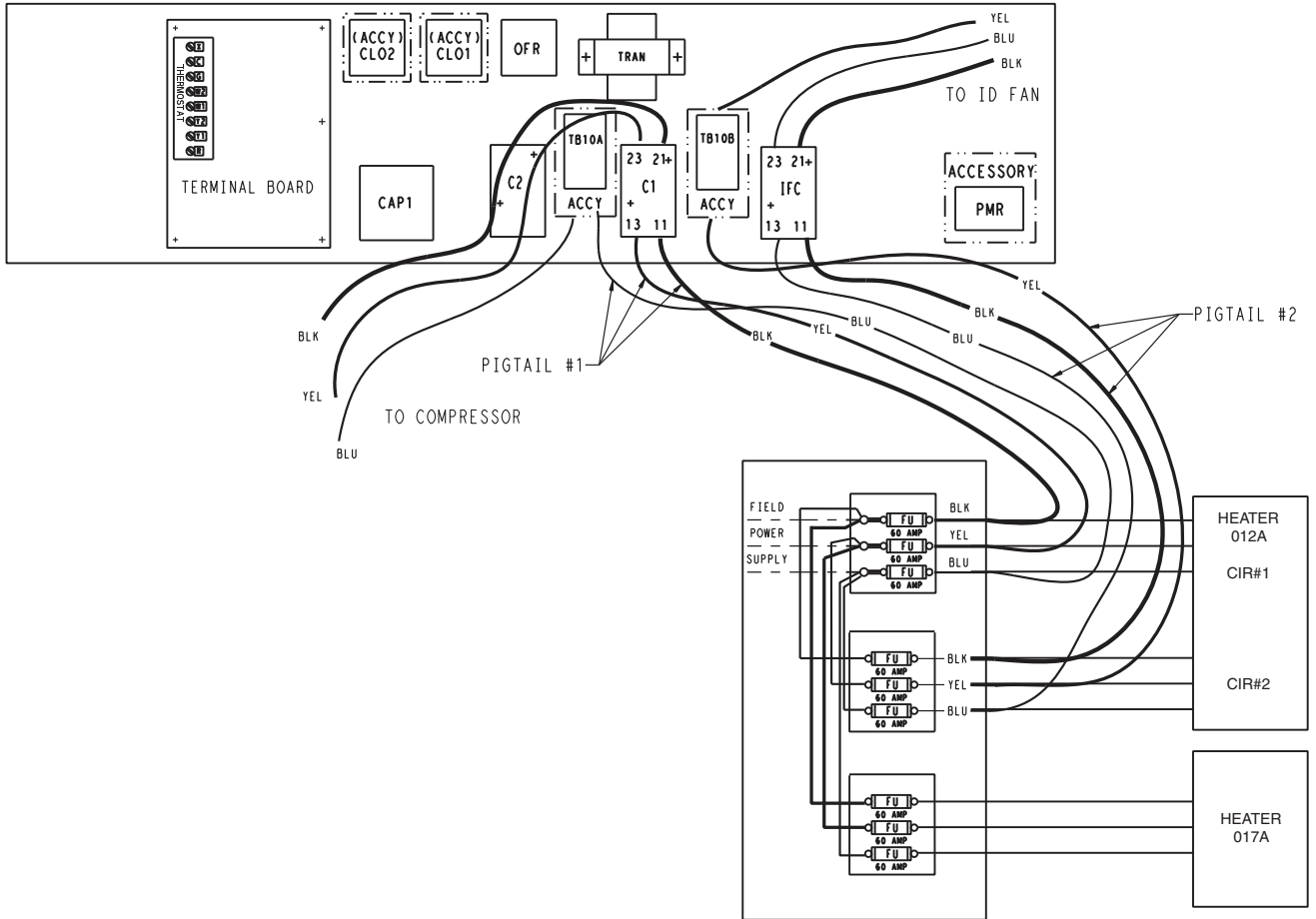


Fig. 10 - TB10 Locations and Connections

C101084

Installing Electric Heater CRHEATER101A00-109A00, 110A-112A00, 103B00, 104B00, 113B00-116B00, 117A00, 128B00, 129B00, 264A00-269A00, 297A00-299A00, 301A00, 308A00, 316A00-322A00

1. Identify heater cover(s) to remove. See Fig. 16 and 17. On units without the notch in slot 2 (units with a production date before September 28, 2009) where a heater(s) needs to be replaced with one of CRHEATER113B00-116B00, 128B00-29B00, it is recommended to drill out the rivets fastening the restrictor plate to the back of the heater control box/mounting plate and remove the restrictor plate. It is not recommended to bend the restrictor plate flat to allow the heater to be installed into slot 2 because it will leave air gaps between the heater mounting plate and the unit mounting bracket. See Fig. 11 and 12.
 - a. All two-heater installations: Remove both heater covers. Save covers and screws.
 - b. All single-heater installations EXCEPT 113B00-116B00, 265A00-269A00, 299A00, 301A00: Remove the heater cover at Heater 1 position. Save cover and screws.
 - c. Heater CRHEATER113B00-116B00, 265A00-269A00 ONLY: Remove the heater cover at Heater 2 position. Save cover and screws.
 - d. Heater CRHEATER128B00, 129B00, 301A00 ONLY: Remove both heater covers. Save the screws. Discard the covers.
2. Open the heater package(s) and remove the heater module, heater support track (where provided), heater cover (where provided), screws, wiring label, miscellaneous parts.

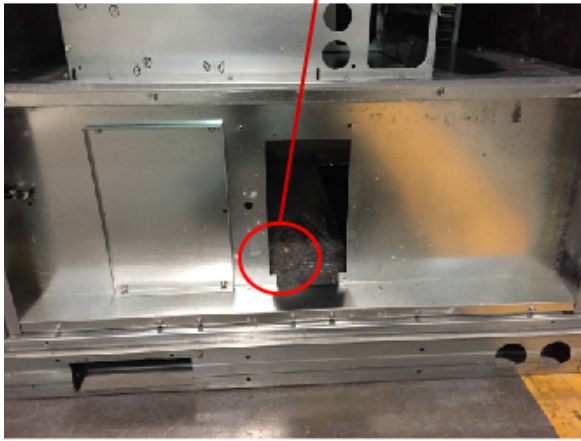
3. All heaters EXCEPT CRHEATER101A00-109A00, 265A00-269A00, and 301A00: Install heater slide bracket(s) from the heater kit through the bottom of the heater mounting hole(s) and fasten each with the two screws provided. (See Fig. 17.)
4. Install the heater module(s) in the heater support bracket opening(s). On two-heater installations where there is no key-forced heater position (see right hand photo in Fig. 12 for example of notch in slot 2 that makes a key forced heater position), install the heater with the higher kW rating in heater position 1.
 - a. Heaters 101A00-109A00, 265A00-269A00: To install module, insert heater frame into location notch in heater bracket opening in unit and slide heater through the opening. Fasten heater module to heater mounting bracket with the 4 screws saved from Step 1. (See Fig. 16.)
 - b. Heater CRHEATER301A00 only: To install module, insert both heater frames into location notches in heater bracket opening in unit and slide heater through the opening. Fasten heater module to heater mounting bracket with the 4 screws saved from Step 1. (See Fig. 19.)
 - c. Heater CRHEATER128B00-129B00 only: To install module, insert heater frame into slot 2 in heater bracket opening in unit, engage flange on heater with track in unit, and slide heater through the opening. Fasten heater module to heater mounting bracket with 8 screws saved from Step 1. (See Fig. 18.)
 - d. All other heaters: To install module, engage flange on heater with track in unit and slide heater through mounting bracket opening. Fasten heater module to heater mounting bracket with the 4 screws saved from Step 1. (See Fig. 17.)



RESTRICTOR PLATE

Fig. 11 - Two views of the restrictor plate. (The view shown is for CRHEATER113B00-116B00 . The restrictor plate is also present on the CRHEATER128B00-129B00 that has the larger heater mounting plate.)

Units produced before September 28, 2009, do not have a notch in slot 2.



Units produced on or after September 28, 2009, have a notch in slot 2.

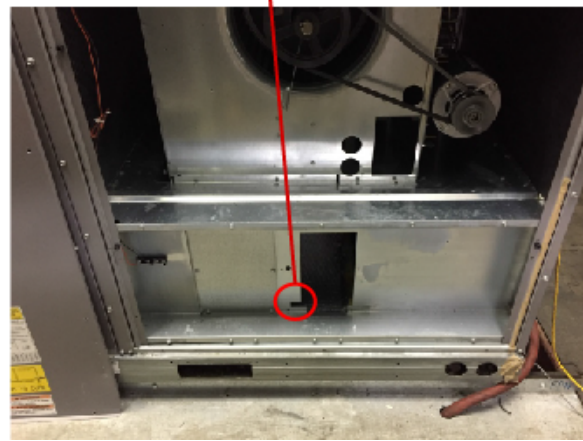


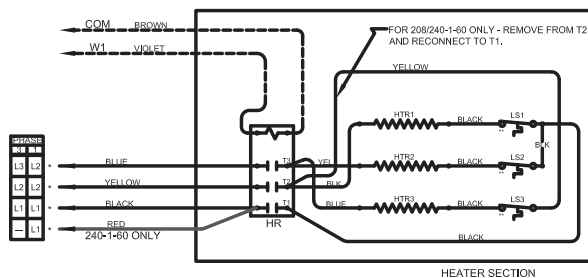
Fig. 12 - Examples of slot 2 without notch and with notch

5. Single-phase heater conversion 208/230-v heaters 101A00-104B00 are factory-wired for 3-phase applications but can be converted to single-phase by changing one wire as described below.

Three-phase applications: Skip to Step 6. For single-phase applications, rewire the heater as follows (see Fig. 13):

- a. Connect RED wire provided with kit to Heater Relay (HR) and to L1 as shown.
- b. Disconnect YELLOW wire from HR Terminal 2 and reconnect to HR Terminal 3.
- c. Heater CRHEATER128B00-129B00 only: To install module, insert heater frame into slot #2 in heater bracket opening in unit, engage flange on heater with track in unit and slide heater through the opening. Fasten heater module to heater mounting bracket with 8 screws saved from Step 1. (See Fig. 18.)
- d. Using the wire tie provided, fasten the RED wire to heater power wire harness near existing wire tie on heater module. This provides strain relief for the RED wire. (See Fig. 14.)

Connect the BLACK and RED conductors in the heater power wire harness to the same L1 pole on single point box TB or fuse block. Connect the BLUE and YELLOW conductors in the heater power wire harness to the same L2 pole on single point box TB or fuse block. (See Fig. 13.)



WARNING: ELECTRIC SHOCK HAZARD - DISCONNECT ALL BRANCH CIRCUITS BEFORE REMOVING THIS COVER.

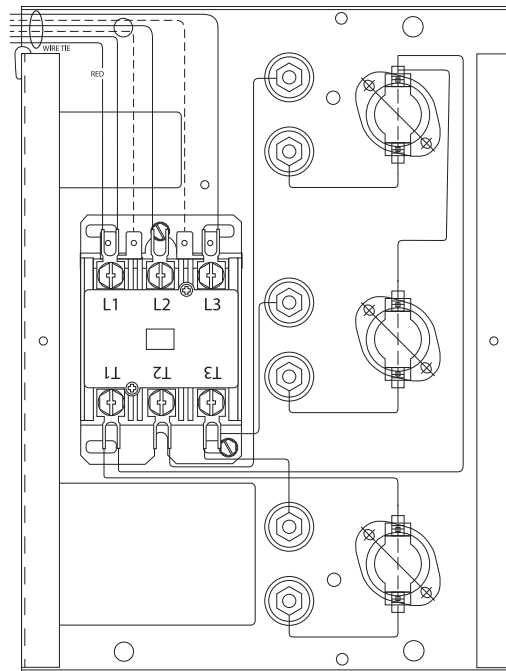
NOTE:

- Power supply wiring per NEC & local codes. Suitable for at least 75° C
- Use copper conductor wiring only.
- Field wire, NEC Class I
- ** Replace Auto Reset with Therm-O-Disc type 60TX11-F195-80

LEGEND
 HR - Heater Relay
 HTR - Heater
 LS - Limit Switch
 - - - Control Wiring
 — — — Power Wiring

Fig. 13 - Single-Phase Heater Wiring

C14214



C14216

Fig. 14 - Typical Single-Phase Wiring Installed

6. Route power wires from heater module(s) through the foam bushing in the center partition and into the single point box. (See Fig. 3.) Connect to terminal block or fuse blocks per schematics in Appendix A or B. See Tables at beginning of each Appendix to identify the appropriate figure.

All heaters are single bank heaters except CRHEATER111A00, 112A00, 128B00, 129B00, 268A00, 269A00, 301A00, 318A00, and 321A00 which are dual bank heaters. These heaters will be wired as two heaters (i.e., 6 leads). Fusing is shown pictorially on the unit wiring schematic label.

If no single point box is required for the unit and heater combination, run the heater power supply wiring through the grommet holes to the main unit control box's field power connection points or to optional factory-supplied disconnect.

7. Factory control wiring for heaters runs from unit control box to terminal block TB-4, mounted in the heater compartment above module 1 location. (See Fig. 6 and 19-24.) Connect the heater control wiring at TB-4.

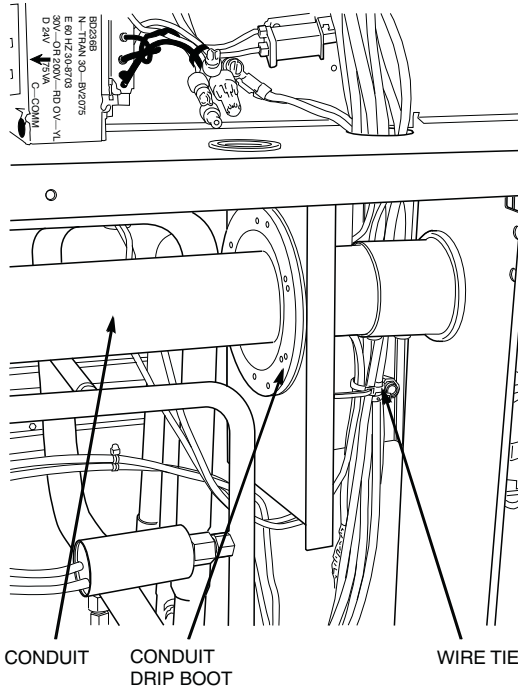
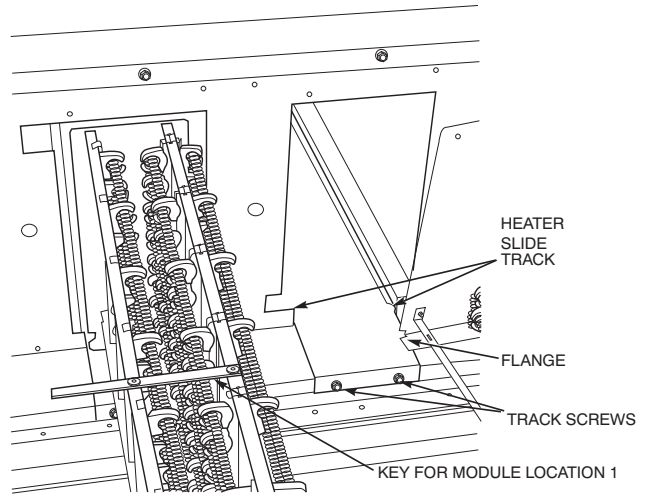


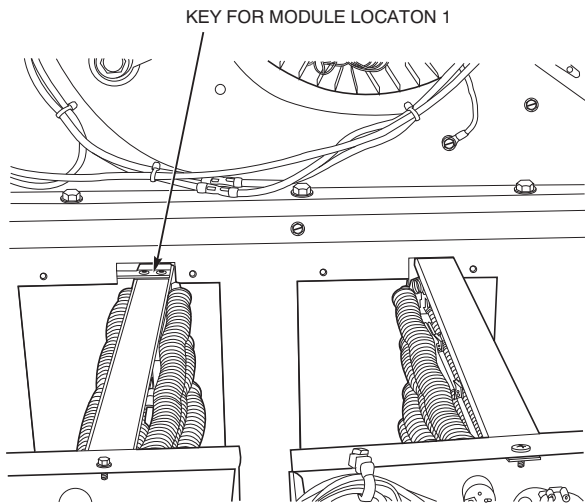
Fig. 15 - Typical Conduit Installation

C08417



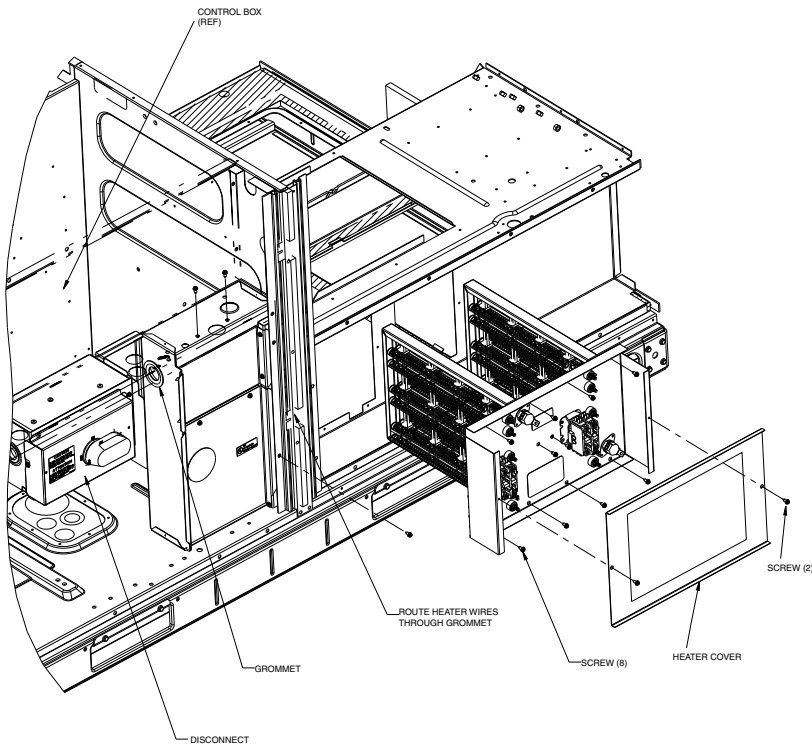
C10557

Fig. 17 - Typical Module Installation
 (AC-1 Sizes 08 to 14 and 090 to 150, AC-2 Sizes 07-12,
 HP-1 Sizes 08-12 and 090 to 121, HP-2 Sizes 07-09)



C09010

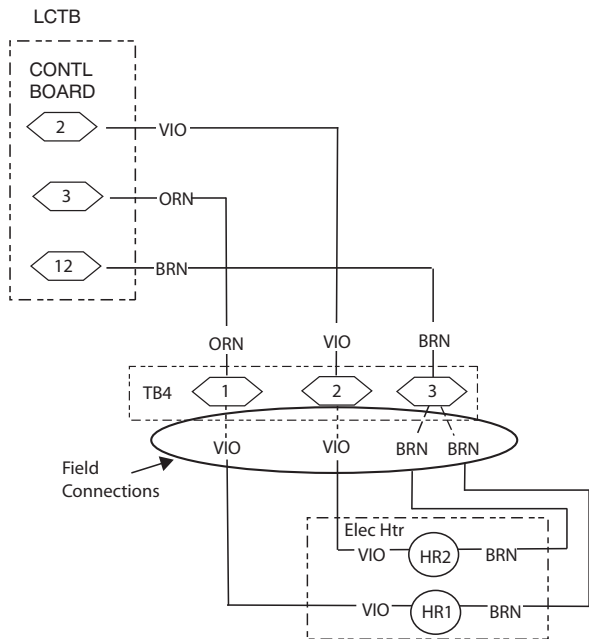
Fig. 16 - Typical Electric Heat Installation
 (AC-1 Sizes 04 to 07 and 036 to 072, AC-2 Sizes 04-06,
 HP-1 Sizes 04-07 and 036 to 072, HP-2 Sizes 04-06)



Only CRHEATER301A00 is shown in the figure.
 CRHEATER128B00-129B00 has only one bank of
 heaters with a wide mounting plate covering both slots.

C13447

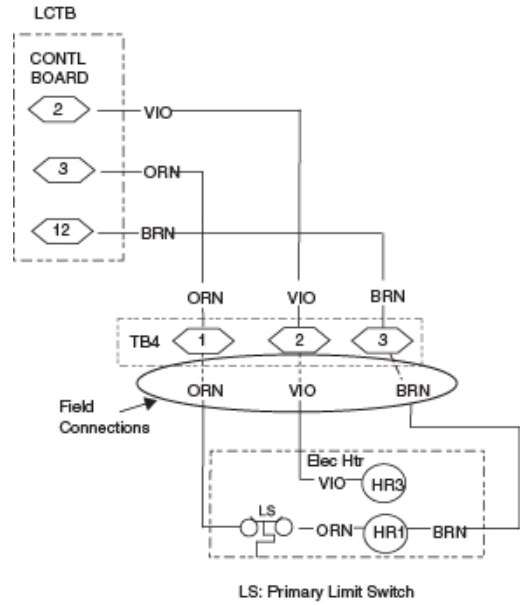
**Fig. 18 - Installing CRHEATER301A00
 and CHEATER128B00-129B00**



HR1: On Heater 1 in Position #1
 HR2: On Heater 2 in Position #2 (if installed)

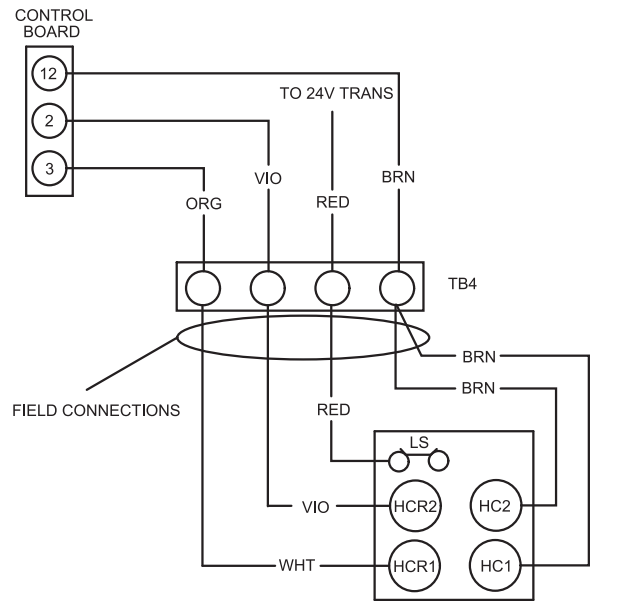
C08331

**Fig. 19 - Accessory Electric Heater Control
 Connections (AC-1 Except Size 16 and 180,
 AC-2 Except Size 14 and 150)**



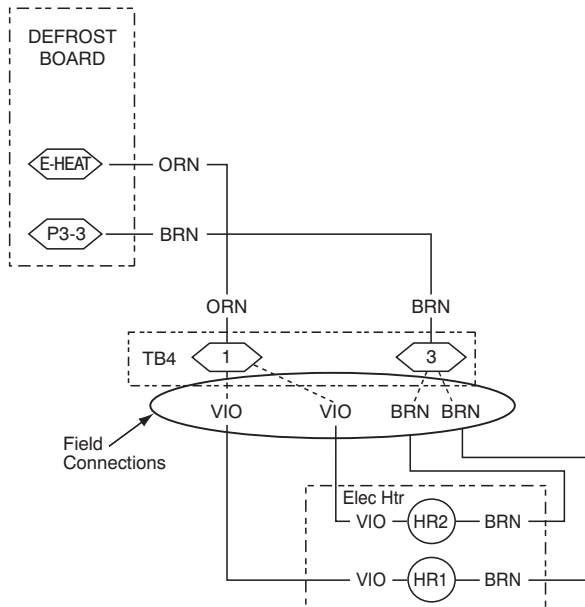
For simplicity, not all control wiring internal
 to the electric heaters is shown.

**Fig. 20 - Accessory Electric Heater Control
 Connections (AC-1 Size 08-14, AC-2 Size 08-12)
 (CRHEATER128B00, 129B00 only)**



C11555

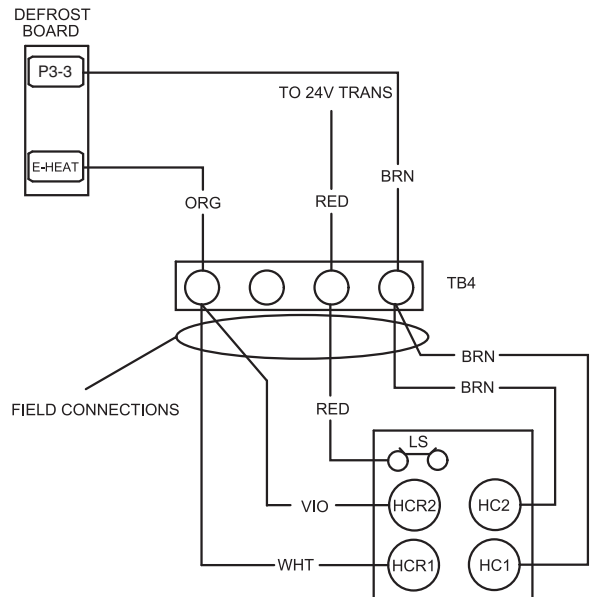
**Fig. 21 - Accessory Electric Heater Control Connections
 (AC-2, Size 06 and 060, 575V only)**



HR1: On Heater 1 in Position #1
 HR2: On Heater 2 in Position #2 (if installed)

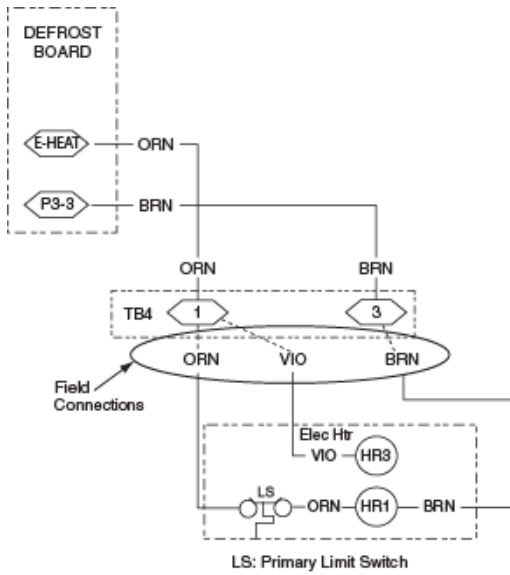
C09013

Fig. 22 - Accessory Electric Heater Control Connections (HP-1 Except Size 14 and 150, HP-2 Except Size 12 and 120)



C11554

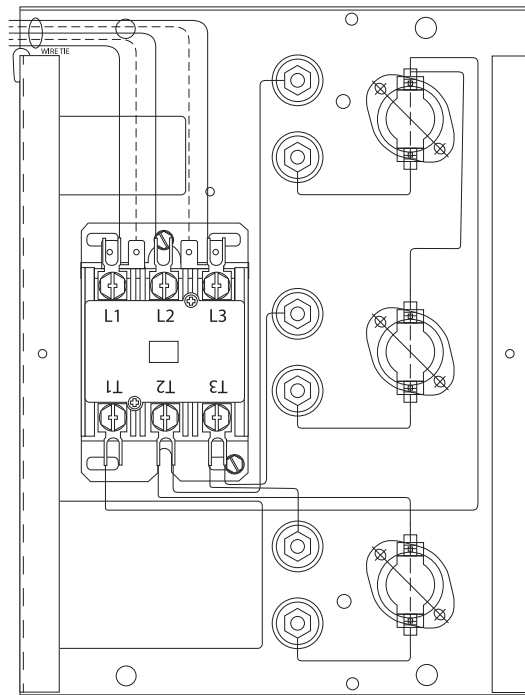
Fig. 24 - Accessory Electric Heater Control Connections (HP-2, Size 06 and 060, 575V only)



LS: Primary Limit Switch

For simplicity, not all control wiring internal to the electric heaters is shown.

Fig. 23 - Accessory Electric Heater Control Connections (HP-1 Size 08-12, HP-2 Size 08-09) (CRHEATER128B00, 129B00 only)



C14217B

Fig. 25 - Typical 3-Phase Wiring Installed

SECTION 2

INSTALLATION, LARGE CABINET

Product Groups/Sizes included in this section:

- AC-1 16 (180)
- AC-2 14 (150)
- AC-3 08-12
- HP-1 14 (150)
- HP-2 12 (120)

Check sales packages – Following the project drawing schedule tables or submittal documents, select the scheduled heaters and single point boxes (if used) and place at each unit.

Compare the sales package number(s) for scheduled heater modules against the approved usage table on the unit's infoplate. See Fig. 1 and 2 for typical plate data. If the scheduled heater usage does not appear on the unit infoplate label, STOP. Contact the project engineer or the local distributor sales office for clarification.

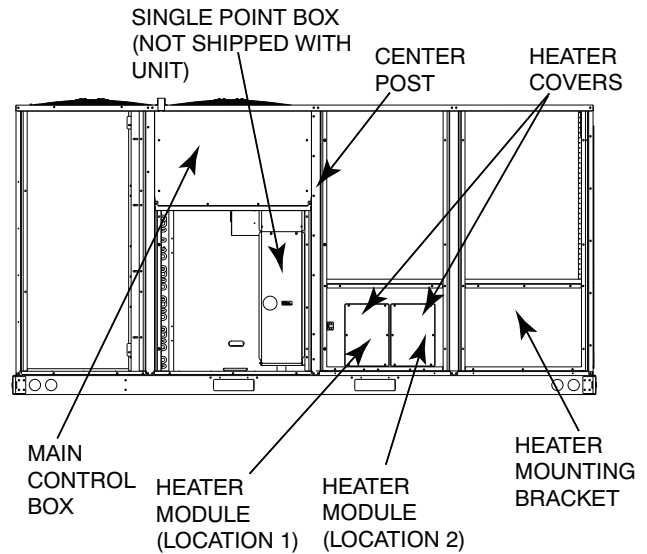
Open the cartons and inspect for damage.

Disconnect field power supply

1. Disconnect power to the unit. Lock-out/tag-out on unit disconnect switch.
2. Open and remove the access panel and cover to the main control box.
3. Use a voltmeter to check that no power is present at unit terminal block.

Install Single Point Box (CRSINGLE047A00, 049A00, 050A00-054A00)

1. Remove kits from boxes and verify that all of the correct parts have arrived undamaged.
2. If power is already connected to unit, disconnect all power to the unit per correct lock-out/tag-out procedures. Disconnect field power wiring or optional factory-installed disconnect or HACR power leads at TB1 and withdraw the wiring from the unit control box.
3. Remove outdoor access, control box, and left indoor access panels from the unit and save screws. See Fig. 26. Fig. 27 shows the unit with the panels already removed.
4. Optional – The center post may be removed to facilitate wiring.
5. Remove the bushings and plug from the control panel per Fig. 28. Save the bushings and discard the plug.
6. Add seal strip to the rear bottom corner of the control panel as shown in Fig. 29.
7. Foil tape open screw holes on the back of the single point box as shown in Fig. 29. Different single point boxes will have different screw holes open.



C11515
(AC-1 16/180, AC-2 14/150, AC-3 08-12, HP1 14/150, HP-2 12/120)

Fig. 26 - Typical Component Location

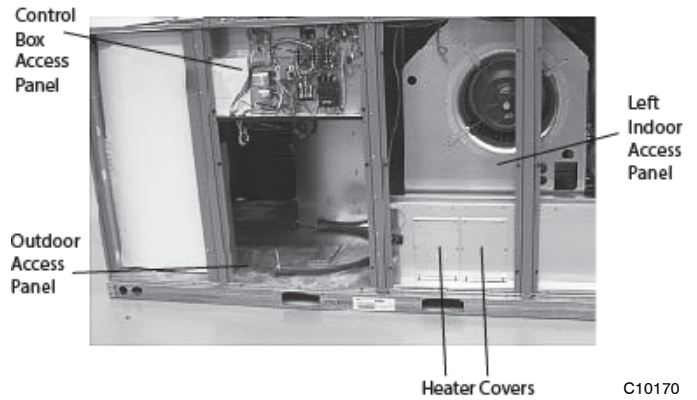


Fig. 27 - Typical Unit with Access Panels Removed

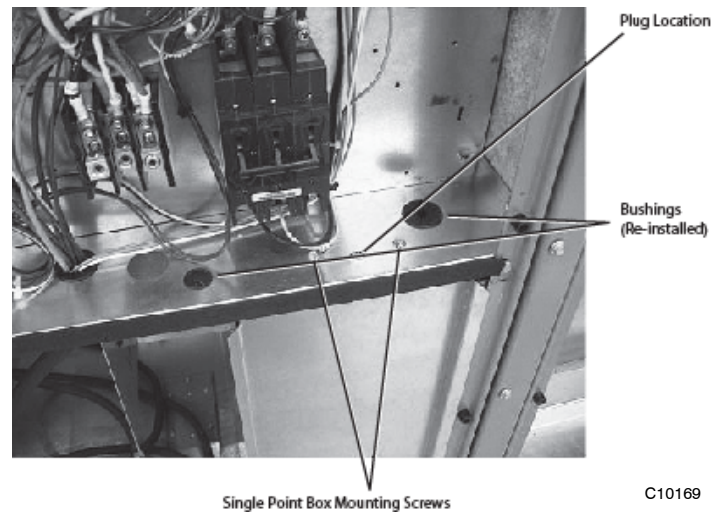
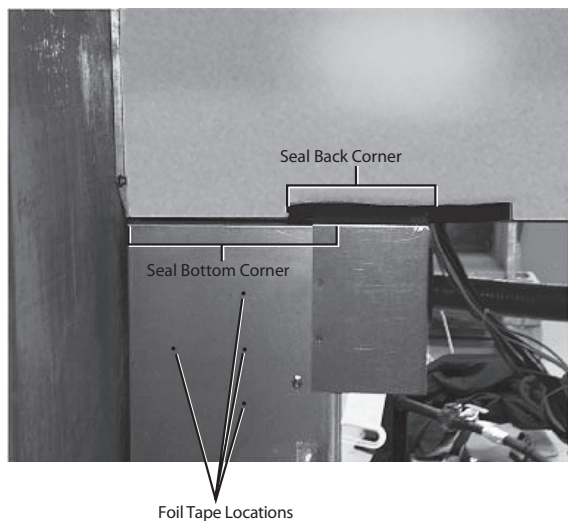


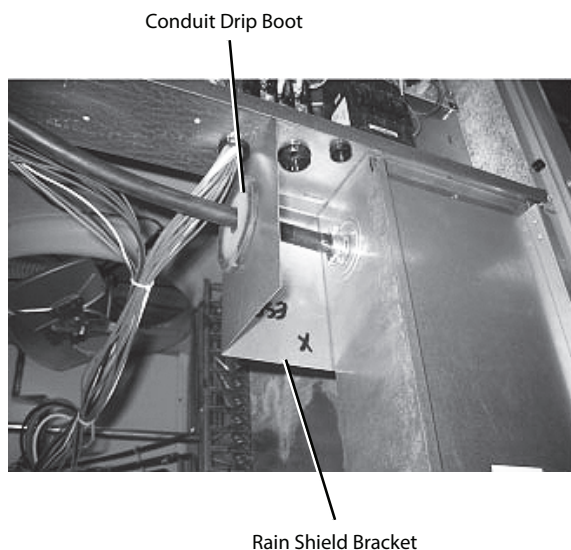
Fig. 28 - Single Point Box Installation Details



C101085

Fig. 29 - Seal Strip and Foil Tape Locations

8. Remove the cover from the single point box.
9. Install the single point box under the control panel with two screws down through the control panel (Fig. 28) and one screw (not shown) into the center post. (See Fig. 28.) Holes have been provided. Foam wire guides in the center post may have to be removed. If center post was removed per step 4, the single point box will have to be screwed into it later.
10. The single point box kit will contain two rain shield brackets, a larger bracket with boot seal and a smaller (shorter) bracket without a seal. Remove the seal from the larger bracket and push the conduit drip boot into the short rain shield bracket. (See Fig. 30.) Discard the larger bracket.



C10167

Fig. 30 - Rain Shield Installation

11. Install the rain shield bracket to the left and behind the single point box using the two screws and holes provided.
12. Re-install the bushings removed in Step 5.
13. Connect the tap conductors.
 - a. CRSINGLE047A00, 050A00 and 052A00
Connect the blue, yellow, and black power tap

conductors (pigtails) from the single point box to the unit's power terminal block TB-1 per unit label wiring schematic and per Appendix A or B and connection figures. A representative installation of two 480V heaters and corresponding single point box is shown in Fig. 31, 32, and 33.

- b. CRSINGLE051A00, 053A00 and 054A00 These kits include two sets of tap conductors (blue, yellow and black pigtails) connected at fuse blocks 1 and 2. Connect these leads in parallel to the unit's power terminal block TB-1 per the unit label wiring schematic and per Appendix A, B or C and connection figures. (These kits also include two small terminal blocks (TB10). The TB10 blocks are not used with large cabinet units in this section; discard.)

Install CRHEATER288A00-296A00

1. Remove and save the heater covers.
2. Install heater slide track(s) from the heater kit through the bottom of the heater mounting hole(s) and fasten each with the two screws provided. (See Fig. 34.)
3. Install the heater(s) (Fig. 35, 230V shown) into their mounting location(s) using the screws provided. Tables 2 and 3 give the correct heater location as a function of heater size, voltage, and supply air flow direction and unit supply air opening size.

NOTE 1: Heaters with Restrictor Plates

Heater part numbers CRHEATER288A00, 289A00, 290A00, 294A00, 295A00 and 296A00 have a Restrictor Plate attached to the heater base plate (see Fig. 36). The horizontal projection of this plate engages a slot on the lower left-hand side of Heater Position 2 (right-hand opening), thus permitting a heater mounting in the right-hand heater opening and preventing its inadvertent mounting in the left-hand heater opening.

On certain heater applications in Tables 2 and 3, designated by a dagger (†) symbol, a heater with a Restrictor Plate must be installed in the left-hand heater opening. On these installations ONLY, remove the two screws at the Restrictor Plate, remove the plate and discard the plate and screws. Apply foil tape over the open screw holes.

NOTE 2: Heater CRHEATER295A00, Vertical Unit, Table 3.

The mounting location for heater CRHEATER295A00 differs based on unit type. When this heater is installed in a unit type AC-1, AC-2 or AC-3 with vertical supply duct (unit base opening size is approximately 36 x 28 inches), the heater is located in Heater Position 2 (right-hand opening), with Restrictor Plate intact.

When this heater is installed in a unit type HP-1 or HP-2 with vertical supply duct (unit base opening size is approximately 30 x 16 inches), the heater is located in Heater Position 1 (left-hand opening) and Restrictor Plate must be removed. On these installations ONLY, remove the two screws at the Restrictor Plate, remove the plate and discard the plate and screws. Apply foil tape over the open screw holes.

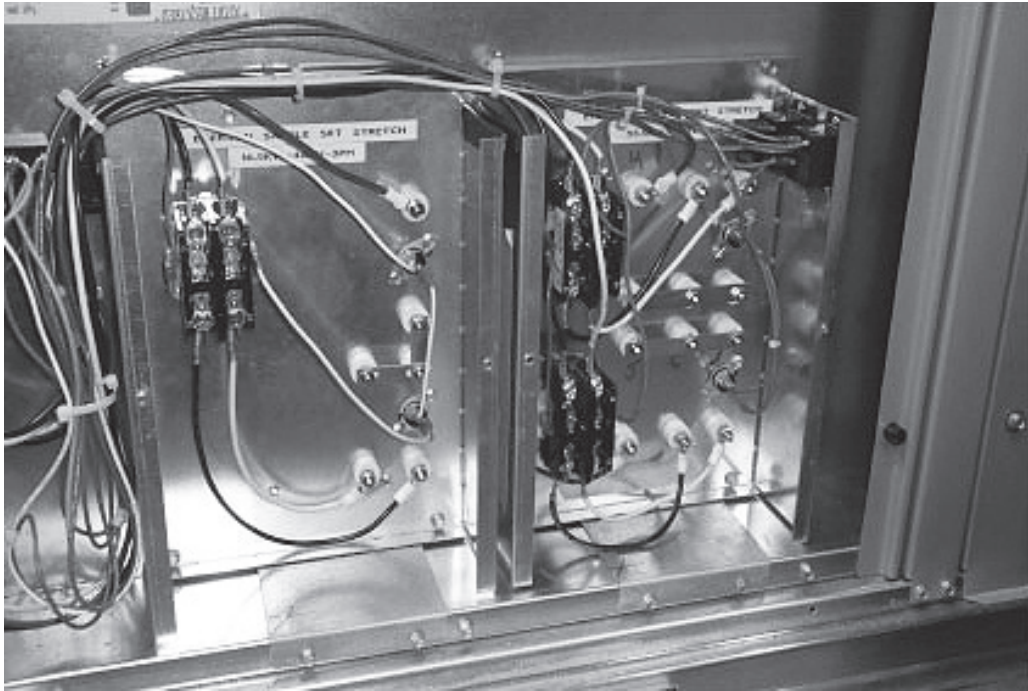


Fig. 31 - Heater Wiring (2-pole contactor shown, has been replaced with 3-pole contactor.)

C10174

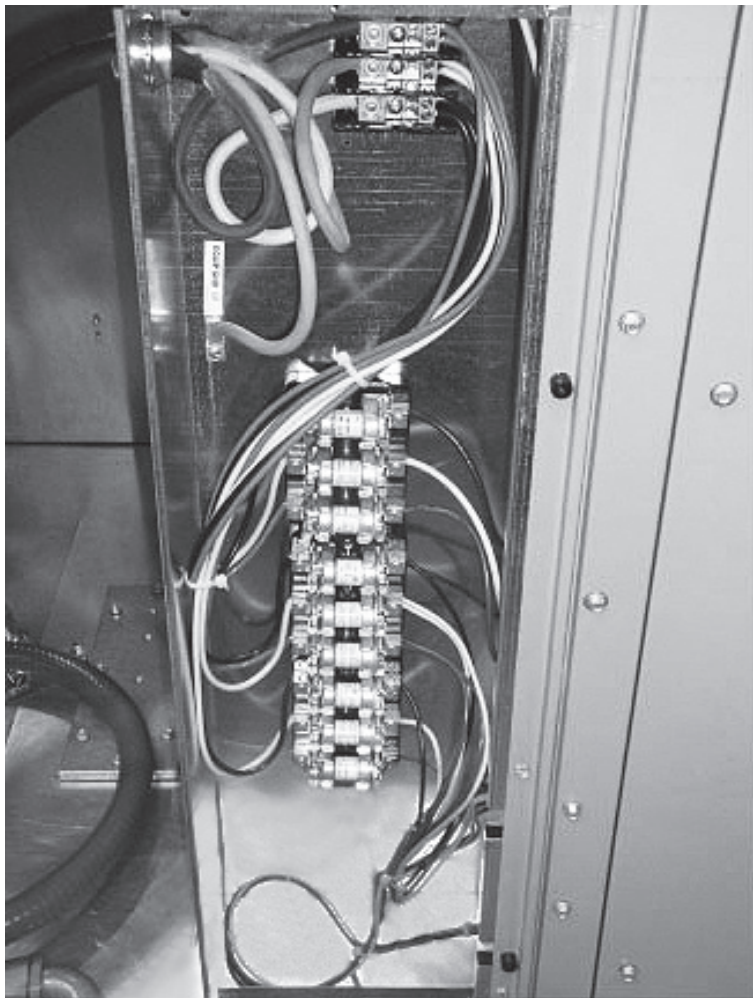


Fig. 32 - Typical Single Point Box Wiring

C10172

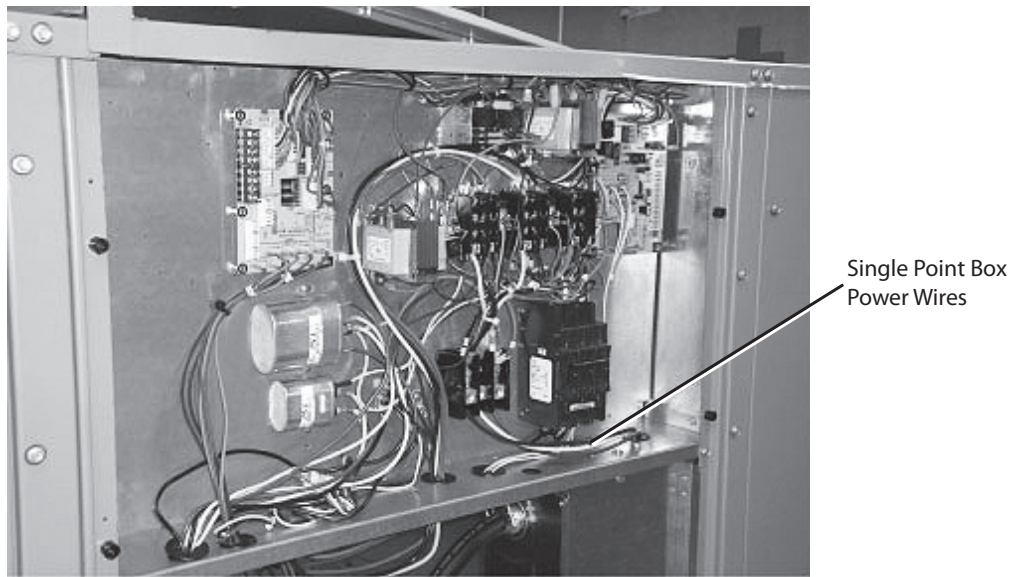


Fig. 33 - Typical Control Panel Wiring

C10175

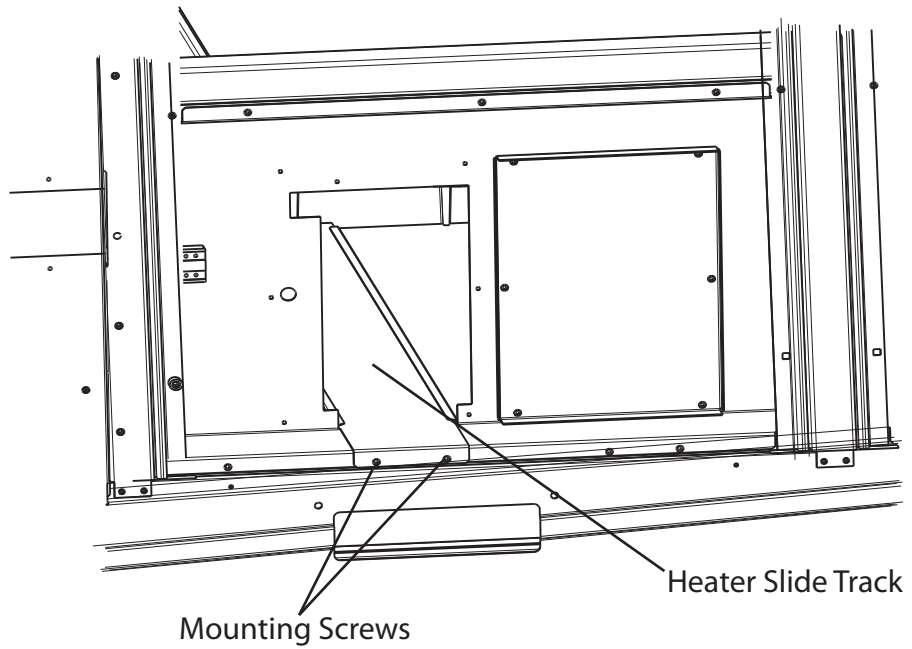
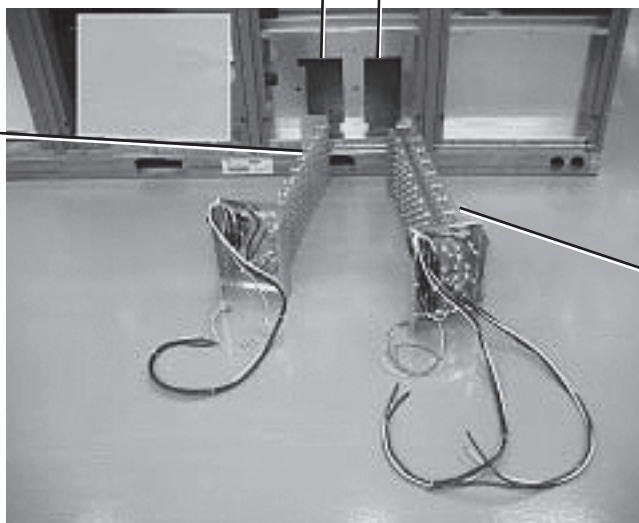


Fig. 34 - Heater Slide Track Installation

C10198

Heater Mount Locations

Single Element
Heater Module



Dual Element
Heater Module

Fig. 35 - Typical Heaters

C10168

Table 2 – Heater Location for Horizontal
Return and Discharge*

Heater CRHEATERXXXX00	kW	Volts	Heater Slot Location	
			Left	Right
288A	10.0	240	-	288A
291A	16.5	240	291A	-
288A + 291A	26.5	240	291A	288A
294A	33.5	240	-	294A
288A + 294A	43.5	240	288A†	294A
291A + 294A	50.0	240	291A	294A
294A + 294A	67.0	240	294A†	294A
289A	10.0	480	-	289A
292A	16.5	480	292A	-
289A + 292A	26.5	480	292A	289A
295A	33.5	480	-	295A
289A + 295A	43.5	480	289A†	295A
292A + 295A	50.0	480	292A	295A
295A + 295A	67.0	480	295A†	295A
290A	10.0	600	-	290A
293A	16.5	600	293A	-
290A + 293A	26.5	600	293A	290A
296A	33.5	600	-	296A
290A + 296A	43.5	600	290A†	296A
293A + 296A	50.0	600	293A	296A
296A + 296A	67.0	600	296A†	296A

* XXXX - 4 digit heater in table. For example, a CRHEATER291A000 is listed as a 291A.

† Remove Restrictor Plate to install in Left Slot Location. Use foil tape to cover holes.

Table 3 – Heater Location for Vertical
Return and Discharge*

Heater CRHEATERXXXX00	kW	Volts	Heater Slot Location	
			Left	Right
288A	10.0	240	-	288A
291A	16.5	240	291A	-
288A + 291A	26.5	240	291A	288A
294A	33.5	240	-	294A
288A + 294A	43.5	240	288A†	294A
291A + 294A	50.0	240	291A	294A
294A + 294A	67.0	240	294A†	294A
289A	10.0	480	-	289A
292A	16.5	480	292A	-
289A + 292A	26.5	480	292A	289A
295A (See Note 2, Page 20)	33.5	480	295A † (HP-1 HP-2 only)	295A (AC-1, AC-2, AC-3 only)
289A + 295A	43.5	480	289A†	295A
292A + 295A	50.0	480	292A	295A
295A + 295A	67.0	480	295A†	295A
290A	10.0	600	-	290A
293A	16.5	600	293A	-
290A + 293A	26.5	600	293A	290A
296A	33.5	600	-	296A
290A + 296A	43.5	600	290A†	296A
293A + 296A	50.0	600	293A	296A
296A + 296A	67.0	600	296A†	296A

* XXXX - 4 digit heater in table. For example, a CRHEATER291A000 is listed as a 291A.

† Remove Restrictor Plate to install in Left Slot Location. Use foil tape to cover holes.

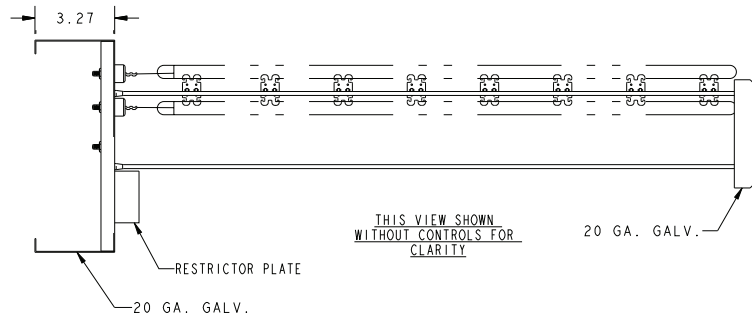
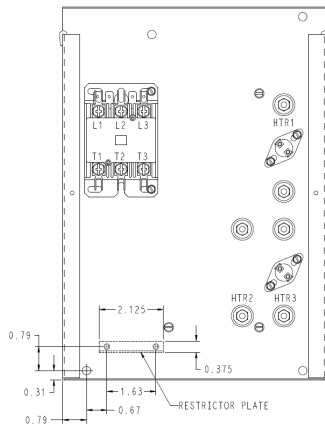


Fig. 36 - Restrictor Plate

C14215

4. Connect the heater control wiring to terminal block TB4 (located left of heaters, see Fig. 46 and 47.)

TB4 has five terminals. (See Fig. 37 and 39.) Bottom row left terminal is “R Use”; it has a factory RED connection. Bottom row right terminal is “C Use”; it has a factory BRN connection. For AC units, top row left is designated as “W1 Use” and has factory ORN connections. The top row center is designated as “W2 Use” and has factory VIO connections. For HP units, top row left and center terminals are designated “W2 Use” and have factory ORN connections. The fifth terminal is for field-option connection of a staging control.

CRHEATER288A00-293A00 Heaters

These heaters have two control wires: ORN for heater contactor and BRN for control common. Connect BRN wire(s) to TB4’s “C Use” terminal. (Second BRN wire will require use of the piggyback terminal on the factory BRN wire.) For AC units, connect heater ORN control wiring to ORN on TB4 for 1st stage heating and for units with heater pack-ages, connect to VIO on TB4 for 2nd stage heating. (See Fig. 41.) For HP units, connect heater ORN control wires(s) to an available terminal on TB4’s “W2 Use” group. (See Fig. 43.)

CRHEATER294A00-296A00 Heaters

These heaters have four control wires: ORN and VIO for heater contactors, RED for safety circuit power and BRN for control common. Connect RED wire to TB4’s “R Use”. Connect BRN wire to TB4’s “C Use” terminal. For AC units with one heater package that has these 4 control wires, connect

heater ORN control wiring to ORN on TB4 for 1st stage heating and to VIO on TB4 for 2nd stage heating.

For AC units with 2 of these heater packages that have 4 control wires, connect both the ORN and VIO control wires from the heater to ORN on TB4 for 1st stage heating and connect the ORN and VIO control wires from the other heater to VIO on TB4 for 2nd stage heating. (See Fig. 42.)

For AC units with one of these heater packages that has these 4 control wires plus a heater package that has 3 control wires, connect both the ORN and VIO control wires from the 4 control wire heater to ORN on TB4 for 1st stage heating and connect the ORN control wire from the other heater with 3 control wires to VIO on TB4 for 2nd stage heating. For HP units, connect ORN and VIO wires to TB4’s “W2 Use” terminals. (See Fig. 45.)

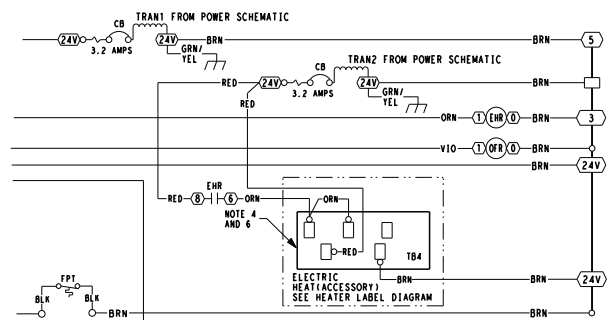


Fig. 37 - TB4 Wiring (HP Only)

C10561

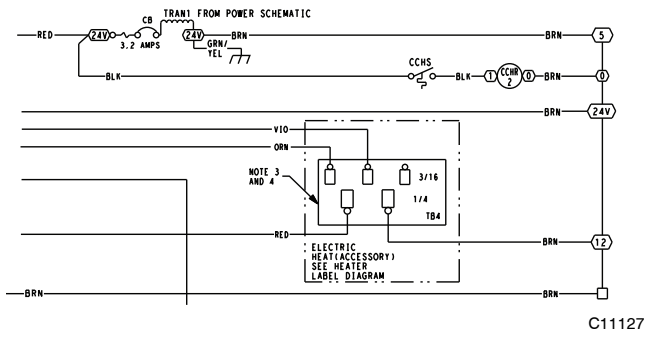


Fig. 38 - TB4 Wiring (AC Only)

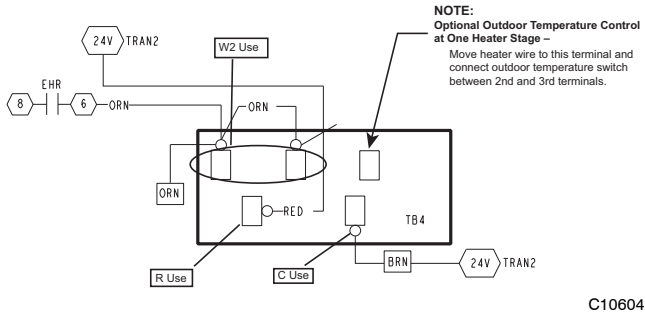


Fig. 39 - TB4 Terminal Use (HP Only)

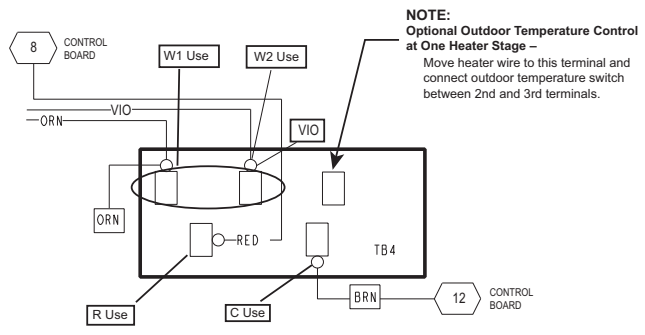
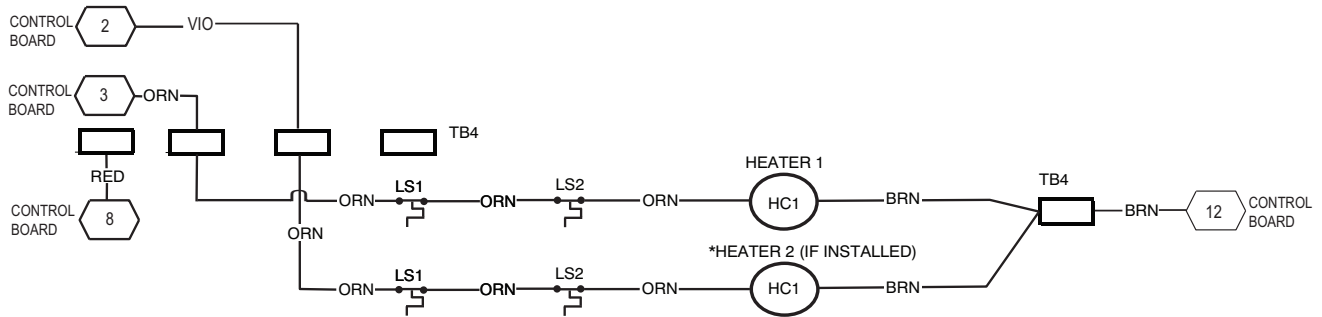


Fig. 40 - TB4 Terminal Use (AC Only)

Table 4 – Optional Factory Installed Disconnect Amp Ratings

Unit Group	Unit Sizes	Volts	Disconnect Size Amps
AC-1	04-07	208/230	80
		460, 575	60
	08-14	208/230	80
		460, 575	80
	16	208/230	115 #
		460, 575	100
AC-2	04-06	208/230	80
		460, 575	60
	07-12	208/230	80
		460, 575	80
	14	208/230	115 #
		460, 575	100
AC-3	04-06	208/230	80
		460, 575	80
	07-09	208/230	80
		460, 575	80
	12	208/230	115 #
		460, 575	100
HP-1	04-07	208/230	80
		460, 575	60
	08-12	208/230	80
		460, 575	80
	14	208/230	115 #
		460, 575	100
HP-2	04-06	208/230	80
		460, 575	80
	08-09	208/230	80
		460, 575	80
	12	208/230	115 #
		460, 575	100

1 – Standard Efficiency
 2 – High Efficiency
 3 – Ultra High Efficiency
 #115 – A is Application Limit based on factory wire size.



* 2 stage heat shown. Connect orange wire from Heater 2 HC1 to orange on TB4 for 1 stage heat.

Fig. 41 - Electric Heater Control Connections - Air Conditioner with 1 or 2 CRHEATER288A00-293A00

C11134

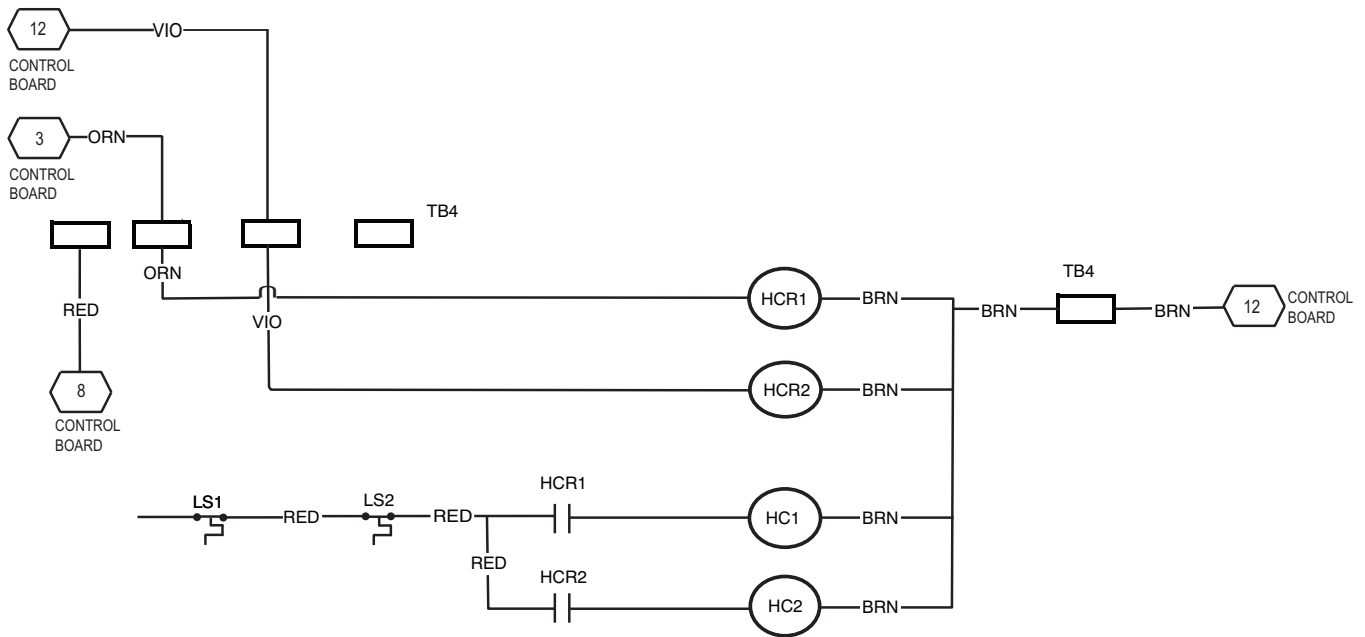


Fig. 42 - Electric Heater Control Connections - Air Conditioner with 1 CRHEATER294A00-296A00

C11135

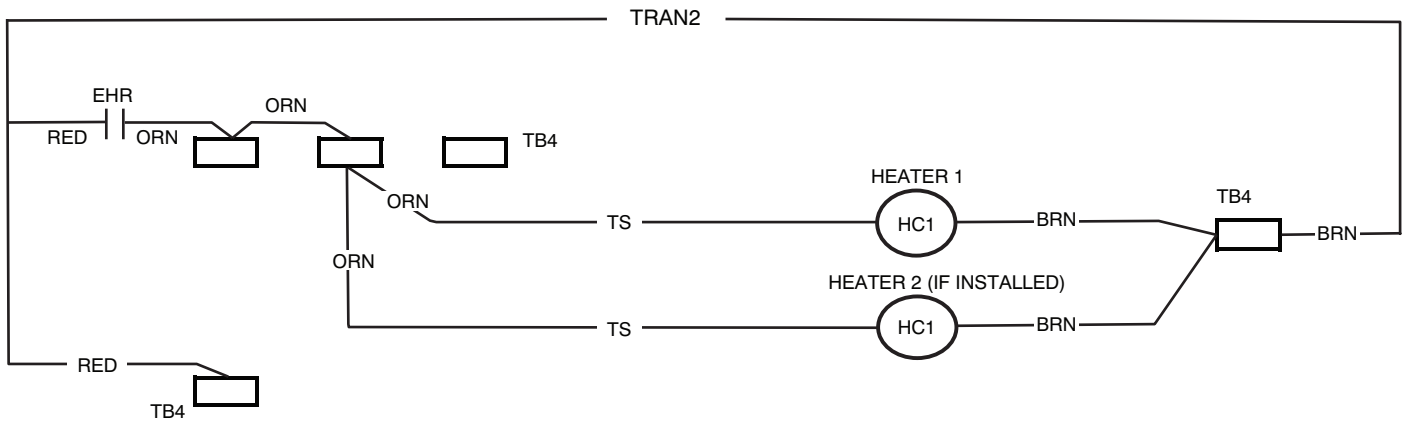


Fig. 43 - Electric Heater Control Connections - Heat Pump with 1 or 2 CRHEATER288A00-293A00

C13468

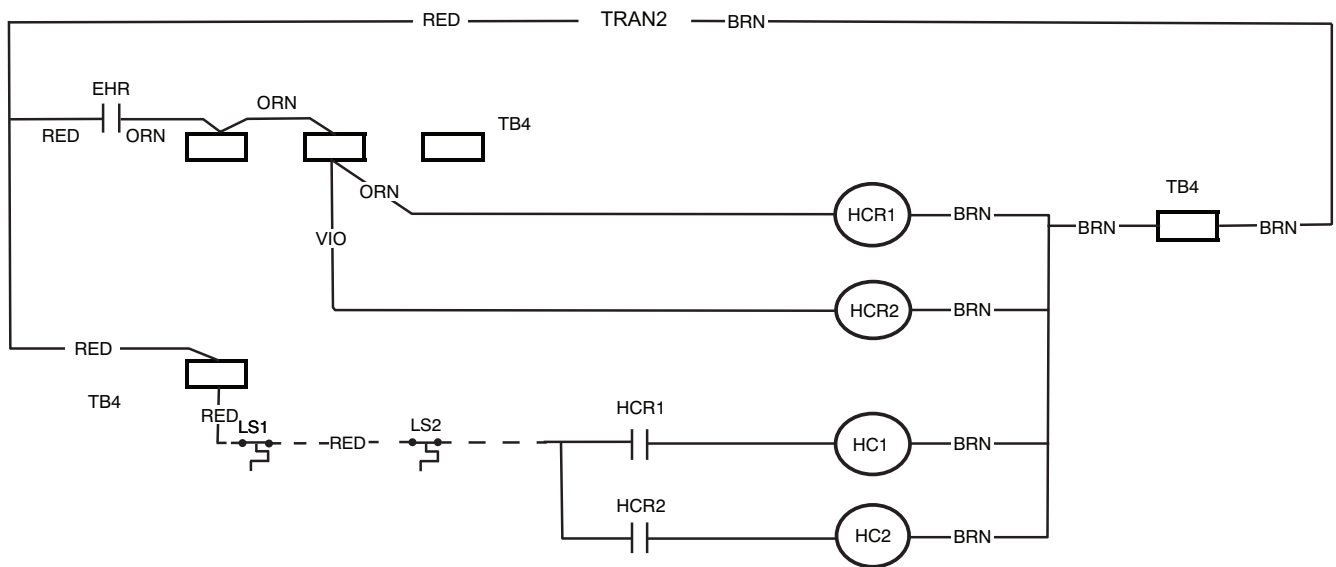


Fig. 44 - Electric Heater Control Connections - Heat Pump with 1 CRHEATER294A00-296A00

C13469

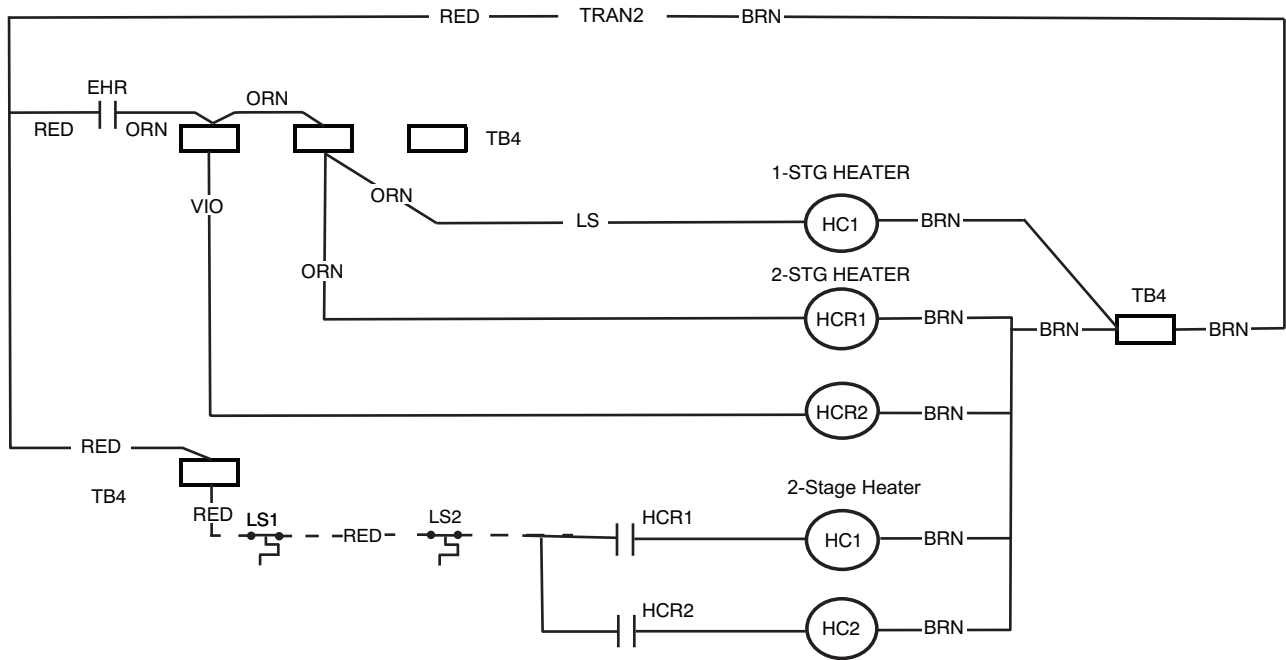


Fig. 45 - Electric Heater Control Connections-Heat Pump with 1 CRHEATER288A00-293A00 Plus 1 CRHEATER294A00-296A00 (2-Stage Heater)

C13470

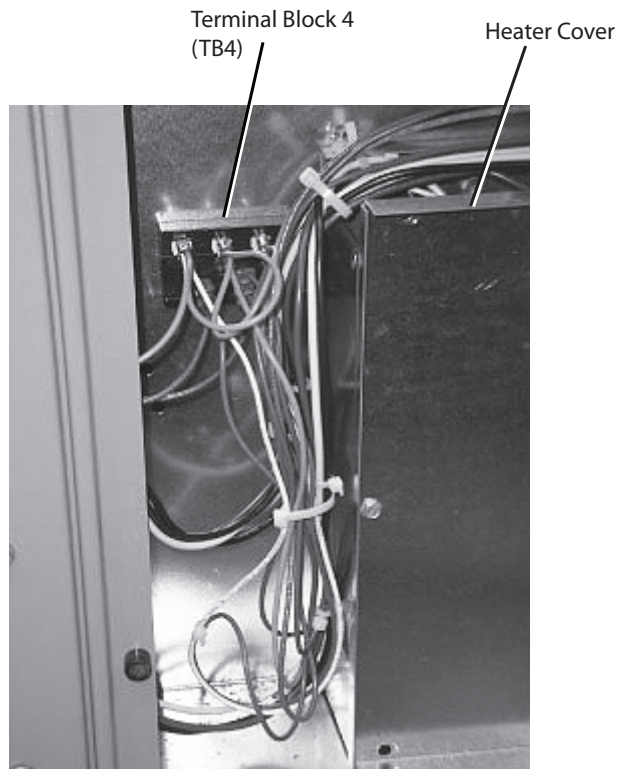


Fig. 46 - Heater Wiring

C10173

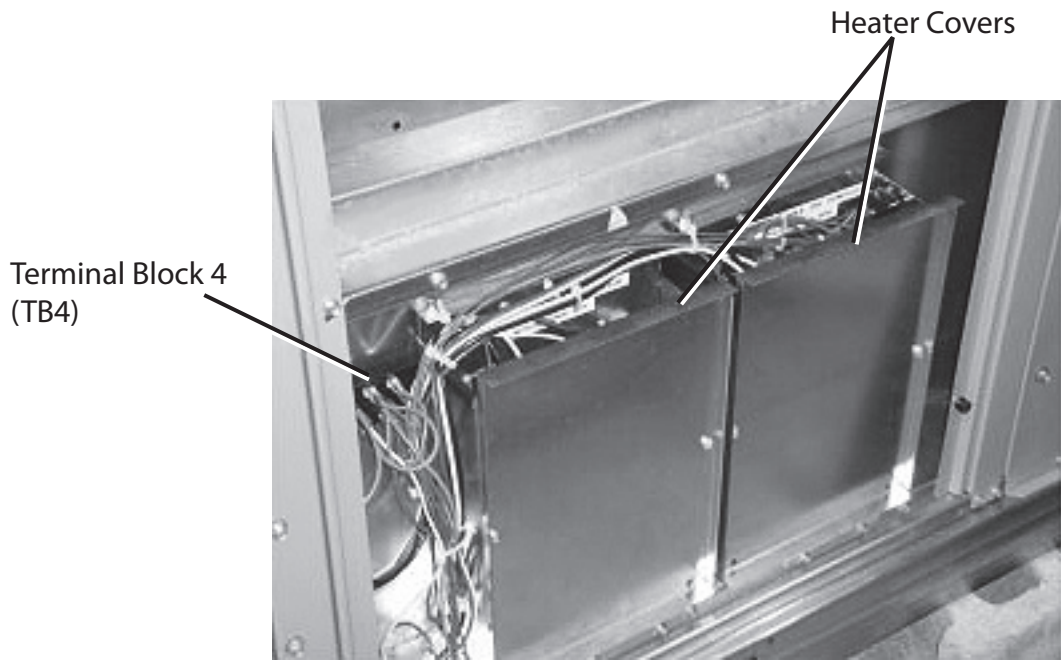


Fig. 47 - Heater Wiring and Covers

C10171



Fig. 48 - Max. Air Temp/Max. Ext. Static

C11512

UNIT POWER SUPPLY WIRING – ALL UNITS

NOTE: Installers of unit power supply wiring connecting to these air conditioning and heat pump units must be familiar with applicable requirements of the National Electrical Code (NFPA Standard 70), Articles 440, 430 and 424 dealing with multiple load systems incorporating refrigeration compressors, motors and electric heating equipment. Installers must also be familiar with and observe all local codes regarding unit power supply wiring.

In most instances, adding electric heaters to these units will result in an increase in unit power supply wire size compared to base unit electrical loads. These changes may also impact the size selection of the branch circuit overload protection device and the unit safety disconnect switch. Check the unit’s informative data label (see Fig. 1 and 2 for examples) for minimum wiring sizing ampacity for full combined load (including power exhaust if also installed), for branch circuit protection size (a maximum value) and for unit minimum disconnect switch size.

Device	Infoplate Designation
Power Supply Wire	MIN CKT AMPS
Branch Circuit Protection	FUSE OR HACR BREAKER
Disconnect Switch	MINIMUM UNIT DISCONNECT

All wiring that terminates at a unit-mounted terminal must be selected from wiring materials under the NEC Table 310.15(B)(16), 75 C (or higher) column only. Check specifications for external disconnect lug sizes to determine if 60 C wiring materials may be used between branch circuit origin and the disconnect switch.

There are four different situations that an installer can encounter with these units. Three are for new unit installations (base unit has not been connected to a power supply already): Unit without factory disconnect switch, unit with factory disconnect switch and unit with factory HACR breaker. The fourth situation is for an existing unit already connected to a power supply and the heaters are being retrofitted. For each situation, there is usually a without single point box and a with single point box condition. Each situation is discussed below.

New Unit Without Factory Disconnect or HACR

Installation WITHOUT Single Point Box: Unit power supply wires from the external (field-supplied) disconnect switch are connected to the base unit’s power connection terminal lugs. Refer to unit wiring label to identify these terminals (these may be lugs on contactors or at power terminal block). The heater power wires are also connected at these terminals.

Installation WITH Single Point Box:

Remove knockouts for appropriate size conduit from unit block-off panel and single point box. Install conduit (rigid or electrometallic tubing) through conduit drip boot as shown. (See Fig. 15.)

Drip boot will accept conduit sizes 3/4-in. to 1-1/2 inches. The drip boot eliminates the need for watertight conduit fittings at the single point box.

Unit power supply wires from the external (field-supplied) disconnect switch are connected to the power lugs on the field connection device provided in the Single Point Box. This device may be a terminal block or fuse block FU2’s line side terminals. The heater power wires are connected to the load side terminals on the same device.

New Unit With Factory Disconnect

The optional factory-supplied disconnect has a maximum rating per Table 4.

Check this unit’s infodata plate for the MINIMUM DISCONNECT SWITCH value (see Fig. 1 and 2) and compare to the Table 4 value.

If required minimum disconnect value is LOWER than rating in Table 4: Reconnect the factory wiring from the factory disconnect at the Single Point Box’s terminal block or fuse block FU2’s line side terminals (or to main control box’s line connection lugs if no Single Point Box is installed). Remove any factory test leads connected at disconnect line side terminals; discard these wires. Connect unit power supply wires to disconnect switch line side lugs.

If required minimum disconnect value is HIGHER than rating in Table 4:

For unit with 60-A, 80-A or 100-A disconnect, remove the factory disconnect switch assembly and wiring. Install a field-supplied disconnect switch sized per unit marking. Complete connections per instructions above under “New Unit Without Factory Disconnect or HACR.”

For unit with 115-A disconnect AND required minimum disconnect value per unit infodata plate is less than 200-A: Remove the factory wires at load side terminals of the disconnect switch. Size new wires based on unit MIN CKT AMPS value for unit plus heaters plus power exhaust (if installed). Connect new wires at disconnect switch load side terminals and to Single Point Box’s terminal block or fuse block FU2’s line side terminals. Remove any factory test leads connected at disconnect line side terminals; discard these wires. Connect unit power supply wires to disconnect switch line side lugs.

For unit with 115-A disconnect AND required minimum disconnect value per unit infodata plate is GREATER than 200-A: Remove the factory disconnect switch assembly and wiring. Install a field-supplied disconnect switch sized per unit marking. Complete connections per instructions above under “New Unit Without Factory Disconnect or HACR.”

New Unit With Factory HACR

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.

When field installed accessory electric heaters are added to the unit, the HACR may no longer be of the proper amp rating and therefore will need to be removed from the unit.

Check this unit’s infodata plate for the FUSE OR HACR BREAKER value (see Fig. 1 and 2) and compare to the factory HACR breaker rating value.

If marked HACR value on unit dataplate is UNCHANGED from rating unit-mounted HACR: Reconnect the factory wiring from the factory HACR at the Single Point Box's terminal block or fuse block FU2's line side terminals (or to main control box's line connection lugs if no Single Point Box is installed). Remove any factory test leads connected at HACR line side terminals; discard these wires. Connect unit power supply wires to HACR line side lugs.

If marked HACR value on unit dataplate is GREATER than rating on unit-mounted HACR: Remove the factory HACR switch assembly and wiring. Install a field-supplied fused or HACR disconnect switch sized per unit marking. Complete connections per instructions above under "New Unit Without Factory Disconnect or HACR."

Existing Unit

An existing unit will usually have been installed following the values marked on the base unit's informative data plate for wire sizing, branch circuit over-current protection and disconnect switch rating. When electric heaters are added to air conditioning (cooling) units, these values may be changed; when electric heaters are added to heat pump units, one or more of these values will be changed.

Check the installed unit's field power wires for conductor size and determine conductor rated ampacity per NEC Table 310.15(B)(16). Compare this value to the MIN CKT AMPS value on the unit infoplate for base unit plus electric heaters (plus power exhaust if connected). If the MIN CKT AMPS value is greater than the rated ampacity of the power supply wires, the unit power supply conductors must be replaced.

NOTE: Supply wiring must comply with NEC (National Electrical Code) and all local requirements.

Check the installed unit's branch circuit over-current protection device (fuse or HACR breaker) for rating in amps. Compare this value to the FUSE OR HACR BREAKER value on the unit infoplate for base unit plus electric heaters (plus power exhaust if connected). If the FUSE OR HACR BREAKER value is greater than the rated ampacity of the installed device, the unit branch circuit over-current protection device must be replaced.

Check the installed unit's disconnect switch for rating in amps. Compare this value to MINIMUM UNIT DISCONNECT value on the unit infoplate for base unit plus electric heaters (plus power exhaust if connected). If the MINIMUM UNIT DISCONNECT value is greater than the rated ampacity of the installed disconnect switch, the unit disconnect switch must be replaced.

To complete the unit power wiring at the Single Point Box or base unit terminals, follow the appropriate directions under "New Unit" discussions above.

Complete Unit Installation

1. Mark the appropriate block on the unit nameplate for the accessory heater kW installed. Note the required MIN CKT AMPS value for this unit-heater combination. Ensure the field power conductors are sized to handle this ampacity.
2. Locate the heater covers. For all heaters except CRHEATER301A00, the heater cover is the plate removed from the heater mounting bracket in Step 4 page 11 or Step 3 page 19. For CRHEATER301A00 only, a new, wider cover is included in the accessory heater package. See Fig. 18.
3. Place adhesive-backed wiring label on flanged side of heater cover.
4. Fasten heater cover to heater module with 2 screws provided with heater. Flanges of cover must face out. (See Fig. 47.)
5. Set manual reset limit switch (on supply fan housing) by depressing button located between the terminals on the switch. (See Fig. 3.)
6. Close single point box cover and secure with one screw.
7. Replace control box cover, using remainder of screws saved from page 11, Step 4 or page 18, Step 3 of Installing Single Point Box sections.
8. Run conduit through (rigid or EMT) the conduit drip boot in the rain shield bracket to the single point box. Provide an appropriate fitting to connect the conduit to the single point box wall and ground appropriately. (See Fig. 31.) Drip boot eliminates the need for watertight conduit fittings at the single point box.
9. Run wire through conduit connecting outside power to the designated terminals at the top of the single point box. Ground appropriately. (See Fig. 33.)
10. Replace indoor and outdoor panels with screws saved from Step 2 of Disconnect Field Supply section on page 10 and step 3 of Install Single Point Box section on page 19. Place adhesive-backed Max. Air/Max. Static label on external panel that covers heaters. (See Fig. 4, 5, and 48.)
11. If all other work on the unit is done, reapply unit power per lock-out/tag-out procedures.

APPENDIX A

AC-1, AC-2 COOLING APPLICATIONS

SPB CRSINGLEnnnA00	AC-1 Units					AC-2 Units				
	04-07 036-072	08 090-091	09-12 102-121	14 150	16 180	04-06 036-060	07 072	08-09 090-102	11-12 120	14 150
1-Phase (See page 14 for conversion instructions)										
037	Fig. 49					Fig. 49				
040	Fig. 50					Fig. 50				
3-Phase										
NONE	Fig. 51				Fig. 51	Fig. 51				Fig. 51
037	Fig. 52					Fig. 52				
038	Fig. 53					Fig. 53				
042		Fig. 52					Fig. 52			
043		Fig. 54					Fig. 54			
044		Fig. 55								
045		Fig. 56								
047			Fig. 52	Fig. 52	Fig. 52			Fig. 52	Fig. 52	Fig. 52
049			Fig. 57	Fig. 57	Fig. 57			Fig. 57	Fig. 57	Fig. 64
050			Fig. 5J	Fig. 5J	Fig. 5J			Fig. 59	Fig. 59	Fig. 59
051			Fig. 5K	Fig. 5K	Fig. 5K			Fig. 60	Fig. 60	Fig. 65
053					Fig. 5L			Fig. 61	Fig. 62	Fig. 66
054								Fig. 67	Fig. 68	Fig. 69

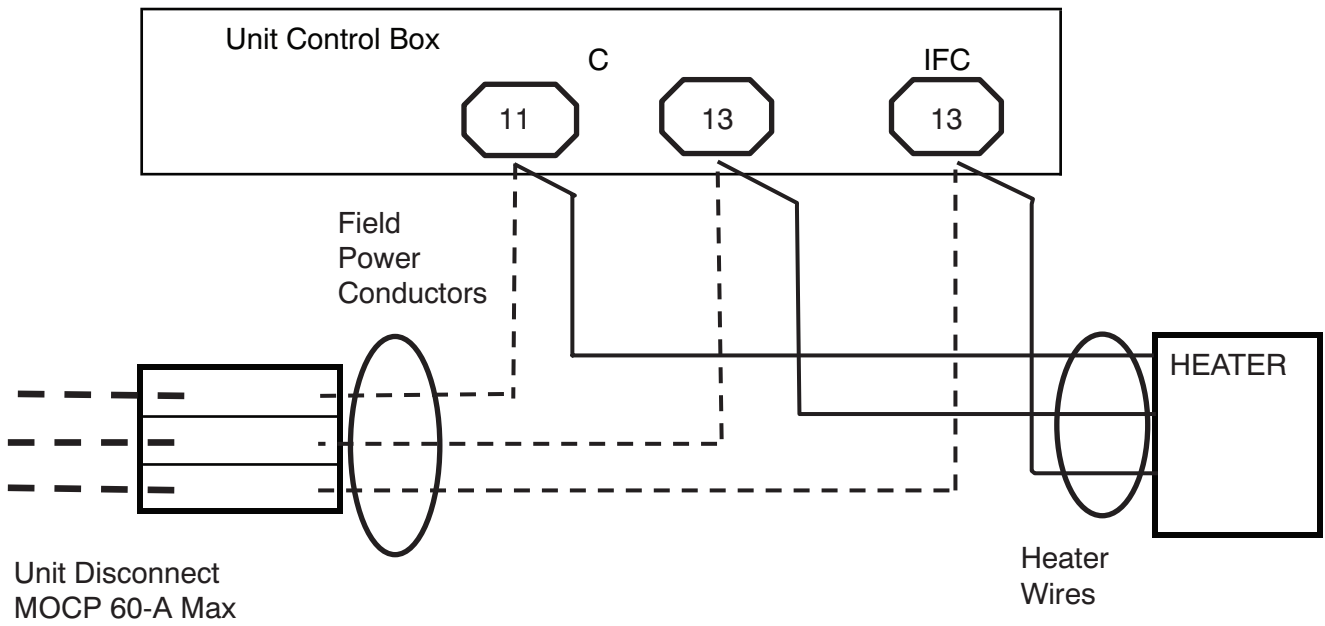


Fig. 49 - AC 1-Phase Single Point Box CRSINGLE037A00
 (AC-1, Sizes 04-07; AC-2, Sizes 04-06)

C13477

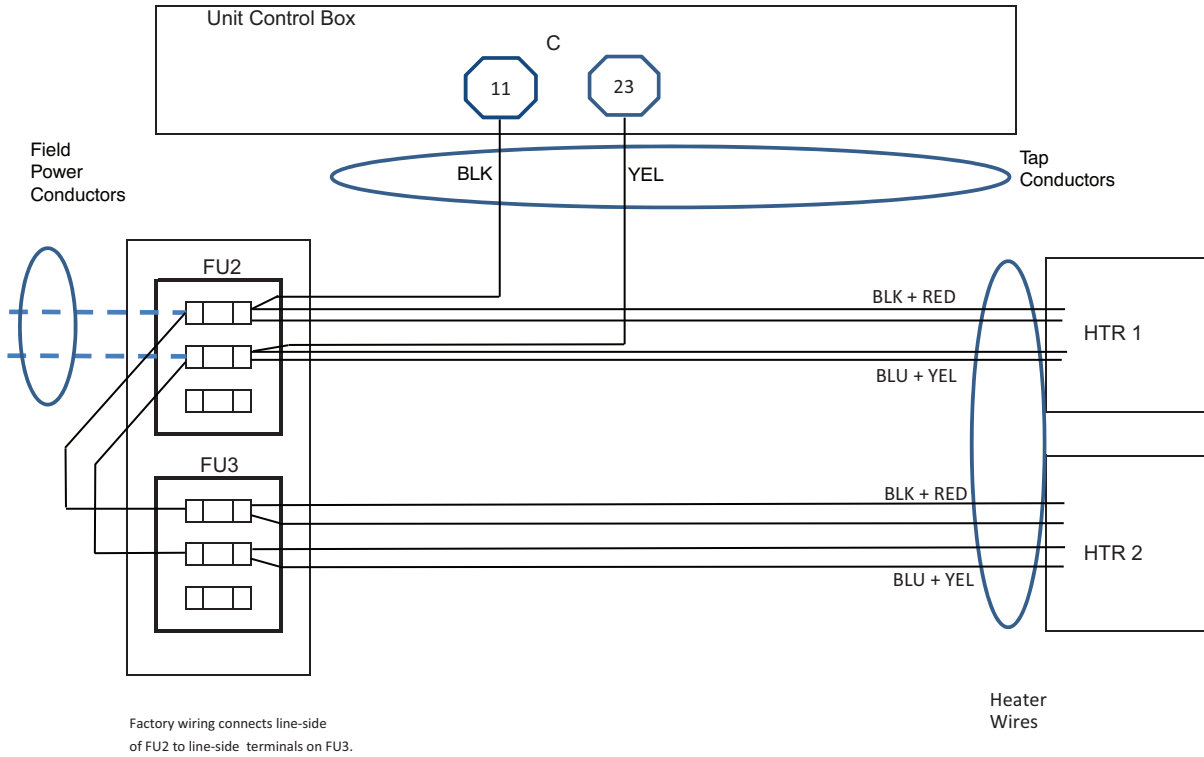
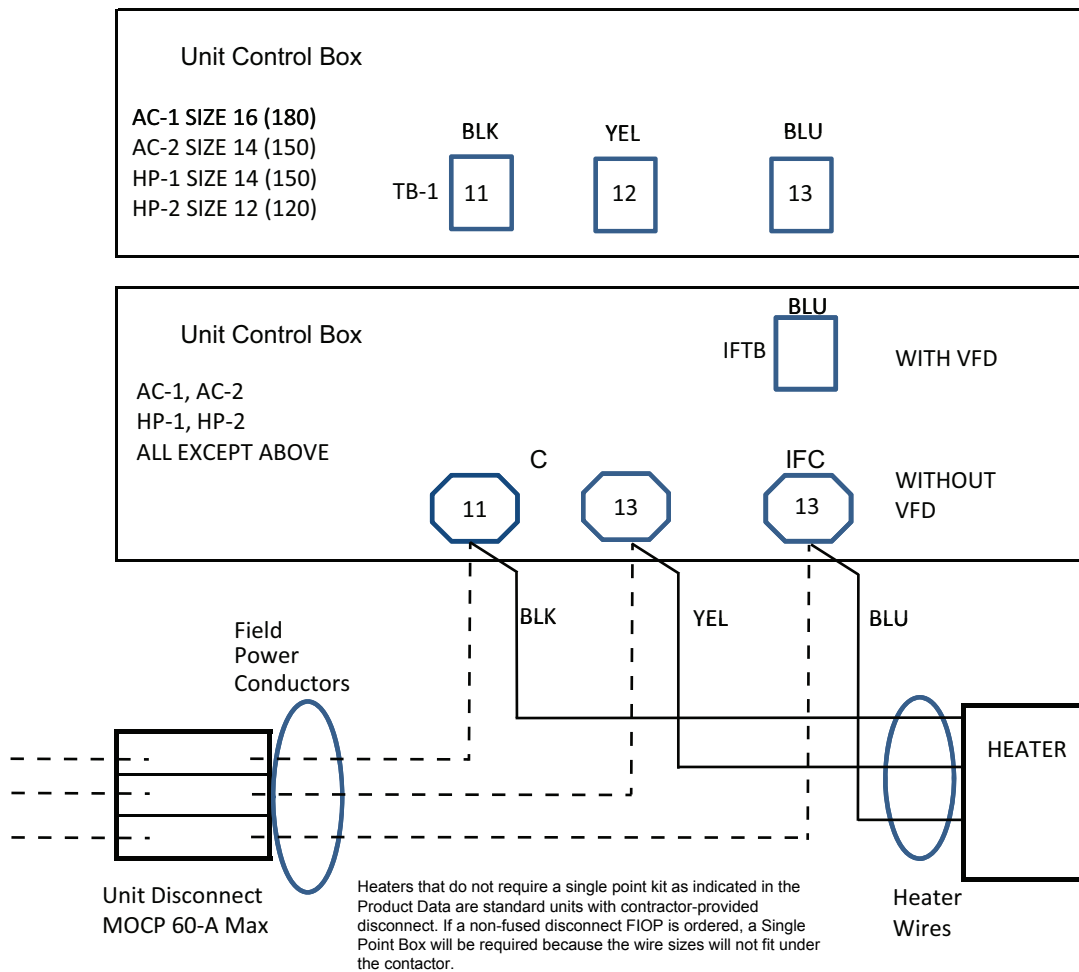


Fig. 50 - AC 1-Phase Single Point Box CRSINGLE040A00
 (AC-1, Sizes 04-07; AC-2, Sizes 04-06)

C13478



C13479

Fig. 51 - AC, HP — No Single Point Box

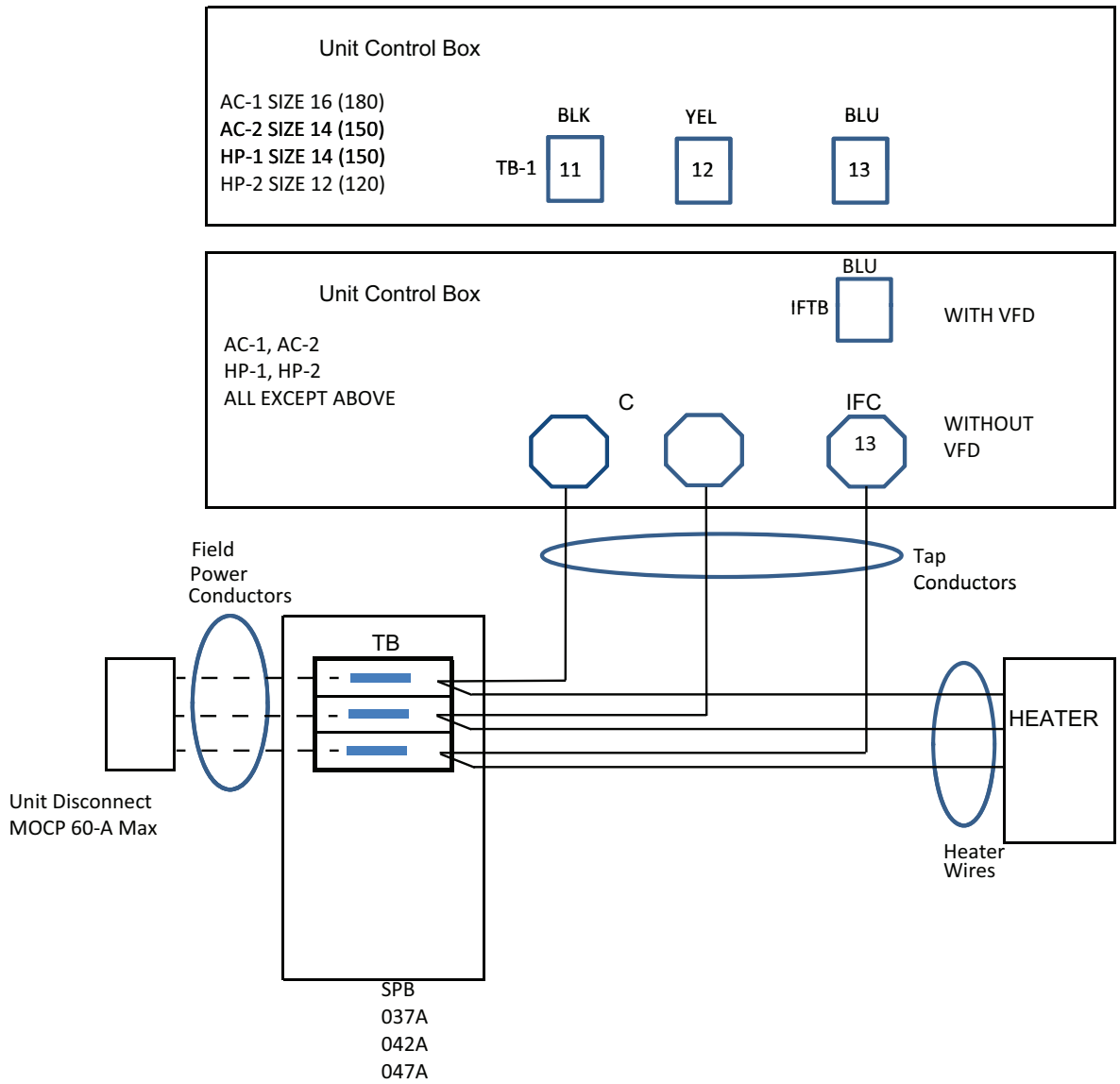
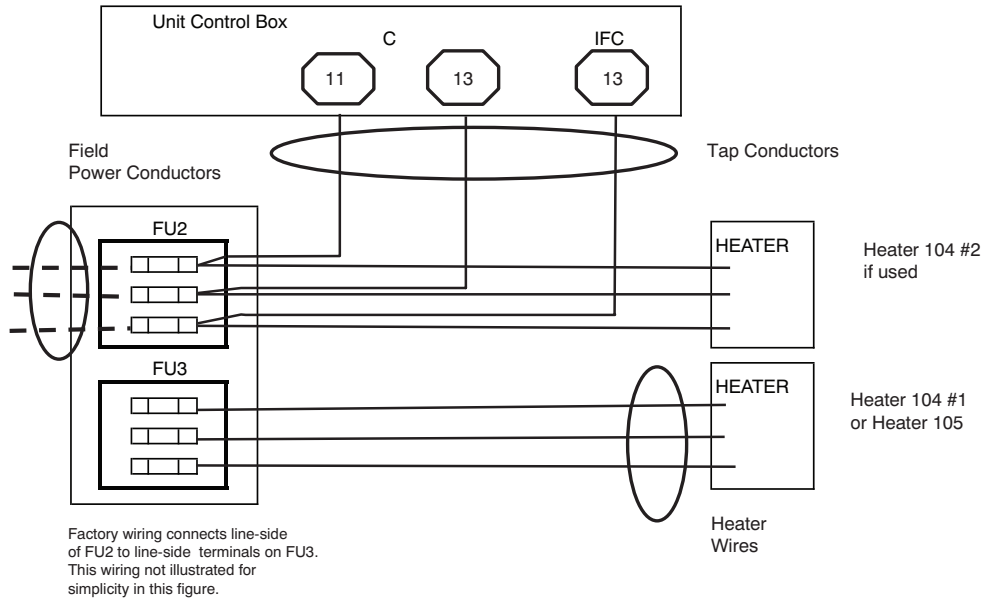


Fig. 52 - AC Single Point Box CRSINGLE037A00, 042A00, and 047A00 (AC-1, Sizes 04-16; AC-2, Sizes 04-14; HP-1, Sizes 04-14 for 037A00 and 047A00 only; HP-2, Sizes 04-12)

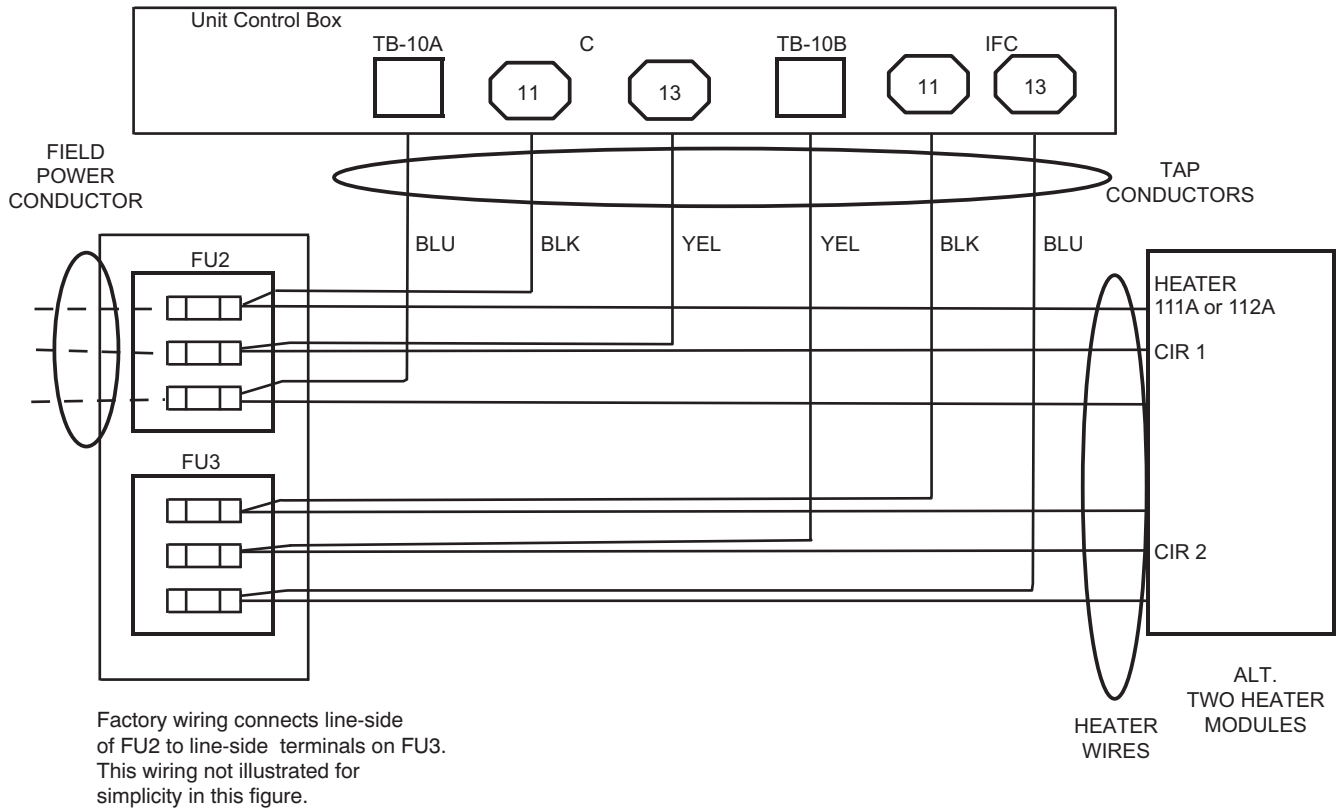
C13480

Field Tap
Power Conductors



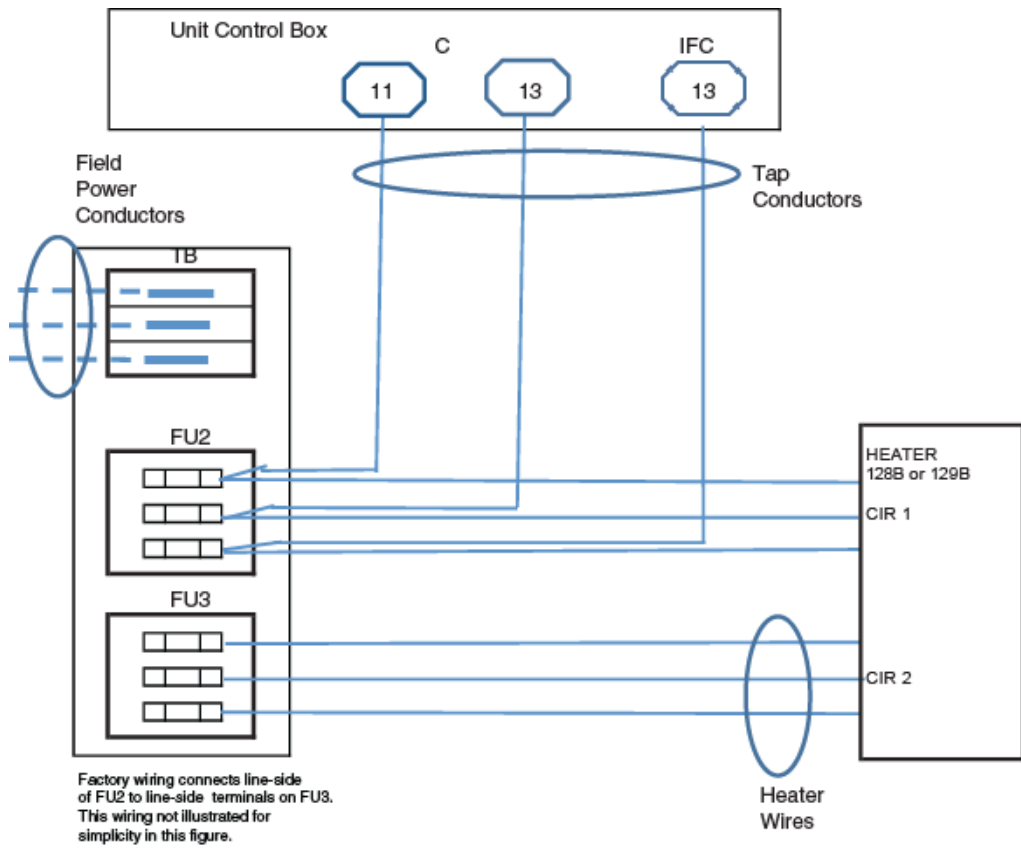
C10486

Fig. 53 - AC Single Point Box CRSINGLE038A00
(AC-1, Sizes 04-07; AC-2, Sizes 04-06)



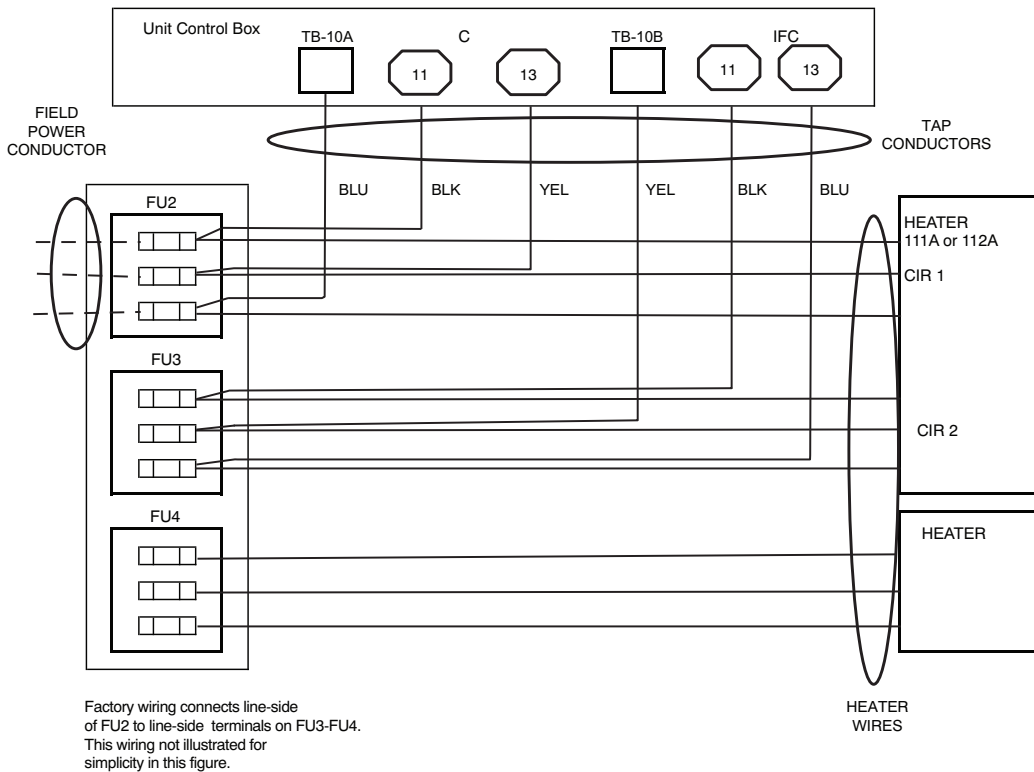
C10489

Fig. 54 - AC Single Point Box CRSINGLE043A00
(AC-1, Size 08; AC-2, Size 07)



C10490

**Fig. 55 - AC Single Point Box CRSINGLE044A00
(AC-1, Size 08)**



C10491

**Fig. 56 - AC Single Point Box CRSINGLE045A00
(AC-1, Size 08)**

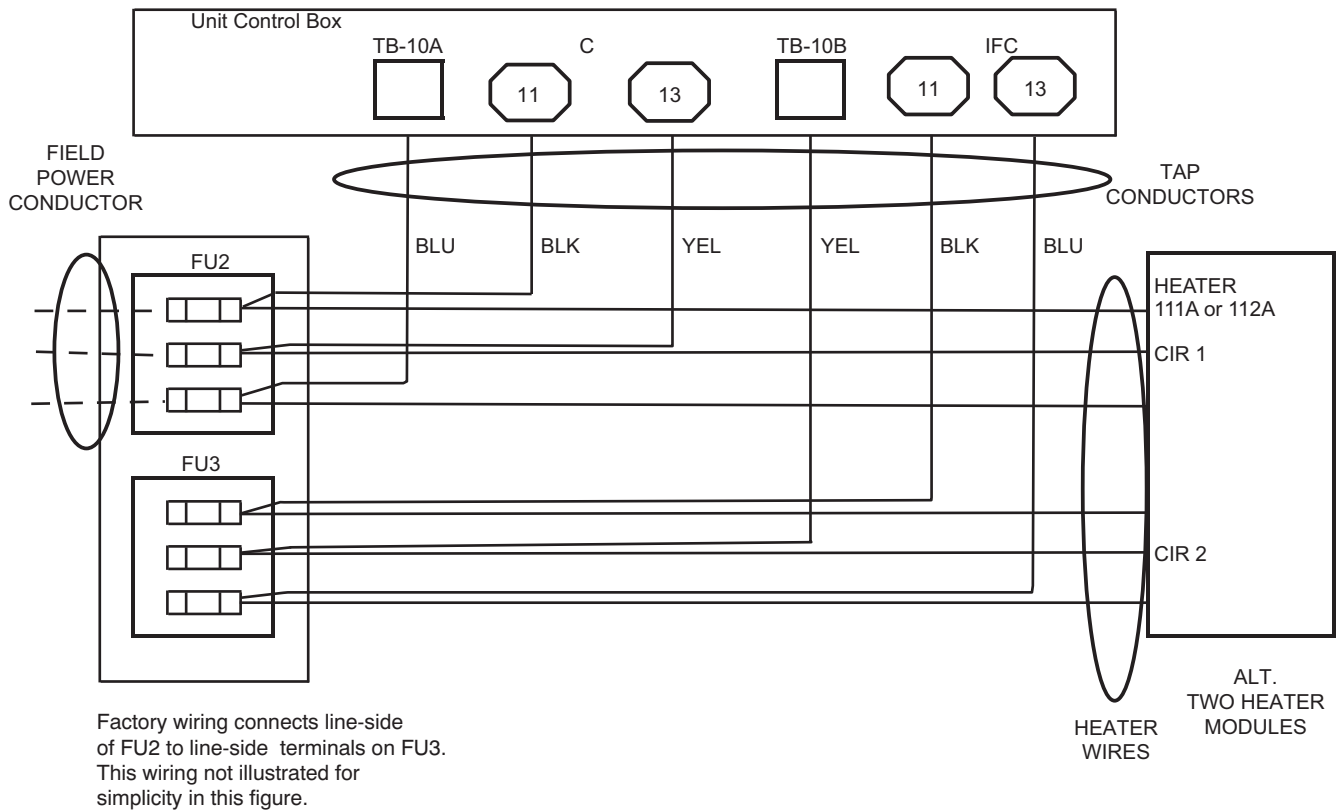


Fig. 57 - AC Single Point Box CRSINGLE049A00
 (AC-1, Sizes 09-12; AC-2, Sizes 08-12)

C10489

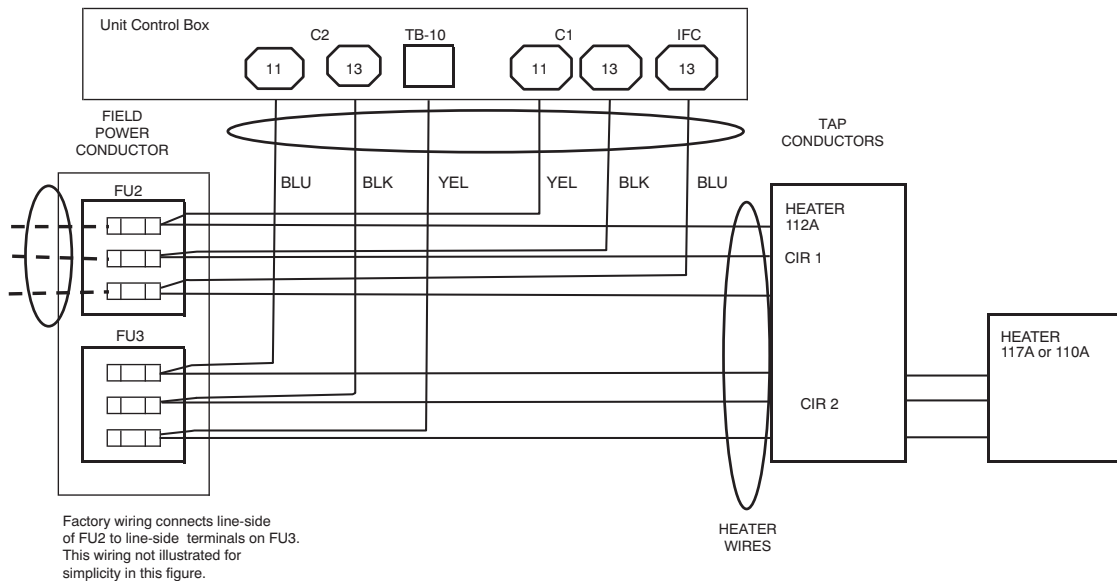
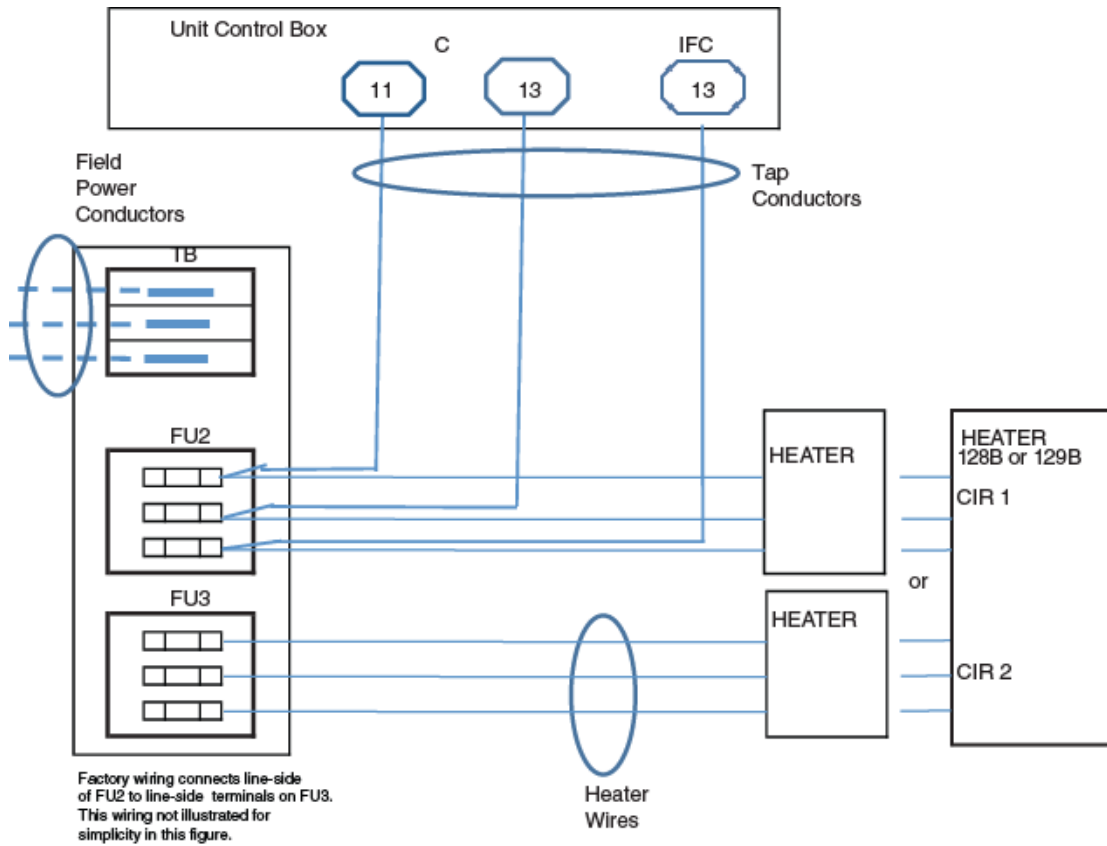


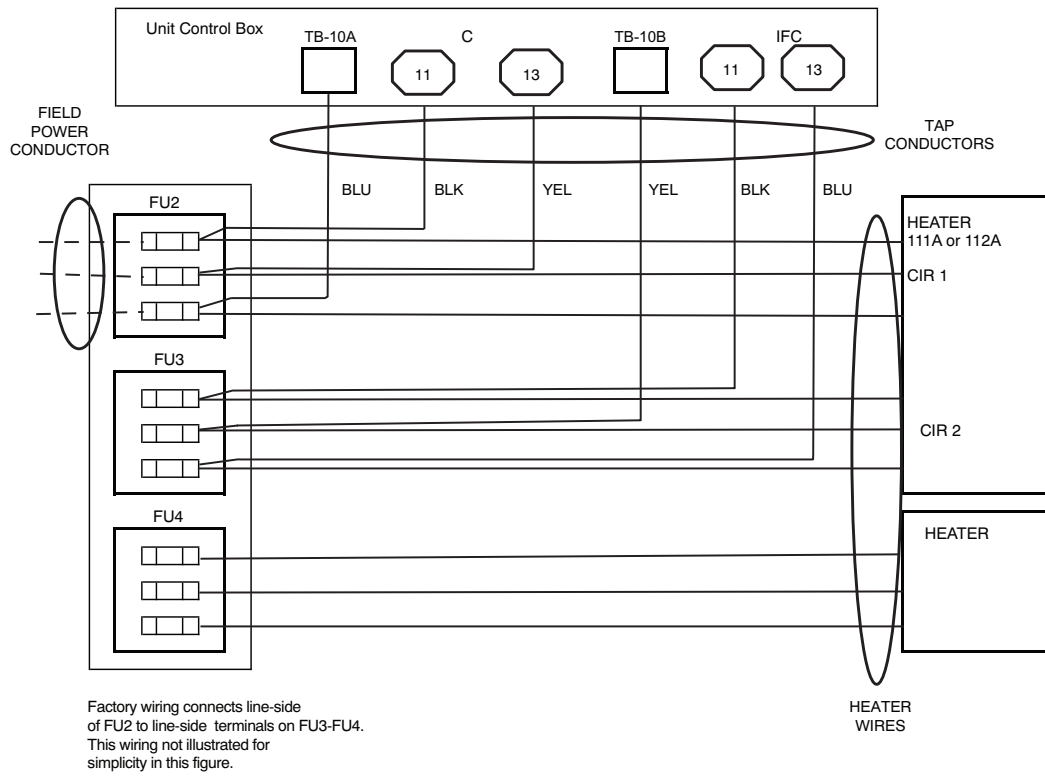
Fig. 58 - AC Single Point Box CRSINGLE049A00
 (AC-1, Size 14)

C10566



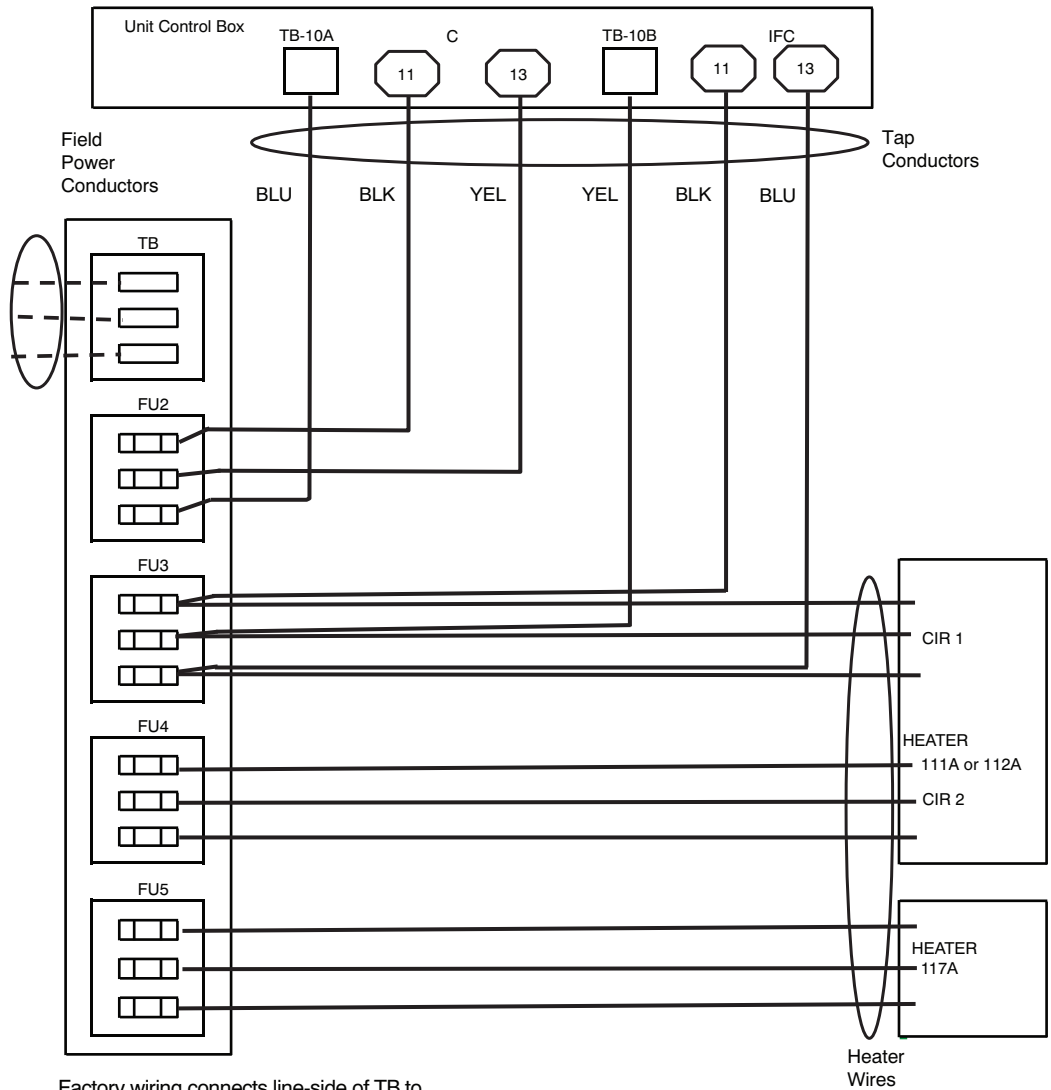
C10490

Fig. 59 - AC Single Point Box CRSINGLE050A00
(AC-1, Sizes 09-16; AC-2, Sizes 08-14)

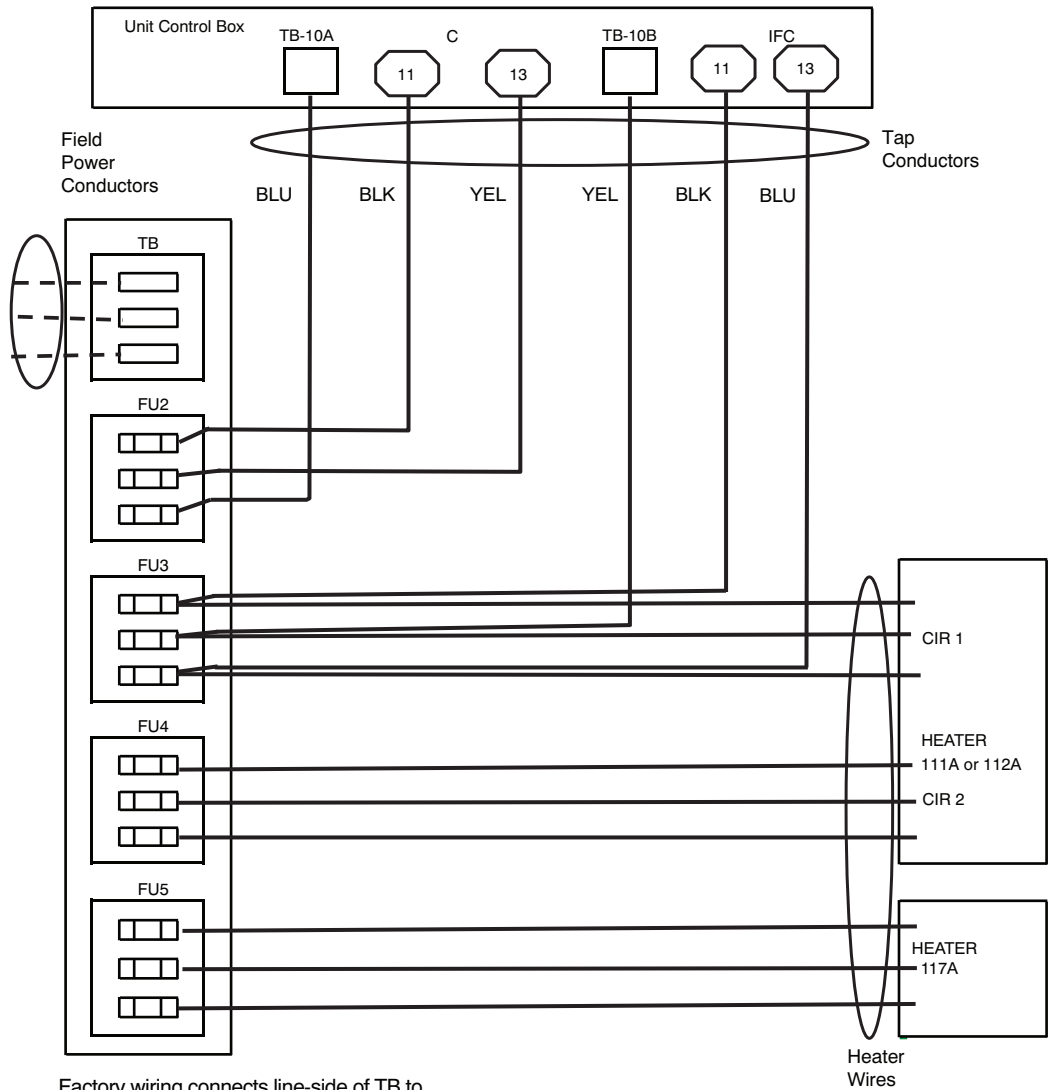


C10491

Fig. 60 - AC Single Point Box CRSINGLE051A00
(AC-1, Sizes 09-12; AC-2, Sizes 08-12)

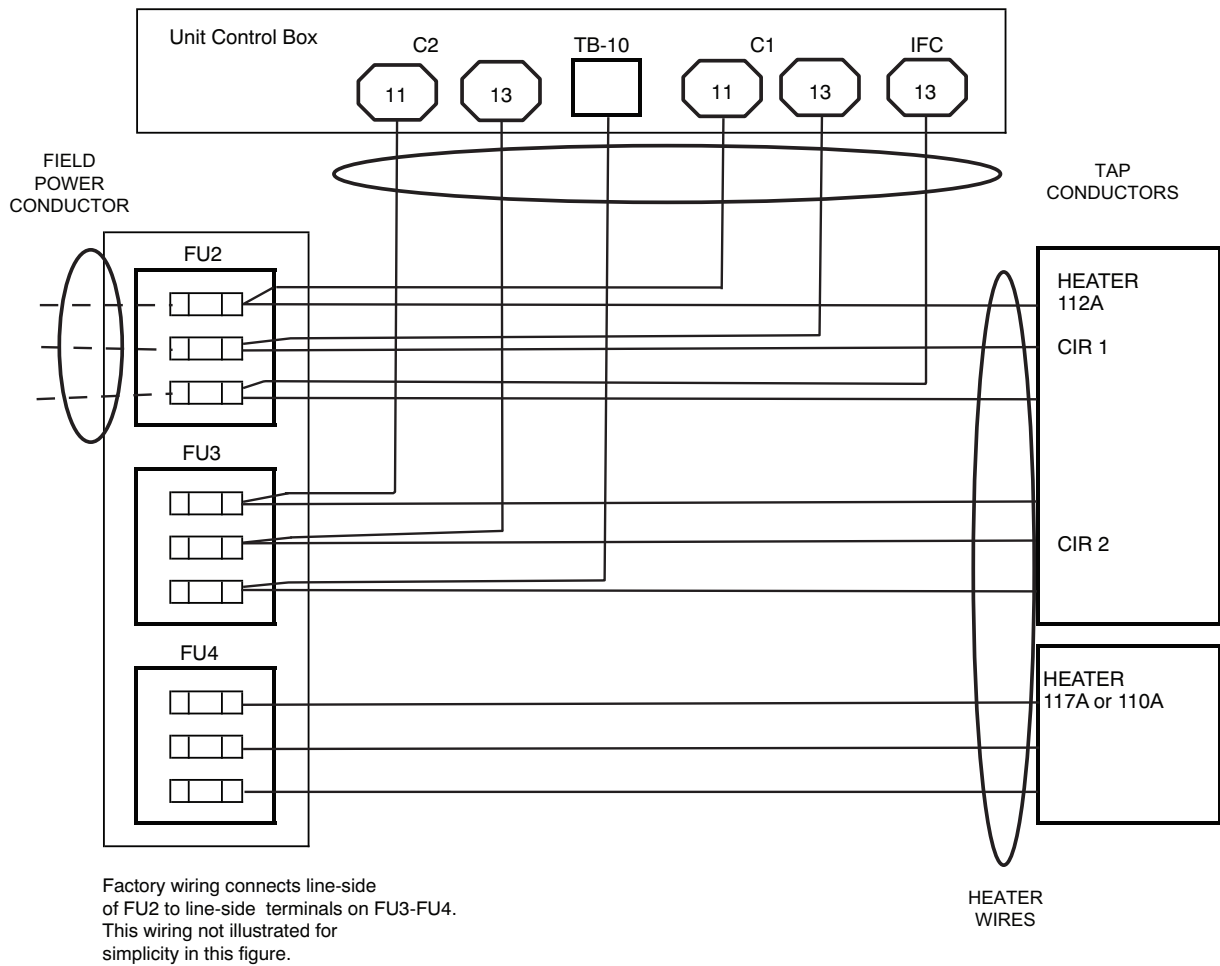


**Fig. 61 - AC Single Point Box CRSINGLE053A00
(AC-2, Sizes 08-09)**



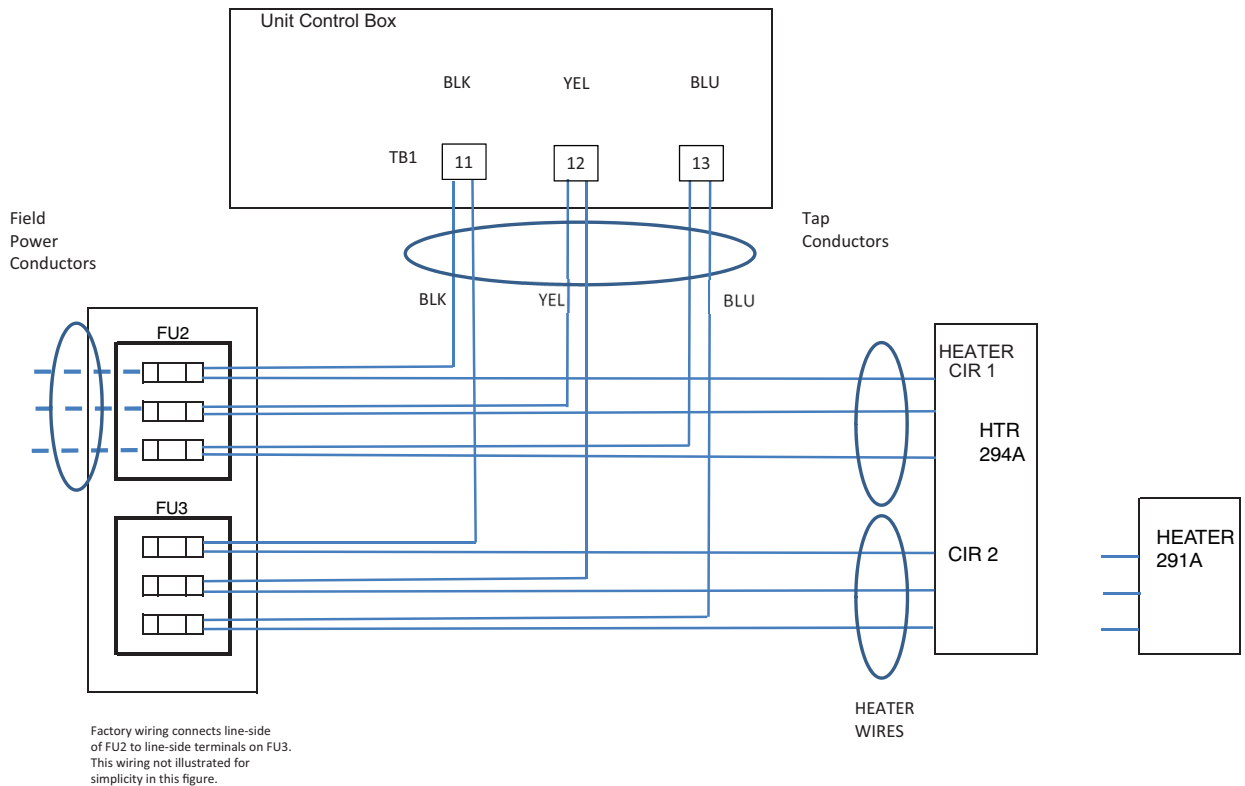
Factory wiring connects line-side of TB to line-side terminals on FU2-FU5. This wiring not illustrated for simplicity in this figure.

**Fig. 62 - AC Single Point Box CRSINGLE053A00
(AC-2, Sizes 11-12)**



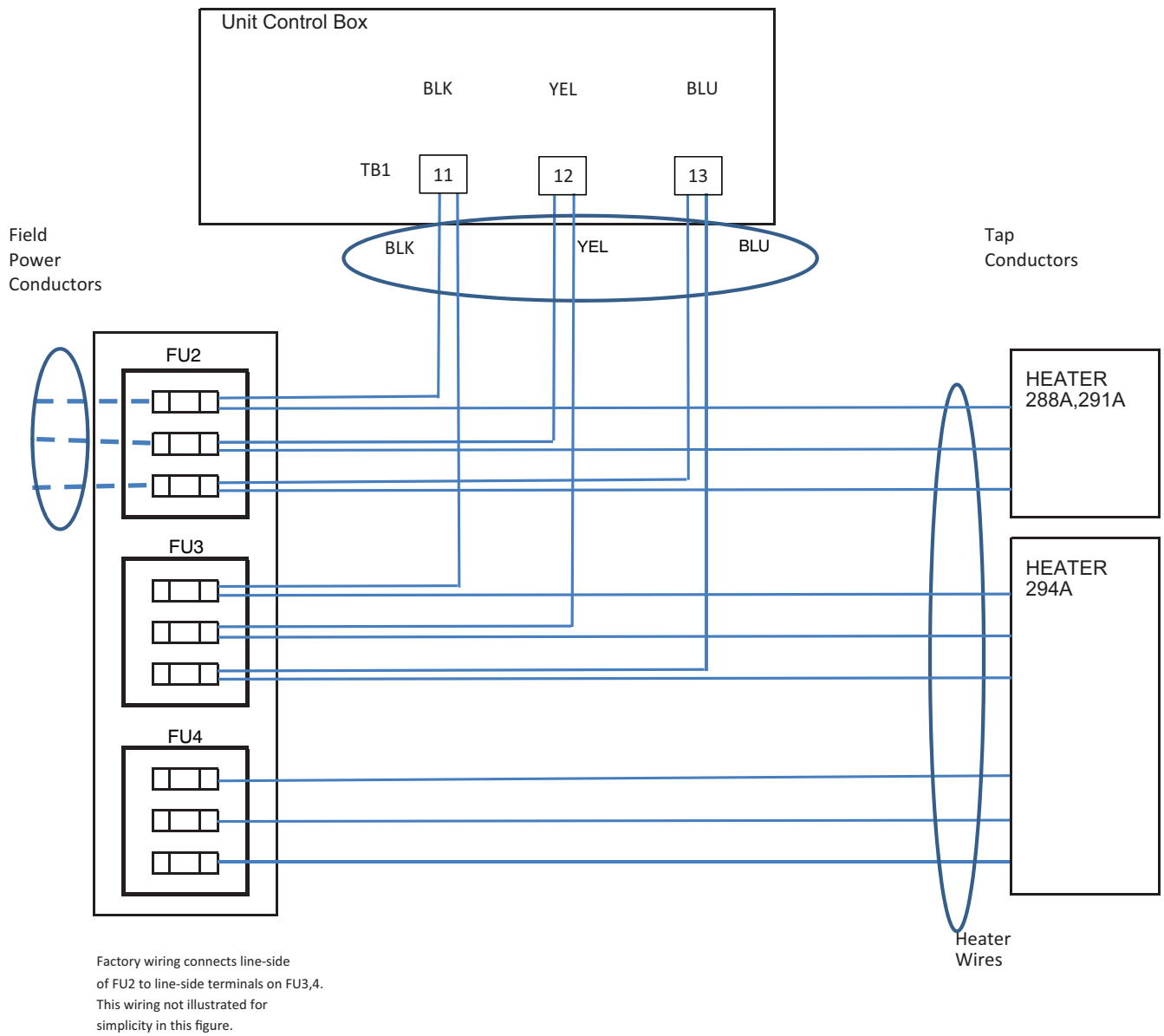
**Fig. 63 - AC Single Point Box CRSINGLE051A00
(AC-1, Size 14)**

C10567



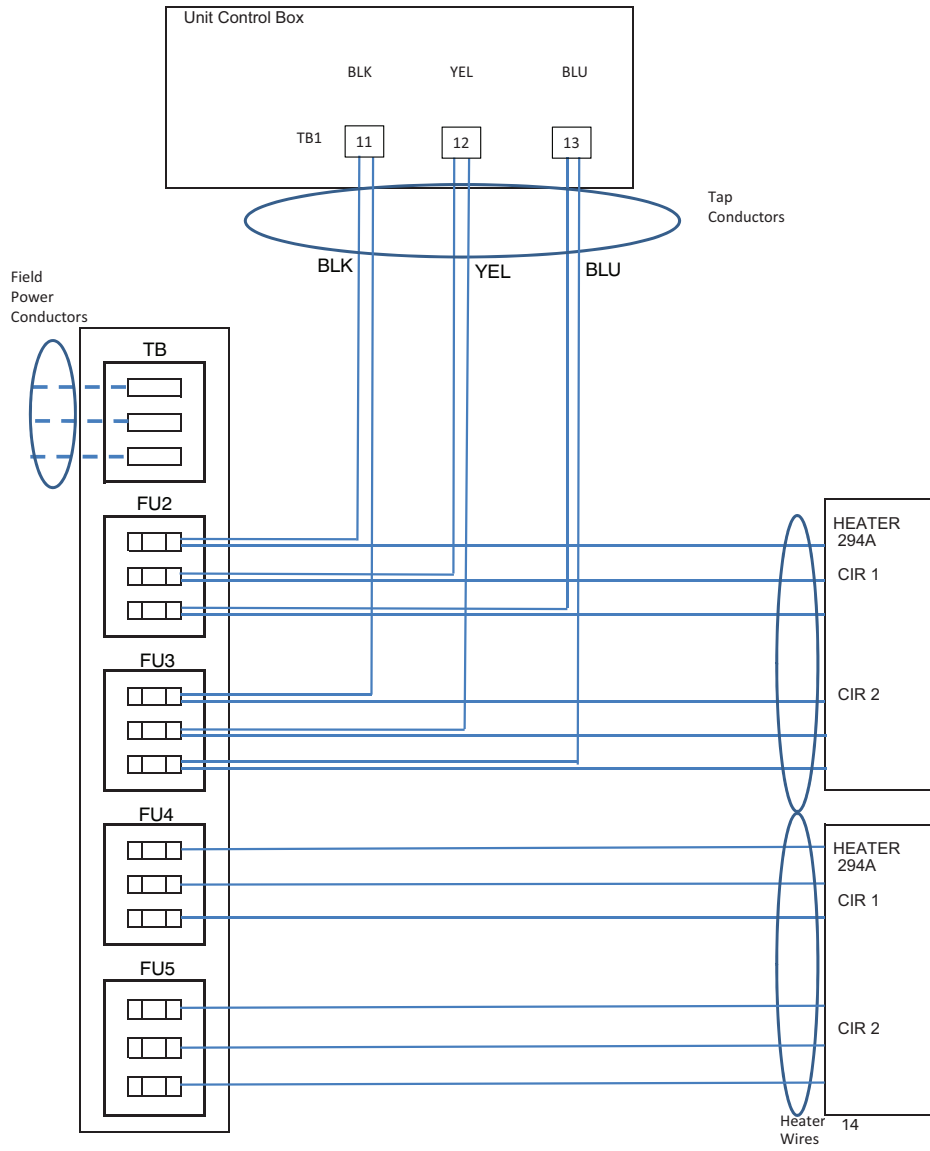
**Fig. 64 - AC Single Point Box CRSINGLE049A00
(AC-1, Size 16; AC-2, Size 14)**

C13462



**Fig. 65 - AC Single Point Box CRSINGLE051A00
(AC-1, Size 16; AC-2, Size 14)**

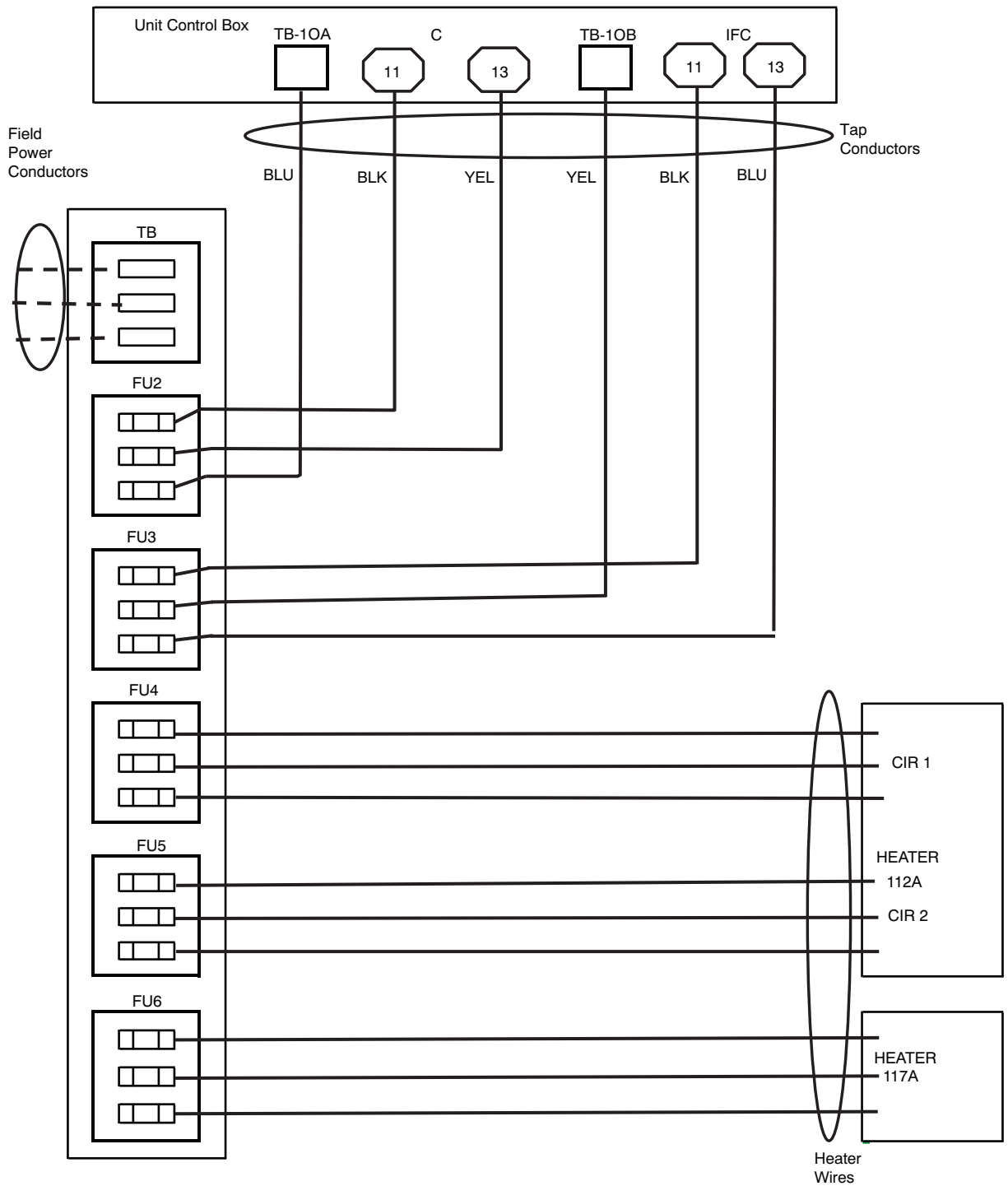
C13463



Factory wiring connects load-side of TB to line-side terminals on FU2-5. This wiring not illustrated for simplicity in this figure.

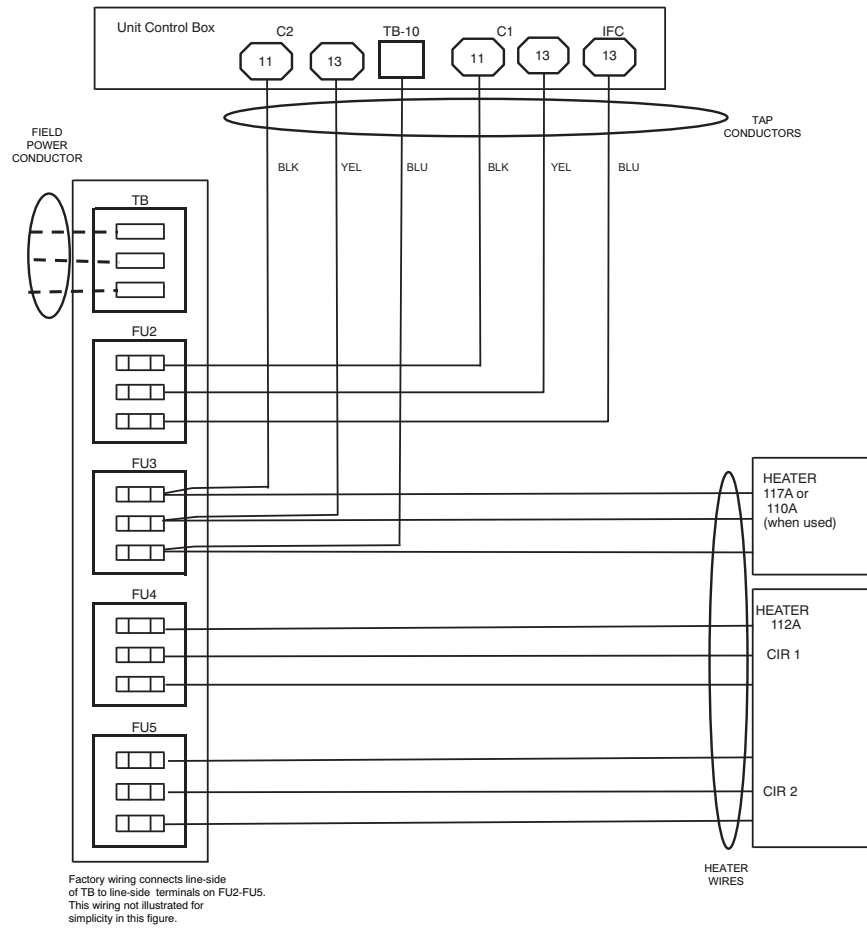
Fig. 66 - AC Single Point Box CRSINGLE053A00 (AC-1, Size 16; AC-2, Size 14)

C13464

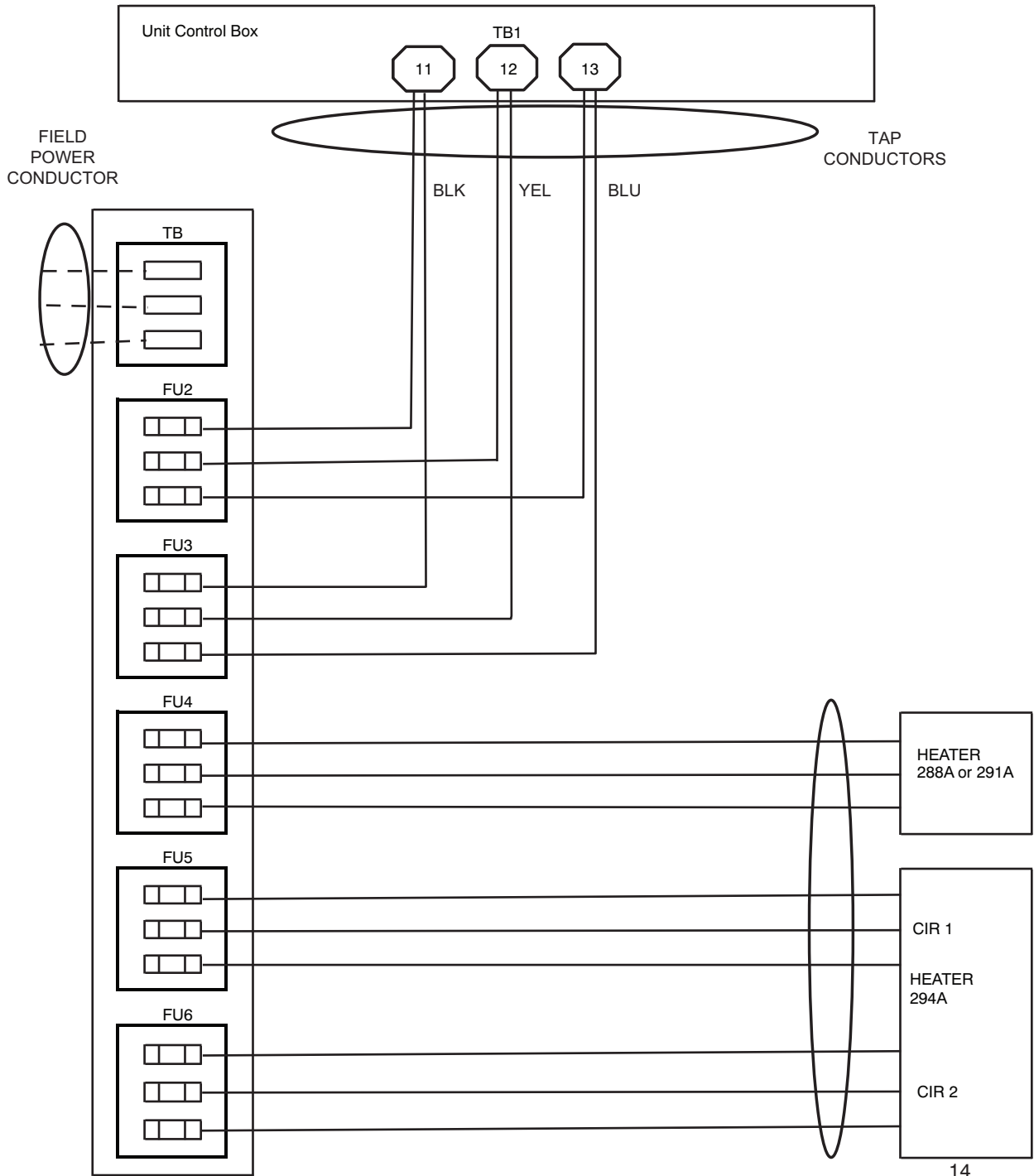


Factory wiring connects line-side of TB to line-side terminals on FU2-FU6. This wiring not illustrated for simplicity in this figure.

Fig. 67 - AC Single Point Box CRSINGLE054A00 (AC-2, Sizes 08-09)



**Fig. 68 - AC Single Point Box CRSINGLE053A00
(AC-2, Sizes 11-12)**



Factory wiring connects line-side of TB to line-side terminals on FU2-FU6. This wiring not illustrated for simplicity in this figure.

Fig. 69 - AC Single Point Box CRSINGLE054A00 (AC-2, Size 14)

APPENDIX B AC-3 50LC COOLING APPLICATIONS

SPB CRSINGLEnnnA00	50LC Unit Sizes		
	04-06	07	08-12
NONE	Fig. 70		
037	Fig. 71		
038	Fig. 72		
047		Fig. 73	Fig. 76
049		Fig. 74, Fig. 75	Fig. 77
050			Fig. 79, Fig. 80
051			Fig. 78

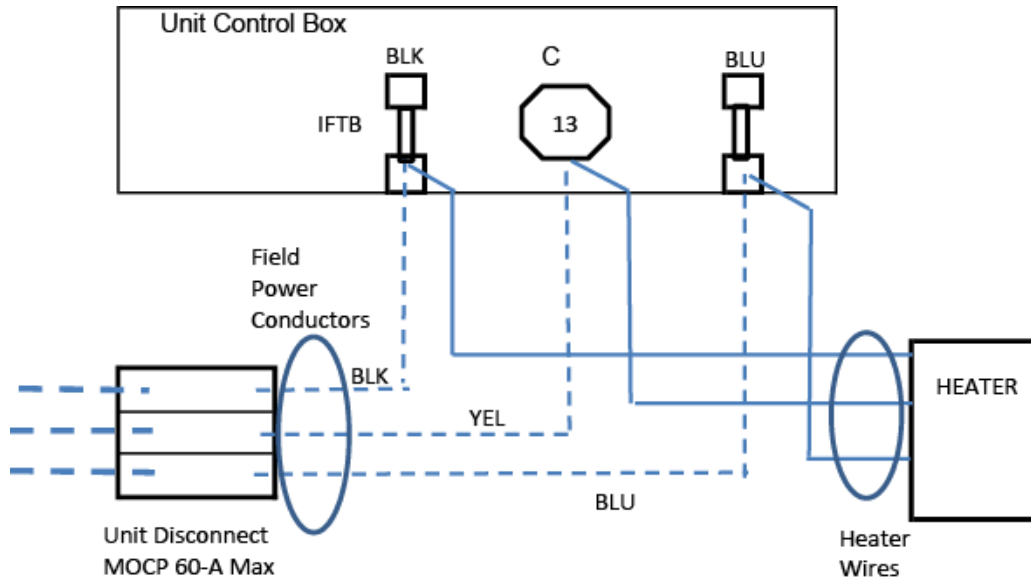


Fig. 70 - AC-3 No Single Point Box

C13450

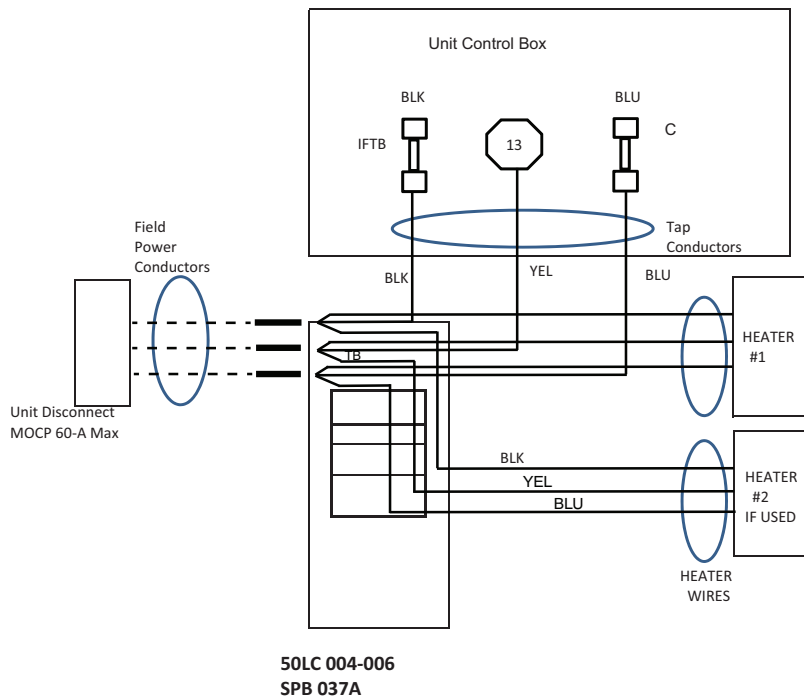
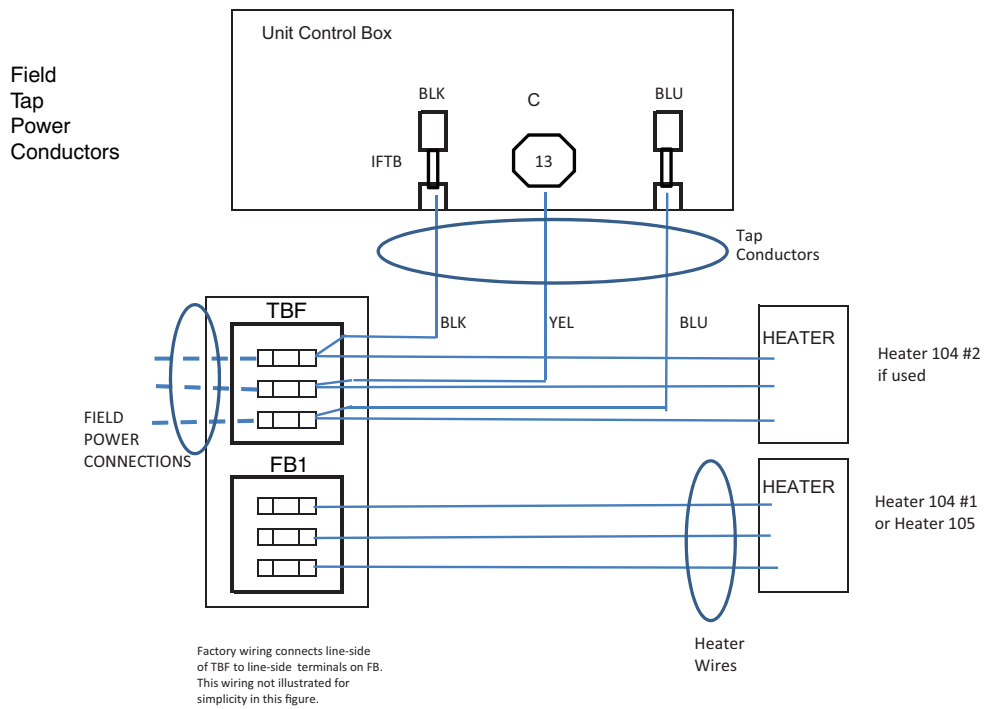


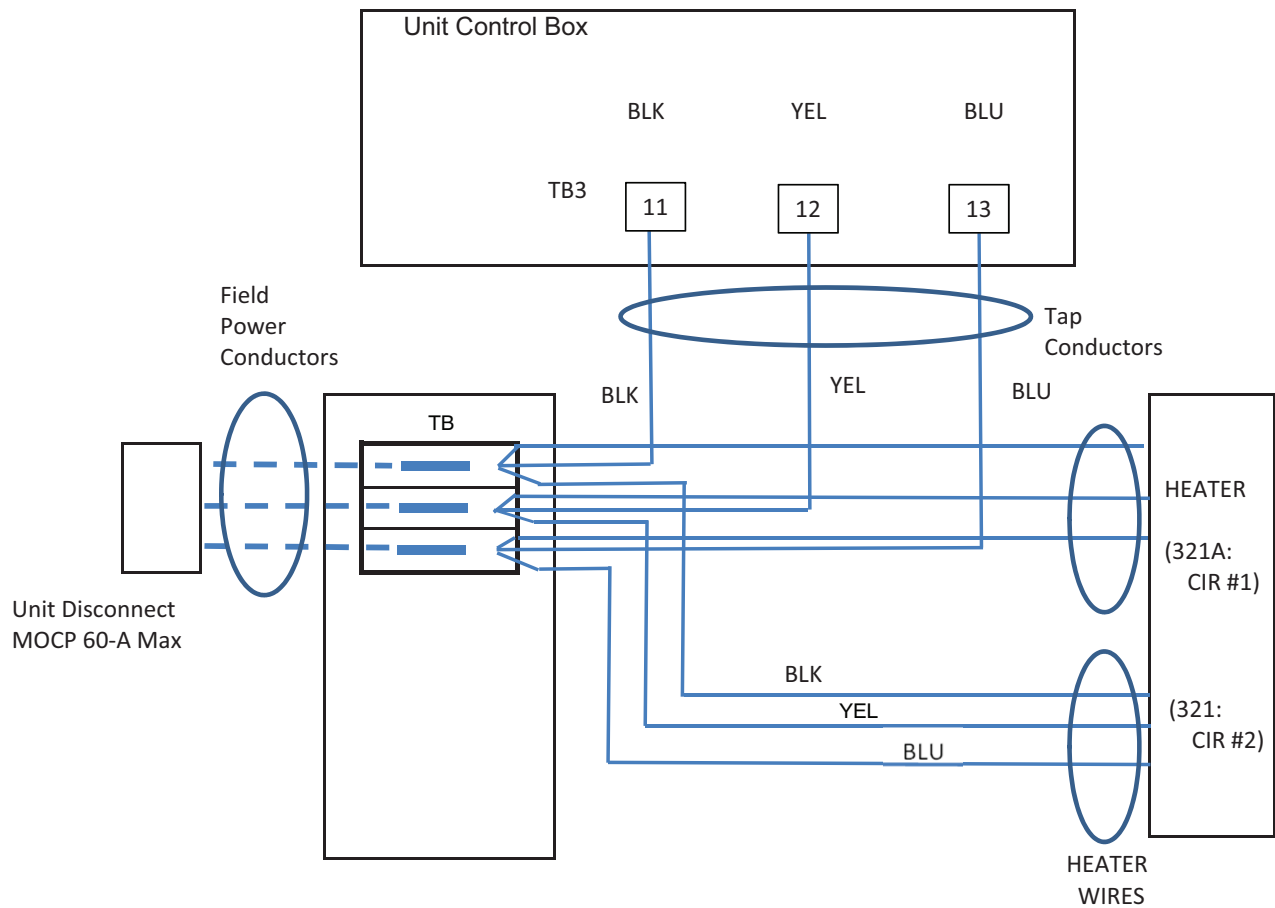
Fig. 71 - AC-3 Single Point Box CRSINGLE037A00, Sizes 04-06

C13461



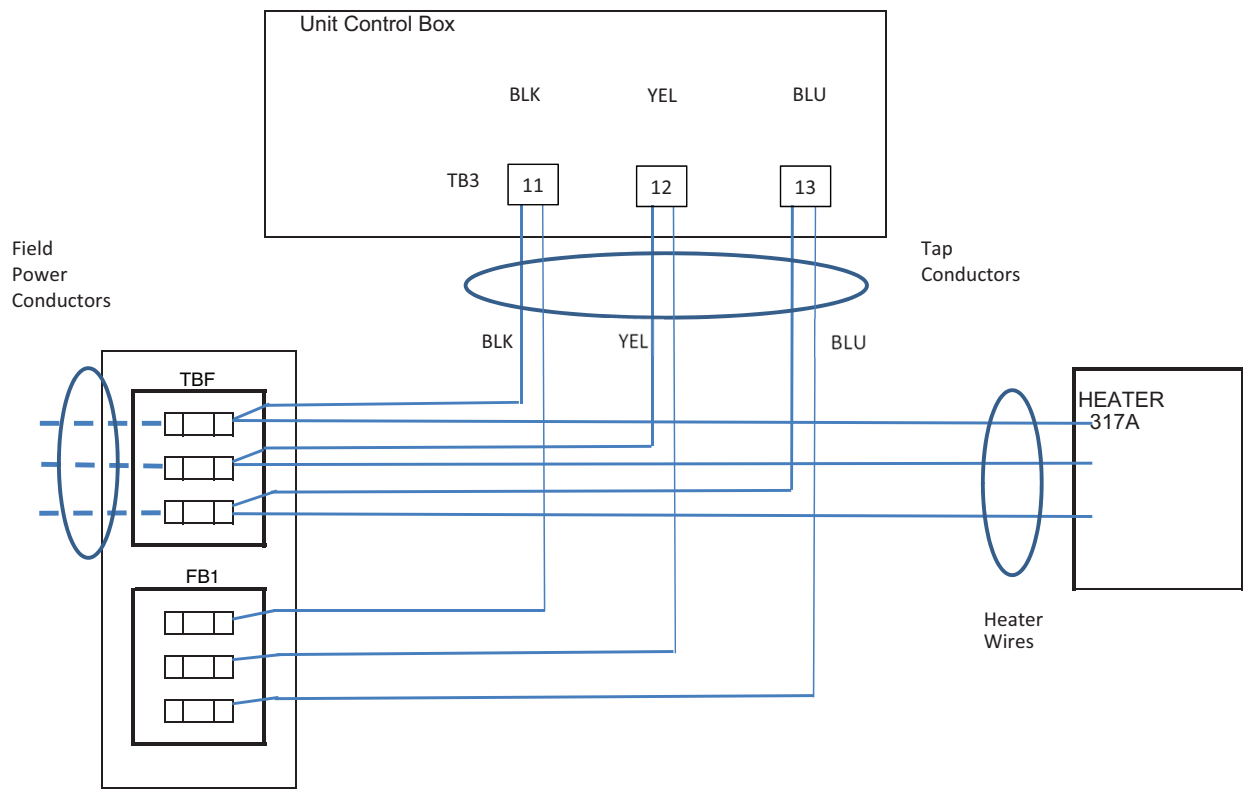
C13451

Fig. 72 - AC-3 Single Point Box CRSINGLE038A00, Sizes 04-06



C13452

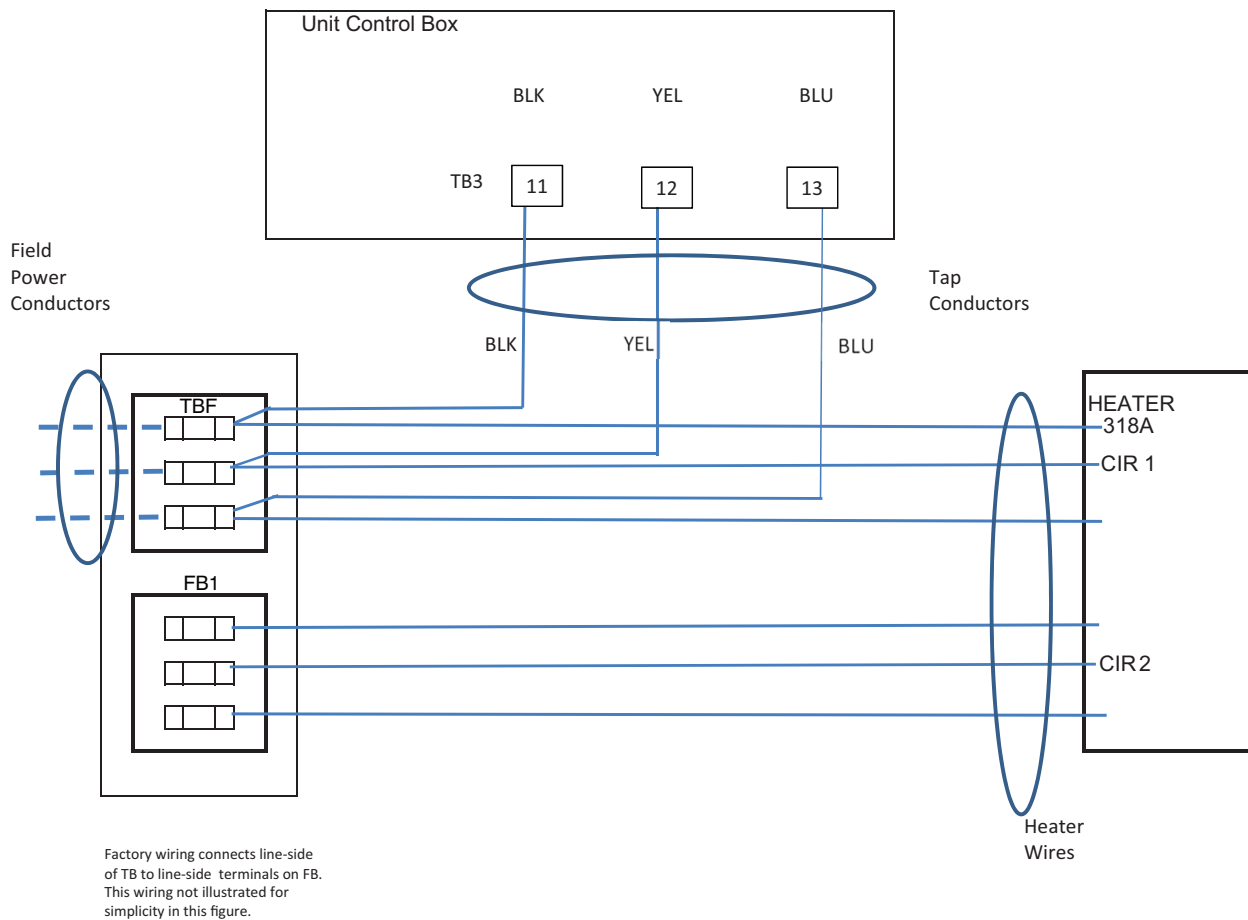
Fig. 73 - AC-3 Single Point Box CRSINGLE047A00, Size 07



Factory wiring connects line-side of TB to line-side terminals on FB. This wiring not illustrated for simplicity in this figure.

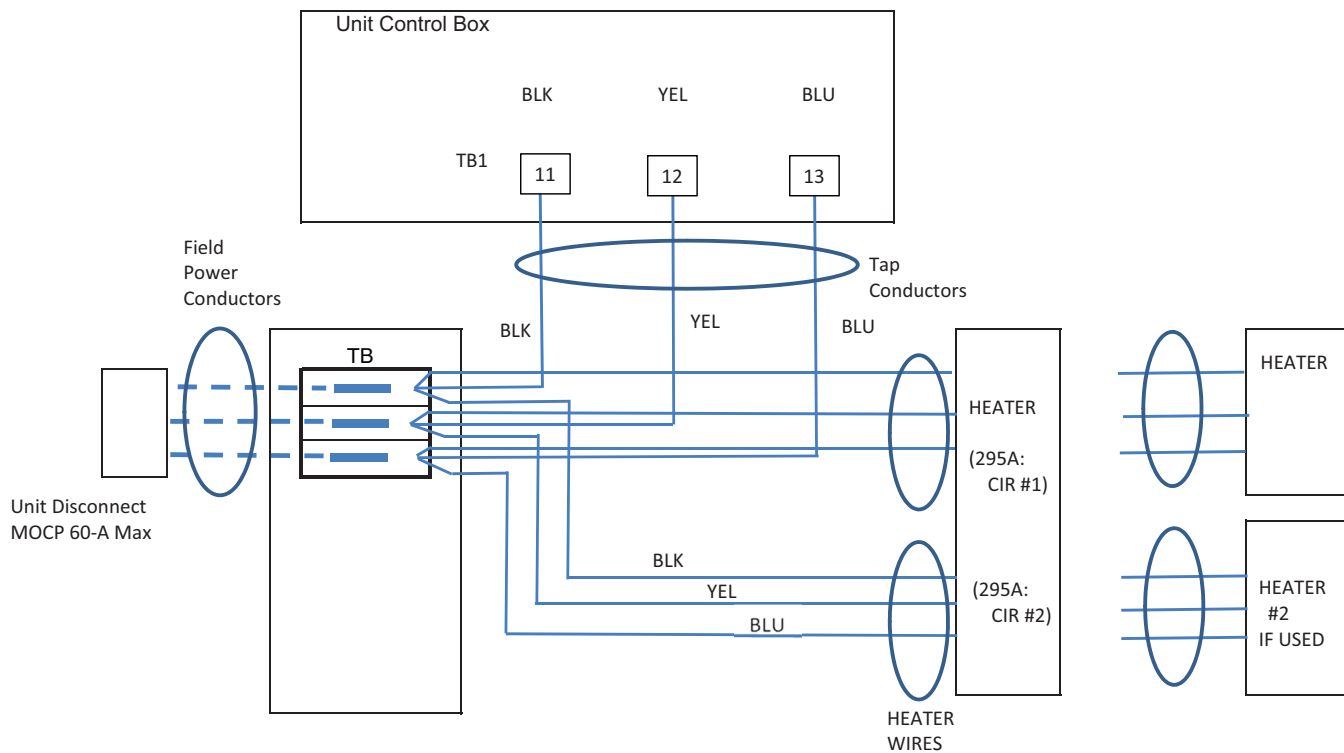
Fig. 74 - AC-3 Single Point Box CRSINGLE049A00, Size 07

C13453



C13454

Fig. 75 - AC-3 Single Point Box CRSINGLE049A00, Size 07



C13456

Fig. 76 - AC-3 Single Point Box CRSINGLE047A00, Sizes 08-12

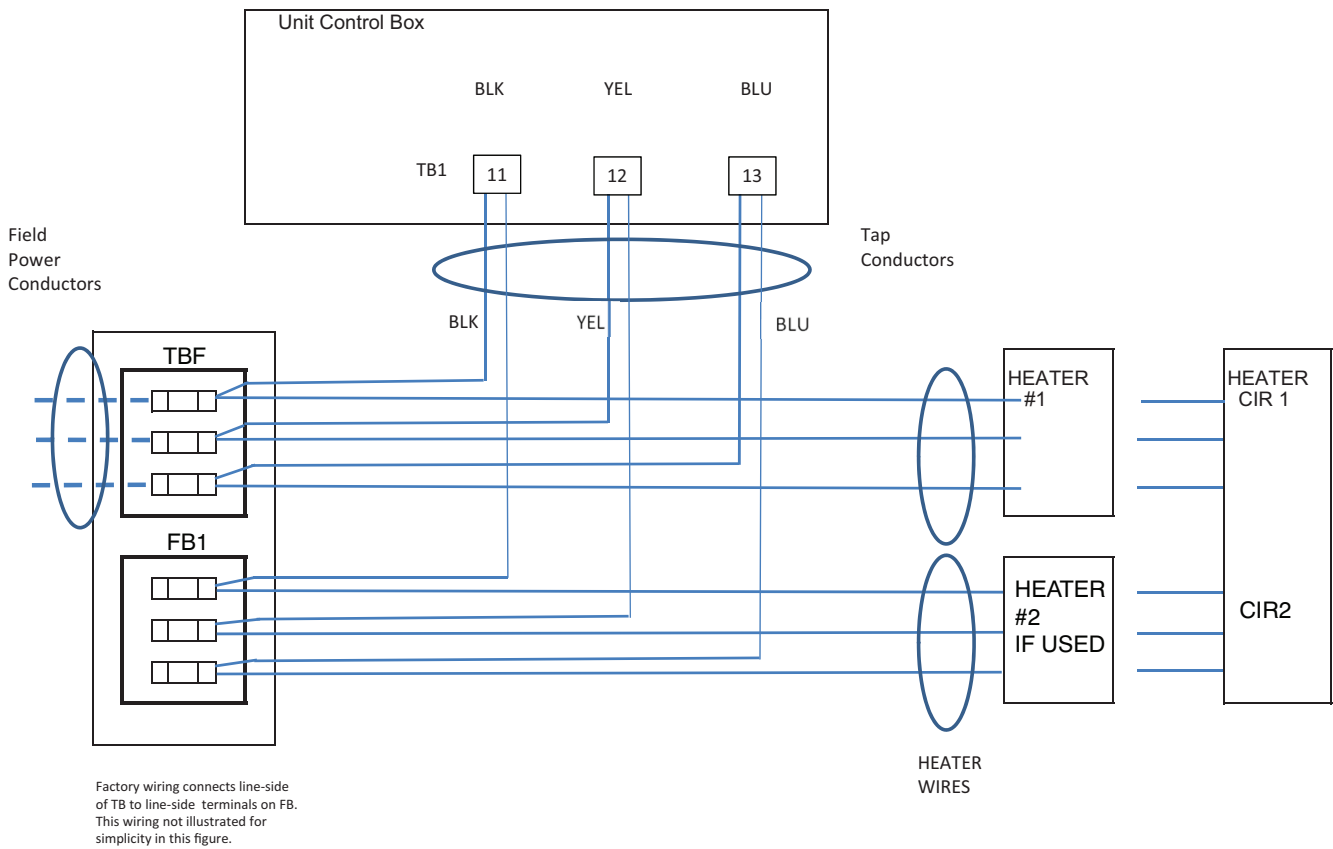


Fig. 77 - AC-3 Single Point Box CRSINGLE049A00, Sizes 08-12

C13457

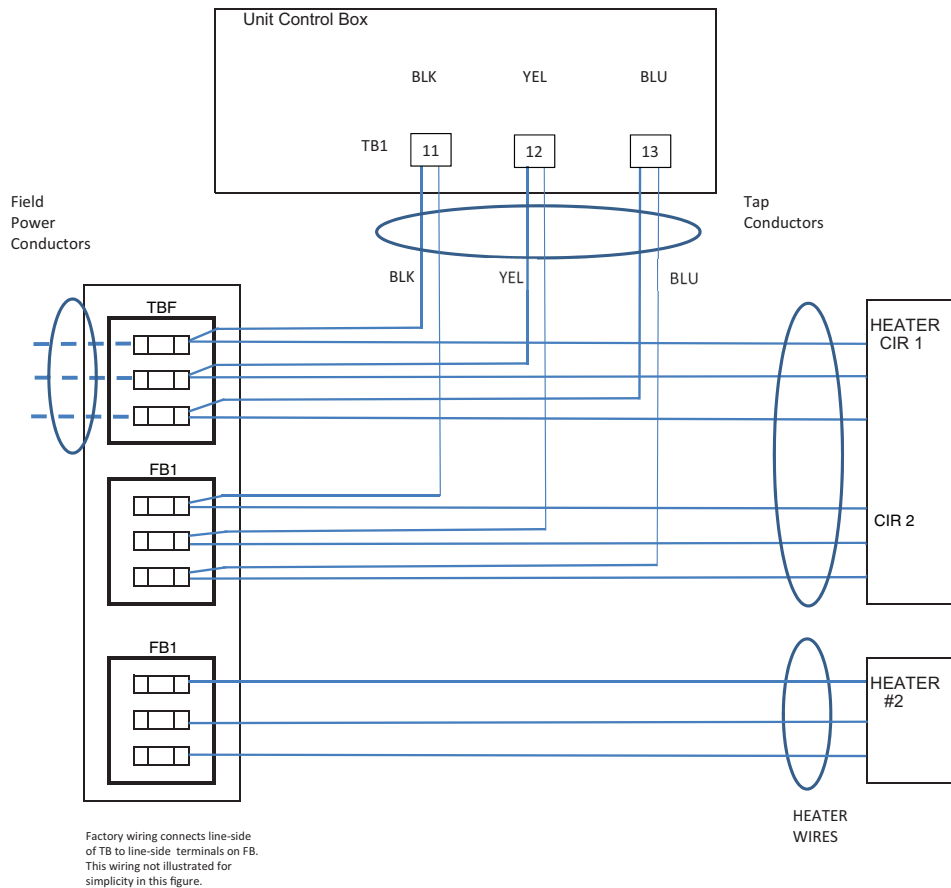
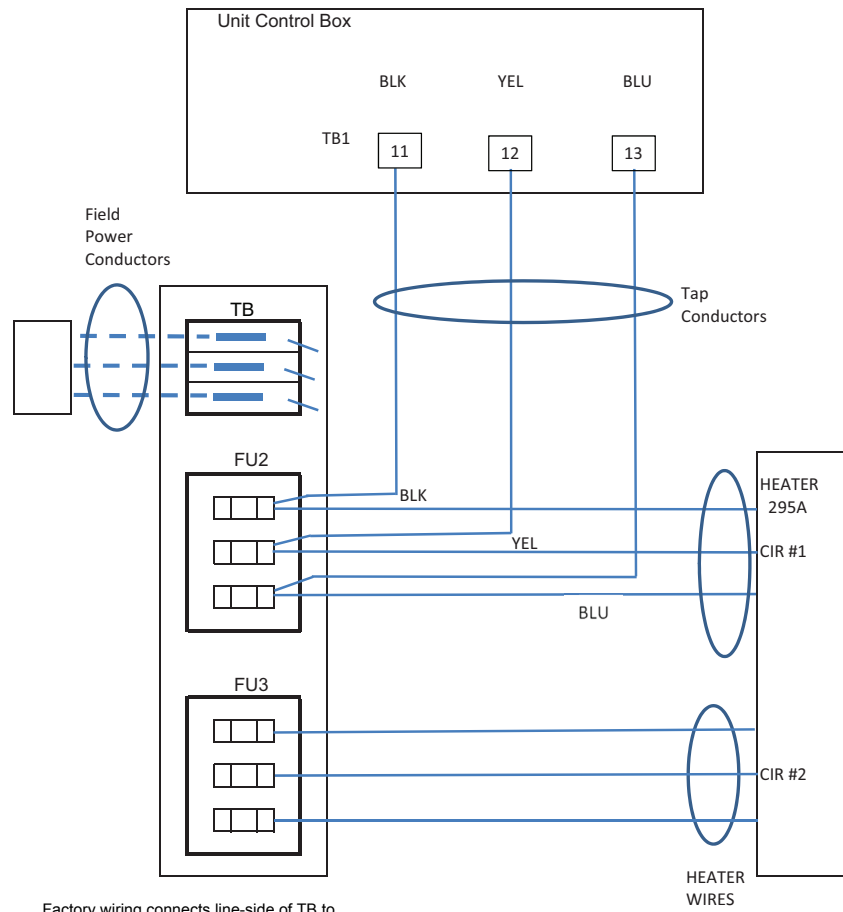


Fig. 78 - AC-3 Single Point Box CRSINGLE051A00, Sizes 08-12

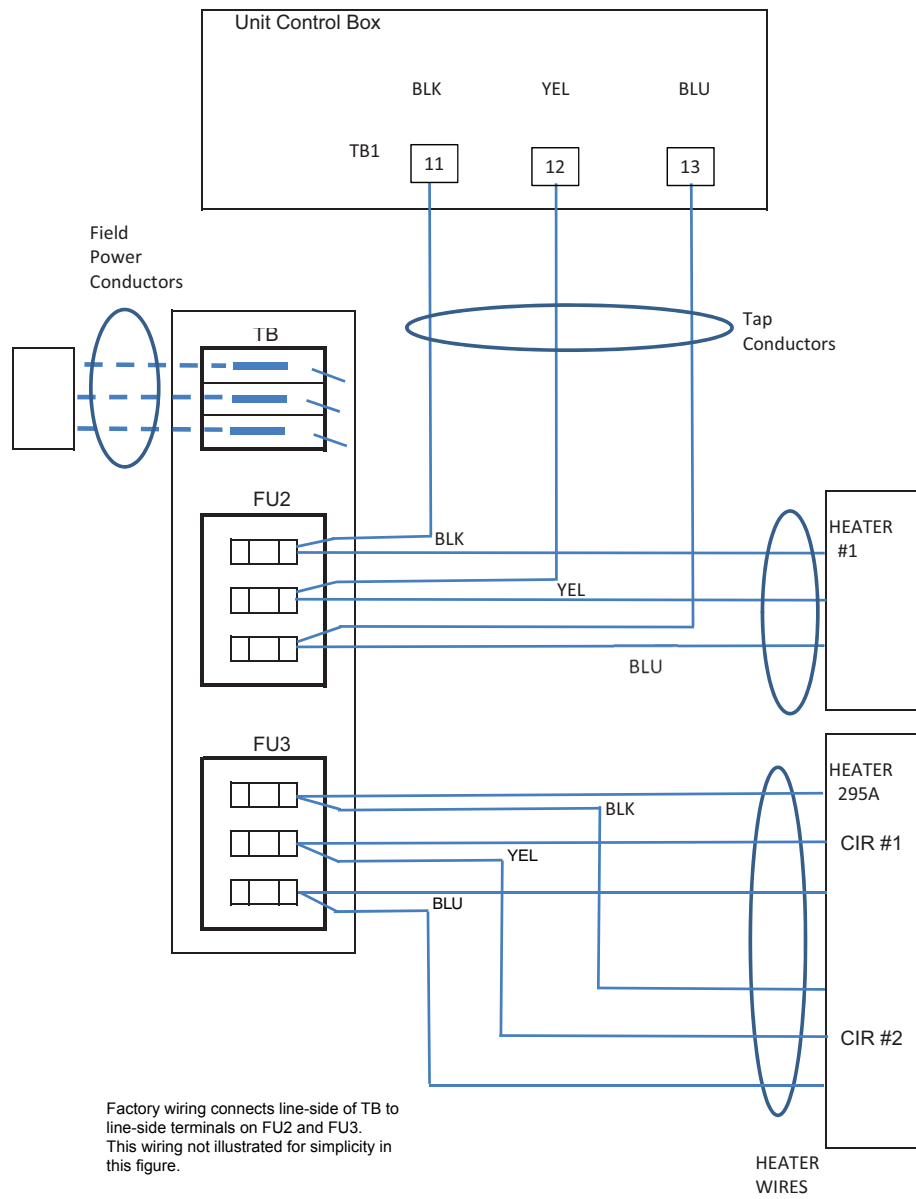
C13458



Factory wiring connects line-side of TB to line-side terminals on FU2 and FU3. This wiring not illustrated for simplicity in this figure.

C13459

Fig. 79 - AC-3 Single Point Box CRSINGLE050A00, Sizes 08-12



C13460

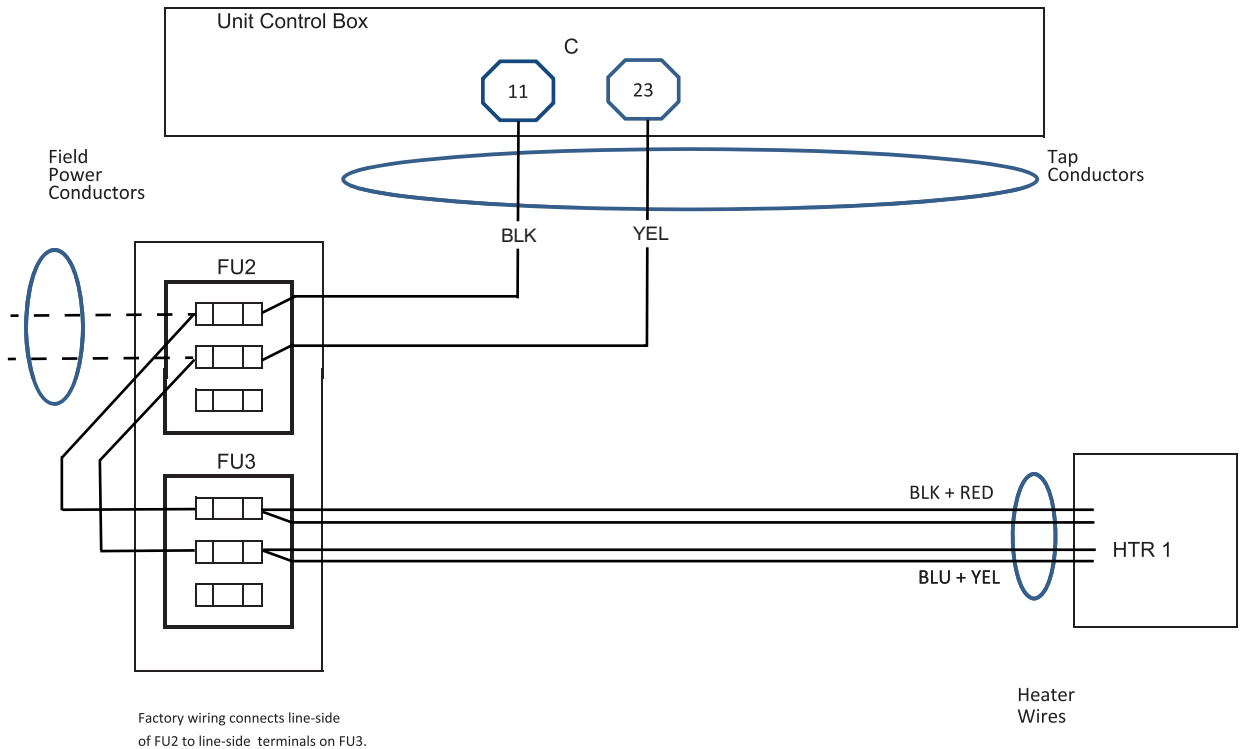
Fig. 80 - AC-3 Single Point Box CRSINGLE050A00, Sizes 08-12

APPENDIX C

HP-1, HP-2 HEAT PUMP APPLICATIONS

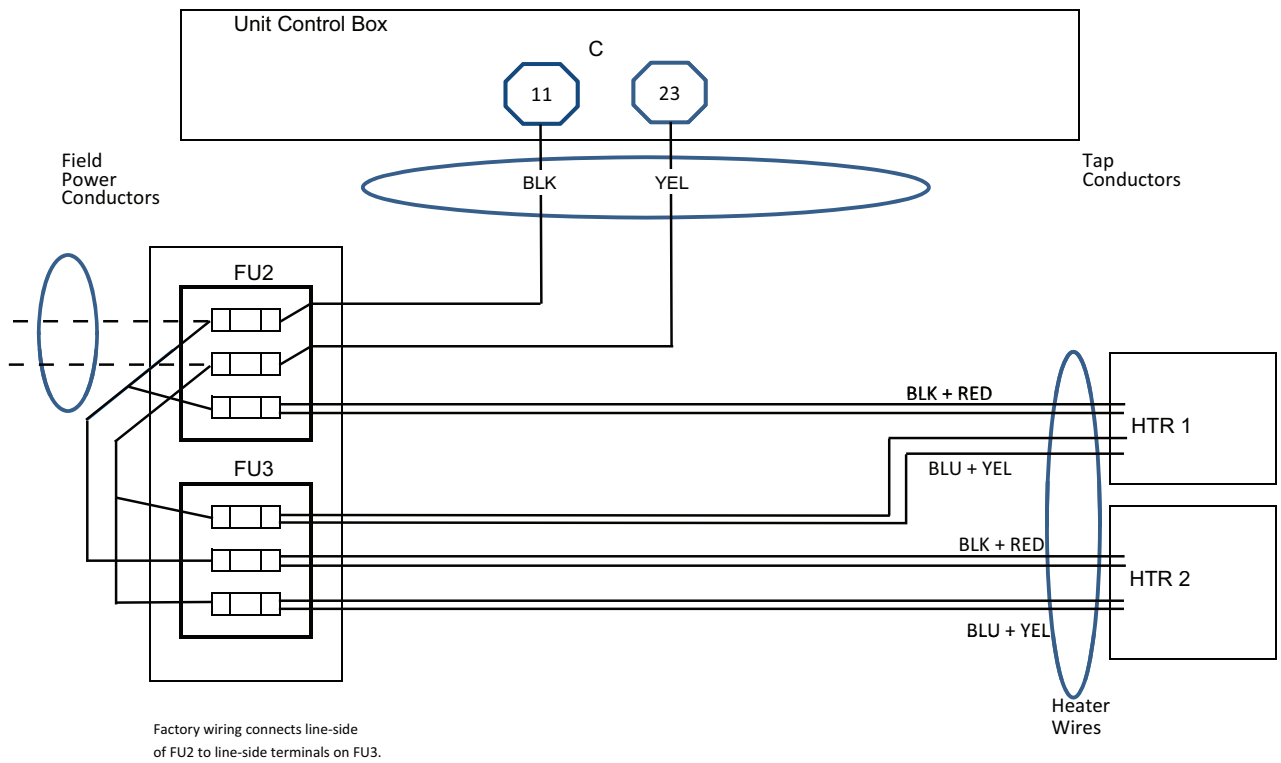
SPB CRSINGLEnnnA00	HP-1 Units				HP-2 Units			
	04-07 036-072	08-09 090-102	12 120	14 150	04-06 036-060	07 072	08-09 090-102	12 120
1-Phase (See page 14 for conversion instructions)								
040	Fig. 81							
041	Fig. 82							
3-Phase								
None	Fig. 51*				Fig. 51*			
037	Fig. 52*				Fig. 52*			
038	Fig. 83				Fig. 83			
039	Fig. 84				Fig. 84			
042						Fig. 52*		
043	Fig. 83				Fig. 83			
045	Fig. 84				Fig. 84			
047		Fig. 52*	Fig. 52*	Fig. 52*			Fig. 52*	Fig. 52*
049		Fig. 85	Fig. 86				Fig. 85 & 86	Fig. 101
050				Fig. 87				Fig. 87
051		Fig. 88	Fig. 89	Fig. 90			Fig. 88 & 89	Fig. 101
052		Fig. 91	Fig. 91	Fig. 92			Fig. 91	Fig. 92
053		Fig. 93	Fig. 93	Fig. 95			Fig. 93 & 94	Fig. 95
054		Fig. 96	Fig. 97	Fig. 98				Fig. 98

* Figure is in Appendix A



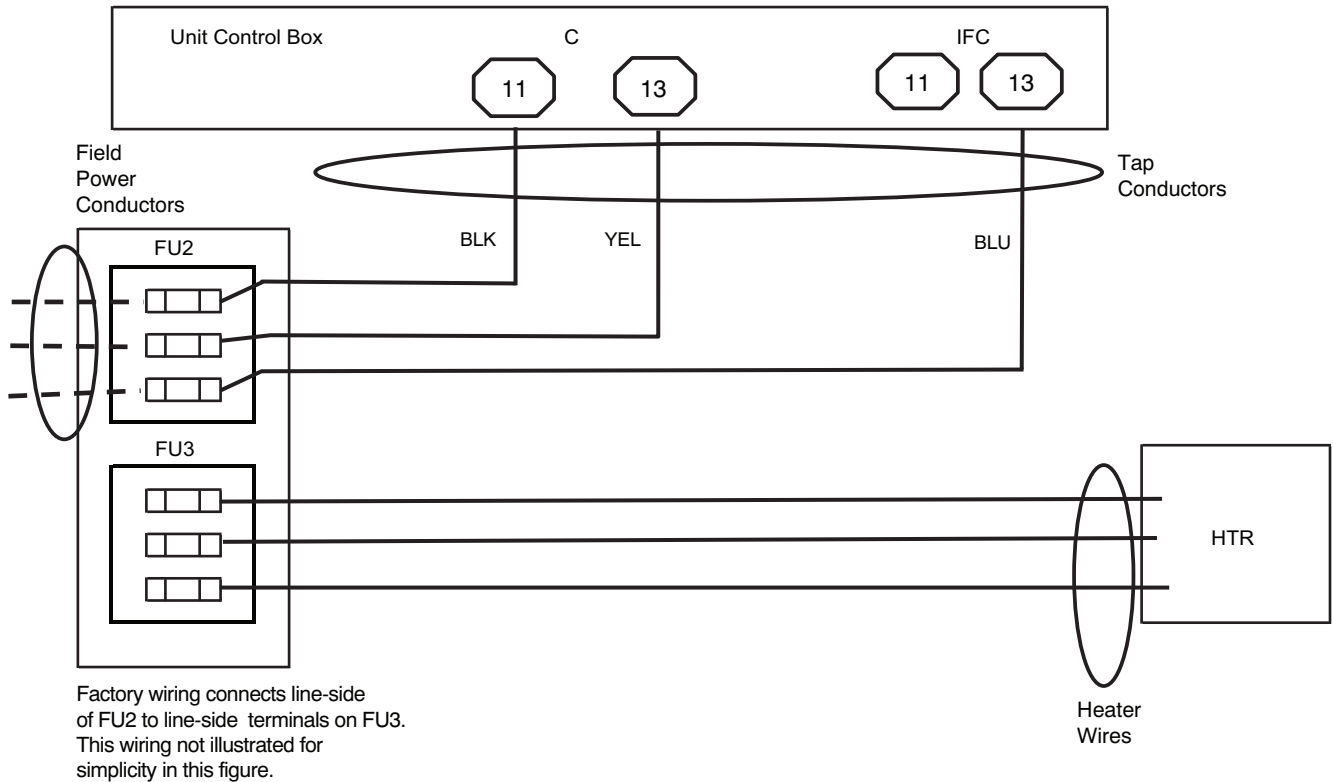
**Fig. 81 - Heat Pump 1-Phase Single Point Box CRSINGLE040A00
(HP-1, Sizes 04-07)**

C13481



C13482

Fig. 82 - Heat Pump 1-Phase Single Point Box CRSINGLE041A00 (HP-1, Sizes 04-07)



C10497

Fig. 83 - Heat Pump Single Point Box CRSINGLE038A00 & CRSINGLE043A00 (HP-1, Sizes 04-07; HP-2, Sizes 04-06)

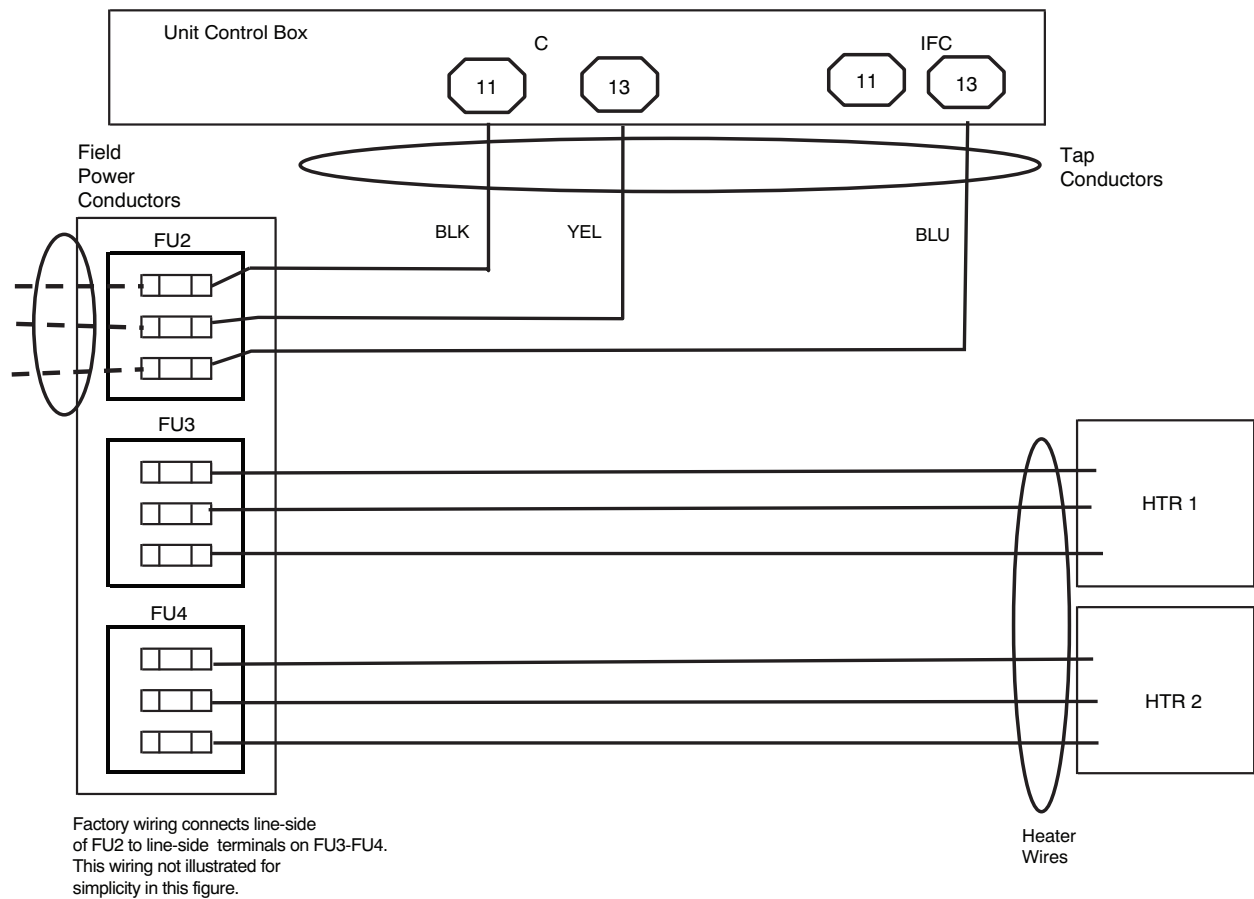


Fig. 84 - Heat Pump Single Point Box CRSINGLE039A00 & CRSINGLE045A00 (HP-1, Sizes 04-07; HP-2, Sizes 04-06)

C10498

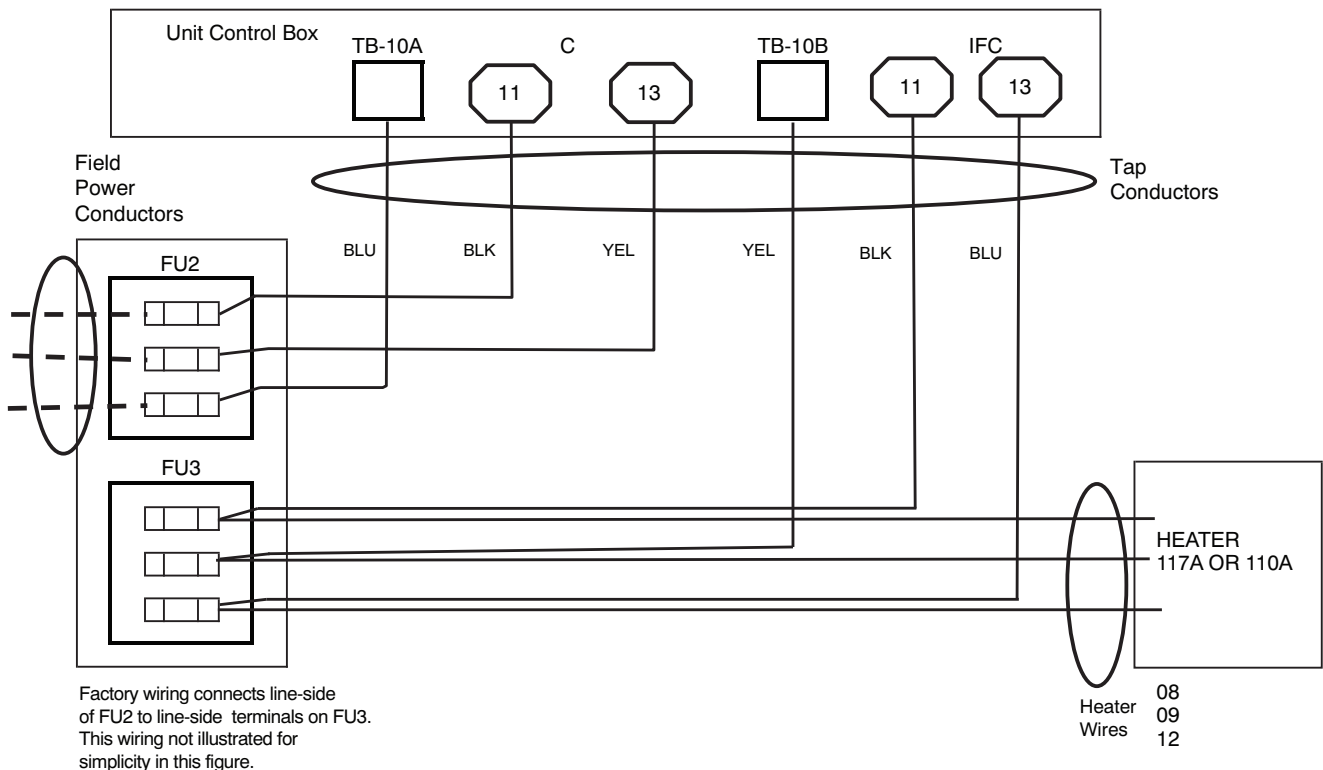
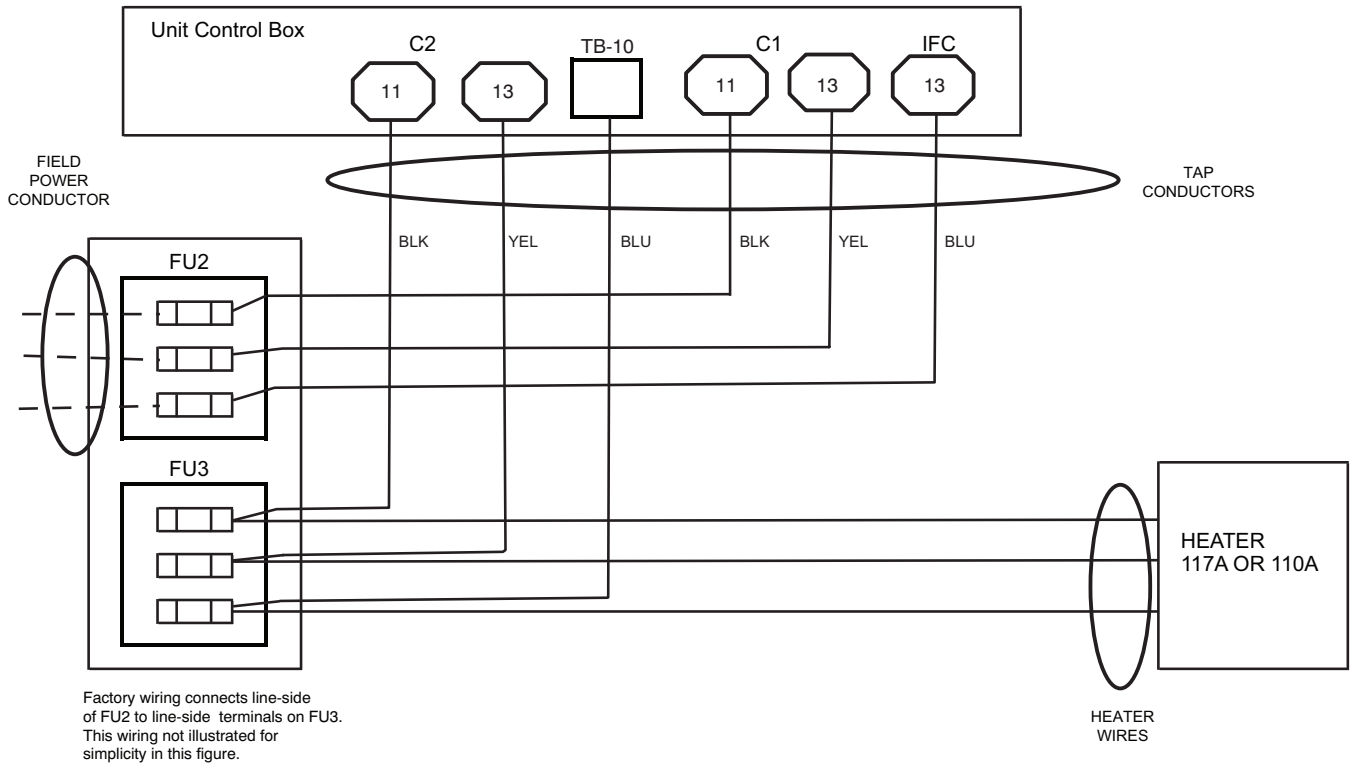


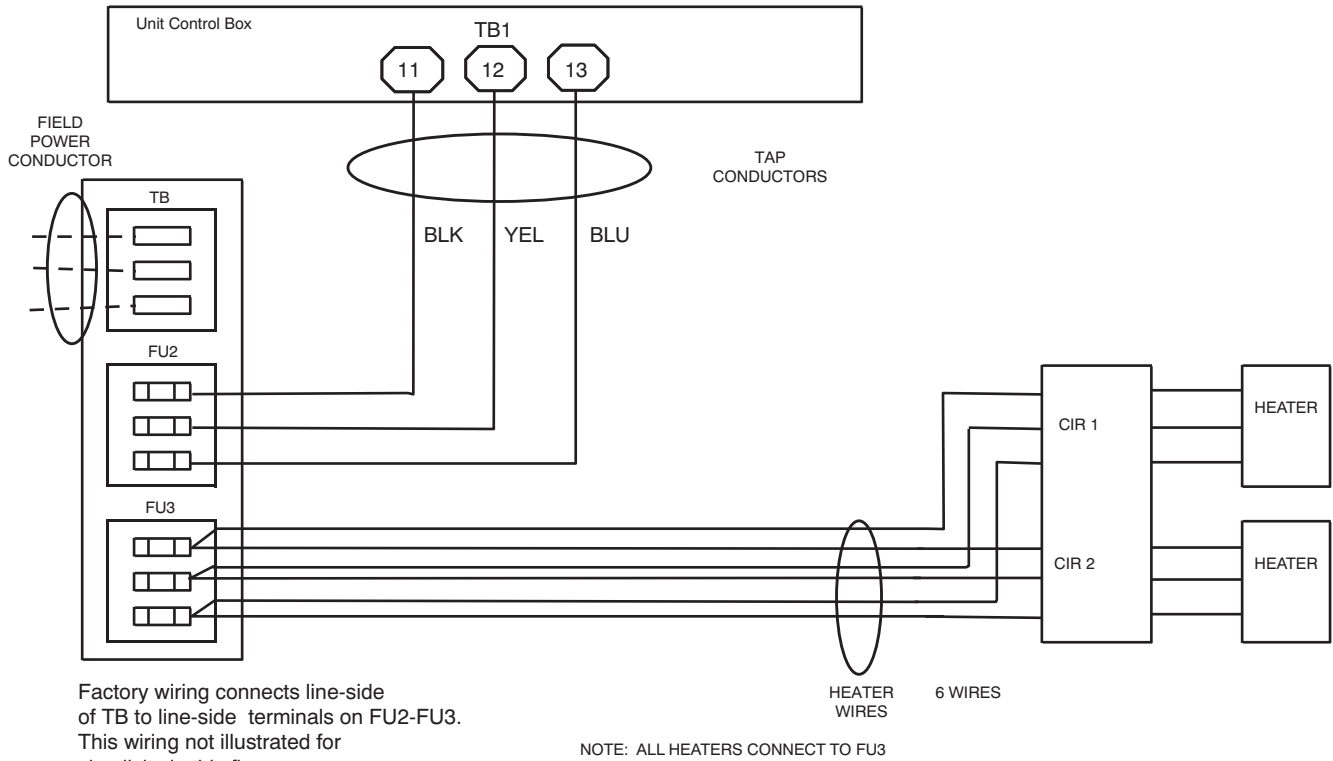
Fig. 85 - Heat Pump Single Point Box CRSINGLE049A00 (HP-1, Sizes 08-09; HP-2, Sizes 08-09)

C10501



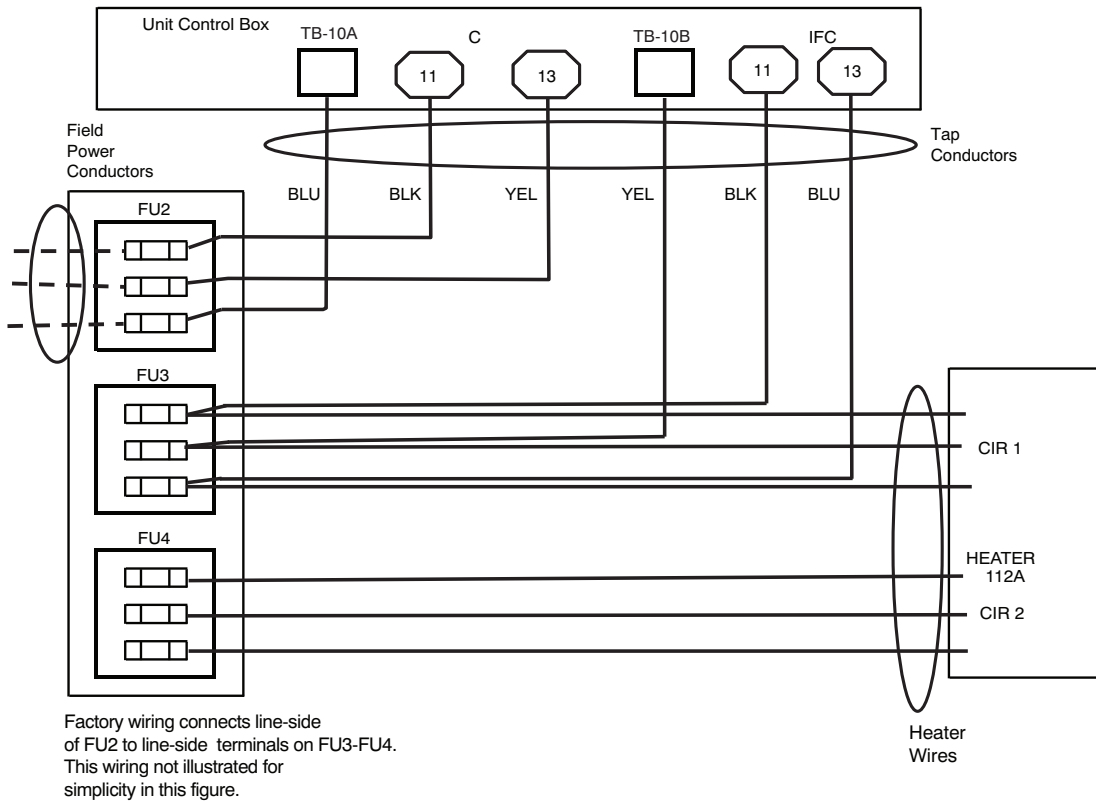
**Fig. 86 - Heat Pump Single Point Box CRSINGLE049A00
(HP-1, Size 12; HP-2, Sizes 08-09)**

C10568



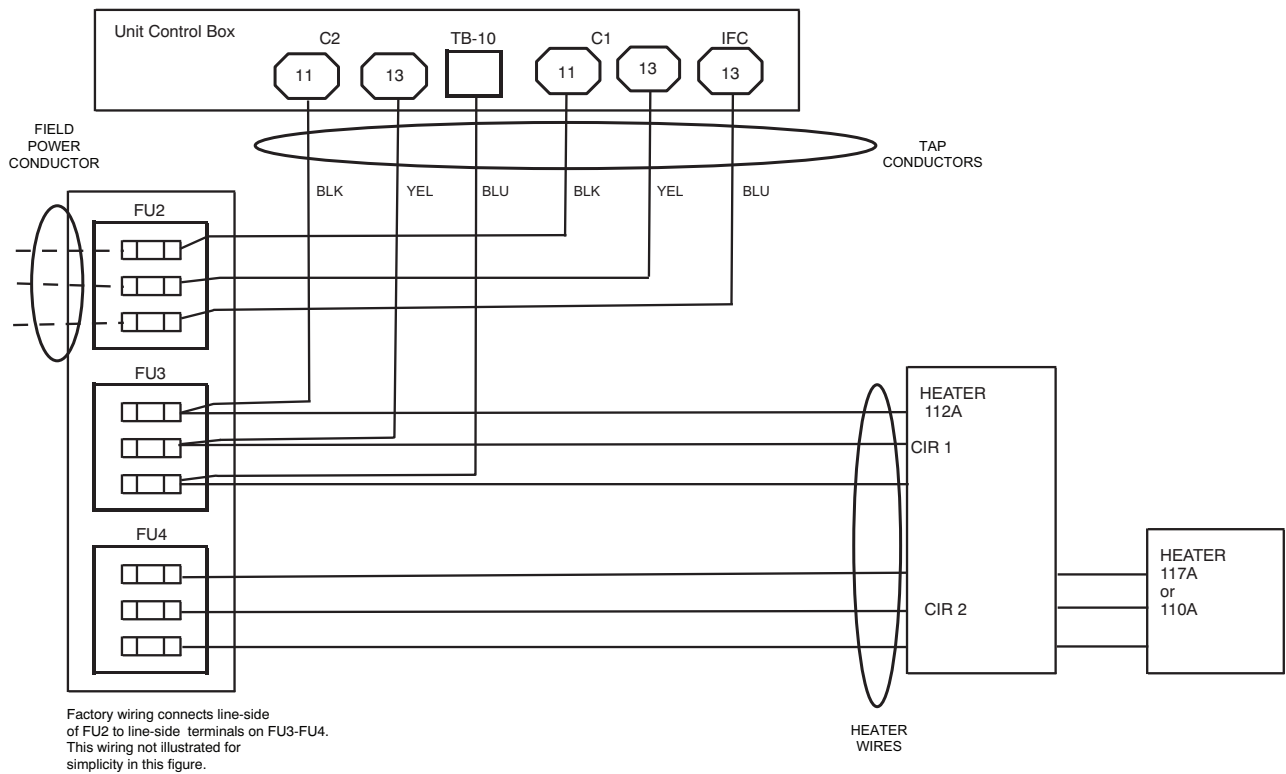
**Fig. 87 - Heat Pump Single Point Box CRSINGLE050A00
(HP-1, Size 14; HP-2, Size 12)**

C10569



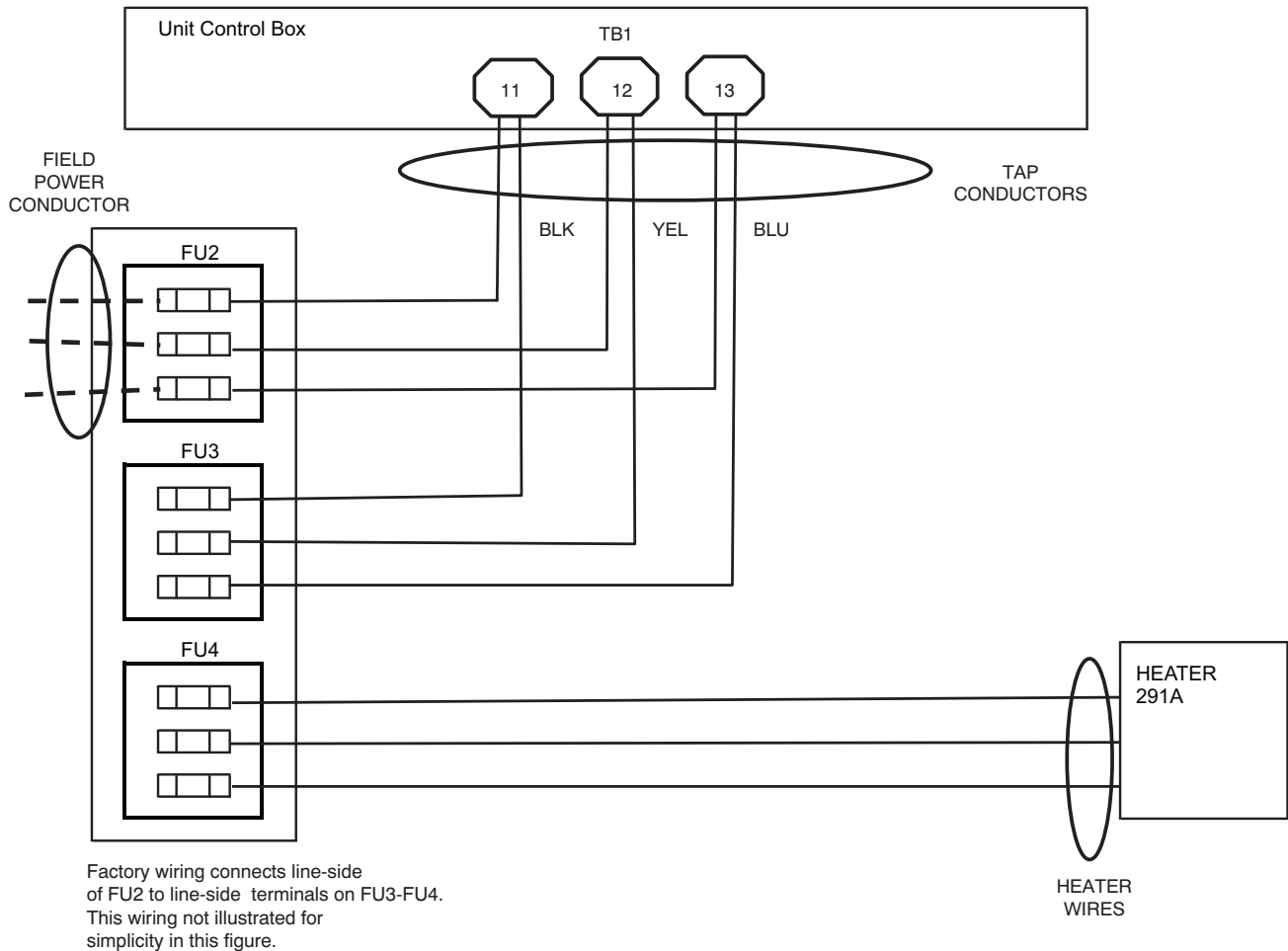
**Fig. 88 - Heat Pump Single Point Box CRSINGLE051A00
(HP-1, Sizes 08-09; HP-2, Sizes 08-09)**

C10503



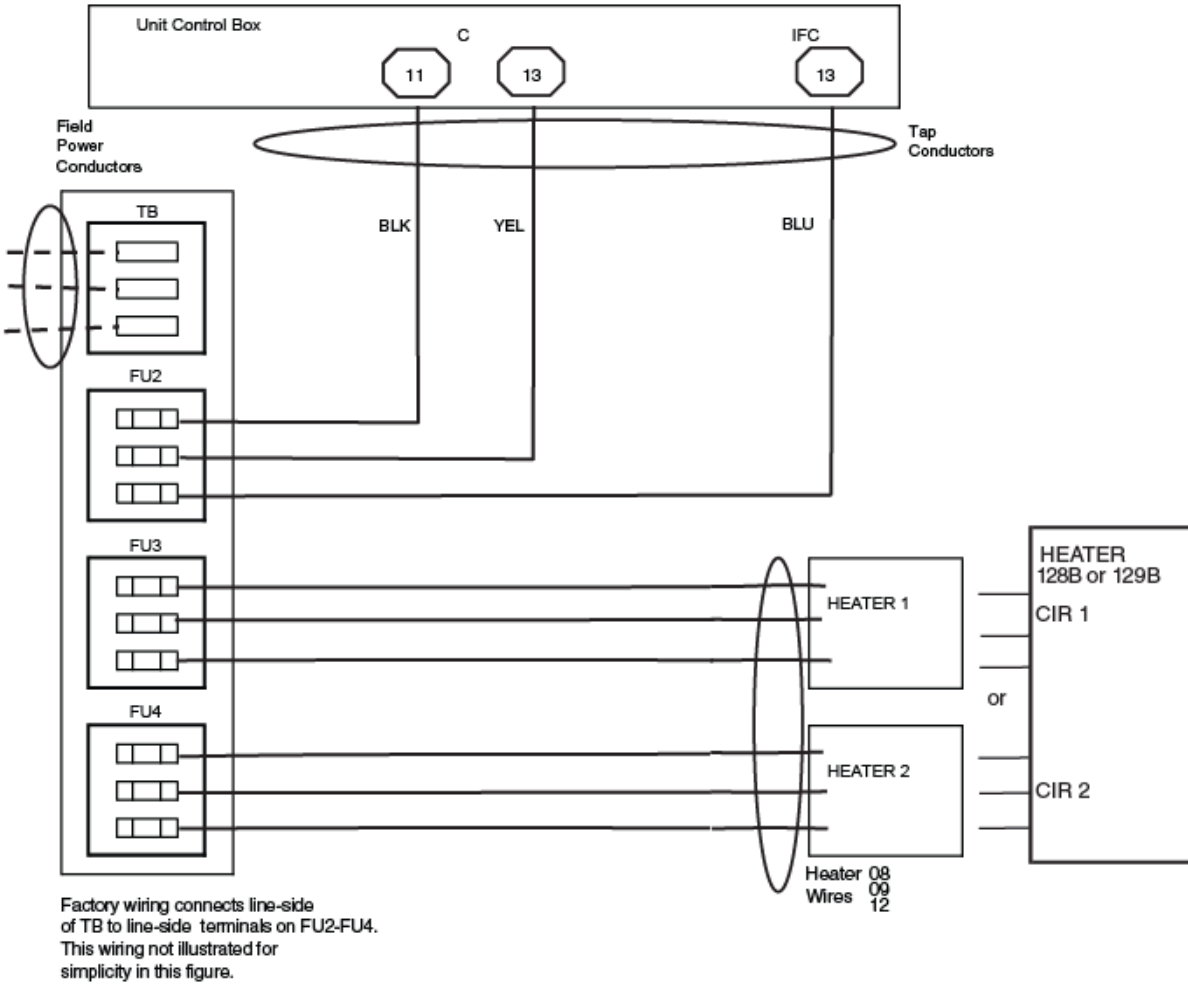
C10570

**Fig. 89 - Heat Pump Single Point Box CR SINGLE051A00
(HP-1, Size 12; HP-2, Sizes 08-09)**



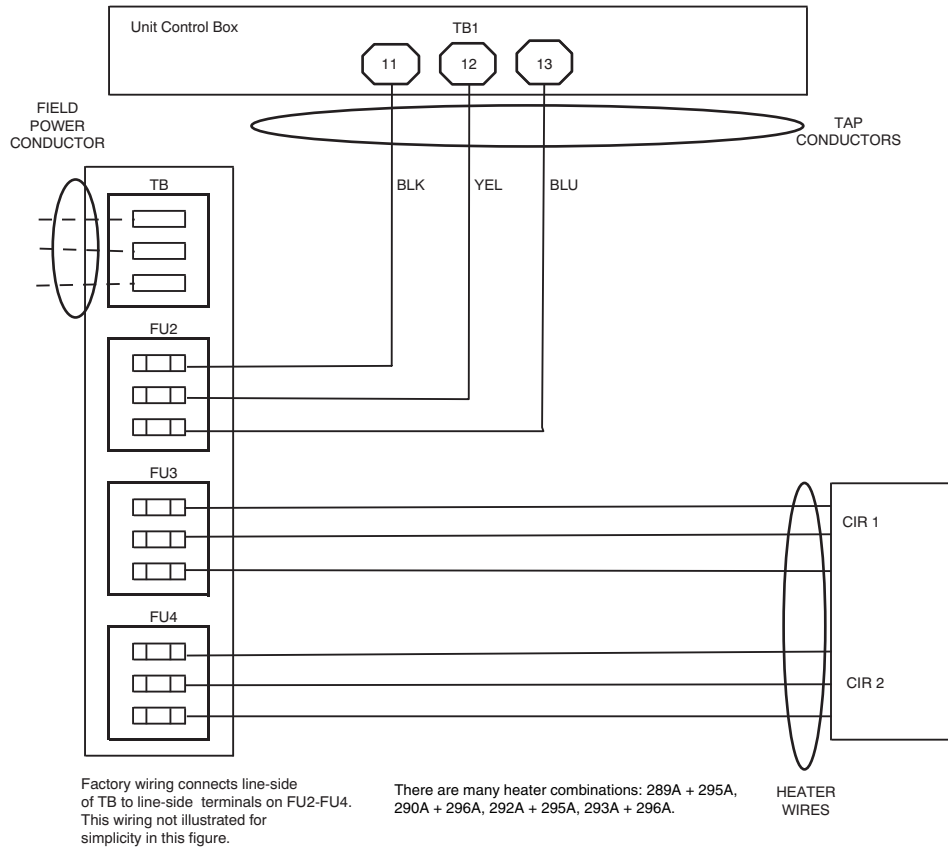
C10571

**Fig. 90 - Heat Pump Single Point Box CR SINGLE051A00
(HP-1, Size 14)**



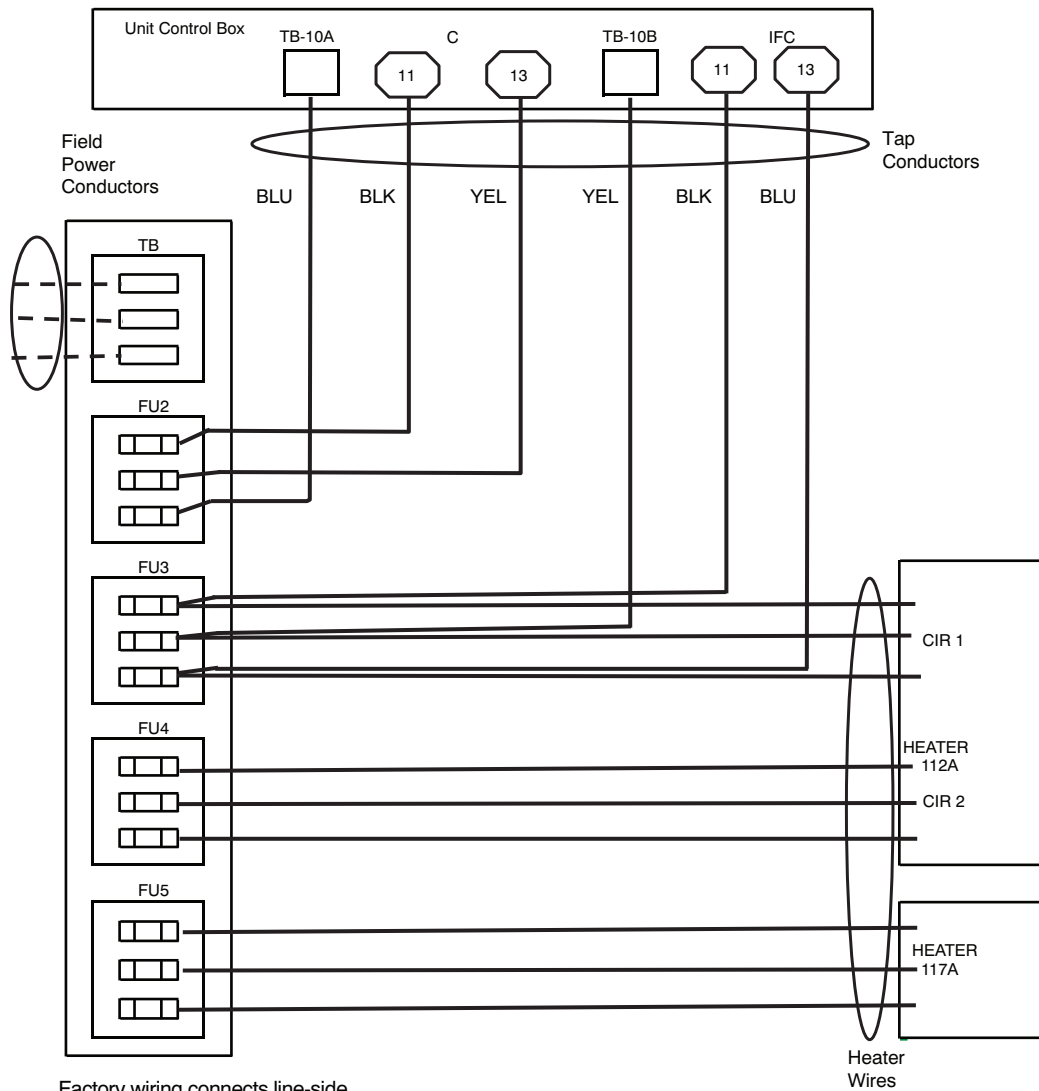
C13483

**Fig. 91 - Heat Pump Single Point Box CRSINGLE052A00
(HP-1, Sizes 08-12; HP-2, Sizes 08-09)**



**Fig. 92 - Heat Pump Single Point Box CRSINGLE052A00
(HP-1, Size 14; HP-2, Size 12)**

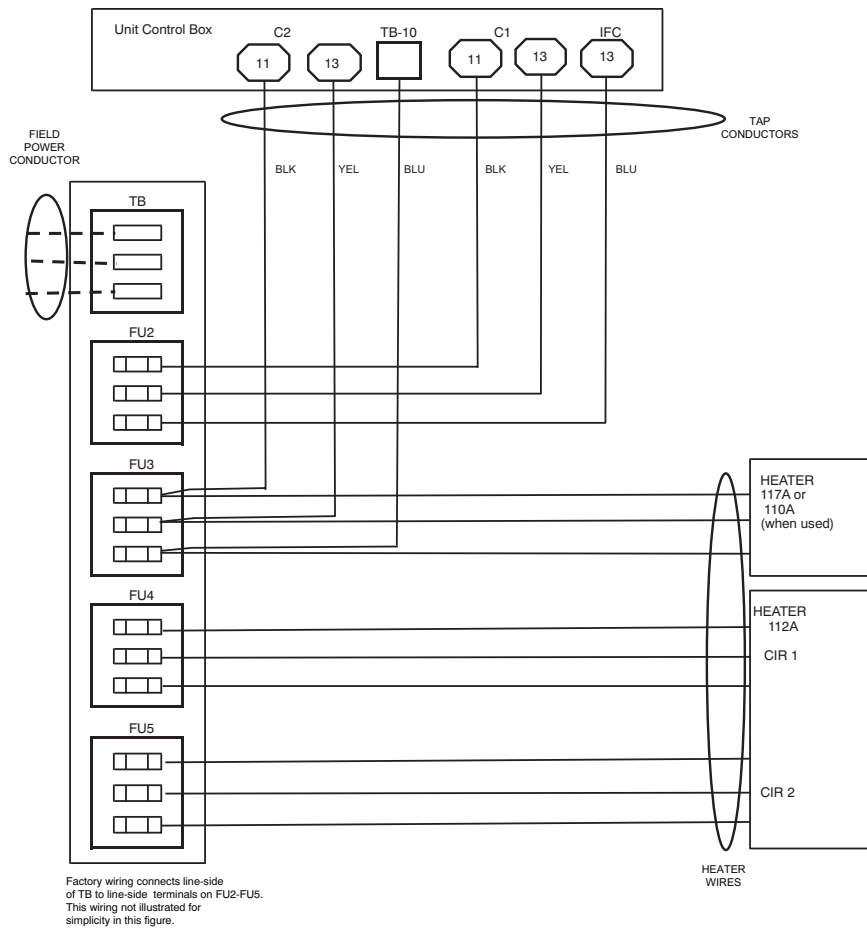
C10572



Factory wiring connects line-side of TB to line-side terminals on FU2-FU5. This wiring not illustrated for simplicity in this figure.

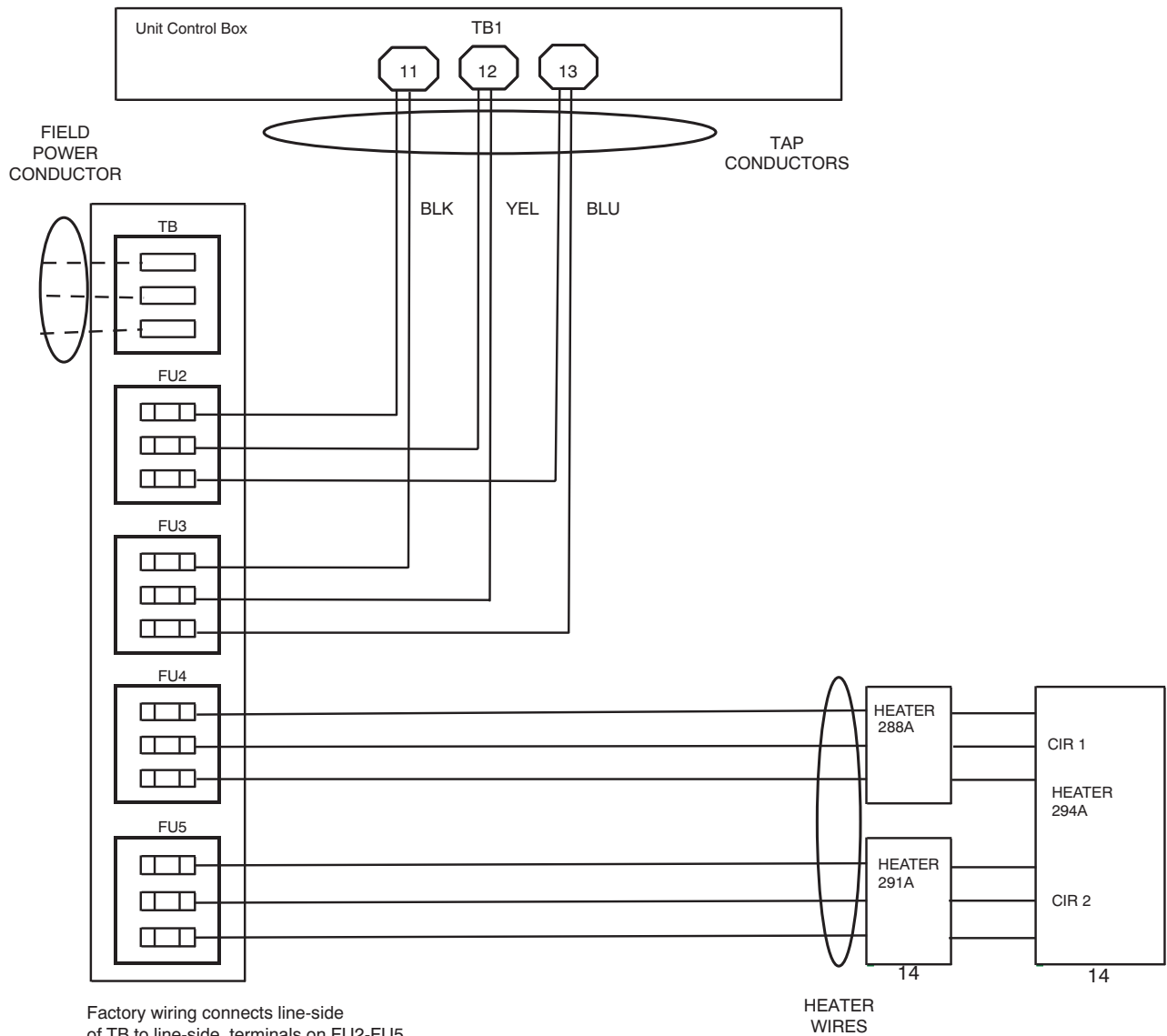
Fig. 93 - Heat Pump Single Point Box CRSINGLE053A00 (HP-1, Sizes 08-09; HP-2, Sizes 08-09)

C10505



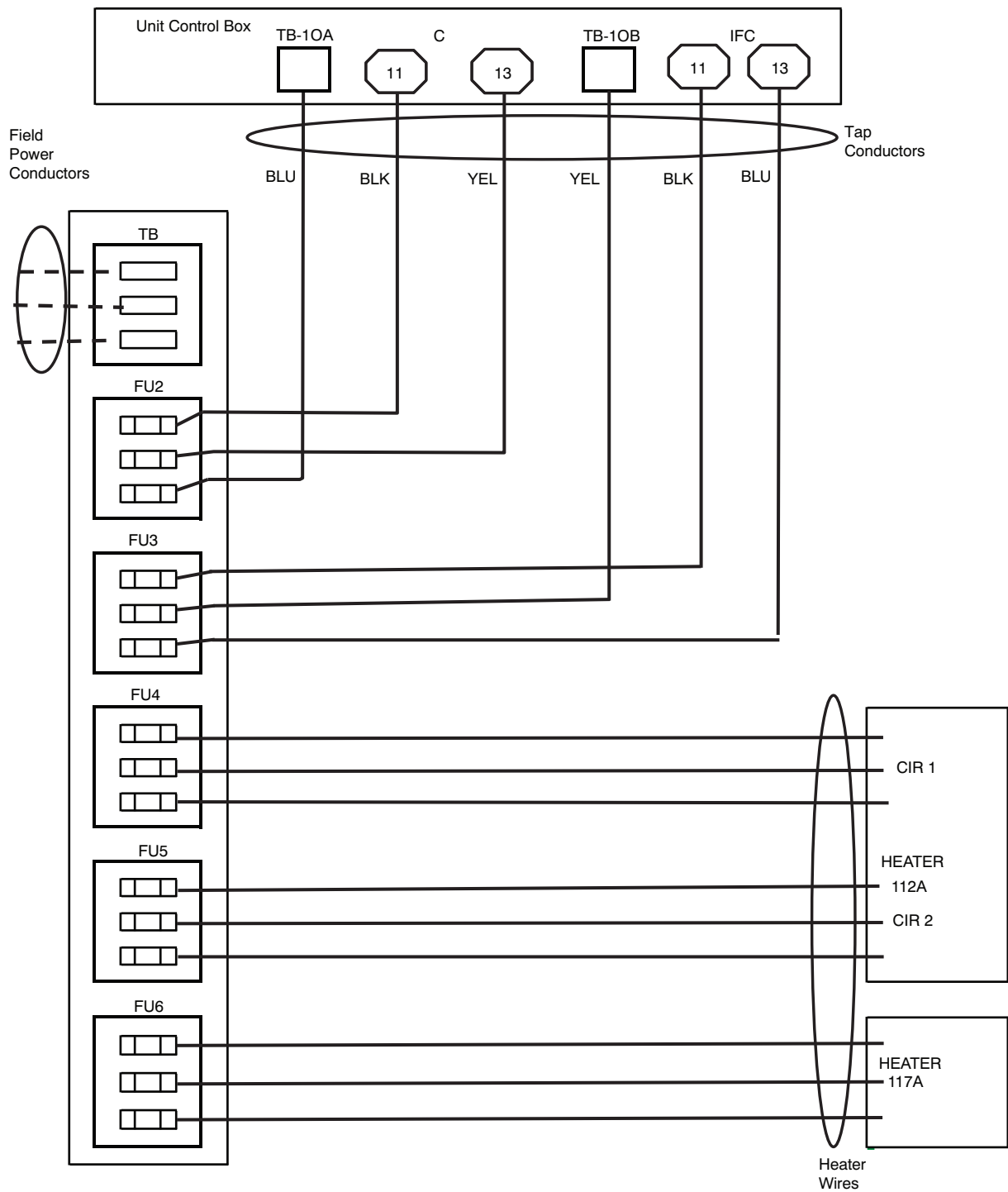
**Fig. 94 - Heat Pump Single Point Box CRSINGLE053A00
(HP-1, Size 12; HP-2, Sizes 08-09)**

C10573



**Fig. 95 - Heat Pump Single Point Box CRSINGLE053A00
(HP-1, Size 14; HP-2, Size 12)**

C10574



Factory wiring connects line-side of TB to line-side terminals on FU2-FU6. This wiring not illustrated for simplicity in this figure.

Fig. 96 - Heat Pump Single Point Box CR SINGLE054A00 (HP-1, Sizes 08-09)

C10506

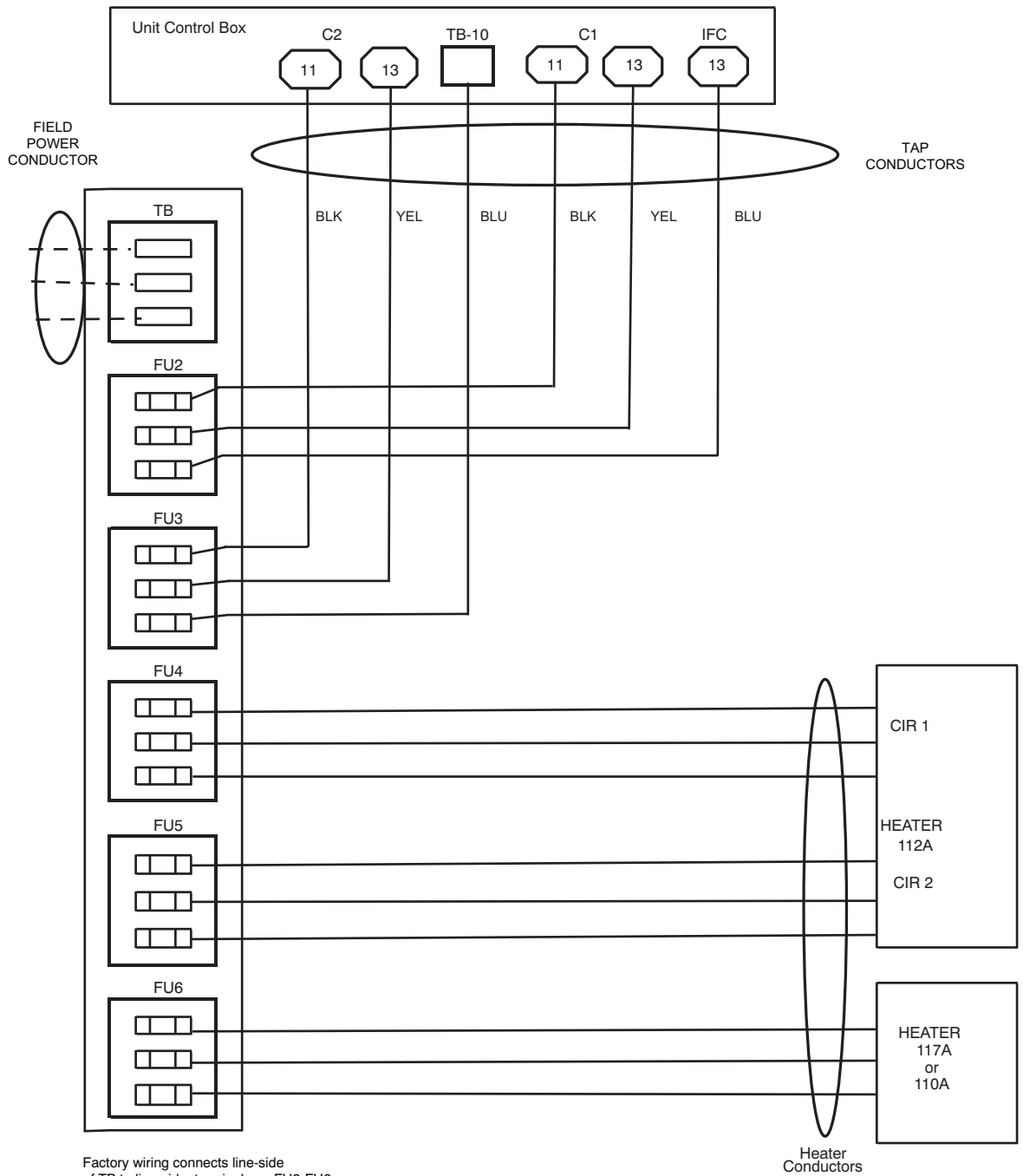
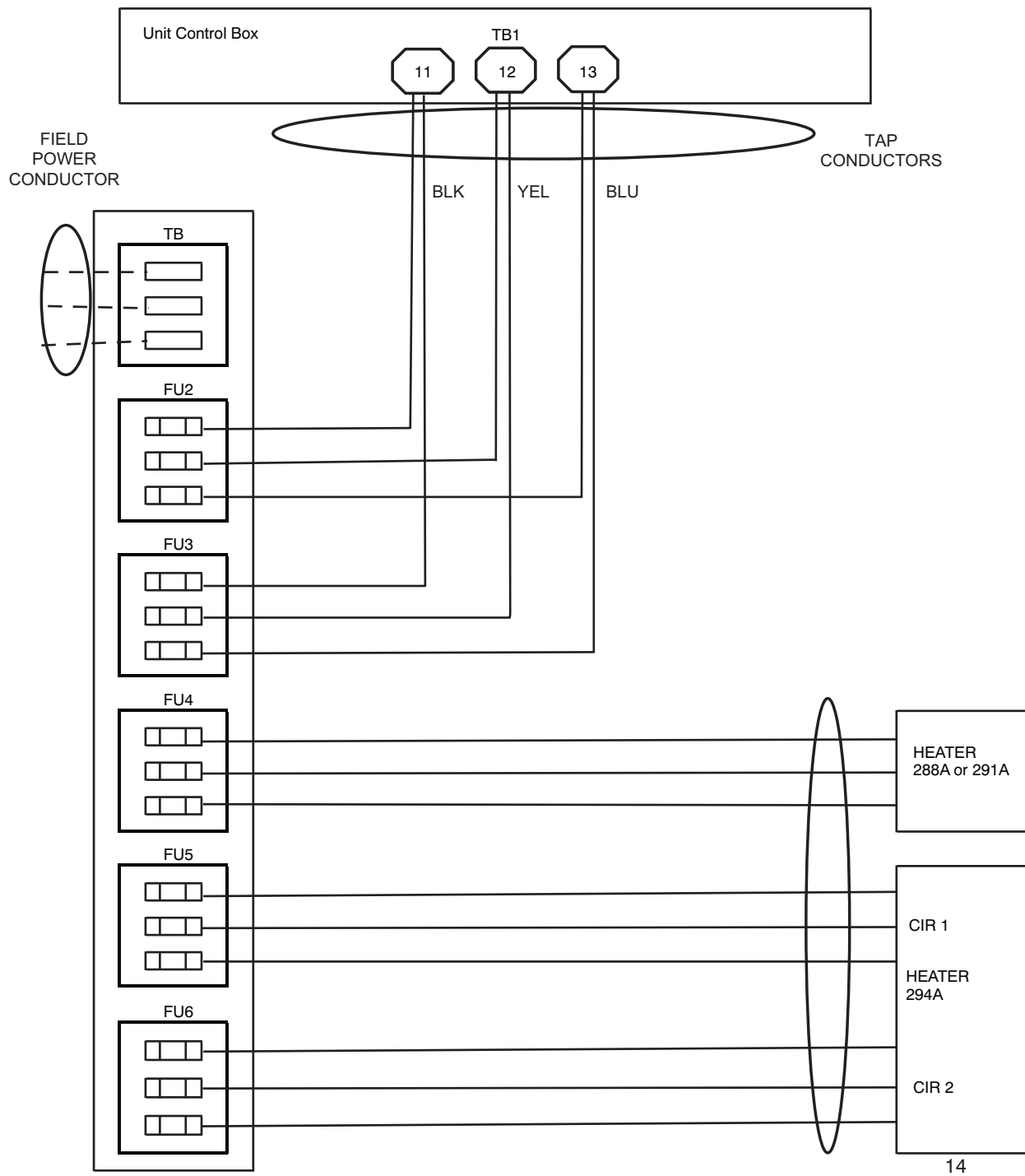


Fig. 97 - Heat Pump Single Point Box CRSINGLE054A00 (HP-1, Size 12)

C10575



Factory wiring connects line-side of TB to line-side terminals on FU2-FU6. This wiring not illustrated for simplicity in this figure.

Fig. 98 - Heat Pump Single Point Box CRSINGLE054A00 (HP-1, Size 14; HP-2, Size 12)

C10576

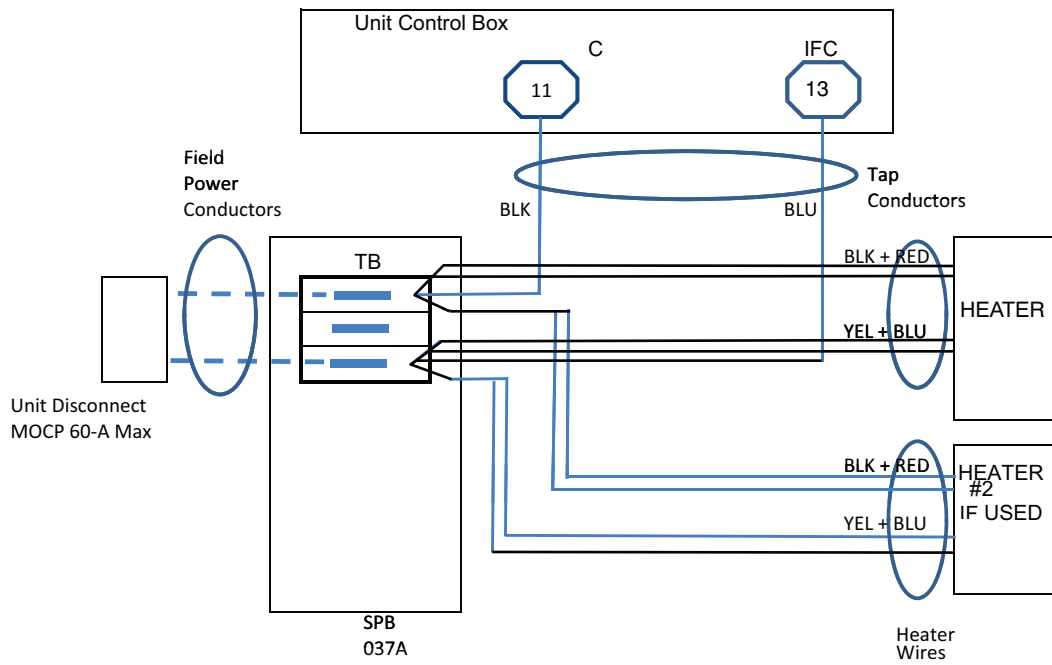
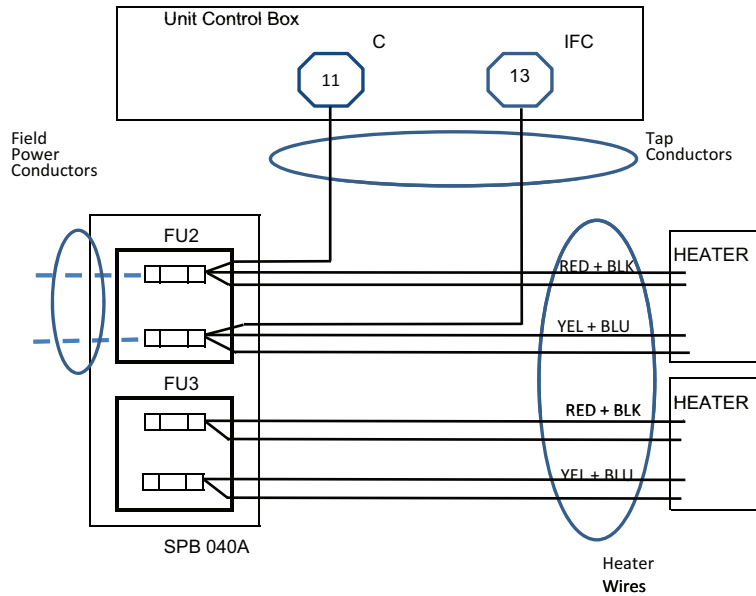


Fig. 99 - 1-PH/DNU

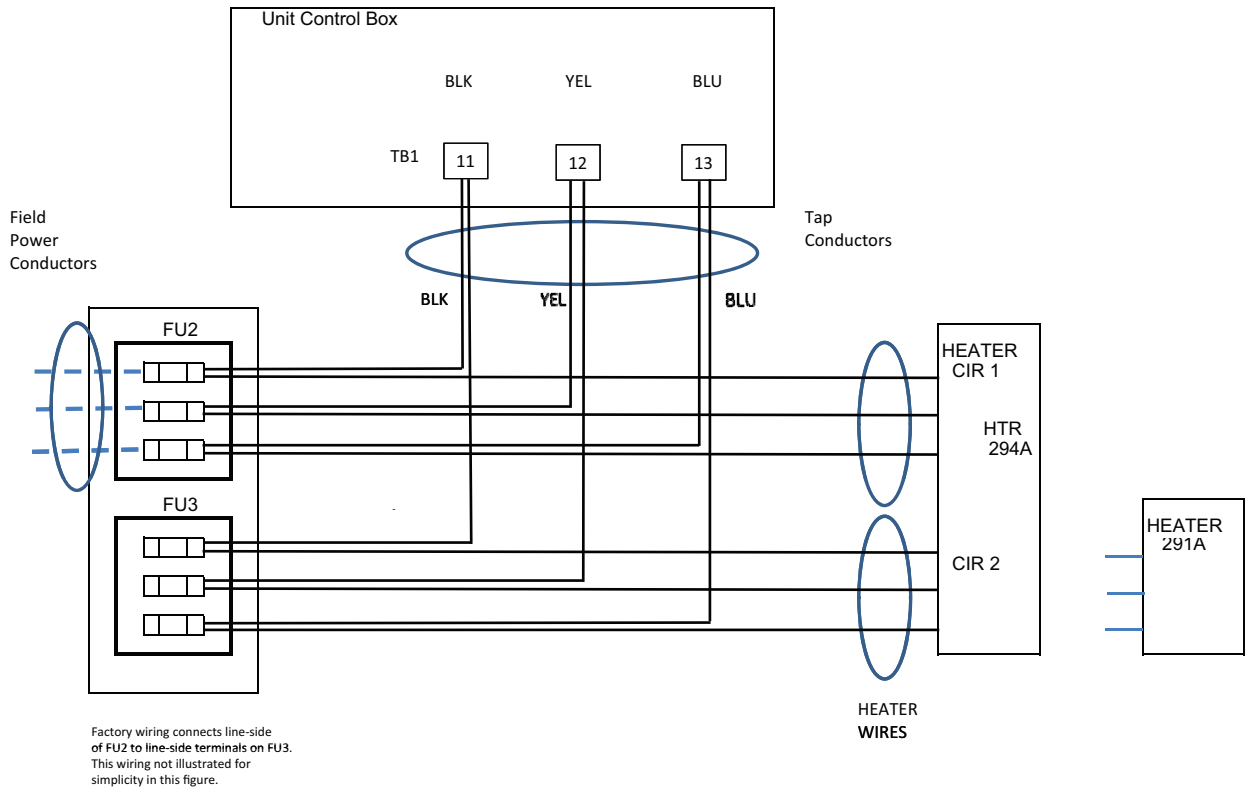
C13471



Factory wiring connects line-side of FU2 to line-side terminals on FU3. This wiring not illustrated for simplicity in this figure.

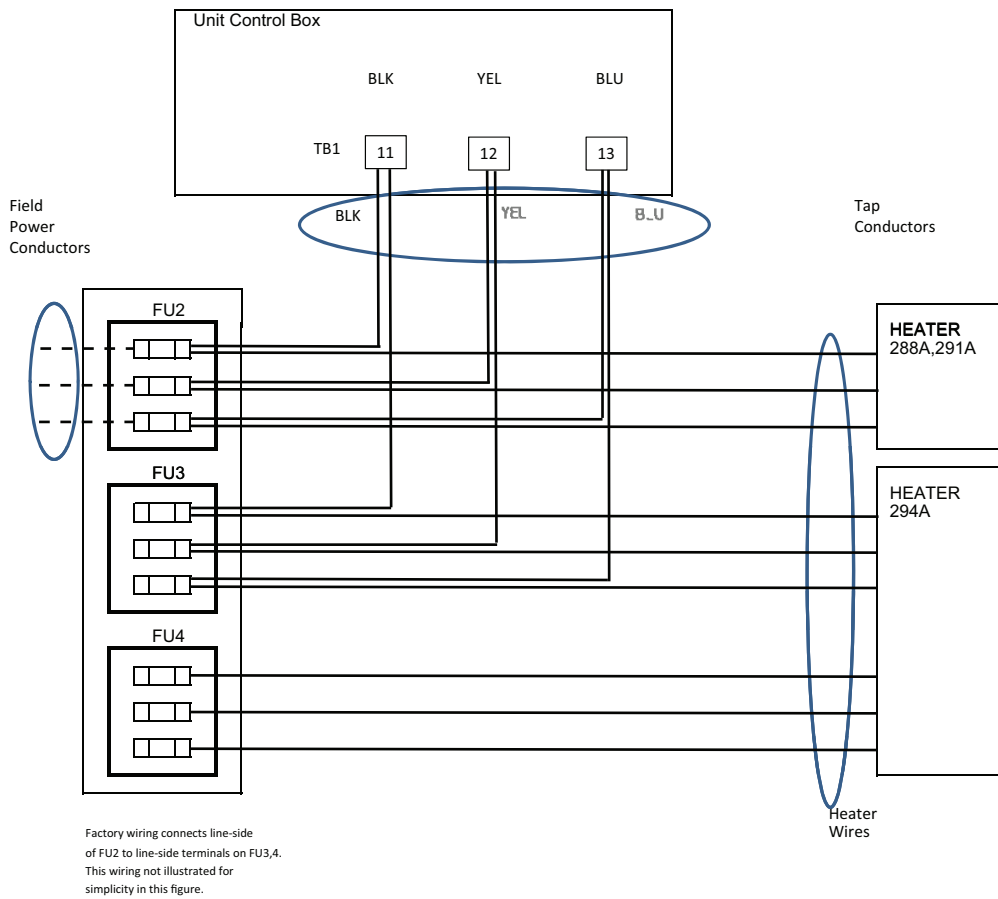
Fig. 100 - 1-PH/DNU

C13472



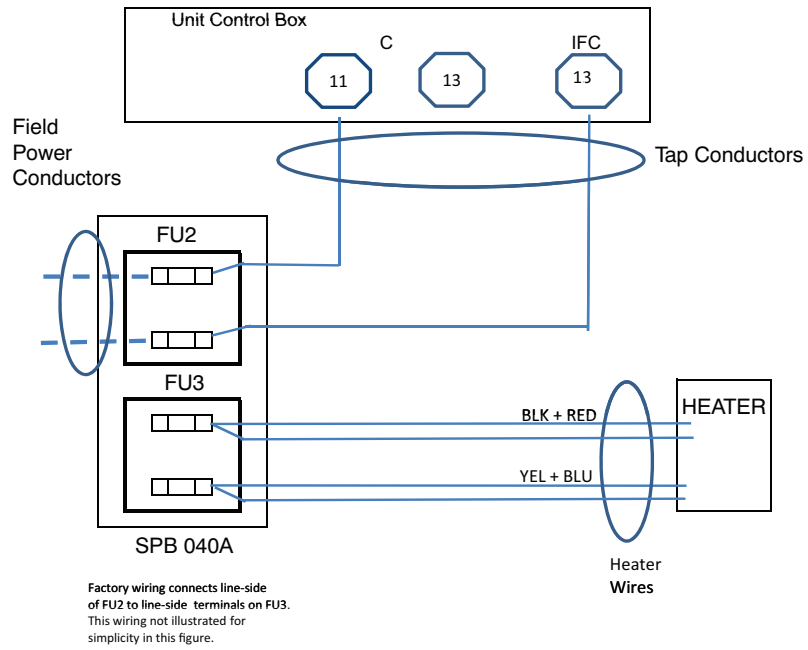
**Fig. 101 - Heat Pump Single Point Box
CRSINGLE049A00 (HP-2, Size 12)**

C13473



**Fig. 102 - Heat Pump Single Point Box
CRSINGLE051A00 (HP-2, Size 12)**

C13474



**Fig. 103 - Heat Pump 1-PH CRSINGLE041A00
(HP-1, Sizes 04-07)**

C13476

APPENDIX D ELECTRIC HEATER DATA

NOTES:

1. "Used on" data is simplified to indicate general cabinet size use. Not every heater is approved for use on every unit size. Consult product data, electronic selection programs and price pages for detailed usage data.
2. Shaded areas indicate no usage of heater in this row on unit type in this column.
3. The first stage of CRHEATER128B00 and 129B00 is half of the full load kW.

ELECTRIC HEATER DATA (CRHEATERmnmn00)

SALES PKG NBR	HEATER MODEL NBR	VOLTS	KW	FLA 1-PH	FLA 3-PH	QTY CIRS	Used on AC-1	HP-1	AC-2	HP-2	AC-3	
101A	001A	208/240	3.3/4.4	15.9/18.6	9.4/10.6	1	04-07 (036-072)	04-07 (036-072)	04-06 (036-060)	04-06 (036-060)	04-06	
102A	002A		4.9/6.5	23.6/27.3	13.8/15.7	1						
103B	003B		6.5/8.7	31.2/36.2	18.1/20.7	1						
104B	004B		7.9/10.5	38.0/43.8	22.2/25.3	1						
105A	005A	480	12.1/16.0	--	33.6/38.4	1	04-07 (036-072)	04-07 (036-072)	04-06 (036-060)	04-06 (036-060)	04-06	
106A	006A		6.0	--	7.0	1						
107A	007A		8.8	--	10.5	1						
108A	008A		11.5	--	13.8	1						
109A	009A	208/240	14.0	--	16.8	1	04-07 (036-072)	04-07 (036-072)	04-06 (036-060)	04-06 (036-060)	04-06	
110A	010A		12.0/16.0	--	33.3/38.5	1						
111A	011A		18.6/24.8	--	51.7/59.7	2						
112A	012A		24.0/32.0	--	66.7/77.1	2						
113B	013B	480	16.5	--	19.8	1	08-14 (090-150)	08-12 (090-121)	07-12 (072-120)	07-09 (072-102)	04-06	
114B	014B		27.8	--	33.4	1						
115B	015B		33.0	--	39.7	1						
116B	016B		13.9	--	16.7	1						
117A	017A	208/240	7.8/10.4	--	21.7/25.0	1	08-14 (090-150)	08-12 (090-121)	07-12 (072-120)	07-09 (072-102)	04-06	
118A	018A	18.0	--	17.0	1							
119A	019A	36.0	--	34.0	1							
128B	128B	41.7	--	50.2	2							
129B	129B	480	50.0	--	60.1	2	12-14	12	08-12	08-09	04-06	

**APPENDIX D (CONT.)
ELECTRIC HEATER DATA**

SALES PKG NBR	HEATER MODEL NBR	VOLTS	KW	FLA 1-PH	FLA 3-PH	QTY CIRS	Used on AC-1	HP-1	AC-2	HP-2	AC-3
264A	264A	208/240	4.9/6.5	--	13.5/15.6	1					
265A	265A	480	6	--	7.2	1			07 (072)	07 (072)	
266A	266A		11.5	--	13.8	1					
267A	267A	480	14.0	--	16.8	1					
268A	268A		23.0	--	27.7	2					
269A	269A	208/240	25.5	--	30.7	2					
288A	288A		7.5/10	--	21.3/24.5	1					
289A	289A	480	10	--	12.1	1					
290A	290A	600	10	--	9.6	1					
291A	291A	208/240	12.4/16.5	--	34.5/39.7	1					
292A	292A		480	16.5	--	19.9	1			14 (150)	12 (120)
293A	293A	600	16.5	--	15.9	1					
294A	294A	208/240	25.2/33.5	--	70.0/80.6	2					
295A	295A		480	33.5	--	40.3	2				
296A	296A	600	33.5	--	32.2	2					
297A	297A	600	10.0		9.6	1			04-05 (036-048)	04-05 (036-048)	
298A	298A		15.0		14.4	1			05-06 (048-060)	04-06 (036-060)	
299A	299A	600	28.0		26.9	1			07 (072)	07 (072)	07
301A	301A		23.0		23.0	2			06 (060)	06 (060)	06

**APPENDIX D (CONT.)
ELECTRIC HEATER DATA**

SALES PKG NBR	HEATER MODEL NBR	VOLTS	KW	FLA 1-PH	FLA 3-PH	QTY CIRS	Used on AC-1	HP-1	AC-2	HP-2	AC-3
308A	308A	600	18.0		17.3	1					
316A	316A	208/240	4.9/6.5		13.6/15.6	1			07 (072)	07 (072)	
317A	317A	208/240	12.0/16.0		33.4/38.5	1					
318A	318A		18.8/24.8		52.1/60.1	2					
319A	319A		6.0		7.2	1			07 (072)	07 (072)	07
320A	320A	480	14.0		16.8	1					
321A	321A		25.5		30.1	1					
322A	322A	600	28.0		26.9	1					

CRHEATERXXXX00

