



Wiring Diagrams

INDEX

POWER SCHEMATICS			
30XA Unit Size	Voltage	Figure Number	Label Diagram
080-120	All	1	00PSN500128400A
140-200	380, 460, 575	1	00PSN500128400A
	200, 230	2	00PSN500140900A
220, 240	200, 230	2	00PSN500140900A
	380, 460, 575	3	00PSN500128500A
260	All	3	00PSN500128500A
280	All	4	00PSN500128600A
300	All	3	00PSN500128500A
325, 350	All	4	00PSN500128600A
400	All	1	00PSN500128400A
	All (Circuit C)	5	00PSN500128800A
450, 500	All	3	00PSN500128500A
	All (Circuit C)	5	00PSN500128800A

BOARD CONTROL SCHEMATICS			
30XA Unit Size	Voltage	Figure Number	Label Diagram
080	All	6	00PSN500128200A
090-350	All	7	00PSN500128300A
400-500	All	8	00PSN500140800A

UNIT CONTROL SCHEMATICS			
30XA Unit Size	Voltage	Figure Number	Label Diagram
080-350	All	9	00PSN500128100A
400-500	All	9	00PSN500128100A
	All (Circuit C)	10	00PSN500128700A

COMPONENT ARRANGEMENTS				
30XA Unit Size	Voltage	Control Box Type	Figure Number	Label Diagram
080-120	200, 230, 380	Power Box	11	TH703002
		Display Control Box	12	TH703007
	460, 575	Combination Power Box/Display Control Box	13	TH703003
140-200	200, 230	Breaker Box	14	TH703004
		Power Box	15	TH703006
	380, 460, 575	Display Control Box	12	TH703007
		Power Box		
220-240	200, 230	Breaker Box	14	TH703004
		Power Box	15	TH703006
	380, 460, 575	Display Control Box	12	TH703007
		Power Box		
260-350	380, 460, 575	Power Box	15	TH703006
		Display Control Box	12	TH703007
400-500	380, 460, 575	A/B Power Box	15	TH703006
		Display Control Box	12	TH703007
		Circuit C Power Box	16	TH703005

FIELD WIRING			
30XA UNIT SIZE	Voltage	Figure Number	Label Diagram
080-500	All	17	00DCN500002600A










GENERAL

This publication contains Wiring Diagram information for the 30XA080-500 air-cooled liquid chillers with electronic controls. These chillers are equipped with *ComfortLink™* controls and electronic expansion valves.

SEQUENCE OF OPERATION

NOTE: For operating sequence, refer to the Controls, Start-Up, Operation, Service, and Troubleshooting literature.

LEGEND

A	— Alarm	FIOP	— Factory-Installed Option
ALM R	— Alarm Relay	FM	— Fan Motor
ALT R	— Alert Relay	FN	— Fan
CA	— Contactor XL-A Circuit	FU	— Fuse
CA-1M	— Contactor Main YD A Circuit	GFI-CO	— Ground Fault Interrupter - Convenience Outlet
CA-2M	— Contactor Delta YD A Circuit	GND	— Ground
CA-S	— Contactor Wye YD A Circuit	HGBP	— Hot Gas Bypass
CB	— Contactor XL-B Circuit	HTR	— Heater
CB-1M	— Contactor Main YD B Circuit	ISO	— Isolation
CB-2M	— Contactor Delta YD B Circuit	ISOL VLV	— Relay Isolation Valve
CB-S	— Contactor Wye YD B Circuit	LEN	— Local Equipment Network
CB1	— Base Board Mini Circuit Breaker	LS	— Level Switch
CB2	— Fan Board A Mini Circuit Breaker	LWT	— Leaving Water Temperature
CB3	— EXV Board Mini Circuit Breaker	MBB	— Main Base Board
CB4	— CPM Board A Mini Circuit Breaker	MLV	— Minimum Load Valve
CB5	— Fan Board B Mini Circuit Breaker	MM	— Low Ambient Temperature Head Pressure Control
CB6	— EXV Board B Mini Circuit Breaker	NEC	— National Electrical Code (U.S.A.)
CB7	— CPM Board B Mini Circuit Breaker	OAT	— Outdoor Air Temperature
CB8	— EMM Board Mini Circuit Breaker	OPT	— Oil Pressure Transducer
CB12	— Isolation Valve Relays Mini Circuit Breaker	PL	— Plug
CB-13	— 115v Feed Circuit Breaker	PMP	— Chilled Water Pump
CB14	— HGBP/Pump Board Mini Circuit Breaker	PMPI	— Chilled Water Pump Interlock
CB-A	— Circuit Breaker A Circuit	RUN R	— Run Relay
CB-B	— Circuit Breaker B Circuit	SGT	— Suction Gas Temperature
CB-FNA1	— Fan Circuit Breaker A Circuit	SHD R	— Shutdown Relay
CB-FNB1	— Fan Circuit Breaker B Circuit	SPT	— Suction Pressure Transducer
CC	— Contactor XL-C Circuit	SW	— Switch
CCN	— Carrier Comfort Network®	T	— Thermistor
CC-1M	— Contactor Main YD C Circuit	TB	— Terminal Block
CC-2M	— Contactor Delta YD C Circuit	TEMP	— Temperature
CC-S	— Contactor Wye YD C Circuit	TRAN	— Transformer
CH	— Channel	XL	— Across-the-line
CLR HR	— Cooler Heater Relay	Y-Delta	— Wye-Delta
CLR HTR	— Cooler/Heater		Terminal Block Connection
COMM	— Communication		Marked Terminal
COMP	— Compressor		Unmarked Terminal
CPM	— Compressor Protection Module		Unmarked Splice
CT	— Current Transformer		Factory Wiring
CWFS	— Chilled Water Flow Switch		Optional Wiring
CWP	— Chilled Water Pump		Indicates common potential. Does not represent wiring.
DGT	— Discharge Gas Thermistor		FIOP or Accessory
DPT	— Discharge Pressure Transducer		Wire Tag
ECEXV	— Economizer Electronic Expansion Valve		
ECT	— Economizer Temperature		
EMM	— Energy Management Module		
EPT	— Economizer Pressure Transducer		
EQUIP	— Equipment		
EXV	— Electronic Expansion Valve		
FC	— Fan Contactor		

NOTES

1. Factory wiring is in accordance with Underwriters Laboratories (UL) 1995 standards. Field modifications or additions must be in compliance with all applicable codes.
2. Wiring for main field supply must be rated 75 C minimum. Use copper for all units.
Incoming wire size range for the terminal block is 4 AWG to 500 kcmil.
Incoming wire size range for non-fused disconnect with MCA up to 599.9 amps is 3/0 to 500 kcmil.
Incoming wire size range for non-fused disconnect with MCA from 600 to 799.9 amps is 1/0-500 kcmil.
Incoming wire size range for non-fused disconnect with MCA from 800 to 1199.9 amps is 250-500 kcmil.
3. Terminals 9 and 10 of TB5 are for field external connections for remote on-off. The contacts must be rated for dry circuit application capable of handling a 24 vac load up to 50 mA.
4. Terminals 1 and 2 of TB5 are for external connections of chilled water pump interlock. The contacts must be rated for dry circuit application capable of handling a 24 vac load up to 50 mA.
5. Terminals 11 and 13 of TB5 are for control of chilled water pump 1 (PMP1) starter. Terminals 13 and 15 of TB5 are for control of chilled water pump 2 (PMP2) starter. The maximum load allowed for the chilled water pump relay is 5 va sealed, 10 va inrush at 24 v. Field power supply is not required. External pump control accessory required.
6. For control of chilled water pumps, a set of normally open contacts rated for dry circuit application must be supplied from field-supplied pump starter relay. Connect contacts to violet and pink wires in harness from main base board channel 18. Wires in harness are marked PMP1-13 and PMP1-14.
7. Terminals 12 and 13 of TB5 are for an alarm relay. The maximum load allowed for the alarm relay is 10 va sealed, 25 va inrush at 24 v. Field power supply is not required.
8. Make appropriate connections to TB6 as shown for energy management board options. The contacts for occupancy override, demand limit and ice done options must be rated for dry circuit application capable of handling a 24 vac load up to 50 mA.
9. Terminal blocks, TB5 and TB6 are located in the display panel box for all units. Refer to certified dimensional drawing for each unit to get the exact locations.
10. Refer to certified dimensional drawings for exact locations of the main power and control power entrance locations.
11. Terminals J3-24 and 25 of the EMM board are for the run relay and shutdown relay. The maximum load allowed for the alarm relay is 10 va sealed, 25 va inrush at 24 v. Field power supply is not required.

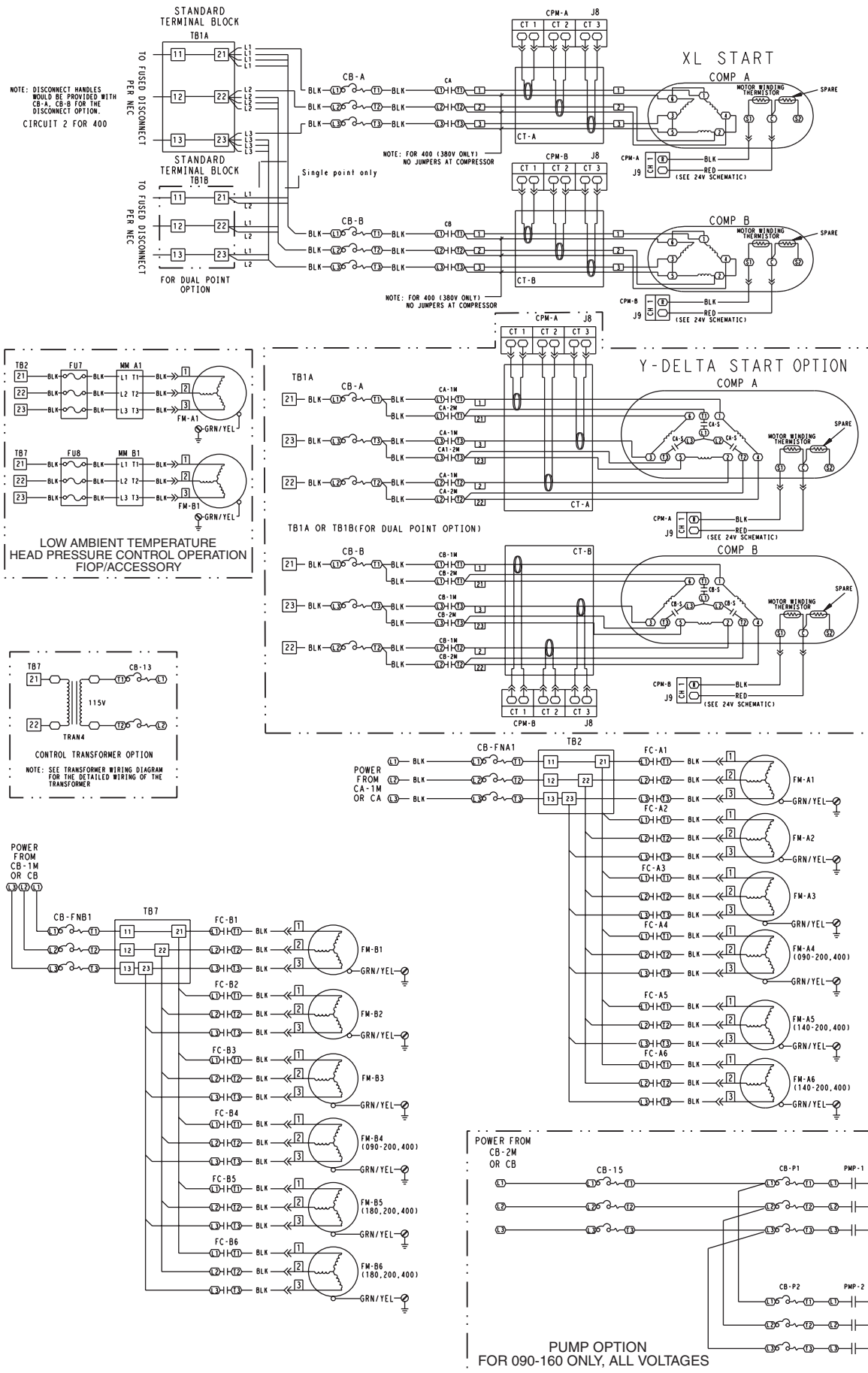
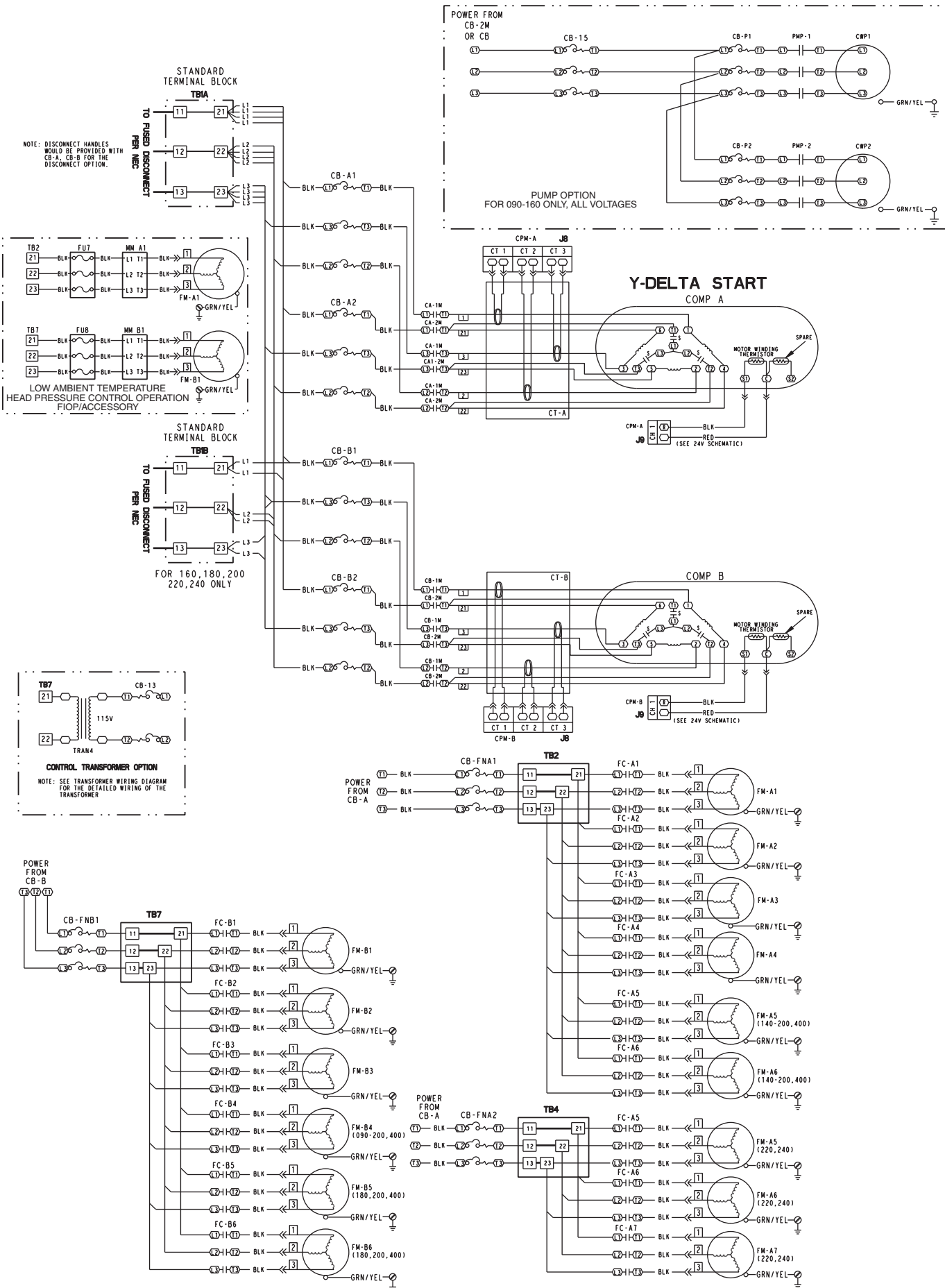


Fig. 1 — Power Schematic, 30XA080-120 and 400 (All Voltages); 30XA140-200 (380, 460, 575 v)



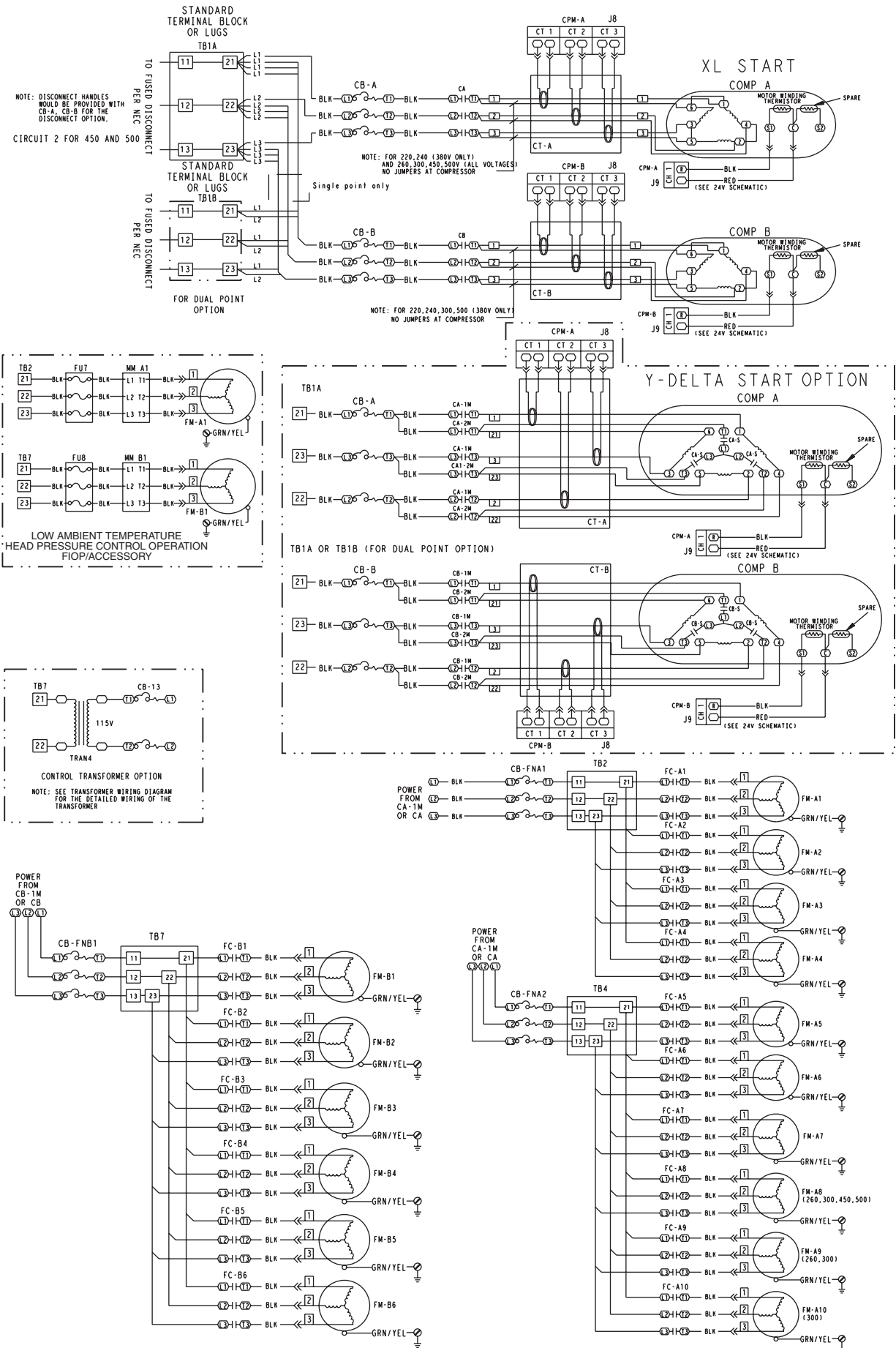


Fig. 3 — Power Schematic, 30XA220, 240 (380, 460, 575 v); 30XA260, 300, 450, 500 (All Voltages)

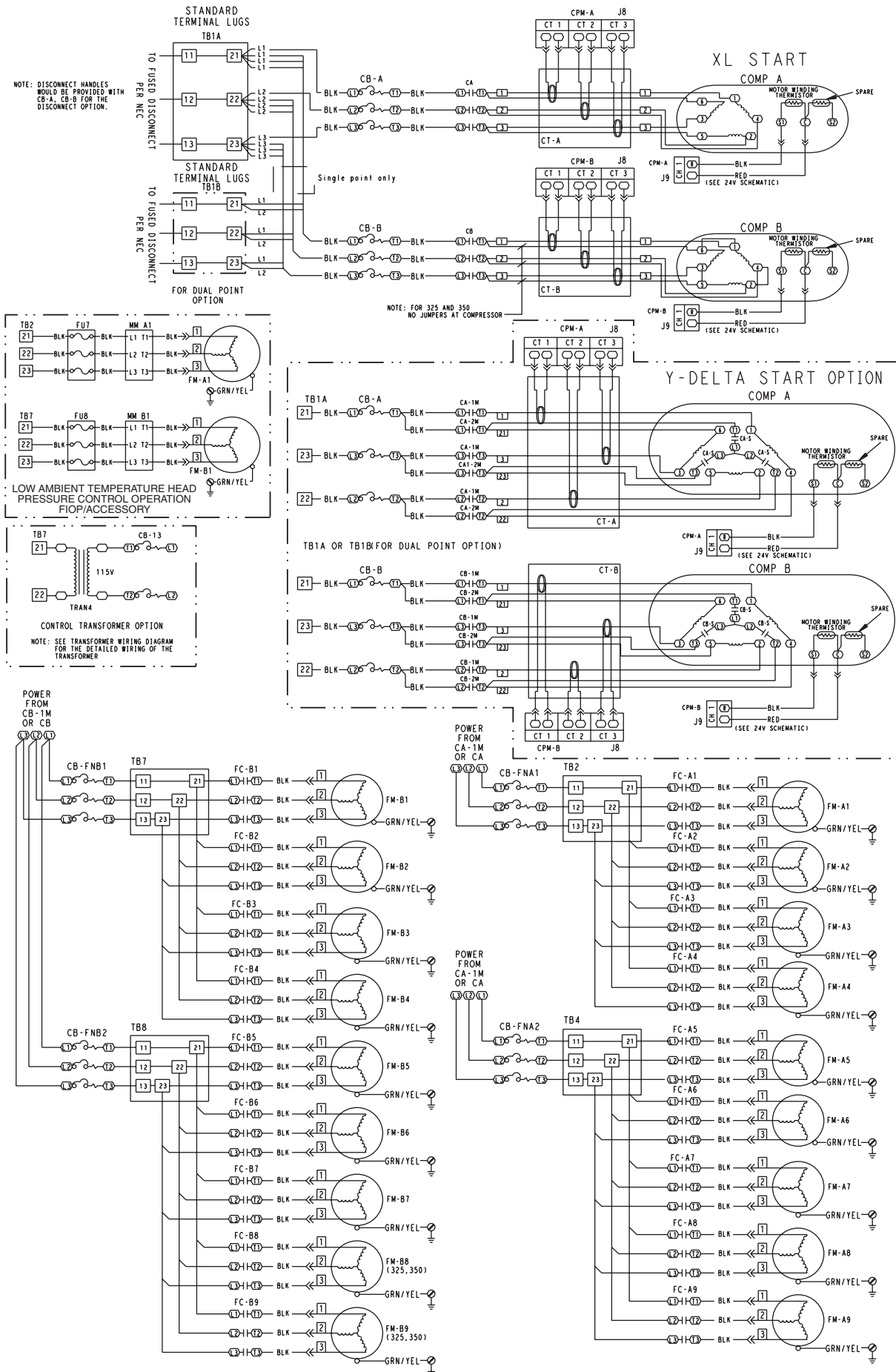


Fig. 4 — Power Schematic, 30XA280, 325, 350 (All Voltages)

NOTE: DISCONNECT HANDLE
WOULD BE PROVIDED WITH
CB-C FOR DISCONNECT OPTION.
CIRCUIT 1

TO FUSED DISCONNECT
PER NEC

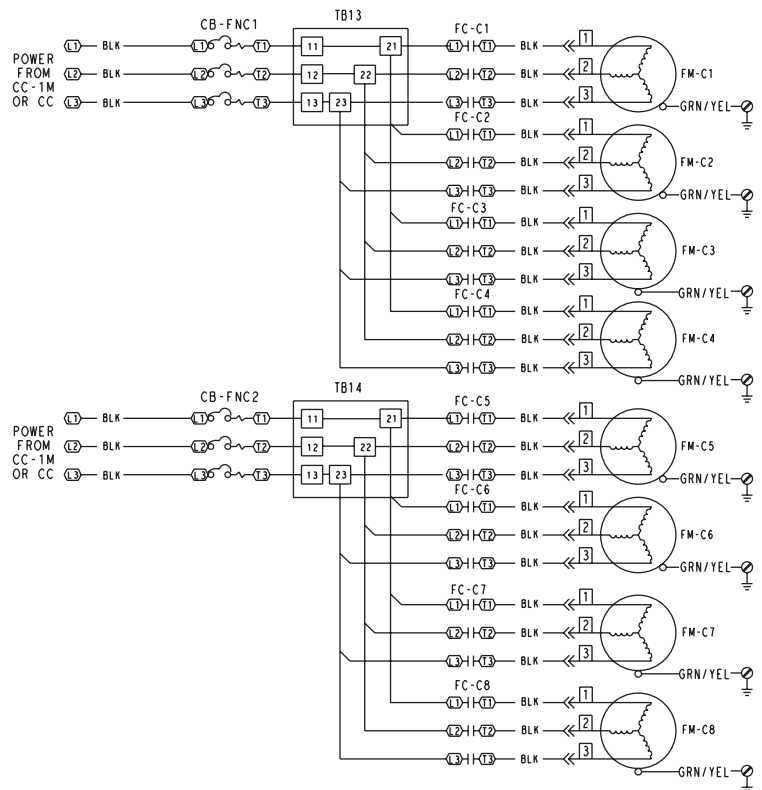
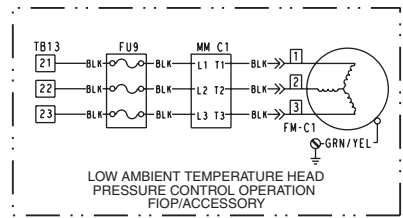
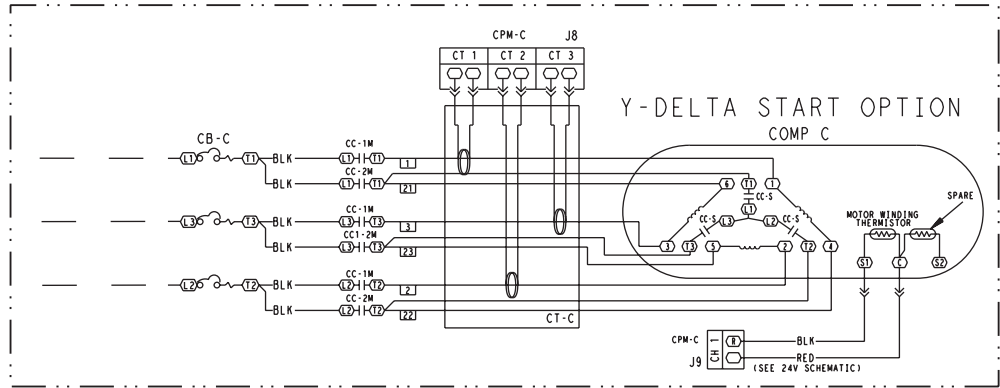
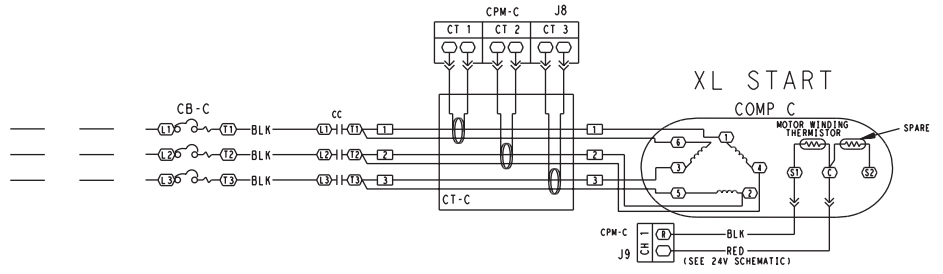


Fig. 5 — Power Schematic, 30XA400-500 (All Voltages — Circuit C Only)

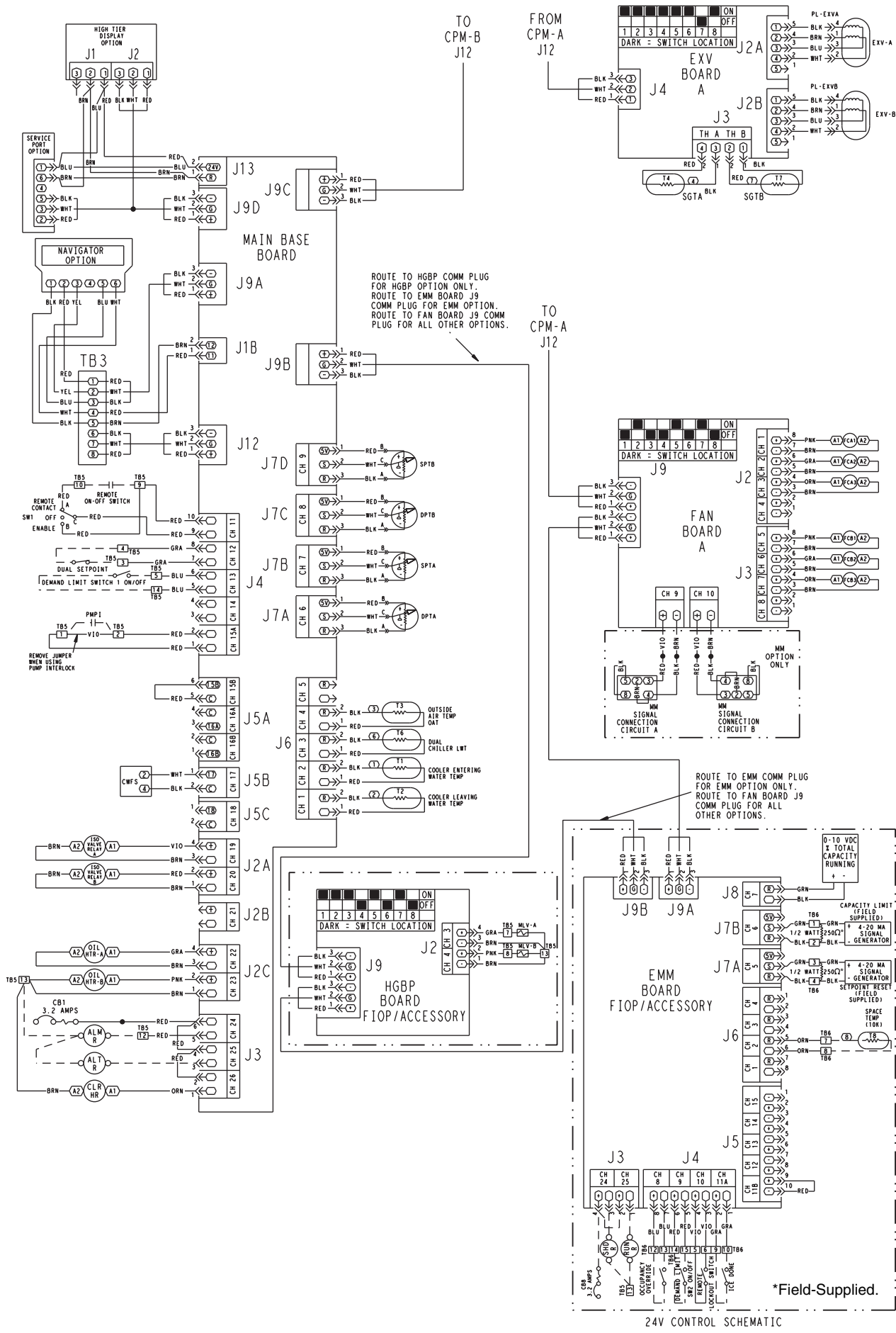


Fig. 6 — Board Control Schematic, 30XA080 (All Voltages)

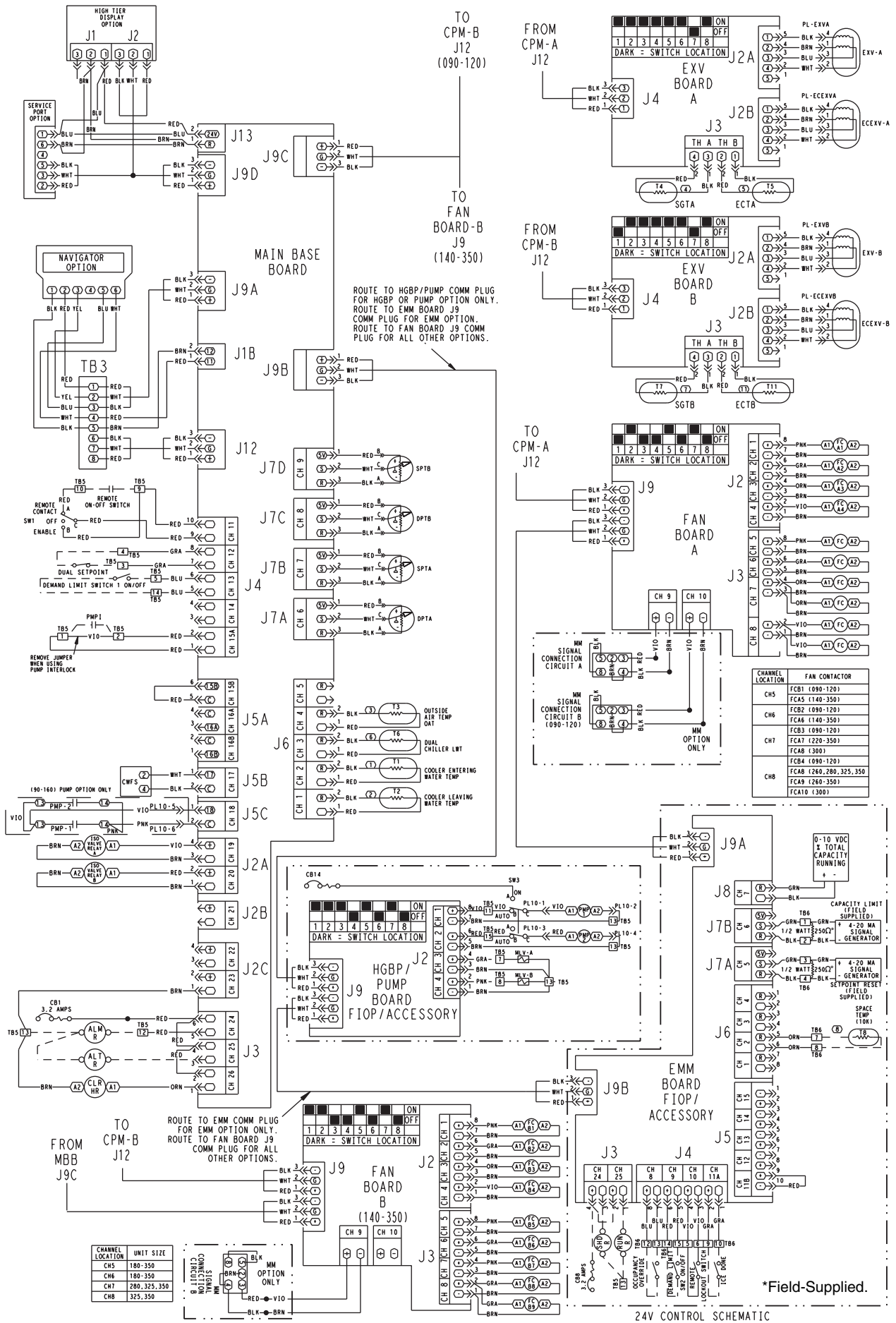
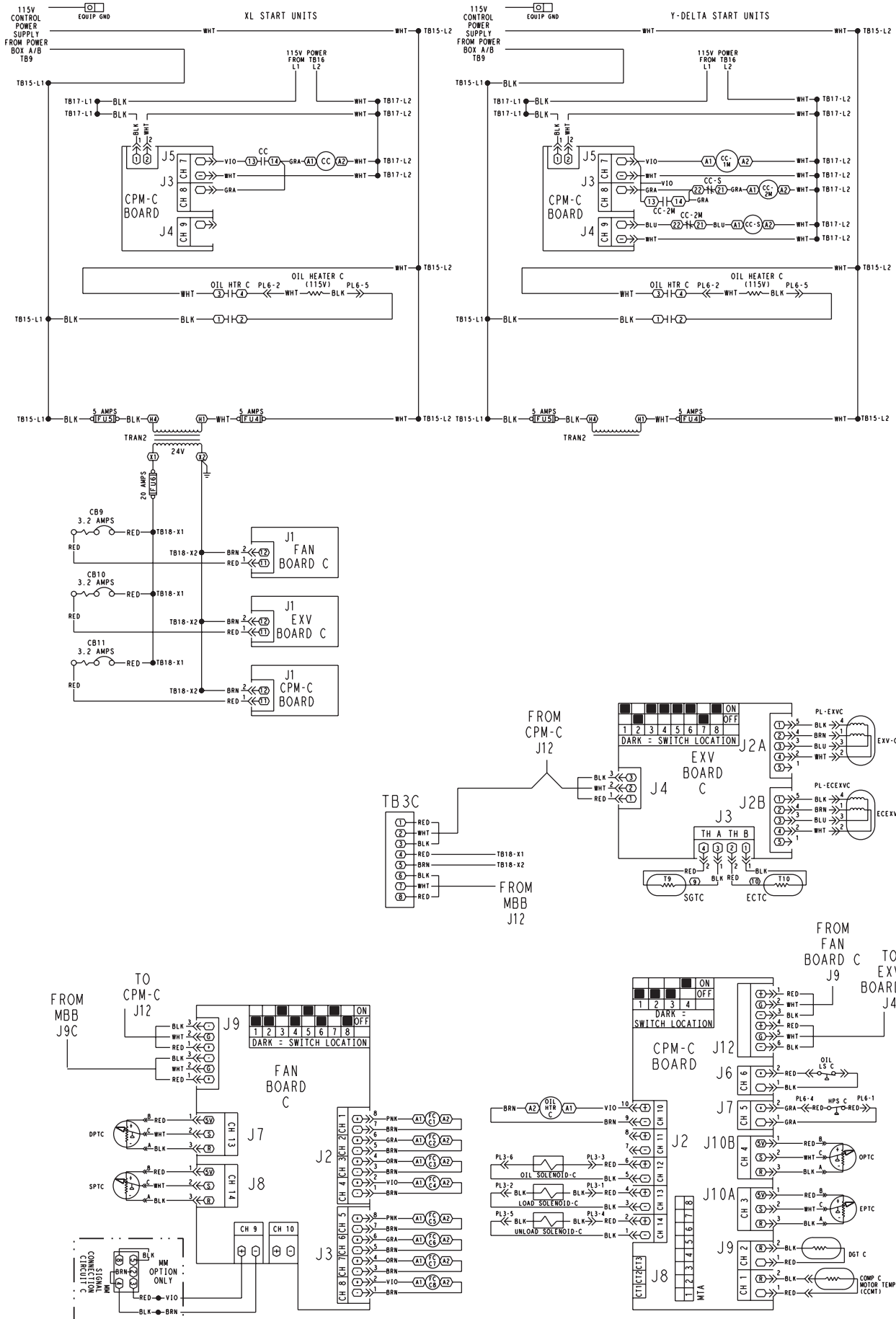


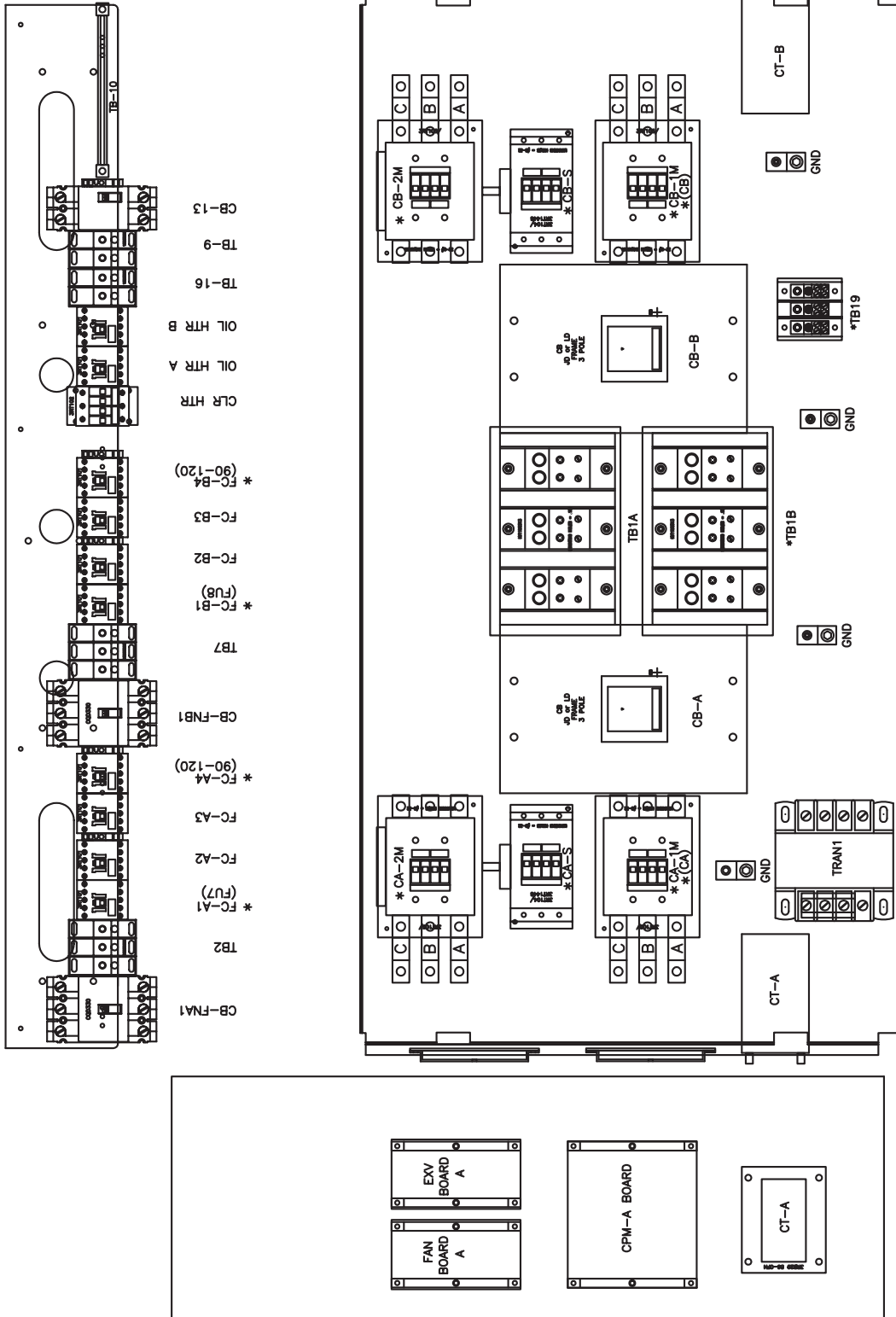
Fig. 7 — Board Control Schematic, 30XA090-350 (All Voltages)



24V CONTROL SCHEMATIC

Fig. 10 — Unit Control Schematic, 30XA400-500 (All Voltages — Circuit C Only)

A/B POWER BOX 30XA080-120 FOR 200, 230 V



*Fuse block replaces fan connector on units with low ambient temperature head pressure control option installed.

Fig. 11 — Component Arrangement, 30XA080-120 (200, 230 v)

DISPLAY CONTROL BOX 30XA080-500 FOR ALL VOLTAGES

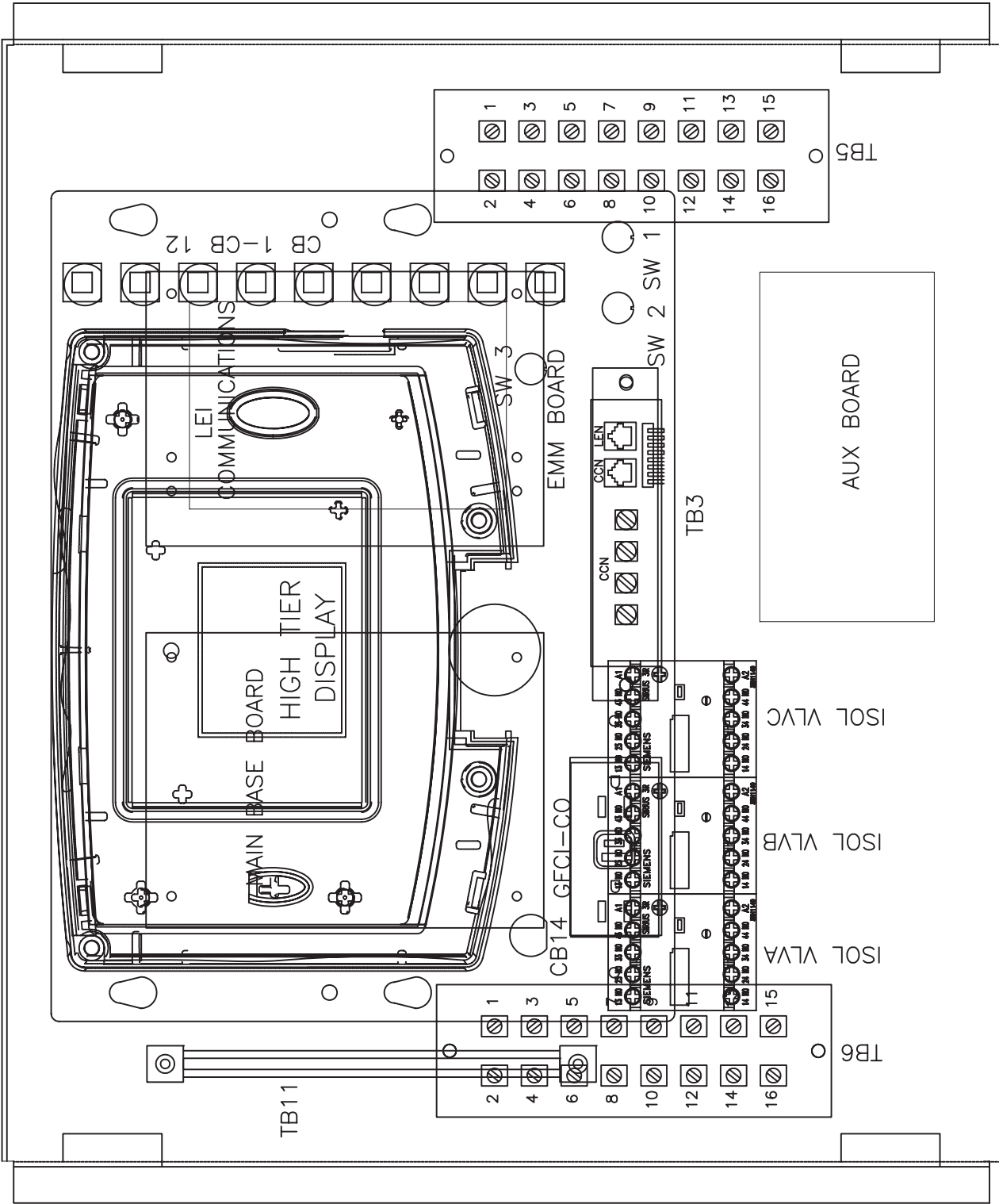


Fig. 12 — Component Arrangement, 30XA080-500 (All Voltages)

A/B POWER BOX DISPLAY CONTROL BOX INCLUDED 30XA080-120 FOR 460 V

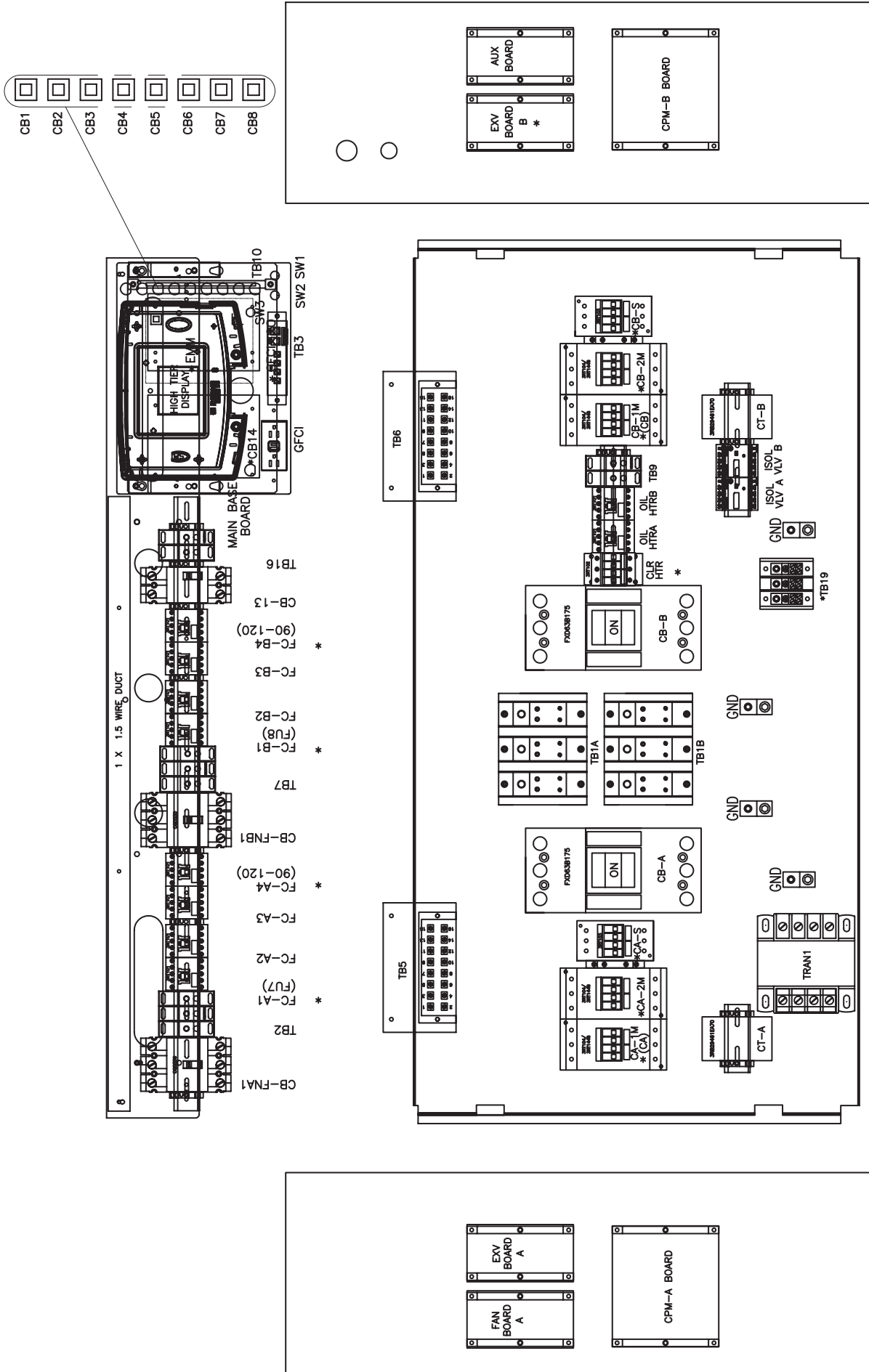


Fig. 13 — Component Arrangement, 30XA080-120 (460 v)

A/B BREAKER BOX 30XA140-240 FOR ALL VOLTAGES

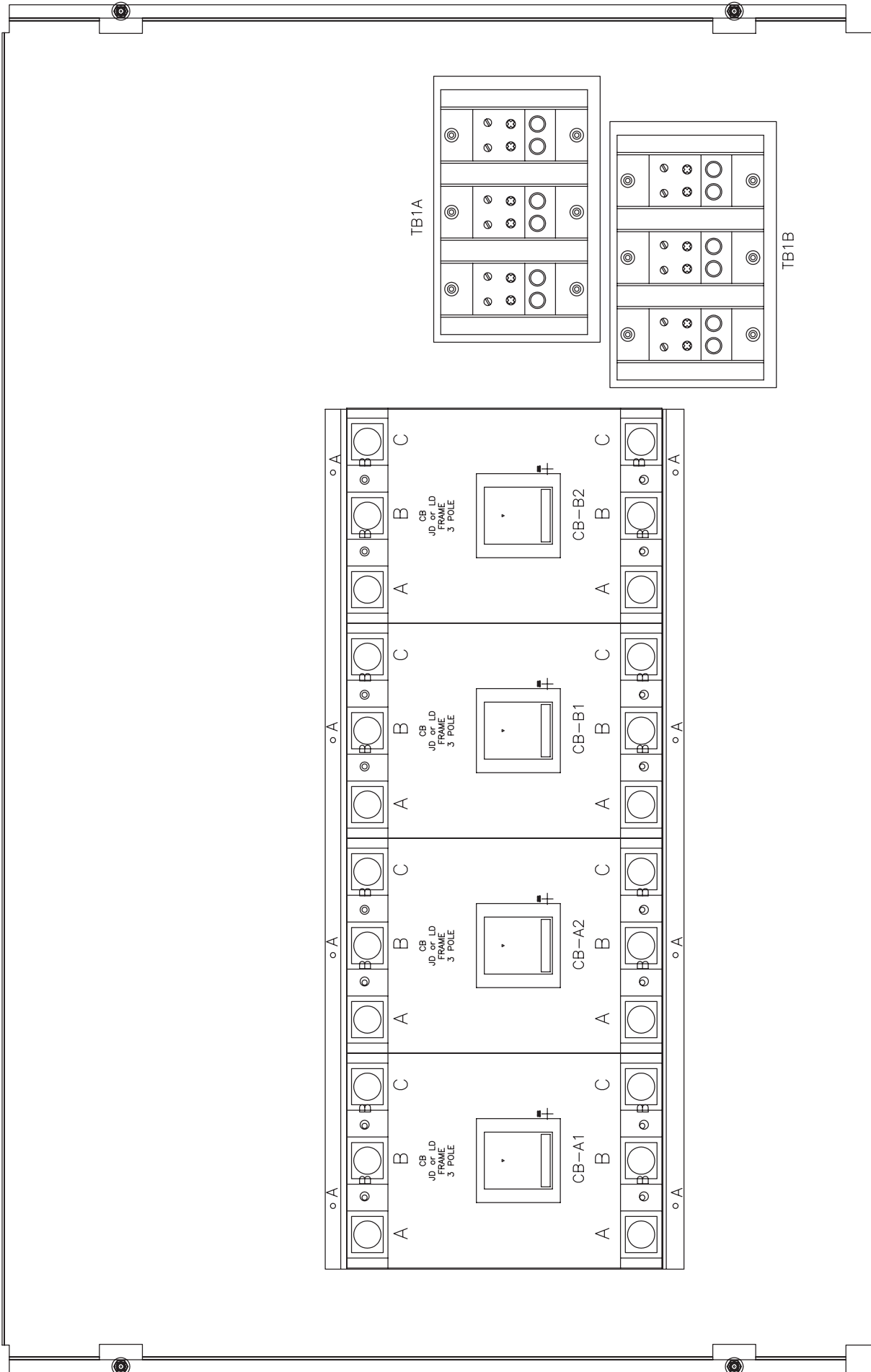


Fig. 14 — Component Arrangement, 30XA140-240 (All Voltages)

CIRCUIT C POWER BOX 30XA400-500 FOR 460 V

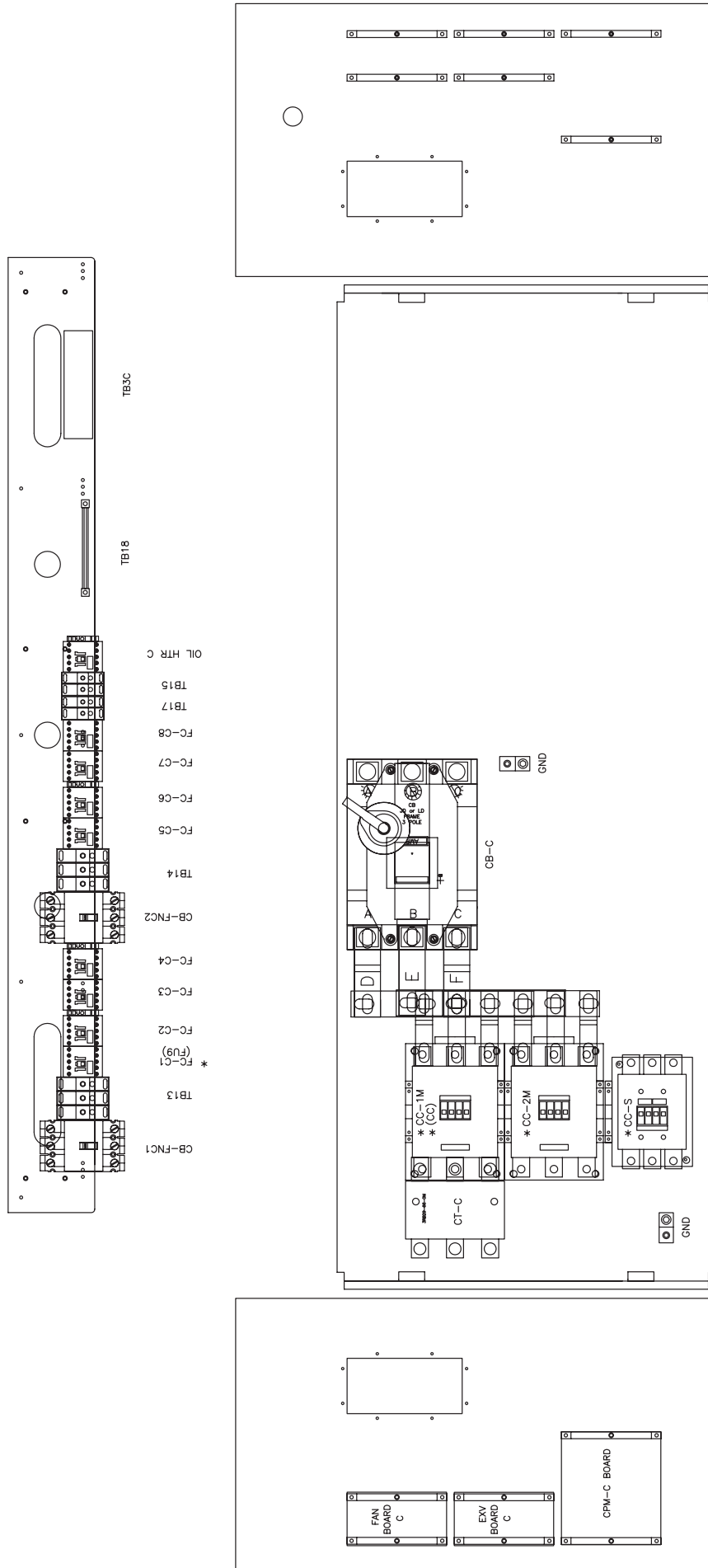
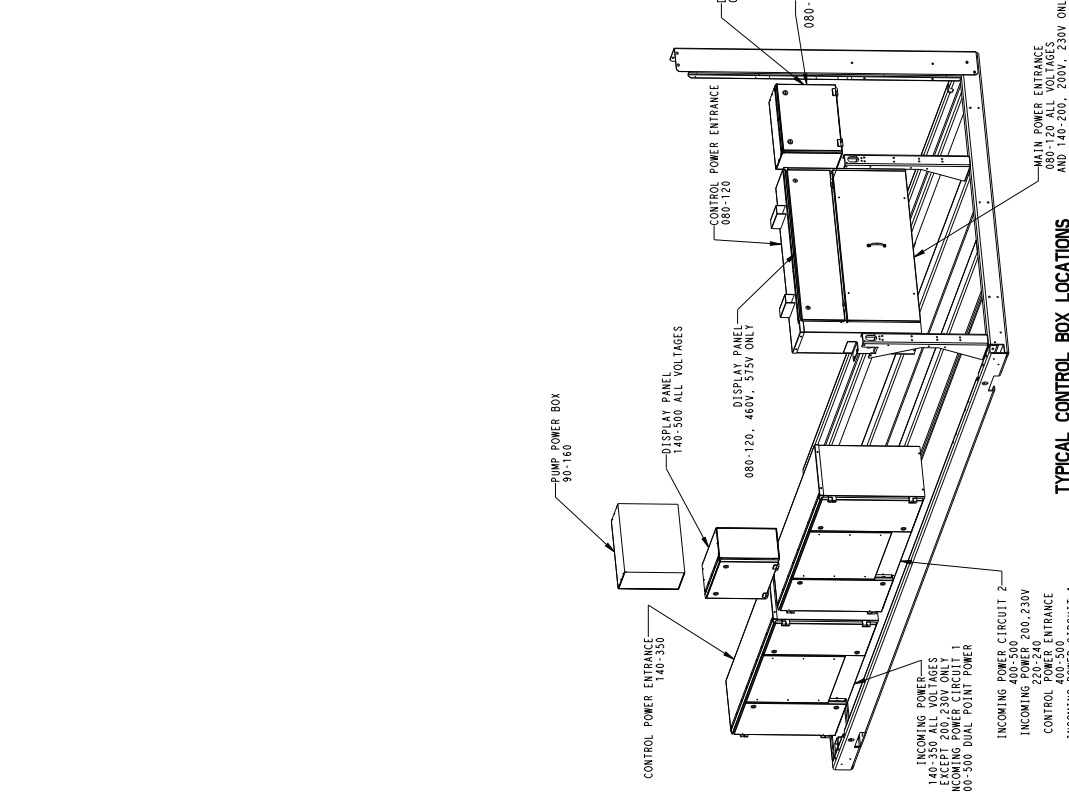
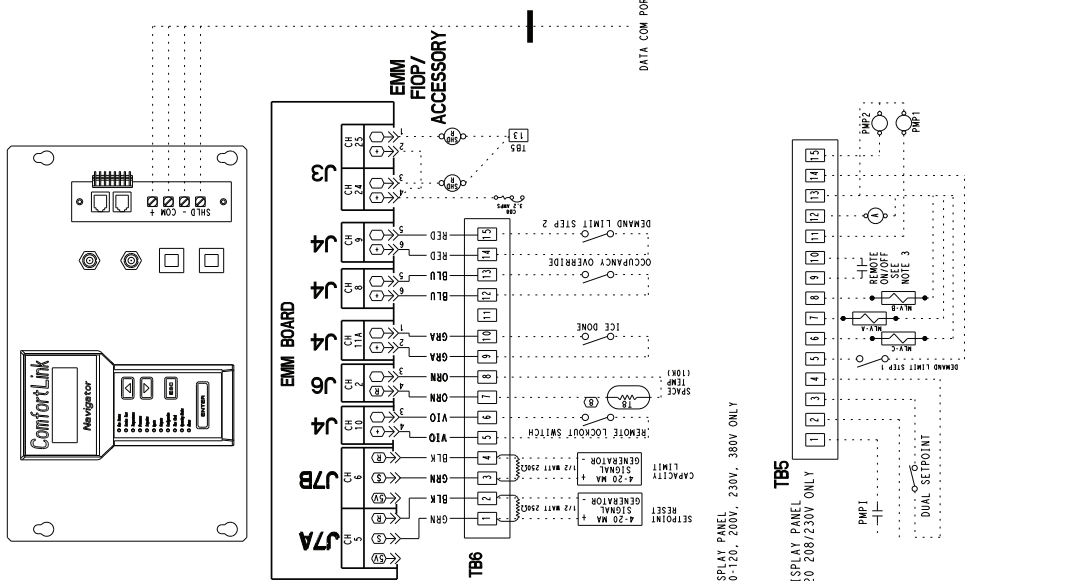
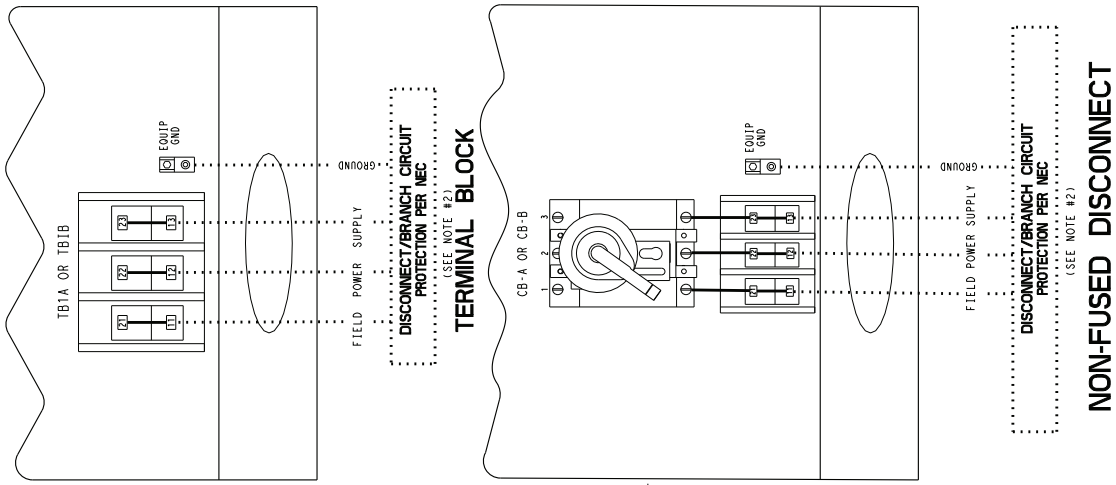


Fig. 16 — Component Arrangement, 30XA400-500 (460 v)



NON-FUSED DISCONNECT

Fig. 17 — Field Wiring Schematic, 30XA080-500 (All Voltages)

30XA	TYPE	VOLTAGE 3 PH 60 Hz	POWER AND CONTROL CONNECTIONS					
			COMBI*		PEB1†		PEB2†	
			Power	Control	Power	Control	Power	Control
080 090 100 110 120	SINGLE POINT	200	Circuit 1	Yes				
		230	Circuit 1	Yes				
		380	Circuit 1	Yes				
		460	Circuit 1	Yes				
		575	Circuit 1	Yes				
	DUAL POINT	200	Circuit 1 and 2	Yes				
		230	Circuit 1 and 2	Yes				
		380	Circuit 1 and 2	Yes				
		460	Circuit 1 and 2	Yes				
		575	Circuit 1 and 2	Yes				
140 160 180 200	SINGLE POINT	200	Circuit 1			Yes		
		230	Circuit 1			Yes		
		380			Circuit 1	Yes		
		460			Circuit 1	Yes		
		575			Circuit 1	Yes		
	DUAL POINT	200	Circuit 1 and 2			Yes		
		230	Circuit 1 and 2			Yes		
		380			Circuit 1 and 2	Yes		
		460			Circuit 1 and 2	Yes		
		575			Circuit 1 and 2	Yes		
220 240	SINGLE POINT	200				Yes	Circuit 1	
		230				Yes	Circuit 1	
		380			Circuit 1	Yes		
		460			Circuit 1	Yes		
		575			Circuit 1	Yes		
	DUAL POINT	200				Yes	Circuit 1 and 2	
		230				Yes	Circuit 1 and 2	
		380			Circuit 1 and 2	Yes		
		460			Circuit 1 and 2	Yes		
		575			Circuit 1 and 2	Yes		
260 280 300 325 350	SINGLE POINT	200						
		230						
		380			Circuit 1	Yes		
		460			Circuit 1	Yes		
		575			Circuit 1	Yes		
	DUAL POINT	200						
		230						
		380			Circuit 1 and 2	Yes		
		460			Circuit 1 and 2	Yes		
		575			Circuit 1 and 2	Yes		
400 450 500	SINGLE POINT	200						
		230						
		380					Circuit 1	Yes
		460					Circuit 1	Yes
		575					Circuit 1	Yes
	DUAL POINT	200						
		230						
		380			Circuit 1		Circuit 2	Yes
		460			Circuit 1		Circuit 2	Yes
		575			Circuit 1		Circuit 2	Yes

*COMBI box is located at the end of the unit.

†PEB1 and PEB2 boxes are located on the side of the unit. If both boxes are used, the one on the left (viewing from the front of the boxes) is PEB1.

■ Shaded area means that box is not used on this model.

Fig. 17 — Field Wiring Schematic, 30XA080-500 (All Voltages) (cont)