



Wiring Diagrams

UNITS WITH STARTING SERIAL NUMBER 0108Q

INDEX*

POWER SCHEMATICS			
30RB Unit Size	Voltage	Figure Number	Label Diagram
060-100	All	1	00PSN500030200A
110-190	All	2	00PSN500187100A
210-300	All	3	00PSN500187000A

CONTROL SCHEMATICS			
30RB Unit Size	Voltage	Figure Number	Label Diagram
060-080	All	4	00PSN500029500A
		5	00PSN500029600A
090, 100	All	6	00PSN500190800A
		5	00PSN500029600A
110-150	All	6	00PSN500190800A
		7	00PSN500029700A
160-190	All	8	00PSN500190900A
		7	00PSN500029700A
210-300	All	9	00PSN500191000A
			00PSN500029800A

COMPONENT ARRANGEMENTS					
30RB Unit Size	Voltage	Connections	Control Box Type	Figure Number	Label Diagram
060,070	208/230	Control/Power	Combination	10	SF805094
	380, 460, 575	Control/Power	Combination	11	SF805091
080-120	208/230	Control	Fan Electrical	12	SF805090
		Power	Power-L	13	SF805095
	380, 460, 575	Control/Power	Combination	11	SF805091
130-190	208/230	Control	Fan Electrical	12	SF805090
		Power	Power-L	13	SF805095
			PE1	15	SF805096
	380, 460, 575 with Terminal Block (Standard)	Control	Fan Electrical	12	SF805090
		Power	PE1	14	SF805092
	380, 460, 575 with Non-Fused Disconnect Option	Control	Fan Electrical	12	SF805090
		Power	PE1	14	SF805092
			Power-L	13	SF805095
210, 225	208/230	Control	Fan Electrical	12	SF805090
		Power	Power-L	13	SF805095
			PE1	15	SF805096
			PE2	16	SF805097
	380, 460, 575 with Terminal Block (Standard)	Control	Fan Electrical	12	SF805090
		Power	PE1	14	SF805092
	380, 460, 575 with Non-Fused Disconnect Option	Control	Fan Electrical	12	SF805090
		Power	PE1	14	SF805092
250-300	208/230	Control	Power-L	13	SF805095
			PE1	15	SF805096
		Power	PE2	16	SF805097
			PE1	14	SF805092
	380, 460, 575	Control	Fan Electrical	12	SF805090
		Power	Power-L	13	SF805095
			PE1	15	SF805096
			PE2	16	SF805097

FIELD WIRING				
30RB Unit Size	Voltage	Power/Control	Figure Number	Label Diagram
060-300	All	Connections	18	00DCN5001300A
		Schematic	18	00DCN5001300A

* See Table 1 for modular sizes.

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

SAFETY CONSIDERATIONS

Installing, starting up, and servicing this equipment can be hazardous due to system pressures, electrical components, and equipment location (roof, elevated structures, etc.). Only trained, qualified installers and service technicians should install, start up, and service this equipment. When working on this equipment, observe precautions in the literature, and on tags, stickers, and labels attached to the equipment, and any other safety precautions that apply. Follow all safety codes. Wear safety glasses and work gloves. Use care in handling, rigging and setting this equipment, and in handling all electrical components.

 **WARNING**

Electrical shock can cause personal injury and death. Shut off all power to this equipment during installation and service. There may be more than one disconnect switch. Tag all disconnect locations to alert others not to restore power until work is completed.

GENERAL

This publication contains Wiring Diagram information for the 30RB060-390 air-cooled liquid chillers with electronic controls. These chillers are equipped with *ComfortLink*™ controls and electronic expansion valves.

NOTE: Unit sizes 315-390 are modular units that are shipped in separate sections as modules A or B as noted in position 8 of the unit model nomenclature. See Table 1 for a listing of unit sizes and modular combinations.

NOTE: The nameplate for modular units contains only the first two digits in the model number. For example, 315A and 315B name plates read 31A and 31B.

Table 1 — Modular Unit Combinations

MODULAR UNITS	MODULE A	MODULE B
30RBA315	30RBA160	30RBA160
30RBA330	30RBA170	30RBA160
30RBA345	30RBA170	30RBA170
30RBA360	30RBA190	30RBA170
30RBA390	30RBA190	30RBA190

NOTE: An “A” in the fifth position of the model number indicates the design series.

LEGEND

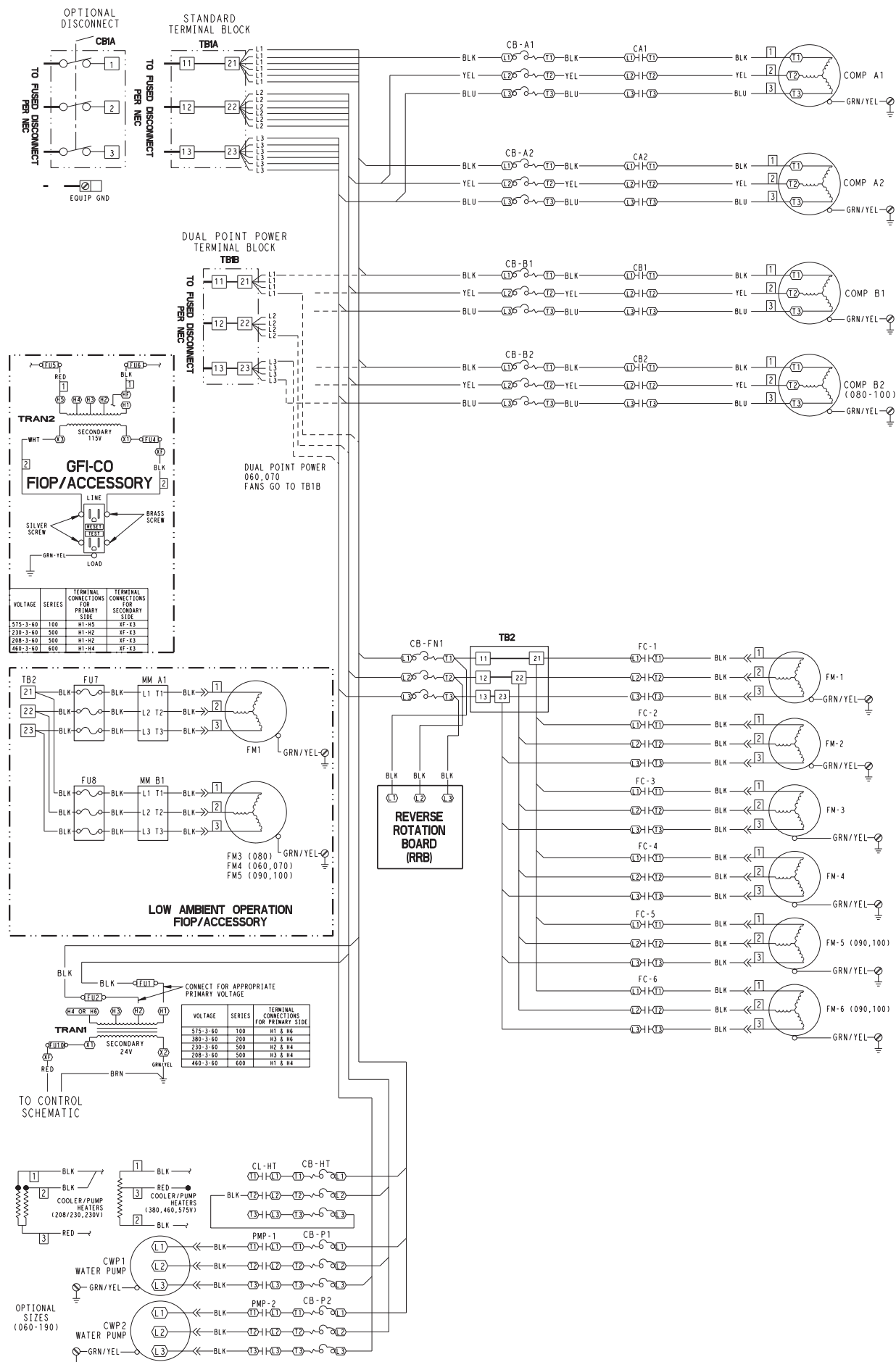
ALM R	— Alarm Relay
ALT R	— Alert Relay
C	— Contactor, Compressor
CB	— Circuit Breaker/Disconnect
CCH	— Compressor Crankcase Heater
CL-HT	— Cooler Heater
COMB	— Combination Box
COMP	— Compressor
CWFS	— Chilled Water Flow Switch
CWP	— Chilled Water Pump
DLSV	— Discharge Line Solenoid Valve
DPT	— Discharge Pressure Transducer
EQUIP	— Equipment
EXV	— Electronic Expansion Valve
EMM	— Energy Management Module
FB	— Fan Board
FC	— Fan Contactor
FEB	— Fan Electrical Box
FIOP	— Factory-Installed Option
FM	— Fan Motor
FN	— Fan
FU	— Fuse
GFI-CO,	— Ground Fault Interrupter — Convenience Outlet
GCFI	
GND	— Ground
HOA	— Hand/Off/Auto
HOA-A	— Hand/Off/Auto, Auto Setting
HOA-H	— Hand/Off/Auto, Hand Setting
HPS	— High-Pressure Switch
LON	— Local Operating Network
LWT	— Leaving Water Temperature
MBB	— Main Base Board
MLV	— Minimum Load Valve
MM	— Low Ambient Temperature Head Pressure Control
MTR	— Motor
NEC	— National Electrical Code (U.S.A.)
OAT	— Outdoor Air Temperature

PEB	— Power Electrical Box
PMP	— Pump, Chilled Water
PMPI	— Chilled Water Pump Interlock
RDY R	— Ready Relay
RRB	— Reverse Rotation Board
RRC	— Reverse Rotation Contact
RRT	— Reverse Rotation Timer
RUN R	— Run Relay
SGT	— Suction Gas Thermistor
SHD R	— Shutdown Relay
SPM	— Scroll Protection Module
SPT	— Suction Pressure Transducer
SW	— Switch
T	— Thermistor
TB	— Terminal Block
TEMP	— Temperature
TRAN	— Transformer
UPC	— Universal Protocol Converter

	Terminal Block Connection
	Marked Terminal
	Unmarked Terminal
	Unmarked Splice
	Factory Wiring
	Optional Wiring
	Indicates common potential. Does not represent wiring.
	FIOP or Accessory
	Wire Tag

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 no. 4 American Wire Gage (AWG) to 500 kcmil.
Incoming wire size range of non-fused disconnect with Minimum Circuit Amps (MCA) up to 599.9 amps is 3/0 to 500 kcmil.
Incoming wire size range of non-fused disconnect with MCA from 600 to 799.9 amps is 1/0 to 500 kcmil.
Incoming wire size range of non-fused disconnect with MCA from 800 to 1199.9 amps is 250 to 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 a 5 va sealed, 10 va inrush at 24 v. Field power supply is not 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, 24 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. Terminals 24 and 25 of J3 on the EMM board are for run relay and shutdown relay. The maximum load allowed for the relays is 10 va sealed, 25 va inrush at 24 v. Field power supply is not required.



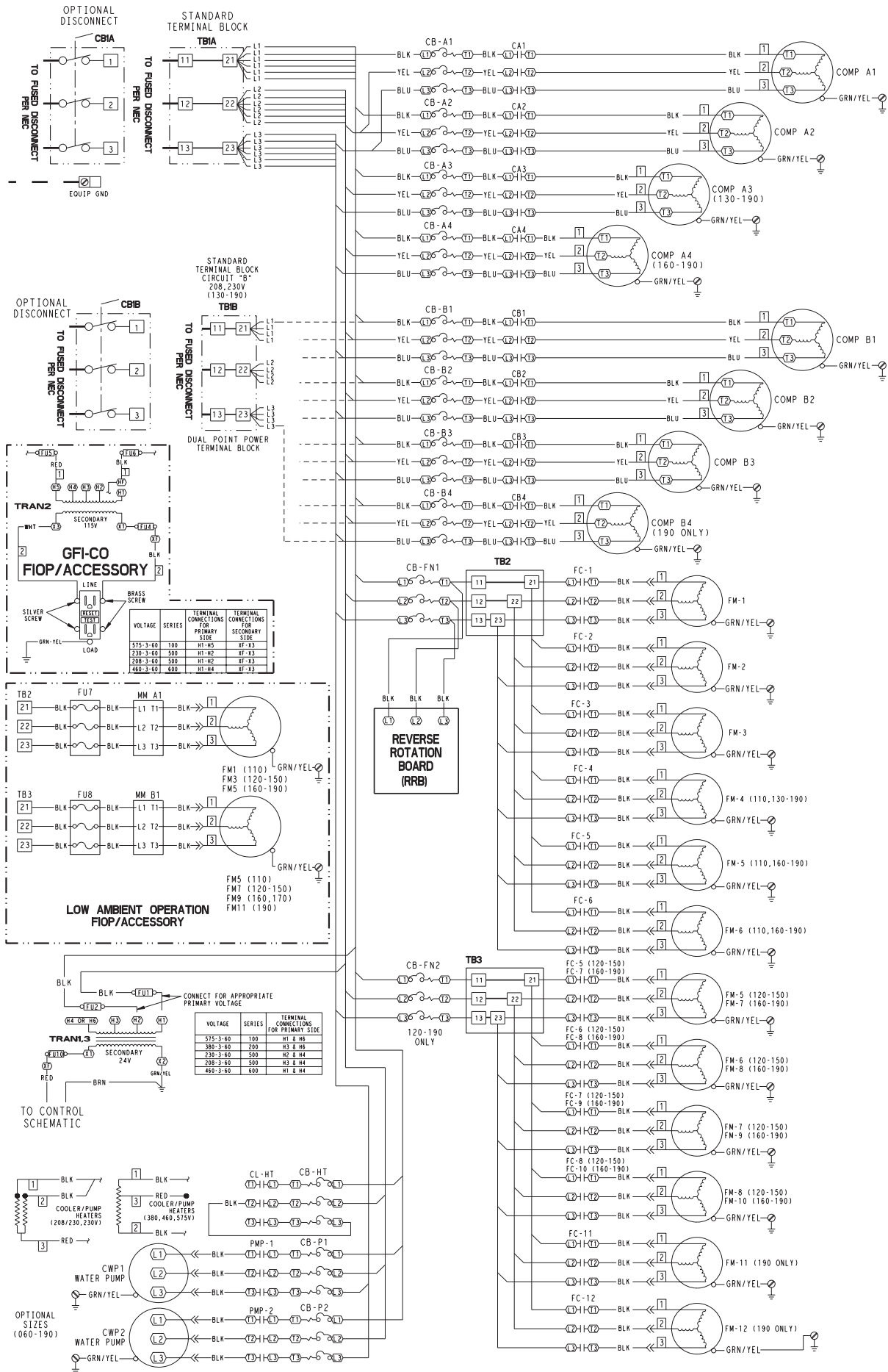
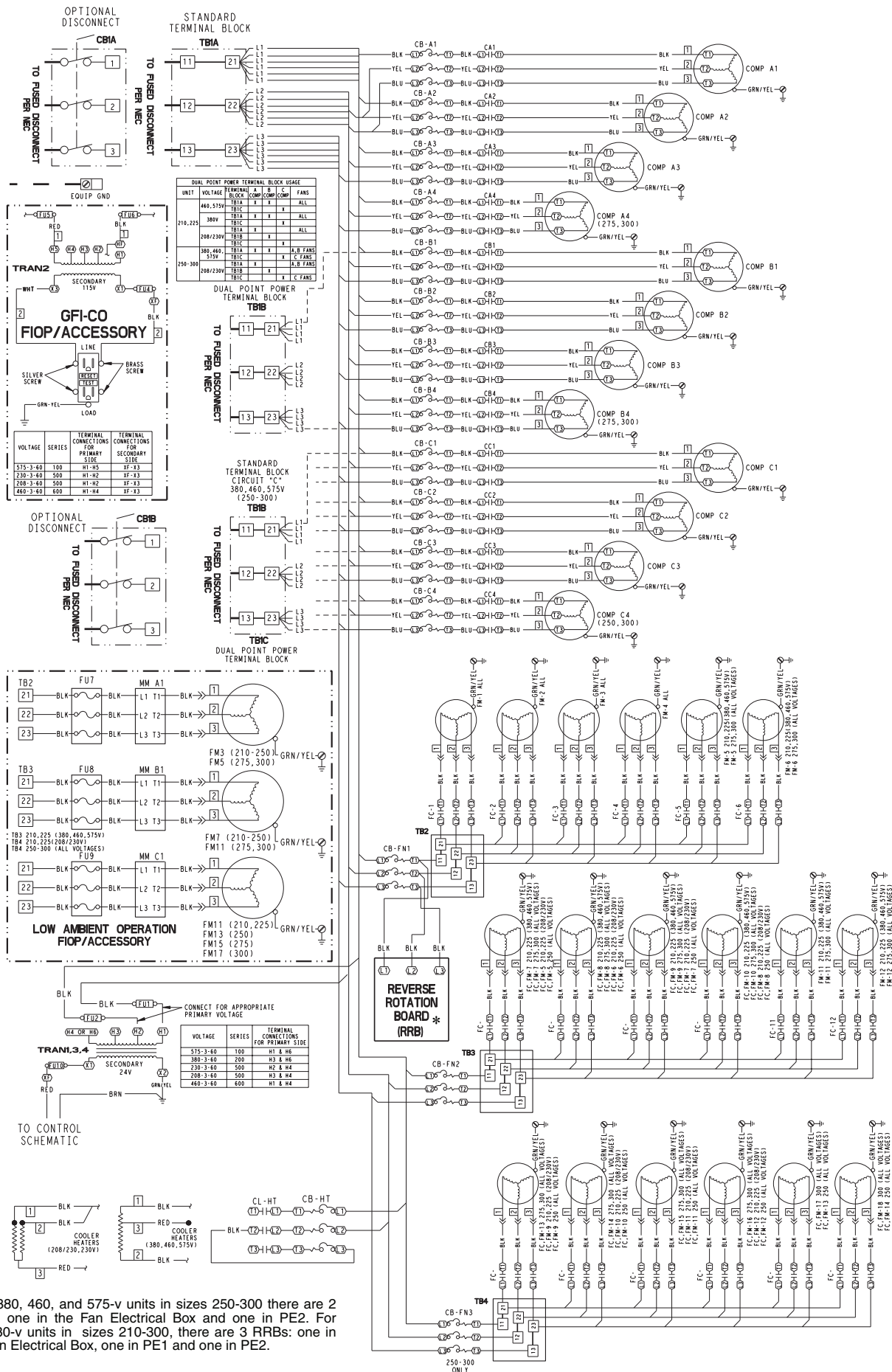


Fig. 2 — Power Schematic, 30RB110-190 (All Voltages)



* For 380, 460, and 575-v units in sizes 250-300 there are 2 RRBs: one in the Fan Electrical Box and one in PE2. For 208/230-v units in sizes 210-300, there are 3 RRBs: one in the Fan Electrical Box, one in PE1 and one in PE2.

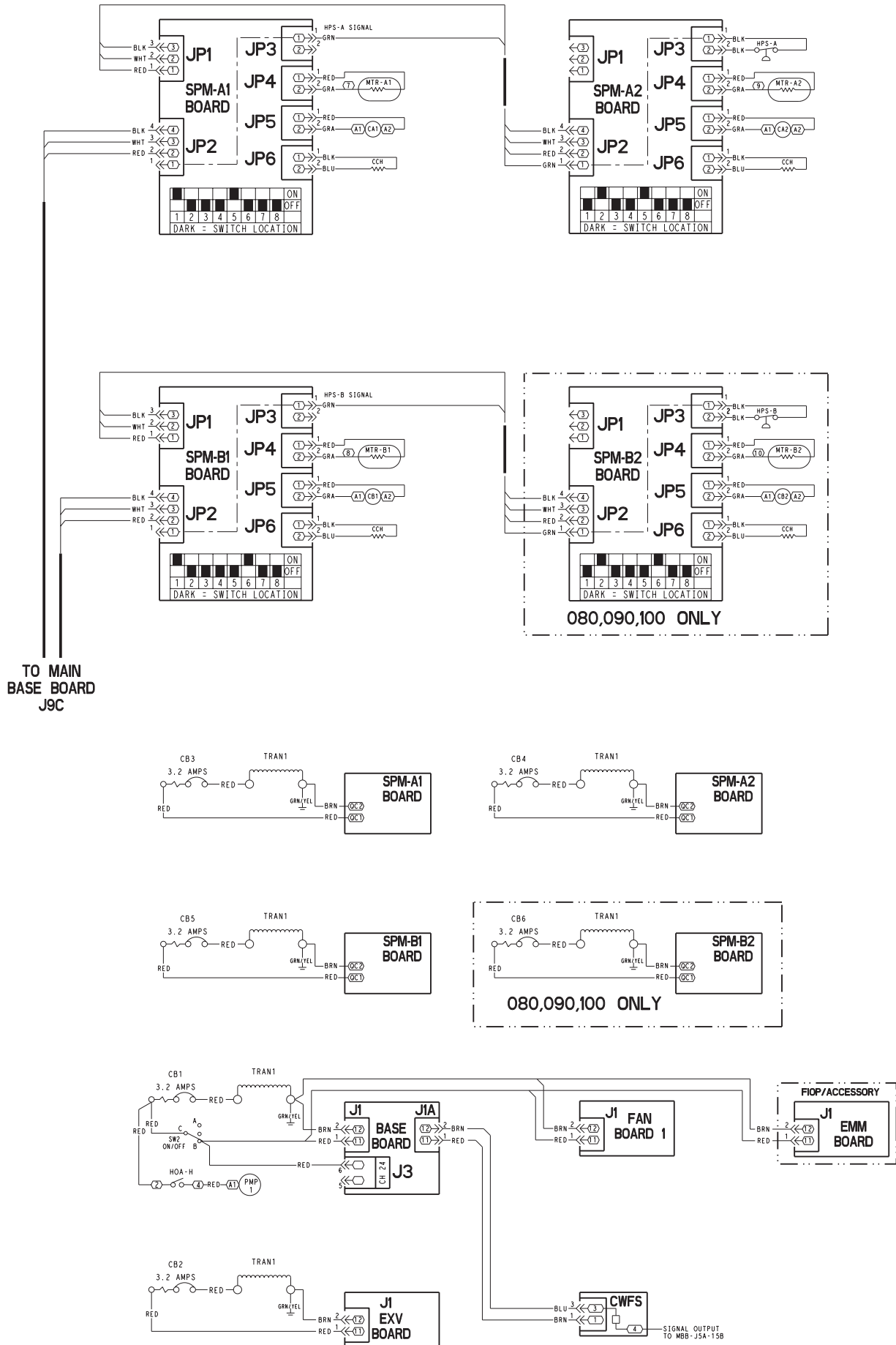


Fig. 5 — Control Schematic, 30RB060-100 (All Voltages)

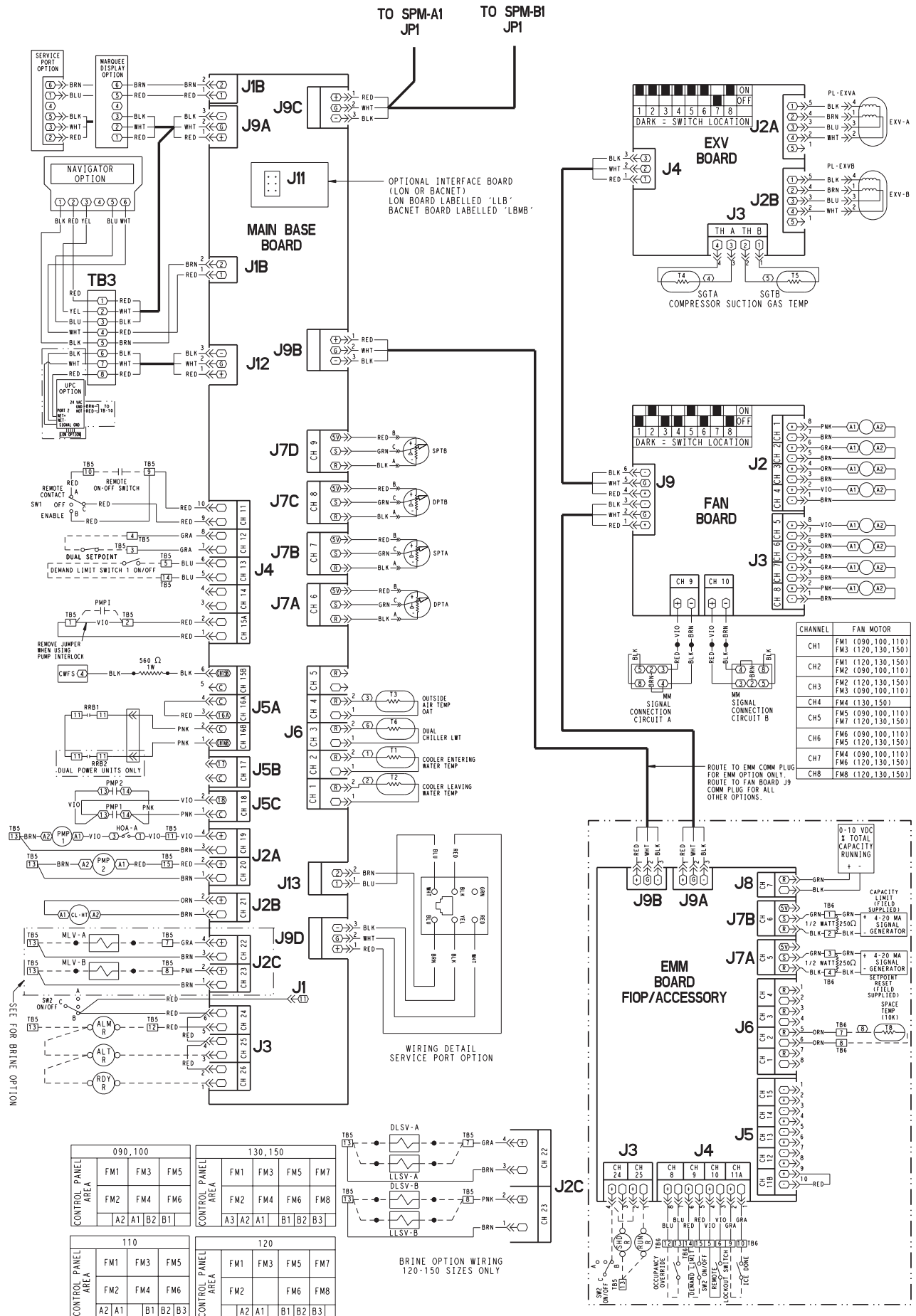


Fig. 6 — Control Schematic, 30RB090-150 (All Voltages)

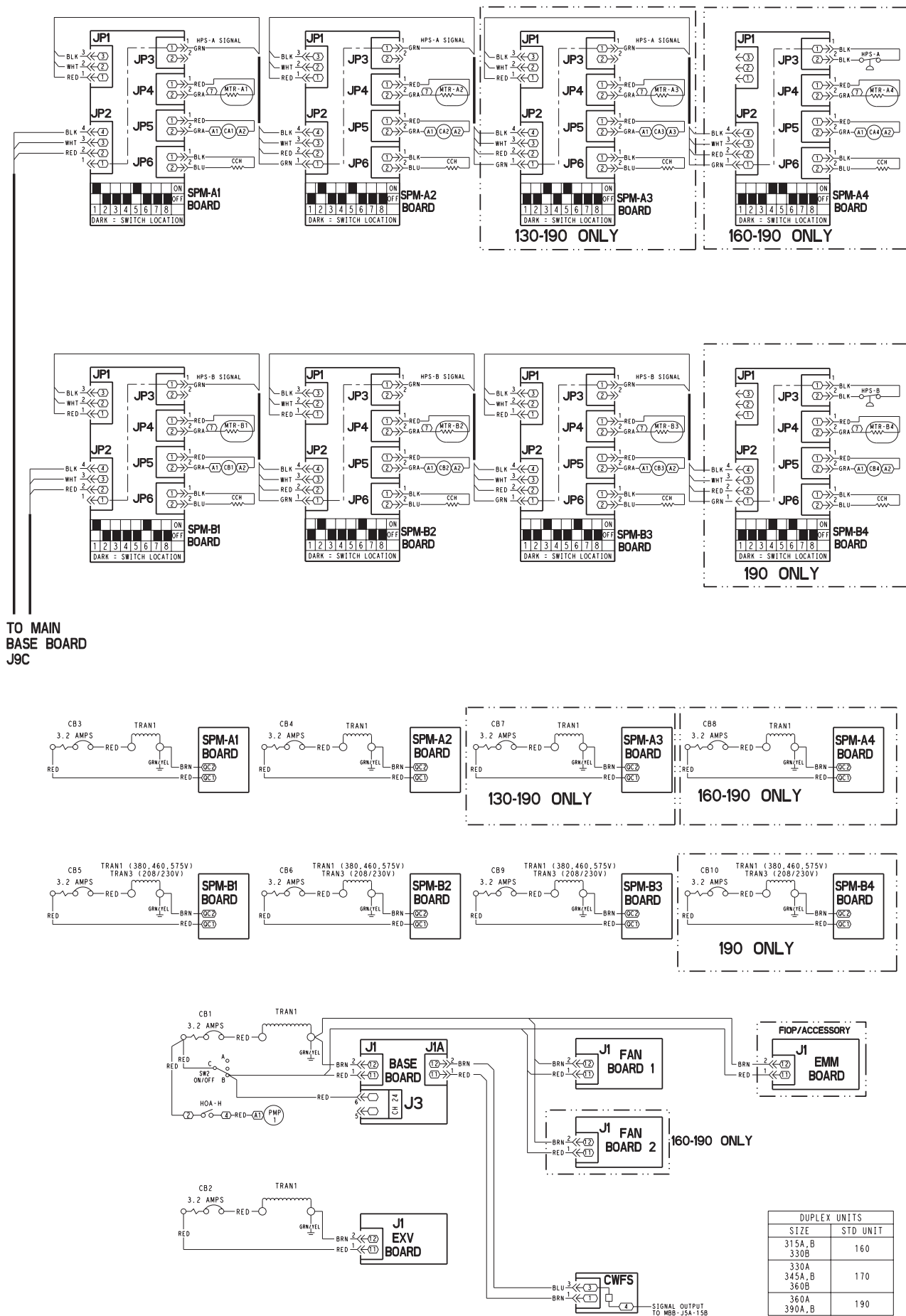


Fig. 7 — Control Schematic, 30RB110-190 (All Voltages)

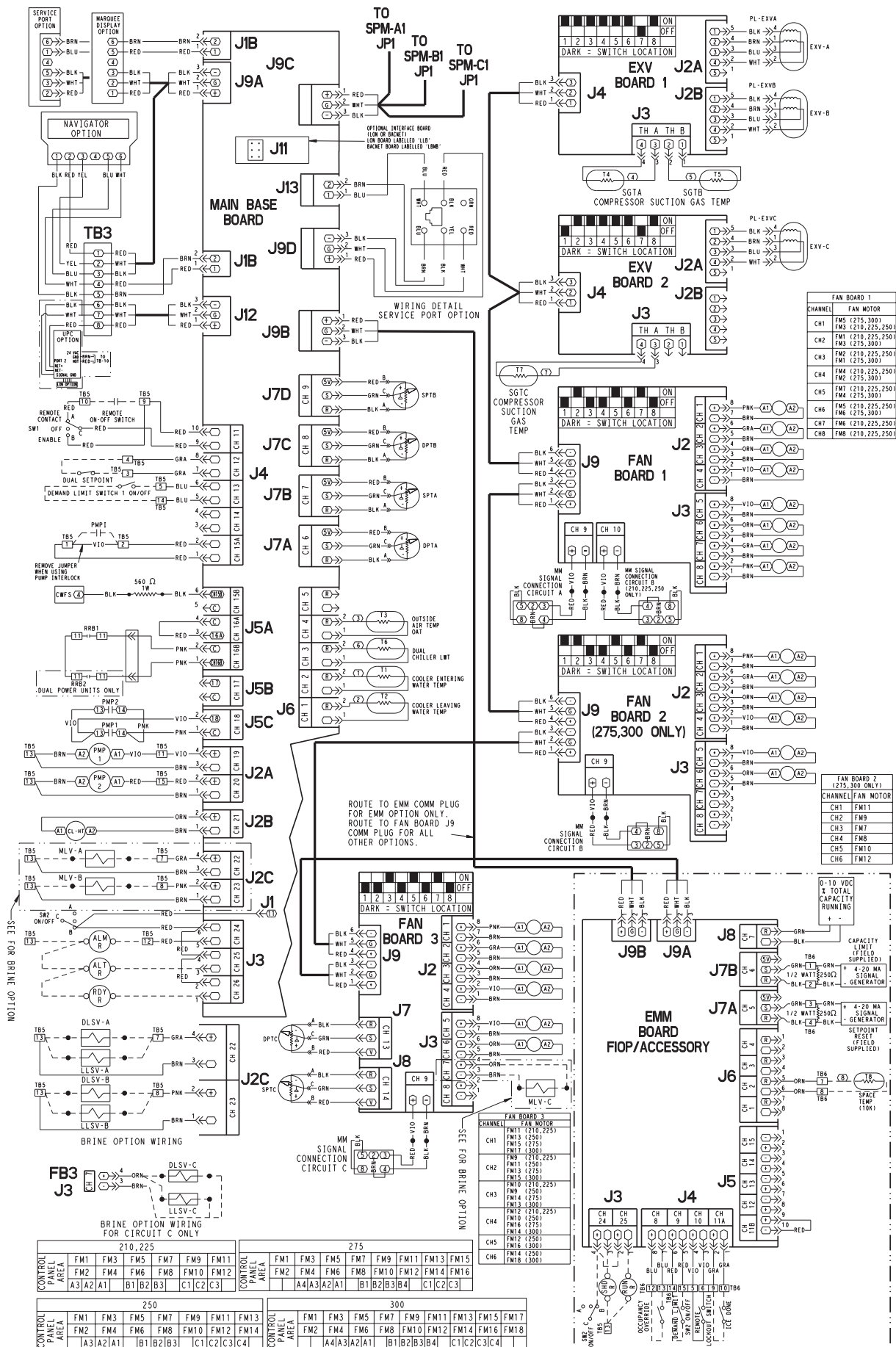


Fig. 9 — Control Schematic, 30RB210-300 (All Circuits)

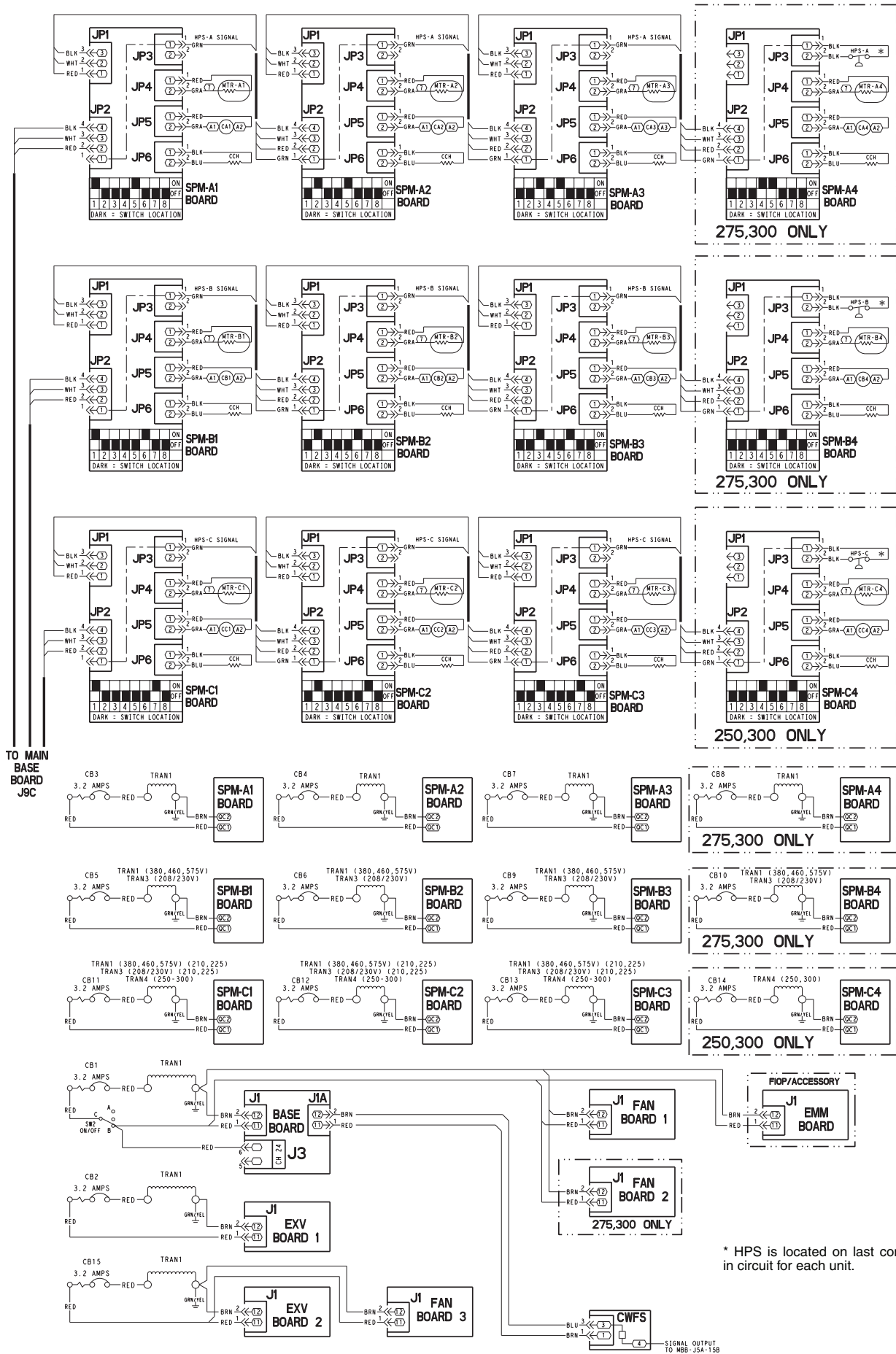


Fig. 9 — Control Schematic, 30RB210-300 (All Circuits) (cont)

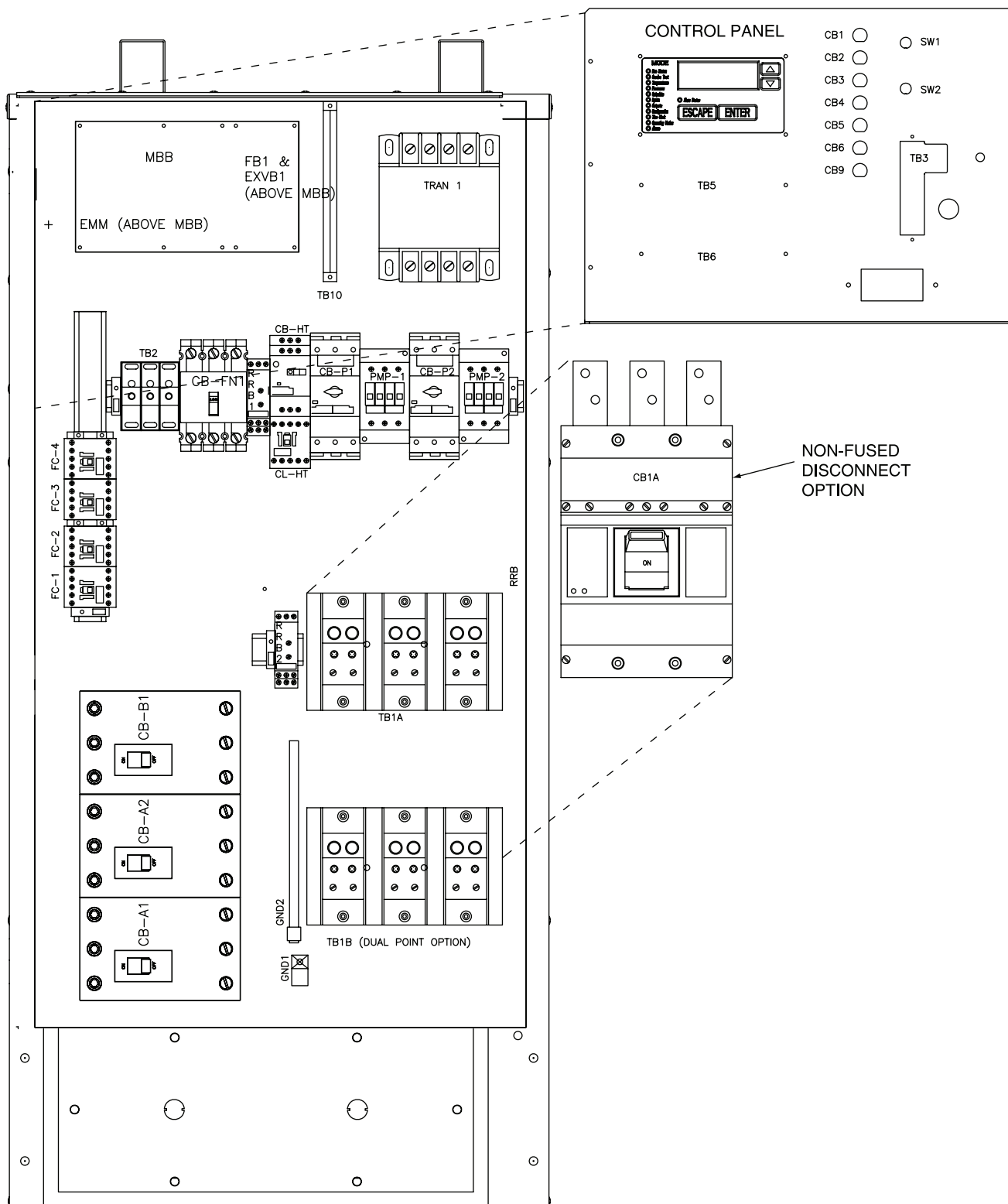


Fig. 10 — Component Arrangement, Combination Box, 30RB060, 070 (208/230 v)

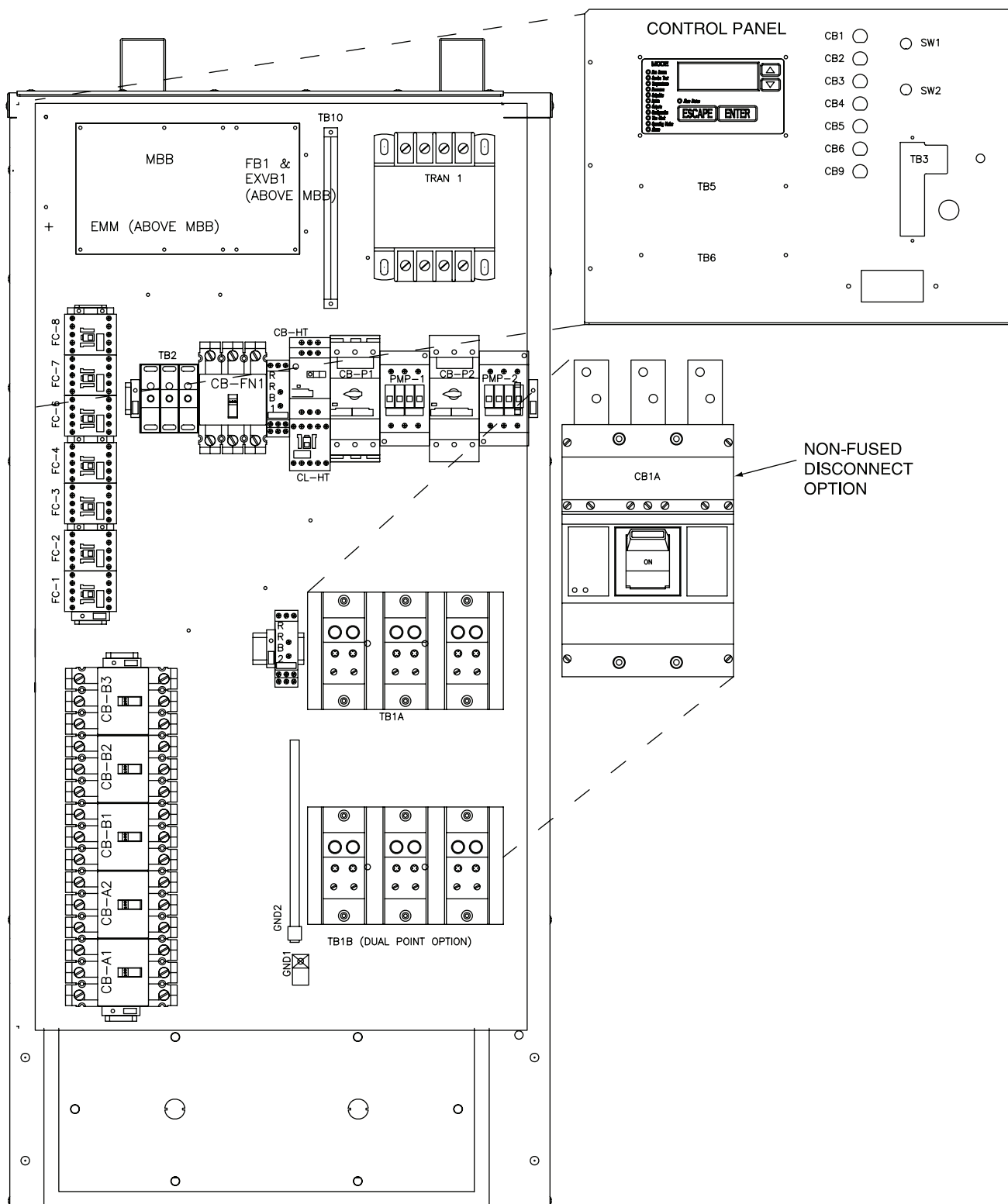


Fig. 11 — Component Arrangement, Combination Box, 30RB060-120 (380, 460 and 575 v)

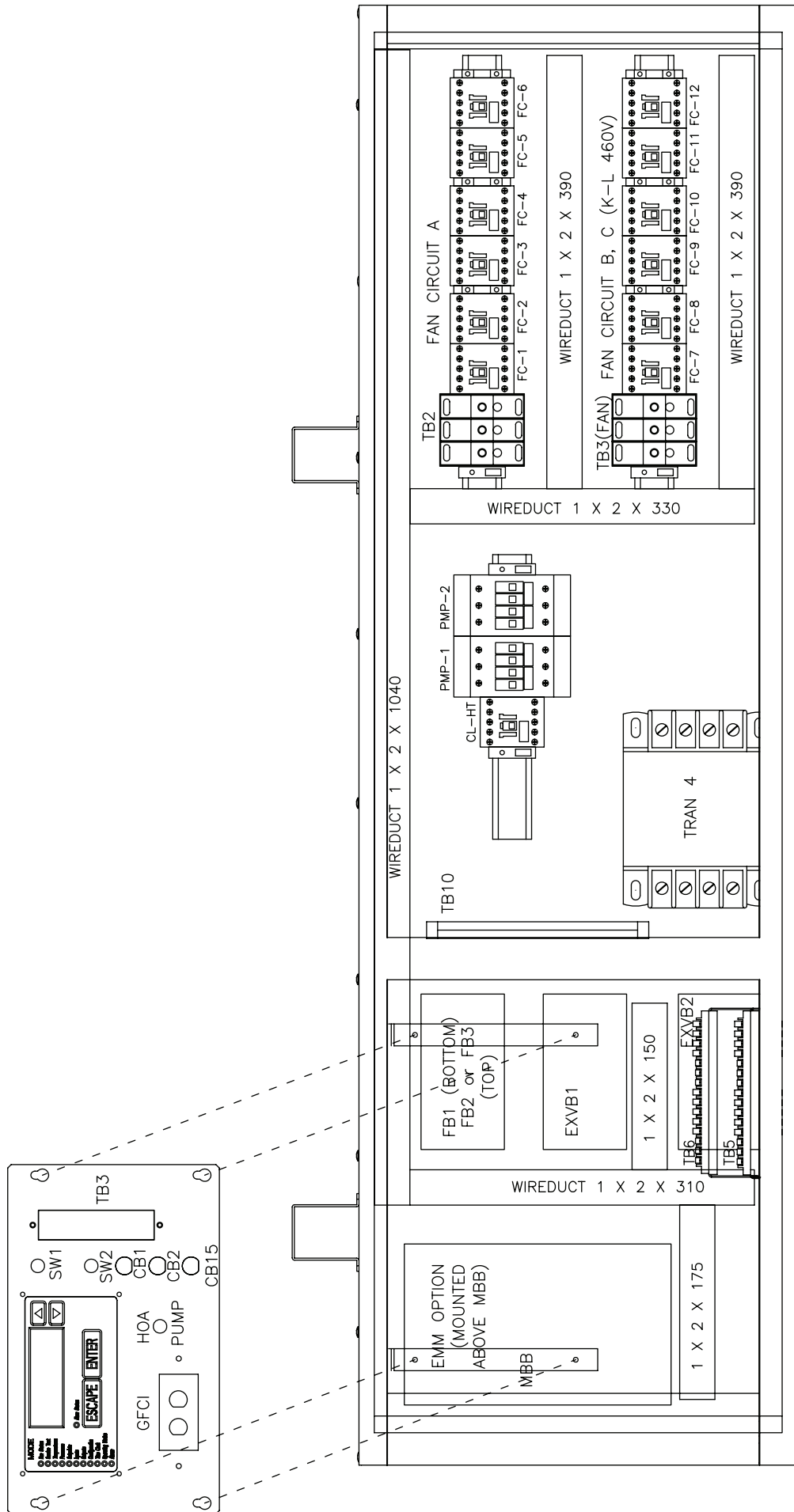


Fig. 12 — Component Arrangement, Fan Electrical Box 30RB080-120 (208/230 v); 30RB130-300 (All Voltages)

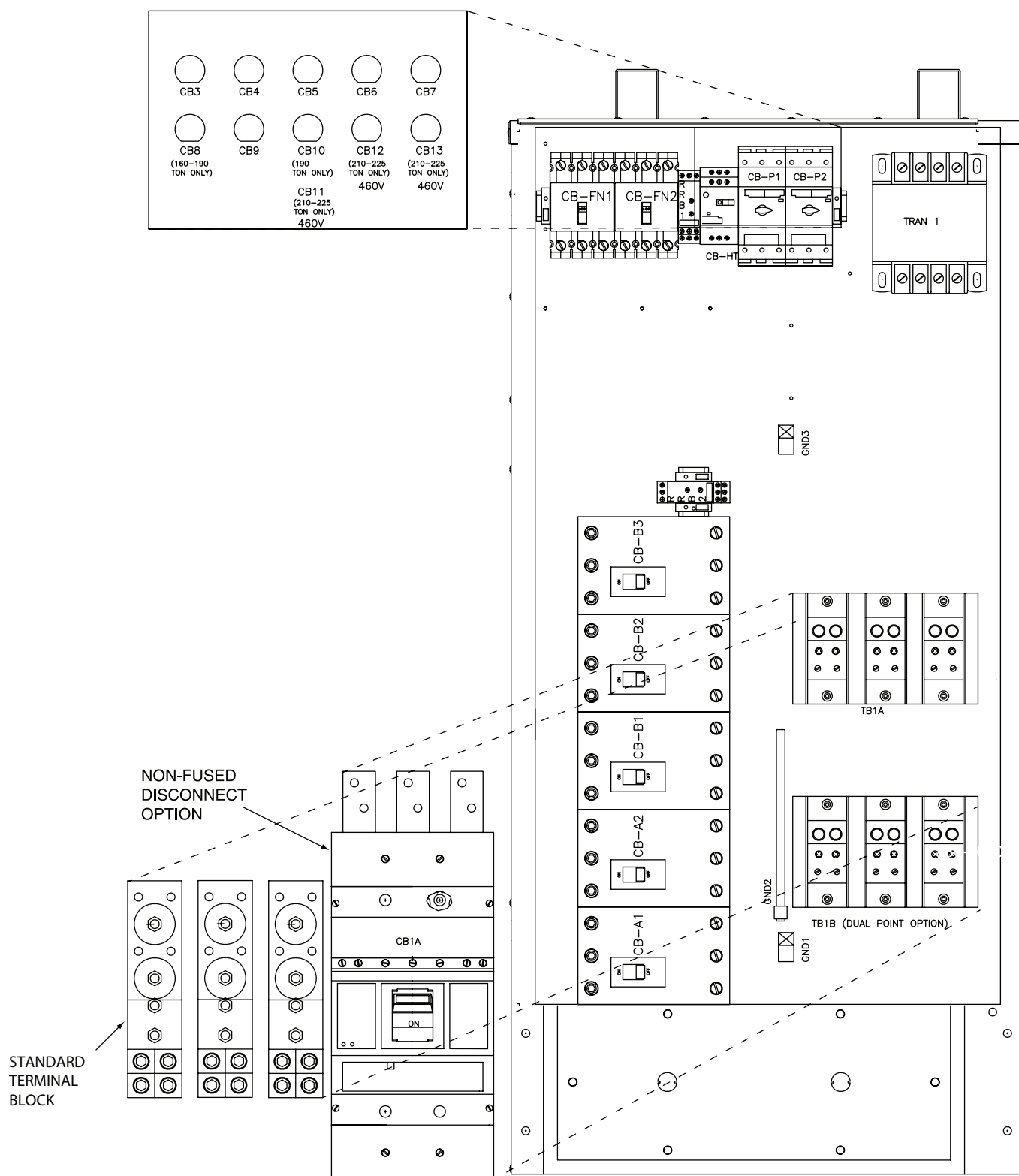


Fig. 13 — Component Arrangement, Power-L Box 30RB080-300 (208/230 v); 130-225 (380, 460 and 575 v with Non-Fused Disconnect Option)

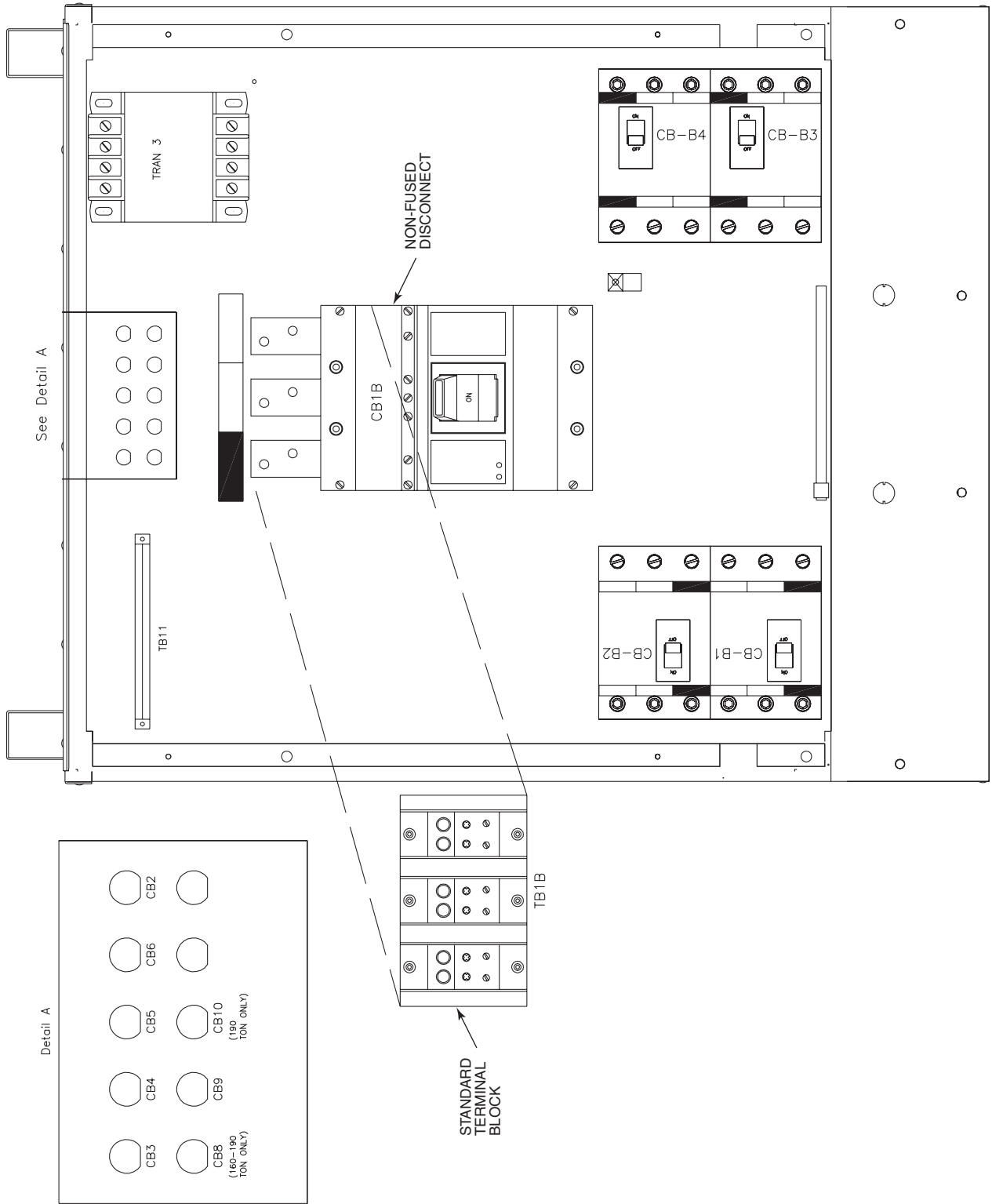


Fig. 15 — Component Arrangement, Power Electrical Box 1, 30RB130-300 (208/230 v)

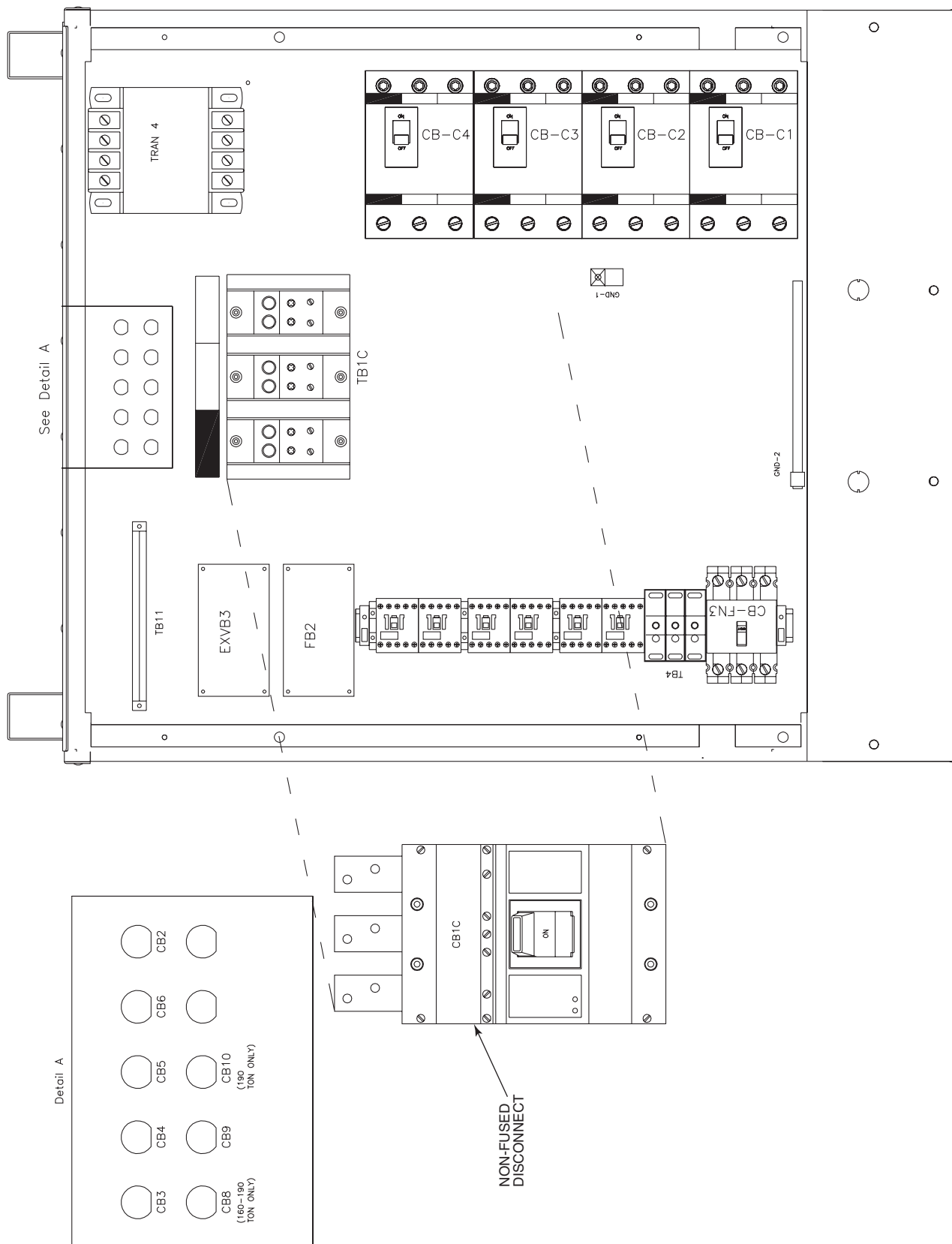


Fig. 16 — Component Arrangement, Power Electrical Box 2, 30RB210-300 (208/230 v)

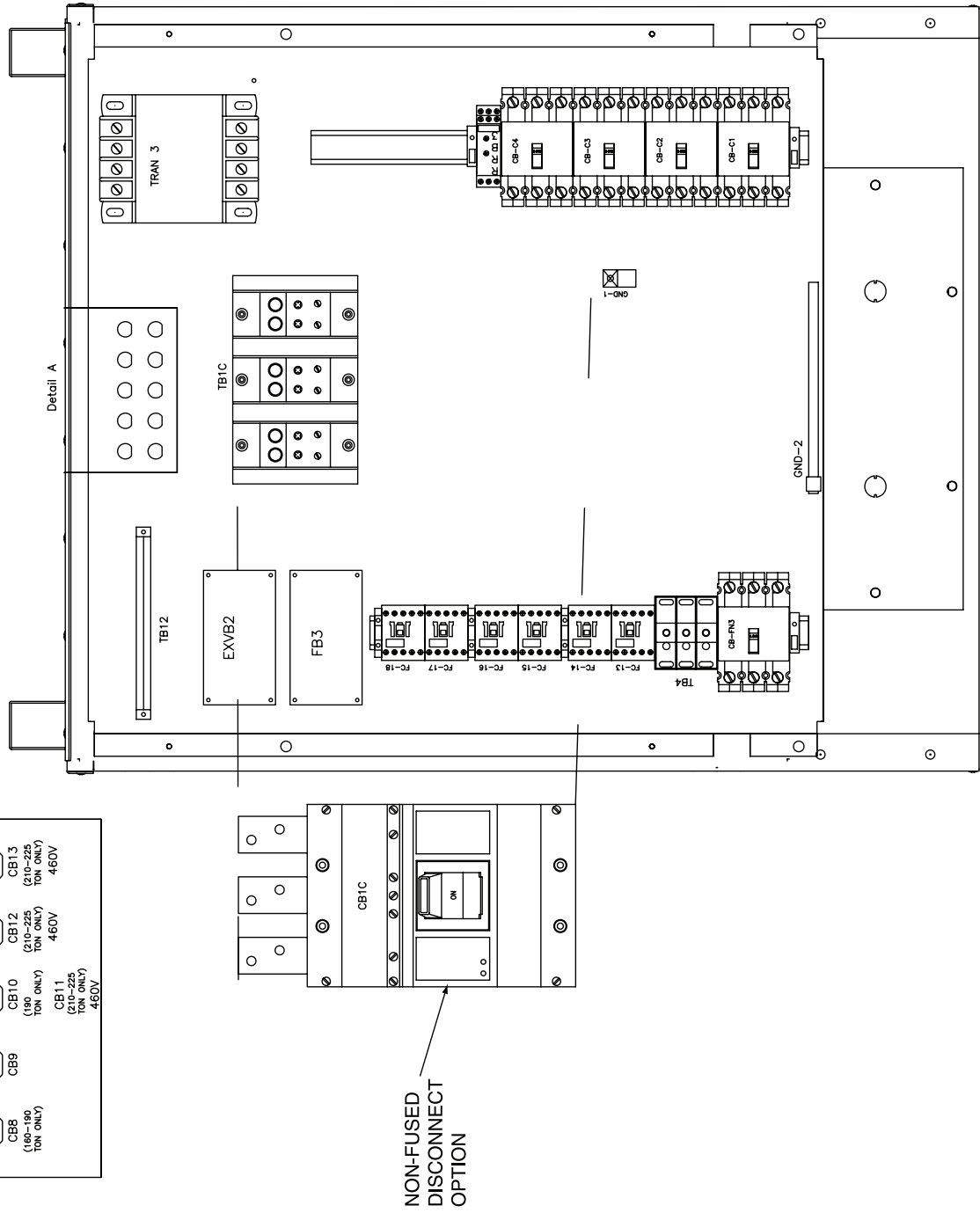
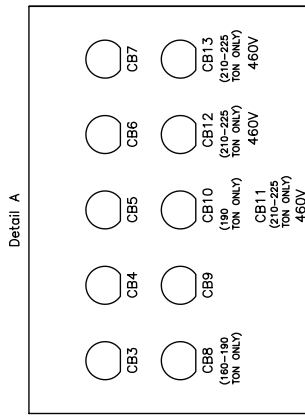


Fig. 17 — Component Arrangement, Power Electrical Box 2, 30RB250-300 (380, 460 and 575 v)

Table 2 – Field Wiring Connections and Control Boxes

30RB UNIT SIZE	VOLTAGE	ELECTRICAL OPTION	CONNECTIONS	MAIN POWER ENTRANCE	CONTROL BOX
060,070	208/230, 380, 380, 460, 575	Standard (Terminal Block)	Single Point	Circuit 1	Combination
			Dual Point	Circuit 1	Combination
		Non-Fused Disconnect Option*		Circuit 2	Combination
080-120	208/230	Standard (Terminal Block)	Single Point	Circuit 1	Power-L
			Dual Point	Circuit 1	Power-L
		Non-Fused Disconnect Option*		Circuit 2	Power-L
	380, 460, 575	Standard (Terminal Block)	Single Point	Circuit 1	Power-L
			Dual Point	Circuit 1	Combination
		Non-Fused Disconnect Option*		Circuit 2	Combination
130-190	208/230	Standard (Terminal Block)	Single Point	Circuit 1	Combination
			Dual Point	Circuit 1	Combination
				Circuit 2	Combination
		Non-Fused Disconnect Option	Single Point	Circuit 1	Power-L
			Dual Point	Circuit 1	Power-L
				Circuit 2	PE1
	380, 460, 575	Standard (Terminal Block)	Single Point	Circuit 1	Power-L
			Dual Point	Circuit 1	Power-L
				Circuit 2	PE1
		Non-Fused Disconnect Option	Single Point	Circuit 1	PE1
			Dual Point	Circuit 1	PE1
				Circuit 2	PE1
210, 225	208/230†	Standard (Terminal Block)	Dual Point	Circuit 1	Power-L
				Circuit 2	PE2
		Non-Fused Disconnect Option	Dual Point	Circuit 1	Power-L
				Circuit 2	PE2
	380, 460, 575	Standard (Terminal Block)	Single Point	Circuit 1	PE1
			Dual Point	Circuit 1	PE1
				Circuit 2	PE1
		Non-Fused Disconnect Option	Single Point	Circuit 1	PE1
			Dual Point	Circuit 1	PE1
				Circuit 2	Power-L
250-300	208/230†	Standard (Terminal Block)	Dual Point	Circuit 1	Power-L
				Circuit 2	PE2
		Non-Fused Disconnect Option	Dual Point	Circuit 1	Power-L
				Circuit 2	PE2
	380, 460, 575	Standard (Terminal Block)	Single Point	Circuit 1	PE1
			Dual Point	Circuit 1	PE1
				Circuit 2	PE2
		Non-Fused Disconnect	Single Point	Circuit 1	PE1
			Dual Point	Circuit 1	PE1
				Circuit 2	PE2

*Dual point connection is not available when non-fused disconnect option is selected.

†Single point connection not available.

