



Wiring Diagrams

INDEX

UNIT IDENTIFICATION				
30RB Unit Size	Voltage	Figure Number	Label Diagram	Rev.
060-390	All	1	—	—

POWER SCHEMATICS				
30RB Unit Size	Voltage	Figure Number	Label Diagram	Rev.
060-100	All	2	00PSN500030200A	4.0
110-190	All	3	00PSN500030300A	4.0
210-300	All	4	00PSN500030400A	4.0

CONTROL SCHEMATICS				
30RB Unit Size	Voltage	Figure Number	Label Diagram	Rev.
060-080	All	5	00PSN500029500A	3.0
060-100	All	6	00PSN500029600A	2.0
090-150	All	7	00PSN500029900A	3.0
110-190	All	8	00PSN500029700A	2.0
160-190	All	9	00PSN500030000A	3.0
210-300	All	10	00PSN500030100A	2.0
			00PSN500029800A	2.0

COMPONENT ARRANGEMENTS					
30RB UNIT SIZE	Voltage	Control Box Type	Figure Number	Label Diagram	Rev.
060-070	208/230	Combination	11	SF805094	1.0
	380, 460, 575	Combination	12	SF805091	1.0
080-120	380, 460, 575	Combination	12	SF805091	1.0
	208/230	Combination	13	SF805095	1.0
130-190	208/230	Fan Electrical	14	SF805090	2.0
	All	Fan Electrical	14	SF805090	2.0
210, 225	208/230	Power Electrical 1	15	SF805096	1.0
	380, 460, 575	Power Electrical 1	16	SF805092	2.0
250-300	All	Fan Electrical	14	SF805090	2.0
	460, 575	Power Electrical 1	16	SF805092	2.0
	208/230	Power Electrical 2	17	SF805097	1.0
	380	Power Electrical 2	18	SF805093	1.0
250-300	All	Fan Electrical	14	SF805090	2.0
	208/230	Power Electrical 2	17	SF805097	1.0
250-300	380, 460, 575	Power Electrical 2	18	SF805093	1.0

FIELD WIRING				
30RB UNIT SIZE	Voltage	Figure Number	Label Diagram	Rev.
060-300	All	19	00DCN50001300A	3.0

Manufacturer reserves the right to discontinue, or change at any time, specifications or designs without notice and without incurring obligations.

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*TM 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. See Fig. 1.

LEGEND

ALM R	— Alarm Relay	OAT	— Outdoor Air Temperature
ALT R	— Alert Relay	PEB	— Power Electrical Box
C	— Contactor, Compressor	PMP	— Pump, Chilled Water
CB	— Circuit Breaker/Disconnect	PMPI	— Chilled Water Pump Interlock
CCH	— Compressor Crankcase Heater	RDY R	— Ready Relay
CL-HT	— Cooler Heater	RRB	— Reverse Rotation Board
COMP	— Compressor	RUN R	— Run Relay
CWFS	— Chilled Water Flow Switch	SHD R	— Shutdown Relay
CWP	— Chilled Water Pump	SPM	— Scroll Protection Module
DPT	— Discharge Pressure Transducer	SPT	— Suction Pressure Transducer
EQUIP	— Equipment	SW	— Switch
EXV	— Electronic Expansion Valve	T	— Thermistor
EMM	— Energy Management Module	TB	— Terminal Block
FB	— Fan Board	TEMP	— Temperature
FC	— Fan Contactor	TRAN	— Transformer
FEB	— Field Electrical Box		Terminal Block Connection
FIOP	— Factory-Installed Option		Marked Terminal
FM	— Fan Motor		Unmarked Terminal
FN	— Fan		Unmarked Splice
FU	— Fuse		Factory Wiring
GFI-CO	— Ground Fault Interrupter — Convenience Outlet		Optional Wiring
GND	— Ground		Indicates common potential. Does not represent wiring.
HOA	— Hand/Off/Auto		FIOP or Accessory
HOA-A	— Hand/Off/Auto, Auto Setting		Wire Tag
HOA-H	— Hand/Off/Auto, Hand Setting		
HPS	— High-Pressure Switch		
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.)		

NOTES

1. Factory wiring is in accordance with 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 of non-fused disconnect with 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 pump1 (PMP1) starter.
Terminals 13 and 15 of TB5 are for control of chilled water pump2 (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.

30RB	A	210	6	-	8	0	-	-	-	L
30RB – Air-Cooled AquaSnap Chiller										
Design Series										
Nominal Sizes*										
060	110	170	275							
070	120	190	300							
080	130	210	315							
090	150	225	330							
100	160	250	345							
			360							
			390							
Voltage										
1 – 575-3-60										
2 – 380-3-60										
5 – 208/230-3-60										
6 – 460-3-60										
Condenser Coil and Sound Options										

- Security/Packaging Option**
- Controls/Communication Option**
- - None
 - 0 – EMM
 - 1 – Remote Service Port, GFI-CO
 - 2 – EMM, Remote Service Port, GFI-CO
 - 7 – BACnet Translator
 - 8 – BACnet Translator, EMM
 - 9 – BACnet Translator, Remote Service Port, GFI-CO
 - B – BACnet Translator, Remote Service Port, GFI-CO
 - H – LON Translator
 - J – LON Translator, EMM
 - K – LON Translator, Remote Service Port, GFI-CO
 - L – LON Translator, EMM, Remote Service Port, GFI-CO

- Electrical Option**
- - Single Power Connection, No Terminal Block
 - 3 – Dual Power Connection, No Terminal Block
 - 7 – Single Power Connection, Non-Fused Disconnect
 - C – Dual Power Connection, Non-Fused Disconnect

- Refrigeration Circuit Option**
- - No Suction Line Insulation
 - 0 – Suction Insulation
 - 1 – Suction Service Valves
 - 2 – Head Pressure Control Operation
 - 3 – Suction Insulation, Suction Service Valves
 - 4 – Suction Insulation, Head Pressure Control Operation
 - 5 – Suction Service Valves, Head Pressure Control Operation
 - 6 – Suction Insulation, Service Valves, Head Pressure Control Operation
 - 7 – Minimum Load Control
 - 8 – Suction Insulation, Minimum Load Operation
 - 9 – Suction Service Valves, Minimum Load Control
 - B – Head Pressure Control Operation, Minimum Load Control
 - C – Suction Insulation, Suction Service Valves, Minimum Load Control
 - D – Suction Insulation, Head Pressure Control Operation, Minimum Load Control
 - F – Suction Service Valves, Head Pressure Control Operation, Minimum Load Control
 - G – Suction Insulation, Suction Service Valves, Head Pressure Control Operation, Minimum Load Control

- Cooler Option**
- - Integral Cooler
 - 0 – Integral Cooler, Cooler Heater
 - 1 – Remote Cooler
 - 9 – Integral Cooler, Brine
 - B – Integral Cooler, Cooler Heater, Brine
 - C – Remote Cooler, Brine
 - M – Integral Cooler, Non-Removable Core Filter Drier
 - N – Integral Cooler, Cooler Heater, Non-Removable Core Filter Drier
 - P – Remote Cooler, Non-Removable Core Filter Drier

- Hydronics Option**
- - No Pump Installed
 - 0 – Single Pump, 3 HP
 - 1 – Single Pump, 5 HP
 - 2 – Single Pump, 7.5 HP
 - 3 – Single Pump, 10 HP
 - 4 – Single Pump, 15 HP
 - 6 – Dual Pump, 3 HP
 - 7 – Dual Pump, 5 HP
 - 8 – Dual Pump, 7.5 HP, Low Head
 - 9 – Dual Pump, 7.5 HP, High Head
 - B – Dual Pump, 10 HP
 - C – Dual Pump, 15 HP

LEGEND

EMM — Energy Management Module

GFI-CO — Ground Fault Interrupting Convenience Outlet

LON — Local Operating Network

*Refer to Table 1.

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Fig. 1 — Model Number Nomenclature

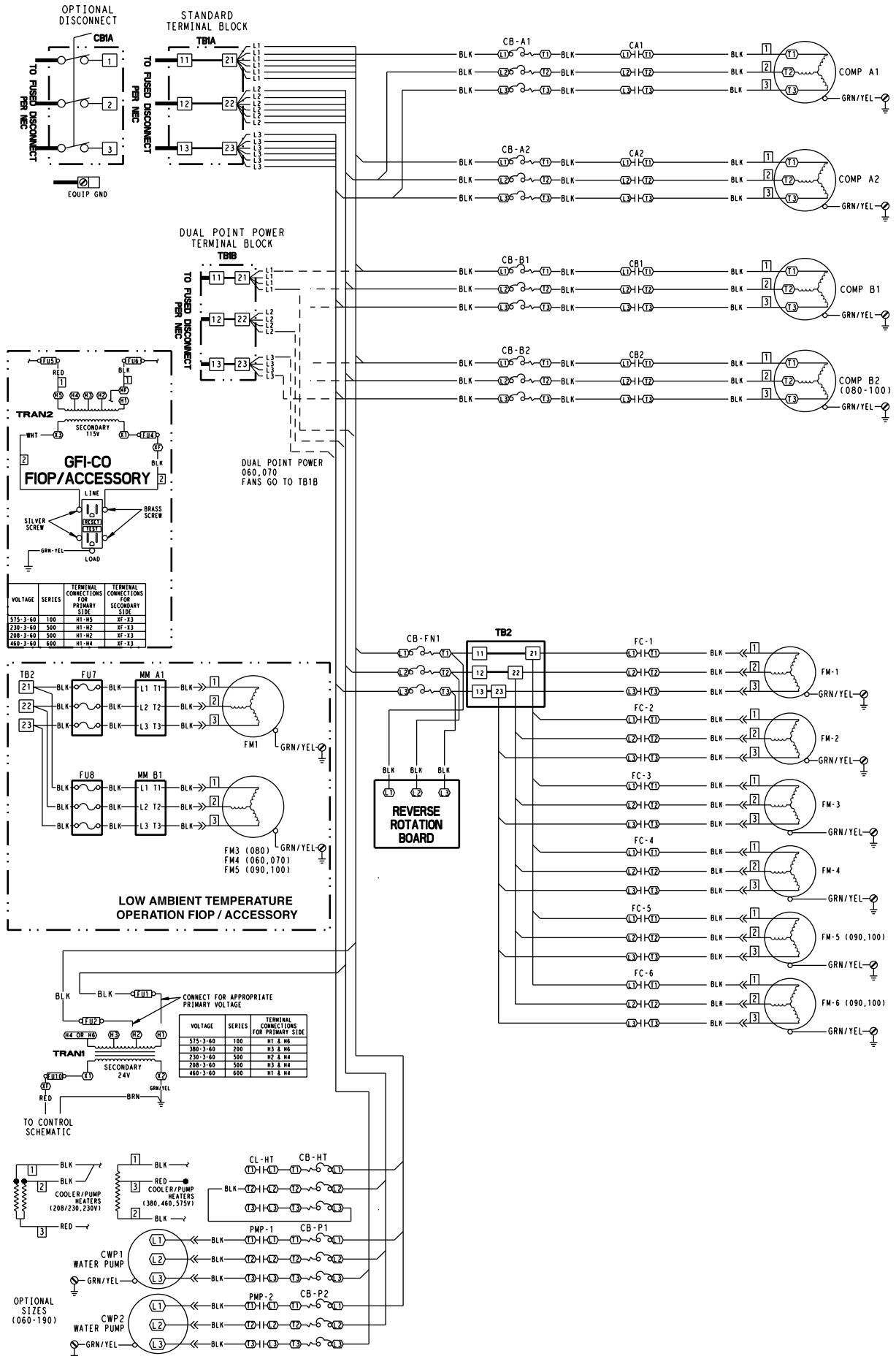
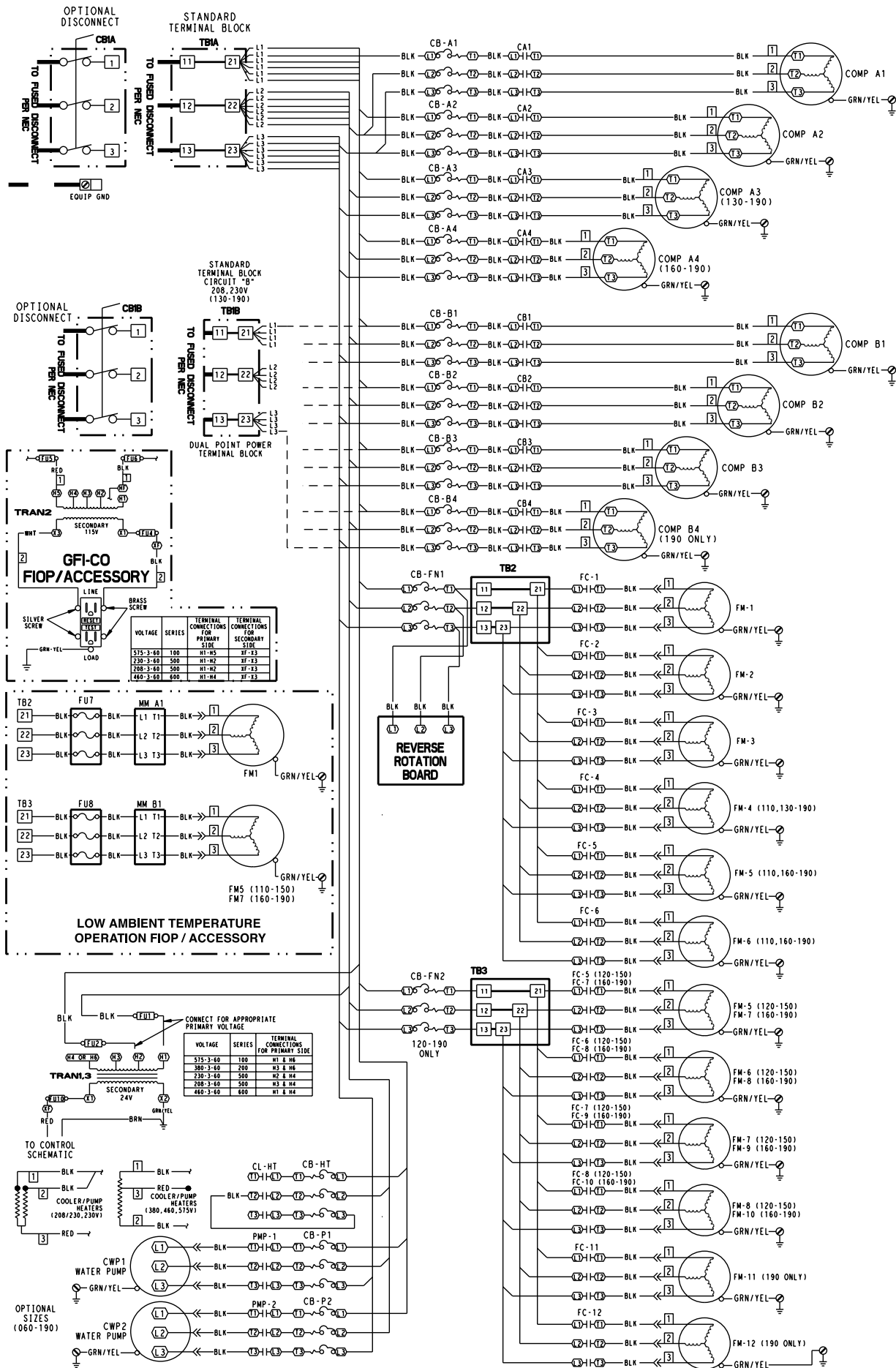


Fig. 2 — Power Schematic, 30RB060-100 (All Voltages)



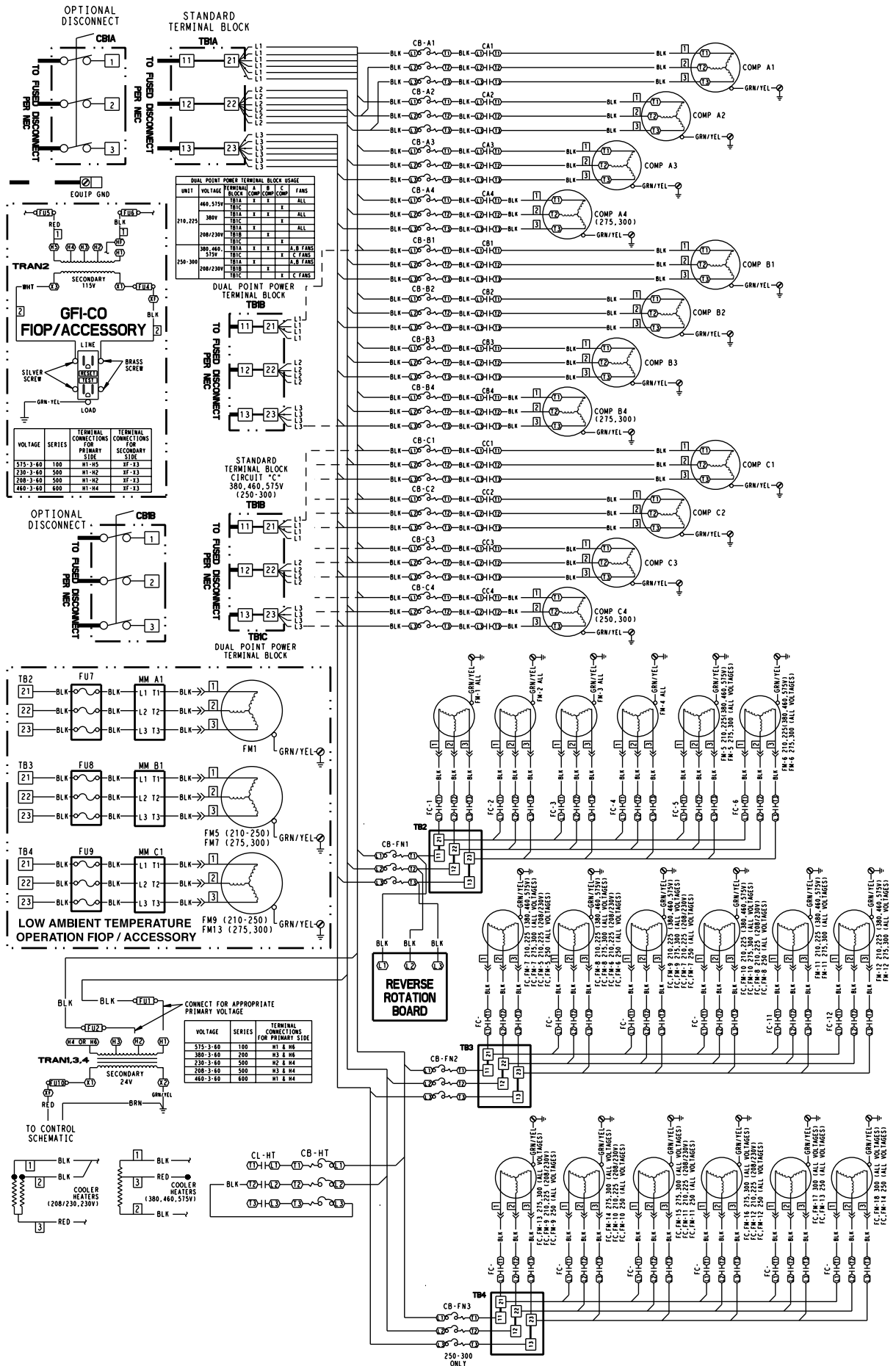


Fig. 4 — Power Schematic, 30RB210-300 (All Voltages)

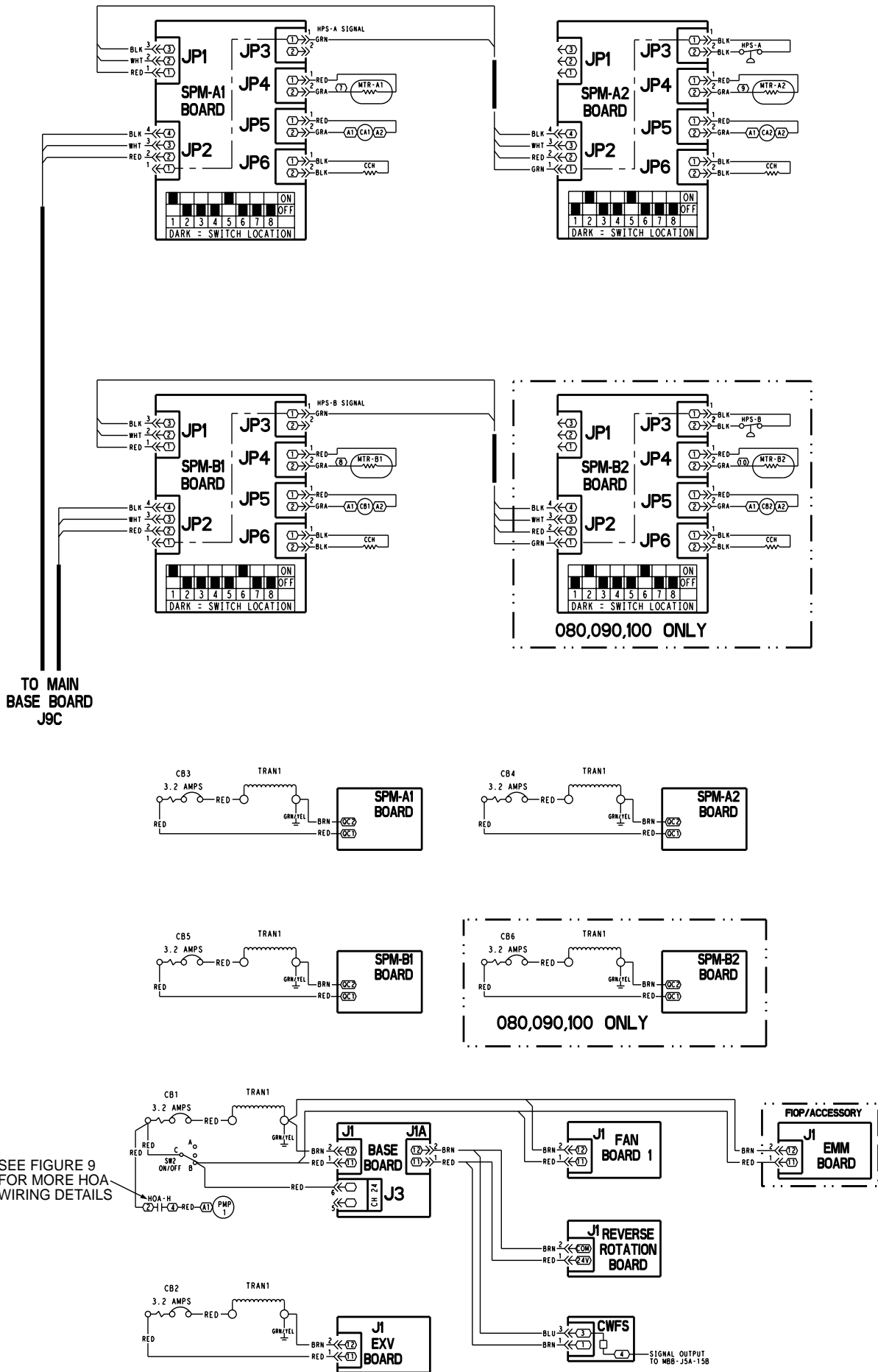


Fig. 6 — Control Schematic, 30RB060-100 (All Voltages)

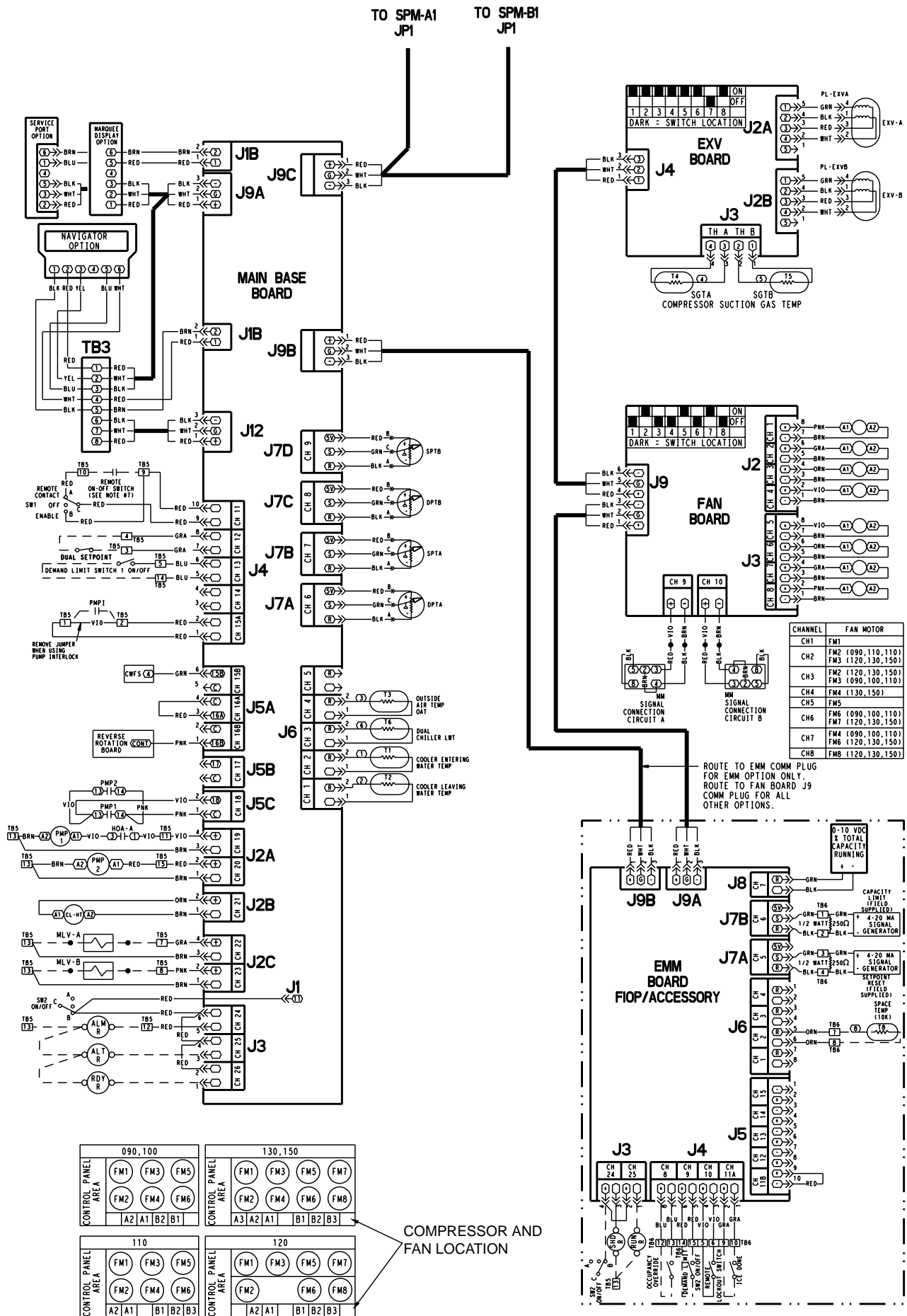
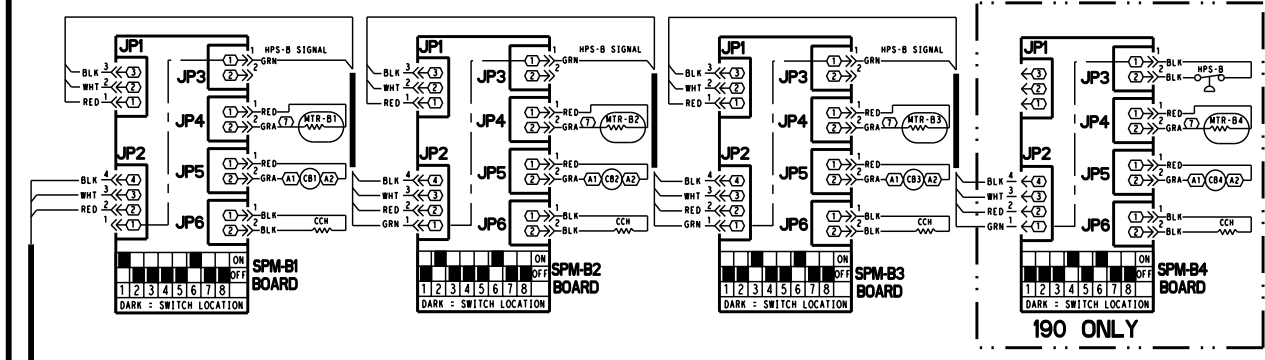
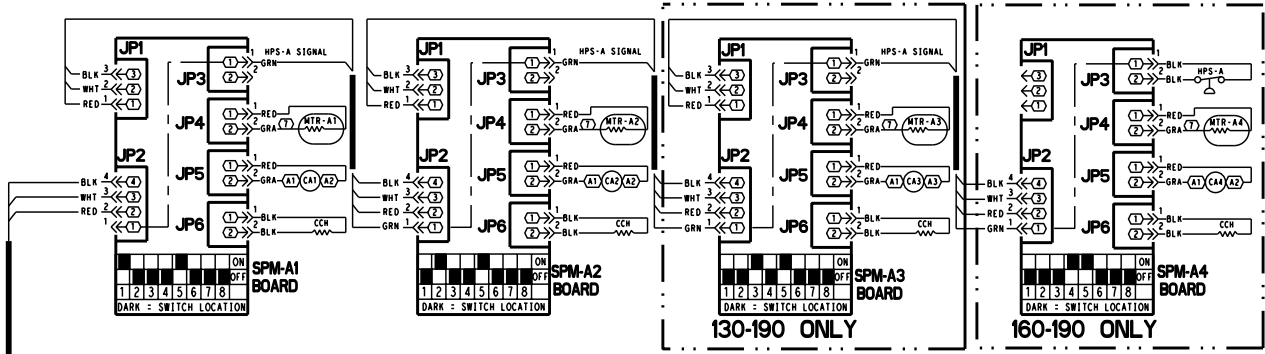


Fig. 7 — Control Schematic, 30RB090-150 (All Voltages)



TO MAIN
BASE BOARD
J9C

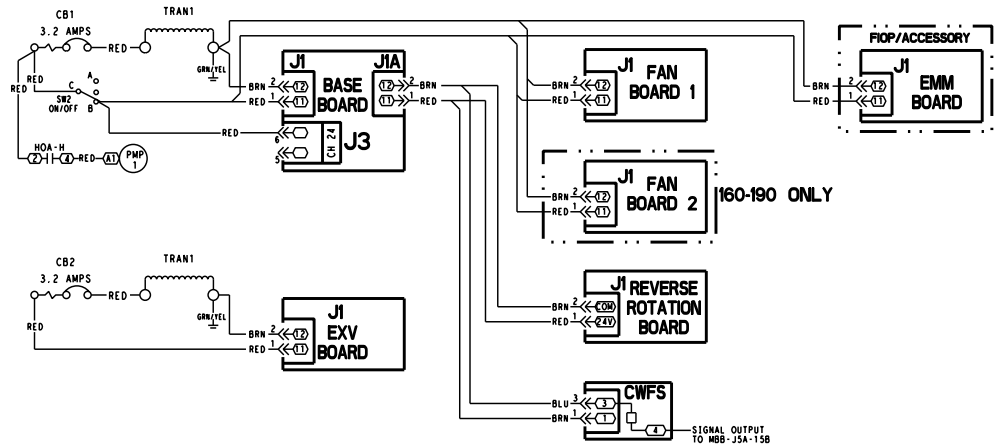
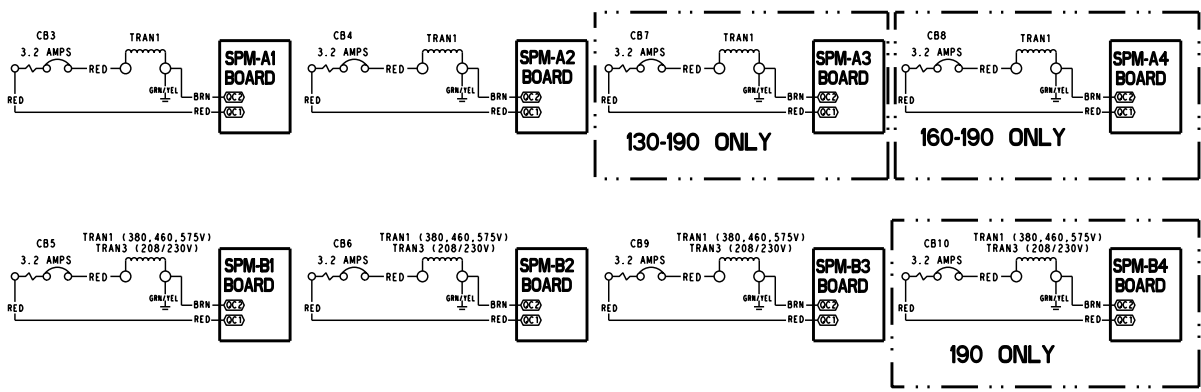


Fig. 8 — Control Schematic, 30RB100-190 (All Voltages)

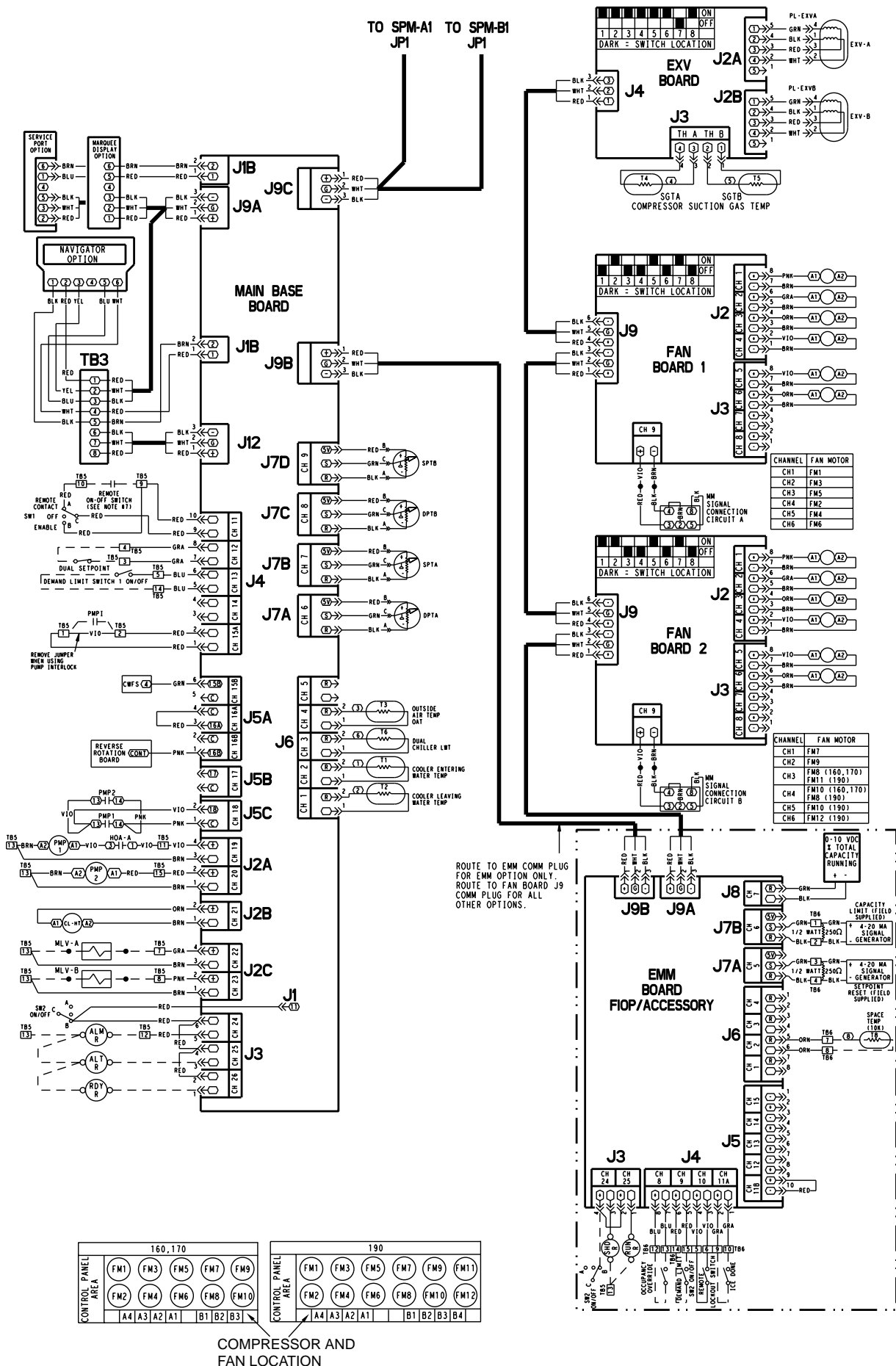


Fig. 9 — Control Schematic, 30RB160-190 (All Voltages)

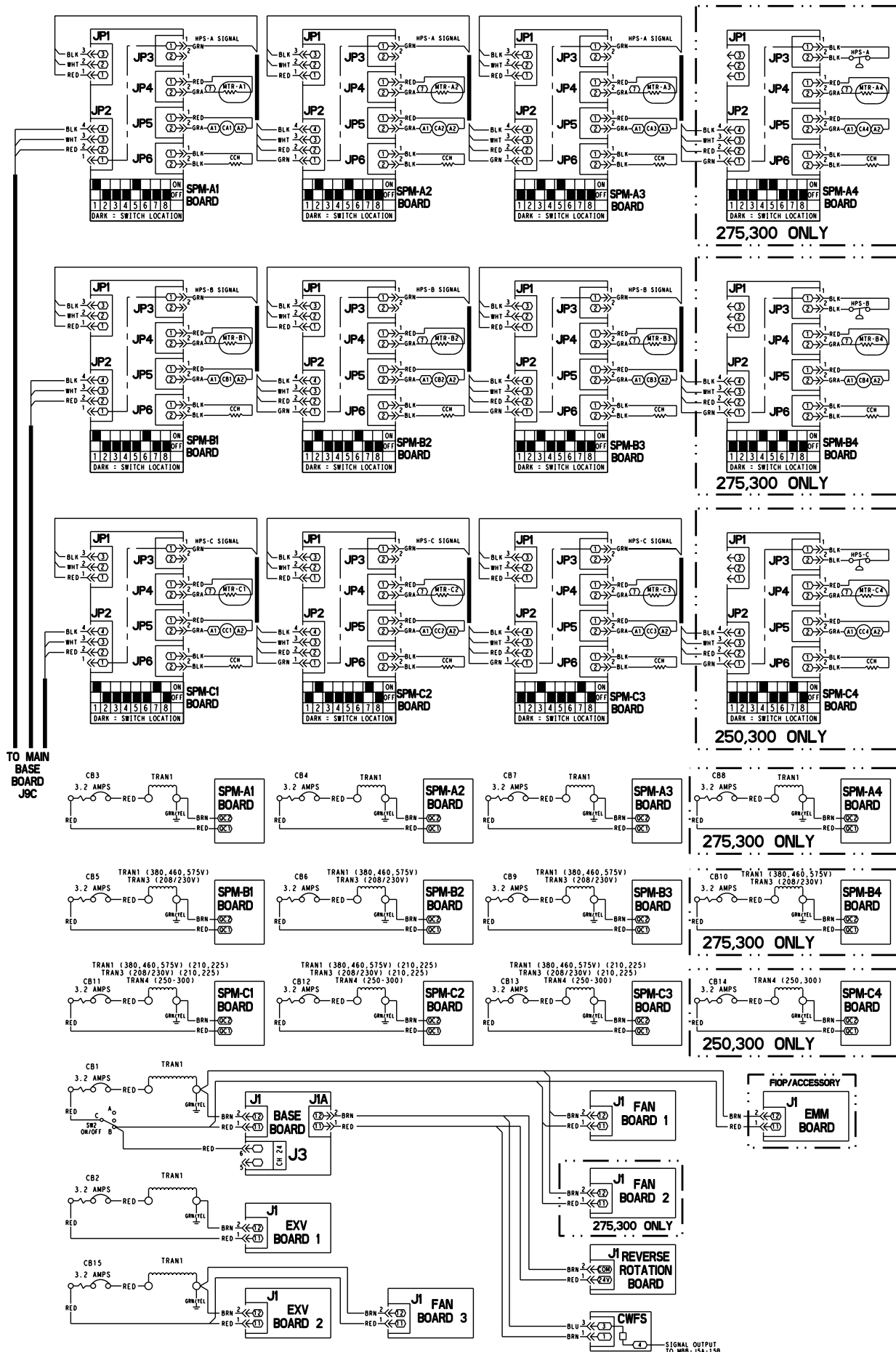


Fig. 10 — Control Schematic, 30RB210-300 (All Voltages) (cont)

COMBINATION BOX, 30RB060,070 FOR 208/230 V

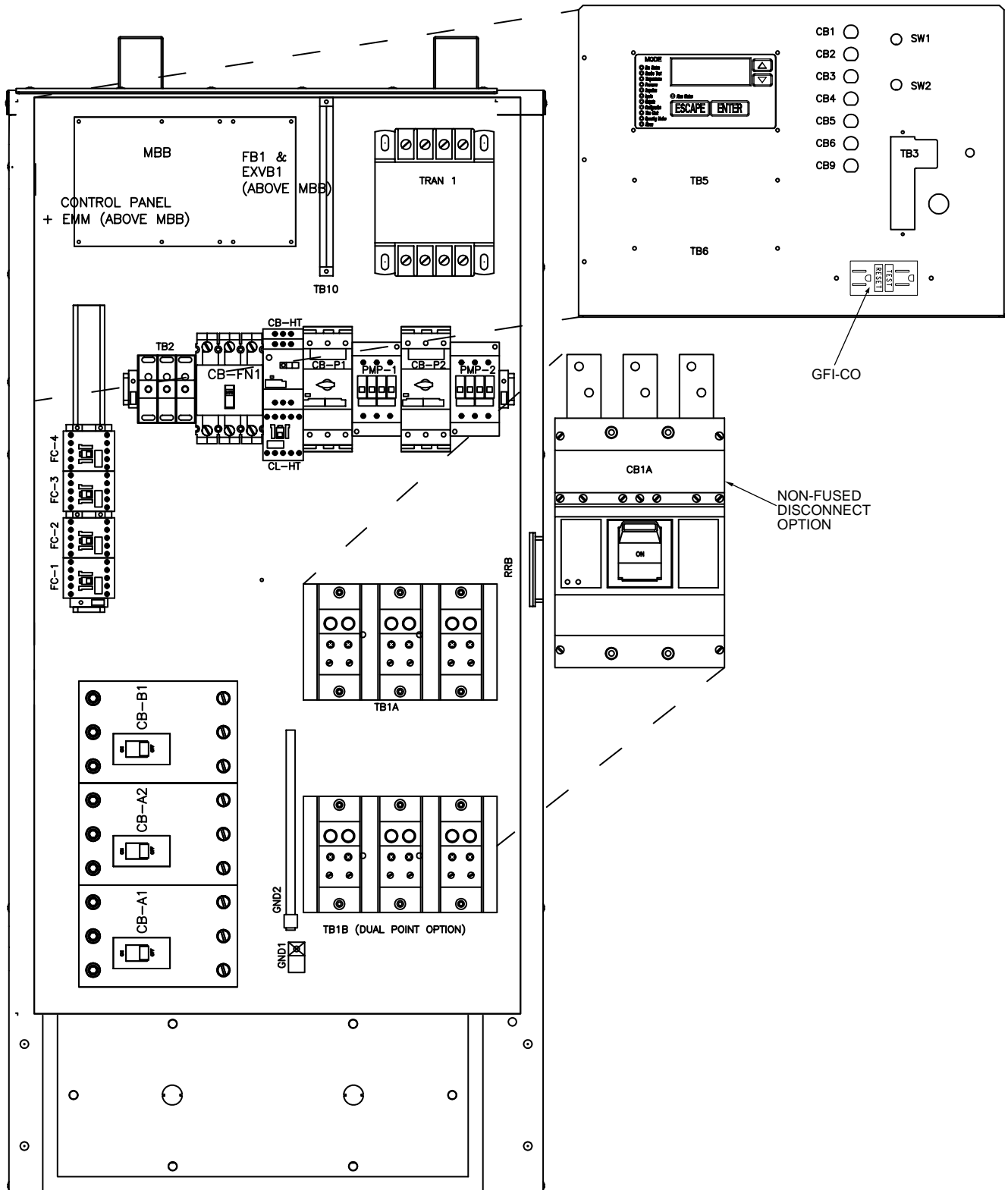


Fig. 11 — Component Arrangement, 30RB060,070, 208/230 V

COMBINATION BOX, 30RB060-120 FOR 380/460/575 V

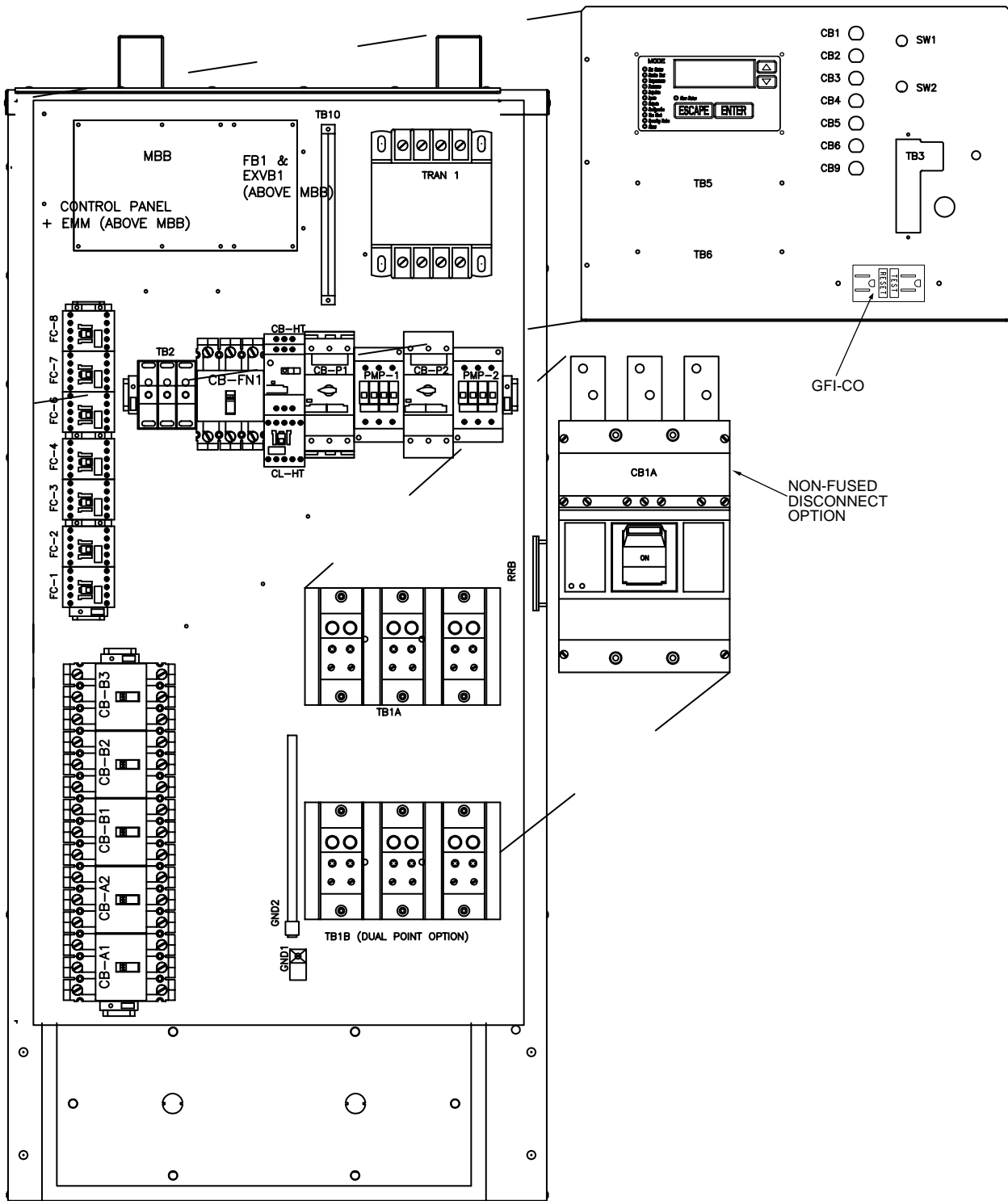


Fig. 12 — Component Arrangement, 30RB060-120, 380/460/575 V

COMBINATION BOX, 30RB080-120 FOR 208/230 V

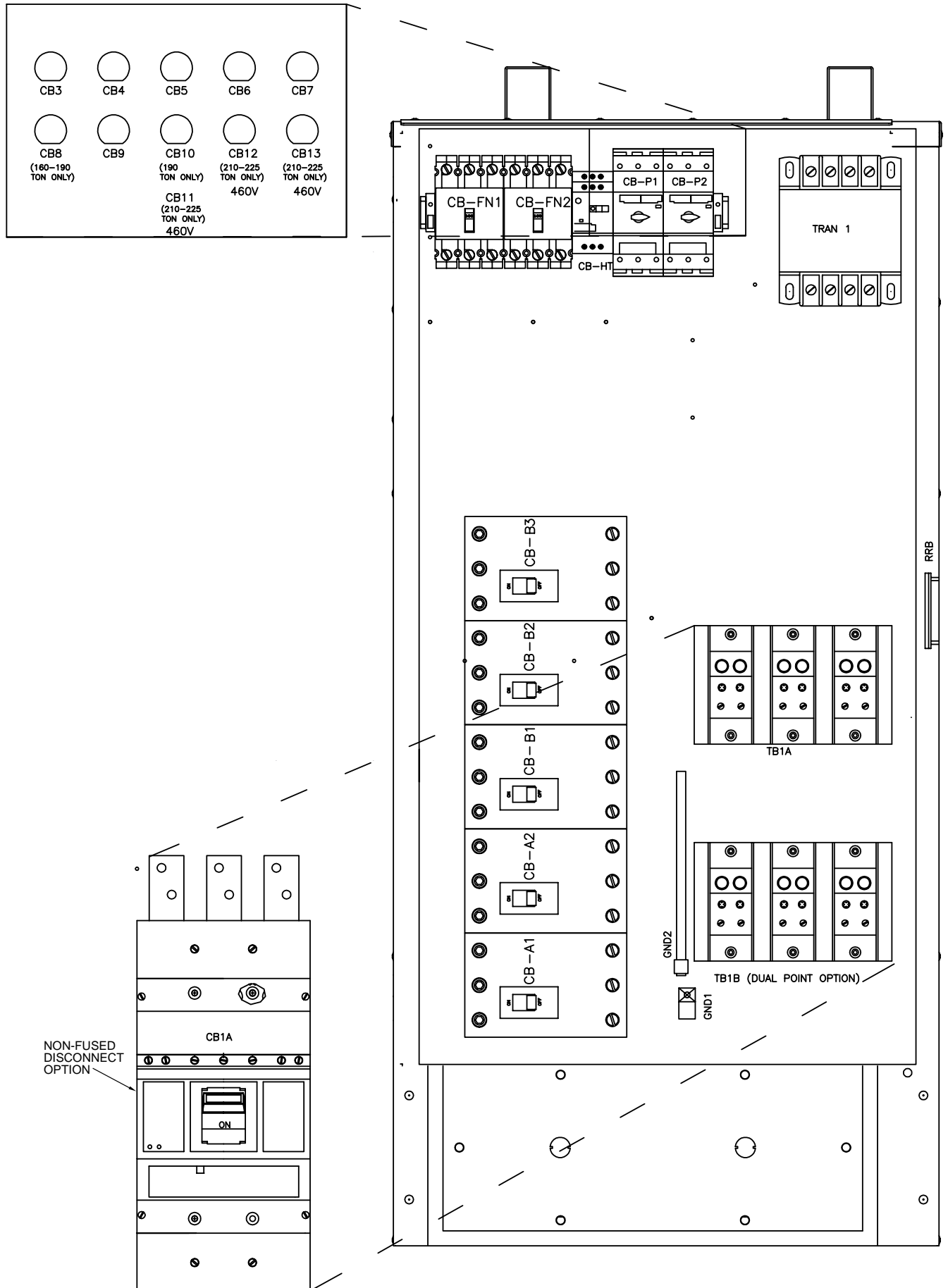


Fig. 13 — Component Arrangement, 30RB080-120, 208/230 V

FAN ELECTRICAL BOX (FEB), 30RB080-120 FOR 208/230 V AND 30RB130-300 FOR ALL VOLTAGES

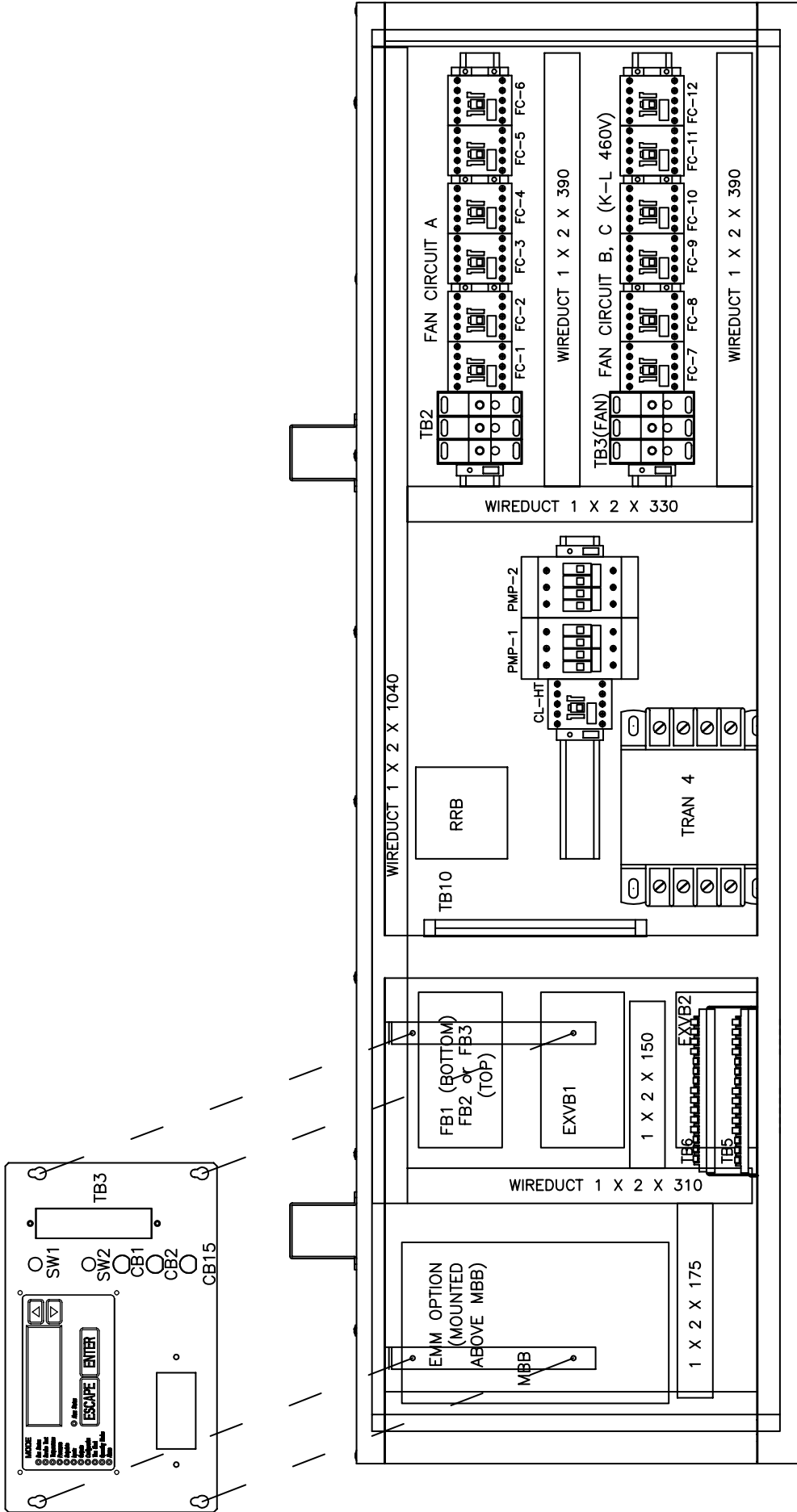


Fig. 14 — Component Arrangement, 30RB080-120 for 208/230 V and 30RB130-300 for All Voltages

POWER ELECTRICAL BOX (PEB1), 30RB130-300 FOR 208/230 V

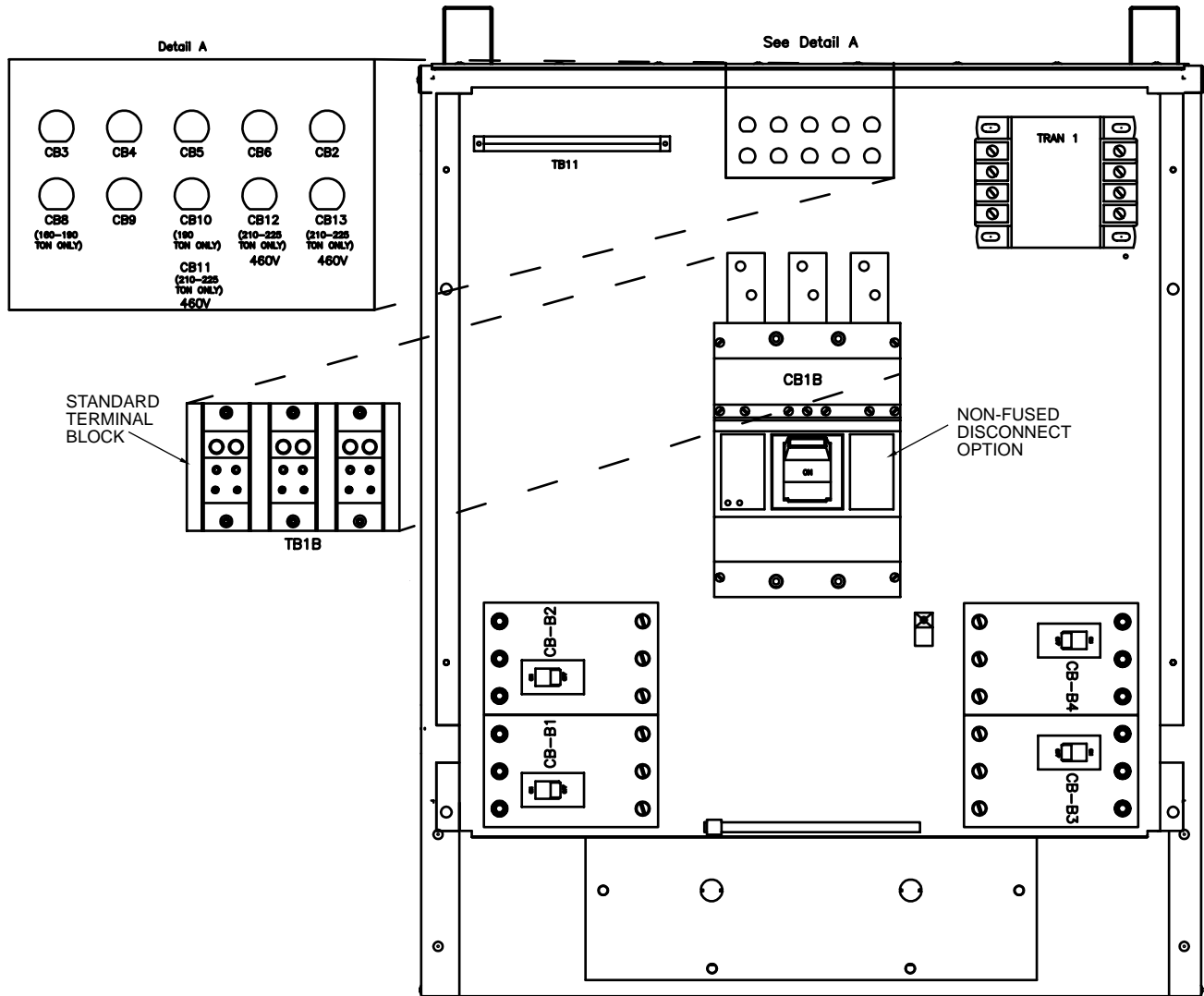


Fig. 15 — Component Arrangement, 30RB130-300, 208/230 V

**POWER ELECTRICAL BOX1 (PEB1), 30RB130-190 FOR 380, 460/575 V
30RB130-190 FOR 380, 460/575 V**

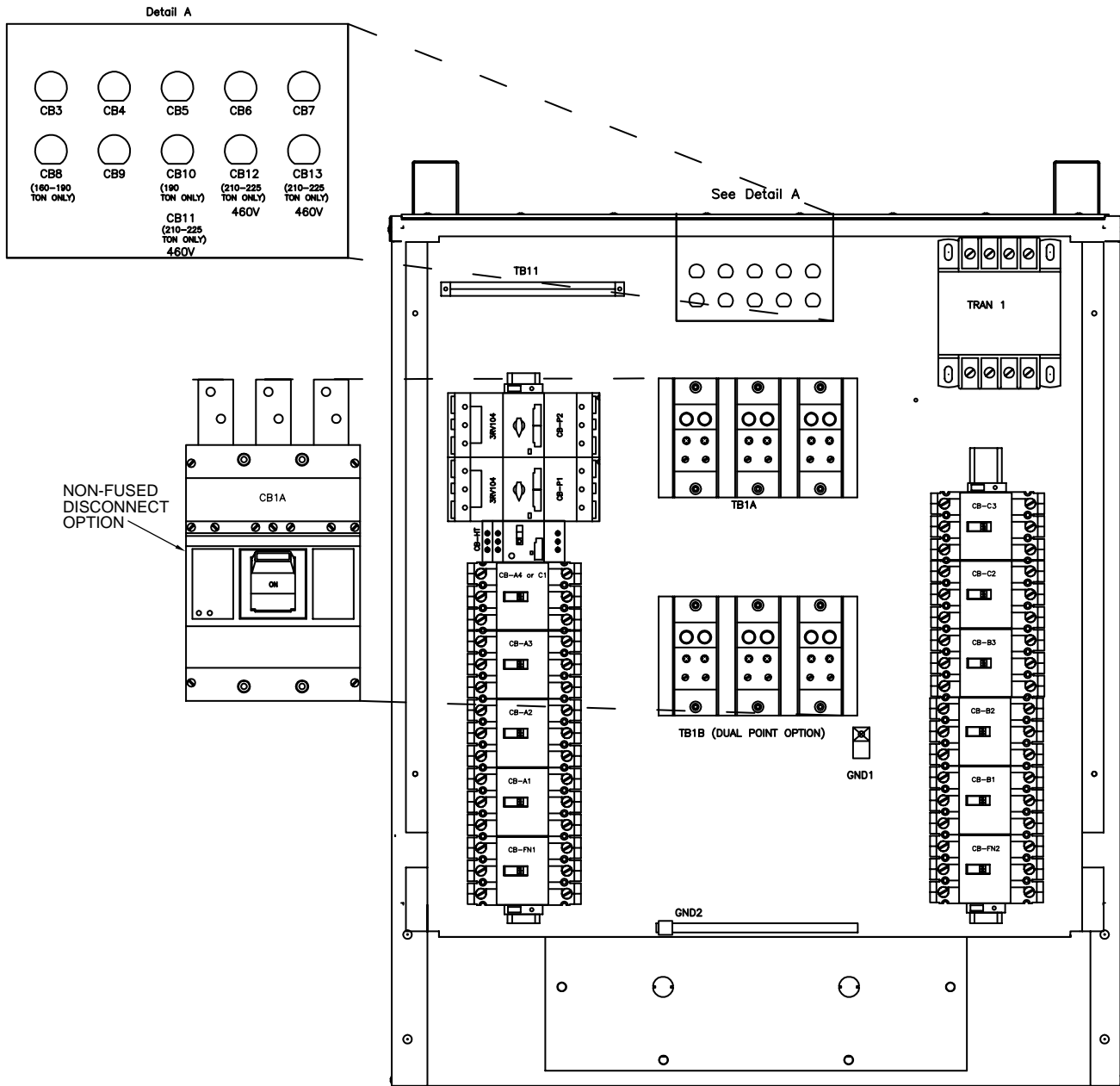
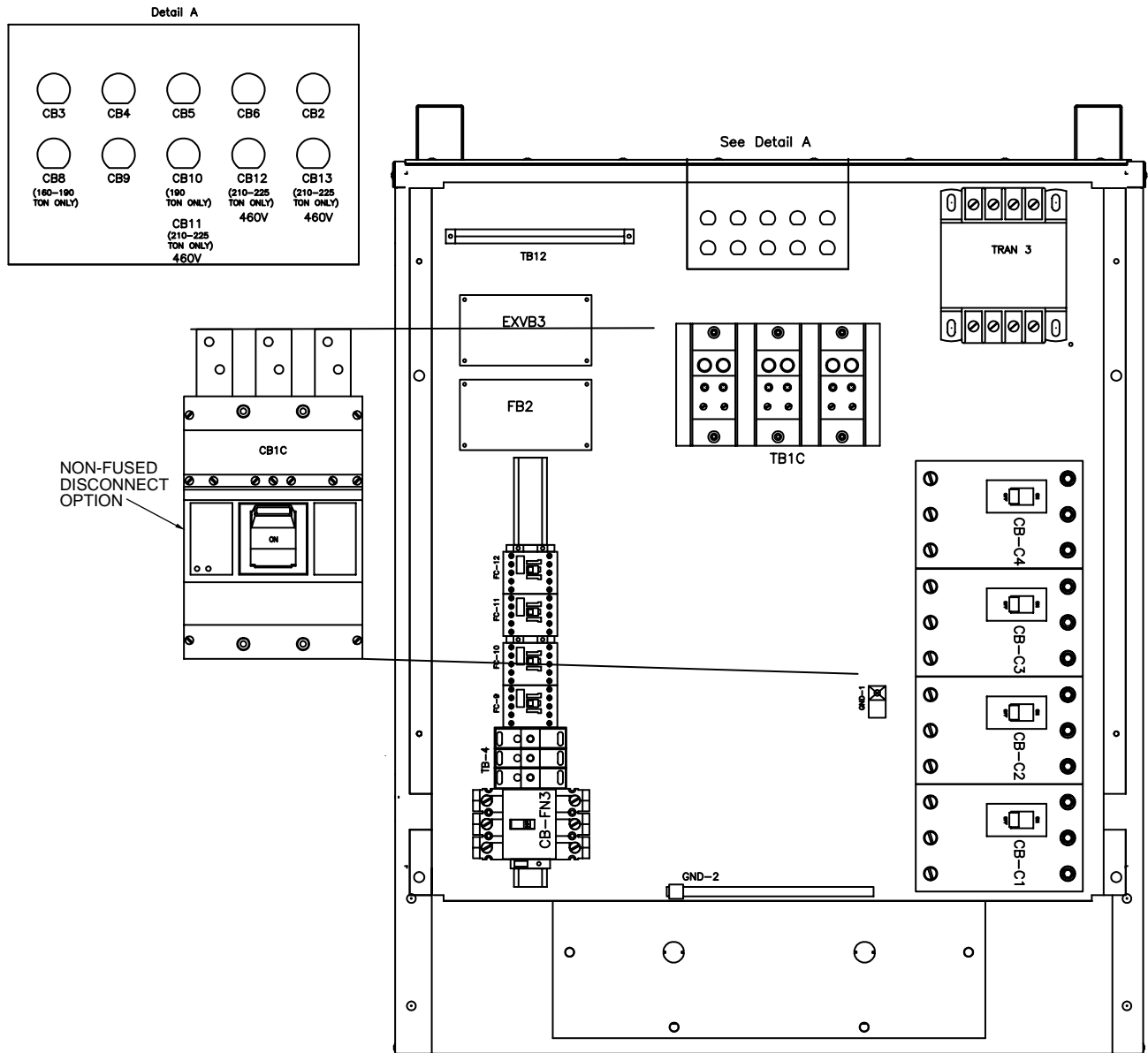


Fig. 16 — Component Arrangement, 30RB130-190,380, 460/575 V and 30RB210,225, 460/575 V

POWER ELECTRICAL BOX2 (PEB2), 30RB210-300 FOR 208/230 V



**POWER ELECTRICAL BOX2 (PEB2), 30RB250-300 FOR 380, 460/575 V
AND 30RB210-300 FOR 380 V**

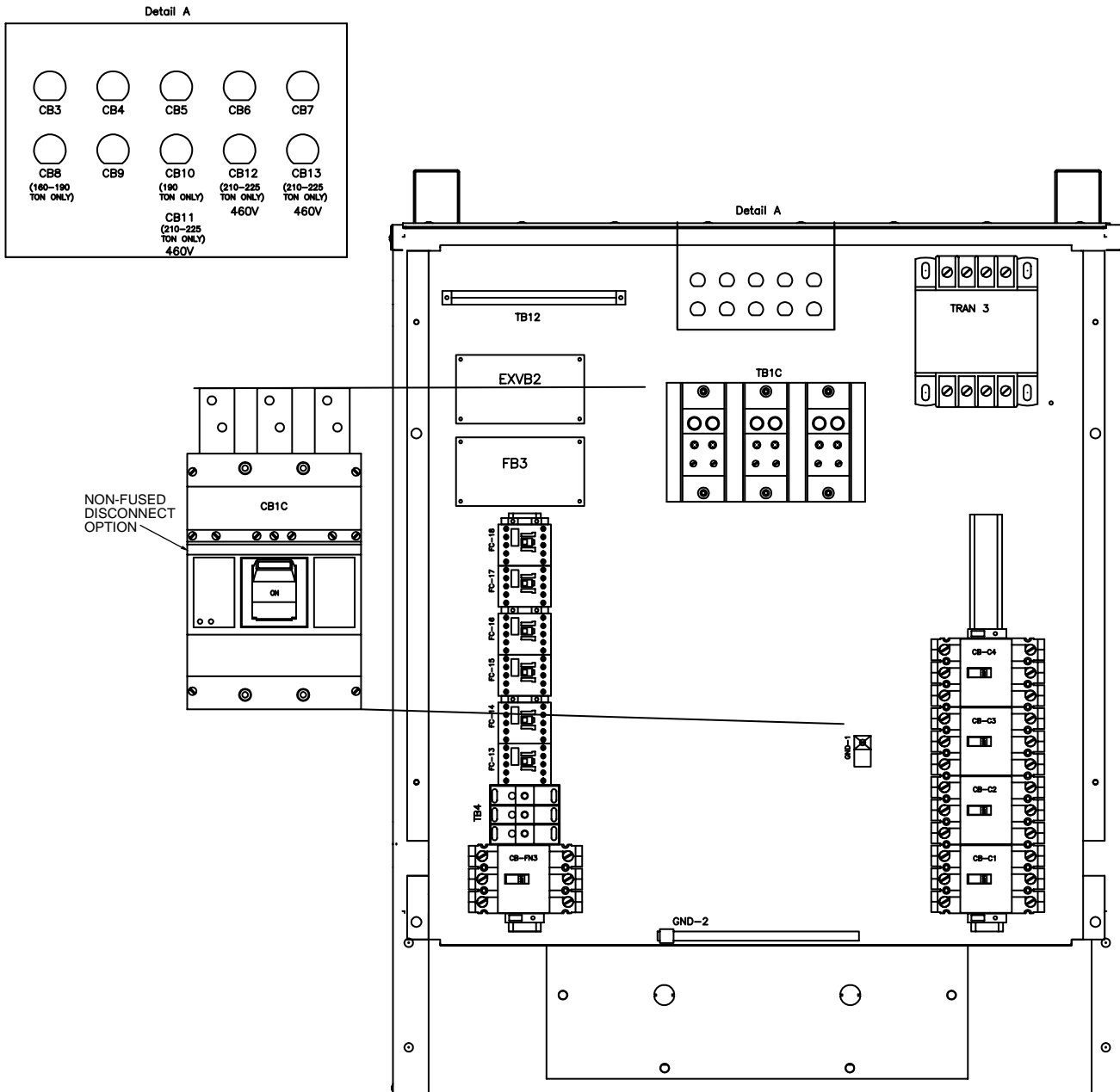


Fig. 18 — Component Arrangement, 30RB250-300, 460/575 V and 30RB210-300, 380 V

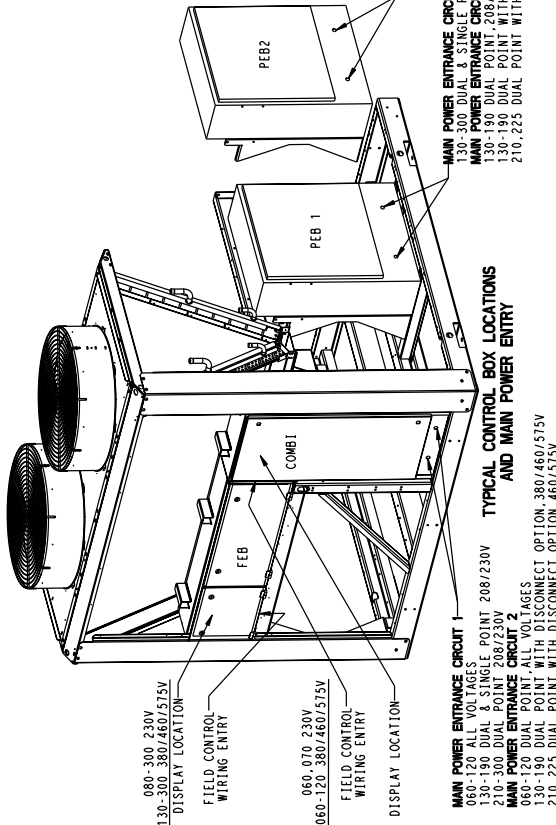
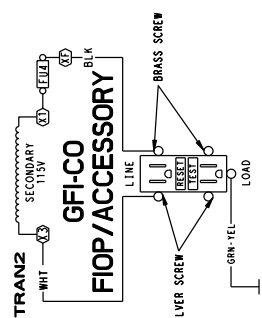
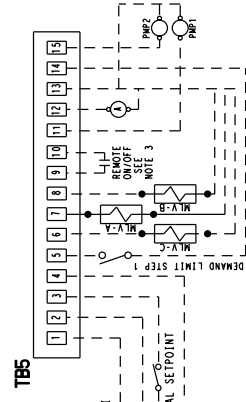
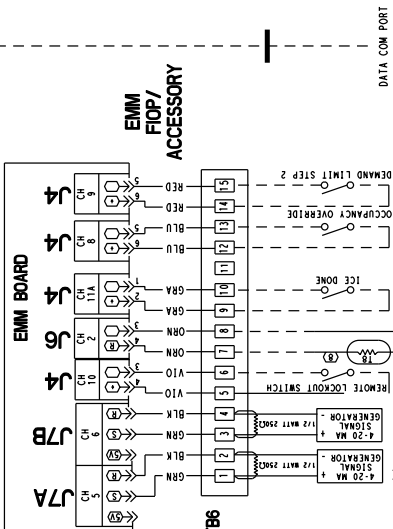
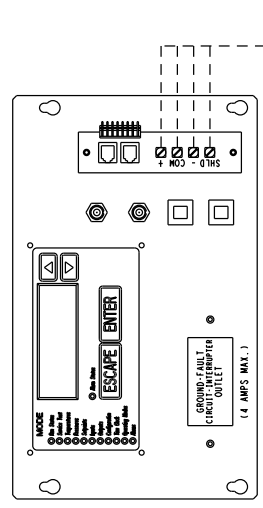
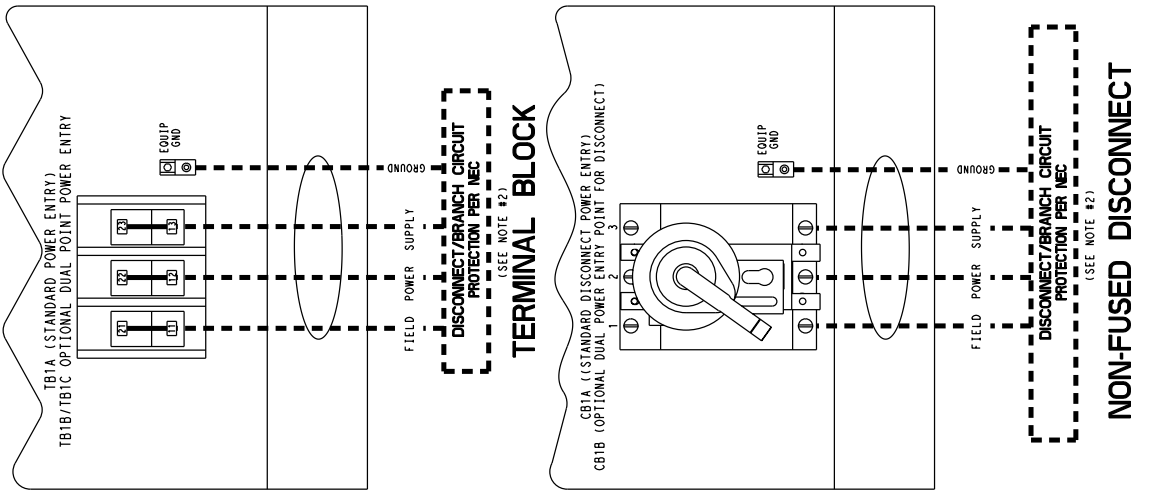


Fig. 19 — Field Wiring Schematic, 30RB060-390

