

Wiring Diagrams

50 and 60 Hz

DIAGRAM INDEX

FLOTTRONIC™ — POWER SCHEMATICS						
UNIT 30-	VOLTAGE	MAIN POWER		CONTROL POWER		
		Fig. No.	Label Diagram No. 30GT-	Fig. No.	Label Diagram No. 30GT-	
					115, 230 v	24 v
GT040 045, 050	208/230-XL, PW 346-XL, PW 380-PW 380/415-PW 460-PW 575-PW	1	511749	9 (115,230) 10 (24 v)	511751	511752
	380-XL 380/415-XL 460-XL 575-XL	2	511602			
GT060, 070	208/230-XL, PW 346-XL, PW 380-PW 380/415-PW 460-PW 575-PW	3	511750			
GT060, 070	380-XL 380/415-XL 460-XL 575-XL	4	511748			
GT080, 090	208/230-XL, PW 346-PW 380-PW 380/415-PW 460-PW 575-PW	5	510570	11 (115,230 v) 12 (24 v)	511201	511202
	346-XL 380-XL 380/415-XL 460-XL 575-XL	6	510518			
GT100, 110	208/230-XL, PW 346-PW 380-PW 380/415-PW 460-PW 575-PW	7	510571			
	346-XL 380-XL 380/415-XL 460-XL 575-XL	8	510519			

FLOTTRONIC II — POWER SCHEMATICS						
GN040, 045, 050	208/230-XL, PW 346-XL, PW 380-PW 380/415-PW 460-PW 575-PW	1	511749	13 (115,230 v) 14 (24 v)	511753	511754
	380-XL 380/415-XL 460-XL 575-XL	2	511602			
GN060, 070	208/230-XL, PW 346-XL, PW 380-PW 380/415-PW 460-PW 575-PW	3	511750			
GN060, 070	380-XL 380/415-XL 460-XL 575-XL	4	511748			

FLOTTRONIC II — POWER SCHEMATICS						
UNIT 30-	VOLTAGE	MAIN POWER		CONTROL POWER		
		Fig. No.	Label Diagram No. 30GT-	Fig. No.	Label Diagram No. 30GT-	
					115, 230 v	24 v
GN080, 090	208/230-XL, PW 346-PW 380-PW 380/415-PW 460-PW 575-PW	5	510570	15 (115,230 v) 16 (24 v)	511203	511204
	346-XL 380-XL 380/415-XL 460-XL 575-XL	6	510518			
GN100, 110	208/230-XL, PW 346-PW 380-PW 380/415-PW 460-PW 575-PW	7	510571			
	346-XL 380-XL 380/415-XL 460-XL 575-XL	8	510519			

COMPONENT ARRANGEMENT			
Flotronic™			
UNIT 30-	VOLTAGE	FIG. NO.	LABEL DIAGRAM NO. 30GT-
GT040-070	All	17	511755
GT080-110		18	511205
Flotronic II			
GN040-070	All	19	511756
GN080-110		20	511206
DIAGNOSTICS			
Flotronic			
GT040-070	All	21	512073
GT080-110		22	510065
Flotronic II			
GN040-070	All	23 (Channel Chart)	512020
GN080-110		24 (Channel Chart)	511276
FIELD WIRING			
Flotronic			
GT040-070	All	25	512159
GT080-110		26	511898
Flotronic II			
GN040-070	All	27	512160
GN080-110		28	511899
MOTORMASTER® 575-v UNITS			
GN,GT040-050	575 v	29	512280
GN,GT060,070	575 v	30	512281
GN,GT080-110	575 v	31	512207

Dual Set Point Fig. 32

SAFETY CONSIDERATIONS

Installing, starting up, and servicing this equipment can be hazardous due to system pressures, electrical components, and equipment location (roofs, elevated structures, etc.).

Only trained, qualified installers and service mechanics should install, start up, and service this equipment.

Untrained personnel can perform basic maintenance functions such as cleaning coils. All other operations should be performed by trained service personnel.

When working on the equipment, observe precautions in the literature and on tags, stickers, and labels attached to the equipment. Follow all safety codes. Wear safety glasses and work gloves. Use care in handling, rigging, and setting bulky equipment.



ELECTRIC SHOCK HAZARD

Open all remote disconnects before servicing this equipment.

TERMINAL BLOCK DATA

UNIT SIZES 30GN,GT040-070 — 208/230-3-60-v units have one terminal block, with 6 parallel conductors from the fused disconnect for sizes 050-070, and 3 parallel conductors from the fused disconnect for sizes 040, 045.

380-, 460-, and 575-3-60-v units, and 346- and 380/415-3-50-v units have one terminal block with 3 parallel conductors from the fused disconnect.

UNIT SIZES 30GN,GT080-110 — 208/230-3-60-v units have one terminal block, with 6 parallel conductors from the fused disconnect.

380-3-60-v units and 346-, 380/415-3-50-v have 2 terminal blocks with 4 parallel conductors from the fused disconnect.

460- and 575-3-60-v units have one terminal block with 3 parallel conductors from the fused disconnect.

A, ALM	— Alarm
ALMR	— Alarm Relay
C	— Contactor, Compressor
CB	— Circuit Breaker
CCB	— Control Circuit Breaker
CCN	— Carrier Comfort Network
CHC	— Cooler Heater Cable
CHT	— Cooler Heater Thermostat
CIO	— Communications Input/Output
CKT	— Circuit
CLHR	— Cooler Heater Relay
COM, COMM	— Communications
COMP	— Compressor
CONT PWR	— Control Power
CPCS	— Compressor Protection
CR	— Control Relay
CWFS	— Chilled Water Flow Switch
CWP	— Chilled Water Pump
CWPI	— Chilled Water Pump Interlock
DGT	— Discharge Gas Thermostat
DPT	— Discharge Pressure Transducer
DSIO (EXV)	— EXV Driver
DSIO (LV)	— Relay Module, Low Voltage
DU	— Dummy Terminal
EPROM	— Erasable Programmable Read-Only Memory
EQUIP GND	— Equipment Ground
EXV	— Electronic Expansion Valve
FC	— Fan Contactor
FCB	— Fan Circuit Breaker
FIOP	— Factory-Installed Option
FM	— Fan Motor
FU	— Fuse

GFI-CO	— Ground Fault Interrupter — Convenience Outlet
HGBPR	— Hot Gas Bypass Relay
HGBPS	— Hot Gas Bypass Solenoid
HPS	— High-Pressure Switch
HSIO, LID	— Keyboard and Display Module
HTR	— Heater
LCS	— Loss-of-Charge Switch
LID	— Local Interface Device
LLSV	— Liquid Line Solenoid Valve
MMSN	— Motormaster® Sensor
NC	— Normally Closed
NEC	— National Electrical Code
NO	— Normally Open
OA	— Outdoor Air
OPS	— Oil Pressure Switch
OPT	— Oil Pressure Transducer
P	— Potentiometer
PL	— Plug Assembly
PRI	— Primary
PS	— Power Supply
PSIO	— Processor Module
PW	— Part Wind Start
PWR	— Power
R	— Red (Light)
RBPL	— Relay Board Plug
RES	— Resistor
SEC	— Secondary
SN	— Sensor (Toroid)
SNB	— Snubber
SPT	— Suction Pressure Transducer
SW	— Switch
T1, T2, etc.	— Thermistor Numbers
TB	— Terminal Block
TDR	— Time Delay Relay
TEMP	— Temperature

LEGEND

TRAN	— Transformer
TXV	— Thermostatic Expansion Valve
U	— Unloader
VAC	— Volts Alternating Current
VDC	— Volts Direct Current
XL	— Across-the-Line Start

	Terminal Block Connection
	Marked Terminal
	Unmarked Terminal
	Unmarked Splice
	Marked Wire
	Marked Splice
	Factory Wiring
	Field Control Wiring
	Field Power Wiring
	Indicates Common Potential Does Not Represent Wiring
	Accessory or Option Wiring

GENERAL NOTES

- Fan motors are thermally protected. All fan motors are protected against primary single-phasing conditions.
- Replacement of original wires must be with type 105 C wire or its equivalent.
- Numbers on the right side of label diagrams indicate line reference points for locating applicable contacts. An underlined number signifies normally closed contacts. A number not underlined signifies normally open contacts. Line numbers are shown on the left side of the diagrams.
- Factory wiring is in accordance with NEC. Field modifications or additions must be in compliance with all applicable codes.

- Wiring for main field power supply must be rated 75 C minimum.

- Unit Sizes 040-070:** For 208/230-, 460-, and 575-v units, minimum wire amps and maximum fuse size is 20 amps for 115-v control power. For 380-, 380/415- and 346-v units *with* cooler heaters, minimum wire amps and maximum fuse size is 10 amps for 230-v control power; *without* cooler heaters, minimum wire amps and maximum fuse size is 5 amps for 230-v control power. A dual element fuse should be used. Use copper conductors only at TB4 terminals 1 and 2.

Unit Sizes 080-110: Power for control circuit should be supplied from a separate source through a field-

supplied disconnect with 30 amp maximum protection for 115-v control circuit, and 15 amp maximum protection for 230-v control circuit. For 380-, 380/415- and 346-v units *with* cooler heaters, minimum wire amps and maximum fuse size is 15 amps for 230-v control power, *without* cooler heaters, minimum wire amps and maximum fuse size is 5 amps for 230-v control power. Connect control circuit power to terminals 1 and 2 of TB4. Connect neutral side of supply power to terminal 2 of TB4. Control circuit conductors for all units must be copper only.

7. **30GT Units:** Terminals 3 and 4 on TB6 are for field connection of any combination of CWFS, remote ON-OFF, and CWPI. The contacts must be rated for dry circuit application capable of handling a 5 vdc 1 mA to 20 mA load. Remove jumper between terminals 3 and 4 of TB6 if remote ON-OFF switch is installed.

30GN Units: Terminals 1, 2, 3, and 4 of TB6 are for field external interlock connection of remote ON-OFF, CWFS and CWPI. Terminals 1 and 2 are for remote ON-OFF connection. Terminals 3 and 4 are for CWFS and CWPI connection. The contacts must be rated for dry circuit application capable of handling a 5 vdc 1 mA to 20 mA load. Remove jumper between terminals 3 and 4 of TB6 if remote ON-OFF switch is installed.

8. **30GT Units:** Terminals 1 and 2 on TB5 are for field remote alarm connections. Remove resistor across terminals 1 and 2 on TB5 when installing remote alarm. Maximum load is 75 va sealed, 360 va inrush. Electrical rating for remote alarm is 115-v control power for 208/230-, 460-, and 575-v 60 Hz units, and 230-v control power for 346- and 380/415-v 50 Hz, and 380-v 60 Hz units.

30GN Units: 115-v or 230-v control circuit power is supplied from a separate source through a field-supplied disconnect within sight from the unit and readily accessible. Terminals 1 and 2 of TB3 are for control of remote alarm function. Terminals 3 and 4 of TB3 are for control of chilled water pump starter. The maximum allowable load from each of these circuits is 125 va sealed, 1250 va inrush at 115 or 230 v.

9. Maximum wire size unit terminal block will accept is 500 kcmil. All units may use copper conductors. Copper-clad aluminum or aluminum conductors can also be used on all units except 30GN,GT110 346-3-50 part-wind start and across-the-line start units, and 30GN,GT110 380/415-3-50 part-wind start units.

For 208/230-3-60 units, larger than 500 kcmil conductors are required. Therefore, power must be supplied by 6 parallel conductors for these units, from the appropriate disconnect(s).

10. All units have single-point power connections to simplify field wiring (all power enters the unit at one end).
11. Main power must be supplied to the unit through a field-supplied fused disconnect, within sight from the unit and easily accessible, in accordance with NEC.
12. The control circuit power supplies power to the compressor crankcase heaters, cooler heater (if equipped), processor board heater (30GT), and convenience outlet (on 60 Hz units only, accessory on 040-070 sizes), and has the power requirements shown below.
13. Compressor crankcase heaters are always on when the compressor is off. The cooler heaters (if equipped) and the processor board heater (30GT only) are controlled by an ambient switch set to turn the heaters on below 36 F (2.2 C).
14. The condenser fans, CPCS compressor protection boards (on 070 50 Hz units, and 040-070 60 Hz units), unloaders, alarm light (30GT), control relays (on 040-060 50 Hz, and 040-070 60 Hz units), liquid line solenoids (30GT TXV units only), and display are controlled by the microprocessor.
15. To reset a safety on Flotronic™ chillers, the ON-OFF switch must be turned OFF and ON again. To reset a safety on Flotronic II chillers, **LOCAL/ENABLE-STOP-CCN switch must be switched to STOP position, then back to LOCAL or CCN as required. Alarm light (30GT) will always be energized when a safety has been tripped.**
16. The control will automatically restart unit at zero capacity after a power failure.
17. On 30GN,GT080-110 units, and 070, 50 Hz units, the compressors are protected against shorts-to-ground by the CPCS. The device is set to trip when the current to ground exceeds 2.5 amps. On other size units, CPCS is provided as an accessory.
18. All compressor circuit breakers must trip amps are equal to or less than 156% of the rated load amps.
19. These units are suitable for use on electrical systems where the voltage supplied to the unit terminals is not outside the following limits:

NAMEPLATE VOLTAGE	SUPPLIED RANGE	
	Min	Max
208/230-3-60	187	253
380-3-60	342	418
380/415-3-50	342	440
460-3-60	414	506
346-3-50	325	380
575-3-50	518	633

POWER SUPPLY	CONTROL CIRCUIT			CONTROL CIRCUIT AMPACITY			
				With Cooler Heater		Without Cooler Heater	
	Voltage	Min	Max	040-070	080-110	040-070	080-110
208/230-3-60	115-1-60	104	127	20	30	20	30
460-3-60	115-1-60	104	127	20	30	20	30
575-3-60	115-1-60	104	127	20	30	20	30
380-3-60	230-1-60	207	254	10	15	5	5
346-3-50	230-1-50	198	254	10	15	5	5
380/415-3-50	230-1-50	198	254	10	15	5	5

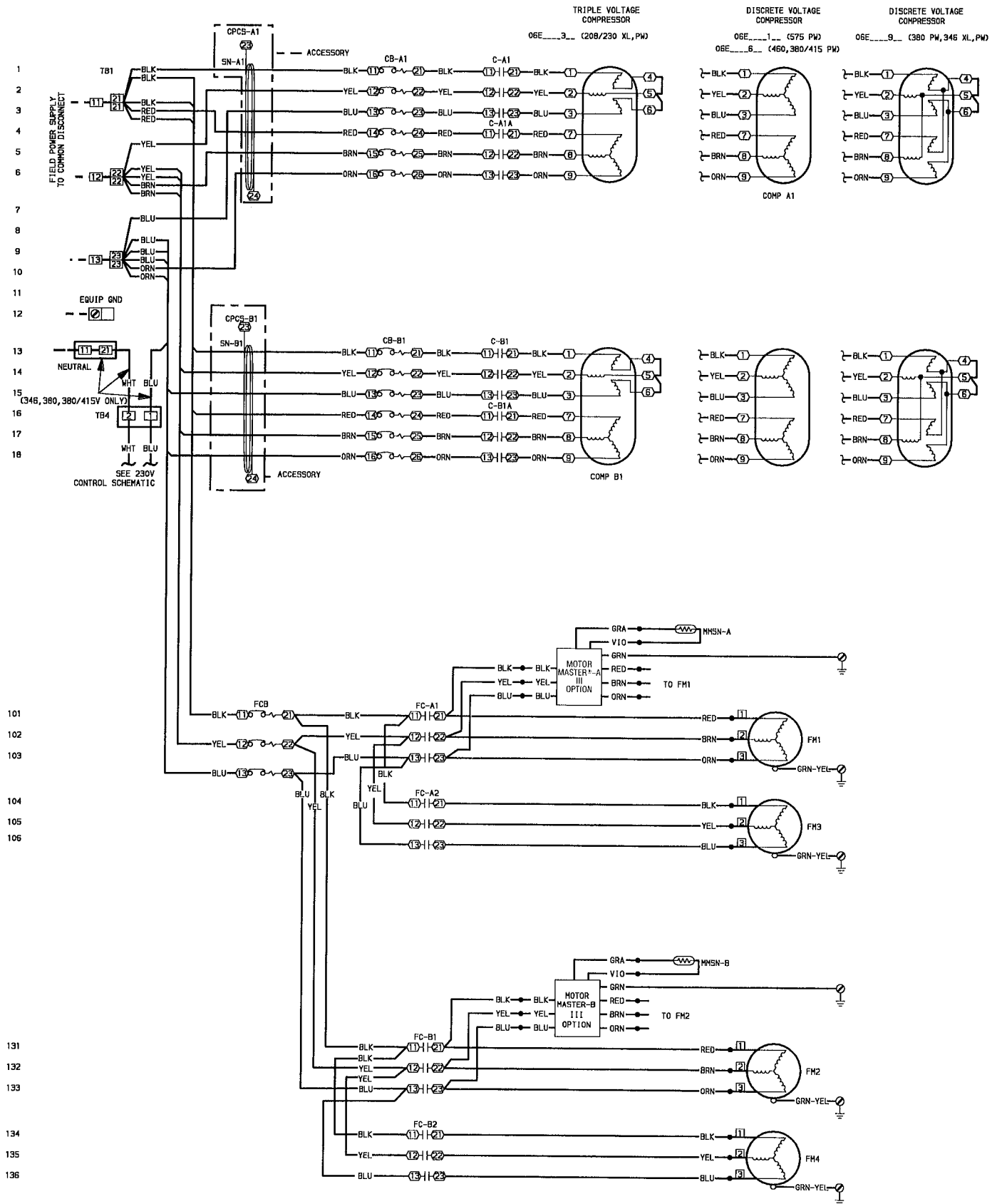


Fig. 1 — Power Schematics; 30GN,GT040-050;
208/230, 346 v - XL, PW; 380, 380/415, 460, 575 v - PW

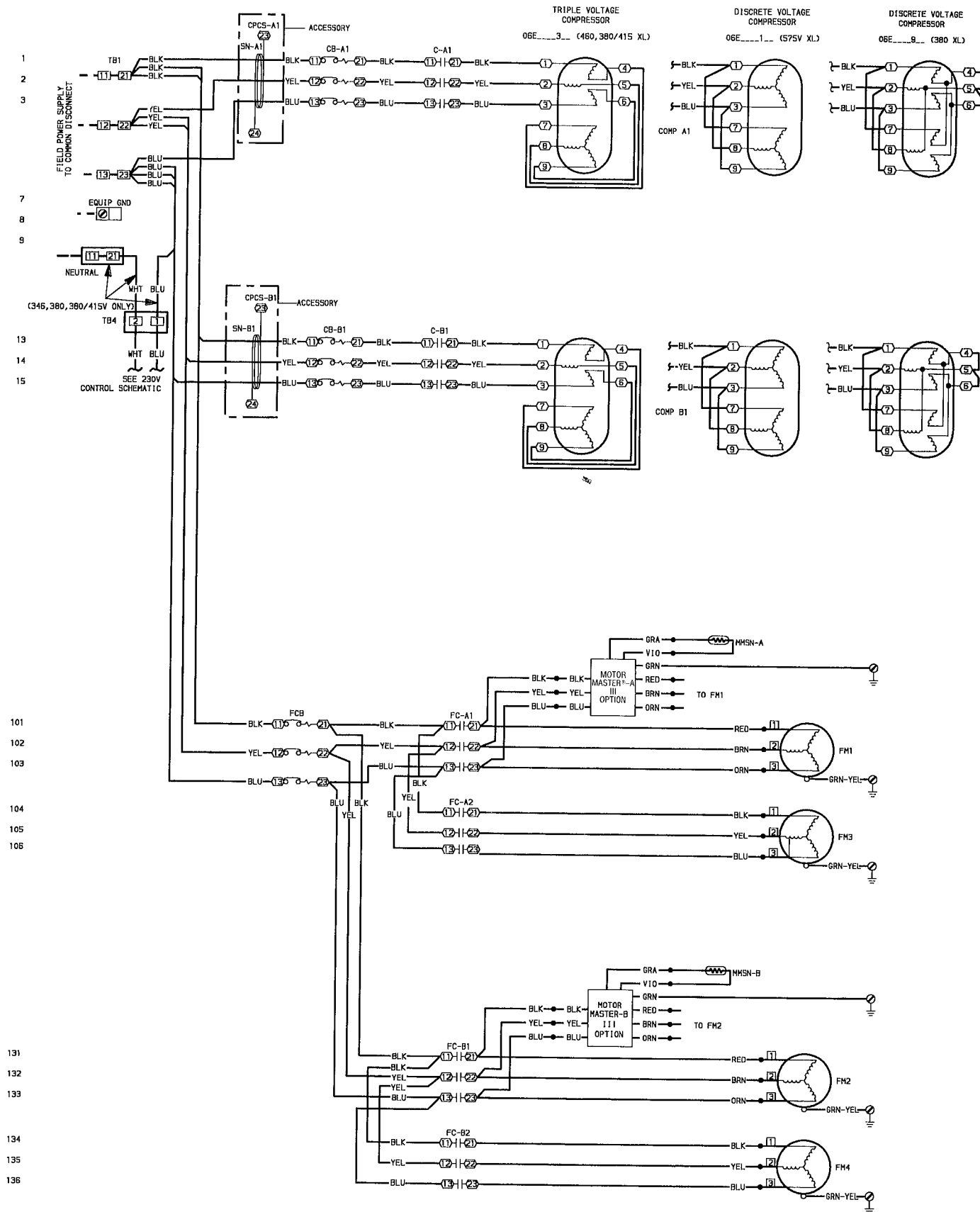


Fig. 2 — Power Schematics; 30GN,GT040-050;
380, 380/415, 460, 575 v - XL

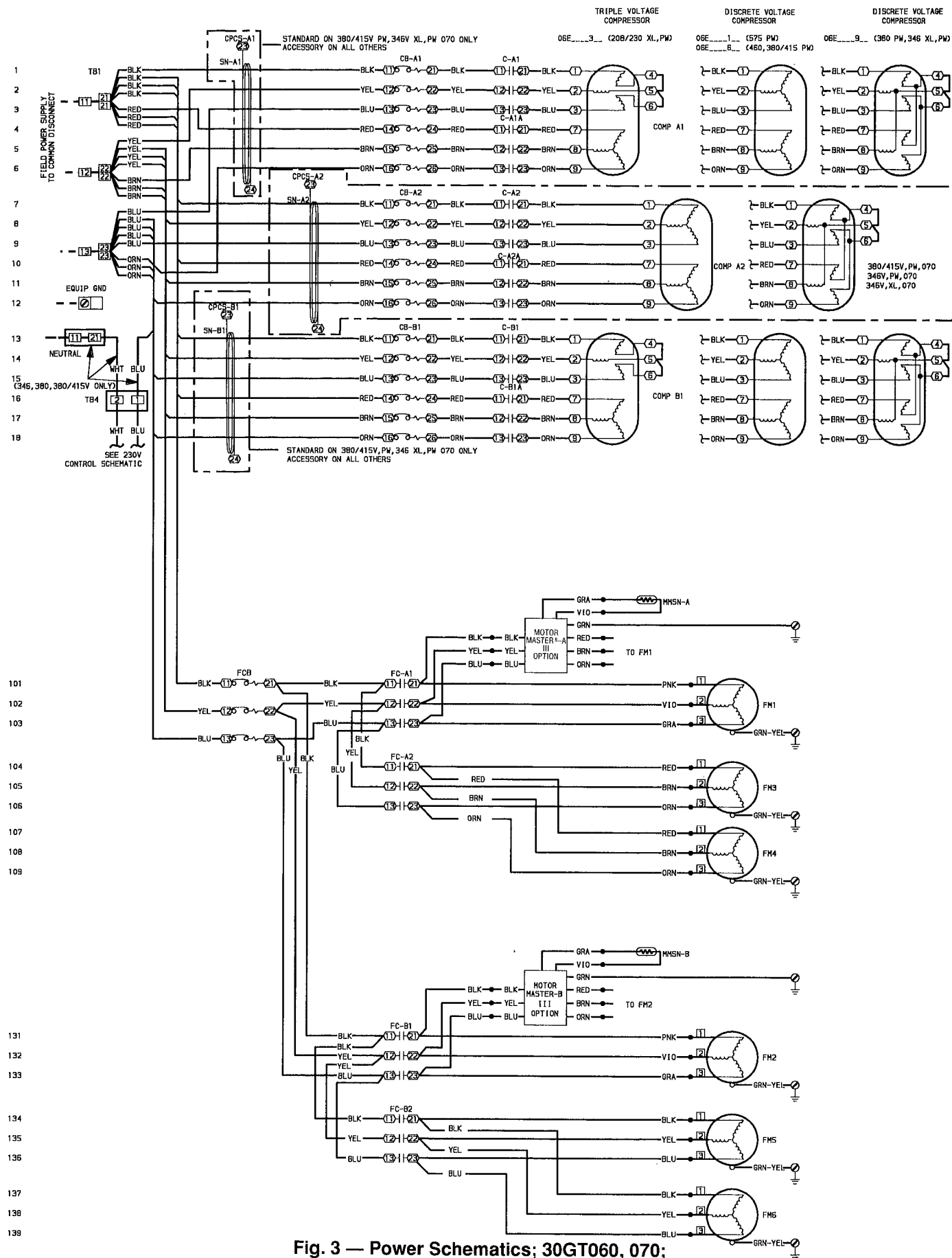


**Fig. 3 — Power Schematics; 30GT060, 070;
208/230, 346 v - XL, PW; 380, 380/415, 460, 575 v - PW**

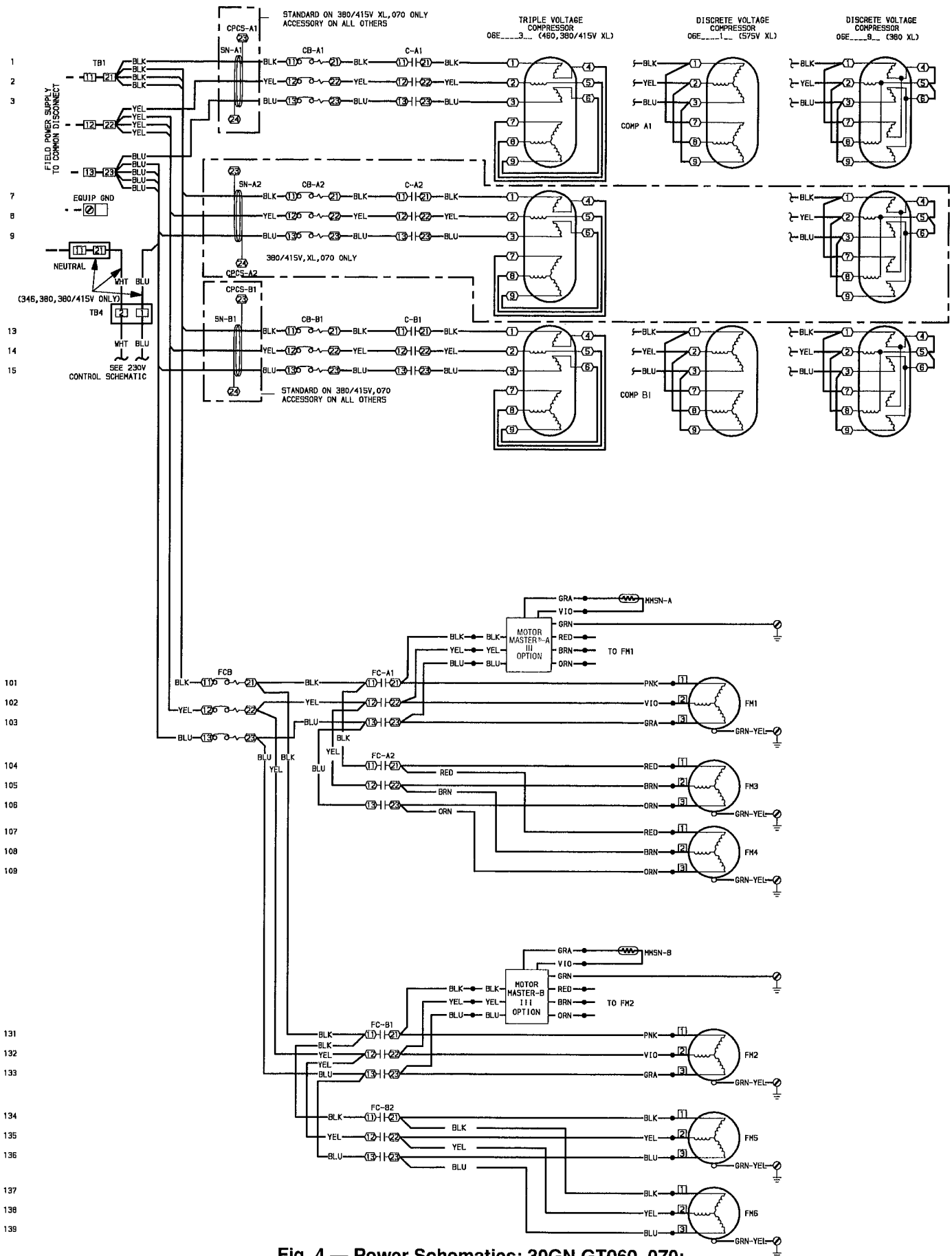


Fig. 4 — Power Schematics; 30GN,GT060, 070;
380, 380/415, 460, 575 v - XL

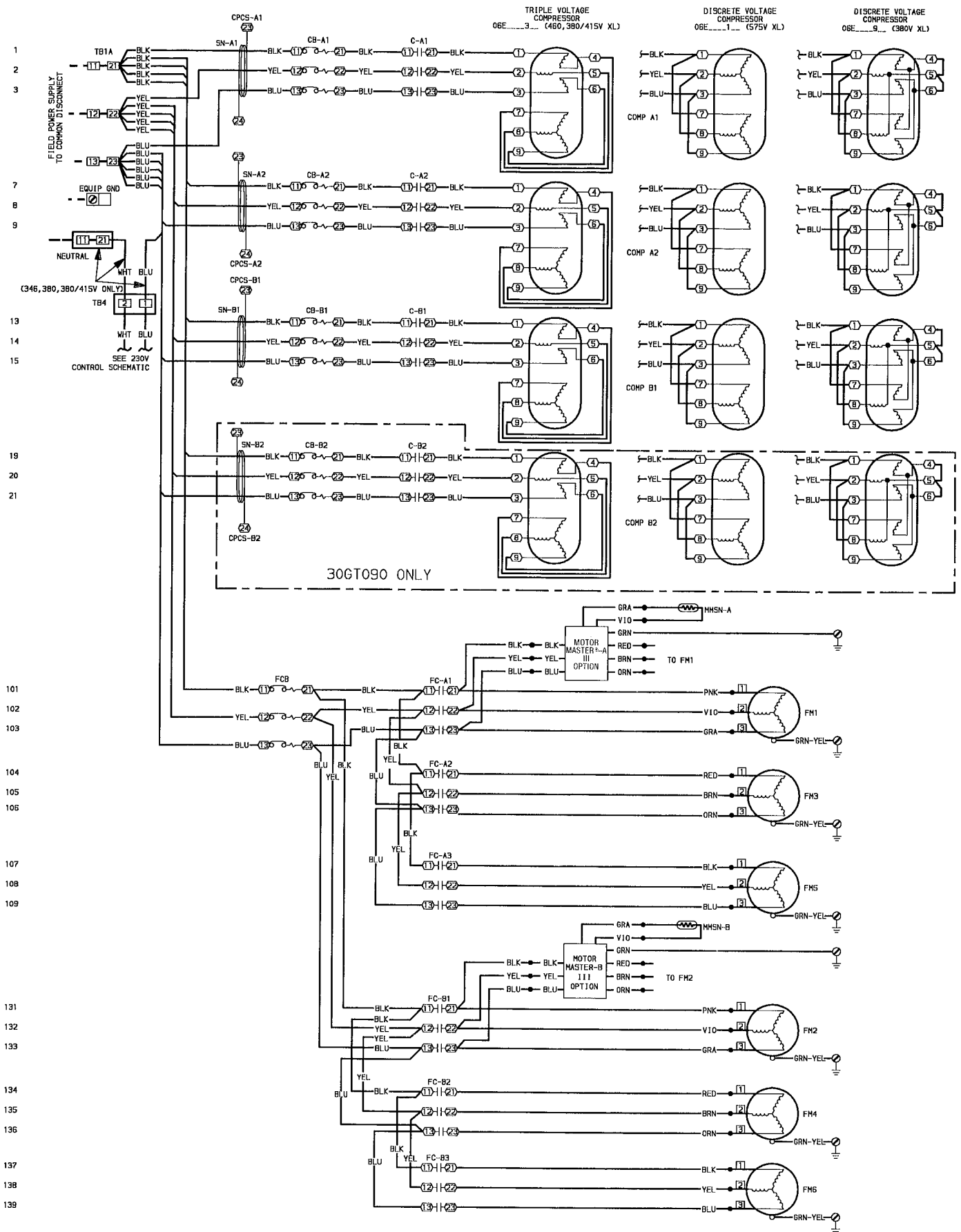
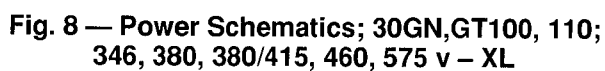


Fig. 6 — Power Schematics; 30GN,GT080, 090;
346, 380, 380/415, 460, 575 v – XL



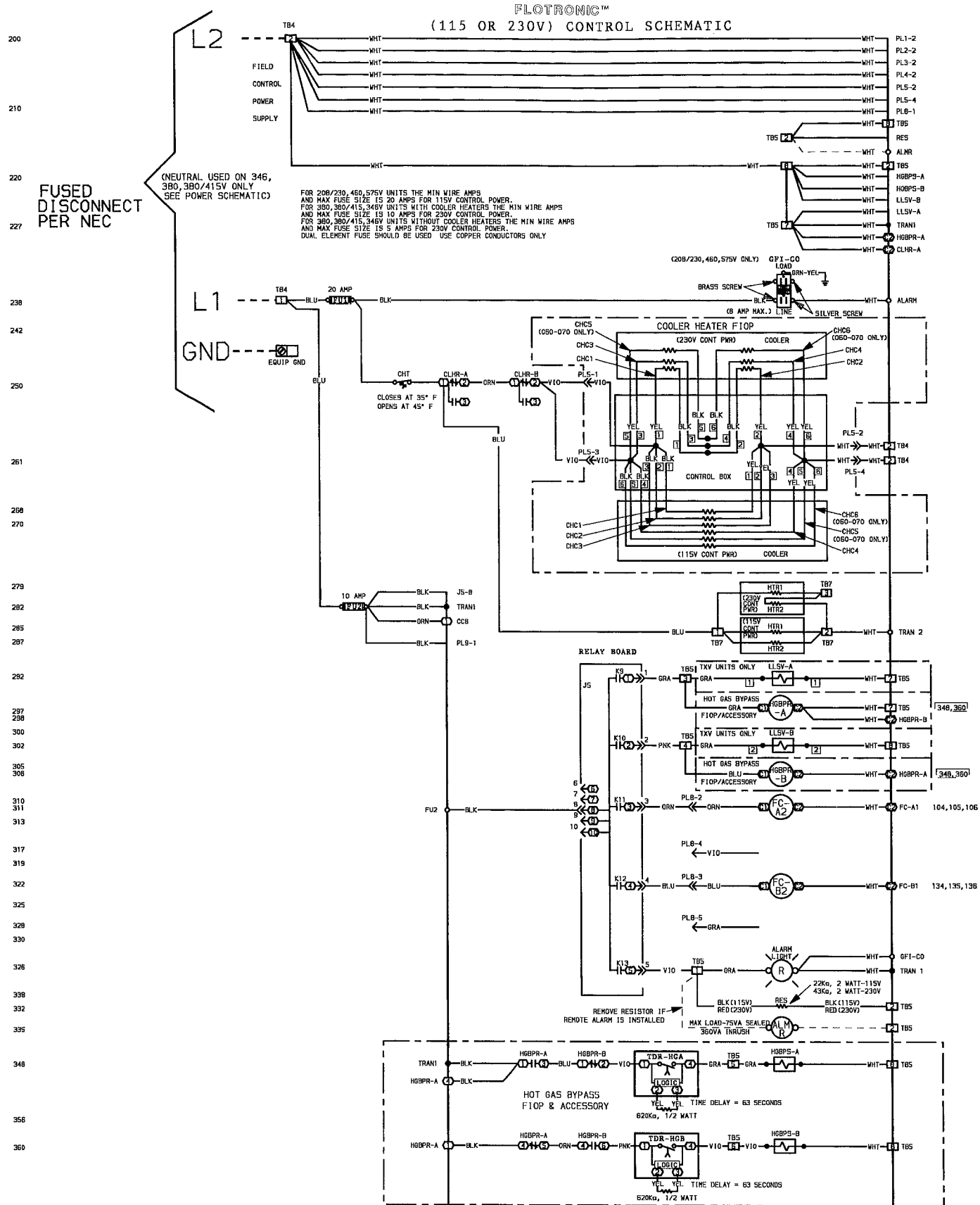


Fig. 9 — Control Label; 30GT040-070; 115, 230 v

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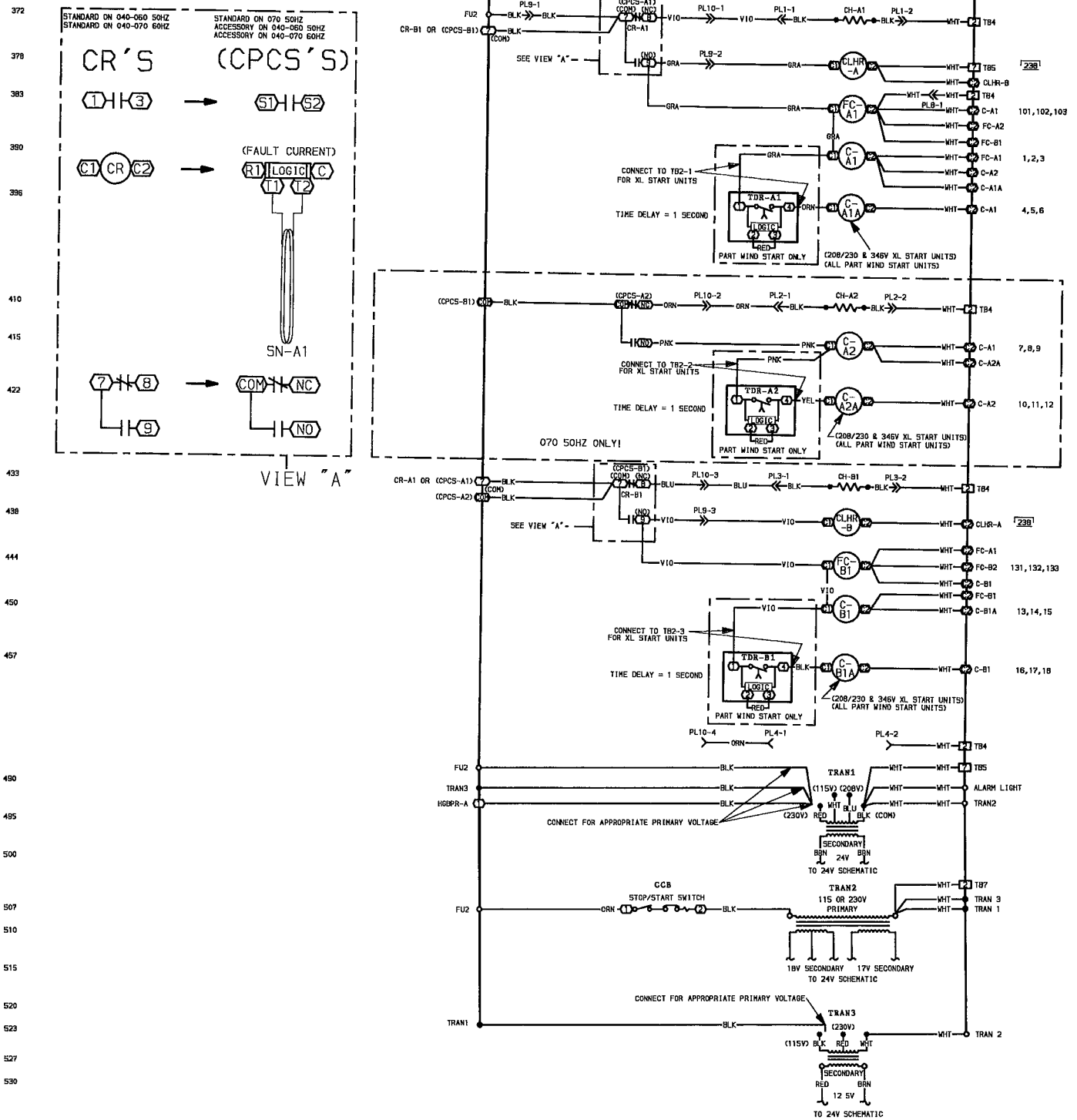
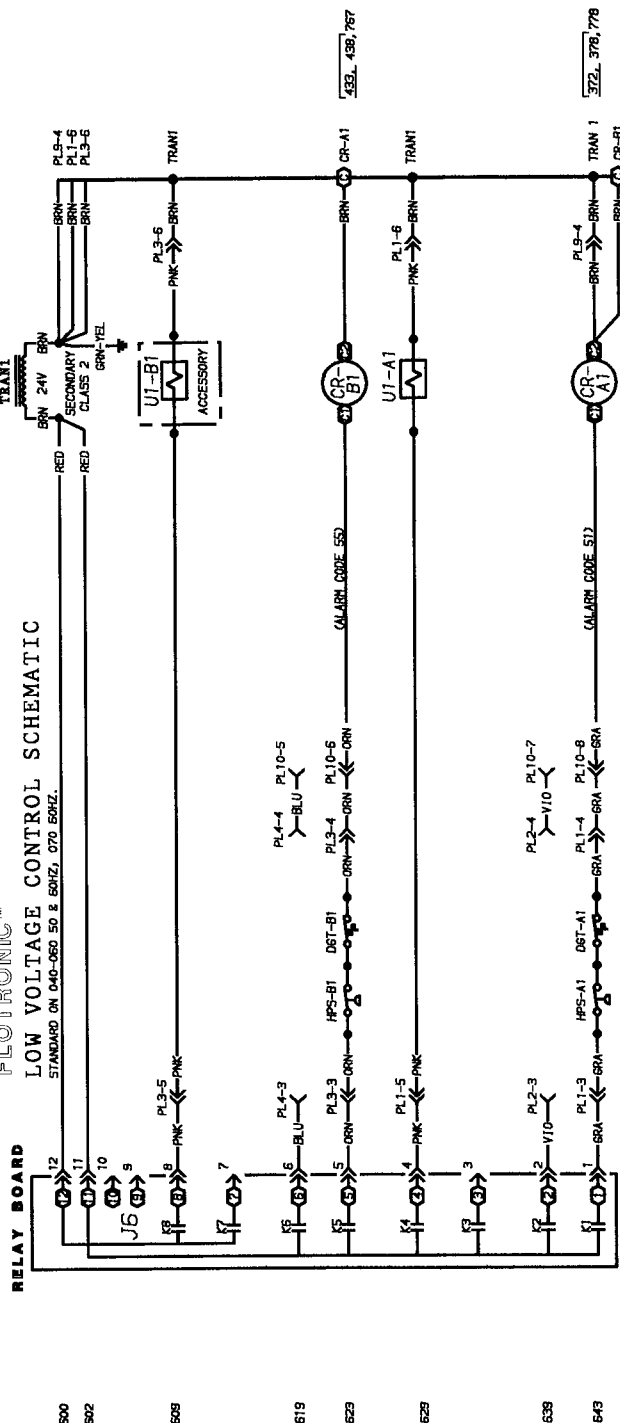


Fig. 9 — Control Label; 30GT040-070; 115, 230 v (cont)

FLOTRONIC™ LOW VOLTAGE CONTROL SCHEMATIC

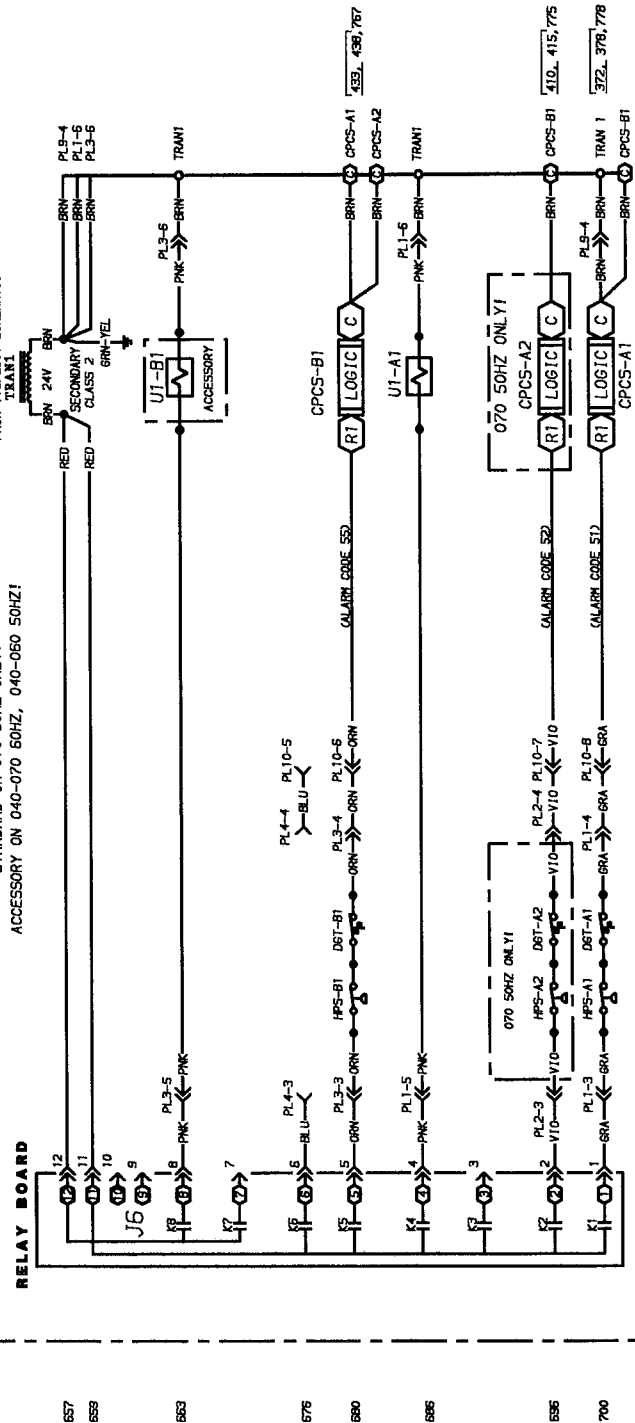
STANDARD ON 040-060 50 & 60HZ, 070 60HZ.

FROM 115/230V SCHEMATIC

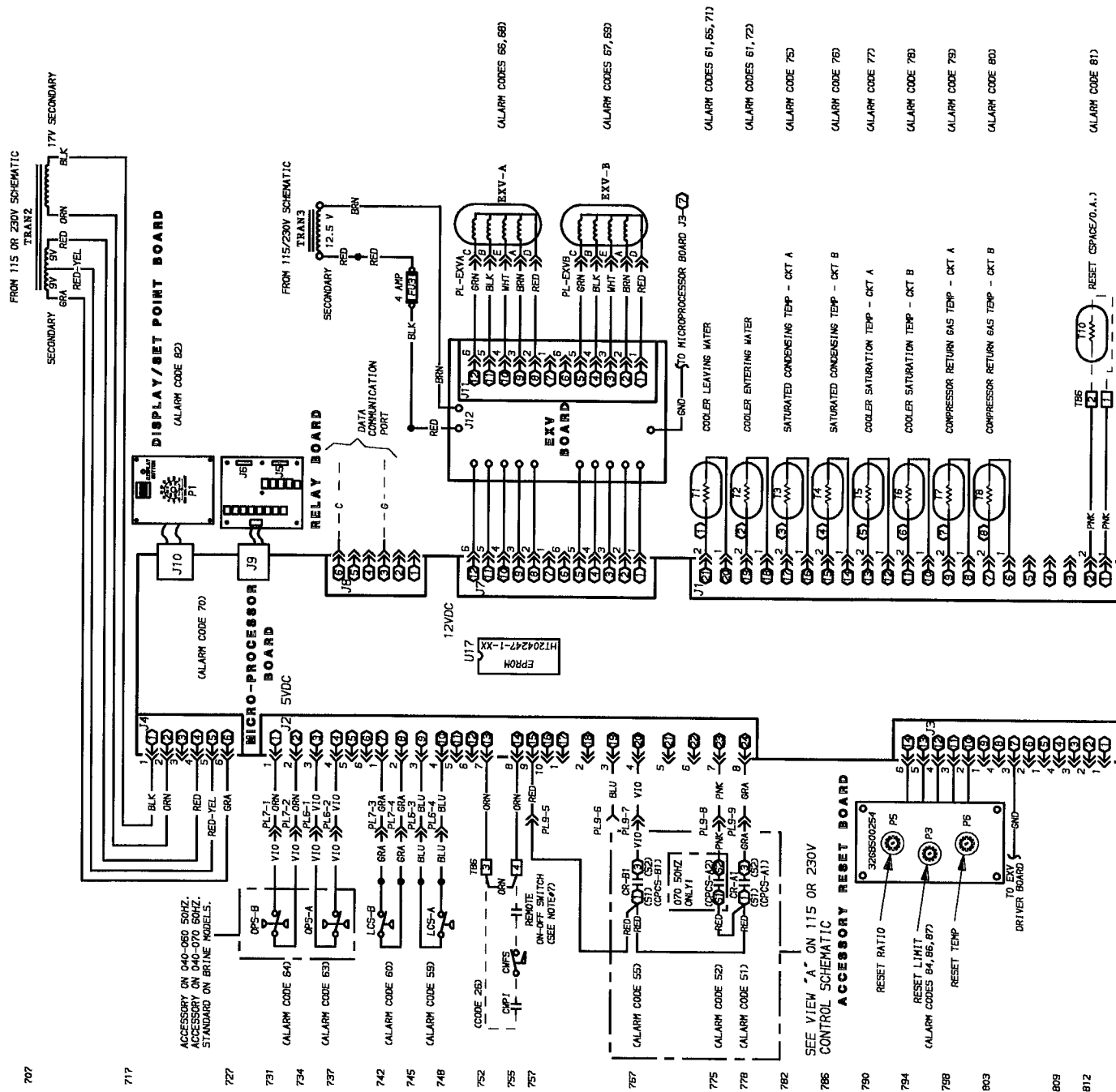


STANDARD ON 070 50HZ ONLY!
ACCESSORY ON 040-070 60HZ, 040-060 50HZ!

FROM 115/230V SCHEMATIC



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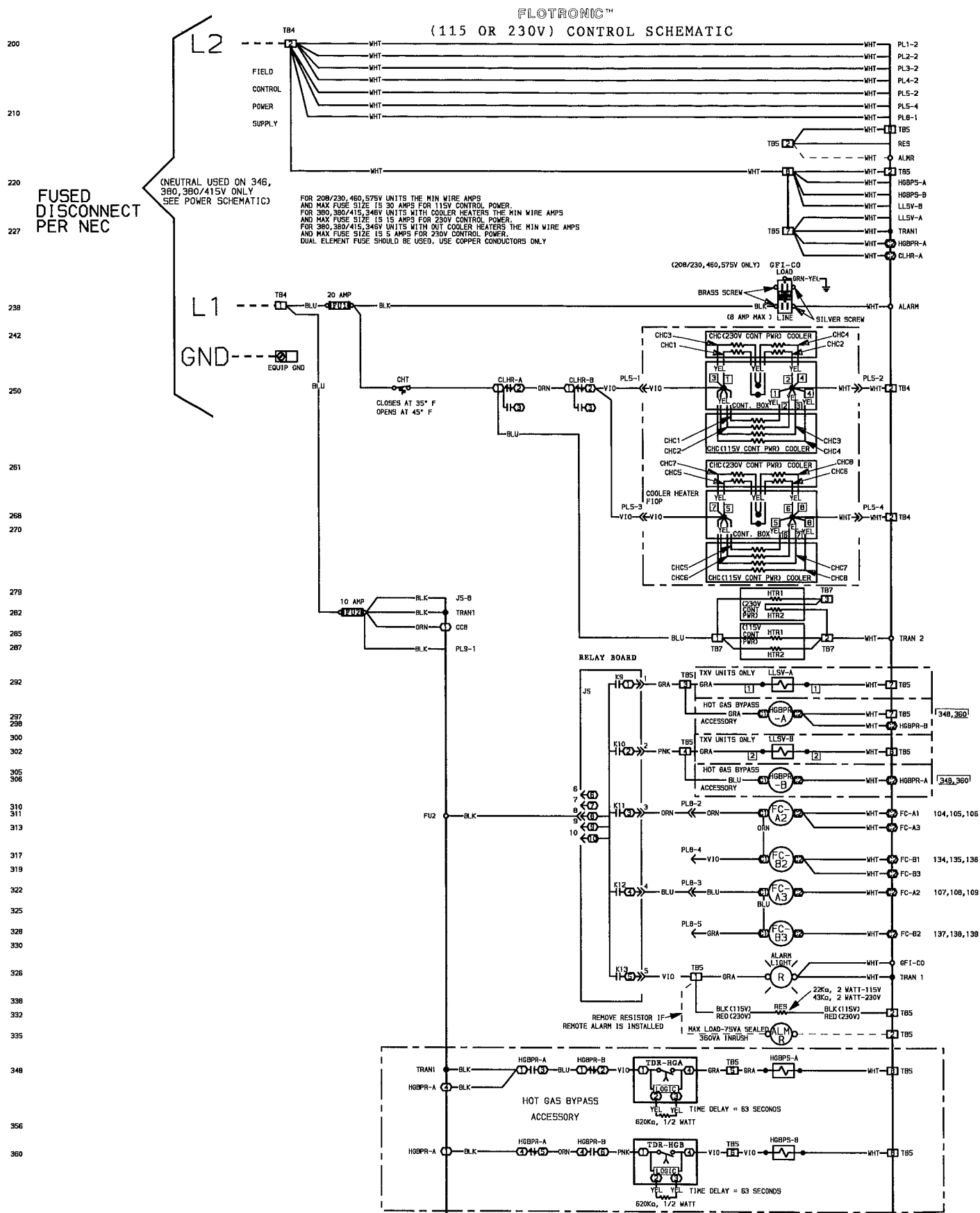
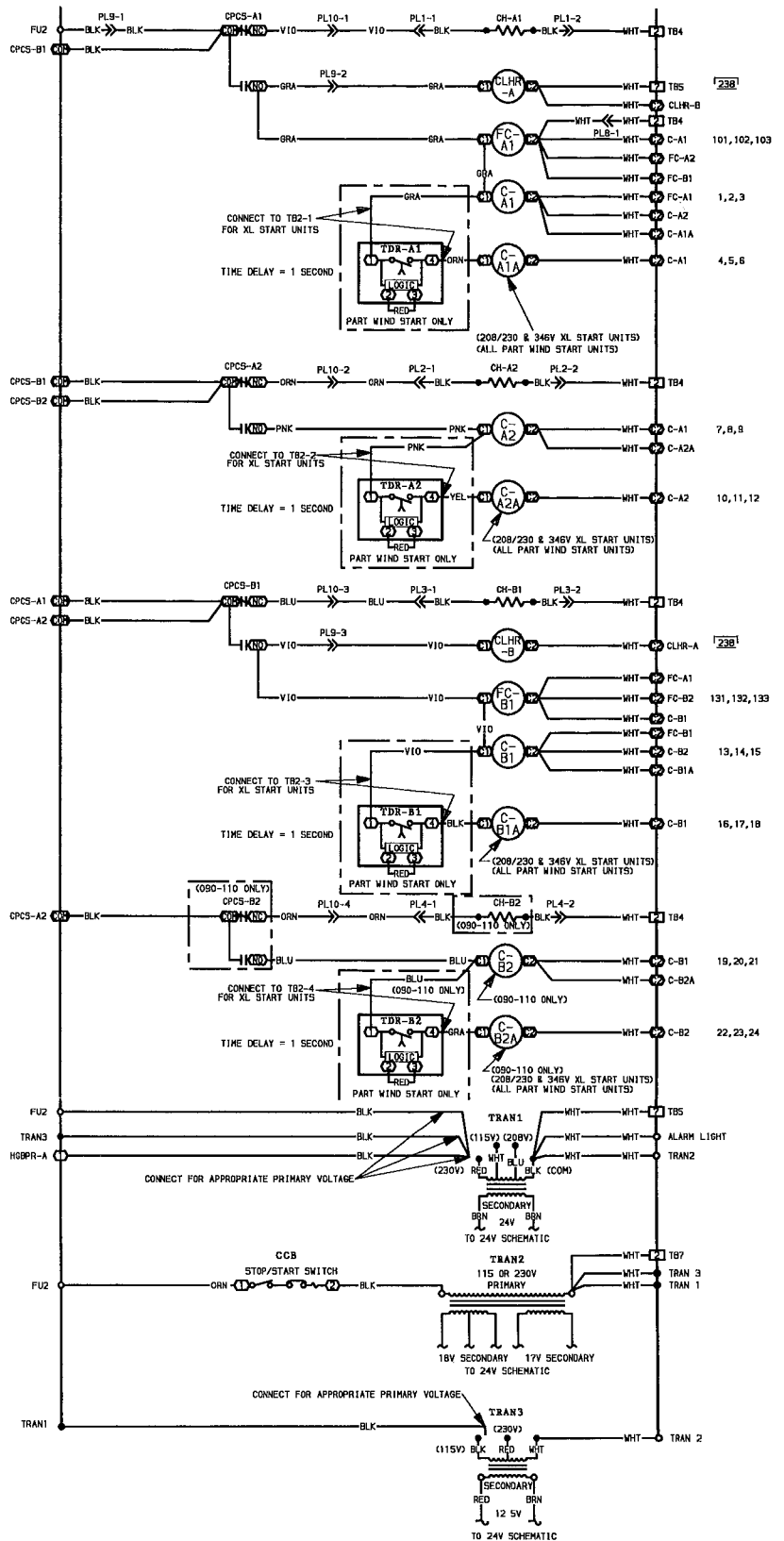


Fig. 11 — Control Label; 30GT080-110; 115, 230 v

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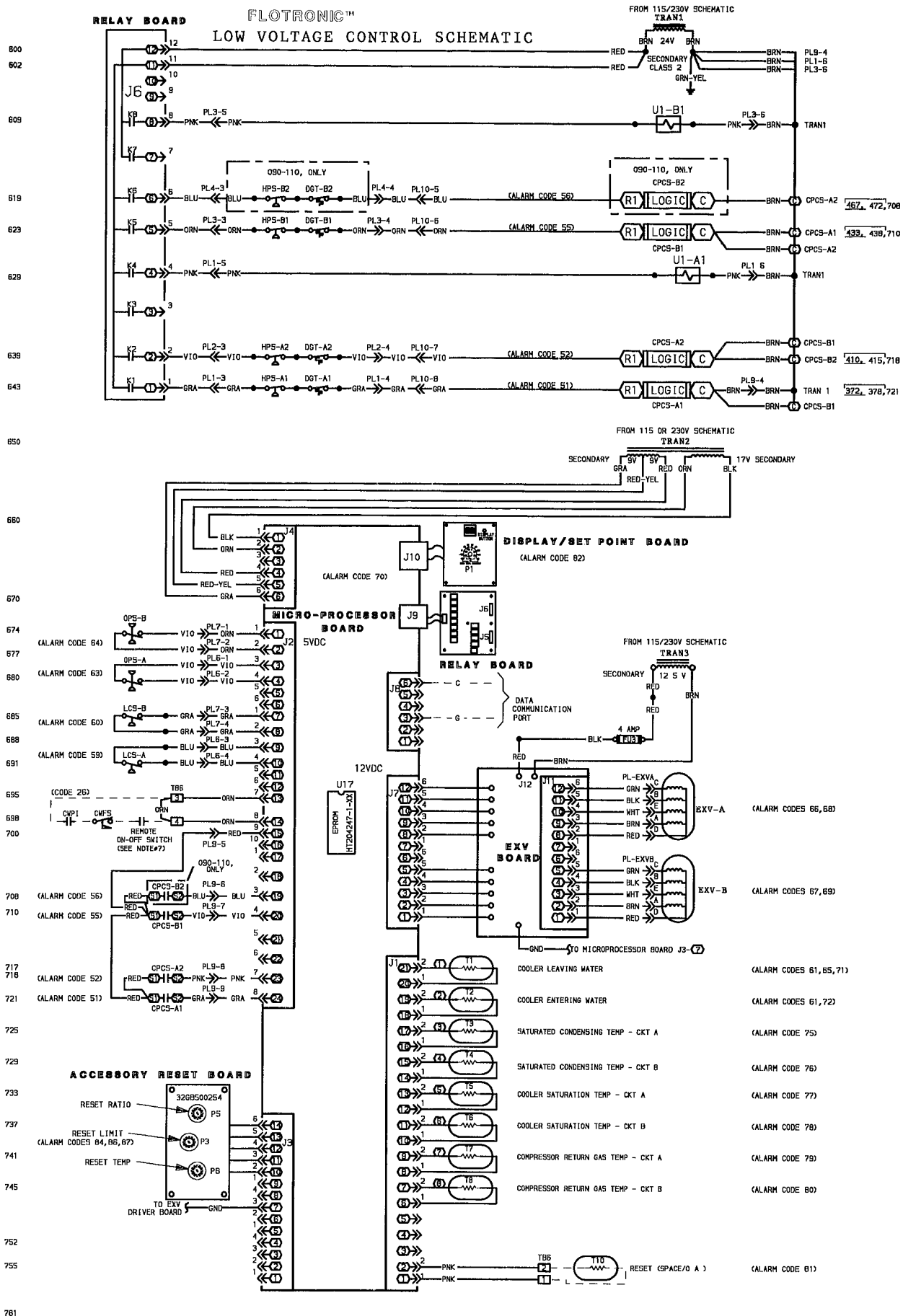


Fig. 12 — Control Label; 30GT080-110; 24 v

PI ELECTRONIC II
(24V) CONTROL SCHEMATIC

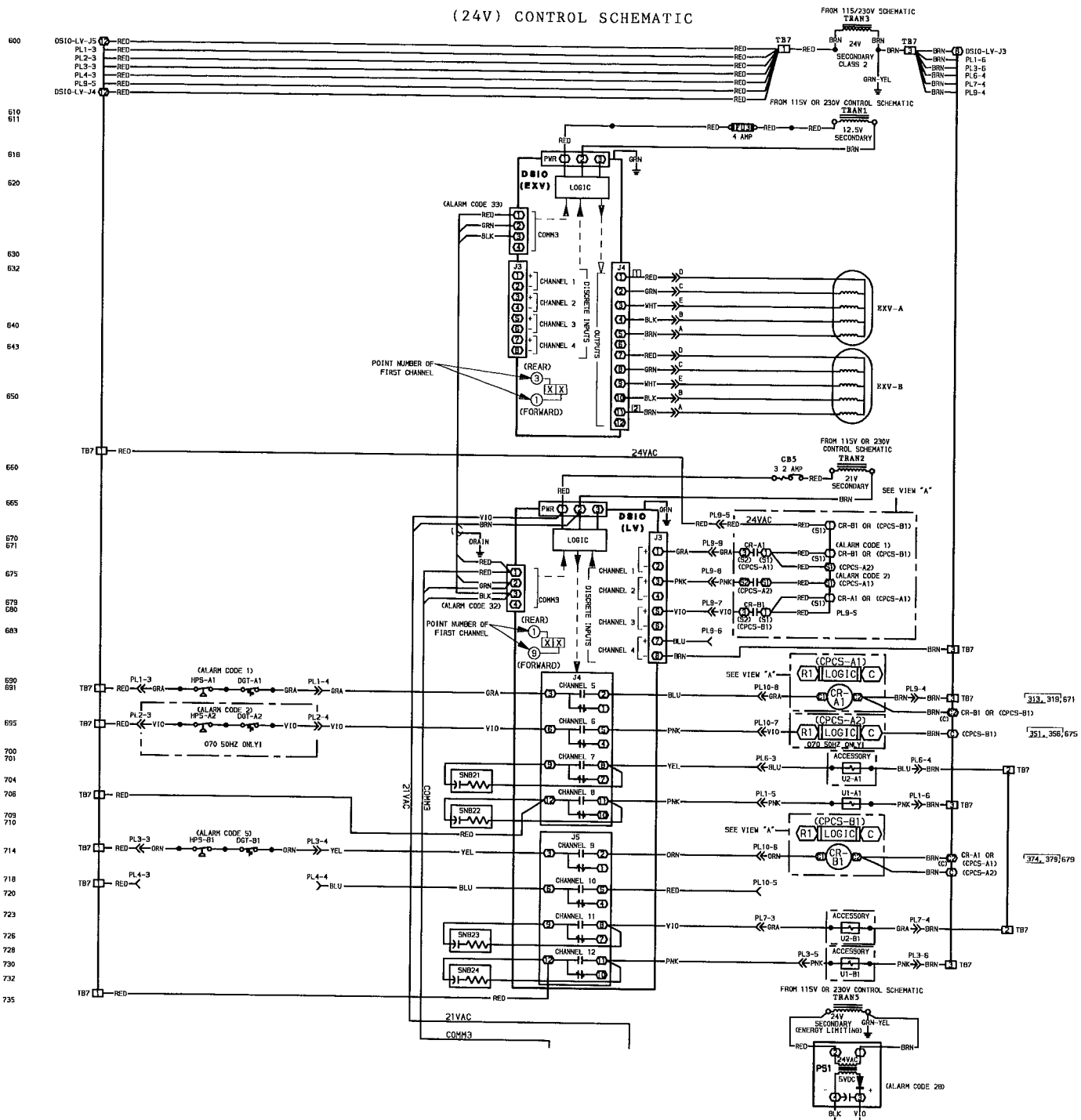


Fig. 14 — Control Lc

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FIOTRONIC™ II
(115 OR 230V) CONTROL SCHEMATIC

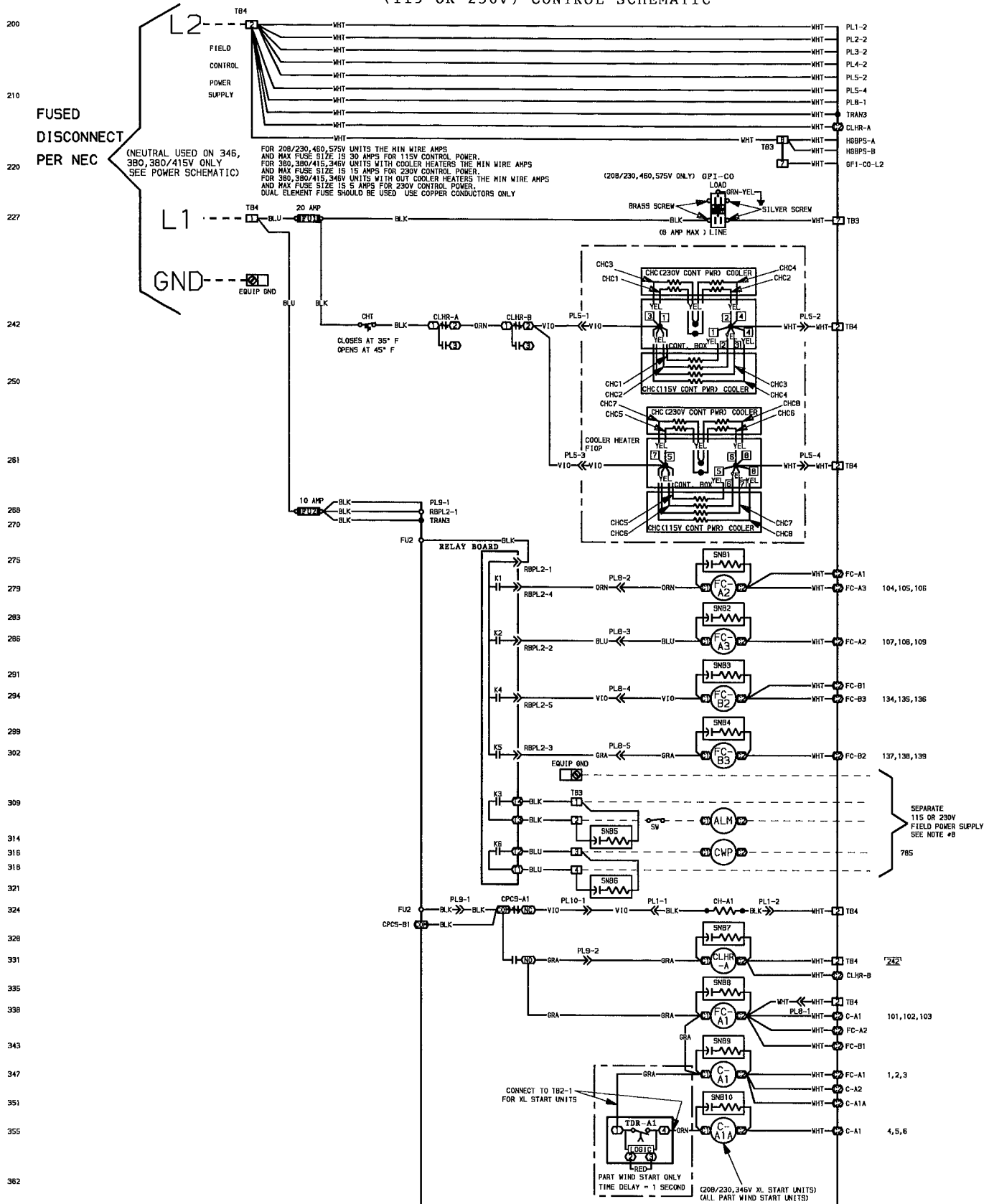
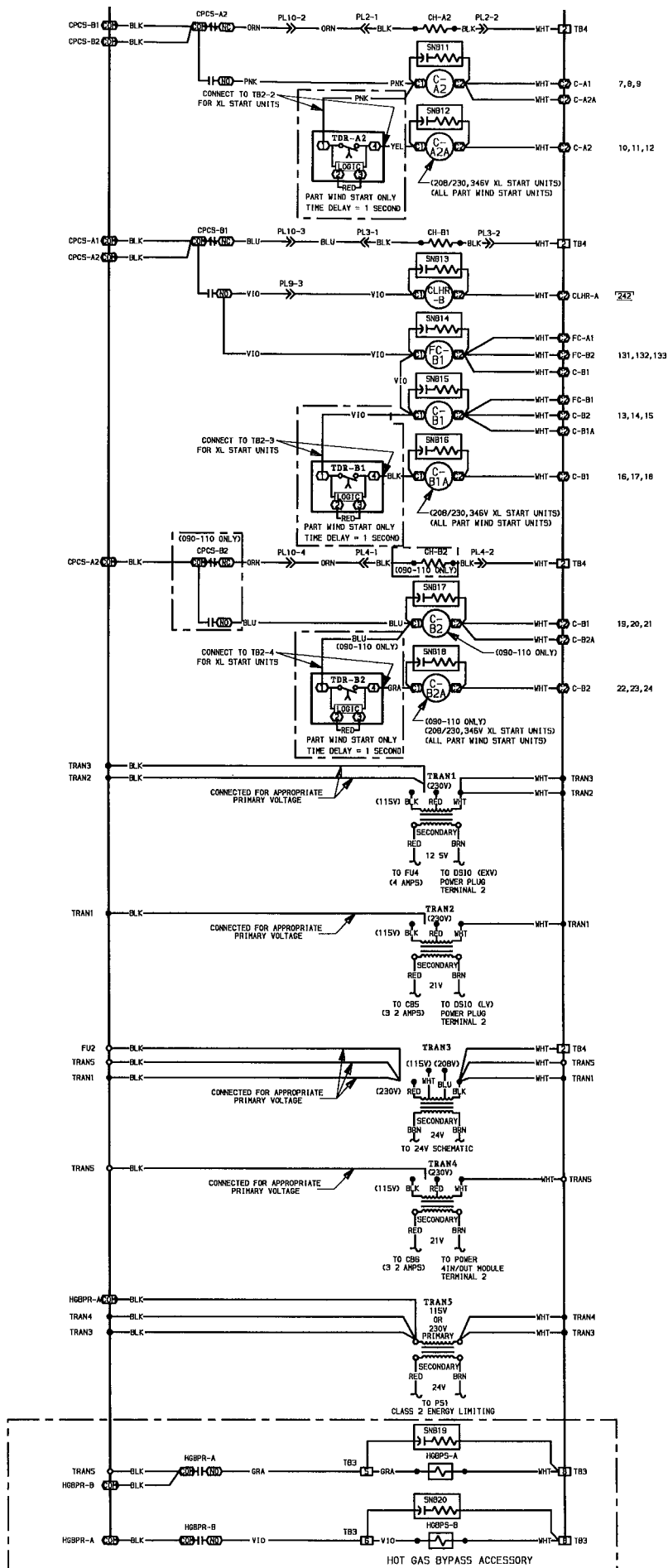


Fig. 15 — Control Label; 30

368
371
375
380
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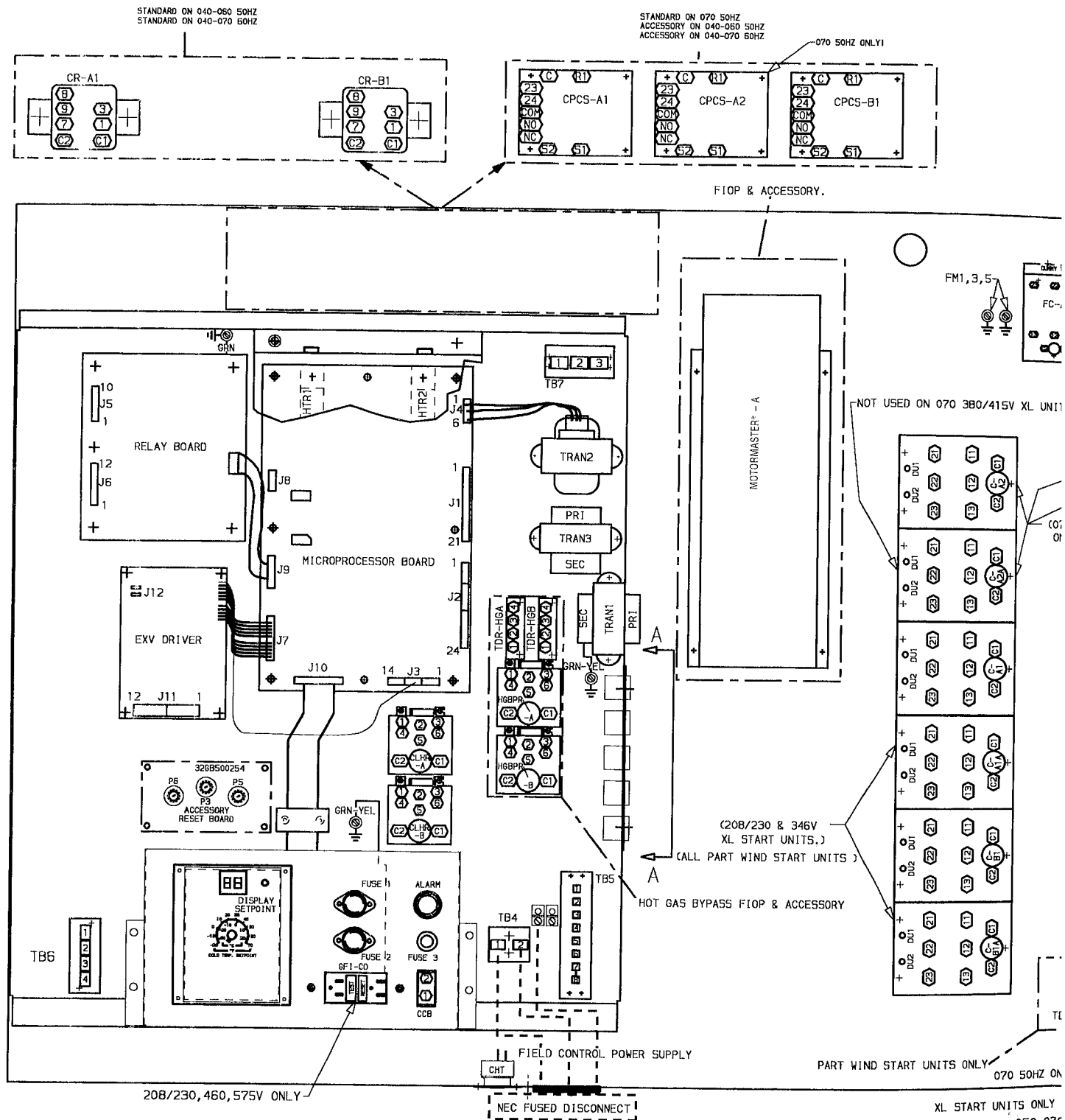
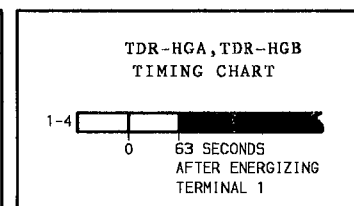
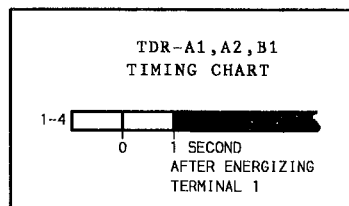
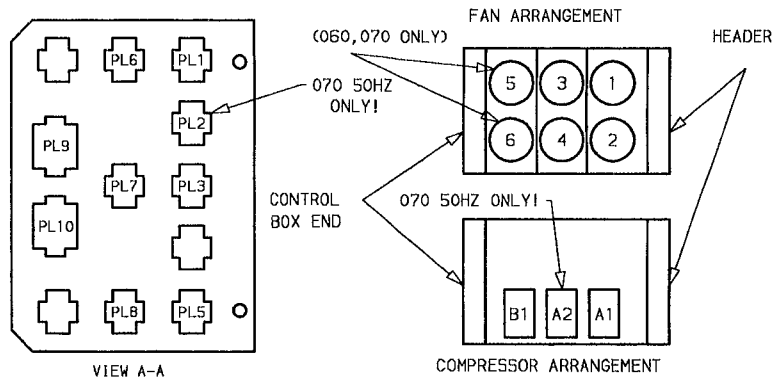
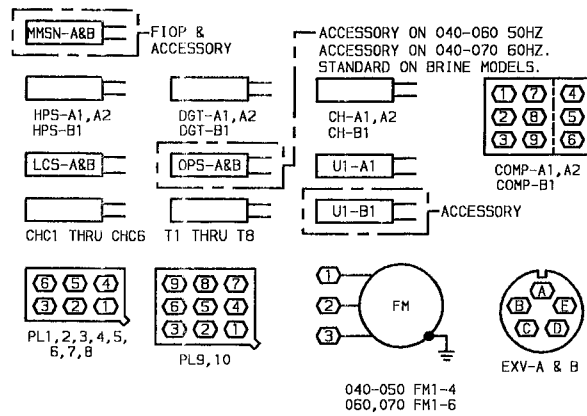
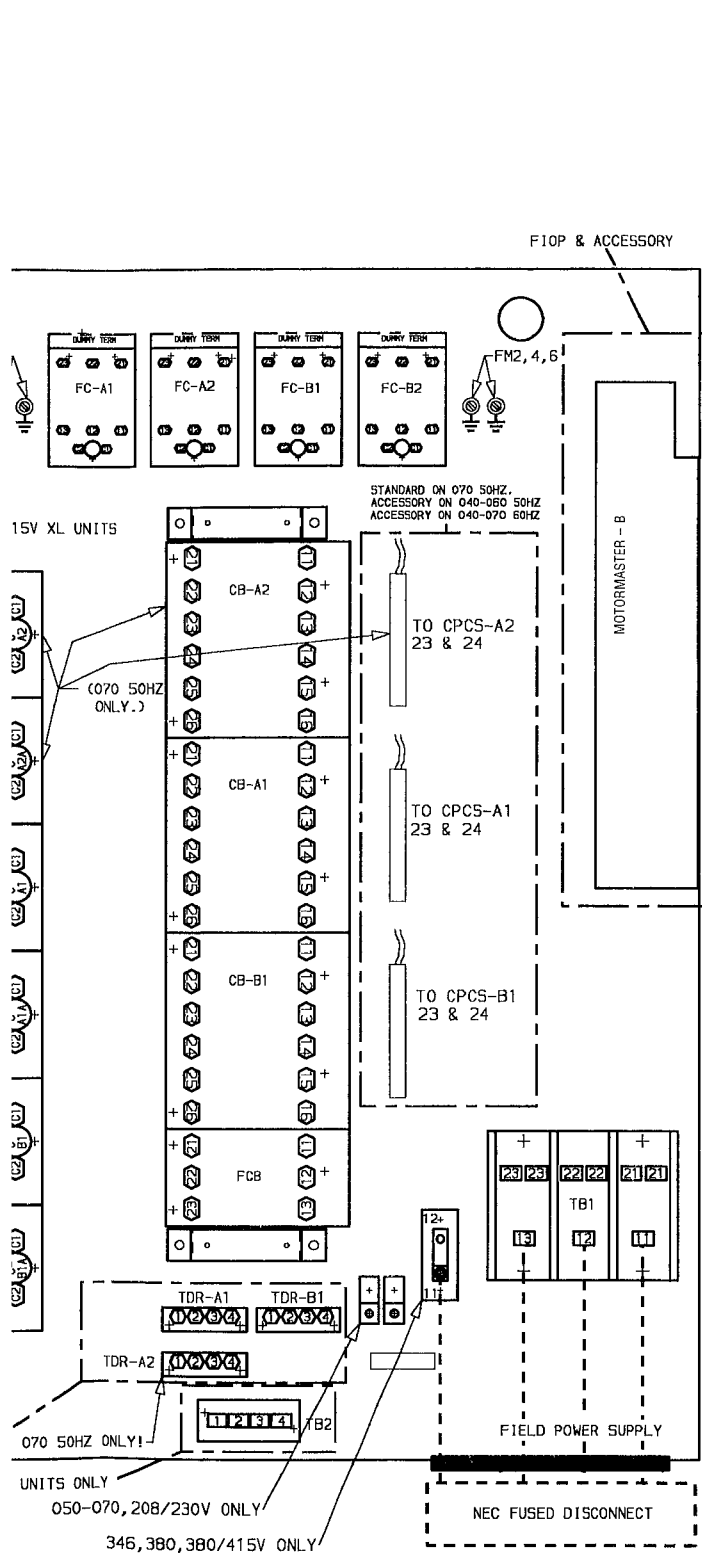


Fig. 17 — Component Arran



nt Arrangement; 30GT040-070

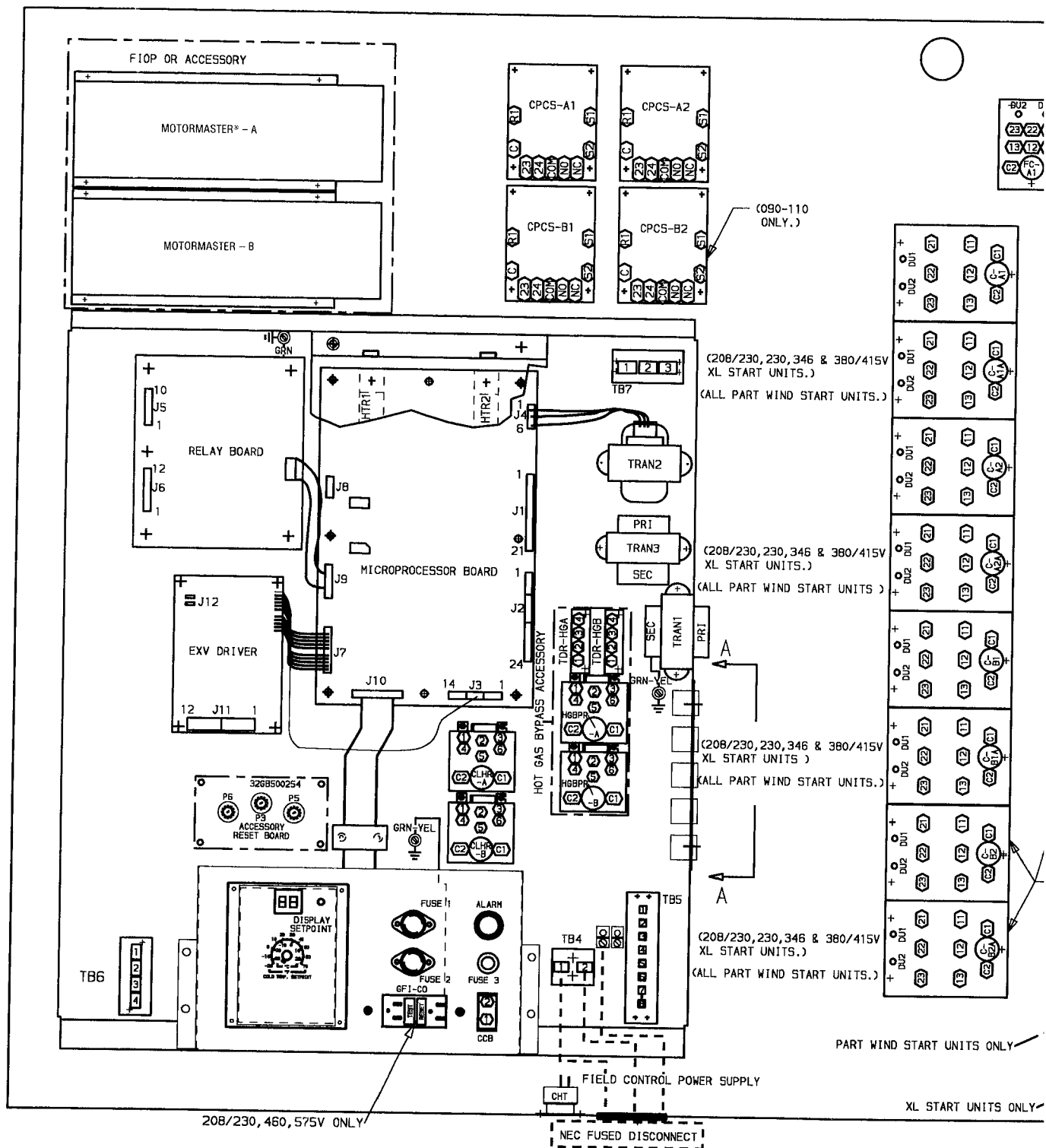
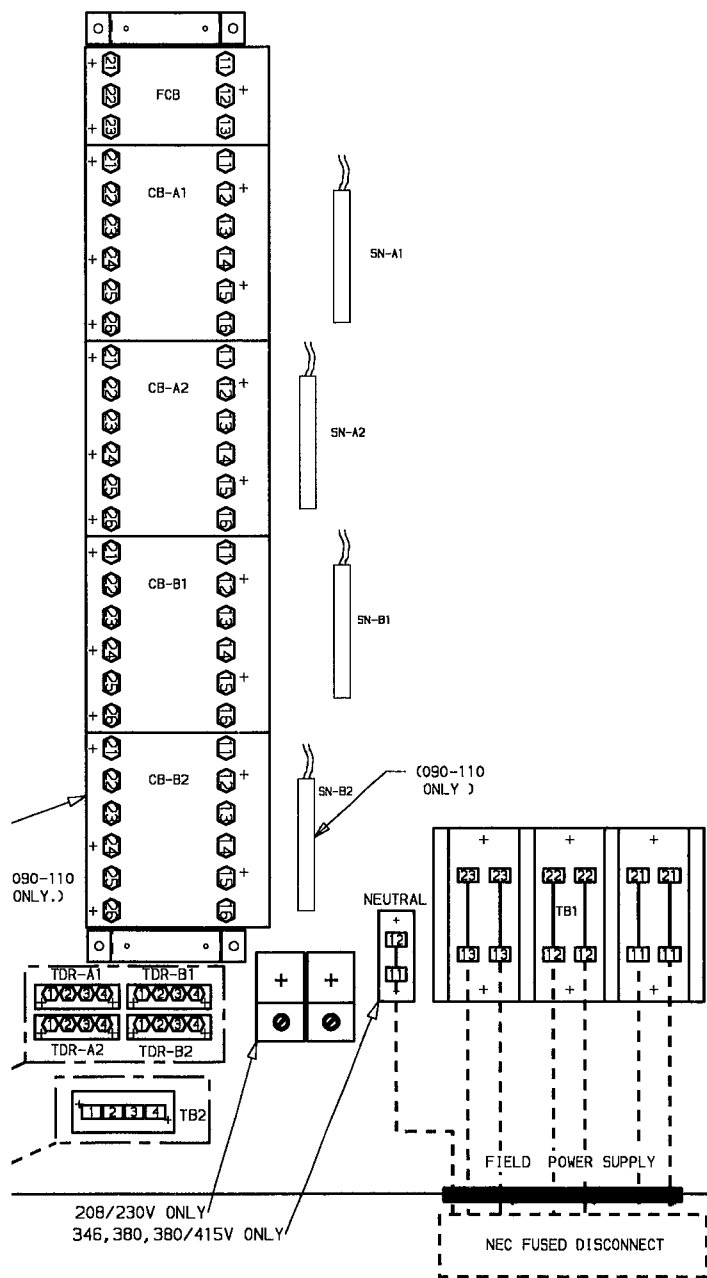
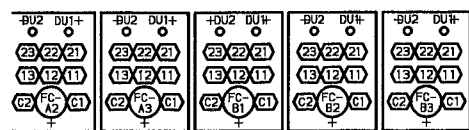


Fig. 18 — Component Arrangement



MMSN-A&B

HP5-A1, A2
HP5-B1, B2

LCS-A&B

CHC1 THRU CHC8

PL1, 2, 3, 4, 5,
6, 7, 8, 12

DGT-A1, A2
DGT-B1, B2

CPS-A&B

T1 THRU T8

PL9, 10

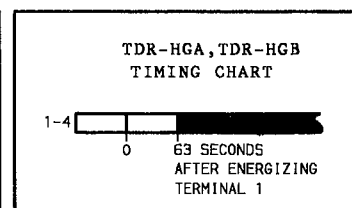
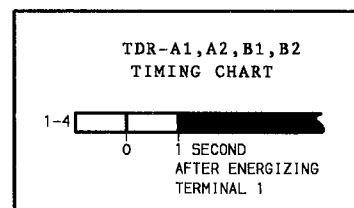
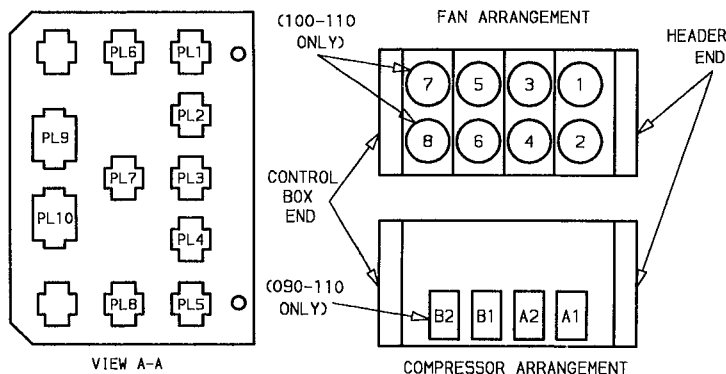
CH-A1, A2
CH-B1, B2

COMP-A1, A2
COMP-B1, B2

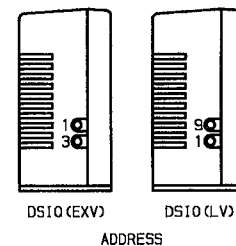
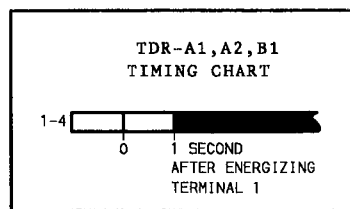
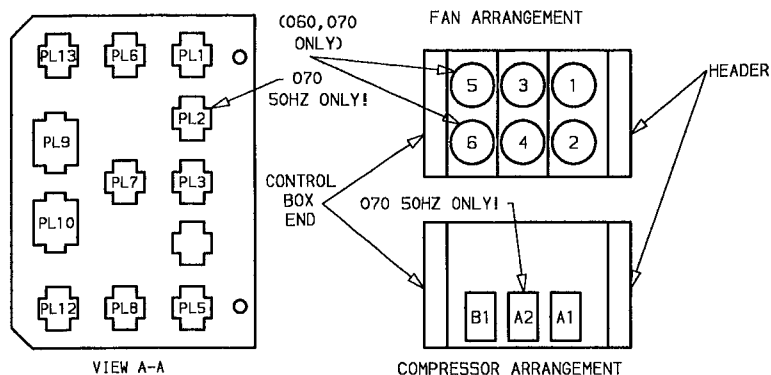
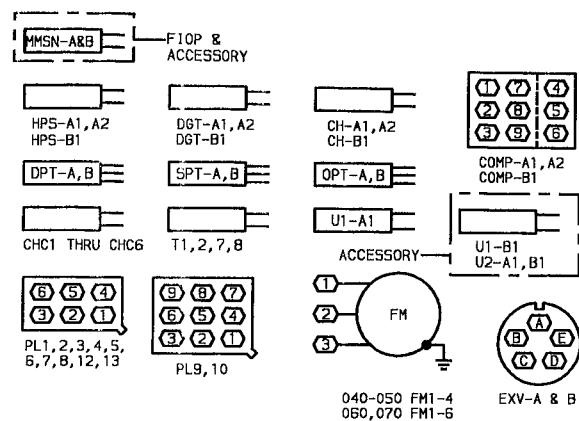
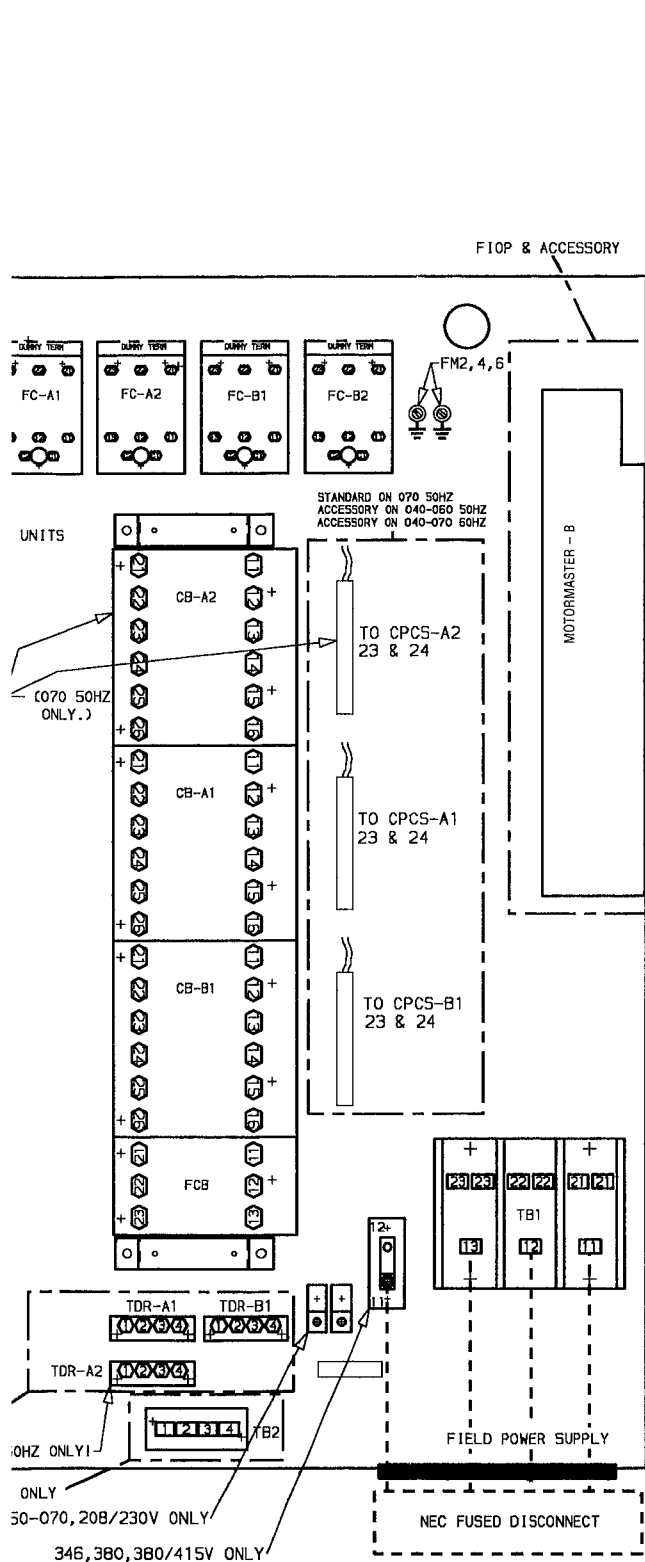
FM

080-090 FM1-6
100-110 FM1-B

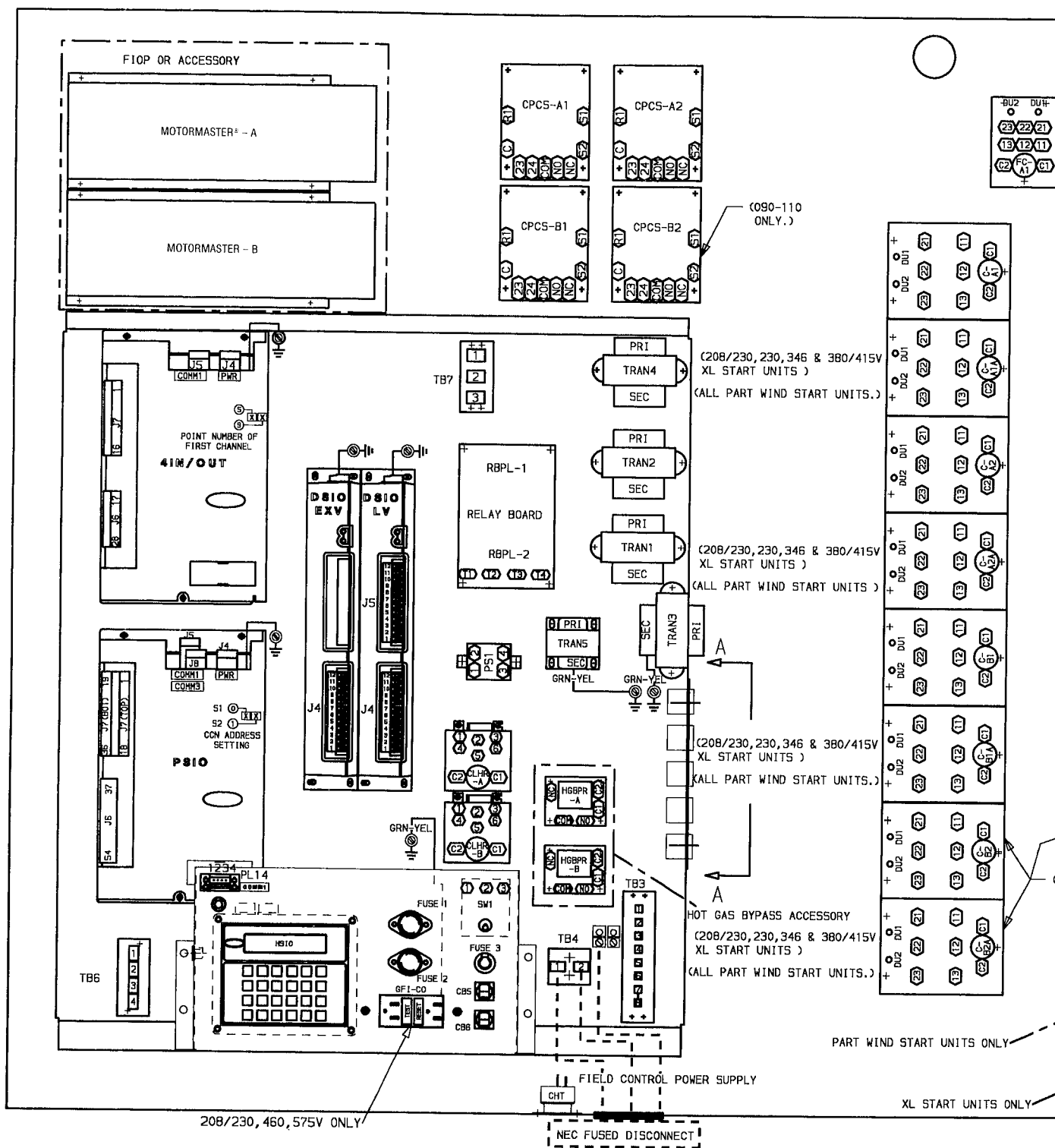
EXV-A & B

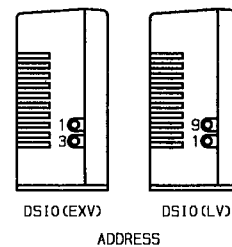
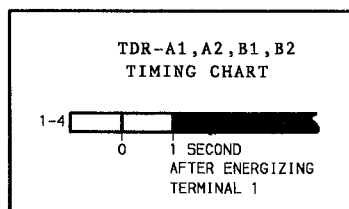
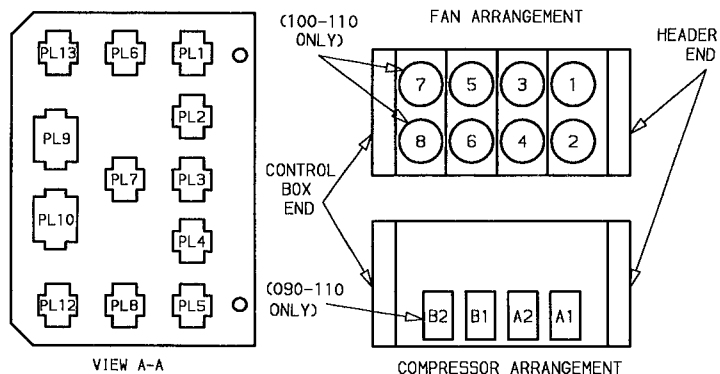
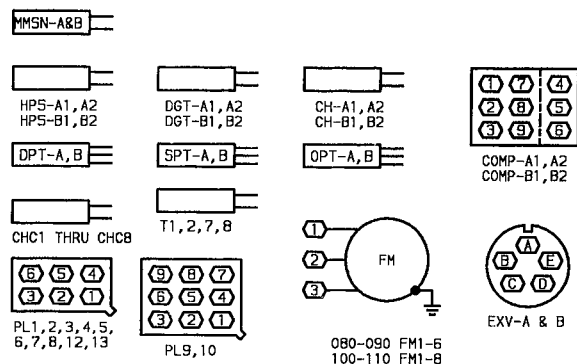
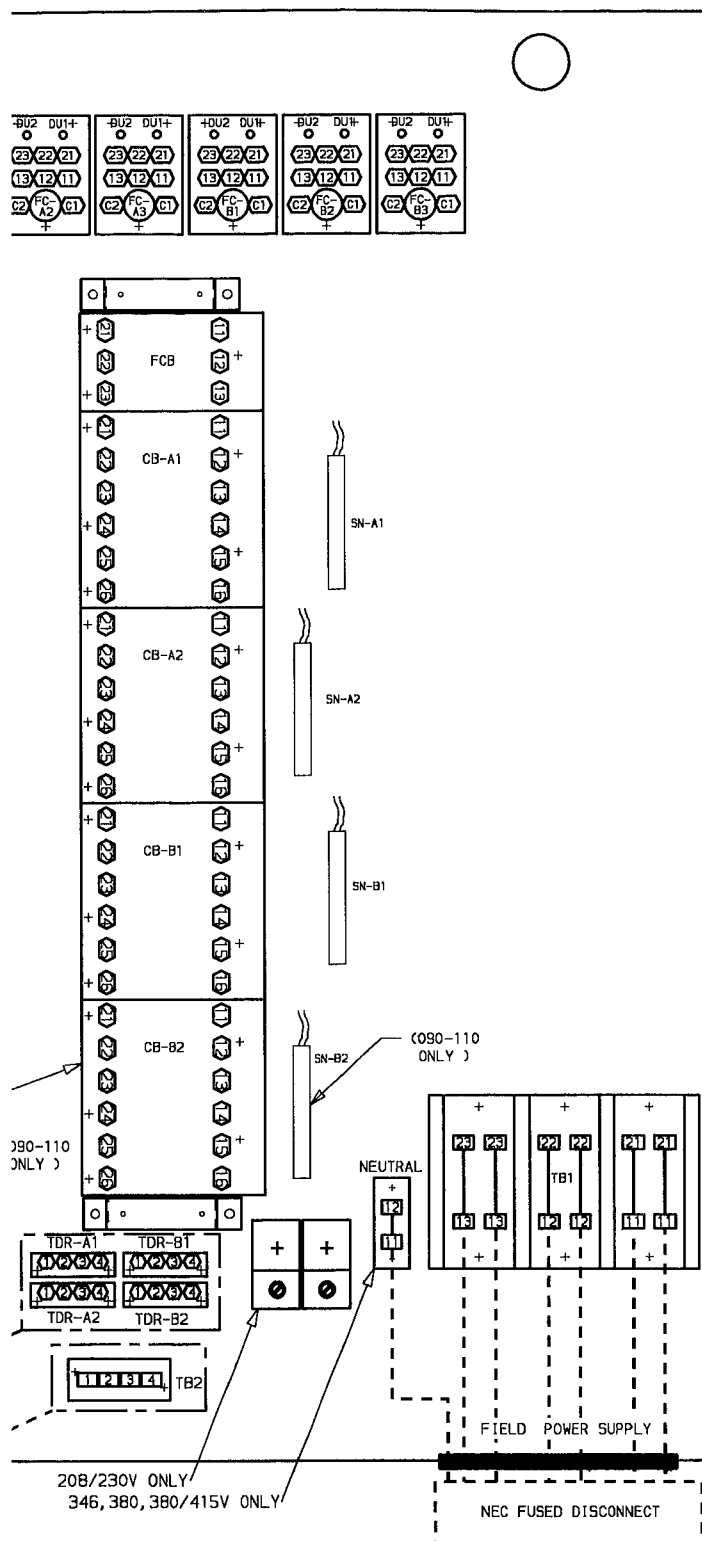


ingement; 30GT080-110



Arrangement; 30GN040-070





Arrangement; 30GN080-110

TO START THE UNIT THE START/STOP SWITCH MUST BE MOVED TO THE START POSITION. THE CONTROL WILL THEN PROCEED TO THE INITIALIZATION MODE AND WILL REMAIN IN THIS MODE FOR APPROXIMATELY 2 MINUTES. DURING THIS TIME PERIOD THE NUMBER "20" WILL BE DISPLAYED AT THE DISPLAY LED'S ON THE SET POINT BOARD. IF THE DISPLAY BUTTON IS PUSHED DURING THIS TIME PERIOD, THE CONTROL WILL GO INTO THE QUICK TEST MODE, WHICH IS INDICATED BY THE NUMBER "88" BEING DISPLAYED IN THE DISPLAY LED'S ON THE SET POINT BOARD. FOR MORE INFORMATION ON THE QUICK TEST SEE THE WIRING BOOK.

AFTER THE INITIAL TIME DELAY HAS PASSED, THE "20" WILL BE REMOVED FROM THE DISPLAY AND THE DISPLAY WILL BE TURNED OFF. TO VIEW THE DISPLAY, THE DISPLAY BUTTON MUST BE HELD IN. THE NUMBERS SHOWN IN THE DISPLAY WILL HAVE THE FOLLOWING SIGNIFICANCE:

CODES
0-12
20-24
50-86

CATEGORY
STAGE NUMBER
OPERATING STATUS INFORMATION
OVERLOAD INFORMATION

UNDER NORMAL OPERATION ONLY THE STAGE NUMBER WILL BE DISPLAYED. IF STATUS CODES OR OVERLOAD CODES ARE BEING DISPLAYED, THEN THE DISPLAY WILL ROTATE EVERY TWO SECONDS AND WILL DISPLAY UP TO THREE CODES.

THE STAGE NUMBER REPRESENTS THE STAGE OF CAPACITY THE UNIT IS RUNNING AT. FOR MORE INFORMATION ON THE ACTUAL CAPACITY REFER TO THE INSTALLATION INSTRUCTIONS.

THE OPERATING STATUS INFORMATION CODES INFORM THE OPERATOR OF SPECIAL CONTROLS THAT ARE IN EFFECT. FOR EXAMPLE, LOAD SHED OR TEMPERATURE RESET. FOR MORE INFORMATION ON INSTALLATION AND OPERATION OF THESE SPECIAL CONTROLS REFER TO THE CONTROL & TROUBLESHOOTING INSTRUCTIONS. TABLE 1 BELOW LISTS ALL OPERATING STATUS CODES.

THE OVERLOAD INFORMATION CODES INDICATE WHY A CIRCUIT, COMPRESSOR, OR THE UNIT IS SHUT OFF. FOR A MORE DETAILED EXPLANATION OF THE FAILURES, ACTION TAKEN BY THE MICROPROCESSOR AND THE POSSIBLE CAUSES OF THE FAILURE, SEE THE CONTROL & TROUBLESHOOTING INSTRUCTIONS. A SUMMARY OF THE CODES IS LISTED IN TABLE 2.

THERMISTORS

CODE NAME

DESCRIPTION

LOCATION

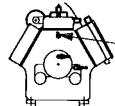
T1	LEAVING COOLER WATER	LEAVING WATER NOZZLE
T2	ENTERING COOLER WATER	ENTERING WATER Baffle SPACE
T3	SATURATED CONDENSING TEMP. CIRCUIT A	HEADER END OF COIL
T4	SATURATED CONDENSING TEMP. CIRCUIT B	HEADER END OF COIL
T5	SATURATED SUCTION TEMP. CIRCUIT A	COOLER HEAD NEAR LIQUID
T6	SATURATED SUCTION TEMP. CIRCUIT B	NOZZLE
T7	SUPERHEATED GAS ENTERING PISTON CIRCUIT A	LEAD COMP CIR A
T8	SUPERHEATED GAS ENTERING PISTON CIRCUIT B	LEAD COMP CIR B
T10	RESET TEMPERATURE SENSOR (ACCESSORY ONLY)	

TABLE 1

OPERATING STATUS CODES

20	INITIALIZATION MODE
21	TEMPERATURE RESET IN EFFECT
22	DEMAND LIMIT IN EFFECT
24	PULLDOWN CONTROL IN EFFECT
26	REMOTE OFF IN EFFECT
88	QUICK TEST

COMPRESSOR SENSOR LOCATION



COMPRESSOR
SENSOR T7 & T8

TYPICAL SATURATED CONDENSING TEMPERATURE LOCATION

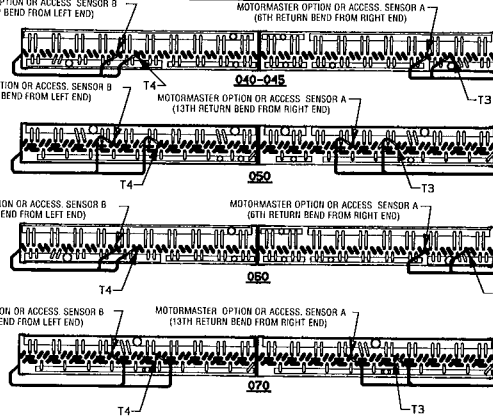


TABLE 2

DISPLAY	DESCRIPTION OF FAILURE				ACTION TAKEN BY CONTROL	RESET METHOD	PROBABLE CAUSE
	UNIT SITE						
	040-070 (040-070) 040-060 (040-070) 070 (040-070)						
51	COMP	A1	A1	A1 FAILURE	CIRCUIT A SHUT OFF	MANUAL	HIGH PRESSURE SWITCH TRIP, OR
52	COMP	NA	NA	A2 FAILURE	COMP SHUT OFF	MANUAL	HIGH DISCHARGE GAS TEMP SWITCH
53	COMP	NA	NA	FAILURE	COMP SHUT OFF	MANUAL	TRIP, OR COMP GROUND CURRENT
54	COMP	NA	NA	FAILURE	COMP SHUT OFF	MANUAL	> 2.5 AMP
55	COMP	B1	B1	FAILURE	CIRCUIT B SHUT OFF	MANUAL	
56	COMP	NA	NA	FAILURE	COMP. SHUT OFF	MANUAL	
57	COMP	NA	NA	FAILURE	COMP SHUT OFF	MANUAL	
58	COMP	NA	NA	FAILURE	COMP SHUT OFF	MANUAL	
59	LOSS OF CHARGE			CIRCUIT A	CIRCUIT A SHUT OFF	MANUAL	LOW REFRIGERANT CHARGE, OR LOSS
60	LOSS OF CHARGE			CIRCUIT B	CIRCUIT B SHUT OFF	MANUAL	OF CHARGE PRESSURE SWITCH FAILURE
61	LOW COOLER FLOW				UNIT SHUT OFF	MANUAL	NO COOLER FLOW OR REVERSED
							COOLER FLOW
63	LOW OIL PRESSURE CIRCUIT A				CIRCUIT A SHUT OFF	MANUAL	OIL PUMP FAILURE OR LOW OIL
64	LOW OIL PRESSURE CIRCUIT B				CIRCUIT B SHUT OFF	MANUAL	LEVEL, OR SWITCH FAILURE
65	FREEZE PROTECTION				UNIT SHUT OFF	AUTO	LOW COOLER FLOW
66	HIGH SUCTION SUPERHEAT CIRCUIT A				CIRCUIT A SHUT OFF	MANUAL	LOW CHARGE, OR EXV FAILURE, OR
67	HIGH SUCTION SUPERHEAT CIRCUIT B				CIRCUIT B SHUT OFF	MANUAL	PLUGGED FILTER DRIER
68	LOW SUCTION SUPERHEAT CIRCUIT A				CIRCUIT A SHUT OFF	MANUAL	EXV FAILURE
69	LOW SUCTION SUPERHEAT CIRCUIT B				CIRCUIT B SHUT OFF	MANUAL	
70	ILLEGAL UNIT CONFIGURATION				UNIT WILL NOT START	MANUAL	CONFIGURATION ERROR (SEE NOTE 2)
71	LEAVING WATER THERMISTOR FAILURE				UNIT SHUT OFF	AUTO	THERMISTOR FAILURE, OR WIRING
72	ENTERING WATER THERMISTOR FAILURE				USE DEFAULT VALVE	AUTO	ERROR, OR THERMISTOR NOT CONNECTED
73	SAT COND. THERMISTOR FAILURE CIR A				UNIT SHUT OFF	AUTO	TO PROCESSOR BOARD
74	SAT COND. THERMISTOR FAILURE CIR B				UNIT SHUT OFF	AUTO	
75	COOLER THERMISTOR FAILURE CIR A				UNIT SHUT OFF	AUTO	
76	COOLER THERMISTOR FAILURE CIR B				UNIT SHUT OFF	AUTO	
77	COMPRESSOR THERMISTOR FAILURE CIR A				UNIT SHUT OFF	AUTO	
78	COMPRESSOR THERMISTOR FAILURE CIR B				UNIT SHUT OFF	AUTO	
81	RESET TEMPERATURE FAILURE				STOP RESET	AUTO	POTENTIOMETER IMPROPERLY
82	LEAVING WATER SET POINT POT FAILURE				USE DEFAULT VALVE	AUTO	CONNECTED, OR POTENTIOMETER
83	RESET LIMIT SET POINT POT FAILURE				STOP RESET	AUTO	SETTING OUT OF RANGE, OR
84	DEMAND LIMIT POT FAILURE				STOP DEMAND LIMIT	AUTO	POTENTIOMETER FAILURE, OR
85	RESET RATIO POT FAILURE				STOP RESET	AUTO	WIRING ERROR
86	RESET SET POINT POT FAILURE				STOP RESET	AUTO	

NOTES:

1. FREEZE PROTECTION TRIPS AT 35 F FOR WATER AND 6 F BELOW SET POINT FOR BRINE UNITS. RESETS AT 6 F ABOVE SET POINT.
2. ILLEGAL UNIT CONFIGURATION CAUSED BY MISSING PROGRAMMABLE HEADER OR BOTH UNLOADER DIP SWITCHES ARE ON.
3. ALL AUTOMATIC RESET FAILURES THAT CAUSE THE UNIT TO STOP WILL RESTART THE UNIT WHEN THE ERROR HAS BEEN CORRECTED.
4. ALL MANUAL RESET ERRORS MUST BE RESET BY TURNING THE CONTROL SWITCH OFF THEN ON.
5. VALID RESISTANCE RANGE FOR THERMISTORS IS 362.939 OHMS TO 216.65 OHMS.

Fig. 21 — Start-Up and Diagnostics Information; 30GT040-070

TO START THE UNIT THE START/STOP SWITCH MUST BE MOVED TO THE START POSITION. THE CONTROL WILL THEN PROCEED TO THE INITIALIZATION MODE AND WILL REMAIN IN THIS MODE FOR APPROXIMATELY 2 MINUTES. DURING THIS TIME PERIOD THE NUMBER "20" WILL BE DISPLAYED AT THE DISPLAY LED'S ON THE SETPOINT BOARD. IF THE DISPLAY BUTTON IS PUSHED DURING THIS TIME PERIOD, THE CONTROL WILL GO INTO THE QUICK TEST MODE, WHICH IS INDICATED BY THE NUMBER "88" BEING DISPLAYED IN THE DISPLAY LED'S ON THE SETPOINT BOARD. FOR MORE INFORMATION ON THE QUICK TEST SEE THE WIRING BOOK.

AFTER THE INITIAL TIME DELAY HAS PASSED, THE "20" WILL BE REMOVED FROM THE DISPLAY AND THE DISPLAY WILL BE TURNED OFF. TO VIEW THE DISPLAY, THE DISPLAY BUTTON MUST BE HELD IN. THE NUMBERS SHOWN IN THE DISPLAY WILL HAVE THE FOLLOWING SIGNIFICANCE.

<u>CODES</u>	<u>CATEGORY</u>
0-12	STAGE NUMBER
20-24	OPERATING STATUS INFORMATION
50-86	OVERLOAD INFORMATION

UNDER NORMAL OPERATION ONLY THE STAGE NUMBER WILL BE DISPLAYED. IF STATUS CODES OR OVERLOAD CODES ARE BEING DISPLAYED, THEN THE DISPLAY WILL ROTATE EVERY TWO SECONDS AND WILL DISPLAY UP TO THREE CODES.

THE STAGE NUMBER REPRESENTS THE STAGE OF CAPACITY THE UNIT IS RUNNING AT. FOR MORE INFORMATION ON THE ACTUAL CAPACITY REFER TO THE INSTALLATION INSTRUCTIONS.

THE OPERATING STATUS INFORMATION CODES INFORM THE OPERATOR OF SPECIAL CONTROLS THAT ARE IN EFFECT. FOR EXAMPLE, LOAD SHED OR TEMPERATURE RESET. FOR MORE INFORMATION ON INSTALLATION AND OPERATION OF THESE SPECIAL CONTROLS REFER TO THE CONTROL & TROUBLESHOOTING INSTRUCTIONS. TABLE 1 BELOW LISTS ALL OPERATING STATUS CODES.

THE OVERLOAD INFORMATION CODES INDICATE WHY A CIRCUIT, COMPRESSOR, OR THE UNIT IS SHUT OFF. FOR A MORE DETAILED EXPLANATION OF THE FAILURES, ACTION TAKEN BY THE MICROPROCESSOR AND THE POSSIBLE CAUSES OF THE FAILURE, SEE THE CONTROL & TROUBLESHOOTING INSTRUCTIONS. A SUMMARY OF THE CODES IS LISTED IN TABLE 2.

THERMISTORS

CODE NAME

DESCRIPTION

LOCATION

T1	LEAVING COOLER WATER	LEAVING WATER NOZZLE
T2	ENTERING COOLER WATER	ENTERING WATER BAFFLE SPACE
T3	SATURATED CONDENSING TEMP. CIRCUIT A	HEADER END OF COIL
T4	SATURATED CONDENSING TEMP. CIRCUIT B	HEADER END OF COIL
T5	SATURATED SUCTION TEMP. CIRCUIT A	COOLER HEAD NEAR LIQUID NOZZLE
T6	SATURATED SUCTION TEMP. CIRCUIT B	COOLER HEAD NEAR LIQUID NOZZLE
T7	SUPERHEATED GAS ENTERING PISTON CIRCUIT A	LEAD COMP. CIR. A
T8	SUPERHEATED GAS ENTERING PISTON CIRCUIT B	LEAD COMP. CIR. B
T10	RESET TEMPERATURE SENSOR (ACCESSORY ONLY)	

TABLE 1

OPERATING STATUS CODES

20	INITIALIZATION MODE
21	TEMPERATURE RESET IN EFFECT
22	DEMAND LIMIT IN EFFECT
24	PULLDOWN CONTROL IN EFFECT
26	REMOTE OFF IN EFFECT
88	QUICK TEST

COMPRESSOR SENSOR LOCATION

A line drawing of a compressor unit. A sensor is shown mounted on the side of the compressor, with a line pointing to it from the label 'COMPRESSOR SENSOR'.

TYPICAL SATURATED CONDENSING
TEMPERATURE LOCATION

A line drawing of a condensing coil. A sensor is shown mounted on the top of the coil, with a line pointing to it from the label 'SATURATED CONDENSING SENSOR'.

080-110 TON UNIT

Fig. 22 — Start-Up and Diagnostics Information; 30GT080-110

continued next page

TABLE 2

DISPLAY	DESCRIPTION OF FAILURE				ACTION TAKEN BY CONTROL	RESET METHOD	PROBABLE CAUSE
	UNIT SIZE						
		080	090-110				
51	COMP.	A1	A1	FAILURE	CIRCUIT A SHUT OFF	MANUAL	HIGH PRESSURE SWITCH TRIP, OR HIGH DISCHARGE GAS TEMP. SWITCH TRIP, OR COMP. GROUND CURRENT > 2.5 AMP
52	COMP.	A2	A2	FAILURE	COMP. SHUT OFF	MANUAL	
53	COMP.	NA	NA	FAILURE	COMP. SHUT OFF	MANUAL	
54	COMP.	NA	NA	FAILURE	COMP. SHUT OFF	MANUAL	
55	COMP.	B1	B1	FAILURE	CIRCUIT B SHUT OFF	MANUAL	
56	COMP.	NA	B2	FAILURE	COMP. SHUT OFF	MANUAL	
57	COMP.	NA	NA	FAILURE	COMP. SHUT OFF	MANUAL	
58	COMP.	NA	NA	FAILURE	COMP. SHUT OFF	MANUAL	
59	LOSS OF CHARGE			CIRCUIT A	CIRCUIT A SHUT OFF	MANUAL	LOW REFRIGERANT CHARGE, OR LOSS OF CHARGE PRESSURE SWITCH FAILURE
60	LOSS OF CHARGE			CIRCUIT B	CIRCUIT B SHUT OFF	MANUAL	
61	LOW COOLER FLOW				UNIT SHUT OFF	MANUAL	NO COOLER FLOW OR REVERSED COOLER FLOW
63	LOW OIL PRESSURE CIRCUIT A				CIRCUIT A SHUT OFF	MANUAL	OIL PUMP FAILURE OR LOW OIL LEVEL, OR SWITCH FAILURE
64	LOW OIL PRESSURE CIRCUIT B				CIRCUIT B SHUT OFF	MANUAL	
65	FREEZE PROTECTION				UNIT SHUT OFF	AUTO	LOW COOLER FLOW
66	HIGH SUCTION SUPERHEAT CIRCUIT A				CIRCUIT A SHUT OFF	MANUAL	LOW CHARGE, OR EXV FAILURE, OR PLUGGED FILTER DRIER
67	HIGH SUCTION SUPERHEAT CIRCUIT B				CIRCUIT B SHUT OFF	MANUAL	
68	LOW SUCTION SUPERHEAT CIRCUIT A				CIRCUIT A SHUT OFF	MANUAL	EXV FAILURE
69	LOW SUCTION SUPERHEAT CIRCUIT B				CIRCUIT B SHUT OFF	MANUAL	
70	ILLEGAL UNIT CONFIGURATION				UNIT WILL NOT START	MANUAL	CONFIGURATION ERROR (SEE NOTE 2)
71	LEAVING WATER THERMISTOR FAILURE				UNIT SHUT OFF	AUTO	THERMISTOR FAILURE, OR WIRING ERROR, OR THERMISTOR NOT CONNECTED TO PROCESSOR BOARD.
72	ENTERING WATER THERMISTOR FAILURE				USE DEFAULT VALVE	AUTO	
75	SAT. COND. THERMISTOR FAILURE CIR. A				UNIT SHUT OFF	AUTO	
76	SAT. COND. THERMISTOR FAILURE CIR. B				UNIT SHUT OFF	AUTO	
77	COOLER THERMISTOR FAILURE CIR. A				UNIT SHUT OFF	AUTO	
78	COOLER THERMISTOR FAILURE CIR. B				UNIT SHUT OFF	AUTO	
79	COMPRESSOR THERMISTOR FAILURE CIR. A				UNIT SHUT OFF	AUTO	
80	COMPRESSOR THERMISTOR FAILURE CIR. B				UNIT SHUT OFF	AUTO	
81	RESET TEMPERATURE FAILURE				STOP RESET	AUTO	
82	LEAVING WATER SET POINT POT FAILURE				USE DEFAULT VALUE	AUTO	
84	RESET LIMIT SET POINT POT FAILURE				STOP RESET	AUTO	POTENTIOMETER IMPROPERLY CONNECTED, OR POTENTIOMETER SETTING OUT OF RANGE, OR POTENTIOMETER FAILURE, OR WIRING ERROR.
85	DEMAND LIMIT POT FAILURE				STOP DEMAND LIMIT	AUTO	
86	RESET RATIO POT FAILURE				STOP RESET	AUTO	
87	RESET SET POINT POT FAILURE				STOP RESET	AUTO	

NOTES:

- 1 FREEZE PROTECTION TRIPS AT 35 F FOR WATER AND 6 F BELOW SET POINT FOR BRINE UNITS. RESETS AT 6 F ABOVE SET POINT
- 2 ILLEGAL UNIT CONFIGURATION CAUSED BY MISSING PROGRAMMABLE HEADER, OR BOTH UNLOADER DIP SWITCHES ARE ON
- 3 ALL AUTOMATIC RESET FAILURES THAT CAUSE THE UNIT TO STOP WILL RESTART THE UNIT WHEN THE ERROR HAS BEEN CORRECTED
- 4 ALL MANUAL RESET ERRORS MUST BE RESET BY TURNING THE CONTROL SWITCH OFF, THEN ON
- 5 VALID RESISTANCE RANGE FOR THERMISTORS IS 362,939 OHMS TO 216.65 OHMS

Fig. 22 — Start-Up and Diagnostics Information; 30GT080-110 (cont)

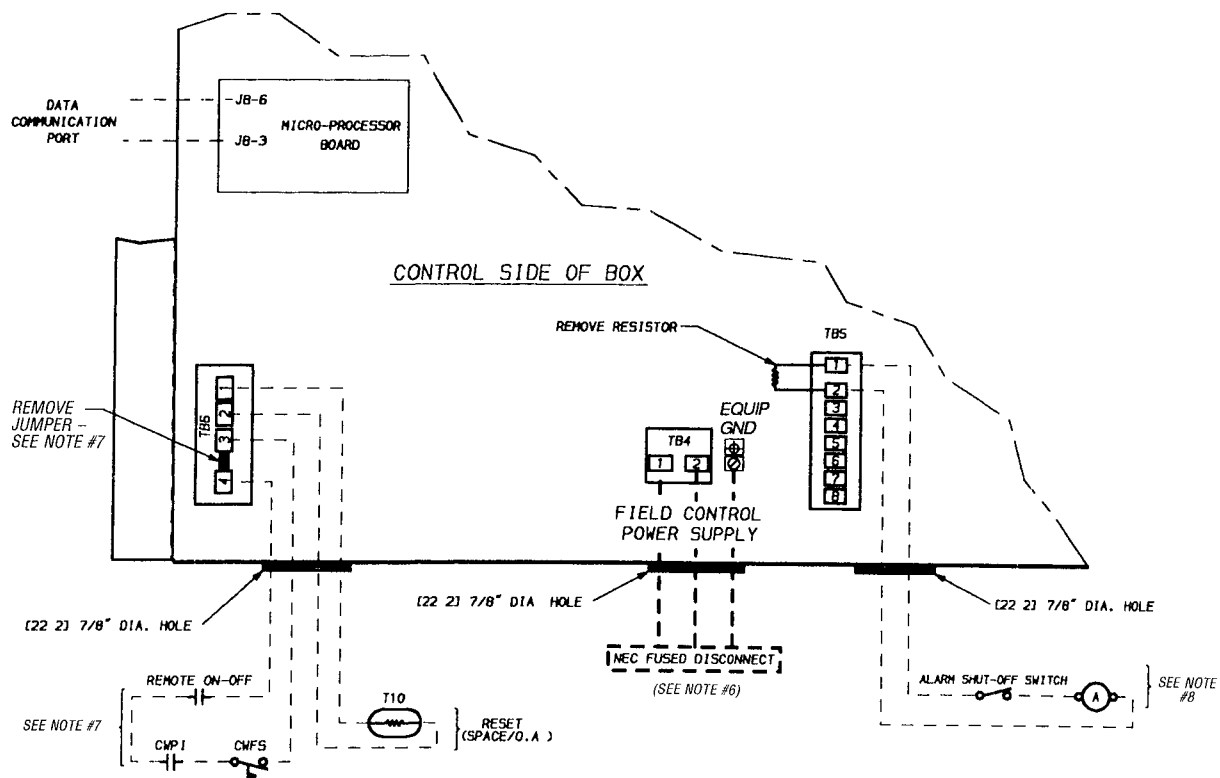
306N040 (60HZ)			306N040 (50HZ), 306N045 (60HZ)		
COMPONENT NAME	SOFTWARE POINT NO.	HARDWARE CHANNEL NO.	FUNCTION (2) COMPRESSOR	FUNCTION (2) COMPRESSOR	
PSIO (12/6 MODULE)	12 INPUTS		CHILLED WATER SUPPLY TEMPERATURE	CHILLED WATER SUPPLY TEMPERATURE	
			CHILLED WATER RETURN TEMPERATURE	CHILLED WATER RETURN TEMPERATURE	
			COMP A1 SUCTION GAS TEMPERATURE	COMP A1 SUCTION GAS TEMPERATURE	
			COMP B1 SUCTION GAS TEMPERATURE	COMP B1 SUCTION GAS TEMPERATURE	
			REMOTE ON/OFF, CMP INTERLOCK, LOCAL/ENABLE - STOP - CON. CWFS	REMOTE ON/OFF, CMP INTERLOCK, LOCAL/ENABLE - STOP - CON. CWFS	
			SVDC REFERENCE INPUT	SVDC REFERENCE INPUT	
			DISCH PRESS CKT A	DISCH PRESS CKT A	
			DISCH PRESS CKT B	DISCH PRESS CKT B	
			SUCT PRESS CKT A	SUCT PRESS CKT A	
			SUCT PRESS CKT B	SUCT PRESS CKT B	
			OIL PRESS CKT A	OIL PRESS CKT A	
			OIL PRESS CKT B	OIL PRESS CKT B	
			K3 RELAY - ALARM RELAY	K3 RELAY - ALARM RELAY	
			K1 RELAY - FAN RELAY (STAGE 2)	K1 RELAY - FAN RELAY (STAGE 2)	
			K2 RELAY - FAN RELAY (STAGE 3)	K2 RELAY - FAN RELAY (STAGE 3)	
			--NOT USED--	--NOT USED--	
			--NOT USED--	--NOT USED--	
			K6 RELAY - CHILLED WATER PUMP RELAY	K6 RELAY - CHILLED WATER PUMP RELAY	
DSIO (LV)	4 INPUTS		COMPR A1 FEEDBACK	COMPR A1 FEEDBACK	
			--NOT USED--	--NOT USED--	
			COMPR B1 FEEDBACK	COMPR B1 FEEDBACK	
			--NOT USED--	--NOT USED--	
			COMPR A1 SAFETIES, COMPR A1 RELAY, FAN CONTR (CIR A, STAGE 1)	COMPR A1 SAFETIES, COMPR A1 RELAY, FAN CONTR (CIR A, STAGE 1)	
			--NOT USED--	--NOT USED--	
			--NOT USED--	--NOT USED--	
			UNLOADER U1-A1	UNLOADER U1-A1	
			COMPR B1 SAFETIES, COMPR B1 RELAY, FAN CONTR (CIR B, STAGE 1)	COMPR B1 SAFETIES, COMPR B1 RELAY, FAN CONTR (CIR B, STAGE 1)	
			--NOT USED--	--NOT USED--	
			--NOT USED--	--NOT USED--	
			UNLOADER U1-B1 (ACCESSORY)	UNLOADER U1-B1 (ACCESSORY)	
			--NOT USED--	--NOT USED--	
			--NOT USED--	--NOT USED--	
			--NOT USED--	--NOT USED--	
			--NOT USED--	--NOT USED--	
			EXV-A	EXV-A	
DSIO (EXV)	4 INPUTS		EXV-B	EXV-B	
			--NOT USED--	--NOT USED--	
			--NOT USED--	--NOT USED--	
			SPARE TEMPERATURE SENSOR #1	SPARE TEMPERATURE SENSOR #1	
			SPARE TEMPERATURE SENSOR #2	SPARE TEMPERATURE SENSOR #2	
			--NOT USED--	--NOT USED--	
			--NOT USED--	--NOT USED--	
			--NOT USED--	--NOT USED--	
			--NOT USED--	--NOT USED--	
			--NOT USED--	--NOT USED--	
			DEMAND LIMIT BY SW STAGE #2	DEMAND LIMIT BY SW STAGE #2	
			DEMAND LIMIT BY SW STAGE #1 OR DEMAND LIMIT BY 4-20 MA	DEMAND LIMIT BY SW STAGE #1 OR DEMAND LIMIT BY 4-20 MA	
			REMOTE DUAL SETPOINT SWITCH	REMOTE DUAL SETPOINT SWITCH	
			REMOTE RESET THERMISTOR OR REMOTE RESET BY 4-20 MA	REMOTE RESET THERMISTOR OR REMOTE RESET BY 4-20 MA	
			HOT GAS BYPASS RELAY A (ACCESSORY OR FLOP)	HOT GAS BYPASS RELAY A (ACCESSORY OR FLOP, 0.40 50HZ) (ACCESSORY ONLY ON 0.45 60HZ)	
			HOT GAS BYPASS RELAY B (ACCESSORY OR FLOP)	HOT GAS BYPASS RELAY B (ACCESSORY OR FLOP, 0.40 50HZ) (ACCESSORY ONLY ON 0.45 60HZ)	
			MOTORMASTER A 4-20 MA CONTROL	MOTORMASTER A 4-20 MA CONTROL	
BIN MODULE (OPTIONAL)	8 INPUTS		MOTORMASTER B 4-20 MA CONTROL	MOTORMASTER B 4-20 MA CONTROL	
			--NOT USED--	--NOT USED--	
			--NOT USED--	--NOT USED--	
			SPARE TEMPERATURE SENSOR #1	SPARE TEMPERATURE SENSOR #1	
			SPARE TEMPERATURE SENSOR #2	SPARE TEMPERATURE SENSOR #2	
			--NOT USED--	--NOT USED--	
			--NOT USED--	--NOT USED--	
			--NOT USED--	--NOT USED--	
			--NOT USED--	--NOT USED--	
			DEMAND LIMIT BY SW STAGE #2	DEMAND LIMIT BY SW STAGE #2	
			DEMAND LIMIT BY SW STAGE #1 OR DEMAND LIMIT BY 4-20 MA	DEMAND LIMIT BY SW STAGE #1 OR DEMAND LIMIT BY 4-20 MA	
			REMOTE DUAL SETPOINT SWITCH	REMOTE DUAL SETPOINT SWITCH	
			REMOTE RESET THERMISTOR OR REMOTE RESET BY 4-20 MA	REMOTE RESET THERMISTOR OR REMOTE RESET BY 4-20 MA	
			HOT GAS BYPASS RELAY A (ACCESSORY OR FLOP)	HOT GAS BYPASS RELAY A (ACCESSORY OR FLOP, 0.40 50HZ) (ACCESSORY ONLY ON 0.45 60HZ)	
			HOT GAS BYPASS RELAY B (ACCESSORY OR FLOP)	HOT GAS BYPASS RELAY B (ACCESSORY OR FLOP, 0.40 50HZ) (ACCESSORY ONLY ON 0.45 60HZ)	
			MOTORMASTER A 4-20 MA CONTROL	MOTORMASTER A 4-20 MA CONTROL	
			MOTORMASTER B 4-20 MA CONTROL	MOTORMASTER B 4-20 MA CONTROL	
4IN/4OUT MODULE	4 INPUTS				

COMPONENT NAME	SOFTWARE POINT NO.	HARDWARE CHANNEL NO.	30GN045-060 (50HZ), 30GN050-070 (60HZ)	30GN070 (50HZ)
PS10 (12/6 MODULE)	12 INPUTS		FUNCTION (2) COMPRESSOR	
	1	1	CHILLED WATER SUPPLY TEMPERATURE	CHILLED WATER SUPPLY TEMPERATURE
	2	2	CHILLED WATER RETURN TEMPERATURE	CHILLED WATER RETURN TEMPERATURE
	3	3	COMP A1 SUCTION GAS TEMPERATURE	COMP A1 SUCTION GAS TEMPERATURE
	4	4	COMP B1 SUCTION GAS TEMPERATURE	COMP B1 SUCTION GAS TEMPERATURE
	5	5	REMOTE ON/OFF; CMP INTERLOCK; LOCAL/ENABLE - STOP - CON. CWFS	REMOTE ON/OFF; CMP INTERLOCK; LOCAL/ENABLE - STOP - CON. CWFS
	6	6	SVDC REFERENCE INPUT	SVDC REFERENCE INPUT
	7	7	DISCH PRESS CKT A	DISCH PRESS CKT A
	8	8	DISCH PRESS CKT B	DISCH PRESS CKT B
	9	9	SUCT PRESS CKT A	SUCT PRESS CKT A
	10	10	SUCT PRESS CKT B	SUCT PRESS CKT B
	11	11	OIL PRESS CKT A	OIL PRESS CKT A
	12	12	OIL PRESS CKT B	OIL PRESS CKT B
	13	13	K3 RELAY - ALARM RELAY	K3 RELAY - ALARM RELAY
	14	14	K1 RELAY - FAN RELAY (STAGE 2)	K1 RELAY - FAN RELAY (STAGE 2)
	15	15	K2 RELAY - FAN RELAY (STAGE 3)	K2 RELAY - FAN RELAY (STAGE 3)
	16	16	--NOT USED--	--NOT USED--
	17	17	--NOT USED--	--NOT USED--
DS10 (LV)	6 OUTPUTS		FUNCTION (3) COMPRESSOR	
	18	18	K5 RELAY - CHILLED WATER PUMP RELAY	K5 RELAY - CHILLED WATER PUMP RELAY
	19	1	COMPR A1 FEEDBACK	COMPR A1 FEEDBACK
	20	2	--NOT USED--	COMPR A2 FEEDBACK
	21	3	COMPR B1 FEEDBACK	COMPR B1 FEEDBACK
	22	4	--NOT USED--	--NOT USED--
	23	5	COMPR A1 SAFETIES, COMPR A1 RELAY, FAN CONTR(CIR A, STAGE 1)	COMPR A1 SAFETIES, COMPR A1 RELAY, FAN CONTR(CIR A, STAGE 1)
	24	6	--NOT USED--	COMPR A2 SAFETIES, COMPR A2 RELAY
	25	7	UNLOADER U2-A1 (ACCESSORY)	UNLOADER U2-A1 (ACCESSORY)
	26	8	UNLOADER U1-A1	UNLOADER U1-A1
	27	9	COMPR B1 SAFETIES, COMPR B1 RELAY, FAN CONTR(CIR B, STAGE 1)	COMPR B1 SAFETIES, COMPR B1 RELAY, FAN CONTR(CIR B, STAGE 1)
	28	10	--NOT USED--	--NOT USED--
	29	11	UNLOADER U2-B1 (ACCESSORY)	UNLOADER U2-B1 (ACCESSORY)
	30	12	UNLOADER U1-B1 (ACCESSORY)	UNLOADER U1-B1 (ACCESSORY)
	31	1	--NOT USED--	--NOT USED--
	32	2	--NOT USED--	--NOT USED--
	33	3	--NOT USED--	--NOT USED--
	34	4	--NOT USED--	--NOT USED--
DS10 (EXV)	4 INPUTS		EXV-A	
	35	5		
	36	6		
	37	7		
	38	8		
	39	9		
	40	10		
	41	11		
	42	12		
	51	1	--NOT USED--	--NOT USED--
	52	2	--NOT USED--	--NOT USED--
	53	3	SPARE TEMPERATURE SENSOR #1	SPARE TEMPERATURE SENSOR #1
	54	4	SPARE TEMPERATURE SENSOR #2	SPARE TEMPERATURE SENSOR #2
	55	5	--NOT USED--	--NOT USED--
	56	6	--NOT USED--	--NOT USED--
	57	7	--NOT USED--	--NOT USED--
	58	8	--NOT USED--	--NOT USED--
BIN MODULE OPTIONAL	8 OUTPUTS		EXV-B	
	59	1	DEMAND LIMIT BY SW STAGE #2	DEMAND LIMIT BY SW STAGE #2
	60	2	DEMAND LIMIT BY SW STAGE #1 OR DEMAND LIMIT BY 4-20 MA	DEMAND LIMIT BY SW STAGE #1 OR DEMAND LIMIT BY 4-20 MA
	61	3	REMOTE DUAL SETPOINT SWITCH	REMOTE DUAL SETPOINT SWITCH
	62	4	REMOTE RESET THERMISTOR OR REMOTE RESET BY 4-20 MA	REMOTE RESET THERMISTOR OR REMOTE RESET BY 4-20 MA
	63	5	HOT GAS BYPASS RELAY A (ACCESSORY)	HOT GAS BYPASS RELAY A (ACCESSORY)
	64	6	HOT GAS BYPASS RELAY B (ACCESSORY)	HOT GAS BYPASS RELAY B (ACCESSORY)
	65	7	MOTORMASTER A 4-20 MA CONTROL	MOTORMASTER A 4-20 MA CONTROL (OPTIONAL)
	66	8	MOTORMASTER B 4-20 MA CONTROL	MOTORMASTER B 4-20 MA CONTROL (OPTIONAL)
4IN/4OUT MODULE	8 INPUTS		FUNCTION (2) COMPRESSOR	
	1	1	CHILLED WATER SUPPLY TEMPERATURE	CHILLED WATER SUPPLY TEMPERATURE
	2	2	CHILLED WATER RETURN TEMPERATURE	CHILLED WATER RETURN TEMPERATURE
	3	3	COMP A1 SUCTION GAS TEMPERATURE	COMP A1 SUCTION GAS TEMPERATURE
	4	4	COMP B1 SUCTION GAS TEMPERATURE	COMP B1 SUCTION GAS TEMPERATURE
	5	5	REMOTE ON/OFF; CMP INTERLOCK; LOCAL/ENABLE - STOP - CON. CWFS	REMOTE ON/OFF; CMP INTERLOCK; LOCAL/ENABLE - STOP - CON. CWFS
	6	6	SVDC REFERENCE INPUT	SVDC REFERENCE INPUT
	7	7	DISCH PRESS CKT A	DISCH PRESS CKT A
	8	8	DISCH PRESS CKT B	DISCH PRESS CKT B
	9	9	SUCT PRESS CKT A	SUCT PRESS CKT A
	10	10	SUCT PRESS CKT B	SUCT PRESS CKT B
	11	11	OIL PRESS CKT A	OIL PRESS CKT A
	12	12	OIL PRESS CKT B	OIL PRESS CKT B
	13	13	K3 RELAY - ALARM RELAY	K3 RELAY - ALARM RELAY
	14	14	K1 RELAY - FAN RELAY (STAGE 2)	K1 RELAY - FAN RELAY (STAGE 2)
	15	15	K2 RELAY - FAN RELAY (STAGE 3)	K2 RELAY - FAN RELAY (STAGE 3)
	16	16	--NOT USED--	--NOT USED--
	17	17	--NOT USED--	--NOT USED--
4IN/4OUT MODULE	4 OUTPUTS		FUNCTION (3) COMPRESSOR	
	18	18	K5 RELAY - CHILLED WATER PUMP RELAY	K5 RELAY - CHILLED WATER PUMP RELAY
	19	1	COMPR A1 FEEDBACK	COMPR A1 FEEDBACK
	20	2	--NOT USED--	COMPR A2 FEEDBACK
	21	3	COMPR B1 FEEDBACK	COMPR B1 FEEDBACK
	22	4	--NOT USED--	--NOT USED--
	23	5	COMPR A1 SAFETIES, COMPR A1 RELAY, FAN CONTR(CIR A, STAGE 1)	COMPR A1 SAFETIES, COMPR A1 RELAY, FAN CONTR(CIR A, STAGE 1)
	24	6	--NOT USED--	COMPR A2 SAFETIES, COMPR A2 RELAY
	25	7	UNLOADER U2-A1 (ACCESSORY)	UNLOADER U2-A1 (ACCESSORY)
	26	8	UNLOADER U1-A1	UNLOADER U1-A1
	27	9	COMPR B1 SAFETIES, COMPR B1 RELAY, FAN CONTR(CIR B, STAGE 1)	COMPR B1 SAFETIES, COMPR B1 RELAY, FAN CONTR(CIR B, STAGE 1)
	28	10	--NOT USED--	--NOT USED--
	29	11	UNLOADER U2-B1 (ACCESSORY)	UNLOADER U2-B1 (ACCESSORY)
	30	12	UNLOADER U1-B1 (ACCESSORY)	UNLOADER U1-B1 (ACCESSORY)
	31	1	--NOT USED--	--NOT USED--
	32	2	--NOT USED--	--NOT USED--
	33	3	--NOT USED--	--NOT USED--
	34	4	--NOT USED--	--NOT USED--

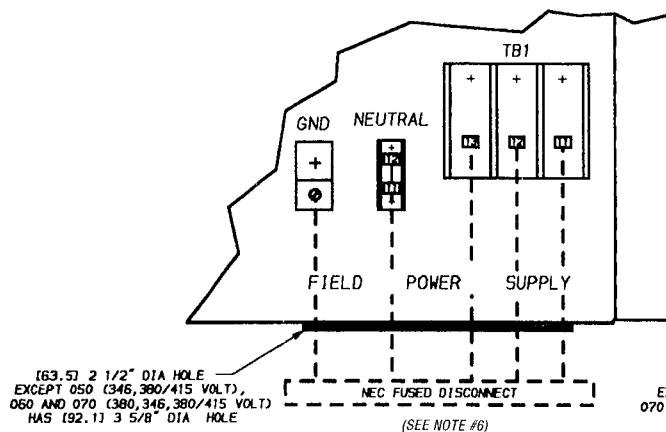
Fig. 23 — Channel Chart; 30GN040-070

			30GN080	30GN090, 100, 110
COMPONENT NAME	SOFTWARE POINT NO.	HARDWARE CHANNEL NO.	FUNCTION (3) COMPRESSOR	FUNCTION (4) COMPRESSOR
PS10 (12/6 MODULE)	12 INPUTS	1	CHILLED WATER SUPPLY TEMPERATURE	CHILLED WATER SUPPLY TEMPERATURE
		2	CHILLED WATER RETURN TEMPERATURE	CHILLED WATER RETURN TEMPERATURE
		3	COMP A1 SUCTION GAS TEMP	COMP A1 SUCTION GAS TEMP
		4	COMP B1 SUCTION GAS TEMP	COMP B1 SUCTION GAS TEMP
		5	REMOTE ON/OFF, CWP INTERLOCK, LOCAL/ENABLE - STOP - CCM, CWFS	REMOTE ON/OFF, CWP INTERLOCK, LOCAL/ENABLE - STOP - CCM, CWFS
		6	SVDC REFERENCE INPUT	SVDC REFERENCE INPUT
		7	DISCH PRESS CKT A	DISCH PRESS CKT A
		8	DISCH PRESS CKT B	DISCH PRESS CKT B
		9	SUCT PRESS CKT A	SUCT PRESS CKT A
		10	SUCT PRESS CKT B	SUCT PRESS CKT B
		11	OIL PRESS CKT A	OIL PRESS CKT A
		12	OIL PRESS CKT B	OIL PRESS CKT B
	6 OUTPUTS	13	K3 RELAY - ALARM RELAY	K3 RELAY - ALARM RELAY
		14	K1 RELAY - FAN RELAY (CIRCUIT A, STAGE 2)	K1 RELAY - FAN RELAY (CIRCUIT A, STAGE 2)
		15	K2 RELAY - FAN RELAY (CIRCUIT A, STAGE 3)	K2 RELAY - FAN RELAY (CIRCUIT A, STAGE 3)
		16	K4 RELAY - FAN RELAY (CIRCUIT B, STAGE 2)	K4 RELAY - FAN RELAY (CIRCUIT B, STAGE 2)
		17	K4 RELAY - FAN RELAY (CIRCUIT B, STAGE 3)	K4 RELAY - FAN RELAY (CIRCUIT B, STAGE 3)
		18	K6 RELAY - CHILLED WATER PUMP RELAY	K6 RELAY - CHILLED WATER PUMP RELAY
DS10 (LV)	4 INPUTS	19	COMPR A1 FEEDBACK	COMPR A1 FEEDBACK
		20	COMPR A2 FEEDBACK	COMPR A2 FEEDBACK
		21	COMPR B1 FEEDBACK	COMPR B1 FEEDBACK
		22	--NOT USED--	COMPR B2 FEEDBACK
	8 OUTPUTS	23	COMPR A1 SAFETIES, COMPR A1 RELAY, FAN CONTR(CIR A, STAGE 1)	COMPR A1 SAFETIES, COMPR A1 RELAY, FAN CONTR(CIR A, STAGE 1)
		24	COMPR A2 SAFETIES, COMPR A2 RELAY	COMPR A2 SAFETIES, COMPR A2 RELAY
		25	UNLOADER RELAY U2-A1 (ACCESSORY)	UNLOADER RELAY U2-A1 (ACCESSORY)
		26	UNLOADER U1-A1 RELAY	UNLOADER U1-A1 RELAY
		27	COMPR B1 SAFETIES, COMPR B1 RELAY, FAN CONTR(CIR B, STAGE 1)	COMPR B1 SAFETIES, COMPR B1 RELAY, FAN CONTR(CIR B, STAGE 1)
		28	--NOT USED--	COMPR B2 SAFETIES, COMPR B2 RELAY
		29	UNLOADER RELAY U2-B1 (ACCESSORY)	UNLOADER RELAY U2-B1 (ACCESSORY)
		30	UNLOADER U1-B1 RELAY	UNLOADER U1-B1 RELAY
DS10 (EXV)	4 INPUTS	31	--NOT USED--	--NOT USED--
		32	--NOT USED--	--NOT USED--
		33	--NOT USED--	--NOT USED--
		34	--NOT USED--	--NOT USED--
	8 OUTPUTS	35		
		36	EXV-A	EXV-A
		37		
		38		
		39		
		40	EXV-B	EXV-B
		41		
		42		
8IN MODULE (OPTIONAL)	8 INPUTS	51	--NOT USED--	--NOT USED--
		52	--NOT USED--	--NOT USED--
		53	SPARE TEMPERATURE SENSOR #1	SPARE TEMPERATURE SENSOR #1
		54	SPARE TEMPERATURE SENSOR #2	SPARE TEMPERATURE SENSOR #2
		55	--NOT USED--	--NOT USED--
		56	--NOT USED--	--NOT USED--
		57	--NOT USED--	--NOT USED--
4IN/4OUT MODULE	4 INPUTS	58	--NOT USED--	--NOT USED--
		59	DEMAND LIMIT BY SW STAGE #2	DEMAND LIMIT BY SW STAGE #2
		60	DEMAND LIMIT BY SW STAGE #1 OR DEMAND LIMIT BY 4-20 MA	DEMAND LIMIT BY SW STAGE #1 OR DEMAND LIMIT BY 4-20 MA
		61	REMOTE DUAL SETPOINT SWITCH	REMOTE DUAL SETPOINT SWITCH
		62	REMOTE RESET THERMISTOR OR REMOTE RESET BY 4-20 MA	REMOTE RESET THERMISTOR OR REMOTE RESET BY 4-20 MA
	4 OUTPUTS	63	HOT GAS BYPASS RELAY A (ACCESSORY)	HOT GAS BYPASS RELAY A (ACCESSORY)
		64	HOT GAS BYPASS RELAY B (ACCESSORY)	HOT GAS BYPASS RELAY B (ACCESSORY)
		65	MOTORMASTER A 4-20 MA CONTROL (OPTIONAL)	MOTORMASTER A 4-20 MA CONTROL (OPTIONAL)
		66	MOTORMASTER B 4-20 MA CONTROL (OPTIONAL)	MOTORMASTER B 4-20 MA CONTROL (OPTIONAL)

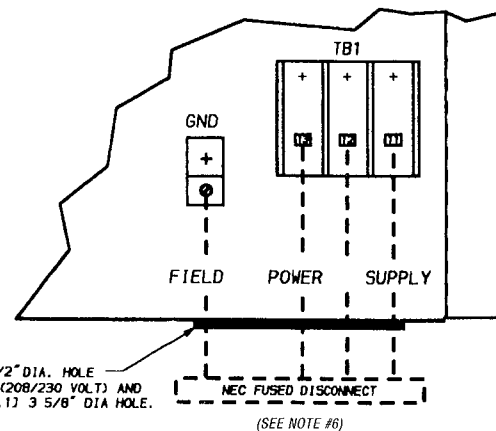
Fig. 24 — Channel Chart; 30GN080-110



380 VOLT 60 HZ
346, 380/415 VOLT 50 HZ



208/230 VOLT 60 HZ (040, 045)
460, 575 VOLT 60 HZ (ALL UNITS)



208/230 VOLT 60 HZ
(050, 060 AND 070 UNITS)

POWER SIDE OF BOX

NOTE: Dimensions in [] are in millimeters

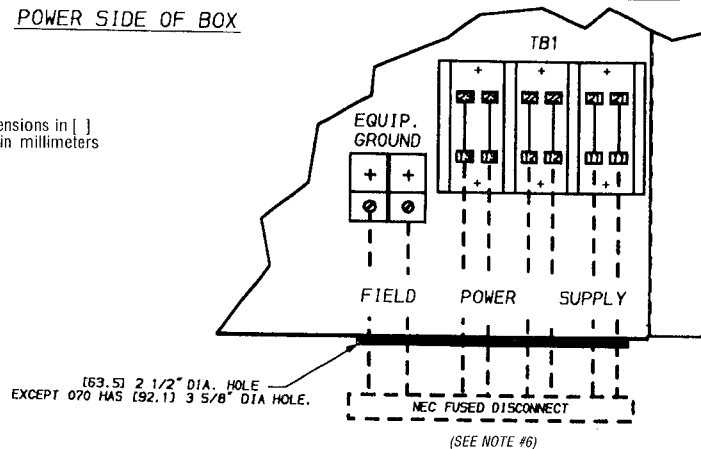
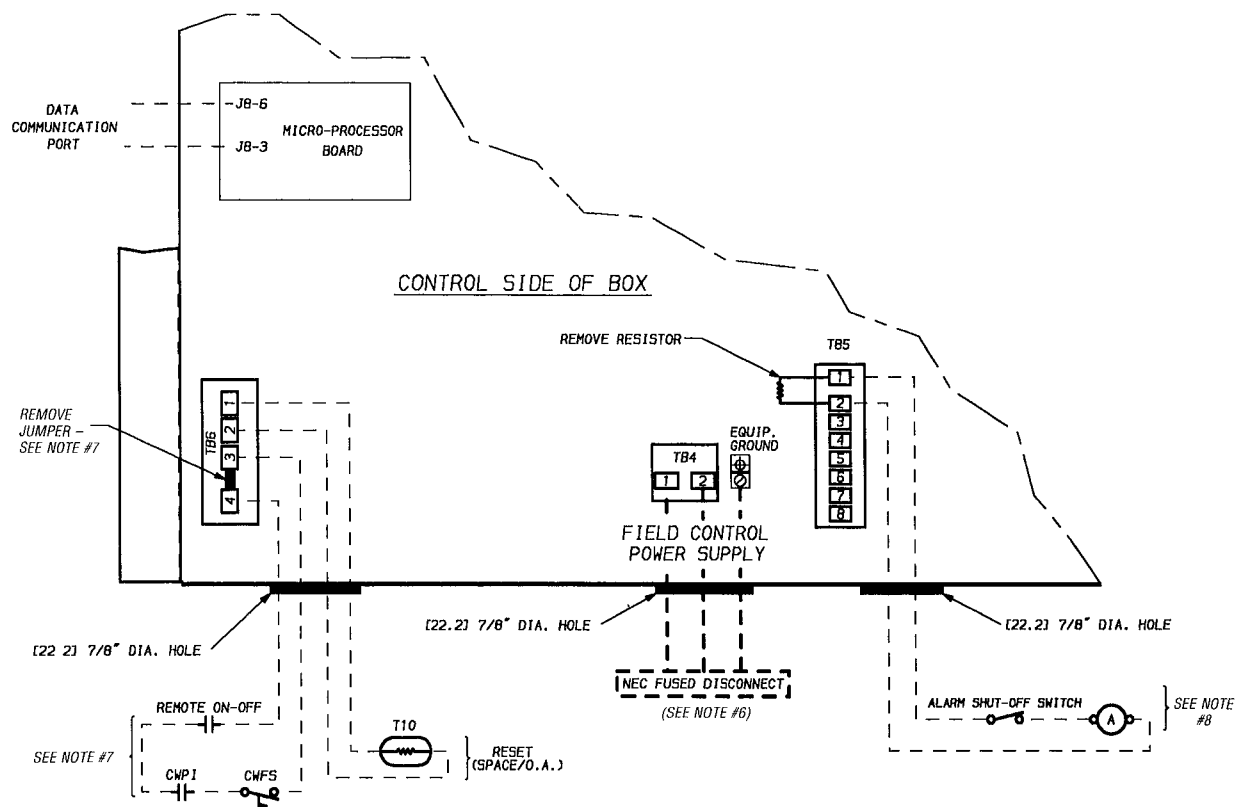
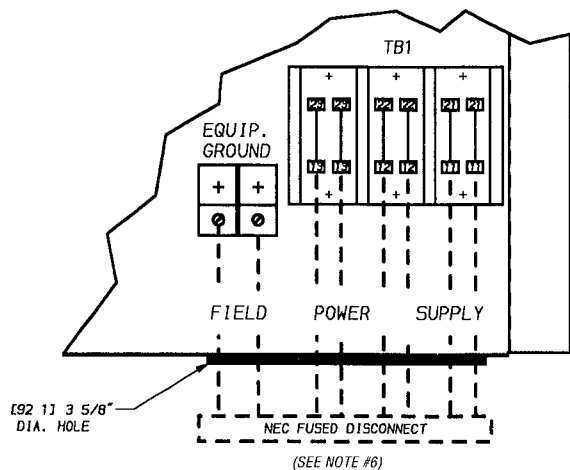


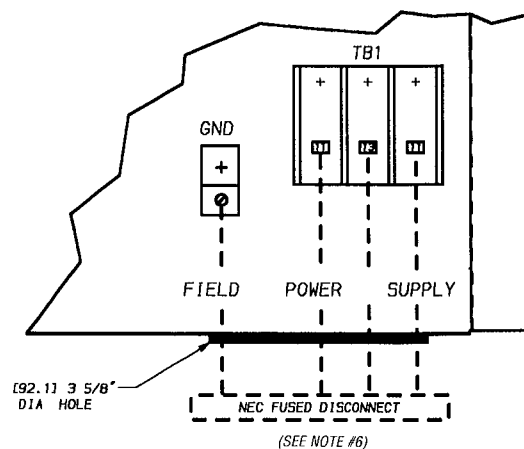
Fig. 25 — Field Wiring; 30GT040-070; All Voltages



208/230 VOLT 60 HZ



460, 575 VOLT 60 HZ



380 VOLT 60 HZ,
346, 380/415 VOLT 50 HZ

NOTE: Dimensions in [] are in millimeters

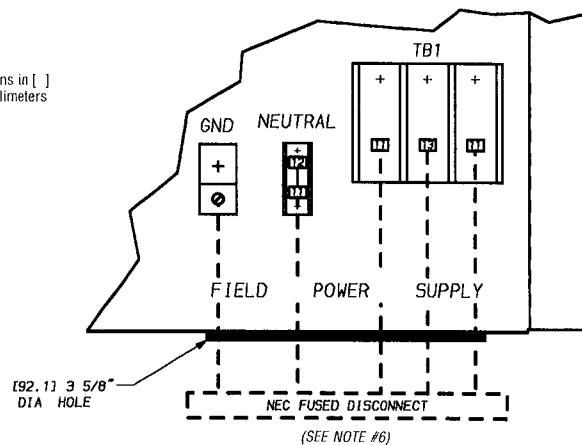
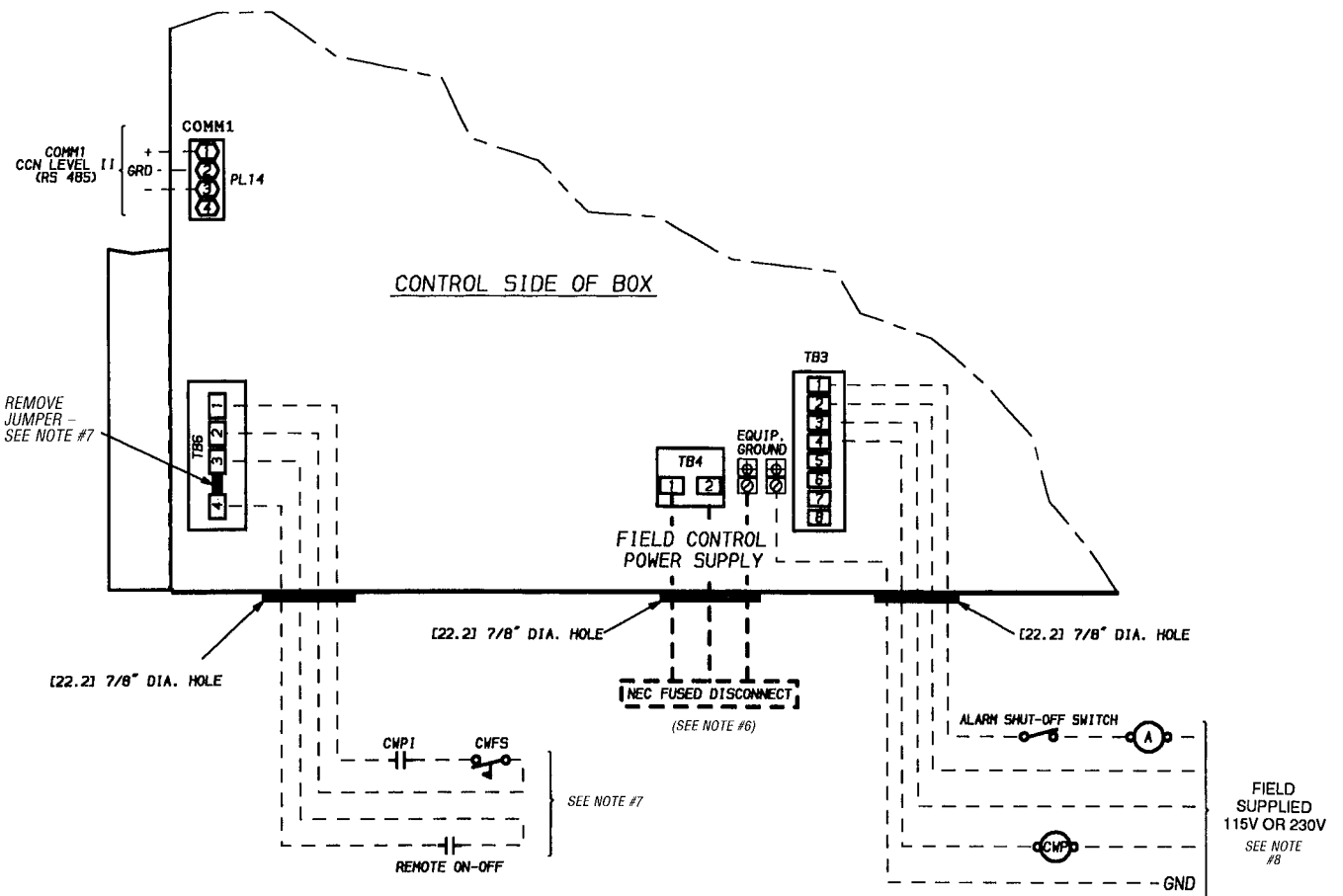
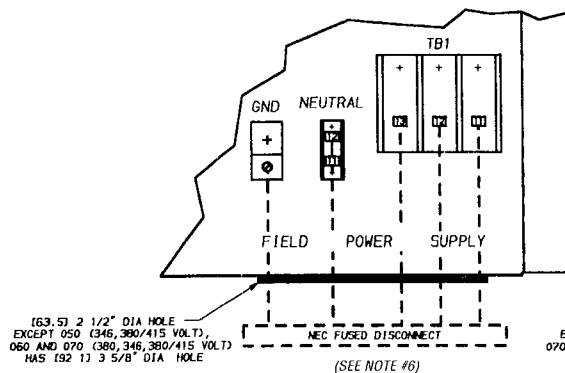


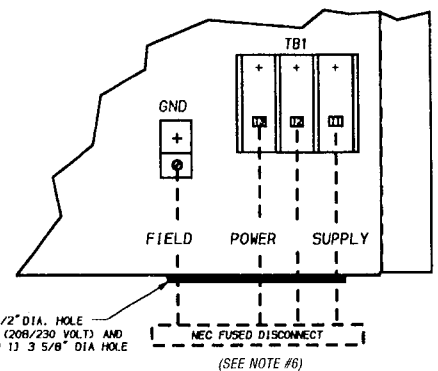
Fig. 26 — Field Wiring; 30GT080-110; All Voltages



380 VOLT 60 HZ
346, 380/415 VOLT 50 HZ



208/230 VOLT 60 HZ (040, 045)
460, 575 VOLT 60 HZ (ALL UNITS)



208/230 VOLT 60 HZ
(050, 060 AND 070 UNITS)

POWER SIDE OF BOX

NOTE Dimensions in [] are in millimeters

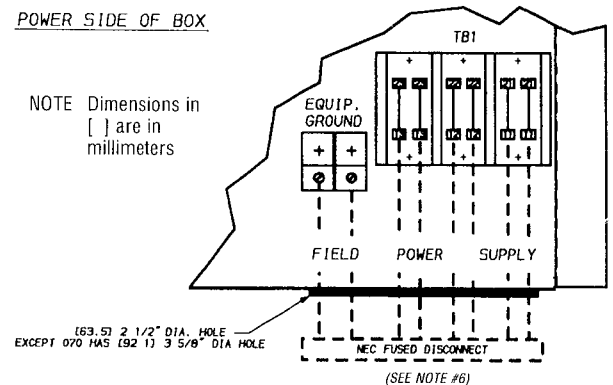
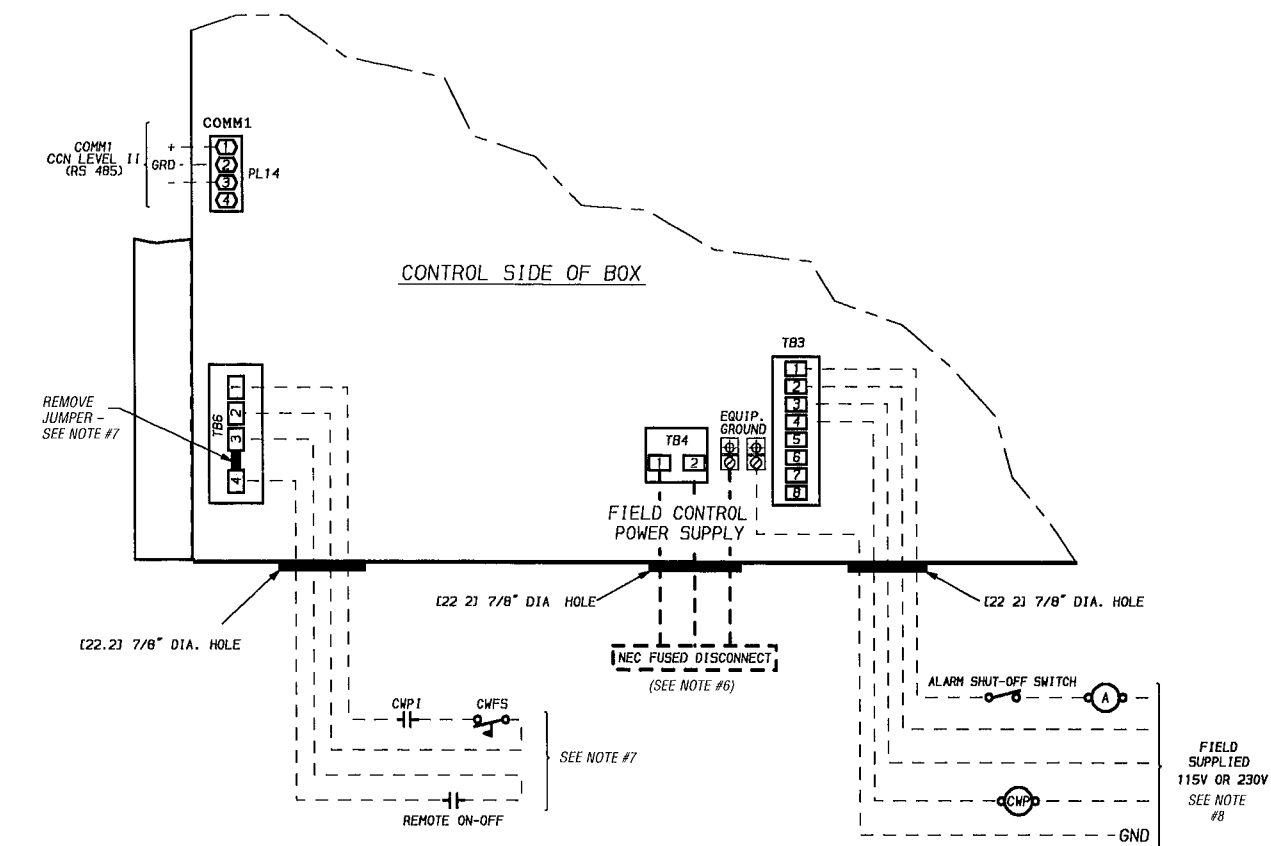
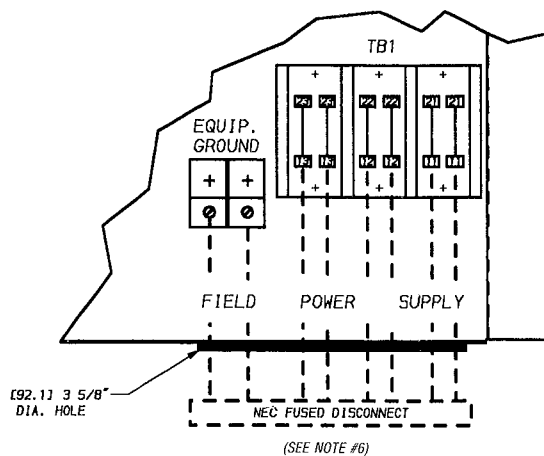


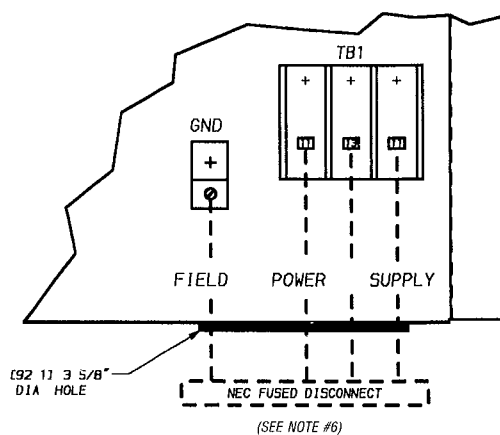
Fig. 27 — Field Wiring; 30GN040-070; All Voltages



208/230 VOLT 60 HZ



380/415 VOLT 50 HZ
460, 575 VOLT 60 HZ



230, 346, 400 VOLT 50 HZ

NOTE: Dimensions in [] are in millimeters

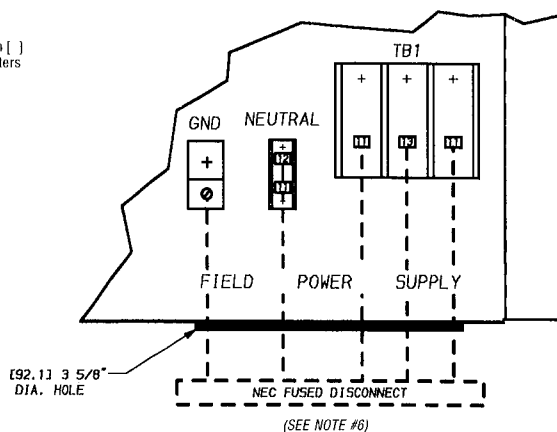


Fig. 28 — Field Wiring; 30GN080-110; All Voltages

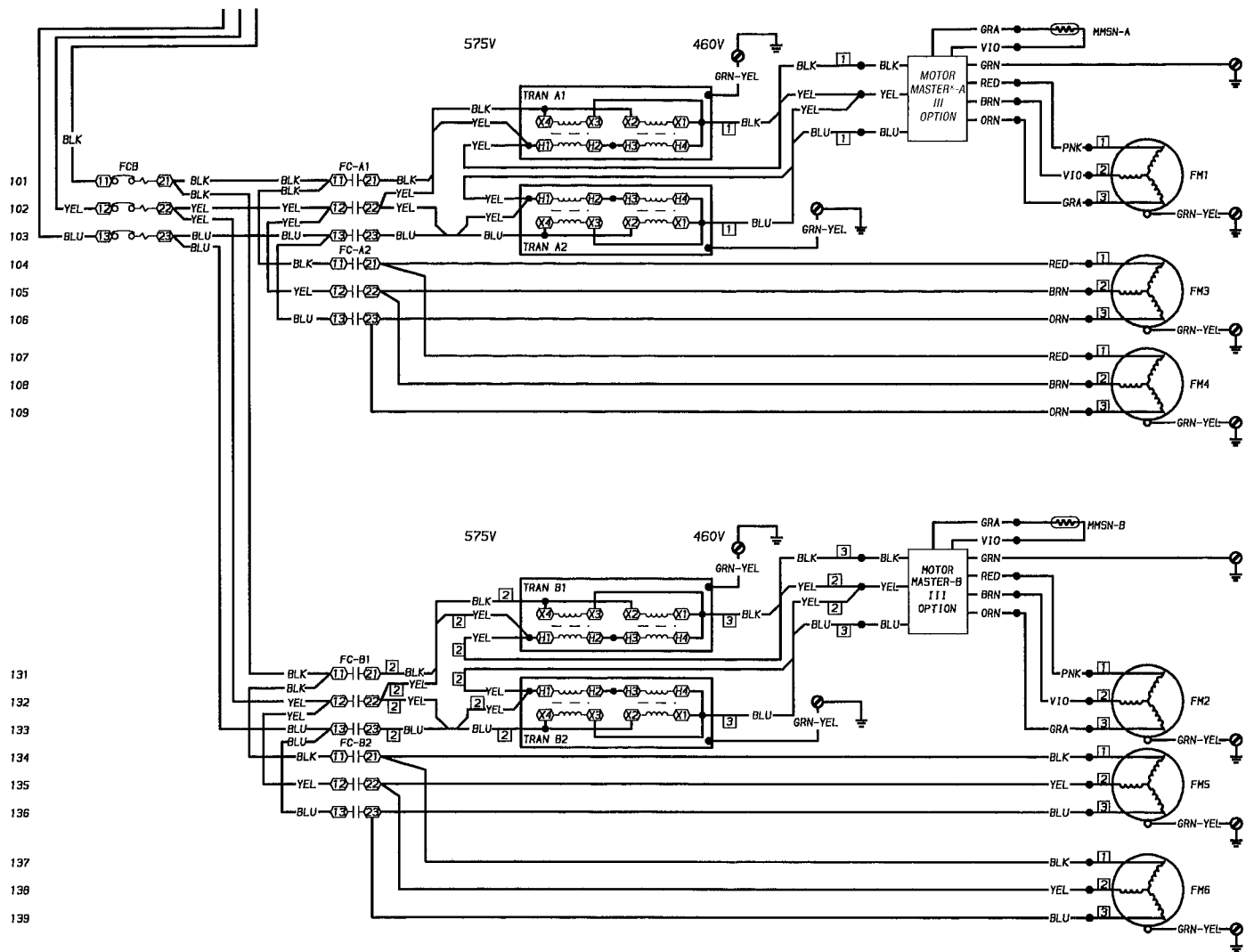


Fig. 30 — 30GN,GT060, 070; 575 v Motormaster® Control Units

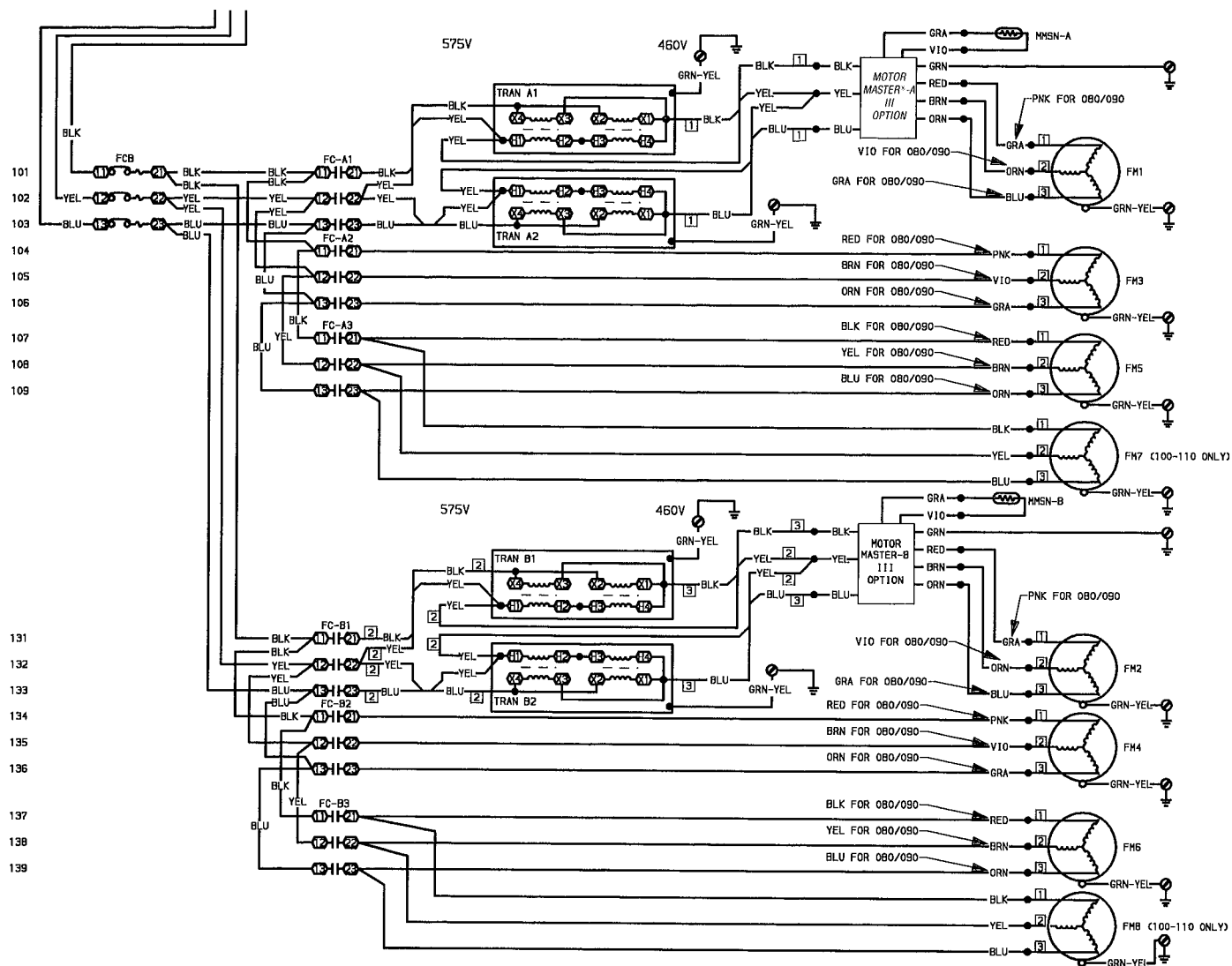


Fig. 31 — 30GN,GT080-110; 575 v Motormaster® Control Units

DUAL SET POINT REQUIREMENT

30GT Only — For installations requiring dual set point capability, the demand limit control module (DLCM) and the accessory reset board are required

To operate the chiller with a dual set point, the fluid should be properly chosen for temperature application. The chilled water set point is achieved by field installation of a single-pole double-throw relay of the appropriate control voltage, with a single-pole single-throw switch and resistors wired to TB6-1 and -2 as shown in Fig. 32.

On the processor board, remove the cover to the DIP (dual in-line package) switches. Set DIP switch no. 2 to ON to enable reset. ON-OFF switch must be OFF before changing the setting of the DIP switch.

The chilled liquid set point must be set to the lower of the 2 temperatures selected.

ACCESSORY RESET BOARD — Chiller reset temperature potentiometer should be set between 90 and 95 F (32 and 35 C). If a fault code of **87** is displayed on the LED (light-emitting diode), reduce the value slightly to elimi-

nate the fault code. The reset limit potentiometer must be set to the difference between the low and high set point temperature. The chiller reset ratio potentiometer should be set at 100%. If a fault code of **86** is displayed on the LED, reduce the value slightly to eliminate the fault code.

OPERATION — The chiller will supply water at the higher set point when no power is supplied to the dual set point relay (DSPR). When power is applied to the DSPR, the chiller will supply water (fluid) at the lower temperature. For example: For a dual set point requirement of 44 F (6.7 C) and 26 F (-3.3 C) water, the chiller will supply fluid at 26 F (-3.3 C) when the relay DSPR is energized, and 44 F (6.7 C) when it is not — with the necessary accessories installed and the following control devices set at these values:

	F	C
Chilled Liquid Set Point:	26	-3.3
Chiller Reset Temperature:	95	35
Reset Limit Potentiometer:	18°	10°
Reset Ratio:	100%	

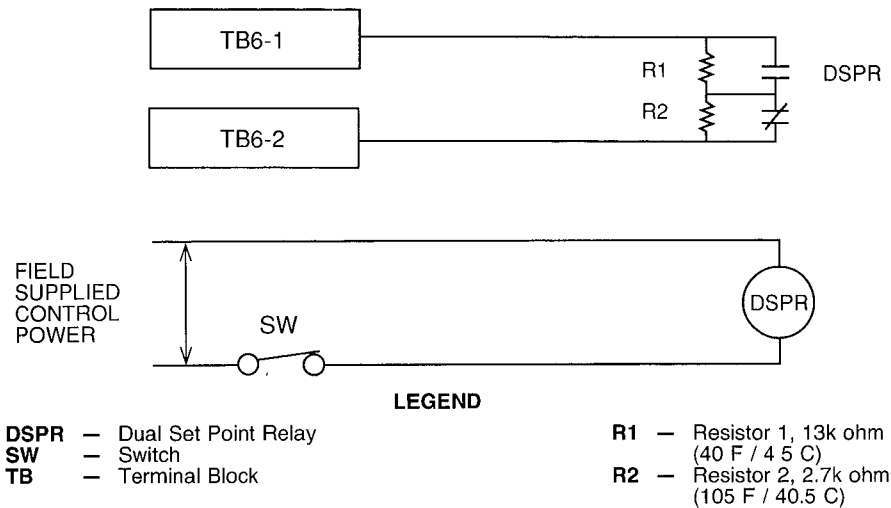


Fig. 32 — Dual Set Point Wiring