



Wiring Diagrams

Units with Dual Scroll Compressors

USAGE TABLE

UNIT	PRODUCTION START DATE	UNIT SERIAL NUMBER
48TJ016,024 (60 Hz) and 50TJ016,024 (60 Hz)	11/16/98	4798F and later
48TJ020,028 (60 Hz) and 50TJ020,028 (60 Hz)	12/7/98	5098F and later
50TJ016 (50 Hz, Units with 3 Outdoor Fans), 024 (50 Hz)	1/18/99	0499F and later
50TJ028 (50 Hz)	3/22/99	1399F and later
50TJ016 (50 Hz, Units with 2 Outdoor Fans)	11/1/99	4599F and later

DIAGRAM INDEX

UNIT LABEL DIAGRAM			
Unit	Voltage-Phase-Hertz	Label Diagram	Figure No.
48TJD/F016	208/230-3-60	48TJ500505	1
	460-3-60	48TJ500506	2
	575-3-60	48TJ500506	2
48TJD/F020	208/230-3-60	48TJ500498	3
	460-3-60	48TJ500499	4
	575-3-60	48TJ500499	4
48TJD/F024	208/230-3-60	48TJ500496	5
	460-3-60	48TJ500497	6
	575-3-60	48TJ500497	6
48TJD/F028	208/230-3-60	48TJ500507	7
	460-3-60	48TJ500544	8
	575-3-60	48TJ500544	8
50TJ016	208/230-3-60	50TJ500413	9
	460-3-60	50TJ500463	10
	575-3-60	50TJ500519	11
	400-3-50 (3 Outdoor Fans)	50TJ500477	12
	400-3-50 (2 Outdoor Fans)	50TJ500765	13
	380-3-60	50TJ500477	12
50TJ020	208/230-3-60	50TJ500470	14
	460-3-60	50TJ500471	15
	575-3-60	50TJ500472	16
50TJ024	208/230-3-60	50TJ500466	17
	460-3-60	50TJ500467	18
	575-3-60	50TJ500468	19
	400-3-50	50TJ500469	20
	380-3-60	50TJ500469	20
	208/230-3-60	50TJ500479	21
50TJ028	460-3-60	50TJ500480	22
	575-3-60	50TJ500547	23
	400-3-50	50TJ500549	24
	380-3-60	50TJ500549	24

ACCESSORY WIRING	
Item	Fig. No.
Power Exhaust	25,26
Time Guard® II Device	27
Smoke Control/Fire Shutdown*	28,29
Indoor Air Quality	30

*Requires both economizer and power exhaust.

LOWER OUTDOOR AMBIENT OPERATION ACCESSORIES										
Unit 48/50TJ	Std Min. Operating Temp	Mild Ambient Control				Low Ambient Control				
		Min. Operating Temp (F)	Acy Kit Part No. Required (Quantity)	Accessory Name	Wiring Fig. No.	Min. Operating Temp (F)	Acy Kit Part No. Required (Quantity)	Accessory Name	Wiring Fig. No.	Sensor Location Fig. No.
016	40	10	CRWINSTR001A00, CRLOWAMB001A00	Winter Start Kit 10 F Ambient Kit	31,32	-20	CRWINSTR001A00, CRLOWAMB001A00, 32LT900301 OR 32LT900611*†	Winter Start Kit, 10 F Ambient Kit, -20 F MM I	31,32, 33	34
020	40	10	CRWINSTR001A00** (2), CRLOWAMB001A00	Winter Start Kit 10 F Ambient Kit	31,32	-20	CRWINSTR001A00 (2), CRLOWAMB001A00, 32LT900301 OR 32LT900611*†	Winter Start Kit, 10 F Ambient Kit, -20 F MM I	31,32, 33	34
024	40	25	CRWINSTR001A00, CRLOWAMB002A00	Winter Start Kit 25 F Ambient Kit	31,35	-20	CRWINSTR001A00 (2), 30GT910079††	Winter Start Kit, -20 F MM III	31,36	37
028	40	25	CRWINSTR001A00, CRLOWAMB002A00	Winter Start Kit 25 F Ambient Kit	31,35	-20	CRWINSTR001A00 (2), 30GT910079††	Winter Start Kit, -20 F MM III	31,36	37

LEGEND

MM — Motormaster® Head Pressure Control Device

*Use the 32LT900301 for 208/230, 575-v units. Use the 32LT900611 for 460-v units.

†The 575-v units require (1) HT01AH954 field-supplied transformer and a motor changeout to HC44GE208, available from the Replacement Components Division (RCD).

**Not required on models with the loss-of-charge switch on the liquid line.

††The 575-v units require (2) HT01AH851 field-supplied transformers wired in accordance with the Motormaster III installation instructions.

LEGEND (FIG. 1-24, 28 AND 29)

AHA — Adjustable Heat Anticipator
BR — Burner Relay
BRK W/AT — Breaks With Amp Turns
C — Contactor, Compressor
CAP — Capacitor
CB — Circuit Breaker
CC — Cooling Compensator
CH — Crankcase Heater
CLO — Compressor Lockout
CLS — Compressor Lockout Switch
COMP — Compressor Motor
CPM — Compressor Protection Module
CR — Control Relay
CT — Current Transformer
DM — Damper Motor
DU — Dummy Terminal
EAS — Economizer Actuator
EMC — Economizer Motor Contactor
EQUIP — Equipment
FL — Fuse Link
FLA — Full Load Amps
FPT — Freeze-Protection Thermostat
FS — Flame Sensor
FU — Fuse
GND — Ground
GVR — Gas Valve Relay
HC — Heater Contactor
HPS — High-Pressure Switch
HS — Hall Switch

HTR — Heater
HV — High-Voltage
I — Ignitor
IDM — Induced Draft Motor
IFC — Indoor (Evaporator) Fan Contactor
IFCB — Indoor (Evaporator) Fan Circuit Breaker
IFM — Indoor (Evaporator) Fan Motor
IFR — Indoor (Evaporator) Fan Relay
IGC — Integrated Gas Controller
L — Light
LED — Light-Emitting Diode
LOR — Lockout Relay
LPS — Low-Pressure Switch
LS — Limit Switch
MAT — Mixed-Air Thermostat
MGV — Main Gas Valve
NEC — National Electrical Code
NEUT — Neutral
OAT — Outdoor-Air Thermostat
OFC — Outdoor (Condenser) Fan Contactor
OFM — Outdoor (Condenser) Fan Motor
OP — Overcurrent Protection
PL — Plug Assembly
PRI — Primary
QT — Quadruple Terminal
RS — Rollout Switch
SEN, SN — Sensor
SR — Solenoid Relay
SW — Switch

TB — Terminal Block
TC — Thermostat Cooling
TH — Thermostat Heating
TRAN — Transformer
U — Unloader
UR — Unloader Relay
 Terminal (Marked)
 Terminal (Unmarked)
 Terminal Block
 Splice
 Splice (Marked)
 Factory Wiring
 Field Control Wiring
 Field Power Wiring
 Accessory or Optional Wiring

To indicate common potential only, not to represent wiring.

OPERATING SEQUENCE

Cooling, Units Without Economizer — When thermostat calls for cooling, terminals G and Y1 are energized. The indoor (evaporator) fan contactor (IFC) and compressor contactor no. 1 (C1) are energized, and evaporator-fan motor (IFM), compressor no. 1 and condenser fan(s) start. The condenser-fan motor(s) runs continuously while unit is cooling. When the thermostat calls for a second stage of cooling by energizing Y2, compressor contactor no. 2 (C2) is energized and compressor no. 2 starts.

Heating, Units Without Economizer (48TJ016-028)

NOTE: The 48TJ016-028 units have 2 stages of heat.

When the thermostat calls for heating, power is sent to W on the IGC (integrated gas unit controller) board. An LED (light-emitting diode) on the IGC board will be on during normal operation. A check is made to ensure that the rollout switch and limit switch are closed. The induced-draft motor is then energized, and when speed is proven with the hall effect sensor on the motor, the ignition activation period begins. The burners will ignite within 5 seconds.

If the burners do not light, there is a 22-second delay before another 5-second attempt. If the burners still do not light, this sequence is repeated for 15 minutes. After the 15 minutes have elapsed, if the burners still have not lighted, heating is locked out. To reset the control, break 24-v power to the thermostat.

When ignition occurs the IGC board will continue to monitor the condition of the rollout and limit switches, the hall effect sensor, as well as the flame sensor. If the unit is controlled through a room thermostat set for fan auto., 45 seconds after ignition occurs, the indoor-fan motor will be energized. If for some reason the overtemperature limit opens prior to the start of the indoor fan blower, on the next attempt, the 45-second delay will be shortened to 5 seconds less than the time from initiation of heat to when the limit tripped. Gas will not be interrupted to the burners and heating will continue. Once modified, the fan on delay will not change back to 45 seconds unless power is reset to the control.

When additional heat is required, W2 closes and initiates power to the second stage of the main gas valve. When the thermostat is satisfied, W1 and W2 open and the gas valve closes, interrupting the flow of gas to the main burners. If the call for W1 lasted less than 1 minute, the heating cycle will not terminate until 1 minute after W1 became active. If the unit is controlled through a room thermostat set for fan auto., the indoor-fan motor will continue to operate for an additional 45 seconds then stop. If the overtemperature limit opens after the indoor motor is stopped within 10 minutes of W1 becoming inactive, on the next cycle the time will be extended by 15 seconds. The maximum delay is 3 minutes. Once modified, the fan off delay will not change back to 45 seconds unless power is reset to the control.

A LED indicator is provided on the IGC to monitor operation. The IGC is located by removing the side panel and viewing the IGC through the view port located in the control box access panel. During normal operation, the LED is continuously on.

Heating, Units Without Economizer (50TJ016-028, If Accessory or Optional Heater is Installed) —

Upon a call for heating through terminal W1, IFC and heater contactor no. 1 (HC1) are energized. On units equipped for 2 stages of heat, when additional heat is needed, HC2 is energized through W2.

Cooling, Units With Economizer — Upon a call for cooling, when outdoor ambient is above the temperature control setting, the economizer damper moves to VENT position. The compressors and evaporator and condenser fans energize.

Upon a first call for cooling, when outdoor ambient is below the temperature control setting, the evaporator fan starts and the economizer opens to maintain 53 F leaving-air temperature. The compressors remain off.

Upon a second-stage call for cooling, compressor no. 1 is energized and mechanical cooling is integrated with economizer cooling. If the outdoor-air temperature drops below 50 F, a cooling lockout switch prevents the compressors from running.

When supply-air temperature drops below a fixed set point, the economizer damper modulates to maintain the temperature at the fixed set point.

Freeze protection thermostats (FPT) are located on the evaporator coil. They detect frost build-up and turn the compressors off locking them out and requiring a manual reset. Once frost has melted, the compressors can be reenergized.

Heating, Units With Economizer — Outdoor-air damper stays at VENT position while evaporator fan is operating. Refer to Heating, Units Without Economizer (48TJ016-028) and Heating, Units Without Economizer (50TJ016-028, If Accessory or Optional Heater is Installed) sections on this page for remainder of operating sequence.

Indoor Air Quality (Units with Economizer) — For indoor air quality operation, the following items are required:

- a factory-installed Apollo control or field-supplied and -installed 33CSUCE-06 relay pack
- field-supplied and -installed IAQ sensor

The relay pack drives the outdoor air damper full open based on the IAQ reading at the sensor. The damper remains full open until IAQ levels drop below the IAQ sensor set point.

IMPORTANT: Supplemental heating or cooling may be required to maintain comfort in the conditioned space if IAQ mode is utilized during extreme outdoor ambient conditions.

NOTES FOR FIG. 1,3,5,7

1. Compressor and/or fan motors are thermally protected. Three-phase motors are protected against primary single phasing conditions.
2. If any of the original wire furnished must be replaced, it must be replaced with type 90 C or its equivalent.
3. Jumpers are omitted when unit is equipped with an economizer.
4. Indoor fan circuit breaker must trip amps value is equal to or less than 140% FLA.
5. On 208/230-v unit, TRAN1 is factory wired to ORN lead for 230-v power supply. If unit is to be run on 208-v power supply, TRAN1 must be rewired. Disconnect the BLK wire on TRAN1 and connect wire to 208-v RED wire. Insulate 230-v ORN wire.
6. The CLO locks out the compressor to prevent short cycling on compressor overload and safety devices. Before replacing CLO, check these devices.
7. Number(s) indicate the line location of used contacts. A bracket over 2 numbers signifies a single-pole, double-throw contact. An underlined number signifies a normally closed contact. A plain (no line) number signifies a normally open contact.

NOTES FOR FIG. 2,4,6,8

1. Compressor and/or fan motors are thermally protected. Three-phase motors are protected against primary single phasing conditions.
2. If any of the original wire furnished must be replaced, it must be replaced with type 90 C or its equivalent.
3. Jumpers are omitted when unit is equipped with an economizer.
4. Indoor fan circuit breaker must trip amps value is equal to or less than 140% FLA.
5. If unit is to be run on 460-v power supply, TRAN1 must be wired to BLK wire. If unit is to be run on 575-v power supply, TRAN1 must be wired to ORN wire.
6. The CLO locks out the compressor to prevent short cycling on compressor overload and safety devices. Before replacing CLO, check these devices.
7. Number(s) indicate the line location of used contacts. A bracket over 2 numbers signifies a single-pole, double-throw contact. An underlined number signifies a normally closed contact. A plain (no line) number signifies a normally open contact.

NOTES FOR FIG. 9,14,17,21

1. Compressor and/or fan motors are thermally protected. Three-phase motors are protected against primary single phasing conditions.
2. If any of the original wire furnished must be replaced, it must be replaced with type 90 C or its equivalent.
3. On 208/230-v unit, TRAN1 is factory wired to ORN lead for 230-v power supply. If unit is to be run on 208-v power supply, TRAN1 must be rewired. Disconnect the BLK wire on TRAN1 and connect wire to 208-v RED wire. Insulate 230-v ORN wire.
5. Indoor fan circuit breaker must trip amps value is equal to or less than 140% FLA.
6. The CLO locks out the compressor to prevent short cycling on compressor overload and safety devices. Before replacing CLO, check these devices.
7. Jumpers are omitted when unit is equipped with an economizer.
8. Number(s) indicate the line location of used contacts. A bracket over 2 numbers signifies a single-pole, double-throw contact. An underlined number signifies a normally closed contact. A plain (no line) number signifies a normally open contact.

NOTES FOR FIG. 10,11,12,13,15,16,18,19,20,22,23,24

1. Compressor and/or fan motors are thermally protected. Three-phase motors are protected against primary single phasing conditions.
2. If any of the original wire furnished must be replaced, it must be replaced with type 90 C or its equivalent.
3. Jumpers are omitted when unit is equipped with an economizer.
5. Indoor fan circuit breaker must trip amps value is equal to or less than 140% FLA.
6. The CLO locks out the compressor to prevent short cycling on compressor overload and safety devices. Before replacing CLO, check these devices.
7. Number(s) indicate the line location of used contacts. A bracket over 2 numbers signifies a single-pole, double-throw contact. An underlined number signifies a normally closed contact. A plain (no line) number signifies a normally open contact.

SCHEMATIC

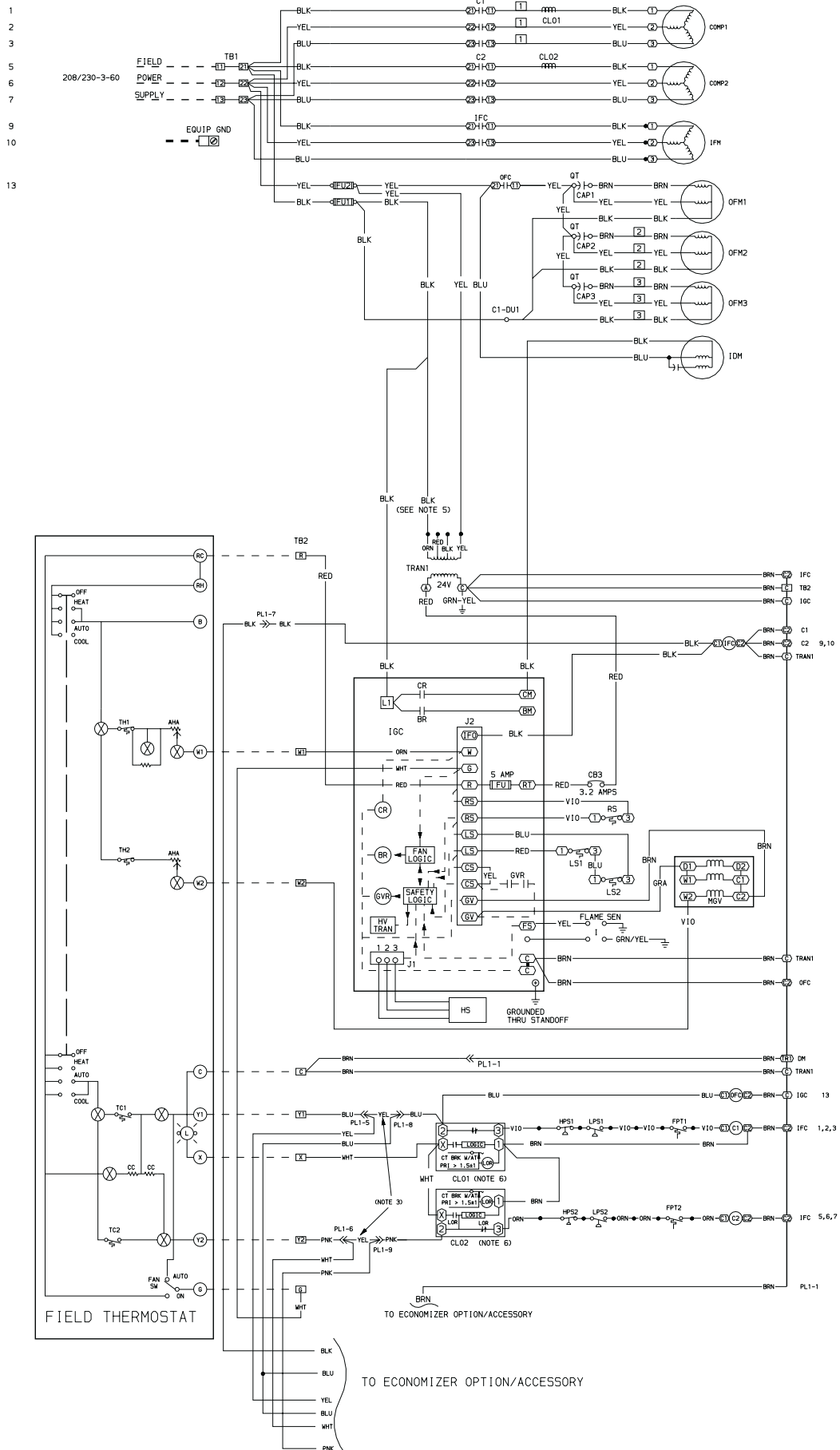
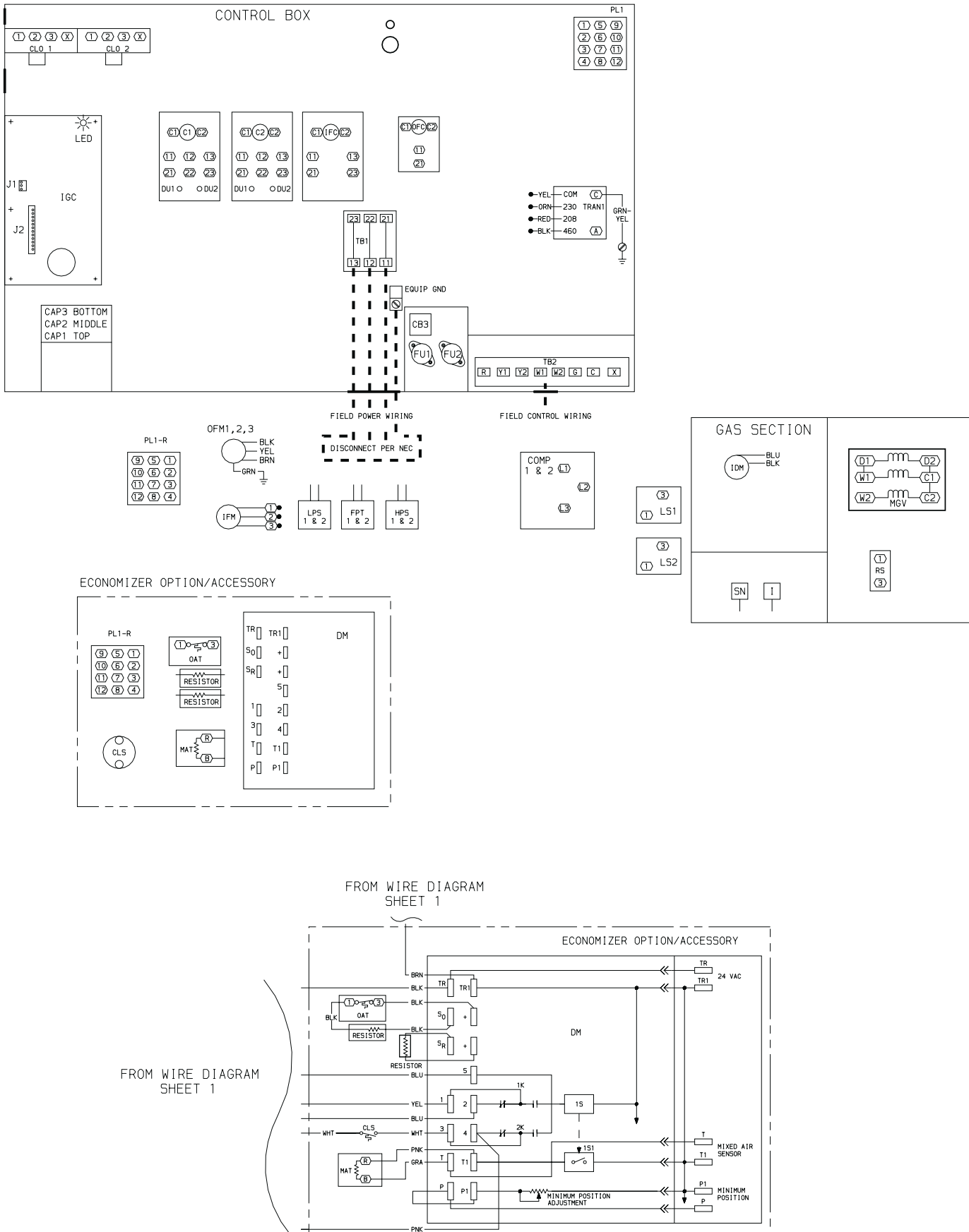


Fig. 1 — Label Diagram — 48TJ016, 208/230-3-60 Units

COMPONENT ARRANGEMENT



SCHEMATIC

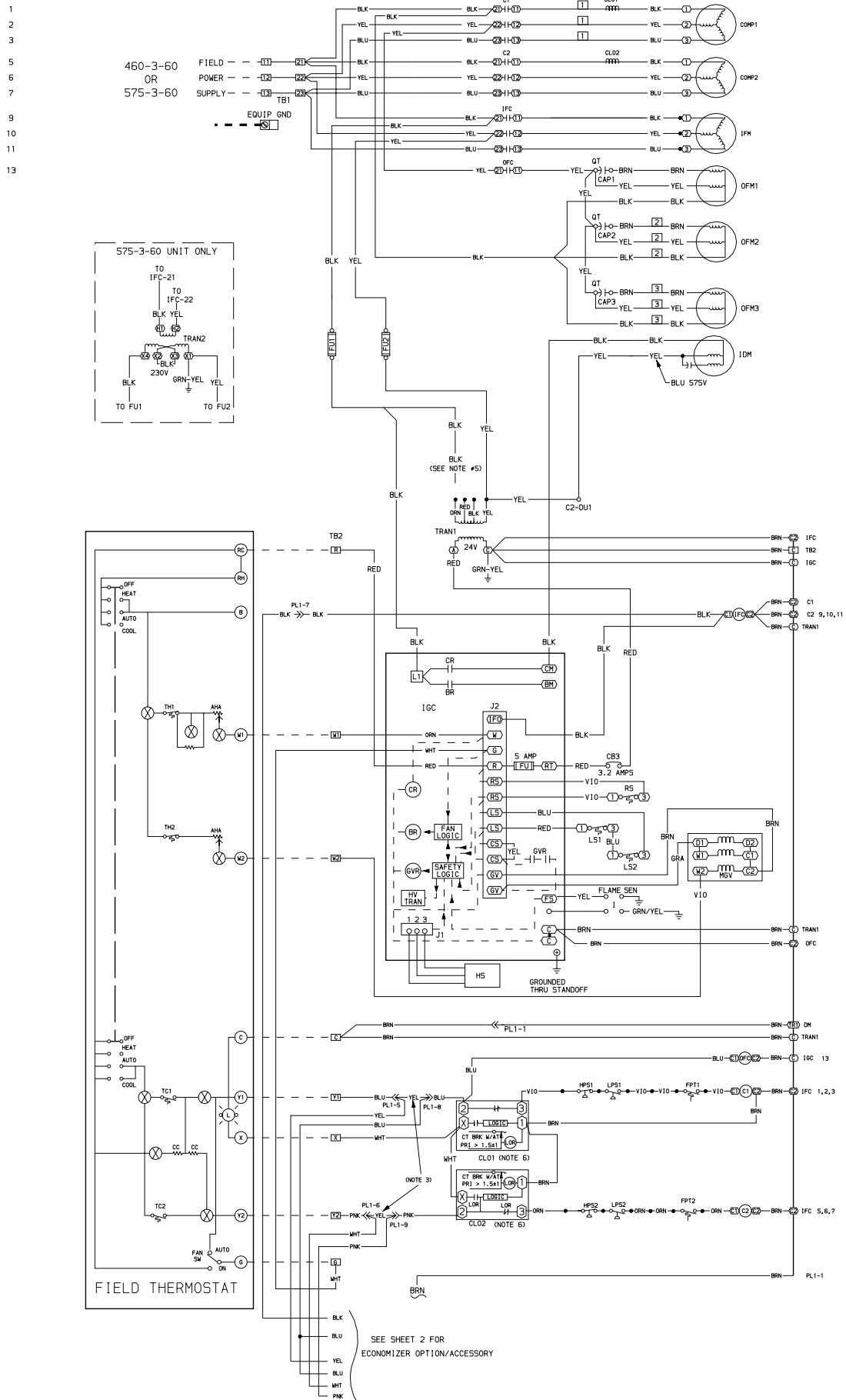
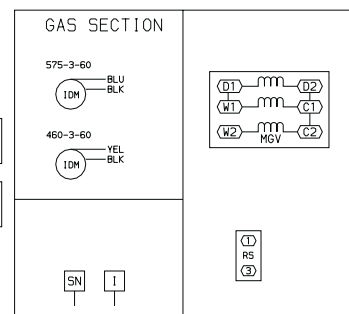


Fig. 2 — Label Diagram — 48TJ016, 460-3-60 and 575-3-60 Units

CONTROL BOX



PL1-R

(5) (5) (1)
(10) (5) (2)
(11) (7) (3)
(12) (8) (4)

CLS

OAT

RESISTOR

RESISTOR

MAT

R

B

DM

TR

TR1

So

Sr

5

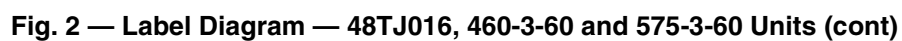
1

3

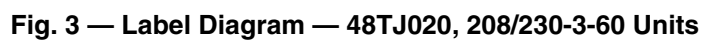
T1

P1

P



1
2
3
5
6
7
9
10
13



COMPONENT ARRANGEMENT

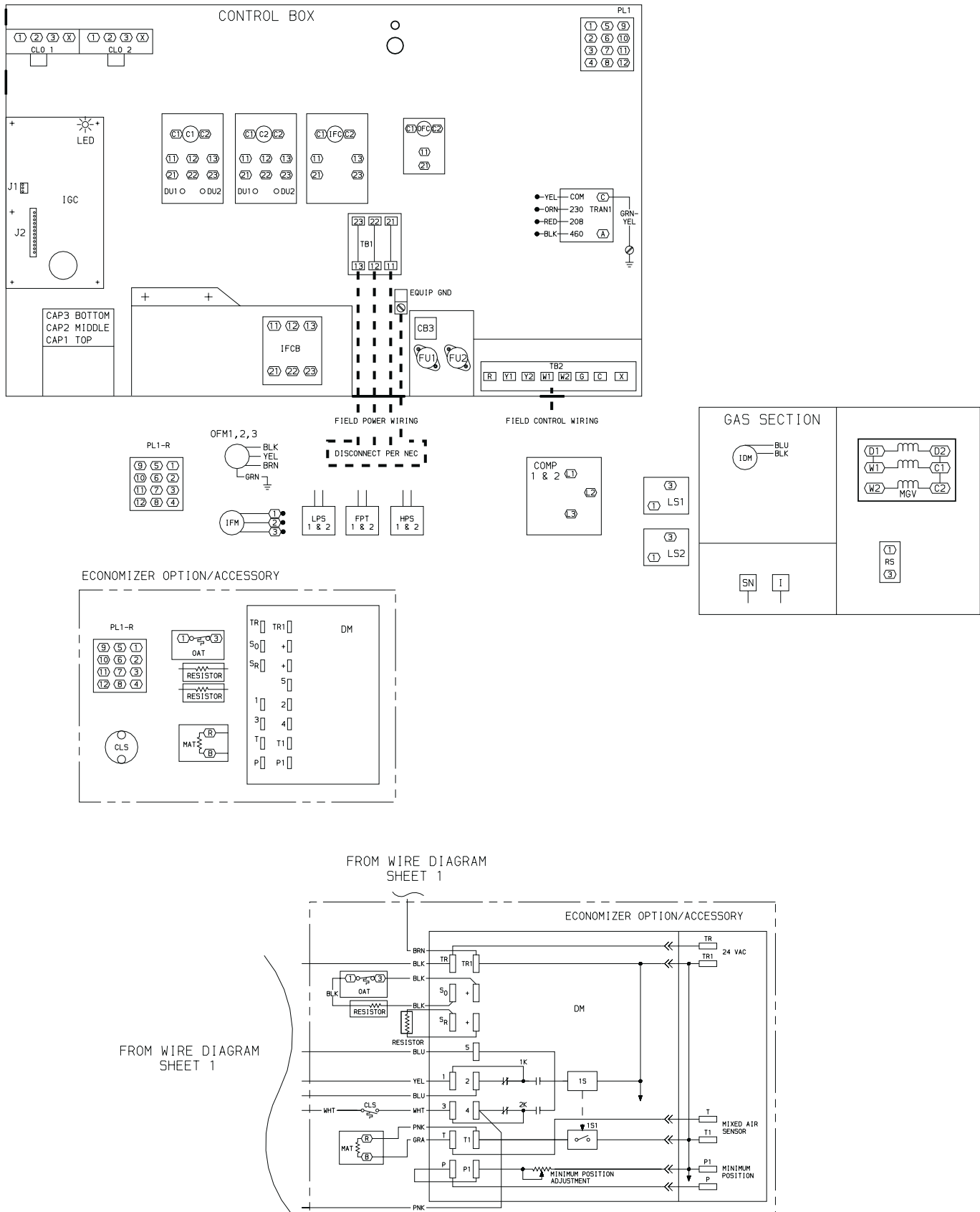


Fig. 3 — Label Diagram — 48TJ020, 208/230-3-60 Units (cont)

1
2
3
5
6
7
9
10
11
13

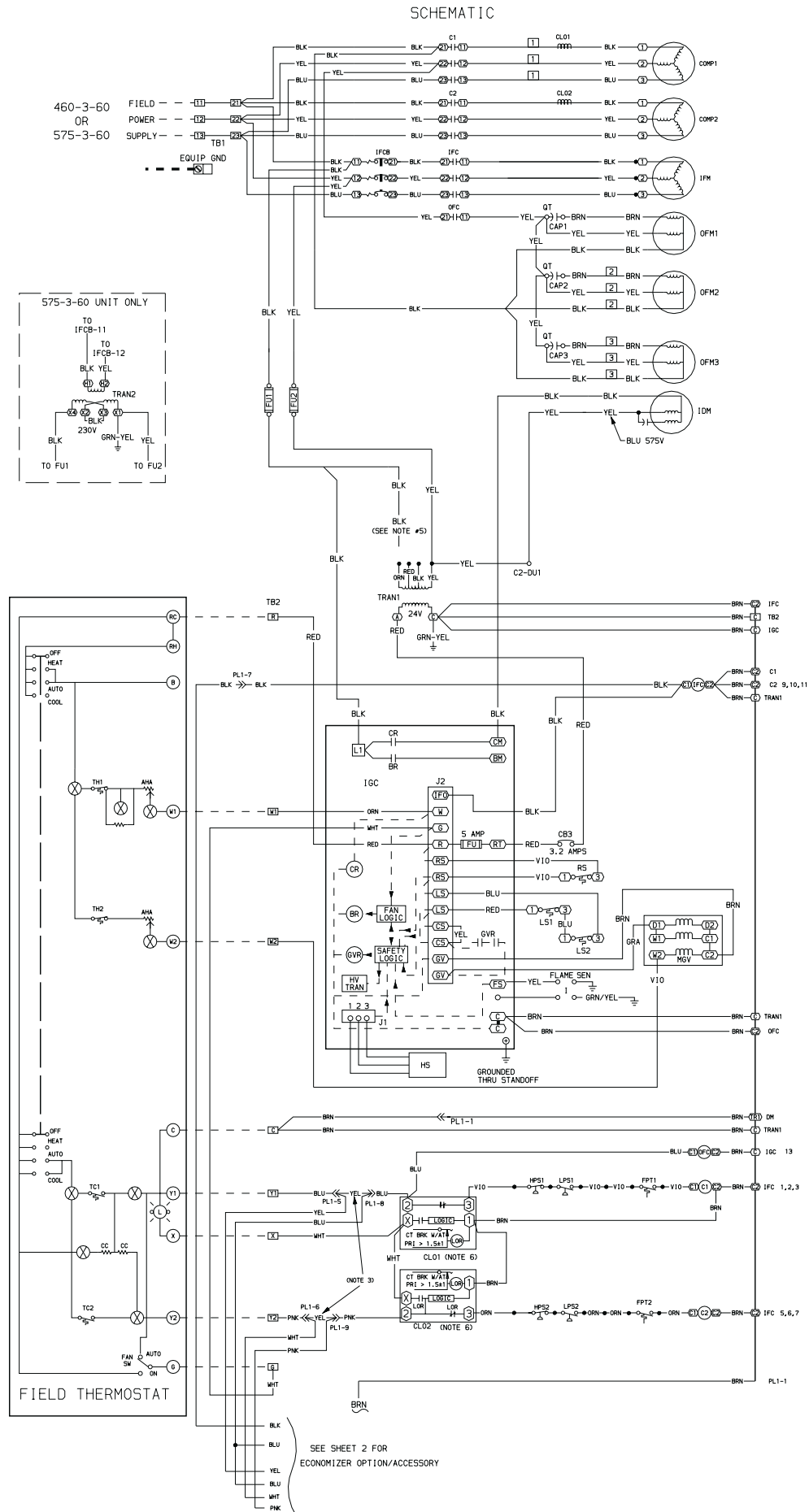
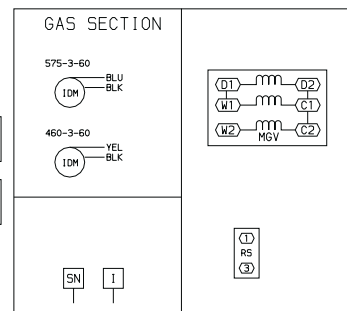


Fig. 4 — Label Diagram — 48TJ020, 460-3-60 and 575-3-60 Units

CONTROL BOX



PL1-R

③	⑤	①
⑩	⑤	②
⑪	⑦	③
⑫	⑧	④

CLS

QAT

RESISTOR

RESISTOR

MAT

TR₁

TR₁

DM

5₀

5₁

1₁

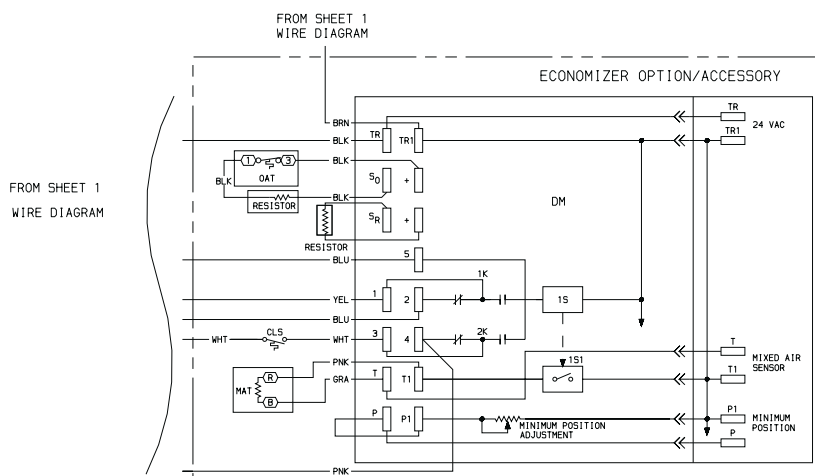
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3₁

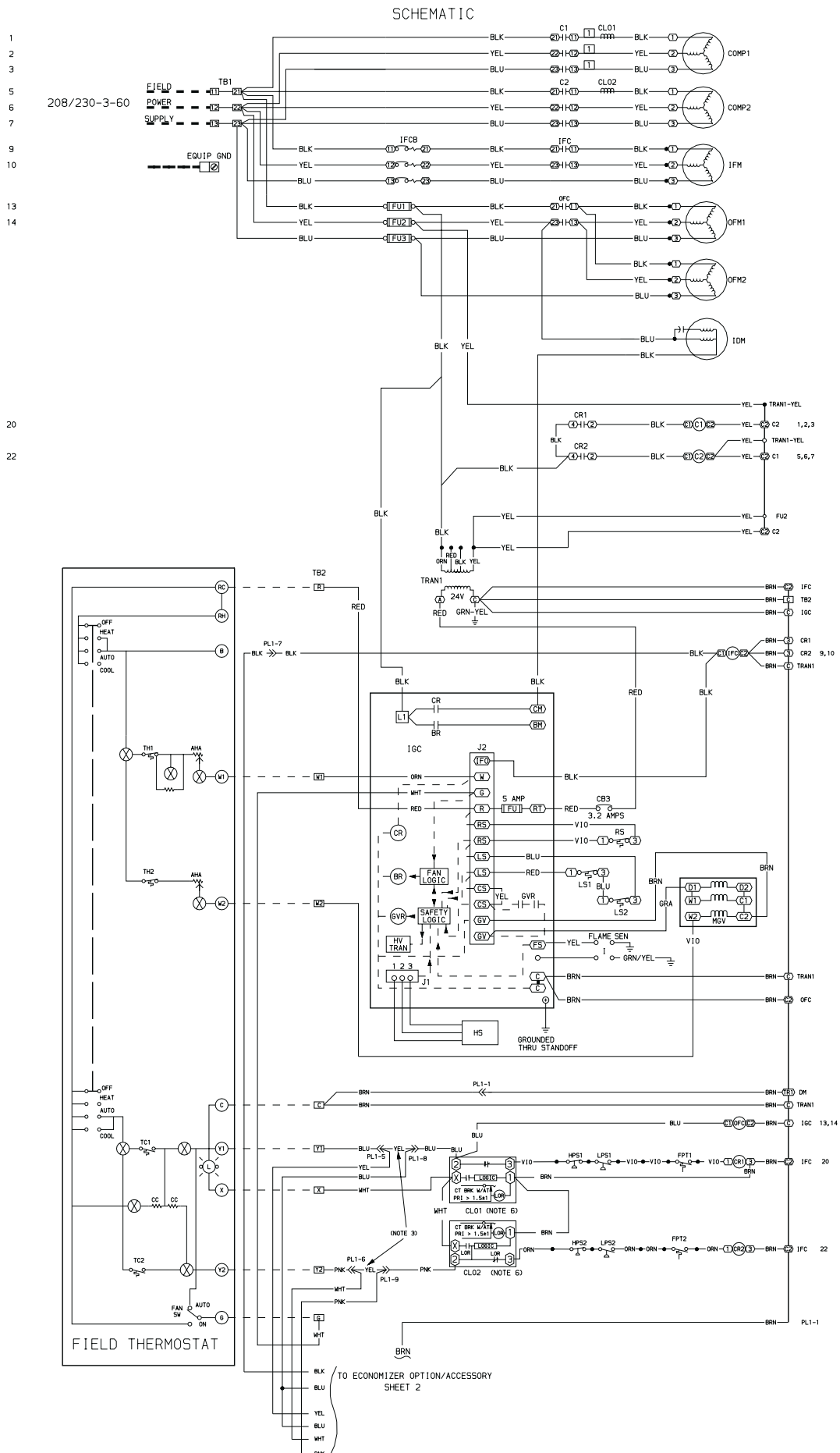
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T₁

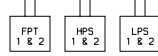
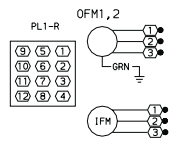
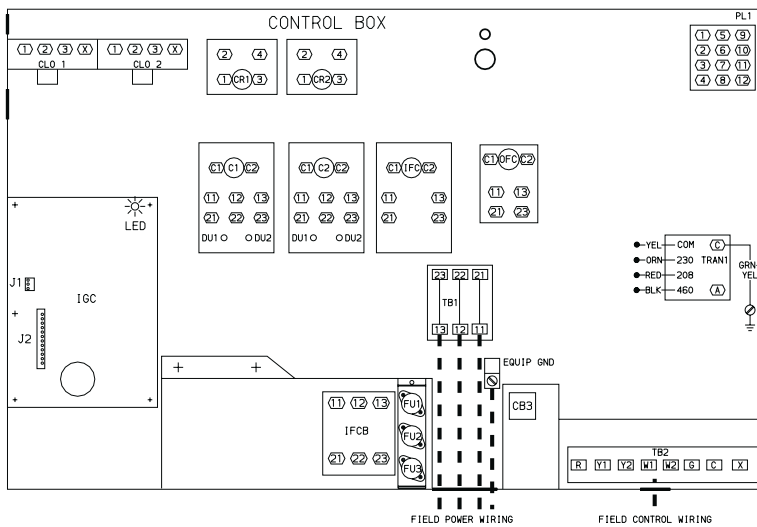
P₁



12



COMPONENT ARRANGEMENT



ECONOMIZER OPTION/ACCESSORY

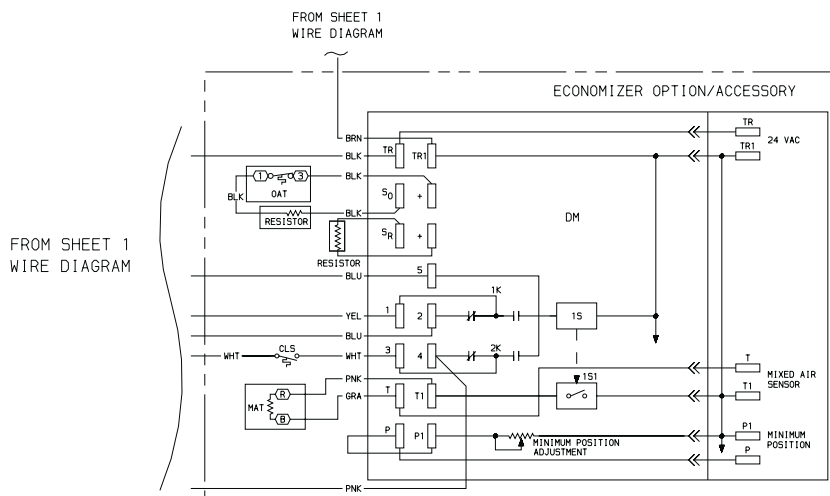
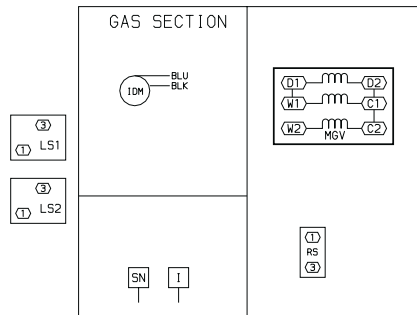
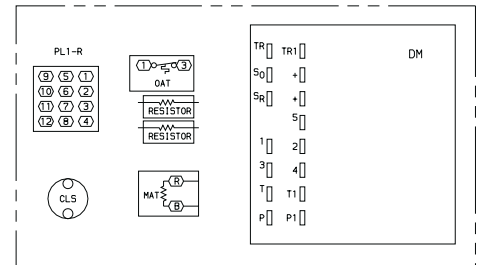
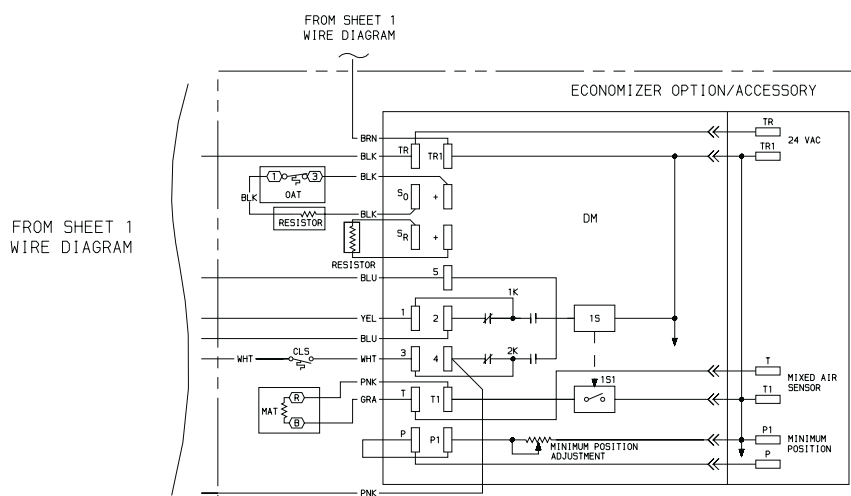
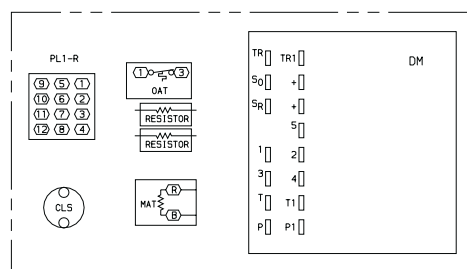
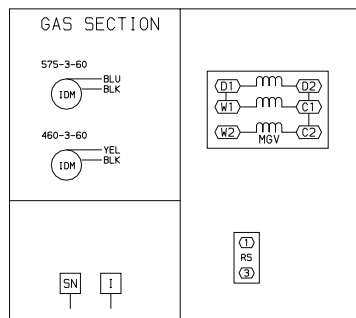
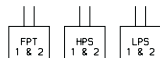


Fig. 5 — Label Diagram — 48TJ024, 208/230-3-60 Units (cont)

1
2
3
5
6
7
9
10
11
13
14
15

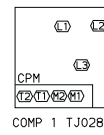
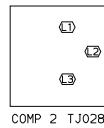
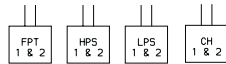
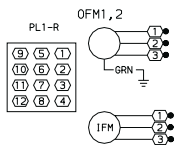
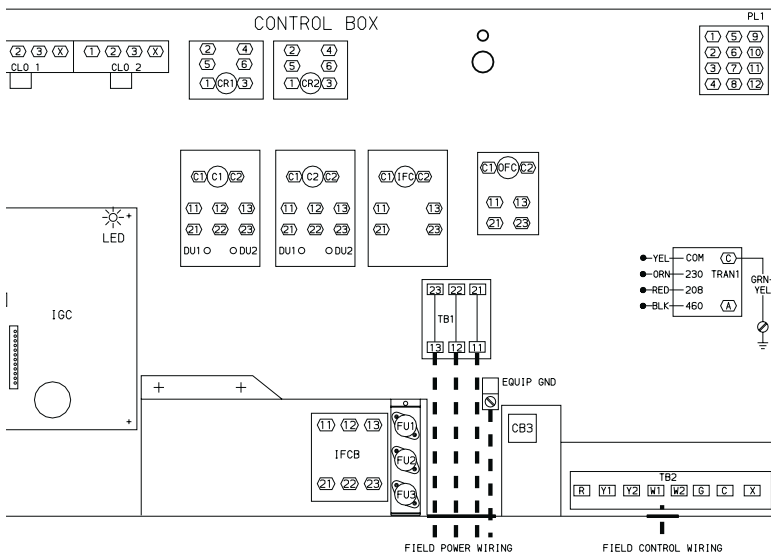


CONTROL BOX



16

COMPONENT ARRANGEMENT



ECONOMIZER OPTION/ACCESSORY

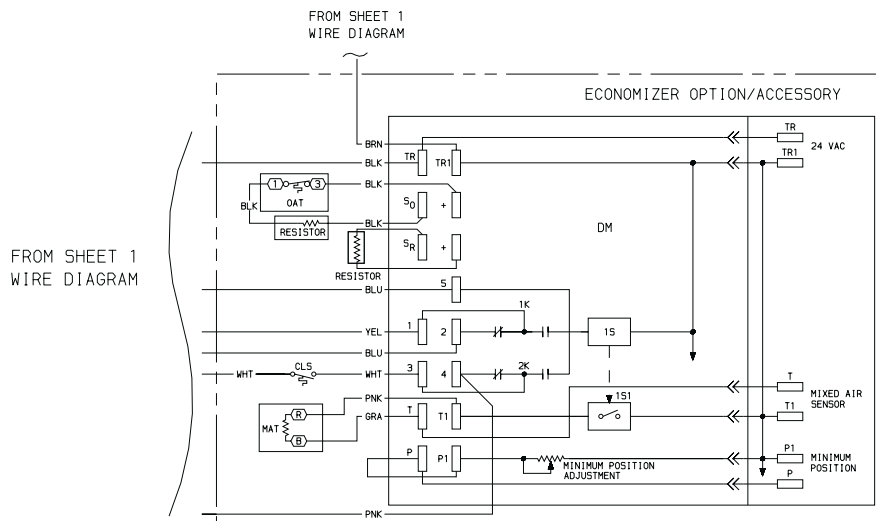
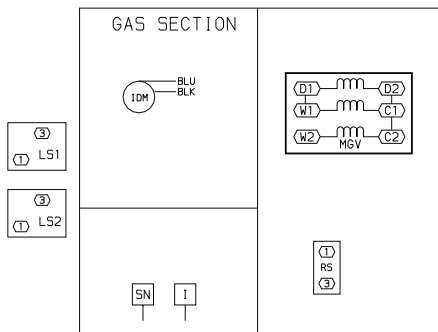
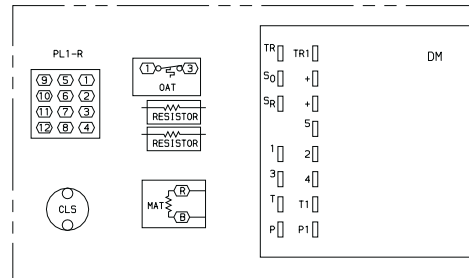
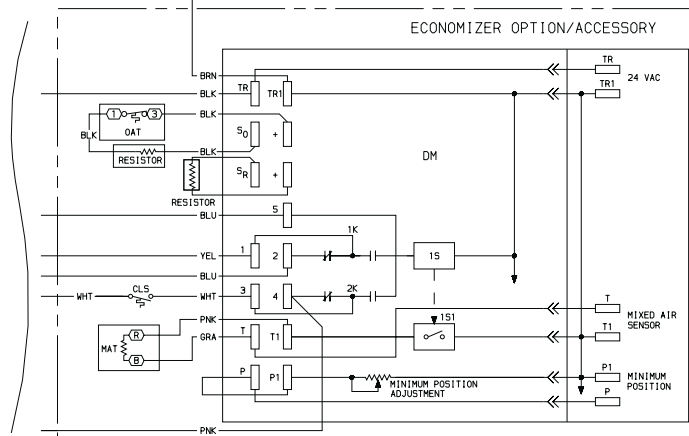
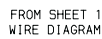
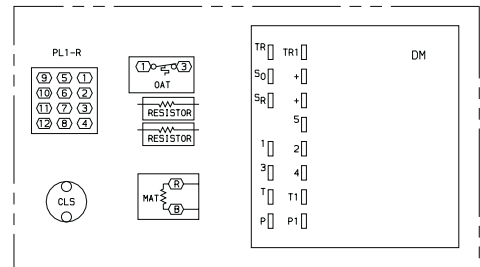
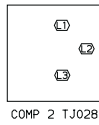
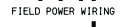


Fig. 7 — Label Diagram — 48TJ028, 208/230-3-60 Units (cont)

CONTROL BOX



20

SCHEMATIC

ELECTRIC HEAT		
	208/240V AMPS	200/230V KW
A	71.3/82.3	25.7/34.2
B	117/135	42.2/56.1
C	156/180	56.2/74.8

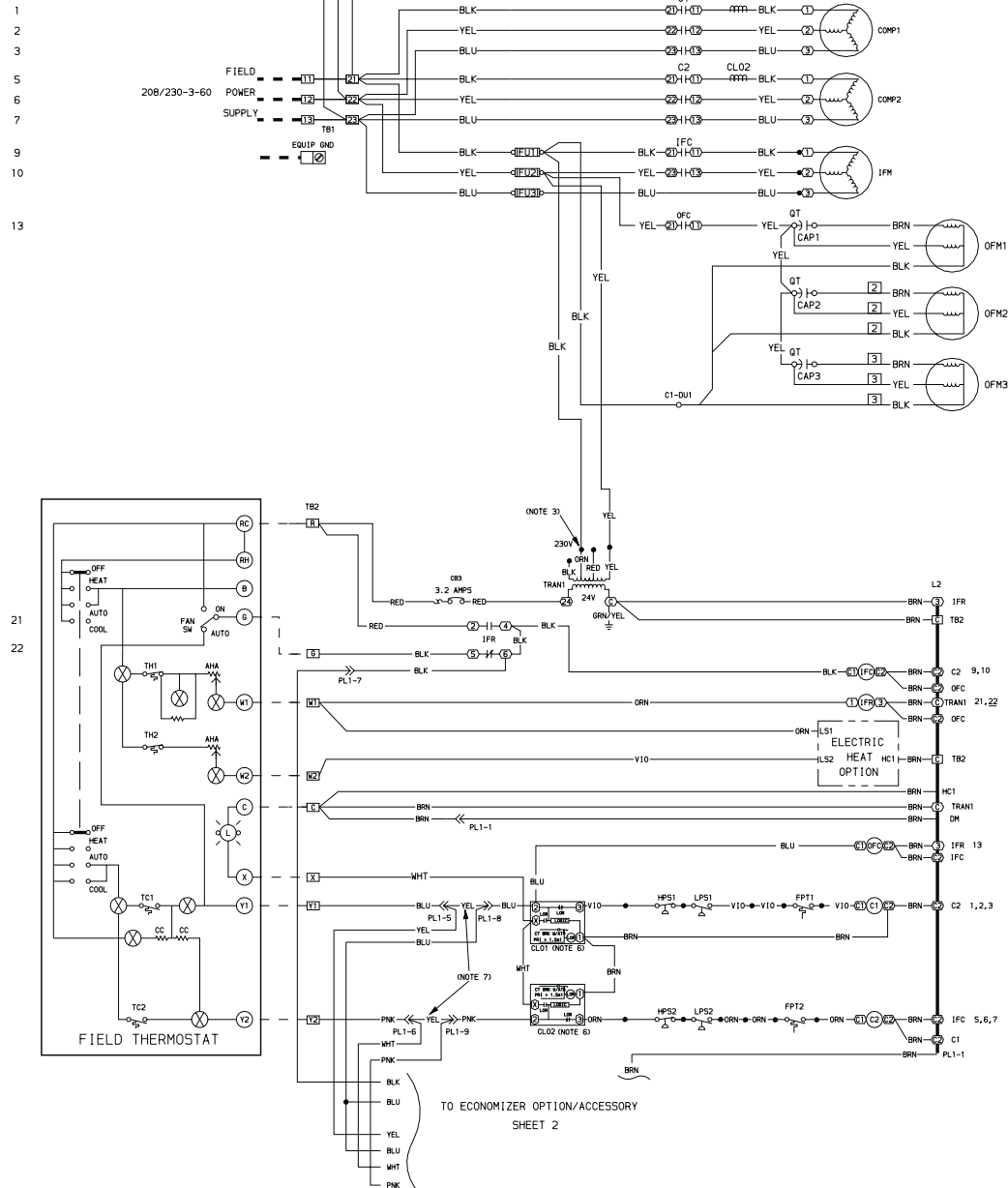
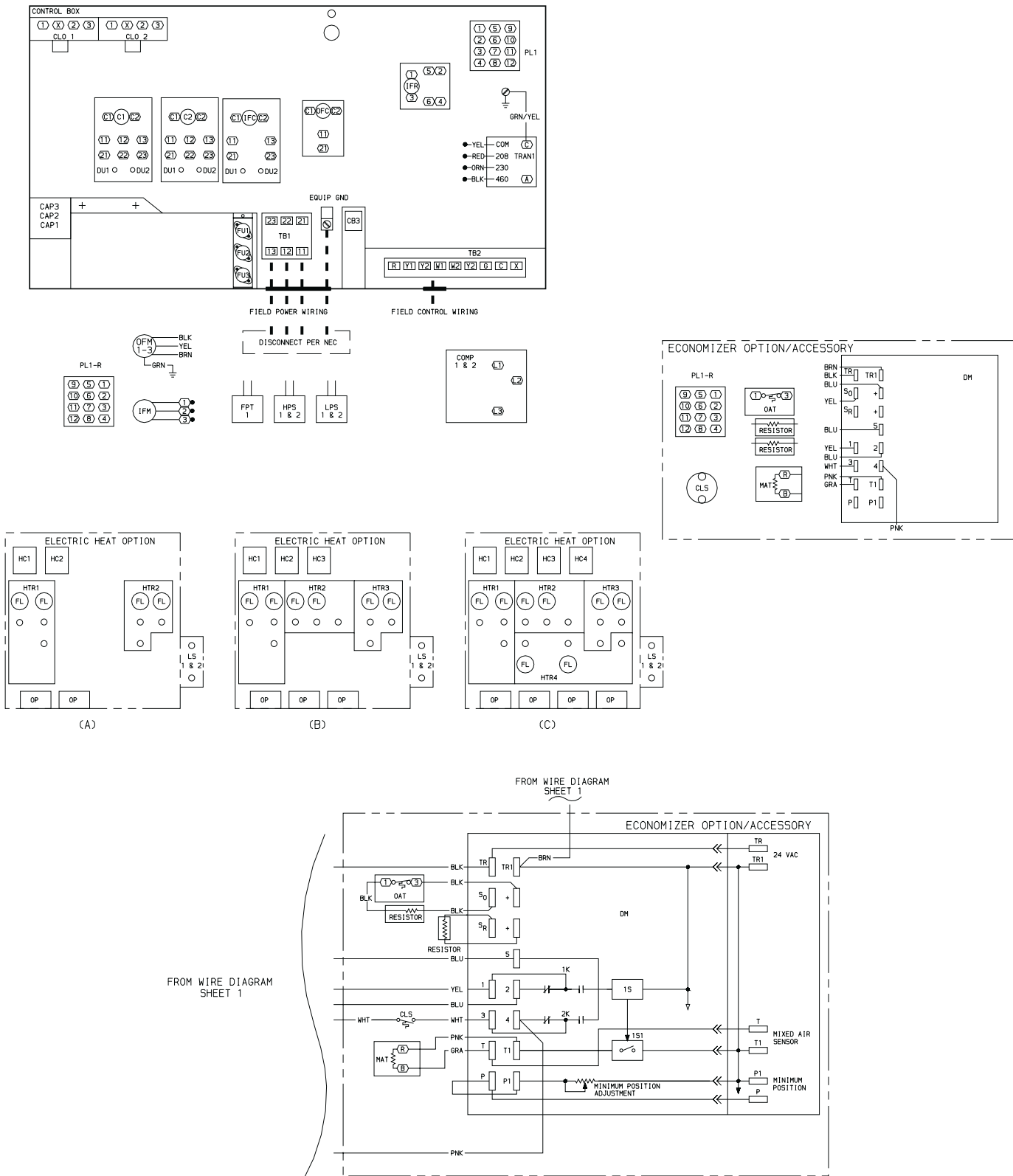
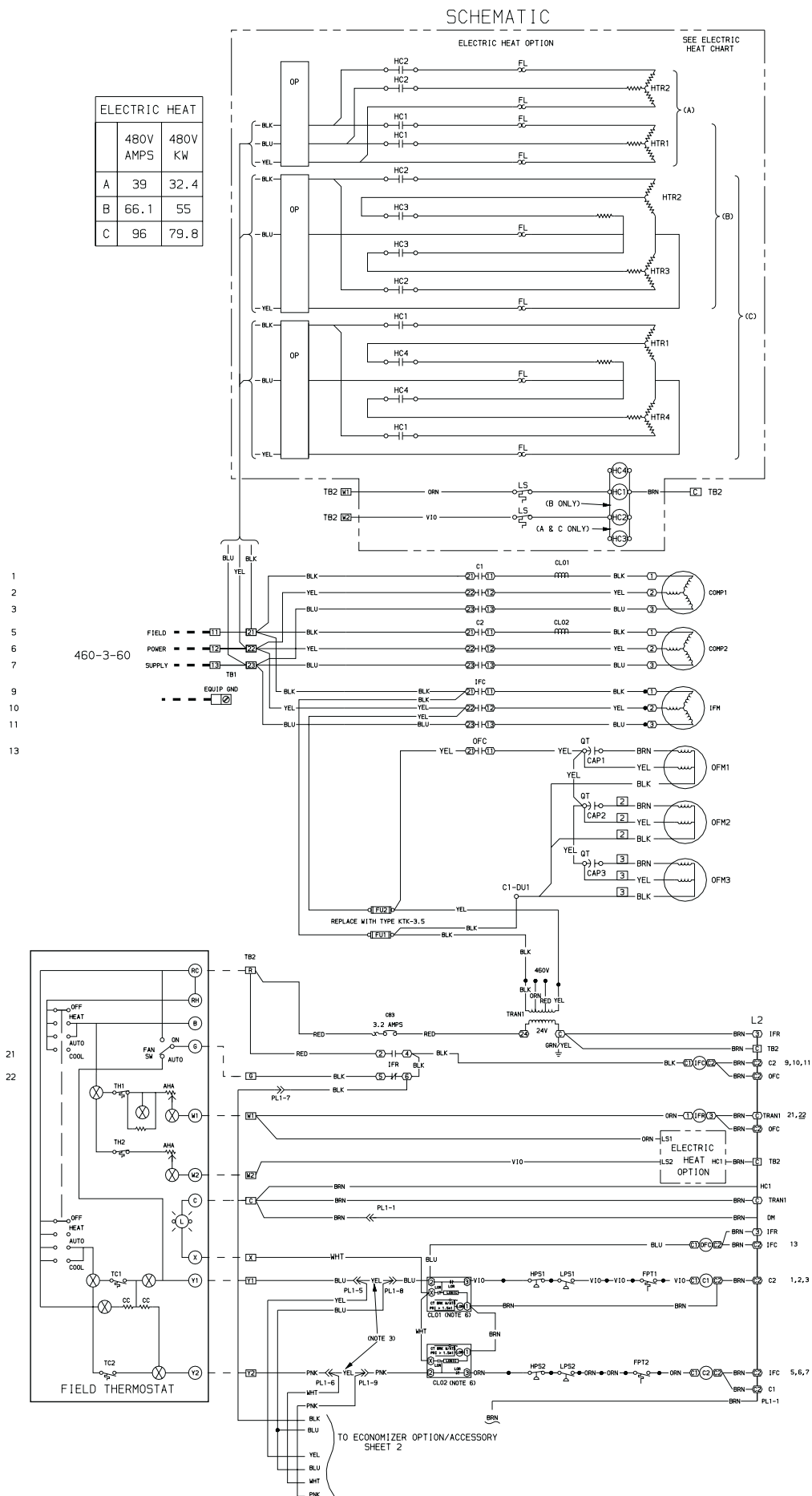


Fig. 9 — Label Diagram — 50TJ016, 208/230-3-60 Units

COMPONENT ARRANGEMENT





COMPONENT ARRANGEMENT

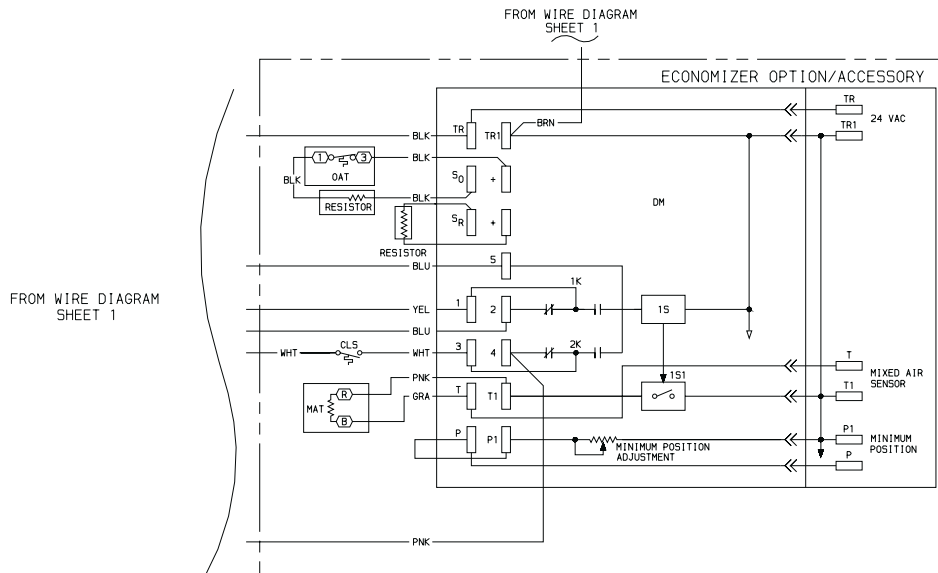
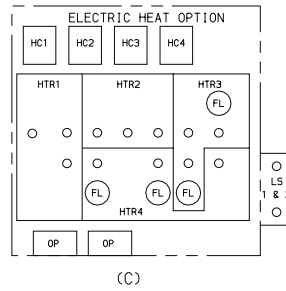
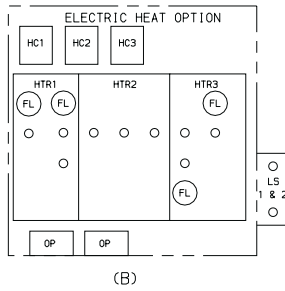
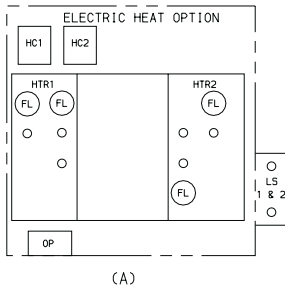
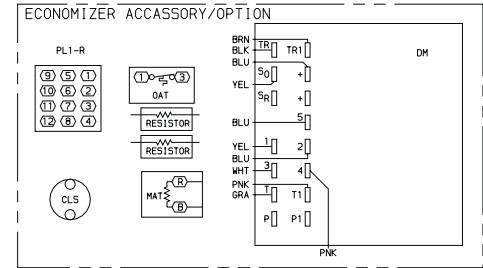
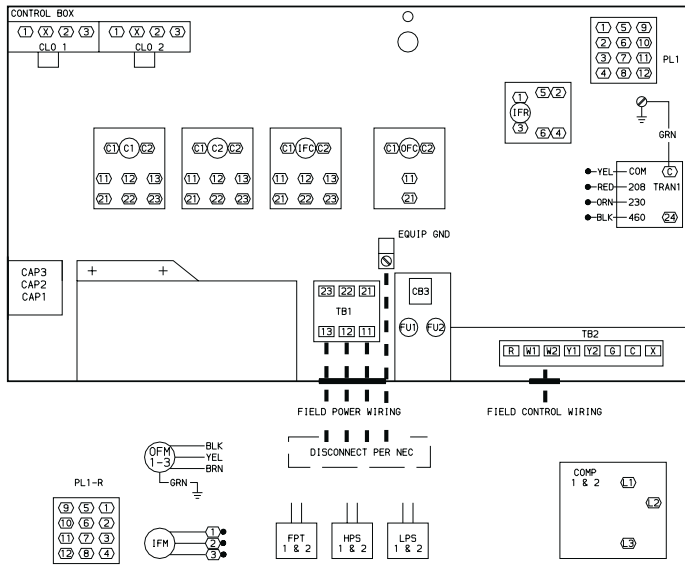


Fig. 10 — Label Diagram — 50TJ016, 460-3-60 Units (cont)

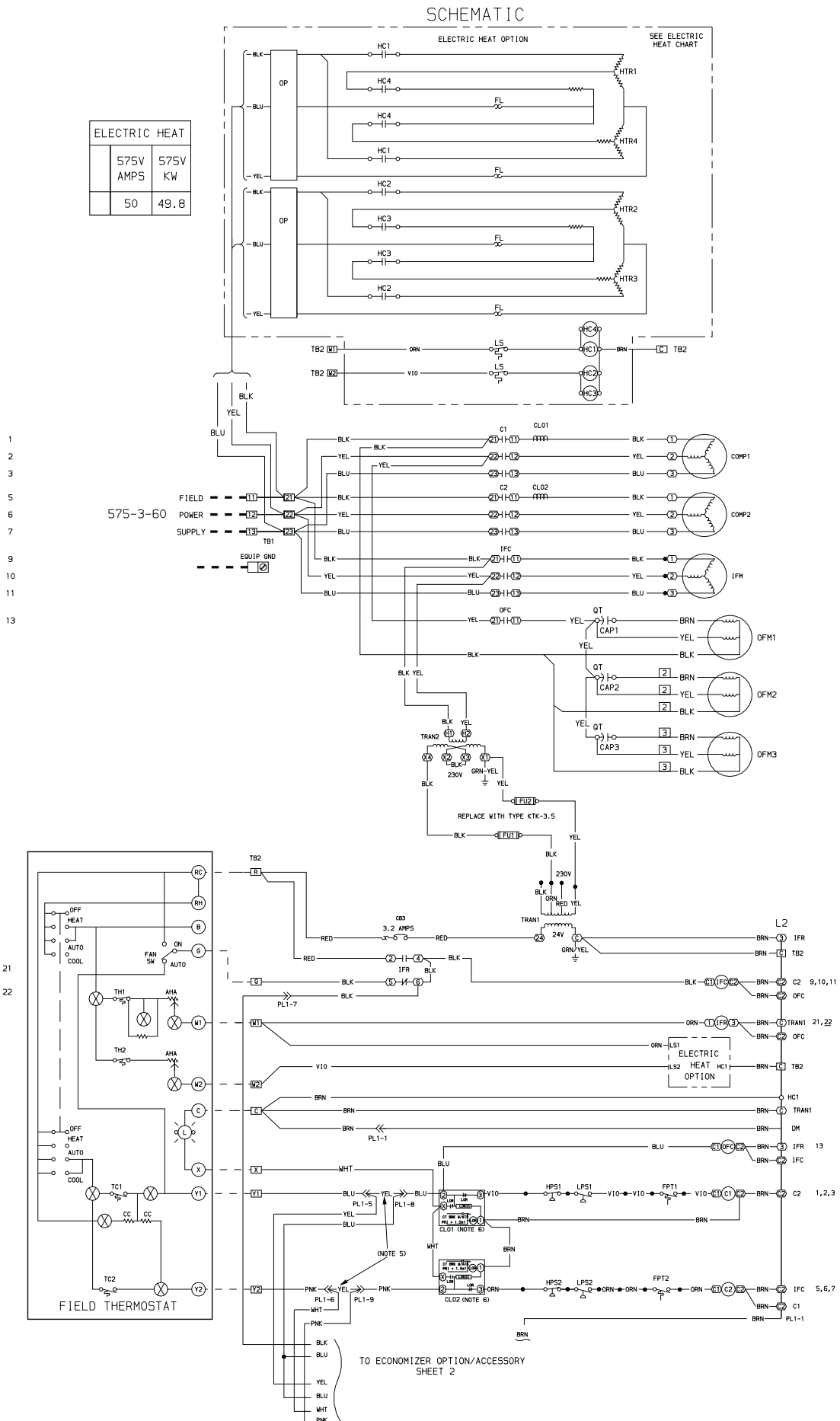


Fig. 11 — Label Diagram — 50TJ016, 575-3-60 Units

COMPONENT ARRANGEMENT

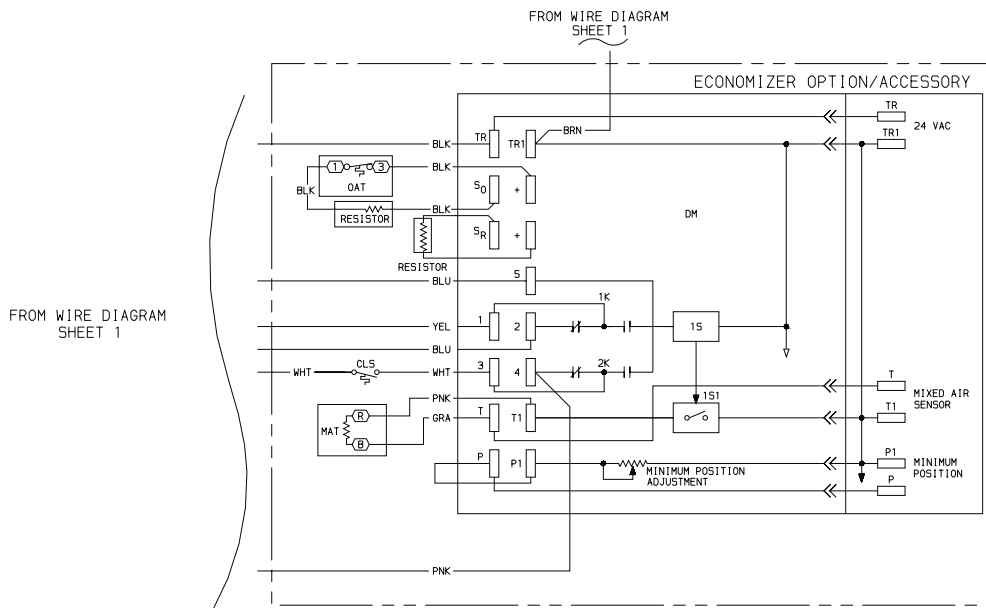
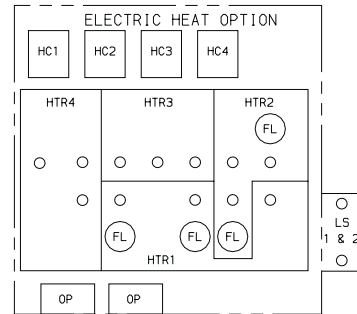
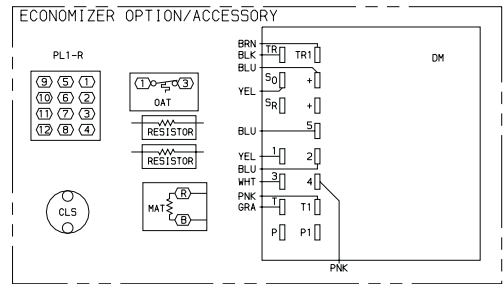
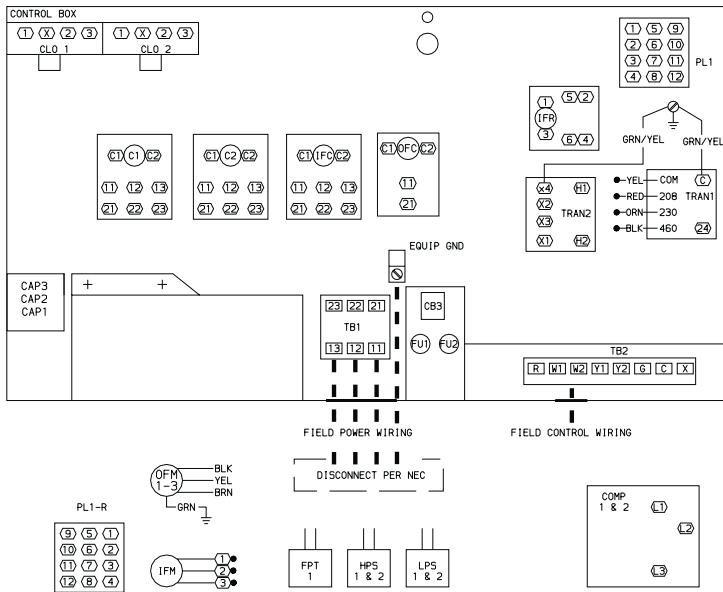


Fig. 11 — Label Diagram — 50TJ016, 575-3-60 Units (cont)

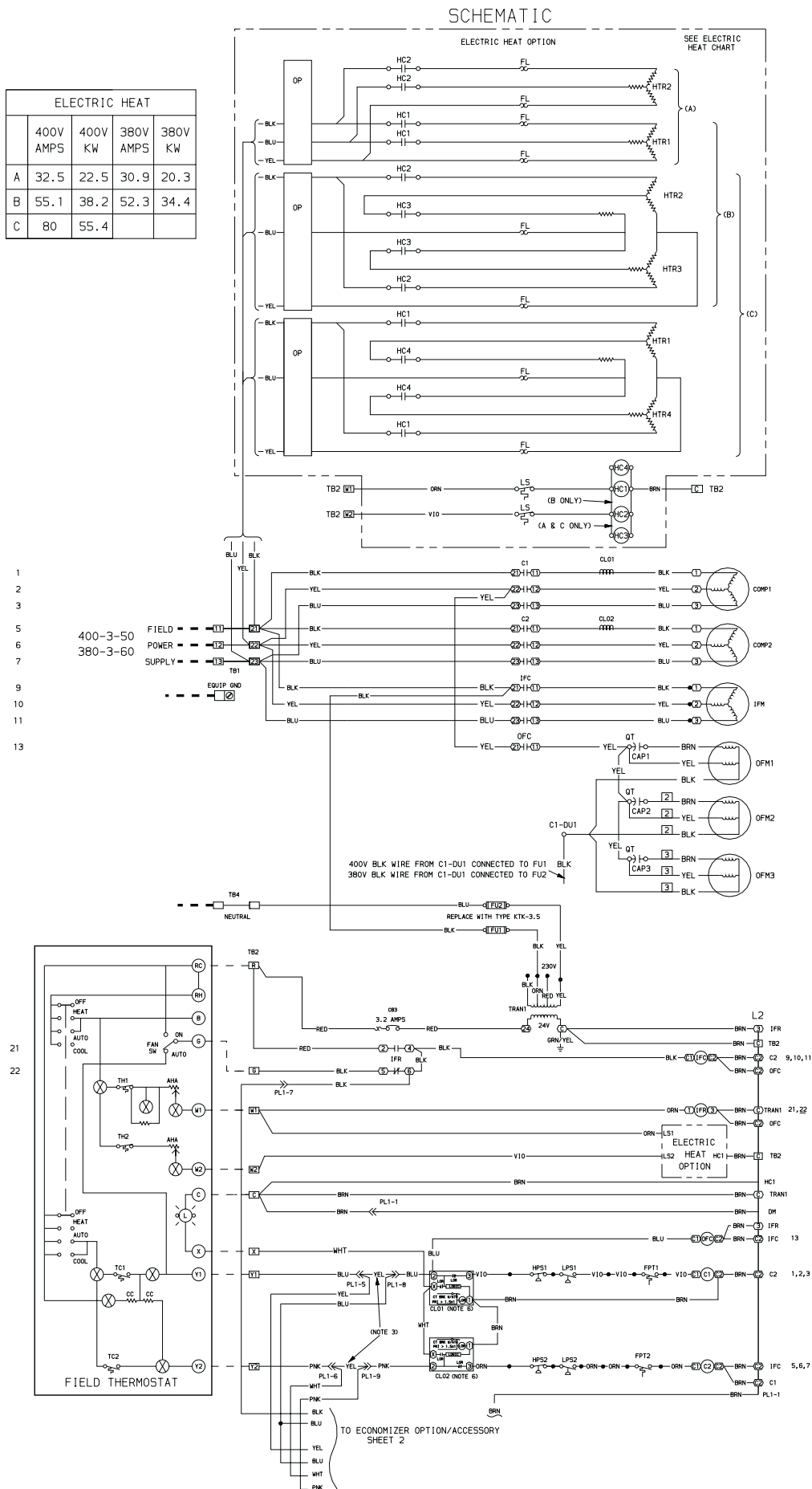


Fig. 12 — Label Diagram — 50TJ016, 380-3-60 and 400-3-50 (Units with 3 Outdoor Fans) Units

COMPONENT ARRANGEMENT

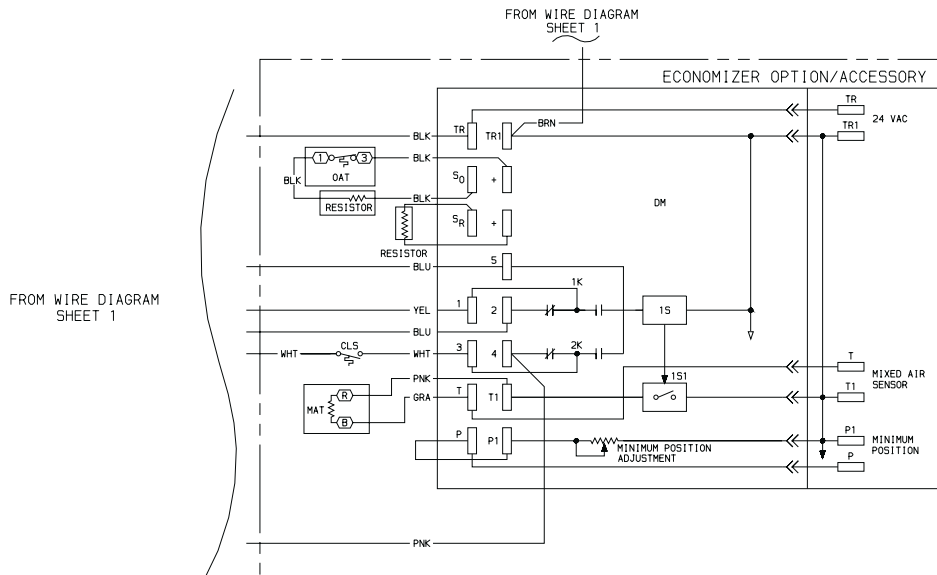
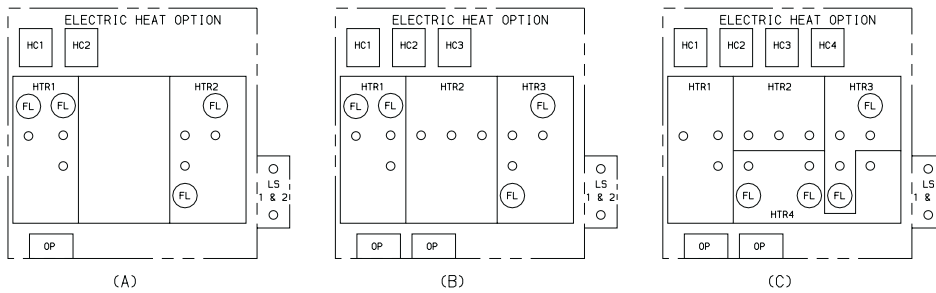
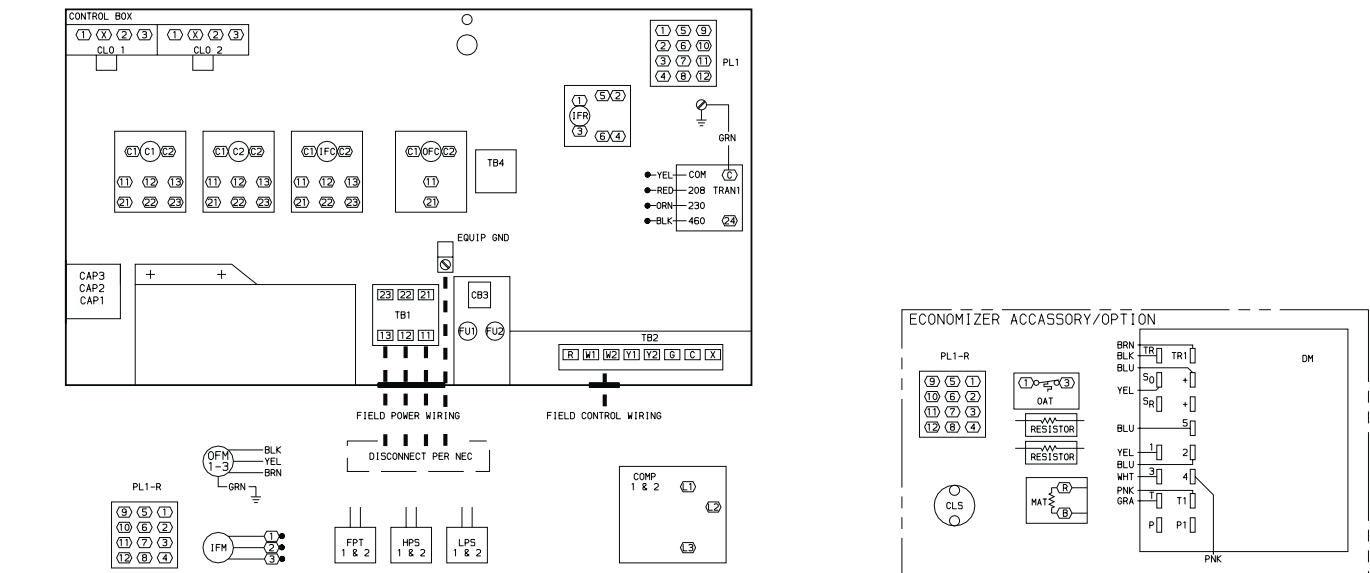


Fig. 12 — Label Diagram — 50TJ016, 380-3-60 and 400-3-50 (Units with 3 Outdoor Fans) Units (cont)

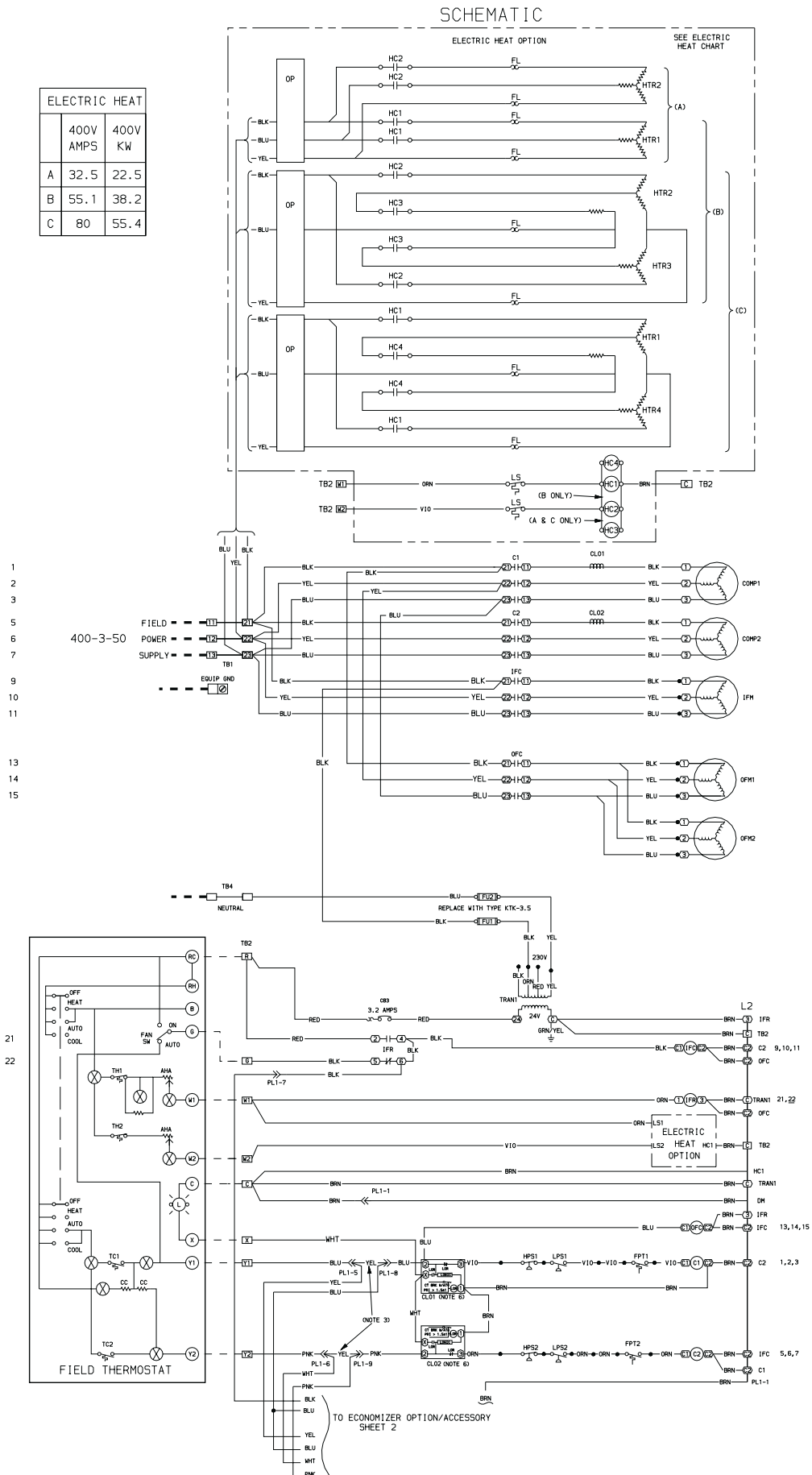
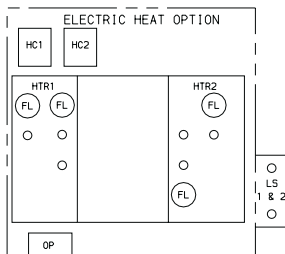
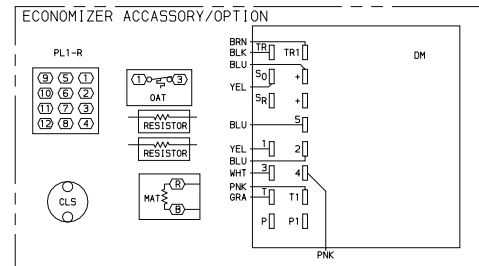
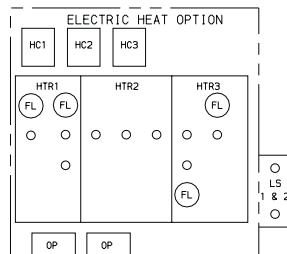


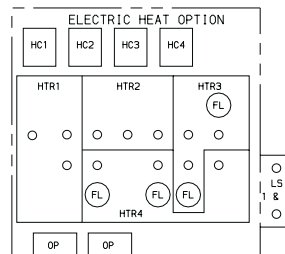
Fig. 13 — Label Diagram — 50TJ016, 400-3-50 Units with 2 Outdoor Fans



(A)



(B)



(C)

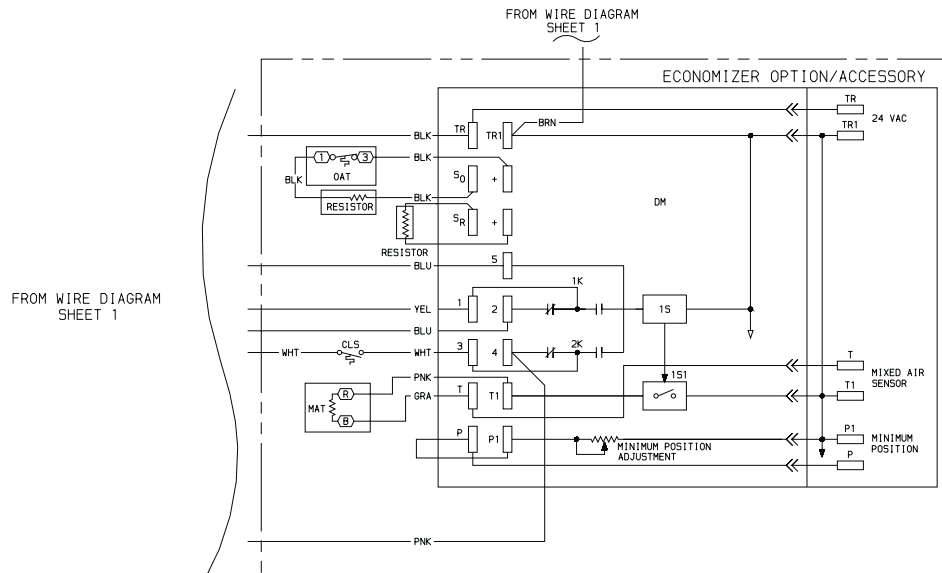


Fig. 13 — Label Diagram — 50TJ016, 400-3-50 Units with 2 Outdoor Fans (cont)

COMPONENT ARRANGEMENT

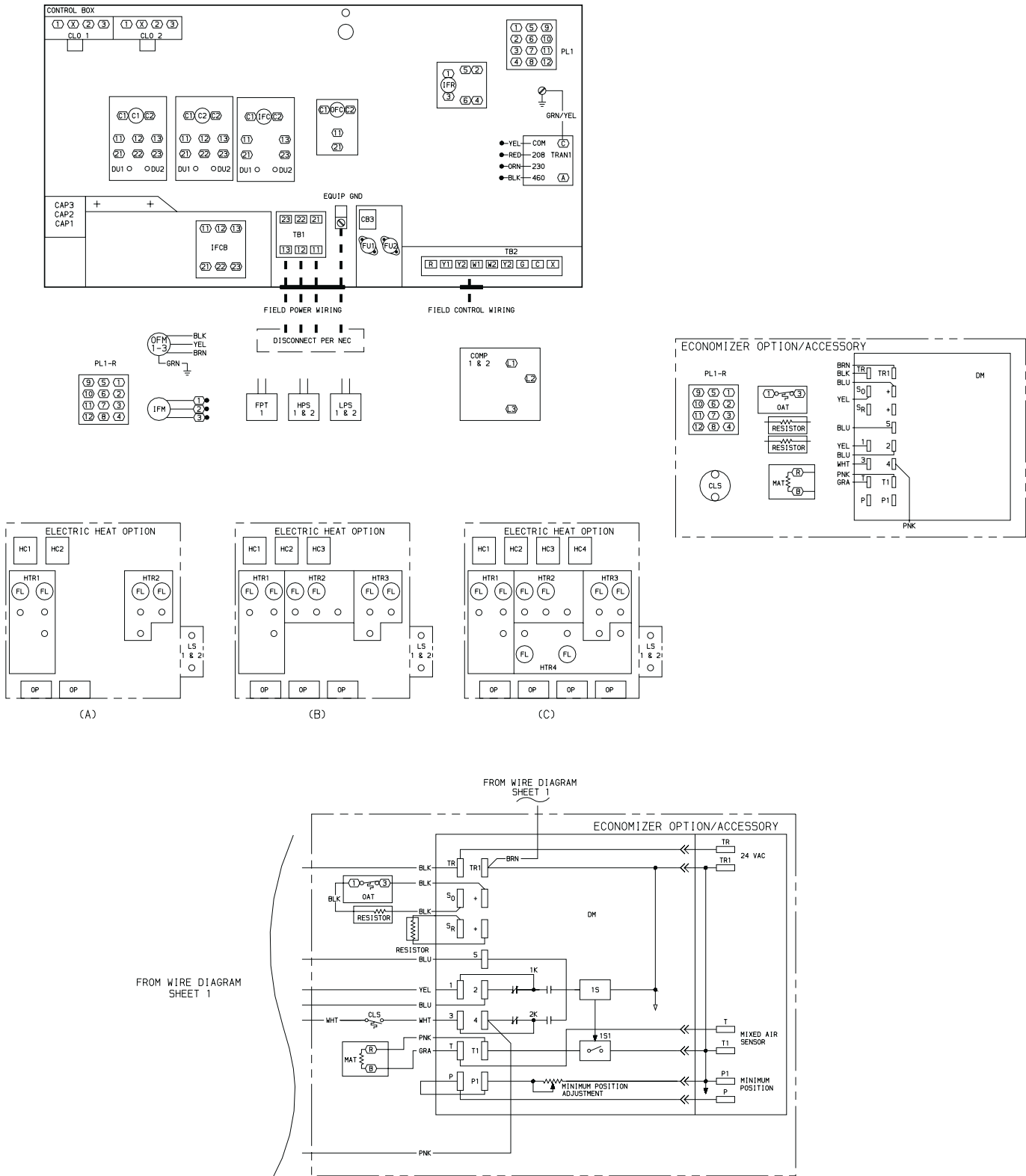


Fig. 14 — Label Diagram — 50TJ020, 208/230-3-60 Units (cont)

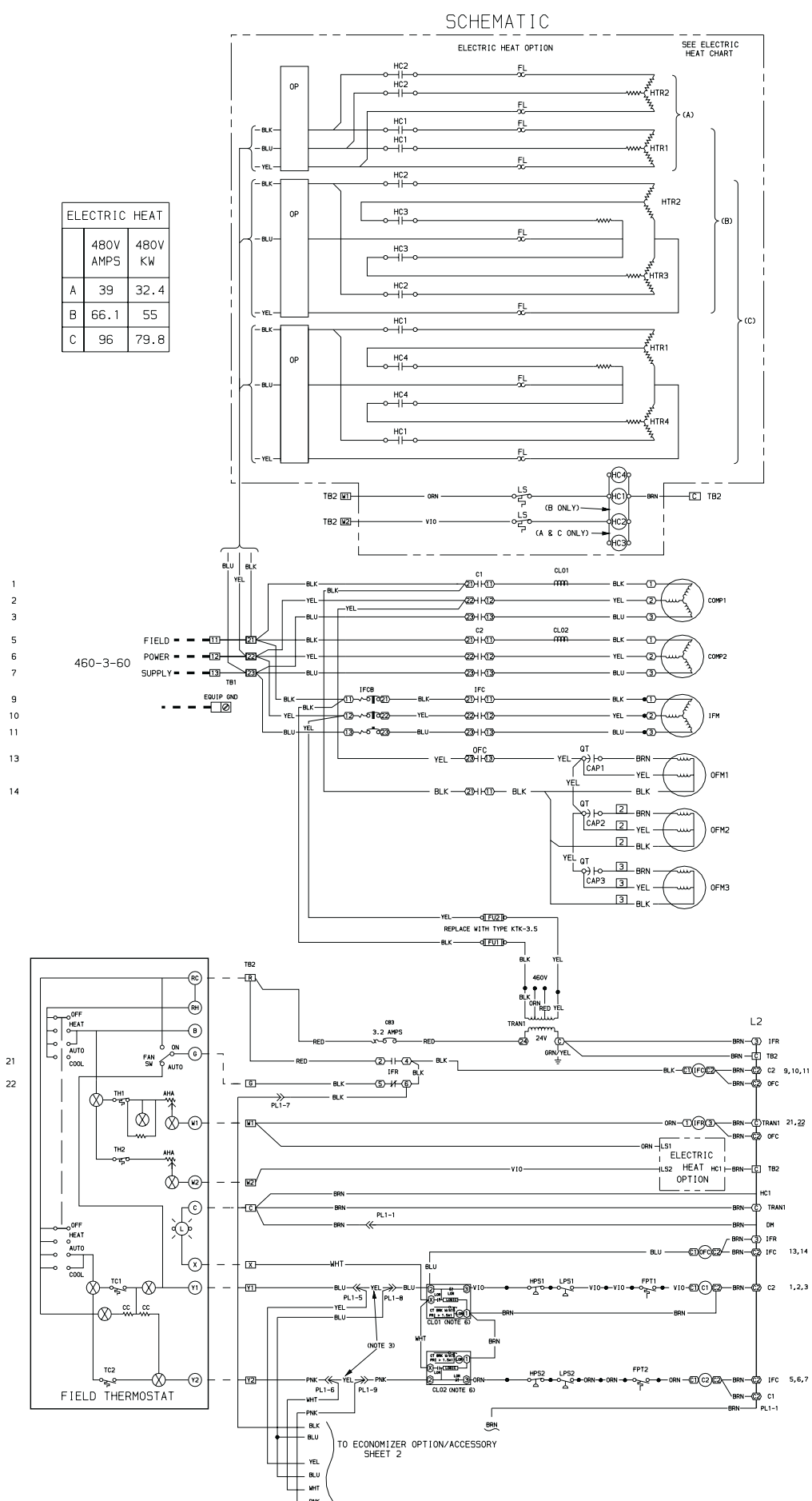


Fig. 15 — Label Diagram — 50TJ020, 460-3-60 Units

COMPONENT ARRANGEMENT

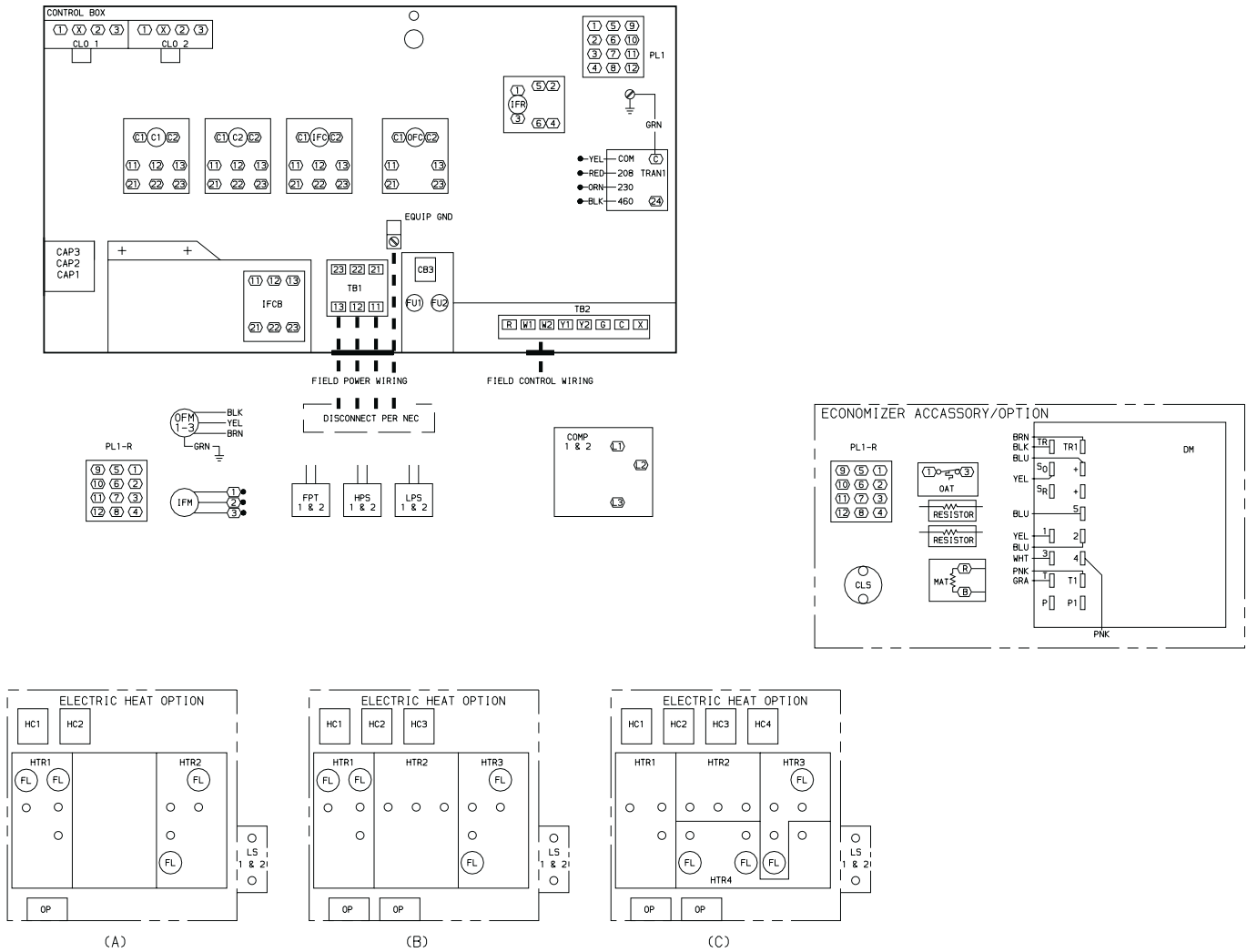


Fig. 15 — Label Diagram — 50TJ020, 460-3-60 Units (cont)

SCHEMATIC

1
2
3
5
6
7
9
10
11
13
14

20
22

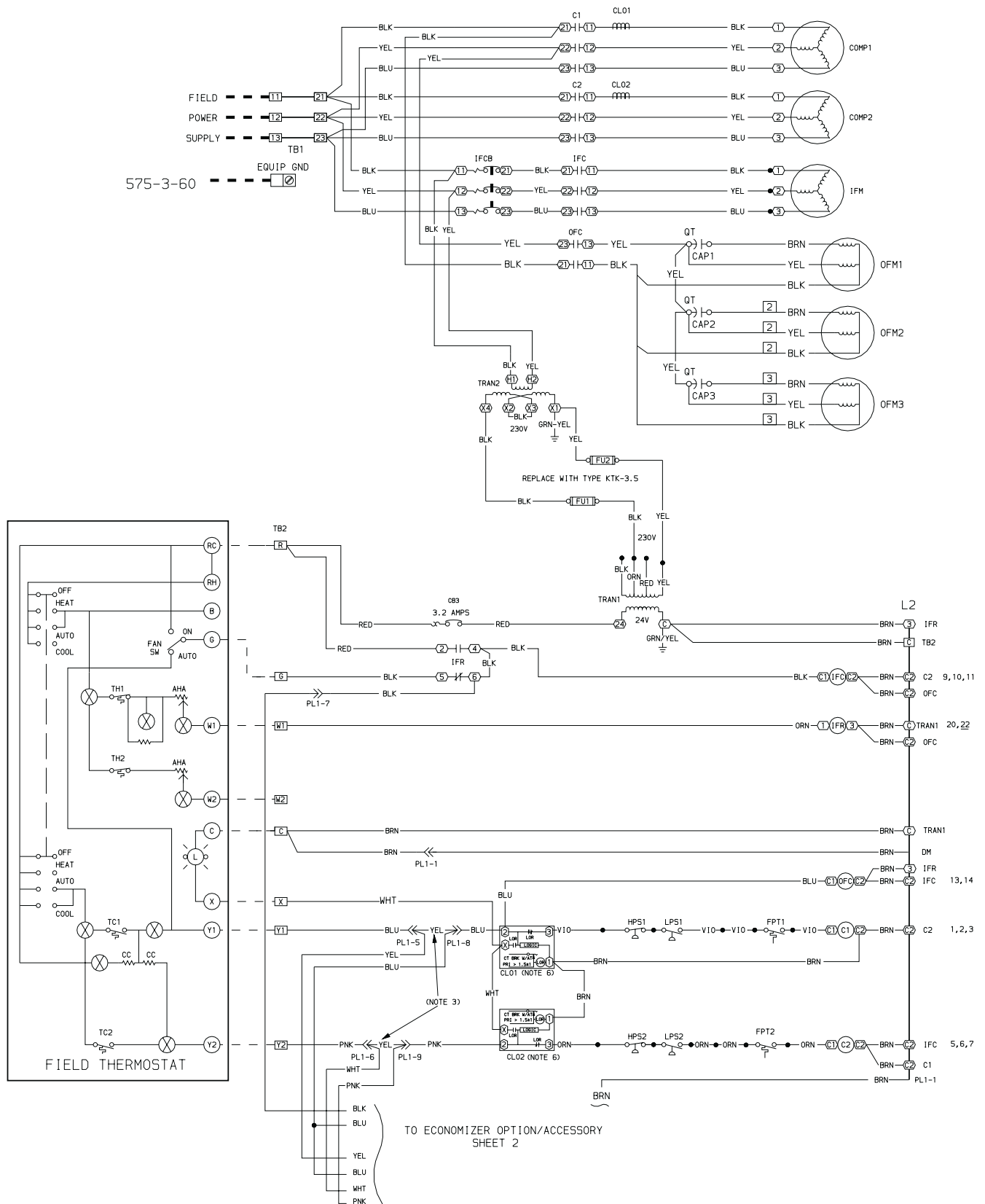


Fig. 16 — Label Diagram — 50TJ020, 575-3-60 Units

COMPONENT ARRANGEMENT

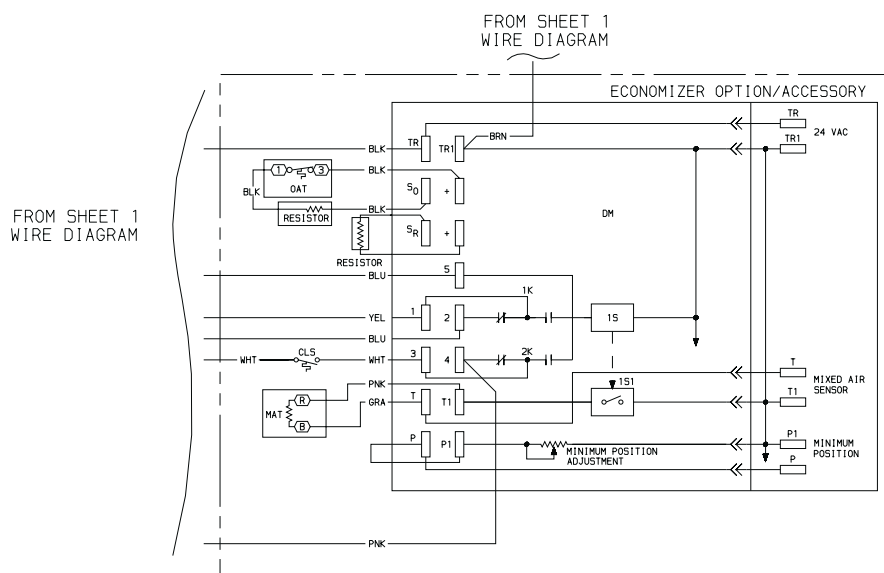
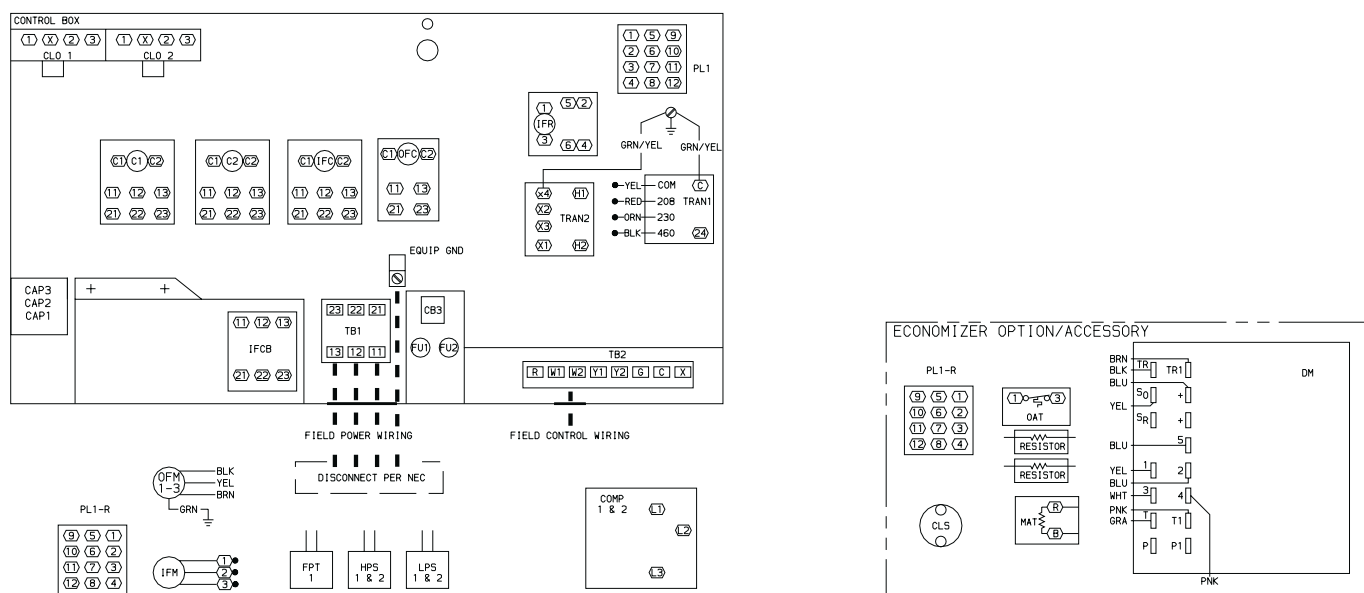
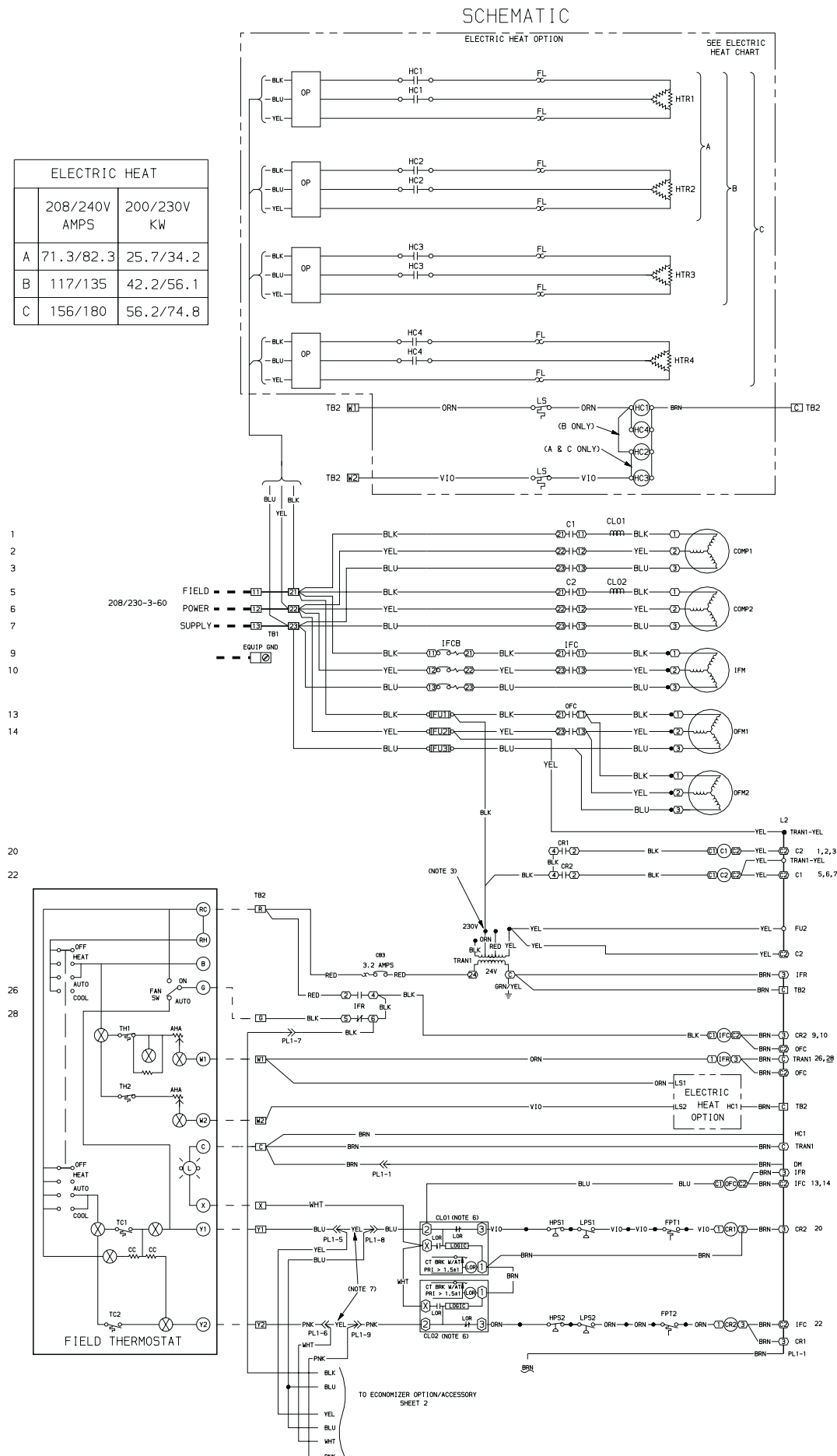


Fig. 16 — Label Diagram — 50TJ020, 575-3-60 Units (cont)

ELECTRIC HEAT		
	208/240V AMPS	200/230V KW
A	71.3/82.3	25.7/34.2
B	117/135	42.2/56.1
C	156/180	56.2/74.8



COMPONENT ARRANGEMENT

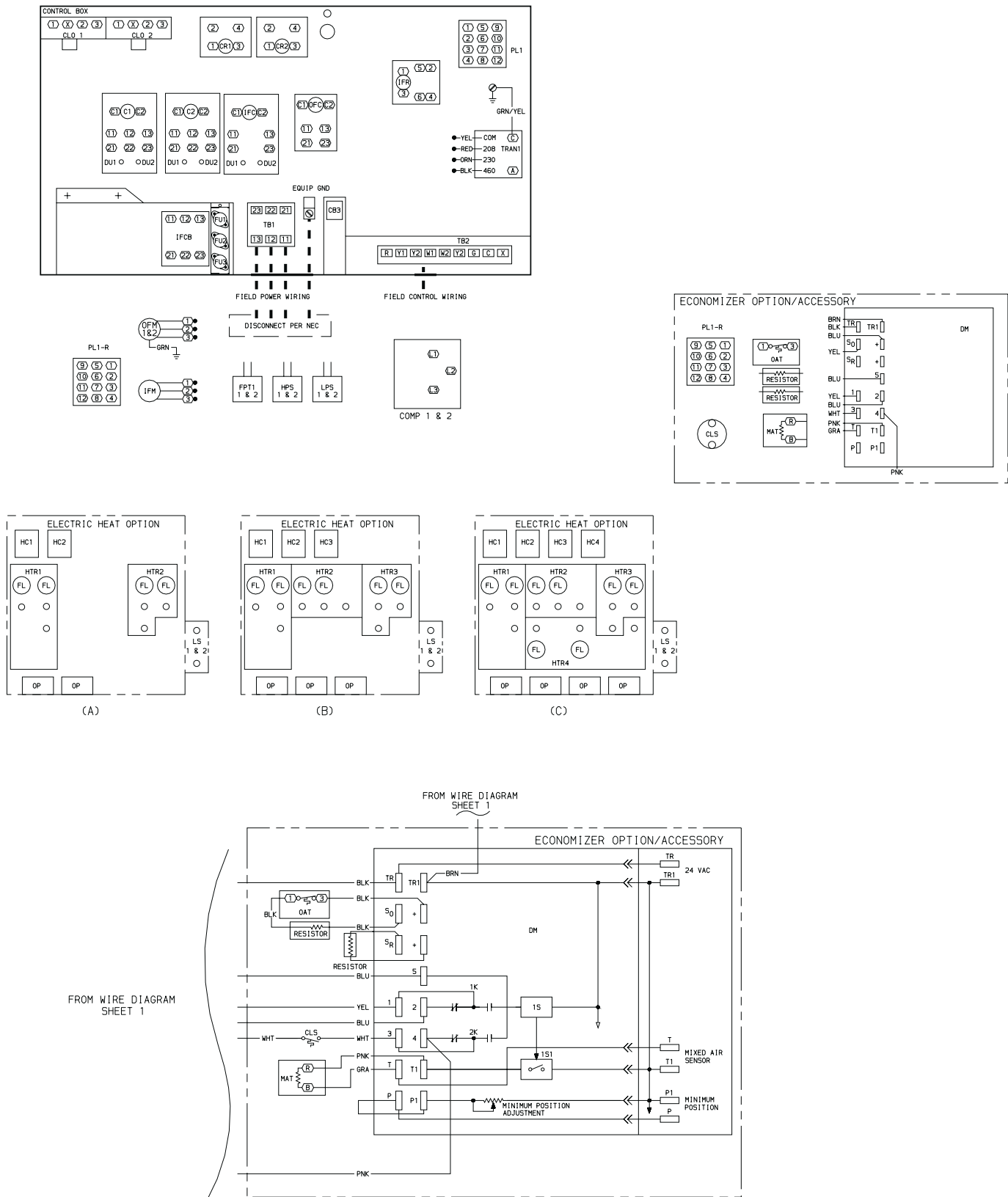


Fig. 17 — Label Diagram — 50TJ024, 208/230-3-60 Units (cont)

1
2
3
5
6
7
9
10
11
13
14
15
21
22

ELECTRIC HEAT		
	480V AMPS	480V KW
A	39	32.4
B	66.1	55
C	96	79.8

460-3-60

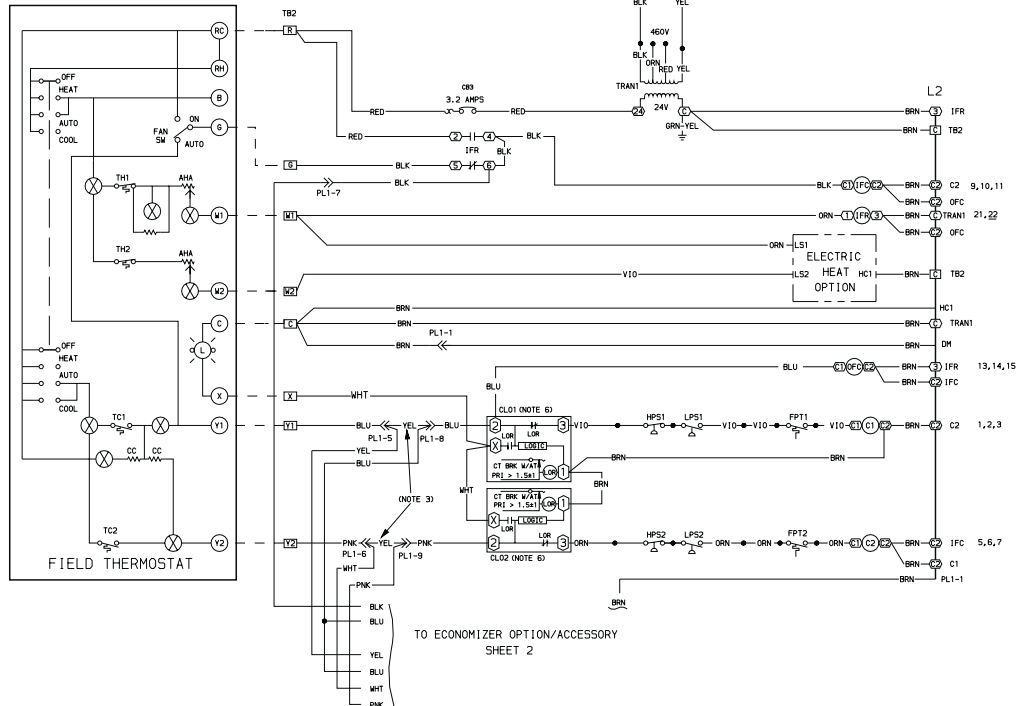
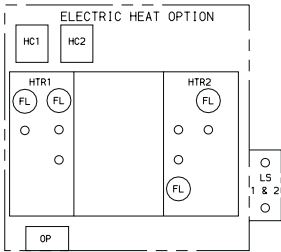
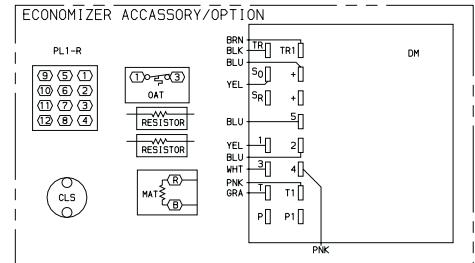
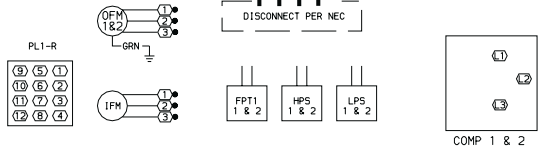
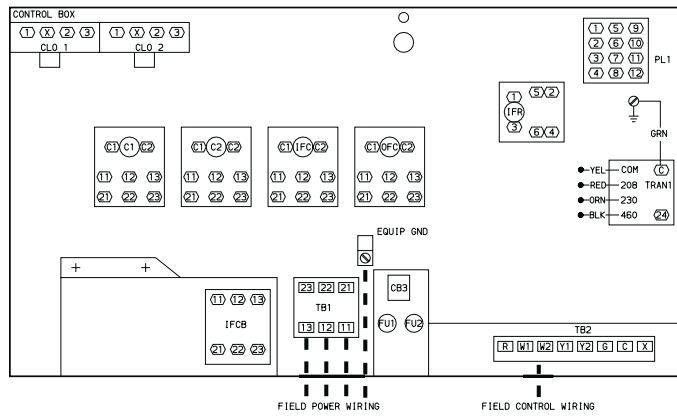
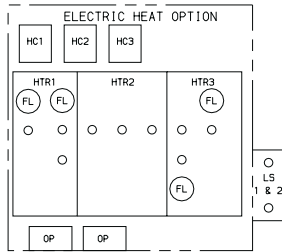


Fig. 18 — Label Diagram — 50TJ024, 460-3-60 Units

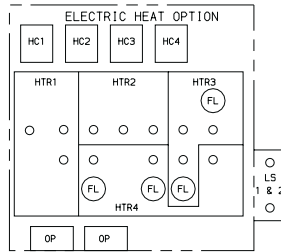
COMPONENT ARRANGEMENT



(A)



(B)



(C)

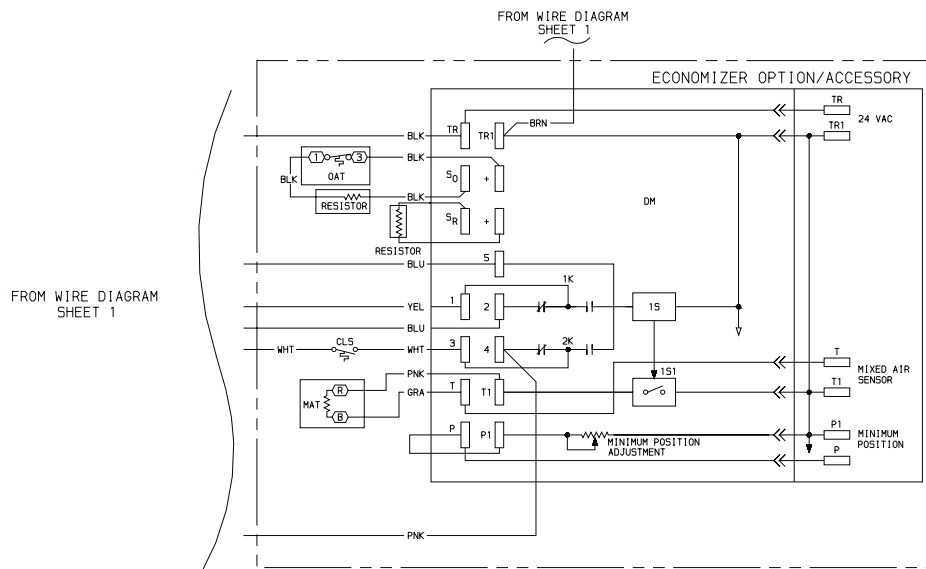
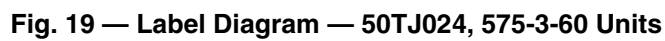


Fig. 18 — Label Diagram — 50TJ024, 460-3-60 Units (cont)

41



COMPONENT ARRANGEMENT

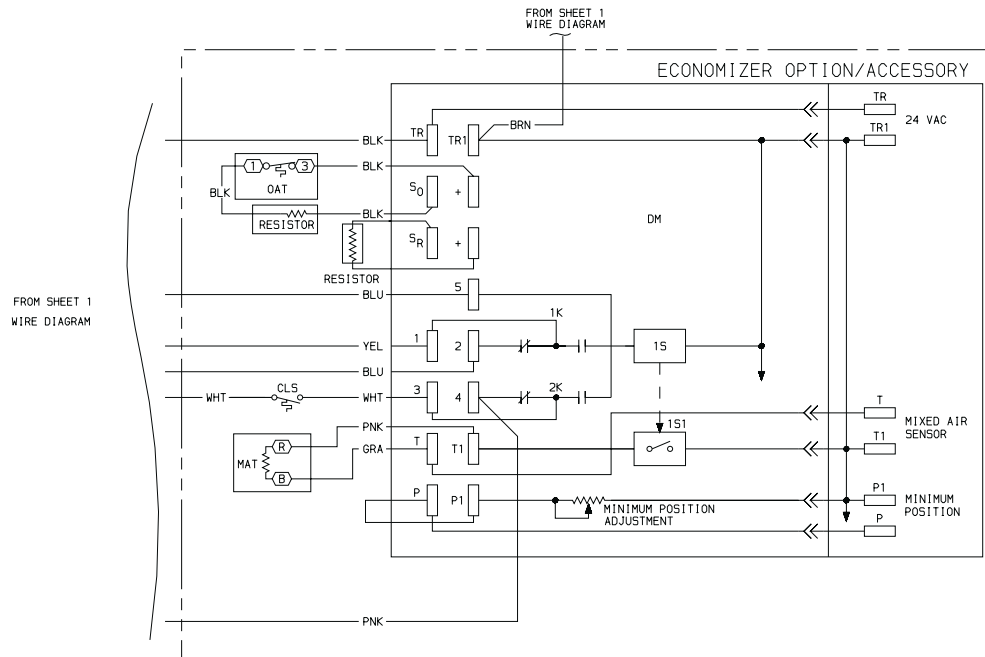
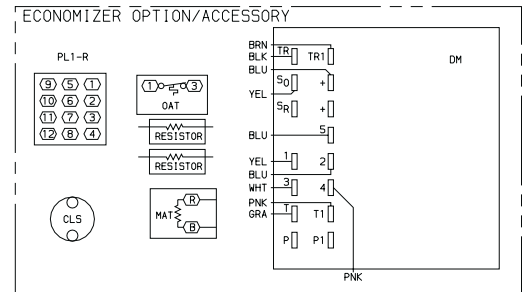
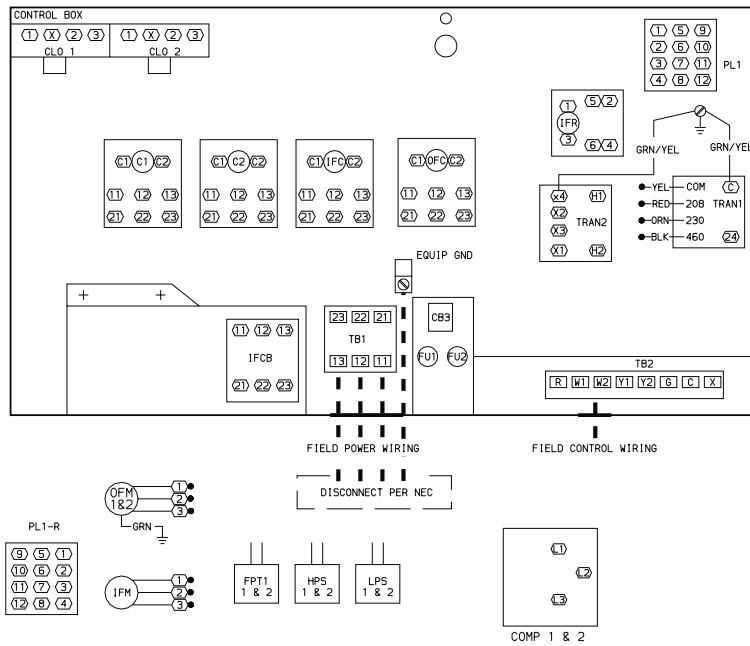


Fig. 19 — Label Diagram — 50TJ024, 575-3-60 Units (cont)

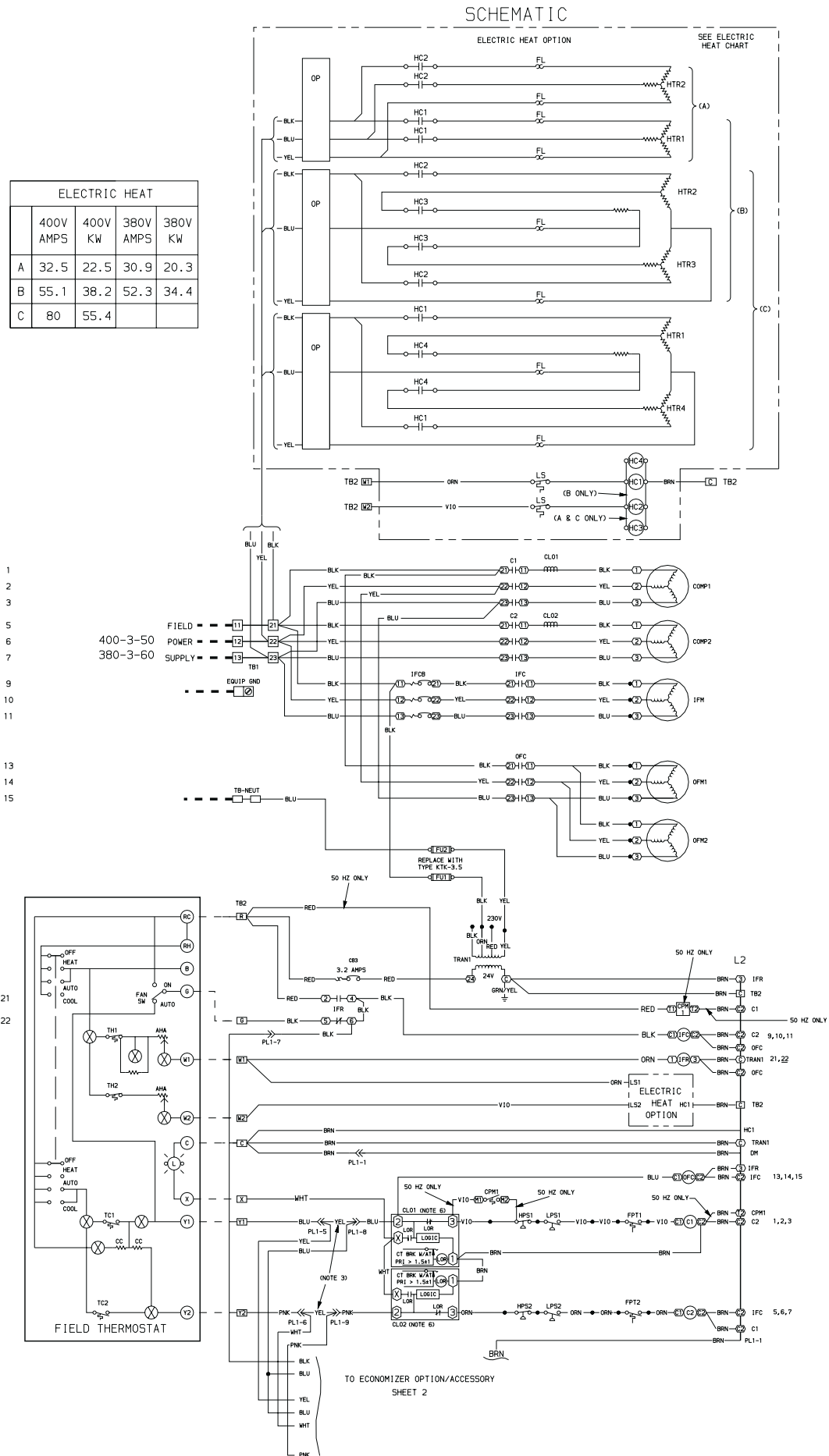
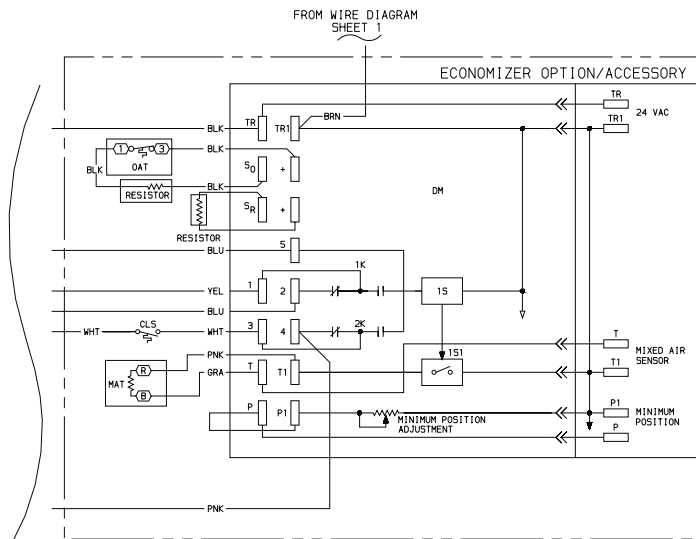


Fig. 20 — Label Diagram — 50TJ024, 380-3-60 and 400-3-50 Units

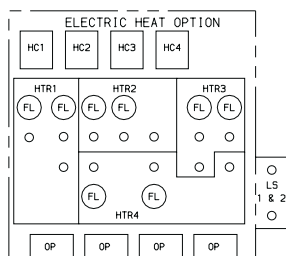
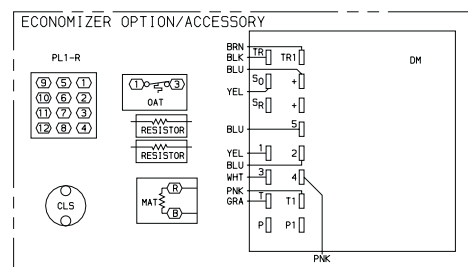
Fig. 20 — Label Diagram — 50TJ024, 380-3-60 and 400-3-50 Units (cont)



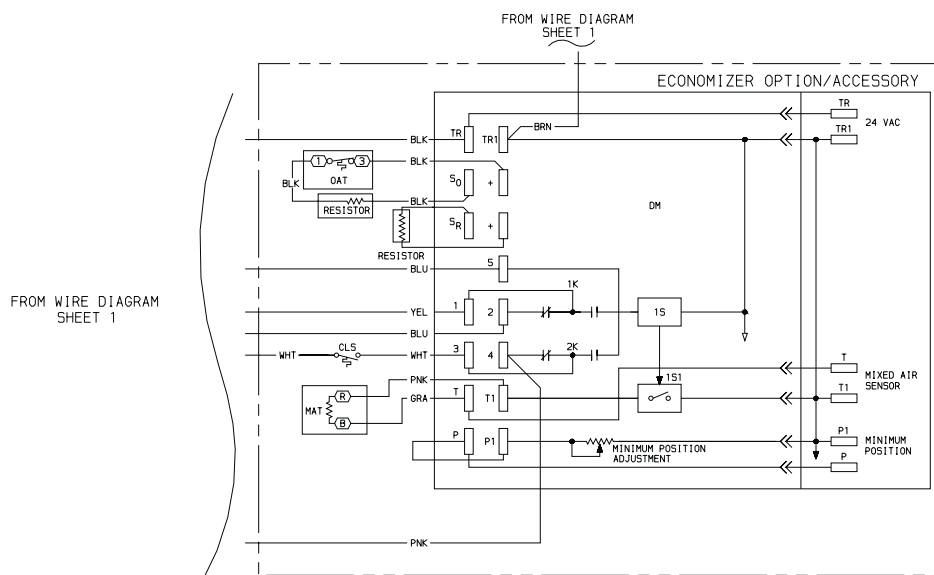
ELECTRIC HEAT OPTION



45

[illegible]

(C)



46

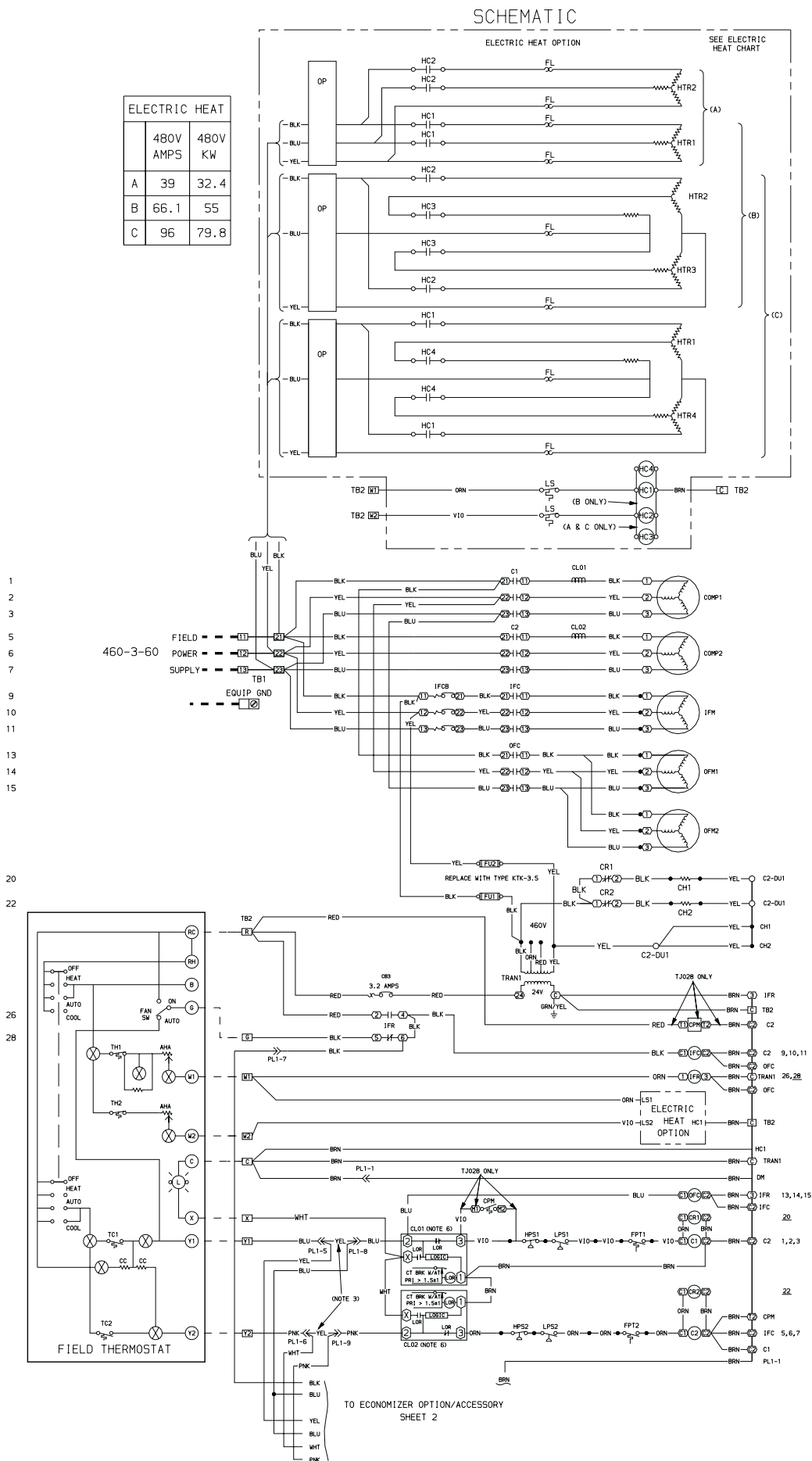
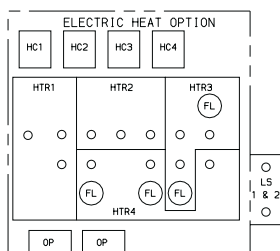
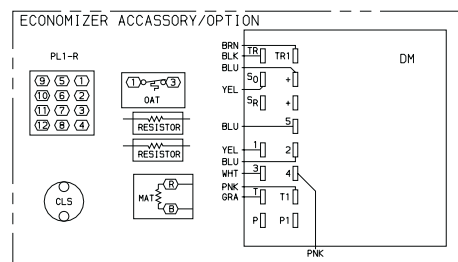


Fig. 22 — Label Diagram — 50TJ028, 460-3-60 Units

[illegible]

(C)



SCHEMATIC

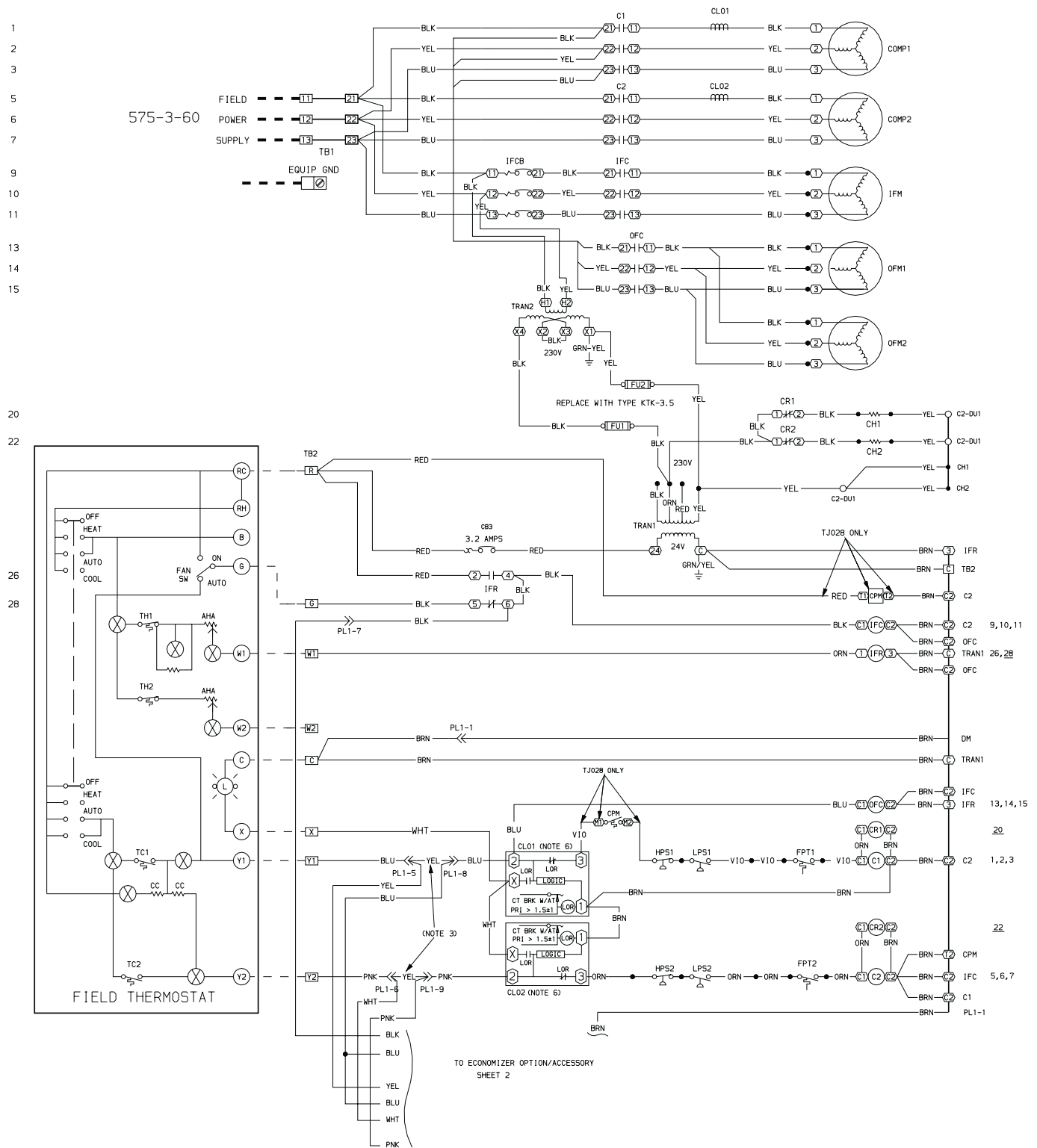


Fig. 23 — Label Diagram — 50TJ028, 575-3-60 Units

COMPONENT ARRANGEMENT

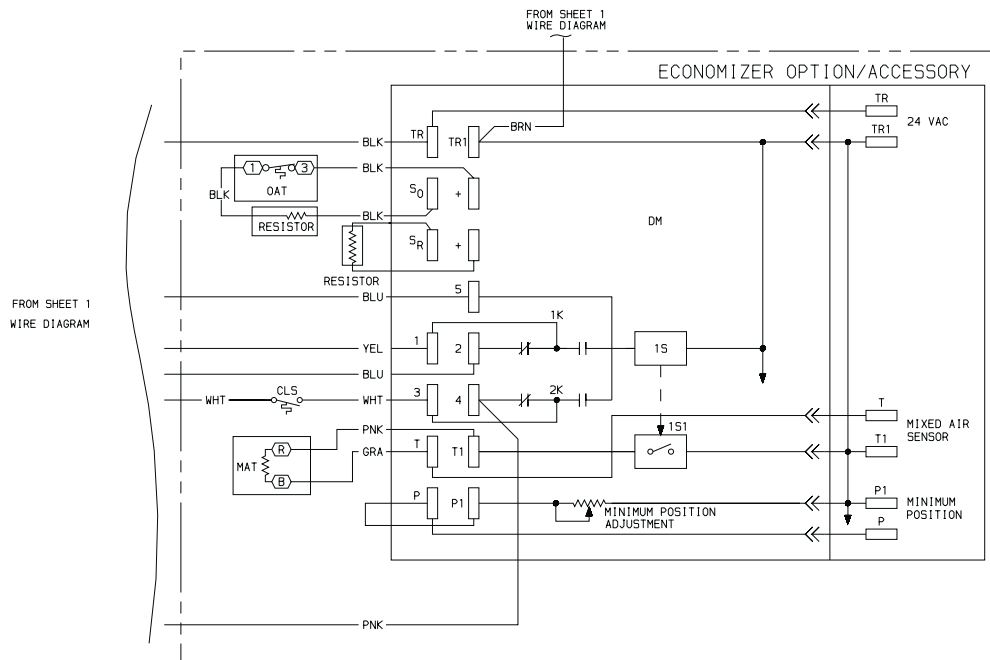
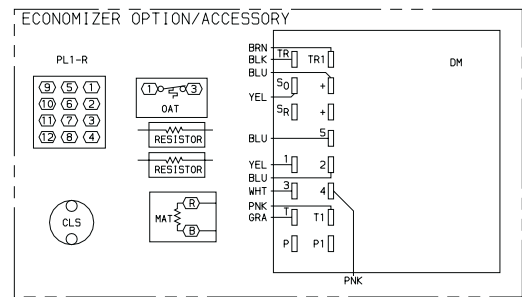
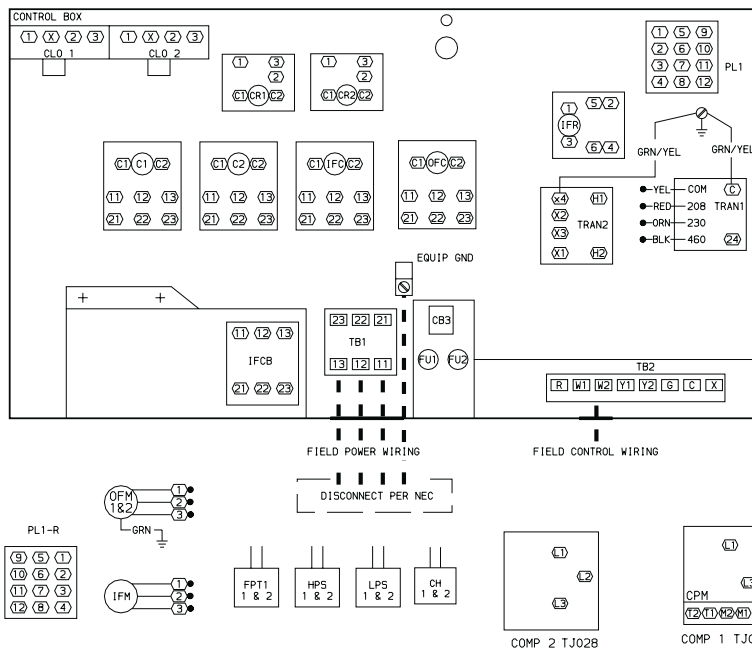


Fig. 23 — Label Diagram — 50TJ028, 575-3-60 Units (cont)

ELECTRIC HEAT				
	400V AMPS	400V KW	380V AMPS	380V KW
A	32.5	22.5	30.9	20.3
B	55.1	38.2	52.3	34.4
C	80	55.4		

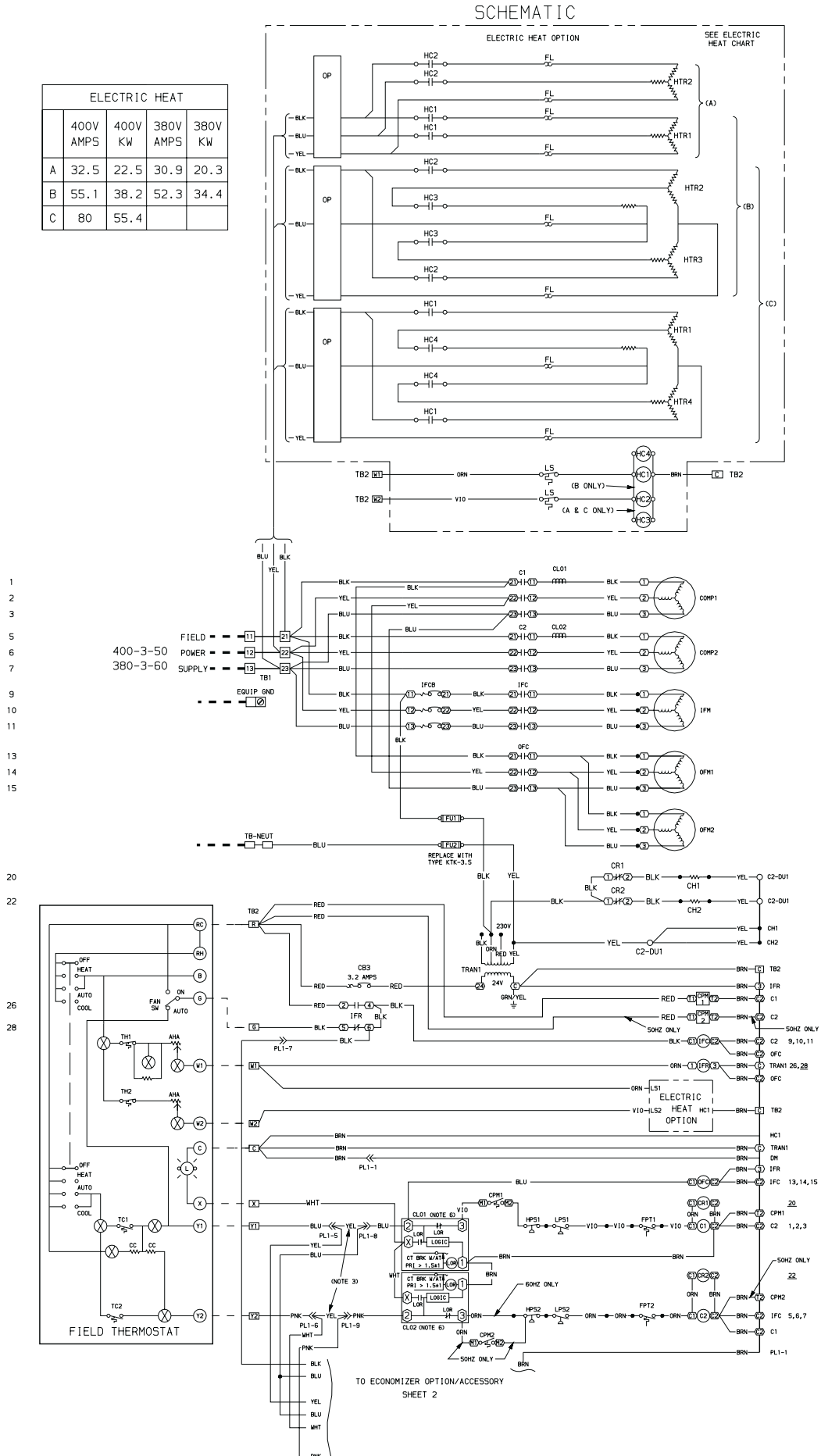
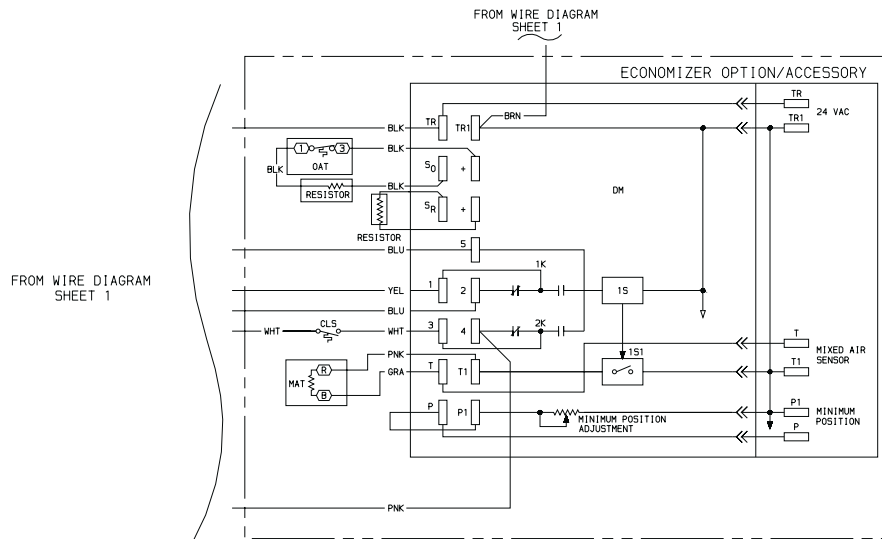
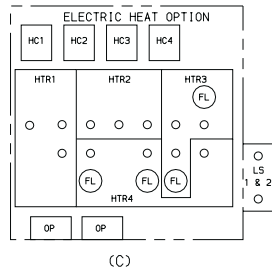
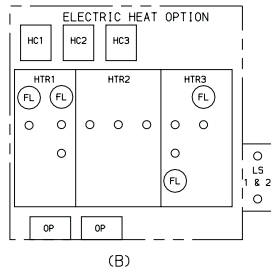
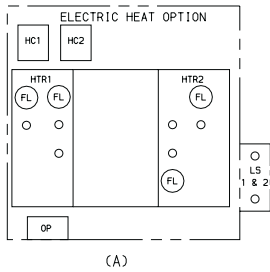
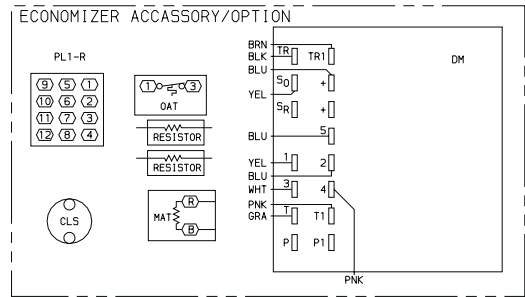
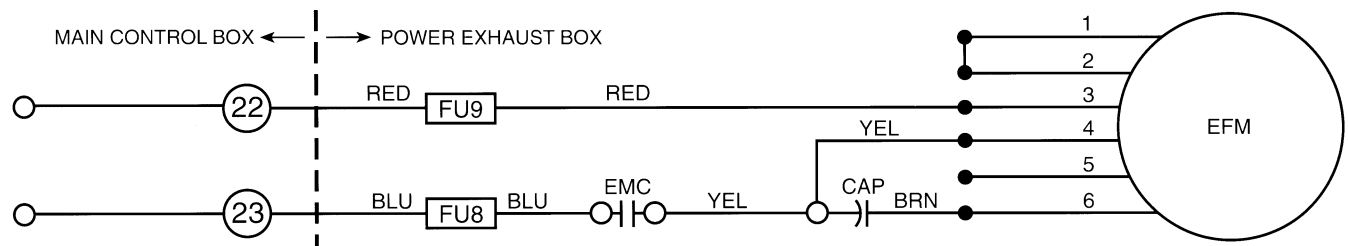


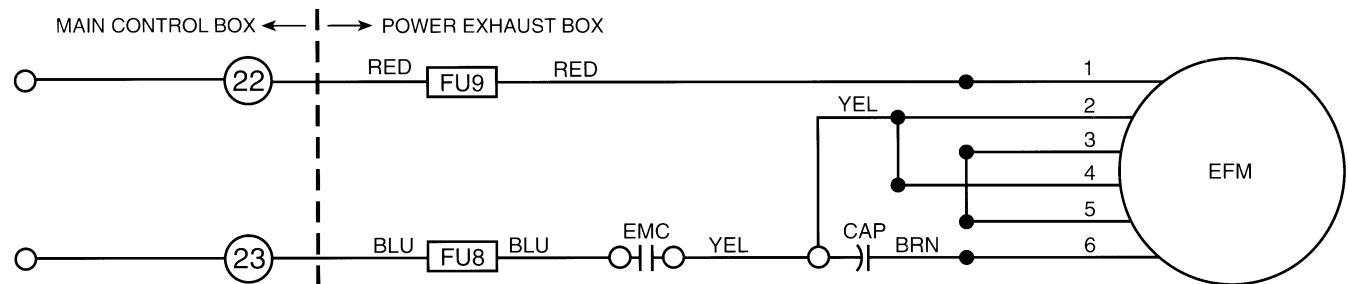
Fig. 24 — Label Diagram — 50TJ028, 380-3-60 and 400-3-50 Units



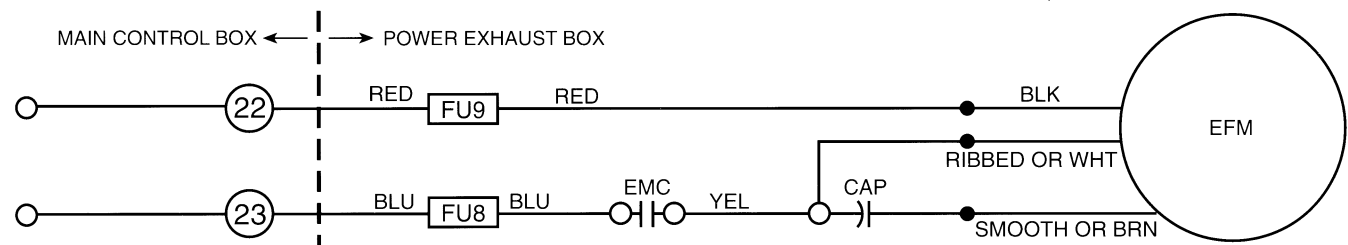
52



A. 460 V (PART NO. CRPWREXH008A00)



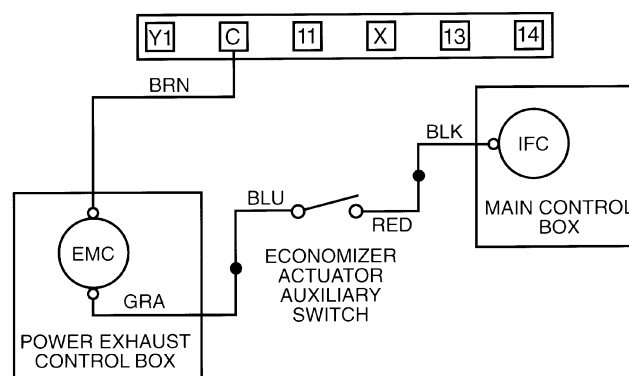
B. 208/230 V (PART NO. CRPWREXH009A00 OR CRPWREXH008A00 WITH FIELD REWIRING)



C. 575 V (PART NO. CRPWREXH010A00)

LEGEND
CAP — Capacitor
EFM — Exhaust Motor Contactor
EMC — Exhaust Fan Motor
FU — Fuse

Fig. 25 — Power Exhaust Power Wiring



LEGEND
EMC — Exhaust Motor Contactor
IFC — Indoor (Evaporator) Fan Contactor

Fig. 26 — Accessory Power Exhaust Control Wiring

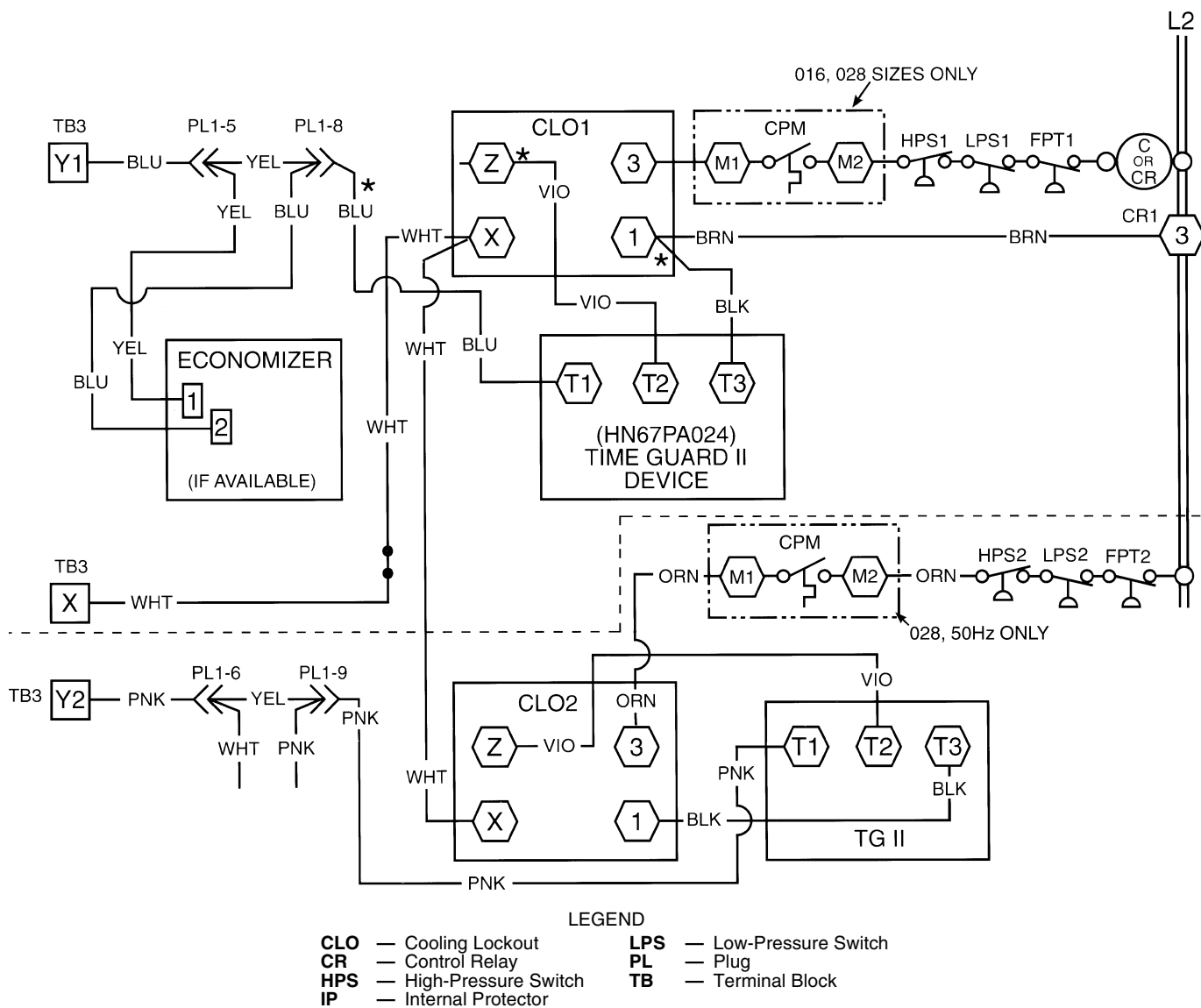
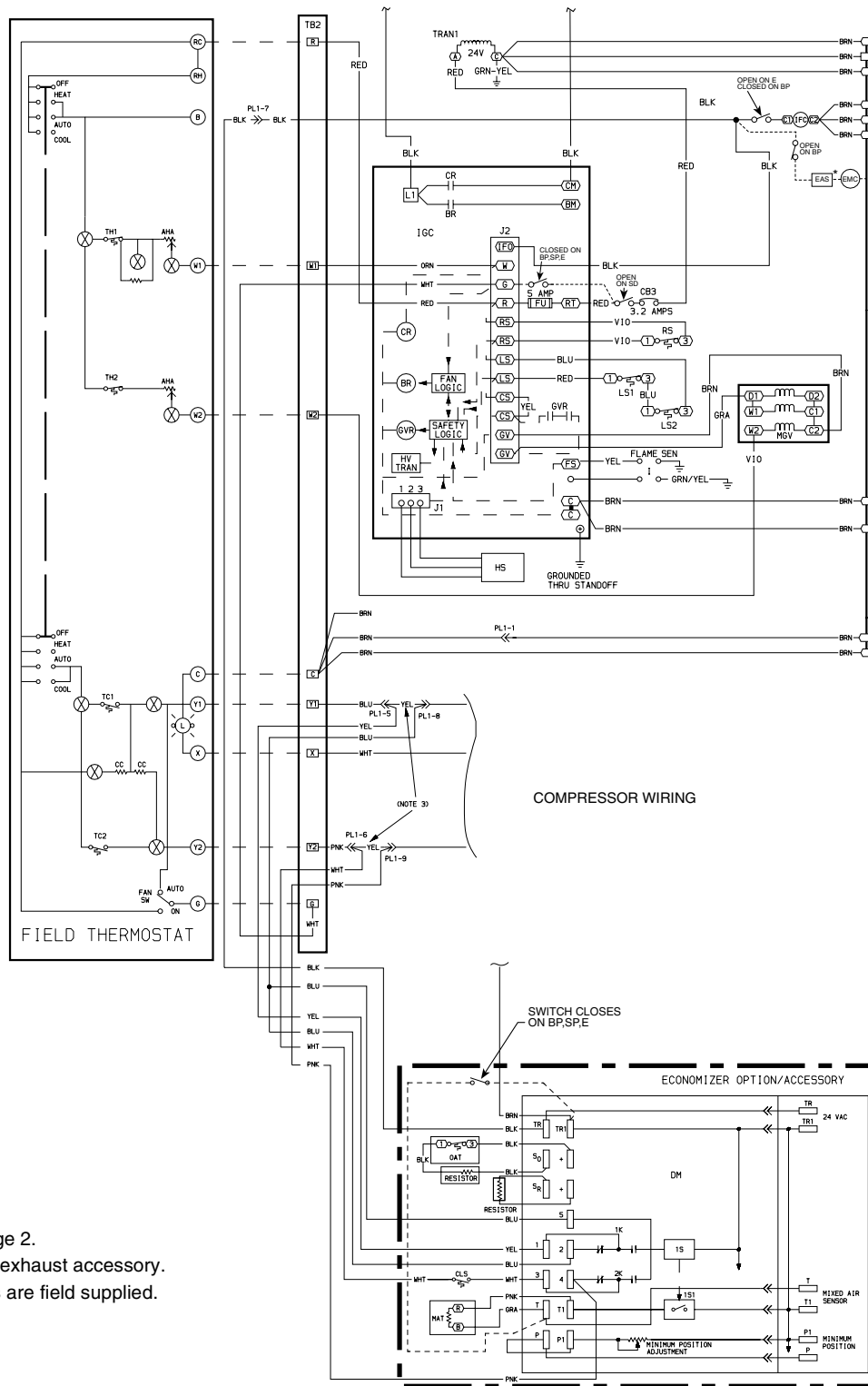


Fig. 27 — Time Guard® II Device Wiring



OPERATING MODES

- BP** — Building Pressurization: Evaporator fan on, economizer energized to fully open position, power exhaust disabled.
- E** — Evacuation: Evaporator fan off, economizer energized to fully open position, power exhaust on (open).
- SD** — Complete Unit Shutdown: Breaks 24-v power to the thermostat.
- SP** — Smoke Purge: Evaporator fan on, economizer energized to fully open position, power exhaust on.

Fig. 28 — Smoke Control/Fire Shutdown Wiring; 48TJ016-028

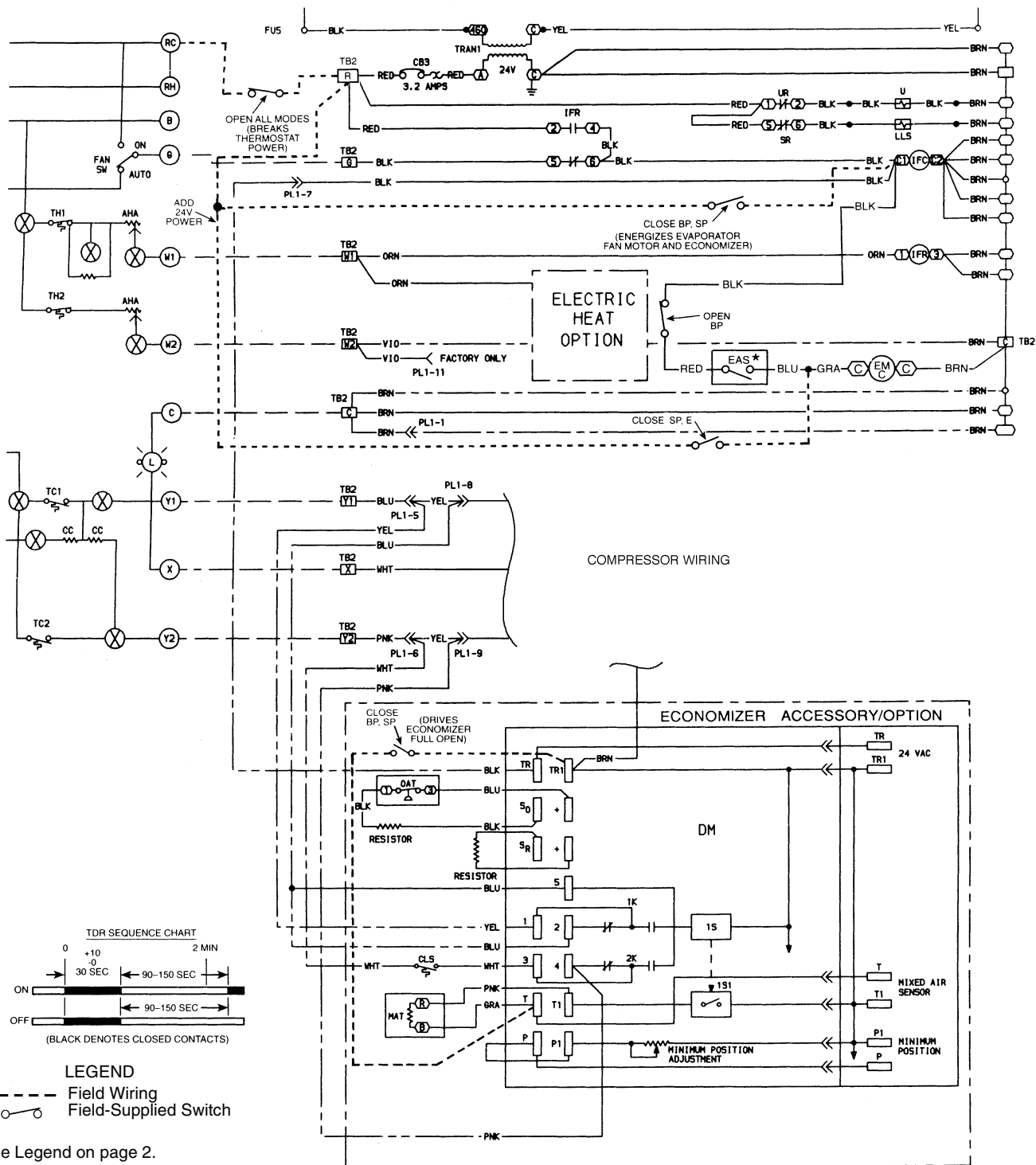
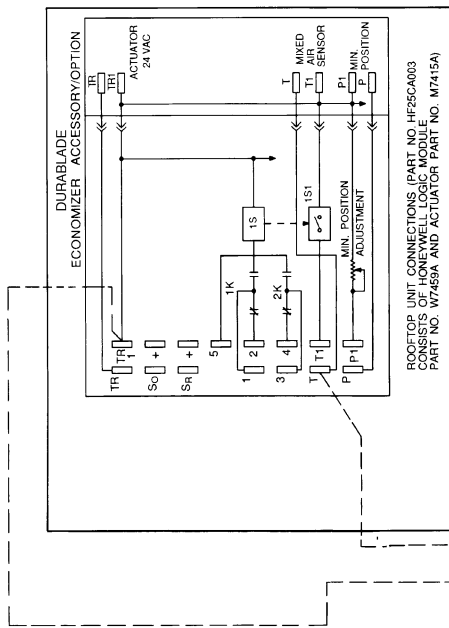
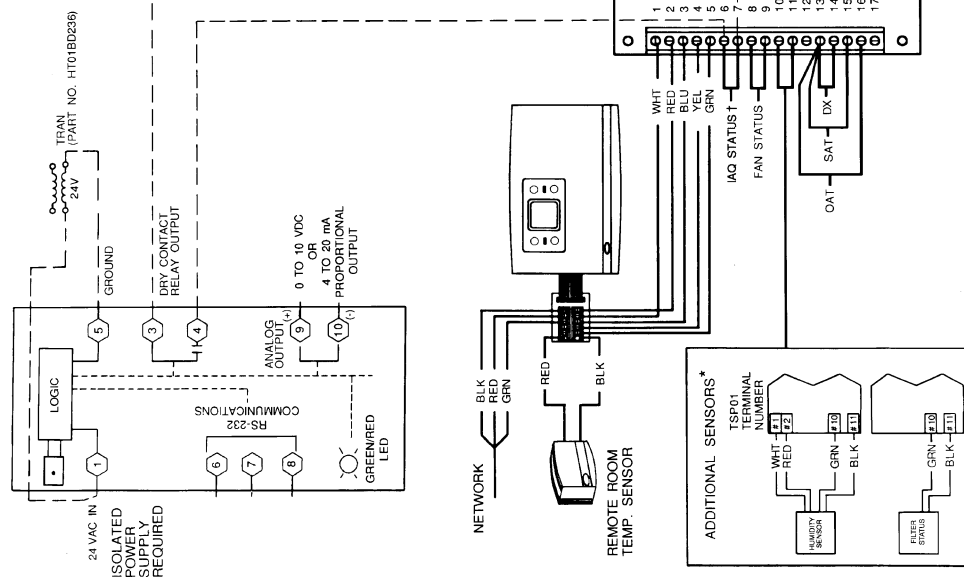


Fig. 29 — Smoke Control/Fire Shutdown Wiring; 50TJ016-028



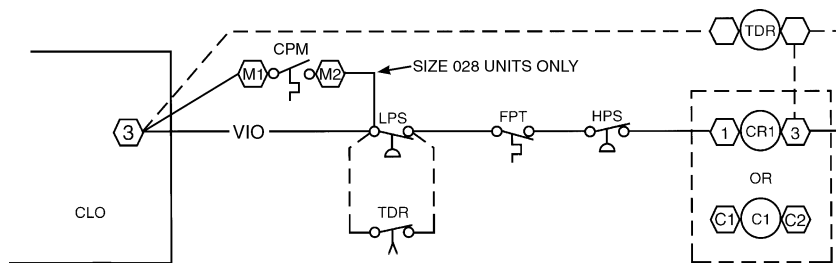
ROOFTOP UNIT CONNECTIONS (PART NO. HF25CA003)
 SENSORS: COIL EXPANSION (PART NO. M7415A)
 PART NO. W7469A AND ACTUATOR (PART NO. M7415A)

LEGEND

CO ₂	Carbon Dioxide
COM	Common
DX	Direct Expansion Coil Sensor
HVAC	Heating, Ventilation, and Air Conditioning
IAQ	Indoor-Air Quality
LED	Light-Emitting Diode
MIN.	Minimum
NC	Normally Closed
OAT	Outdoor-Air Thermostat
R.V.	Reversing Valve
SAT	Supply-Air Temperature Sensor
TEMP	Temperature
TRAN	Transformer
VTS	Carrier TEMP System
VWT®	Variable Volume and Temperature

Fig. 30 — Indoor-Air Quality and Apollo Controls Wiring

*Filter status switch and humidity sensor cannot function simultaneously. Only one sensor can be wired.
 †Such as a CO₂ sensor.
 **Set auxiliary option to "2" — IAQ Control per VTS or VWT Installation Instructions.

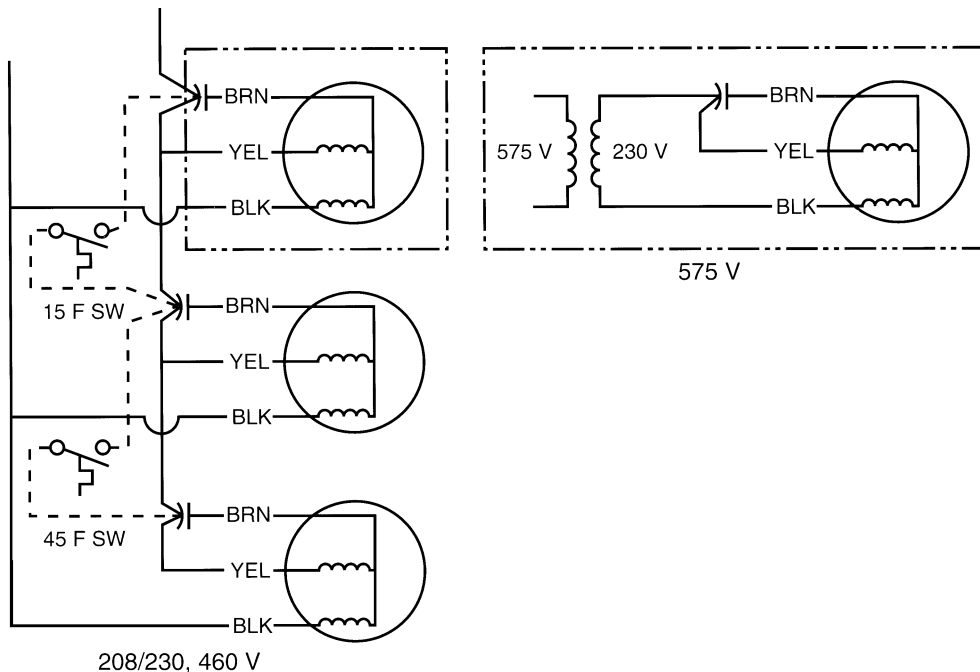


LEGEND

- | | |
|---|----------------------------------|
| C — Contactor | IP — Internal Protector |
| CLO — Compressor Lockout | LPS — Low-Pressure Switch |
| CR — Control Relay | TDR — Time-Delay Relay |
| FPT — Freeze Protection Thermostat | — Factory-Supplied Wiring |
| HPS — High-Pressure Switch | - - - Field-Supplied Wiring |

NOTE: See Lower Outdoor Ambient Operation Accessories table on page 2 for correct application.

Fig. 31 — Winter Start Kit Wiring

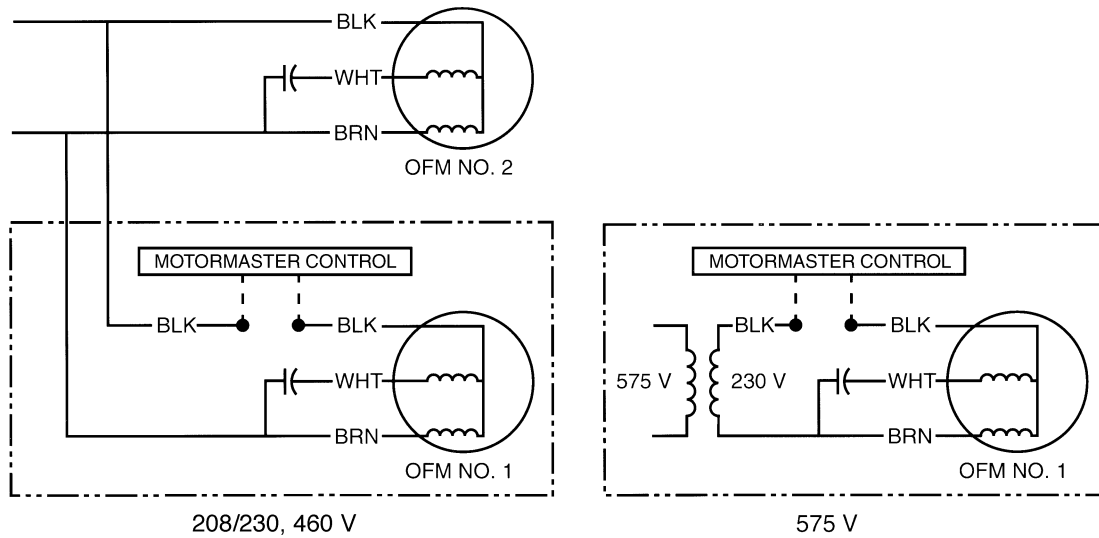


LEGEND

- | |
|--------------------|
| SW — Switch |
| - - - Field Wiring |
| — Factory Wiring |

NOTE: See Lower Outdoor Ambient Operation Accessories table on page 2 for correct application.

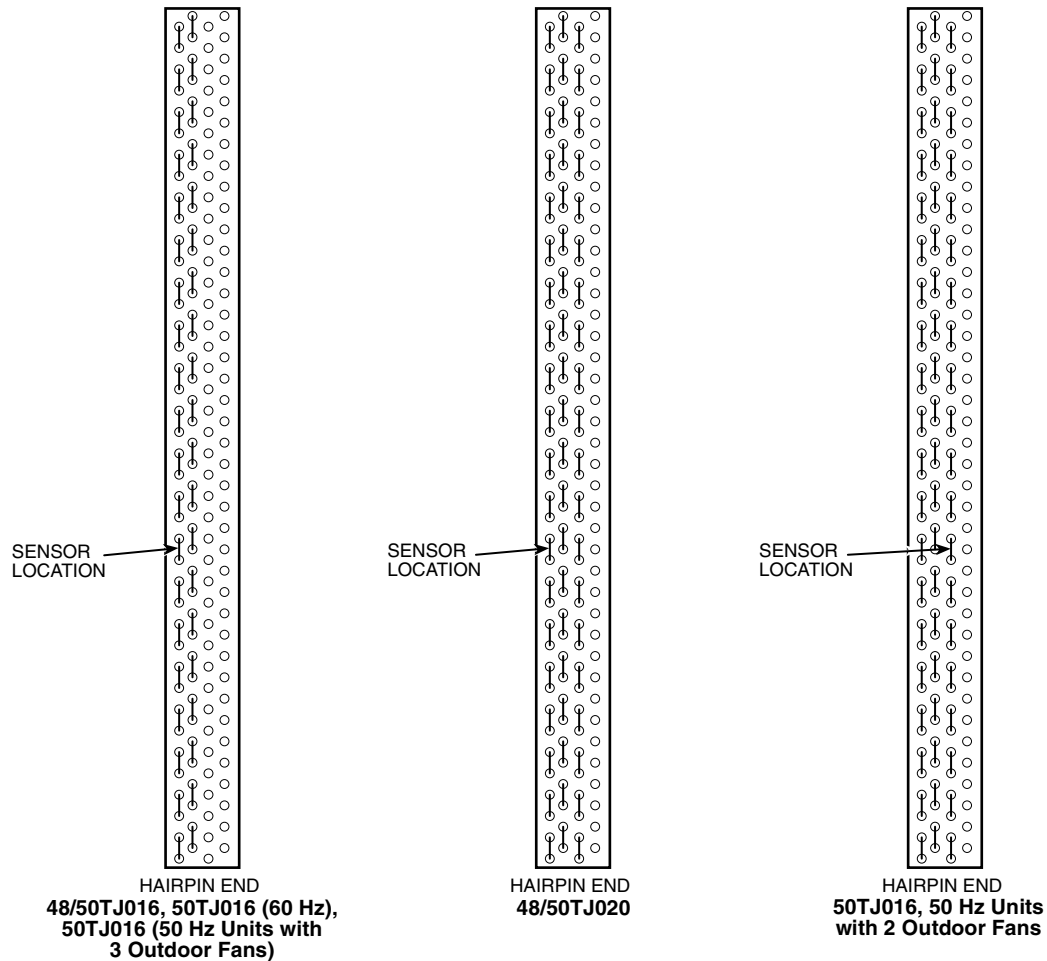
Fig. 32 — Mild/Low Ambient Control — 48/50TJ016 and 020 Units (10 F Ambient Control)



LEGEND
OFM — Outdoor (Condenser) Fan Motor
 - - - Field Wiring
 ——— Factory Wiring

NOTE: See Lower Outdoor Ambient Operation Accessories table on page 2 for correct application.

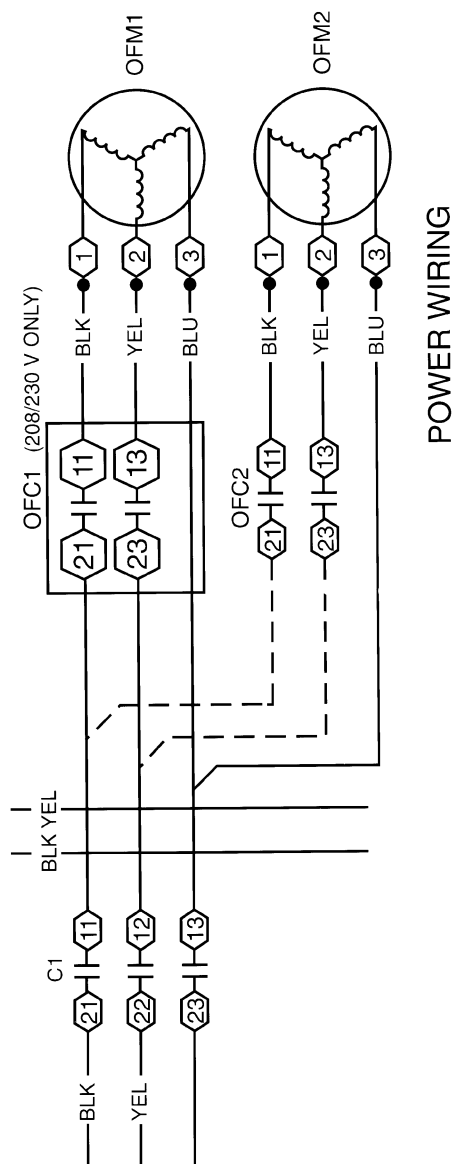
**Fig. 33 — Motormaster® I Head Pressure Control Wiring; 48/50TJ016 and 020 Units
 (-20 F Ambient Control)**



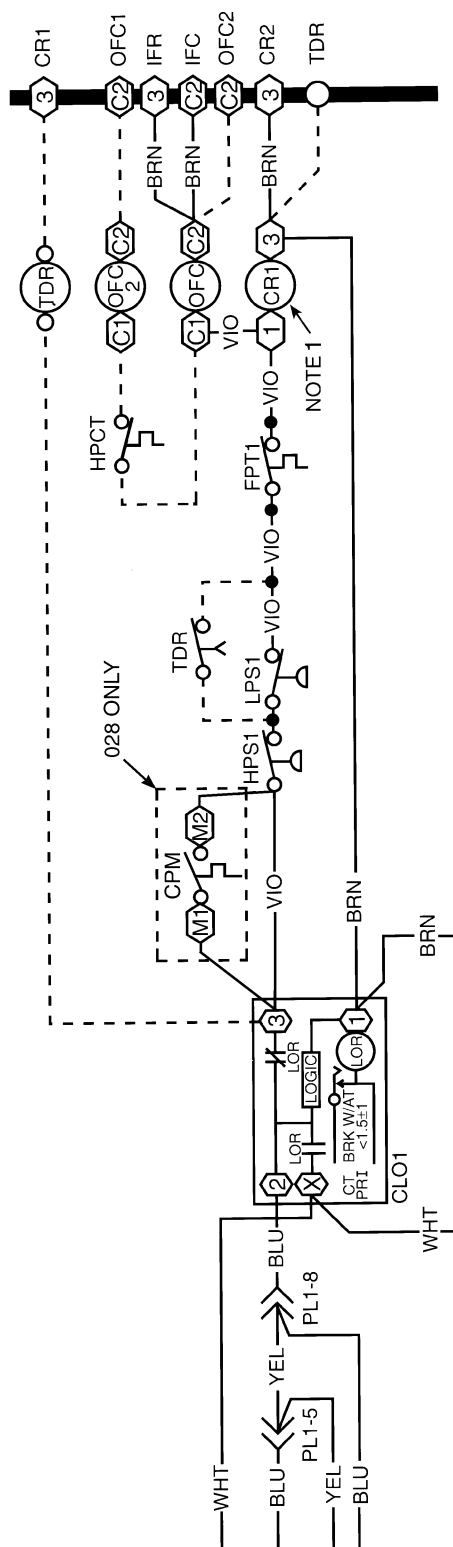
NOTES:

1. All sensors are located on the eighth hairpin up from the bottom.
2. See Lower Outdoor Ambient Operation Accessories table on page 2 for correct application.

**Fig. 34 — Motormaster I Control Sensor Locations;
 48/50TJ016 and 020 Units**



POWER WIRING



ACCESSORY WIRING

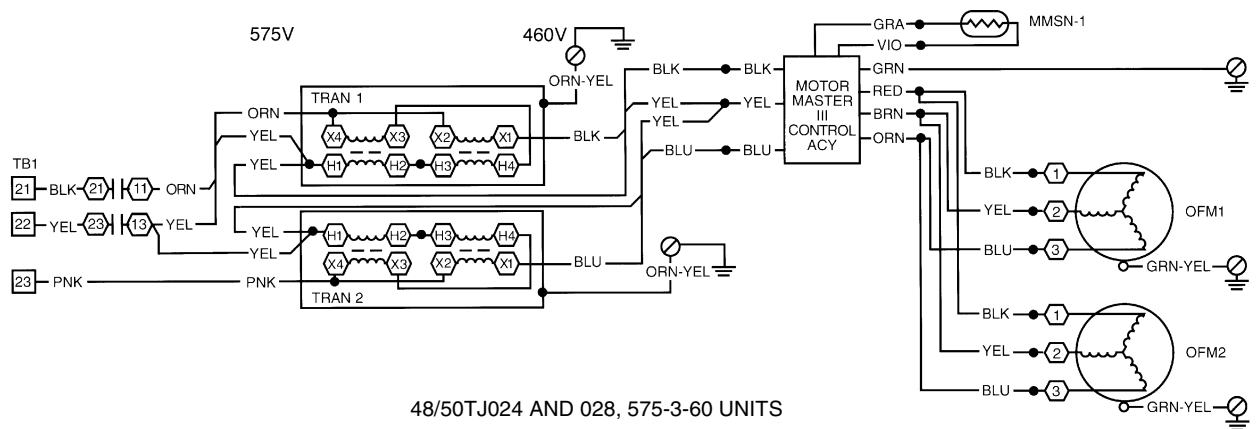
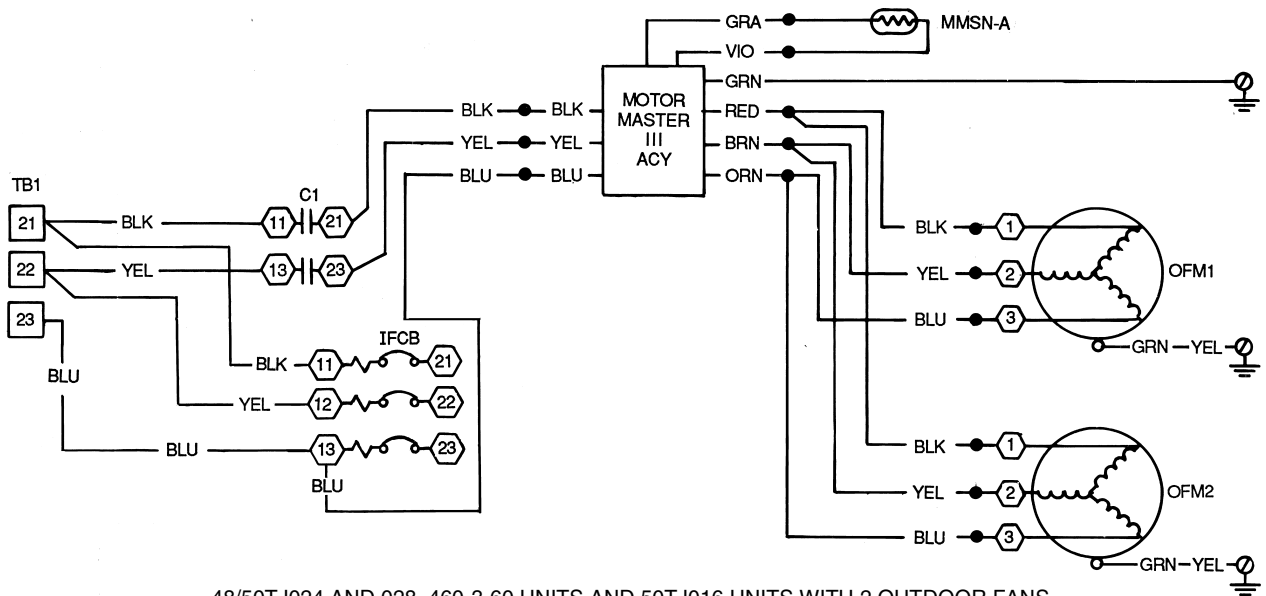
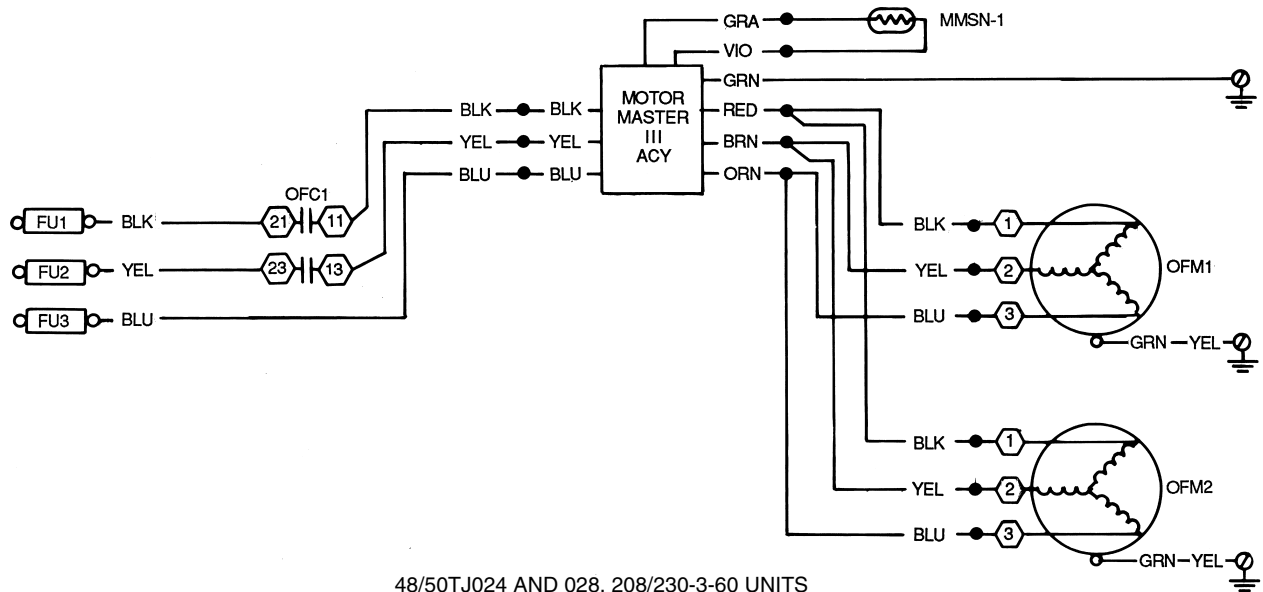
LEGEND

BRK W/T	—	Breaks with Amps	HPCT	—	Head Pressure Control Thermostat	OFM	—	Outdoor (Condenser) Fan Motor
C	—	Contactors	HPS	—	High-Pressure Switch	PL	—	Plug
CLO	—	Compressor Lockout	IP	—	Internal Protector	PRI	—	Primary
CR	—	Control Relay	LOR	—	Lockout Relay	TDR	—	Time-Delay Relay
CT	—	Circuit	LPS	—	Low-Pressure Switch	-----	---	Factory-Supplied Wiring
CTP	—	Freeze Protection Thermostat	OFC	—	Outdoor (Condenser) Fan Contactor	----	----	Field-Supplied Wiring

NOTES:

1. CR1 is replaced by C1 in 460- and 575-volts units.
2. See Lower Outdoor Ambient Operation Accessories table on page 2 for correct application.

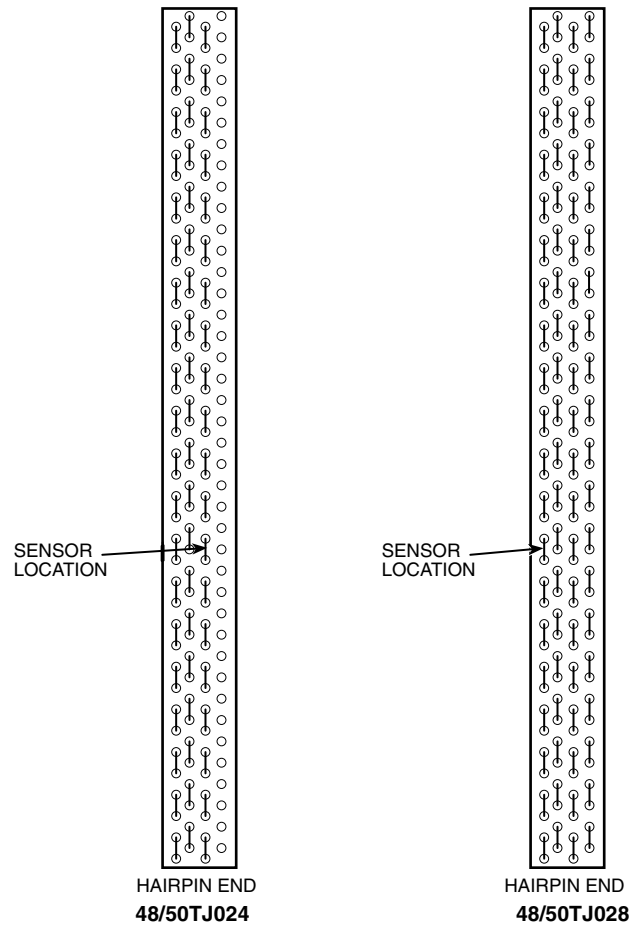
Fig. 35 — HPCT, OFC2, and TDR Wiring — 25 F Ambient Kit; 48/50TJ024 and 028 Units



C	— Contactor	OFM	— Outdoor (Condenser Fan Motor)
FU	— Fuse	TB	— Terminal Block
IFCB	— Indoor Fan Circuit Breaker	TRAN	— Transformer
MMSN	— Motormaster Sensor		
OFC	— Outdoor (Condenser) Fan Contactor		

NOTE: See Lower Outdoor Ambient Operation Accessories table on page 2 for correct application.

Fig. 36 — Motormaster® III Control Wiring; 48/50TJ024 and 028 Units



NOTES:

1. All sensors are located on the eighth hairpin up from the bottom.
2. See Lower Outdoor Ambient Operation Accessories table on page 2 for correct application.

**Fig. 37 — Motormaster® III Control Sensor Locations;
48/50TJ024 and 028 Units**

