



48/50HJ008-014 Single Package Rooftop Gas Heating/Electric Cooling and Electric Cooling Units 50/60 Hz

Wiring Diagrams

INDEX

UNIT	UNIT VOLTAGE-PHASE	TYPE	NUMBER	FIG. NO.
48HJ008-014	208/230-3-60	Schematic/Component Arrangement	50HJ501296	1
	460-3-60	Schematic/Component Arrangement	50HJ501297	2
	575-3-60	Schematic/Component Arrangement	50HJ501298	3
50HJ008-012	208/230-3-60	Schematic/Component Arrangement	50HJ501299	4
	460-3-60	Schematic/Component Arrangement	50HJ501299	4
	575-3-60	Schematic/Component Arrangement	50HJ501301	5
50HJ014	208/230-3-60	Schematic/Component Arrangement	50HJ501300	6
	460-3-60	Schematic/Component Arrangement	50HJ501299	4
	575-3-60	Schematic/Component Arrangement	50HJ501301	5
50HJ008-014	220-3-50	Schematic/Component Arrangement	50HJ501302	7
	400-3-50	Schematic/Component Arrangement	50HJ501303	7

ELECTRIC HEAT

UNIT SIZE	ELECTRIC HEATER		LABEL	FIG. NO.
	V-Ph	kW		
50HJ008,009	208/240-3	18.6/24.8	3-05626	8
50HJ008-014	208/240-3	7.8/10.4 12.0/16.0	3-05623	9
	208/240-3	24.0/32.0 31.8/42.4	3-05626	8
50HJ012,014	208/240-3	37.5/50.0	3-05626	8
50HJ008,009	480-3	13.9	3-05624	10
50HJ008-014	480-3	16.5	3-05624	10
	480-3	27.8 33.0 41.7	3-05625	11
50HJ012,014	480-3	50.0	3-05625	11
50HJ008-014	575-3	18.0	3-05624	10
	575-3	36.0	3-05625	11
50HJ012,014	575-3	54.0	3-05625	11

ACCESSORIES

UNIT	COMPONENT	FIG. NO.
50HJ008-014	Motormaster® Device	12
	Time Guard® II Control	13
	Accusensor™ II Enthalpy Control	14
	Enthalpy Control and Durablade Economizer Control Board Wiring	15A
	Enthalpy Control and Two-Position Durablade Economizer Control Board Wiring	15B
	Carrier TEMP System Thermostat and Apollo Communicating Control Wiring	16
	Apollo Communicating Control Wiring	17
	Motormaster I, II Sensor Location	18

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

OPERATING SEQUENCE

48HJ Units

COOLING, UNITS WITHOUT ECONOMIZER — When thermostat calls for cooling, terminals G and Y1 are energized. The indoor (evaporator) fan contactor (IFC), OFC (outdoor-fan contactor), and compressor contactor no. 1 (C1) are energized. Indoor (evaporator) fan motor (IFM), compressor no. 1, and condenser fans start. The outdoor (condenser) fan motors (OFMs) run continuously while unit is cooling. For units with 2 stages of cooling, if the thermostat calls for a second stage of cooling by energizing Y2, compressor contactor no. 2 (C2) is energized and compressor no. 2 starts.

When the thermostat is satisfied, C1 and C2 are deenergized and the compressors and OFMs shut off. After a 30-second delay, the IFM shuts off. If the thermostat fan selector switch is in the ON position, the evaporator motor will run continuously.

COOLING, UNITS WITH DURABLADE ECONOMIZER — When the outdoor-air temperature is above the outdoor-air thermostat (OAT) setting and the room thermostat calls for cooling, the compressor contactor no. 1 is energized to start compressor no. 1 and outdoor (condenser) fan motors (OFMs). The indoor (evaporator) fan motor (IFM) is energized and the economizer damper moves to the minimum position. Upon a further call for cooling, compressor contactor no. 2 will be energized, starting compressor no. 2. After the thermostat is satisfied and the IFM is deenergized, the damper moves to the fully closed position.

When the outdoor-air temperature is below the OAT setting and the thermostat calls for Y1 and G, the economizer damper moves to the minimum position when the evaporator fan starts. The first stage of cooling is provided by the economizer. If the supply-air temperature is above 57 F (14 C), a switch on the supply-air thermostat is closed between the T2 terminal and the 24 vac terminal. This causes the damper to continue to modulate open until the supply-air temperature falls below 55 F (13 C) or the damper reaches the fully open position.

When the supply-air temperature is between 55 F and 52 F (13 C and 11 C), the supply-air thermostat has open switches between the T2 and 24 vac terminals and between the T1 and 24 vac terminals. This causes the economizer damper to remain in an intermediate open position.

If the supply-air temperature falls below 52 F (11 C), a switch on the supply-air thermostat is closed between the T1 terminal and the 24 vac terminal. This causes the damper to modulate closed until the supply-air temperature rises above 55 F (13 C) or the damper reaches the minimum position.

When the supply-air temperature is between 55 F and 57 F (13 C and 14 C), the supply-air thermostat has open switches between the T2 and 24 vac terminals. This causes the economizer damper to remain in an intermediate open position.

If the outdoor air alone cannot satisfy the cooling requirements of the conditioned space, economizer cooling is integrated with mechanical cooling, providing second-stage cooling. Compressor no. 1 and condenser fans will be energized, and the position of the economizer damper will be determined by the supply-air temperature. Compressor no. 2 is locked out.

When the second stage of cooling is satisfied, the compressor and OFMs will be deenergized. The damper position will be determined by the supply-air temperature.

When the first stage of cooling is satisfied, the IFM shuts off after a 30-second delay. The damper then moves to fully closed position.

COOLING, UNITS WITH ECONOMIZER — When the outdoor-air temperature (OAT) is above the ECON SP set point and the room thermostat calls for Stage 1 cooling (R to G + Y1), the indoor (evaporator) fan motor (IFM) is energized and the EconoMi\$er damper modulates to minimum position. The

compressor contactor is energized to start the compressor and outdoor (condenser) fan motor (OFM). After the thermostat is satisfied, the damper modulates to the fully closed position when the IFM is deenergized.

When the OAT is below the ECON SP setting and the room thermostat calls for Stage 1 cooling (R to G + Y1), the EconoMi\$er modulates to the minimum position when the IFM is energized. The EconoMi\$er provides Stage 1 of cooling by modulating the return and outdoor air dampers to maintain a 55 F supply air set point. If the supply-air temperature (SAT) is greater than 57 F, the EconoMi\$er modulates open, allowing a greater amount of outdoor air to enter the unit. If the SAT drops below 53 F, the outdoor air damper modulates closed to reduce the amount of outdoor air. When the SAT is between 53 and 57 F, the EconoMi\$er maintains its position.

If outdoor air alone cannot satisfy the cooling requirements of the conditioned space, and the OAT is above the MECH CLG LOCKOUT set point, the EconoMi\$er integrates free cooling with mechanical cooling. This is accomplished by the strategies below.

NOTE: Compressor has a 2-minute Minimum On, Minimum Off, and Interstage delay timer.

1. If Y1 is energized, and the room thermostat calls for Y2 (2-stage thermostat), compressor no. 1 and OFM are energized. The EconoMi\$er damper is maintained at its current position.
2. If Y1 is energized for more than 20 minutes, and Y2 is not energized (whether or not a 2-stage thermostat is used), compressor no. 1 and OFM are energized. The EconoMi\$er damper is maintained at its current position.
3. If Y1 is energized, and compressor no. 1 is already energized (see Step 2) and the room thermostat calls for Y2, the compressor contains to operate. If Y2 remains energized for more than 20 minutes, compressor no. 2 is energized.

NOTE: Compressor no. 2 cannot be energized unless there is a signal for Y2 from the space thermostat.

4. If compressor no. 2 is energized, and the Y2 signal from the thermostat is satisfied, compressors 1 and 2 are deenergized. Reasserting Y2 will start compressor no. 1 and (after a 20-minute interstage delay) compressor no. 2.
5. If compressor no. 1 is energized and the thermostat is satisfied, compressor no. 1, the OFM, and IFM are deenergized and the EconoMi\$er modulates closed.

When the OAT is below the MECH CLG LOCKOUT set point, the compressors remain off.

HEATING, UNITS WITHOUT ECONOMIZER — When the thermostat calls for heating, terminal W1 is energized. In order to prevent thermostat short-cycling, the unit is locked into the Heating mode for at least 1 minute when W1 is energized. The induced-draft motor (IDM) is then energized and the burner ignition sequence begins. The IFM is energized 45 seconds after a flame is ignited. When additional heat is needed, W2 is energized and the high-fire solenoid on the main gas valve (MGV) is energized. When the thermostat is satisfied and W1 and W2 are deenergized, the IFM stops after a 45-second time-off delay.

HEATING, UNITS WITH ECONOMIZER/TWO-POSITION DAMPER — When the thermostat calls for heating, terminal W1 is energized. In order to prevent thermostat short-cycling, the unit is locked into the Heating mode for at least 1 minute when W1 is energized. The induced-draft motor is then energized and the burner ignition sequence begins. The IFM is energized 45 seconds after a flame is ignited and the damper moves to the minimum position. If the two-position damper is used, the outdoor-air damper opens to the minimum position whenever the evaporator fan runs. When additional heat is needed, W2 is energized and the high-fire solenoid on

the main gas valve (MGV) is energized. When the thermostat is satisfied and W1 and W2 are deenergized, the IFM stops after a 45-second time-off delay. The economizer damper then moves to the fully-closed position. When using continuous fan, the damper will remain in the minimum position.

50HJ Units

COOLING, UNITS WITHOUT ECONOMIZER — When the thermostat calls for cooling, terminals G and Y1 are energized. The indoor (evaporator) fan contactor (IFC), OFC (outdoor-fan contactor), and compressor contactor no. 1 (C1) are energized and the indoor (evaporator) fan motor (IFM), compressor no. 1, and condenser fans start. The outdoor (condenser) fan motors (OFMs) run continuously while unit is cooling. If the thermostat calls for a second stage of cooling by energizing Y2, compressor contactor no. 2 (C2) is energized and compressor no. 2 starts.

COOLING, UNITS WITH DURABLADE ECONOMIZER — When the outdoor-air temperature is above the outdoor-air thermostat (OAT) setting and the room thermostat calls for cooling, the compressor contactor no. 1 is energized to start compressor no. 1 and outdoor (condenser) fan motors (OFMs). The indoor (evaporator) fan motor (IFM) is energized and the economizer damper moves to the minimum position. Upon a further call for cooling, compressor contactor no. 2 will be energized, starting compressor no. 2. After the thermostat is satisfied and the IFM is deenergized, the damper moves to the fully closed position.

When the outdoor-air temperature is below the OAT setting and the thermostat calls for Y1 and G, the economizer damper moves to the minimum position when the evaporator fan starts. The first stage of cooling is provided by the economizer. If the supply-air temperature is above 57 F (14 C), a switch on the supply-air thermostat is closed between the T2 terminal and the 24 vac terminal. This causes the damper to continue to modulate open until the supply-air temperature falls below 55 F (13 C) or the damper reaches the fully open position.

When the supply-air temperature is between 55 F and 52 F (13 C and 11 C), the supply-air thermostat has open switches between the T2 and 24 vac terminals and between the T1 and 24 vac terminals. This causes the economizer damper to remain in an intermediate open position.

If the supply-air temperature falls below 52 F (11 C), a switch on the supply-air thermostat is closed between the T1 terminal and the 24 vac terminal. This causes the damper to modulate closed until the supply-air temperature rises above 55 F (13 C) or the damper reaches the minimum position.

When the supply-air temperature is between 55 F and 57 F (13 C and 14 C), the supply-air thermostat has open switches between the T2 and 24 vac terminals. This causes the economizer damper to remain in an intermediate open position.

If the outdoor air alone cannot satisfy the cooling requirements of the conditioned space, economizer cooling is integrated with mechanical cooling, providing second-stage cooling. Compressor no. 1 and condenser fans will be energized, and the position of the economizer damper will be determined by the supply-air temperature. Compressor no. 2 is locked out.

When the second stage of cooling is satisfied, the compressor and OFMs will be deenergized. The damper position will be determined by the supply-air temperature.

When the first stage of cooling is satisfied, the damper will move to fully closed position.

COOLING, UNITS WITH ECONOMISER — When the outdoor-air temperature (OAT) is above the ECON SP set point

and the room thermostat calls for Stage 1 cooling (R to G + Y1), the indoor (evaporator) fan motor (IFM) is energized and the EconoMiSer damper modulates to minimum position. The compressor contactor is energized to start the compressor and outdoor (condenser) fan motor (OFM). After the thermostat is satisfied, the damper modulates to the fully closed position when the IFM is deenergized.

When the OAT is below the ECON SP setting and the room thermostat calls for Stage 1 cooling (R to G + Y1), the EconoMiSer modulates to the minimum position when the IFM is energized. The EconoMiSer provides Stage 1 of cooling by modulating the return and outdoor-air dampers to maintain a 55 F supply air set point. If the supply-air temperature (SAT) is greater than 57 F, the EconoMiSer modulates open, allowing a greater amount of outdoor air to enter the unit. If the SAT drops below 53 F, the outdoor air damper modulates closed to reduce the amount of outdoor air. When the SAT is between 53 and 57 F, the EconoMiSer maintains its position.

If outdoor-air alone cannot satisfy the cooling requirements of the conditioned space, and the OAT is above the MECH CLG LOCKOUT set point, the EconoMiSer integrates free cooling with mechanical cooling. This is accomplished by the strategies below.

NOTE: Compressors have a 2-minute Minimum On, Minimum Off, and Interstage delay timer.

1. If Y1 is energized, and the room thermostat calls for Y2 (2-stage thermostat), compressor no. 1 and OFM are energized. The EconoMiSer damper is maintained at its current position.
2. If Y1 is energized for more than 20 minutes, and Y2 is not energized (whether or not a 2-stage thermostat is used), compressor no. 1 and OFM are energized. The EconoMiSer damper is maintained at its current position.
3. If Y1 is energized, and compressor no. 1 is already energized (see Step 2) and the room thermostat calls for Y2, compressor no. 1 continues to operate. If Y2 remains energized for more than 20 minutes, compressor no. 2 is energized.

NOTE: Compressor no. 2 cannot be energized unless there is a signal for Y2 from the space thermostat.

4. If compressor no. 2 is energized, and the Y2 signal from the thermostat is satisfied, compressor no. 1 and 2 are deenergized. Reasserting Y2 will start compressor no. 1 and (after a 20-minute interstage delay) compressor 2.
5. If compressor no. 1 is energized and the thermostat is satisfied, compressor no. 1, the OFM, and IFM are deenergized and the EconoMiSer modulates closed.

When the OAT is below the MECH CLG LOCKOUT set point, the compressors remain off.

HEATING, UNITS WITHOUT ECONOMIZER — Upon a call heating through terminal W1, IFC and heater contactor no. 1 (HC1) are energized. On units equipped with 2 stages of heat, when additional heat is needed, HC2 is energized through W2.

HEATING, UNITS WITH ECONOMIZER (IF ACCESSORY HEATER IS INSTALLED) — When the room thermostat calls for heat through terminal W1, the evaporator-fan contactor and heater contactor no. 1 are energized. On units equipped for 2 stages of heat, when additional heat is needed, heater contactor no. 2 is energized through W2. The economizer damper moves to the minimum position during heating. When the thermostat is satisfied, the damper moves to the fully closed position.

LEGEND (Fig. 1-7, 15A and 15B)

AHA	— Adjustable Heat Anticipator	MTR	— Motor
AWG	— American Wire Gage	NEC	— National Electrical Code
BR	— Blower Relay	OAT	— Outdoor-Air Thermostat
C	— Contactor, Compressor	OFC	— Outdoor (Condenser) Fan Contactor
CAP	— Capacitor	OFM	— Outdoor (Condenser) Fan Motor
CB	— Circuit Breaker	P, PL	— Plug
CC	— Cooling Compensator	QT	— Quadruple Terminal
CLO	— Compressor Lockout	R	— Relay
COM	— Common	RS	— Rollout Switch
COMP	— Compressor Motor	SAT	— Supply-Air Thermostat
CR	— Control Relay	SEN	— Sensor
D	— Diode	SW	— Switch
EC	— Enthalpy Control	SW1	— Switch, Fully Open
ECON	— Economizer	SW2	— Switch, Fully Closed
EPS	— Emergency Power Supply	SW3	— Switch Minimum Vent Position
EQUIP	— Equipment	SW4	— Switch Maximum Vent Position
ER	— Economizer Relay	TB	— Terminal Block
FP	— Flame Prove	TC	— Thermostat, Cooling
FPT	— Freeze Protection Thermostat	TH	— Thermostat, Heating
FSS	— Filter Status Switch	TRAN	— Transformer
FU	— Fuse		
GND	— Ground		Field Splice
GVR	— Gas Valve Relay		Terminal (Marked)
HC	— Heater Contactor (Electric Heater)		Terminal (Unmarked)
HPS	— High-Pressure Switch		Terminal Block
HS	— Hall Effect Sensor		Splice
HTR	— Heater		Factory Wiring
HV TRAN	— High-Voltage Transformer		Field Control Wiring
I	— Ignitor		Field Power Wiring
IDM	— Induced-Draft Motor		Accessory or Optional Wiring
IFC	— Indoor (Evaporator) Fan Contactor		To indicate common potential only.
IFM	— Indoor (Evaporator) Fan Motor		Not to represent wiring.
IFMOVL	— Indoor-Fan Motor Overload Switch		
IFR	— Indoor (Evaporator) Fan Relay		
IGC	— Integrated Gas Controller		
LPS	— Low-Pressure/Loss-of-Charge Switch		
LS	— Limit Switch		
LSM	— Limit Switch (Manual Reset)		
MGV	— Main Gas Valve		

NOTES (Fig. 1-3)

1. If any of the original wire furnished must be replaced, it must be replaced with type 90 C wire or its equivalent.
2. Three-phase motors are protected under primary single-phasing conditions.
3. Thermostat:
HH07AT170, 172, 174 and P272-2783
Subbase:
HH93AZ176, 178 and P272-1882, 1883
4. Set heat anticipator for first stage at 0.14 amp, second stage at 0.2 amp. For 48HJ008 and 009 low heat, set both first and second stage at 0.14 amp.
5. Use copper conductors only.
6. TRAN is wired for 230-v unit. If unit is to run with 208 v power supply, disconnect BLK wire from 230-v tap (ORN) and connect to 200-v tap (RED). Insulate end of 230-v tap.

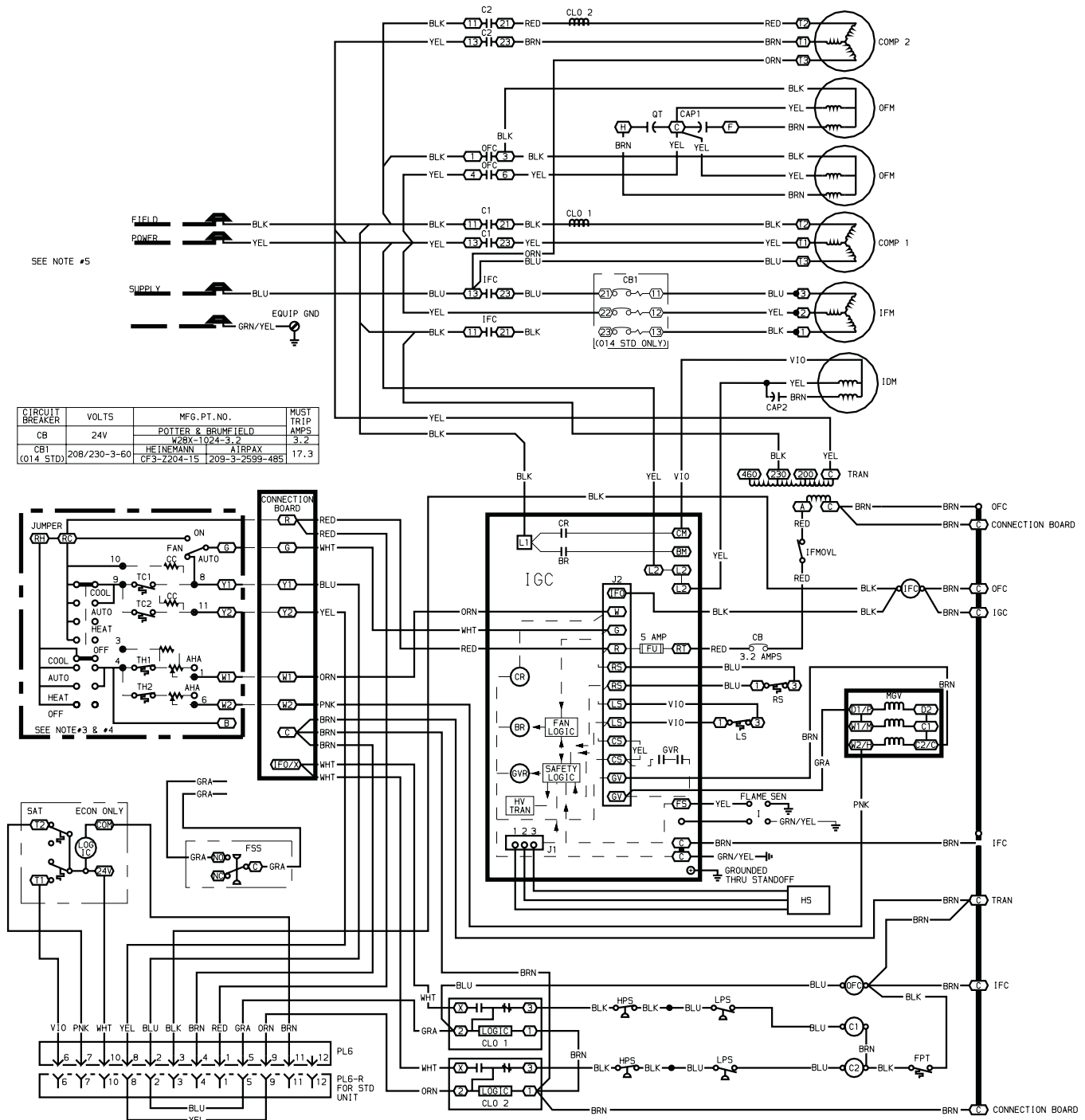
NOTES (Fig. 4-6)

1. If any of the original wire furnished must be replaced, it must be replaced with type 90 C wire or its equivalent.
2. Three-phase motors are protected under primary single-phasing conditions.
3. Thermostat:
HH07AT170, 172
Subbase:
HH93AZ176, 178, and 179
4. Set heat anticipator at 1 amp.
5. Use copper conductors only.
6. Use copper, copper-clad aluminum, or aluminum conductors.
7. TRAN is wired for 230-v unit. If unit is to run with 208 v power supply, disconnect BLK wire from 230-v tap (ORN) and connect to 200-v tap (RED). Insulate end of 230-v tap.

NOTES (Fig. 7)

1. If any of the original wire furnished must be replaced, it must be replaced with type 90 C wire or its equivalent.
2. Three-phase motors are protected under primary single-phasing conditions.
3. Thermostat:
HH07AT170, 172
Subbase:
HH93AZ176, 178, and 179
4. Set heat anticipator at 1 amp.
5. Use copper conductors only.
6. Use copper, copper-clad aluminum, or aluminum conductors.

208/230-3-60 SCHEMATIC



208/230-3-60 SCHEMATIC

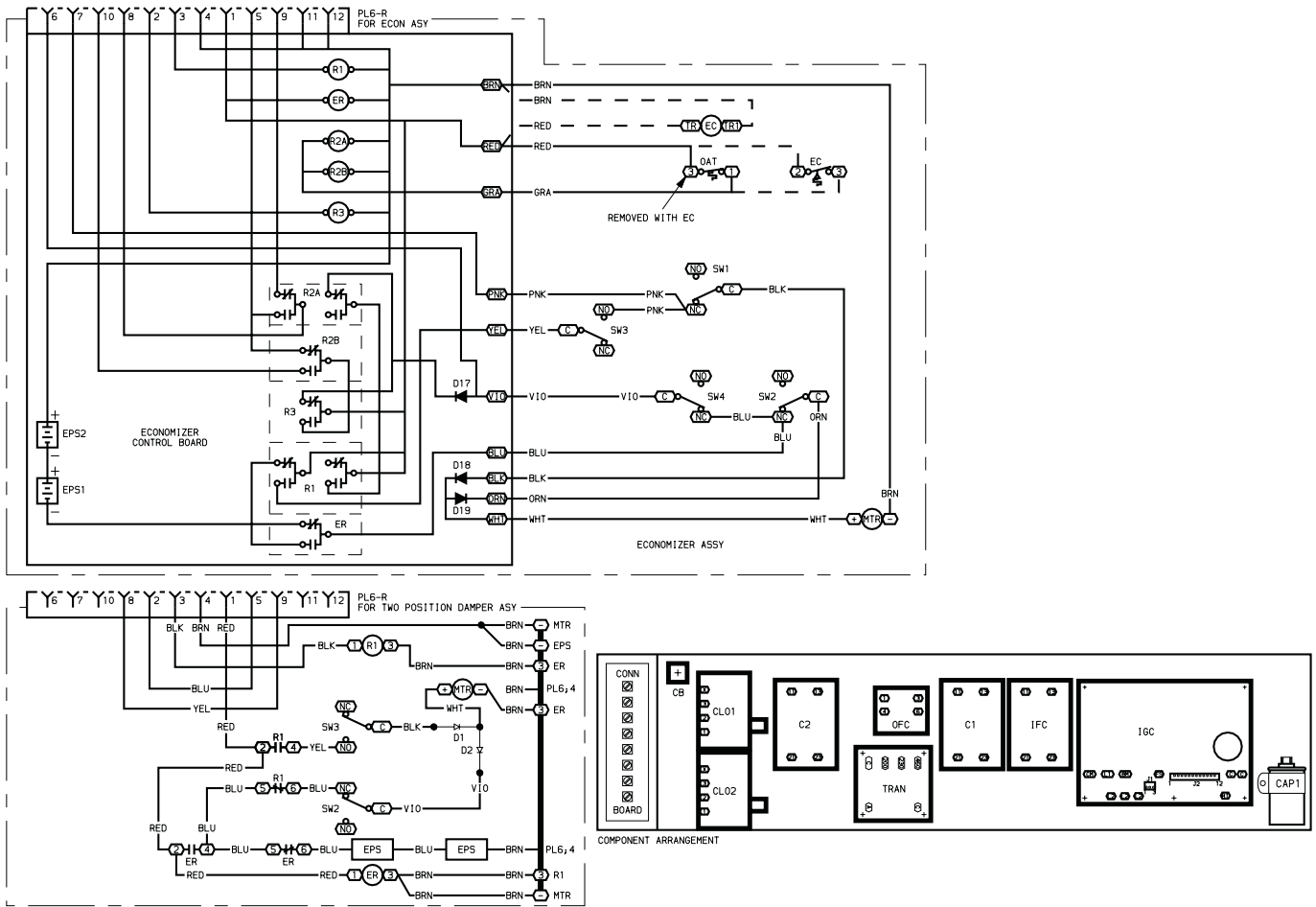


**Fig. 1 — Label Diagram, Schematic and Component Arrangement;
EconoMi\$er and Power Exhaust — 48HJ008-014, 208/230-3-60 (cont)**

460-3-60 SCHEMATIC

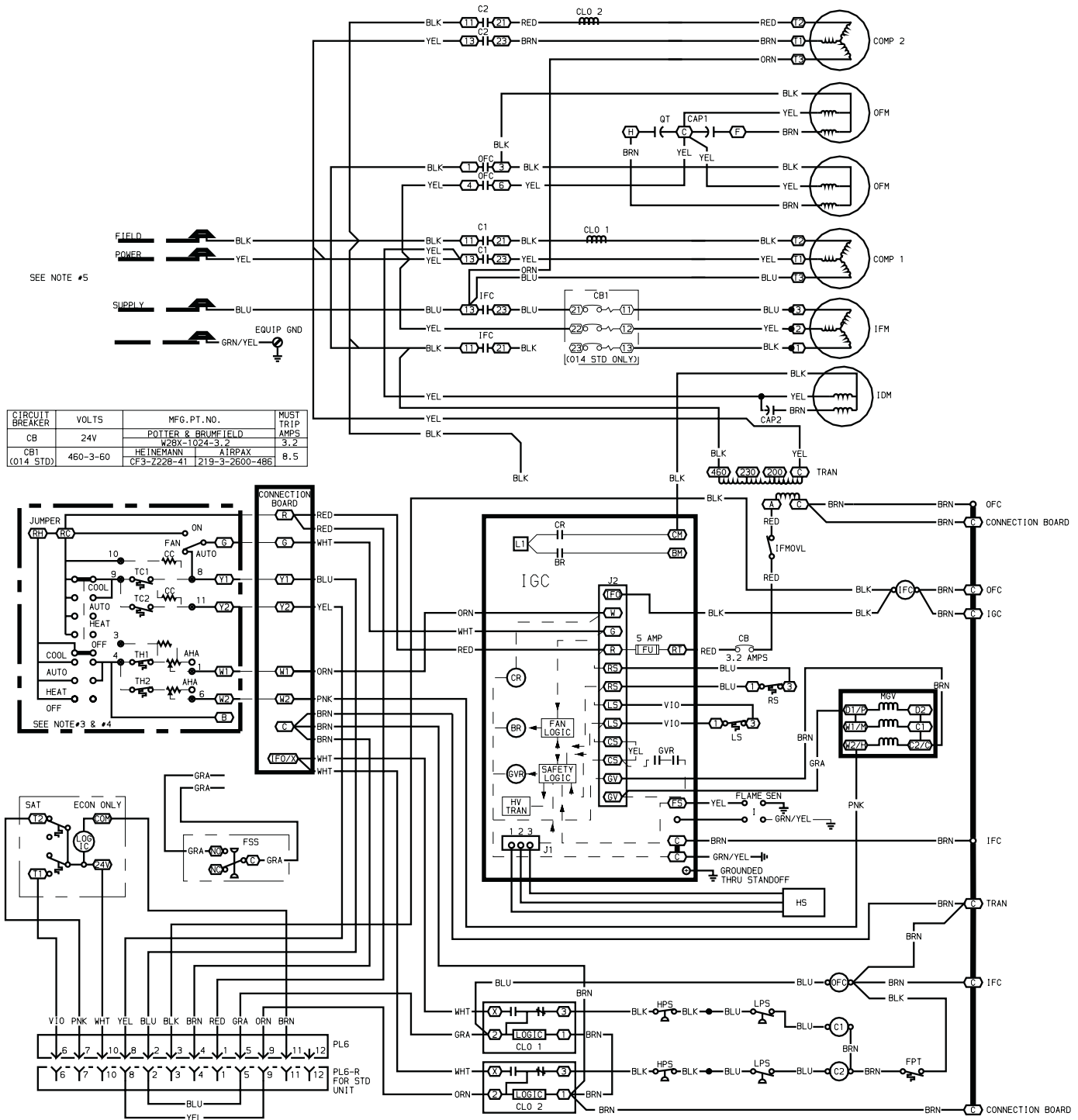


**Fig. 2 — Label Diagram, Schematic and Component Arrangement;
EconoMi\$er and Power Exhaust — 48HJ008-014, 460-3-60**

460-3-60 SCHEMATIC

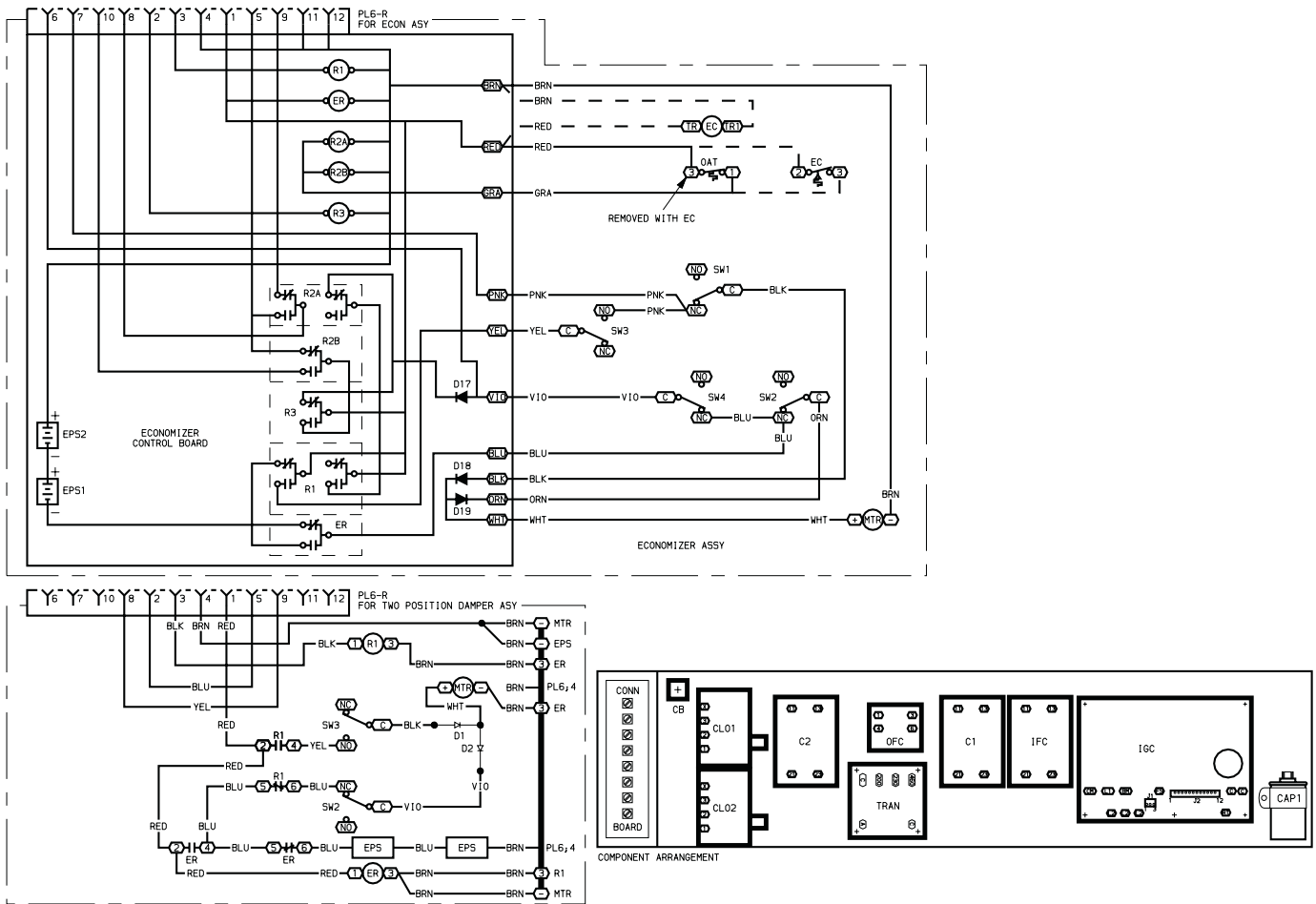


**Fig. 2 — Label Diagram, Schematic and Component Arrangement;
EconoMi\$er and Power Exhaust — 48HJ008-014, 460-3-60 (cont)**

575-3-60 SCHEMATIC

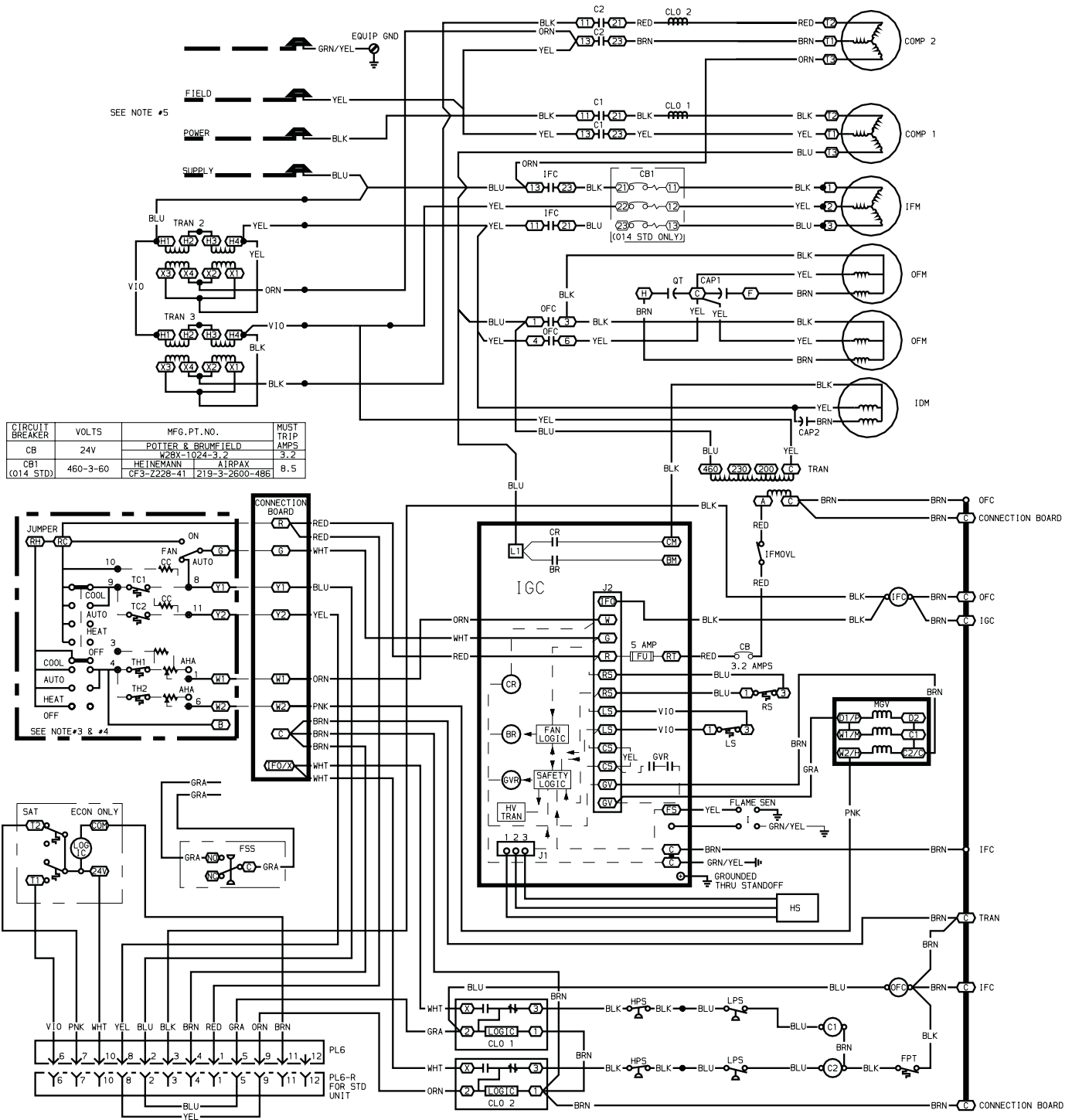


**Fig. 3 — Label Diagram, Schematic and Component Arrangement;
EconoMi\$er and Power Exhaust — 48HJ008-014, 575-3-60**

575-3-60 SCHEMATIC

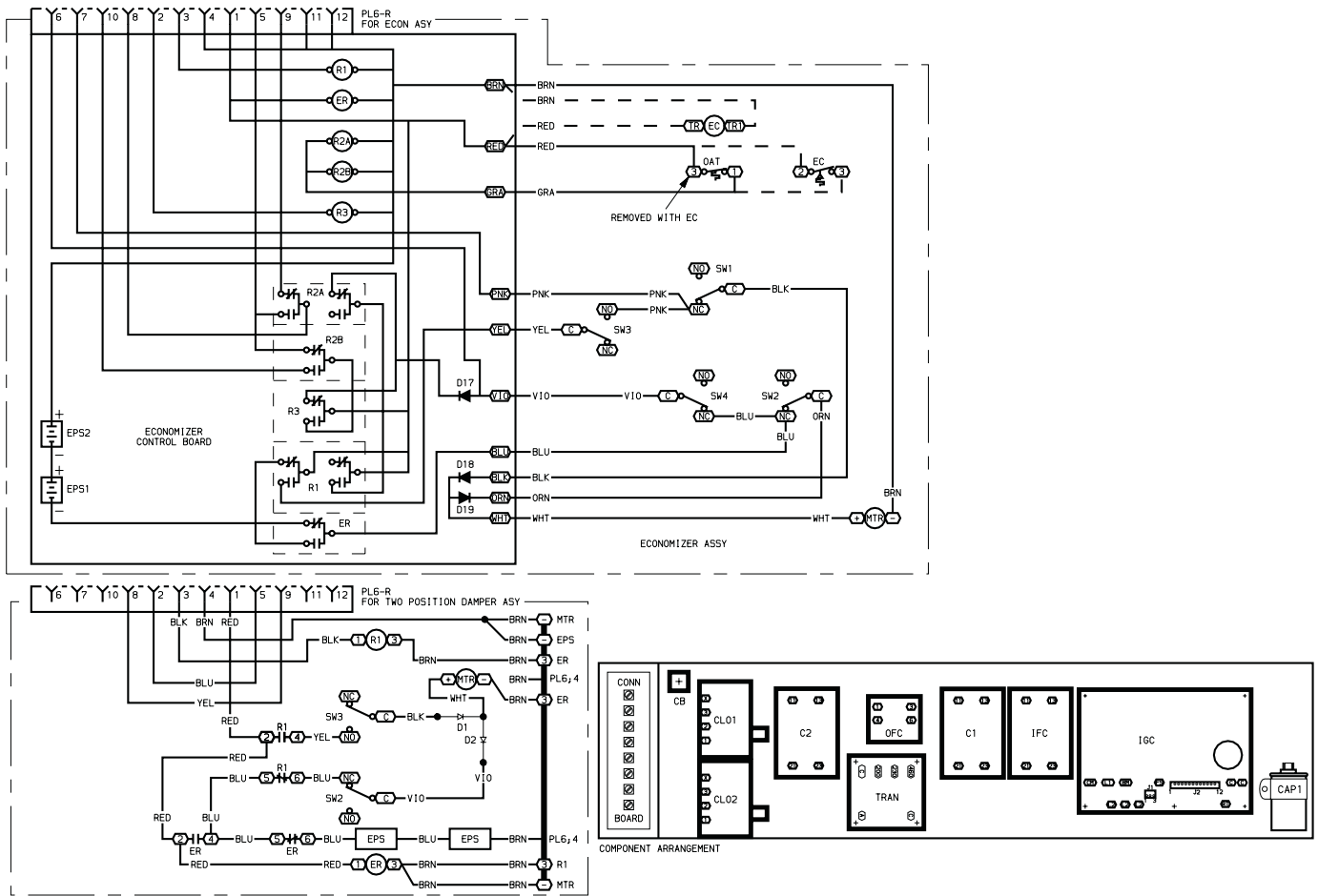


**Fig. 3 — Label Diagram, Schematic and Component Arrangement;
EconoMi\$er and Power Exhaust — 48HJ008-014, 575-3-60 (cont)**

208/230-3-60 AND 460-3-60 SCHEMATIC

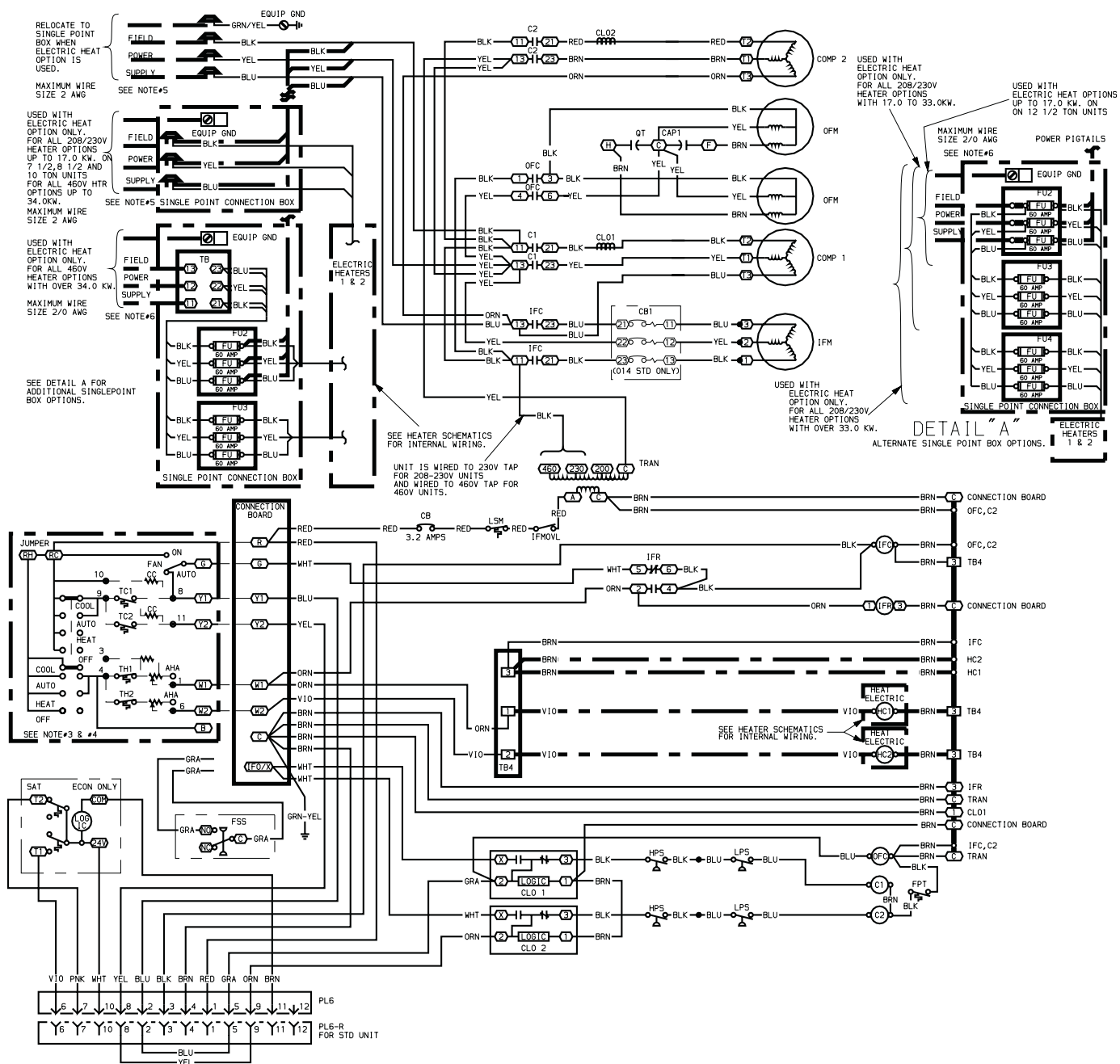


**Fig. 4 — Label Diagram, Schematic and Component Arrangement;
EconoMiSer and Power Exhaust — 50HJ008-012, 208/230-3-60 and 50HJ008-014, 460-3-60**

Figure 1 is an electrical schematic diagram for a two-position damper control system. It shows the interconnection between a 'PL6-R FOR TWO POSITION DAMPER ASSY' and a 'PL6-R FOR ECON ASSY'. The diagram includes an 'ECONOMIZER CONTROL BOARD' with relays R1, R2A, R2B, R3, and ER, and an 'ECONOMIZER ASSY' with various switches (SW1, SW2, SW3, SW4) and relays. Wires are color-coded (e.g., BLK, BRN, RED, YEL, VIO, BLU, ORN, WHT). A table at the bottom right, titled 'COMPONENT ARRANGEMENT', lists the components and their locations on the control board.

CIRCUIT BREAKER	VOLTS	MFG. PT. NO.	MUST TRIP
CB	24V	POTTER & BRUMFIELD	AMPS
CB1	460-3-60	HEINEMANN	3.2
(014 STD)		CF 3-2228-41	8.5

COMPONENT ARRANGEMENT

COMPONENT	LOCATION
CONN	1
CB	2
CL01	3
CL02	4
C2	5
C1	6
IFC	7
OFC	8
TRAN	9
CAP1	10

13

SCHEMATIC



575-3-60 SCHEMATIC

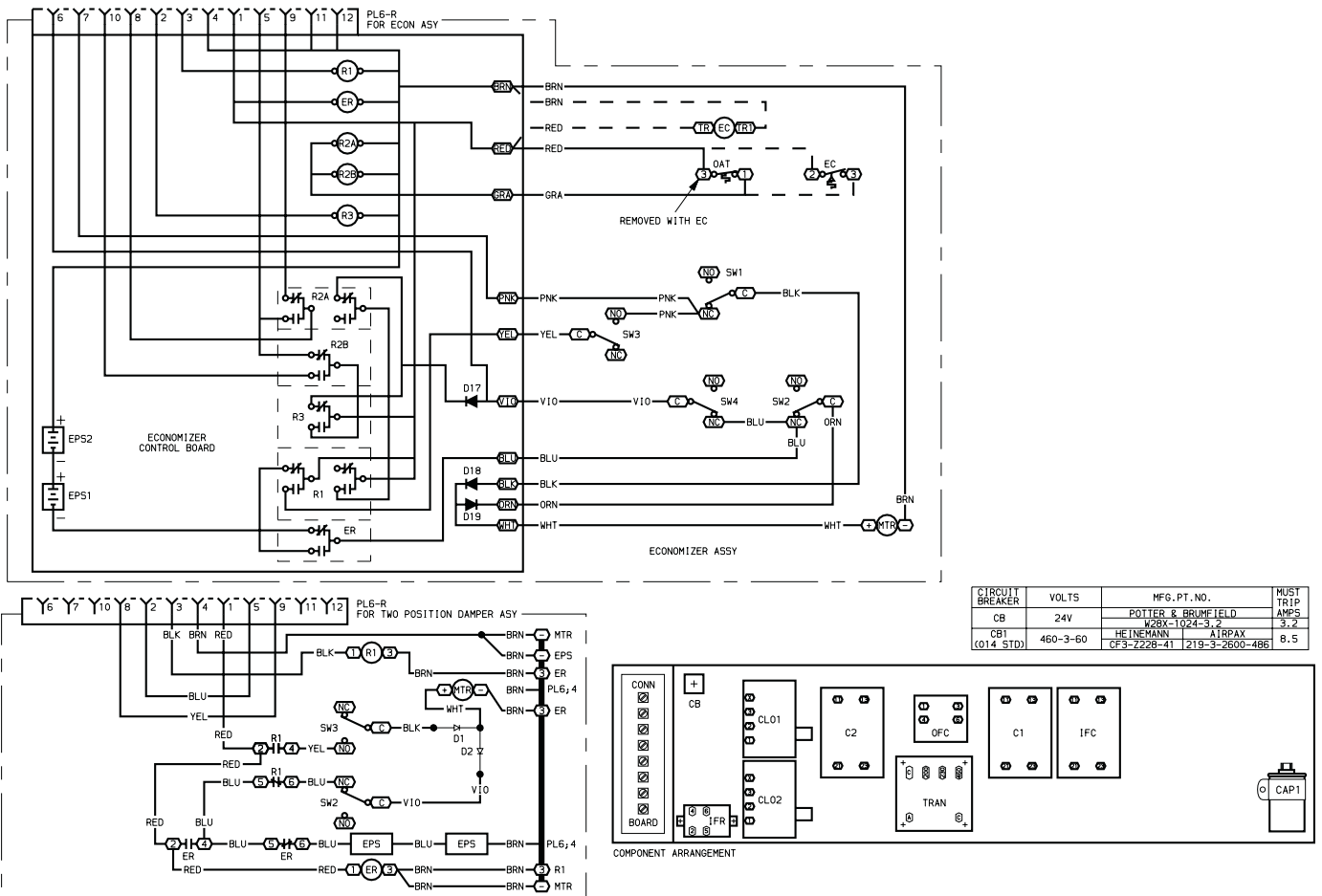


Fig. 5 — Label Diagram, Schematic and Component Arrangement; EconoMi\$er and Power Exhaust — 50HJ008-014, 575-3-60 (cont)

208/230-3-60 SCHEMATIC

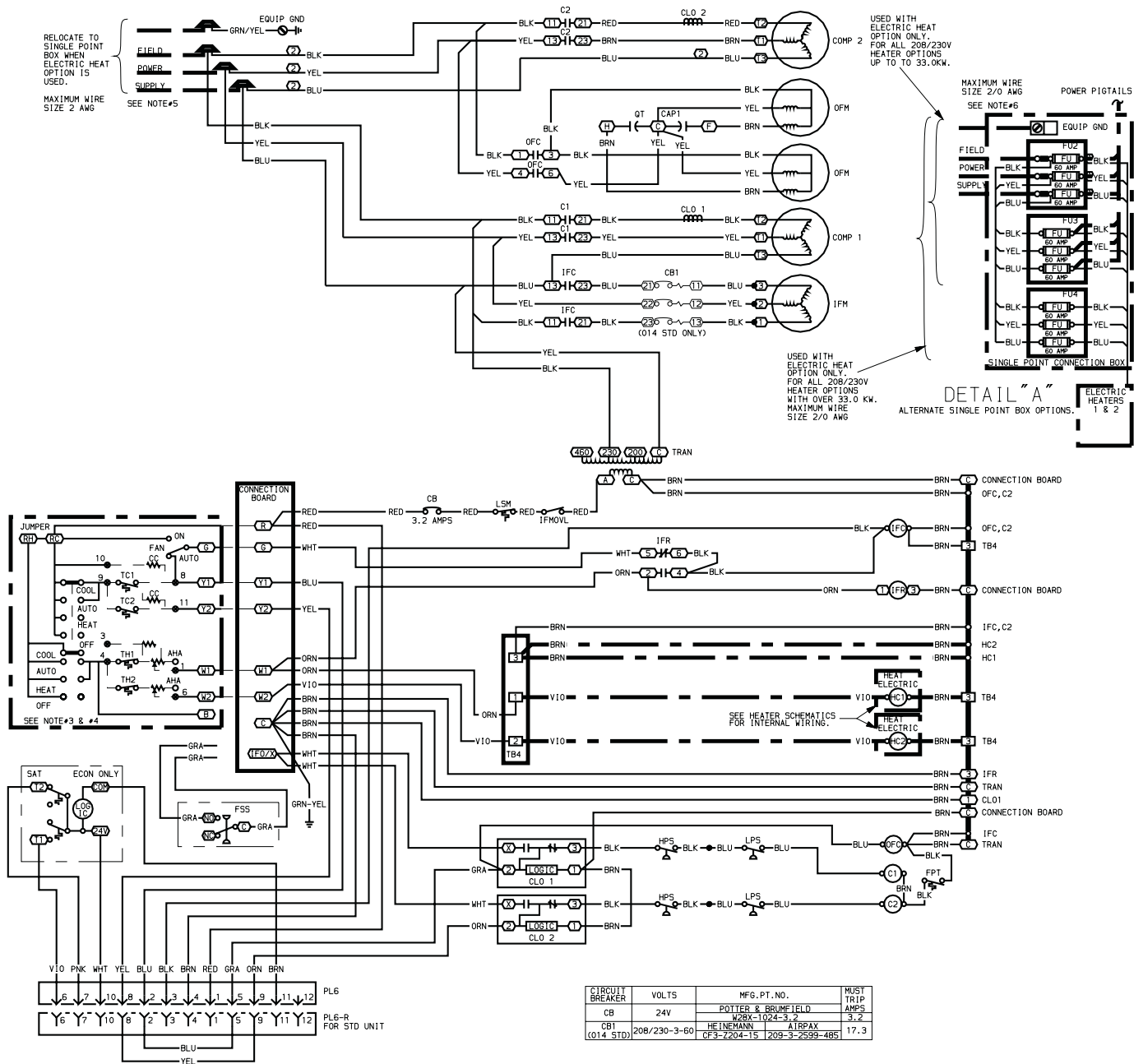


**Fig. 6 — Label Diagram, Schematic and Component Arrangement;
EconoMi\$er and Power Exhaust — 50HJ014, 208/230-3-60**

208/230-3-60 SCHEMATIC

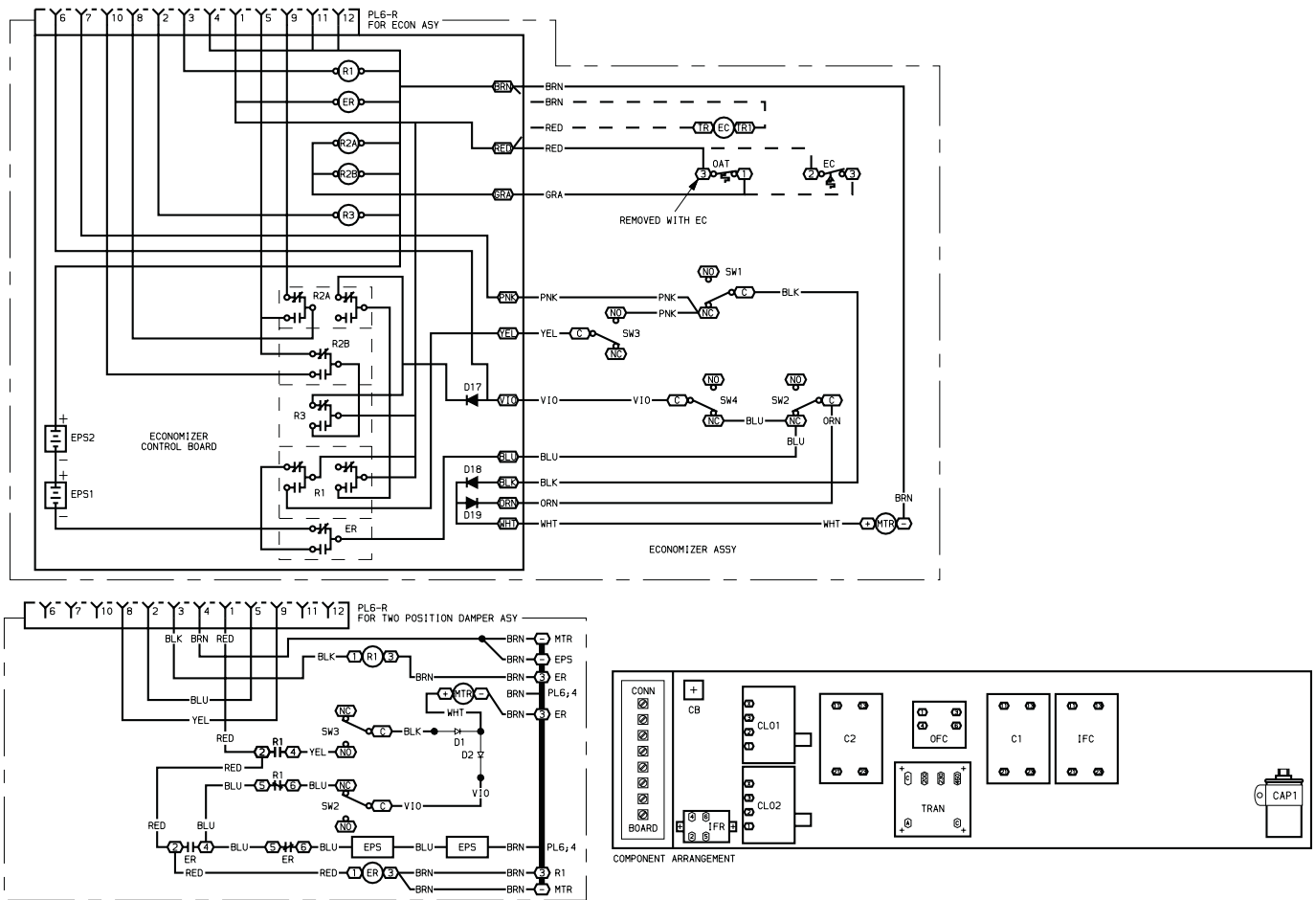
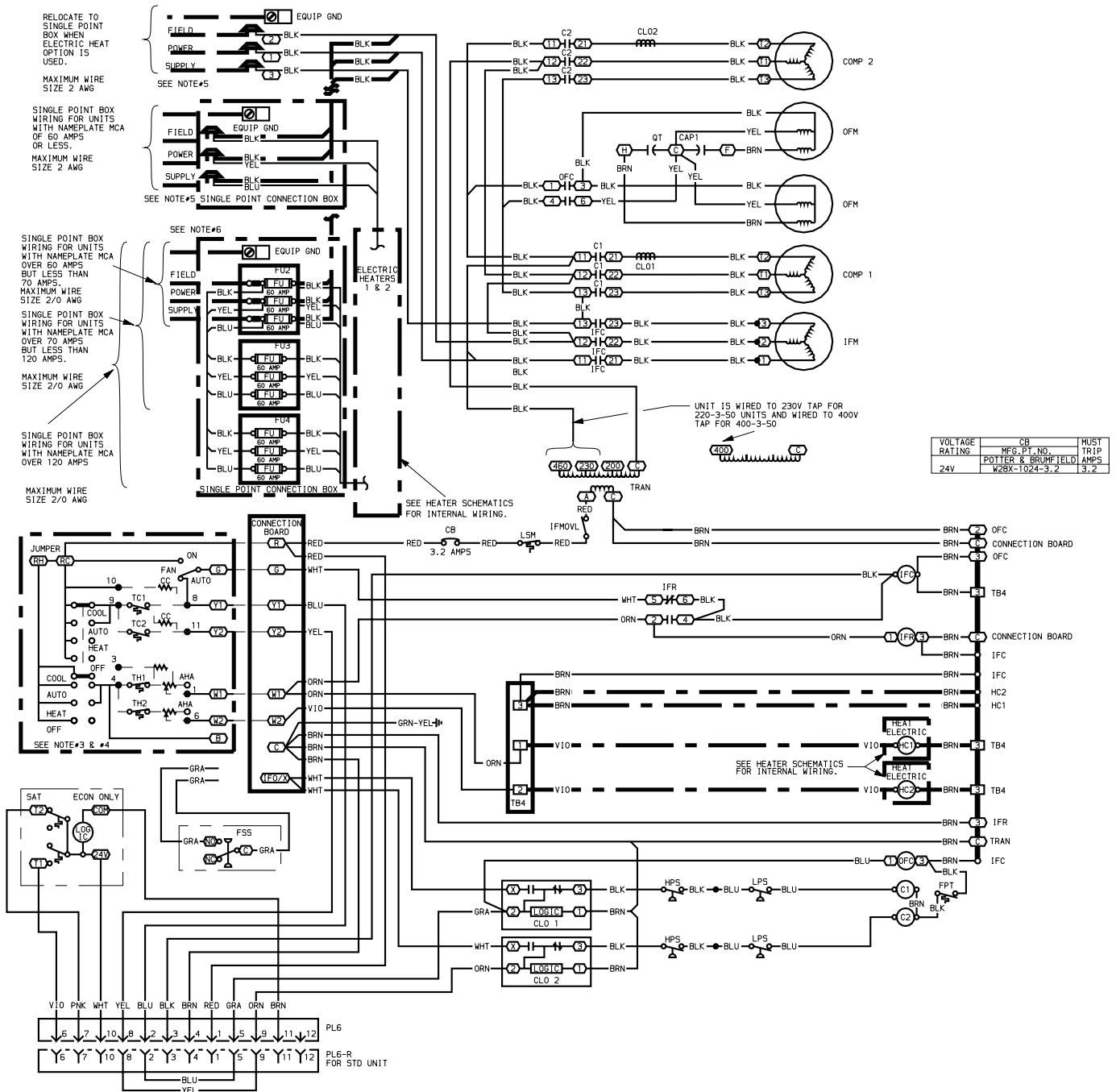


**Fig. 6 — Label Diagram, Schematic and Component Arrangement;
EconoMi\$er and Power Exhaust — 50HJ014, 208/230-3-60 (cont)**

220-3-50, 400-3-50 SCHEMATIC



220-3-50, 400-3-50 SCHEMATIC

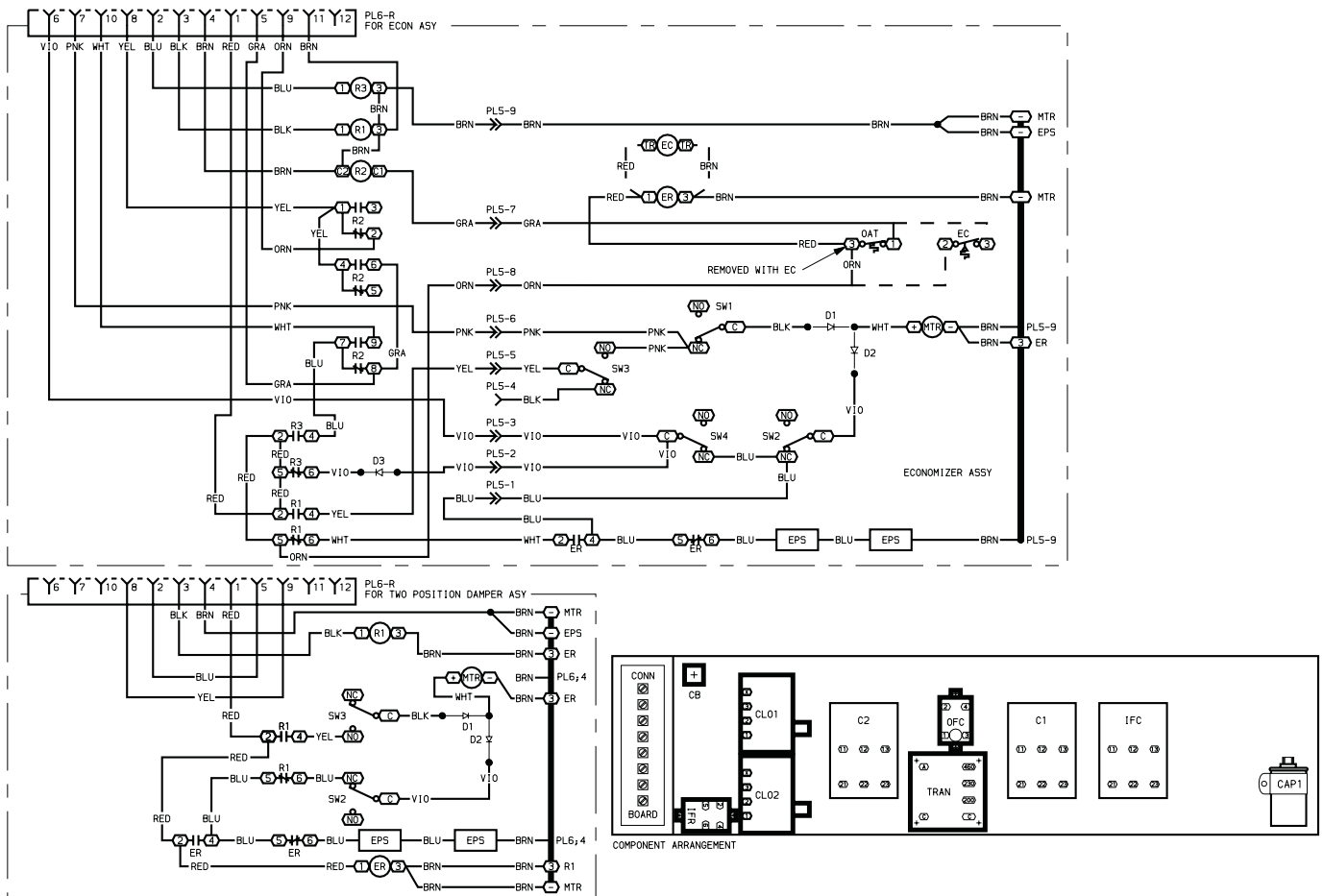
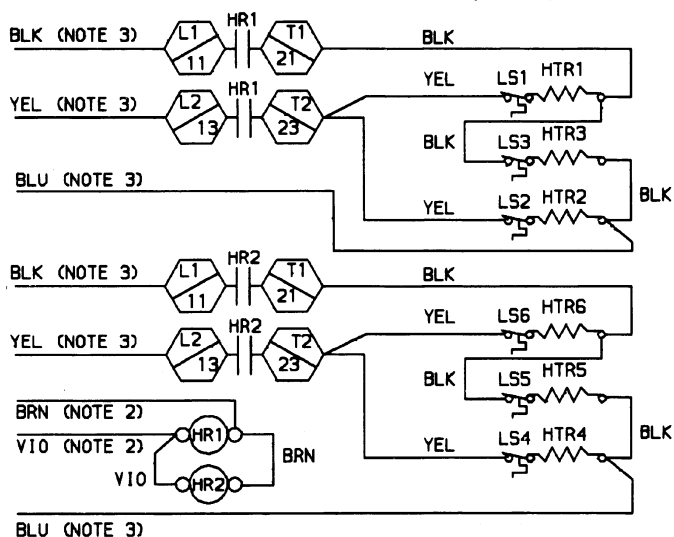
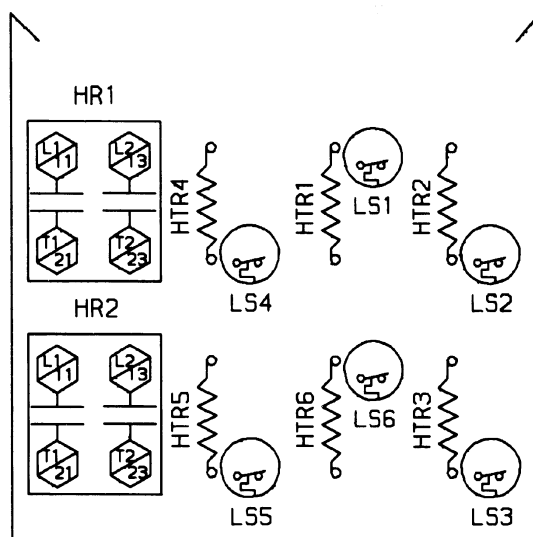


**Fig.7 — Label Diagram, Schematic and Component Arrangement;
EconoMi\$er and Power Exhaust — 50HJ008-014, 220-3-50, 400-3-50 (cont)**

SCHEMATIC DIAGRAM



COMPONENT ARRANGEMENT



⚠ WARNING

Electric shock hazard. Disconnect all branch circuits before removing this cover.

NOTES:

1. To be wired in accordance with NEC and local codes.
2. Brown and violet 24-vac wires are supplied with heater and connected at installation to base unit as shown on base unit wiring diagram.
3. Power wires are supplied with heater and connected at installation to base unit field power connection box as shown on base unit wiring diagram. For field installation of electric heaters, field power connection box shown on equipment nameplate must be used.

Fig. 8 — Accessory Electric Heater Label Diagram, 18.6/24.8 kW, 24.0/32.0 kW, 31.8/42.4 kW, and 37.5/50.0 kW, 208/240 V, 3 Phase

LEGEND



Sylvania
Marked Terminal
Elmwood



Unmarked Terminal

HTR

HR

LS

NEC

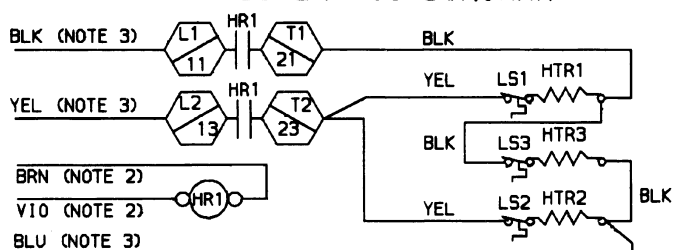
— Heater

— Heater Relay

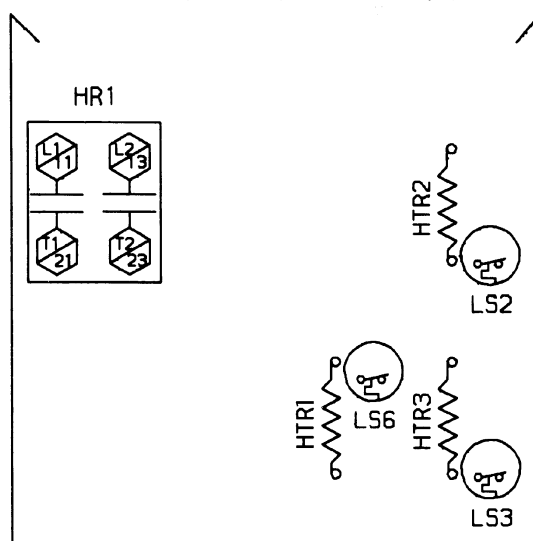
— Limit Switch

— National Electrical Code

SCHEMATIC DIAGRAM



COMPONENT ARRANGEMENT



⚠ WARNING

Electric shock hazard. Disconnect all branch circuits before removing this cover.

NOTES:

1. To be wired in accordance with NEC and local codes.
2. Brown and violet 24-vac wires are supplied with heater and connected at installation to base unit as shown on base unit wiring diagram.
3. Power wires are supplied with heater and connected at installation to base unit field power connection box as shown on base unit wiring diagram. For field installation of electric heaters, field power connection box shown on equipment nameplate must be used.

Fig. 9 — Accessory Electric Heater Label Diagram, 7.8/10.4 kW and 12.0/16.0 kW, 208/240 V, 3 Phase

LEGEND



Sylvania
Marked Terminal
Elmwood



Unmarked Terminal

HTR

HR

LS

NEC

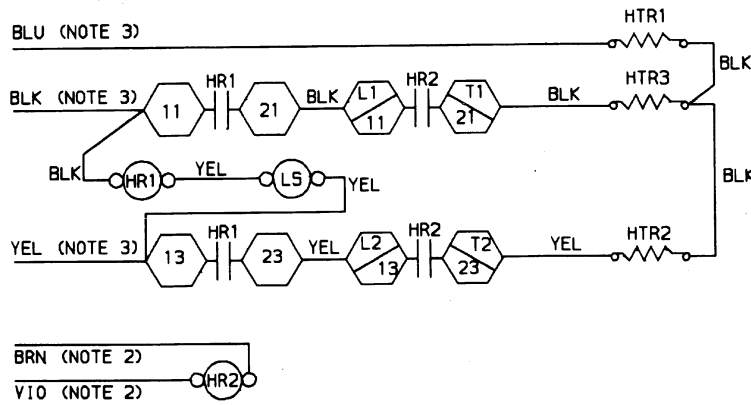
— Heater

— Heater Relay

— Limit Switch

— National Electrical Code

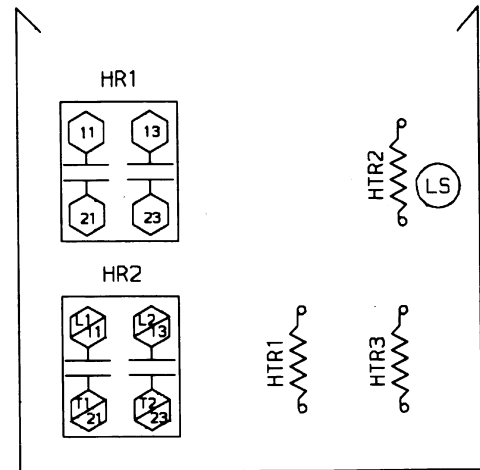
SCHEMATIC DIAGRAM



NOTES:

1. To be wired in accordance with NEC and local codes.
2. Brown and violet 24-vac wires are supplied with heater and connected at installation to base unit as shown on base unit wiring diagram.
3. Power wires are supplied with heater and connected at installation to base unit field power connection box as shown on base unit wiring diagram. For field installation of electric heaters, field power connection box shown on equipment nameplate must be used.

COMPONENT ARRANGEMENT



LEGEND

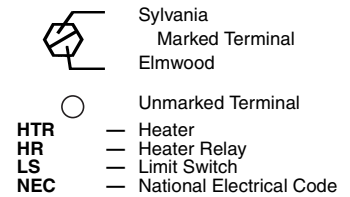
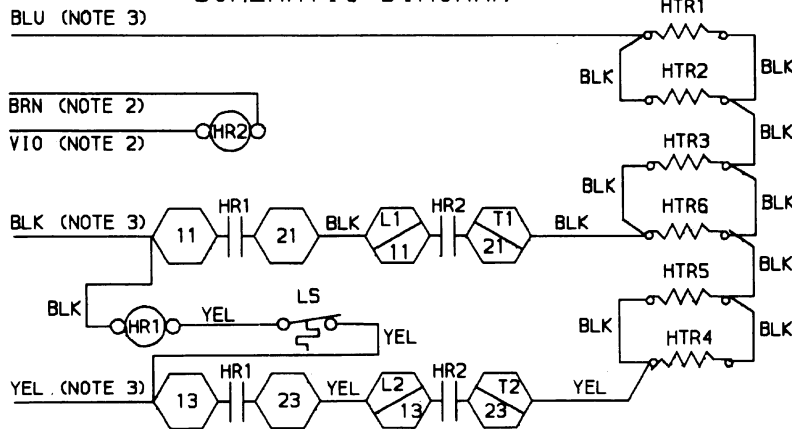


Fig. 10 — Accessory Electric Heater Label Diagram, 13.9 kW and 16.5 kW, 480 V, 3 Phase; 18 kW, 575 V, 3 Phase

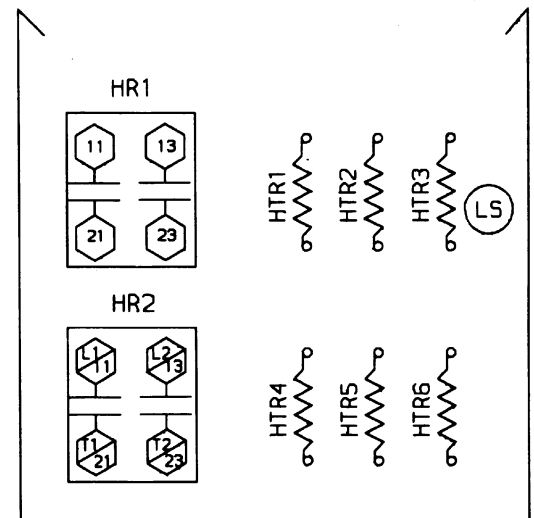
SCHEMATIC DIAGRAM



NOTES:

1. To be wired in accordance with NEC and local codes.
2. Brown and violet 24-vac wires are supplied with heater and connected at installation to base unit as shown on base unit wiring diagram.
3. Power wires are supplied with heater and connected at installation to base unit field power connection box as shown on base unit wiring diagram. For field installation of electric heaters, field power connection box shown on equipment nameplate must be used.

COMPONENT ARRANGEMENT



LEGEND

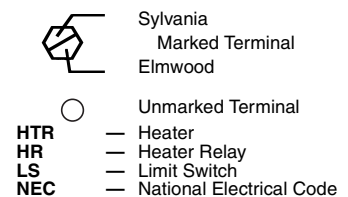
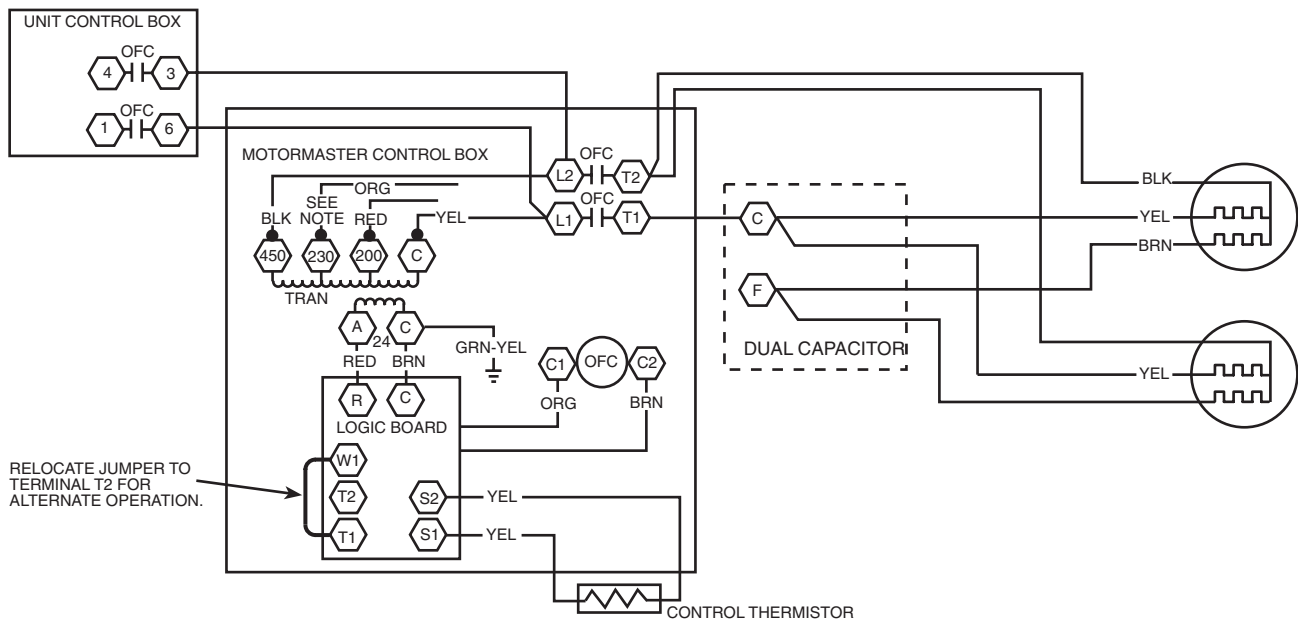


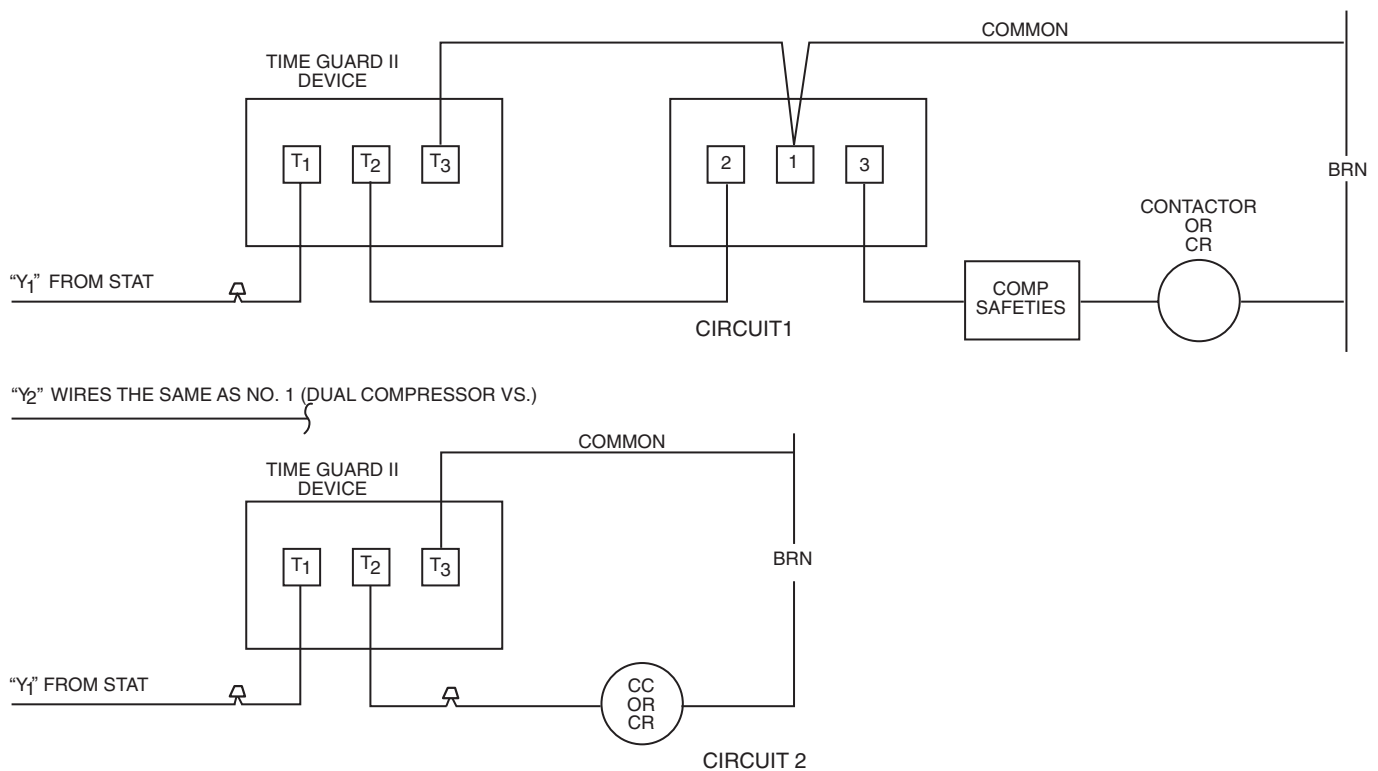
Fig. 11 — Accessory Electric Heater Label Diagram, 27.8 kW, 33.0 kW, 41.7 kW, and 50.0 kW, 480 V, 3 Phase; 36.0 kW and 54.0 kW, 575 V, 3 Phase



LEGEND

OFC — Outdoor Fan Contactor

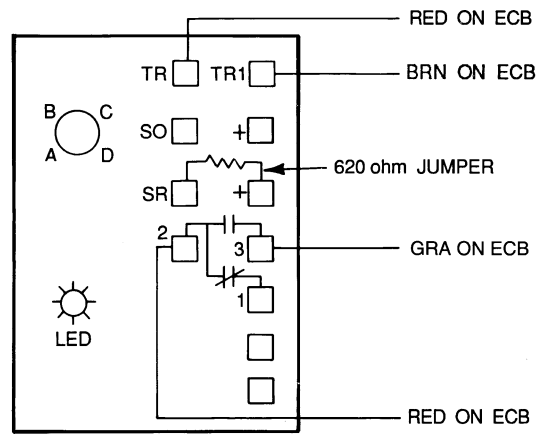
Fig. 12 — Motormaster® Accessory



LEGEND

CC — Cooling Compressor
CLO — Compressor Lockout
CR — Control Relay

Fig. 13 — Time Guard® II Control Wiring



LEGEND

ECB — Economizer Control Board
LED — Light-Emitting Diode

NOTE: Switches shown in high enthalpy state. Terminals 2 and 3 close on enthalpy decrease.

Fig. 14 — Accusensor™ II Enthalpy Control (Part No. HH57AC077) Wiring

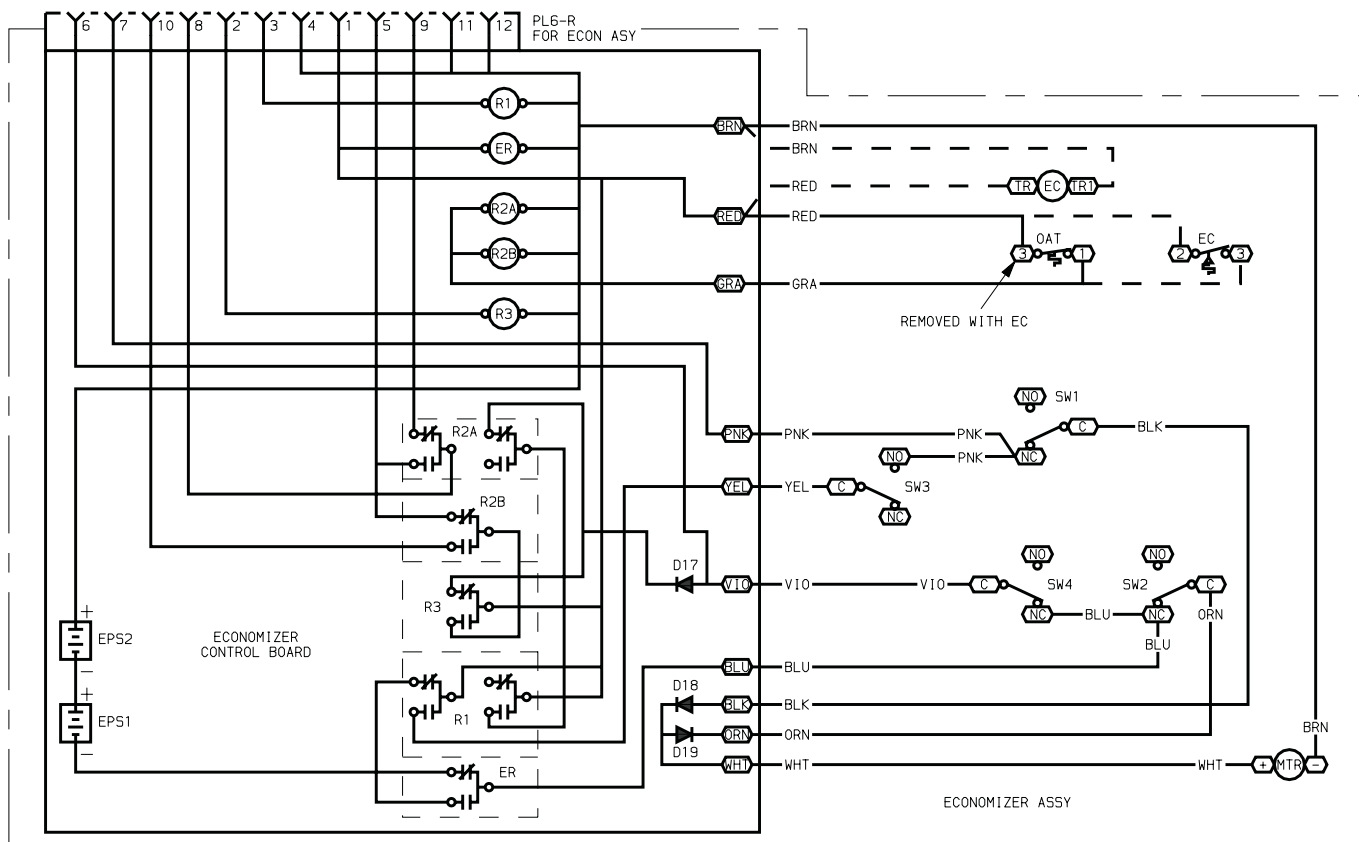


Fig. 15A — Enthalpy Control and Durablade Economizer Control Board Wiring

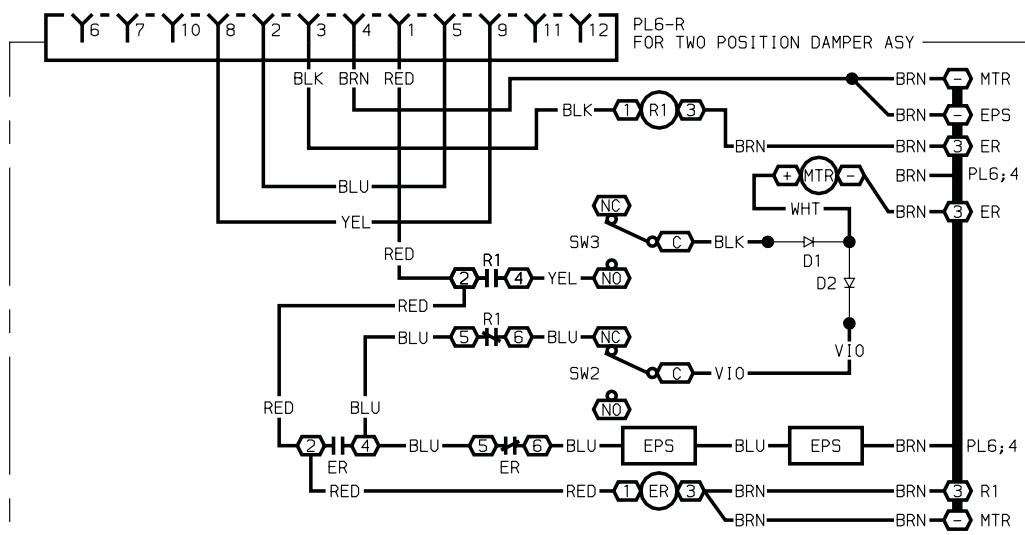
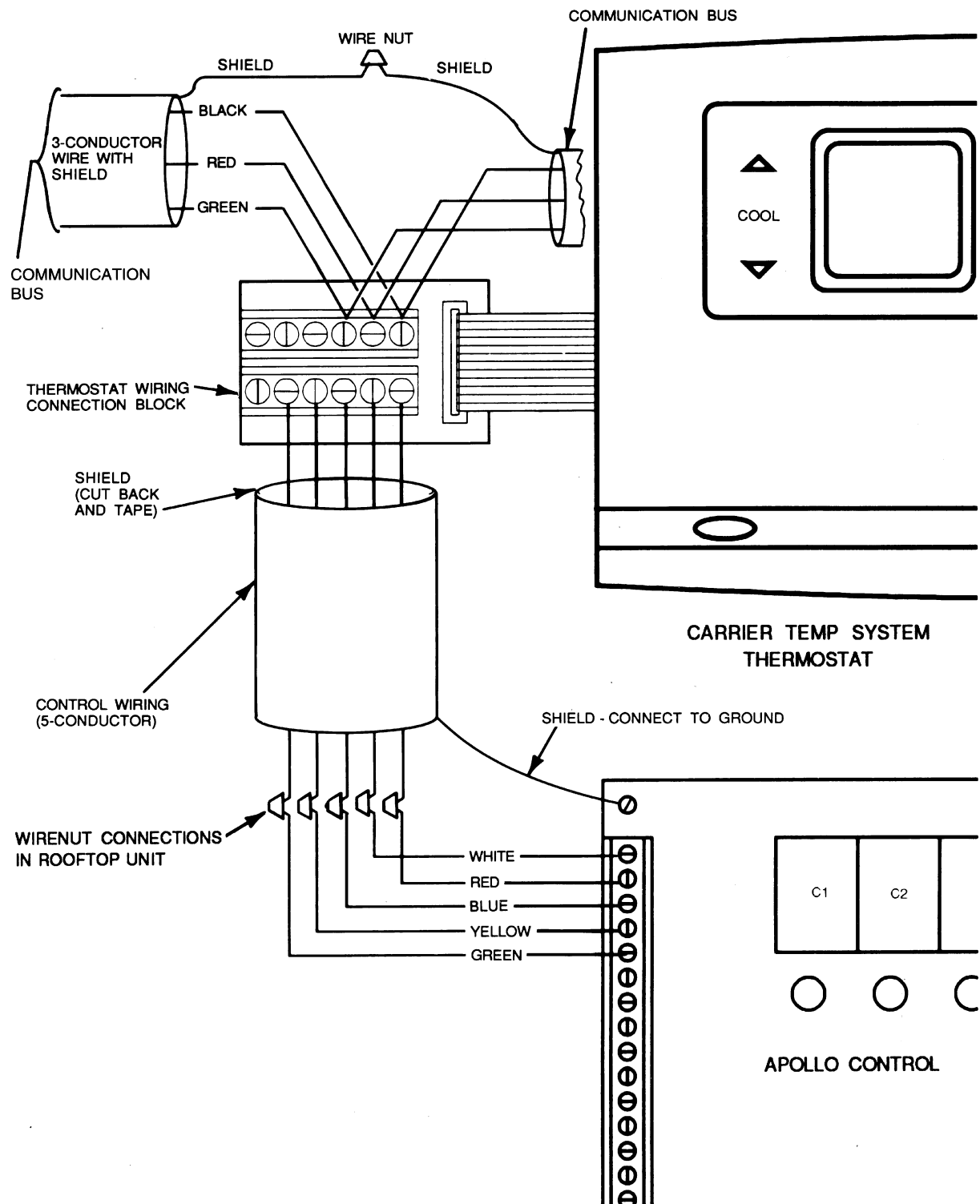


Fig. 15B — Enthalpy Control and Two-Position Durablade Economizer Control Board Wiring



NOTE: Refer to Product Support Bulletin No. 93-005 for shielded wire applications when wiring the thermostat to the Apollo control and for all communication bus wiring connections.

Fig. 16 — Carrier TEMP System Thermostat and Apollo Communicating Control Wiring

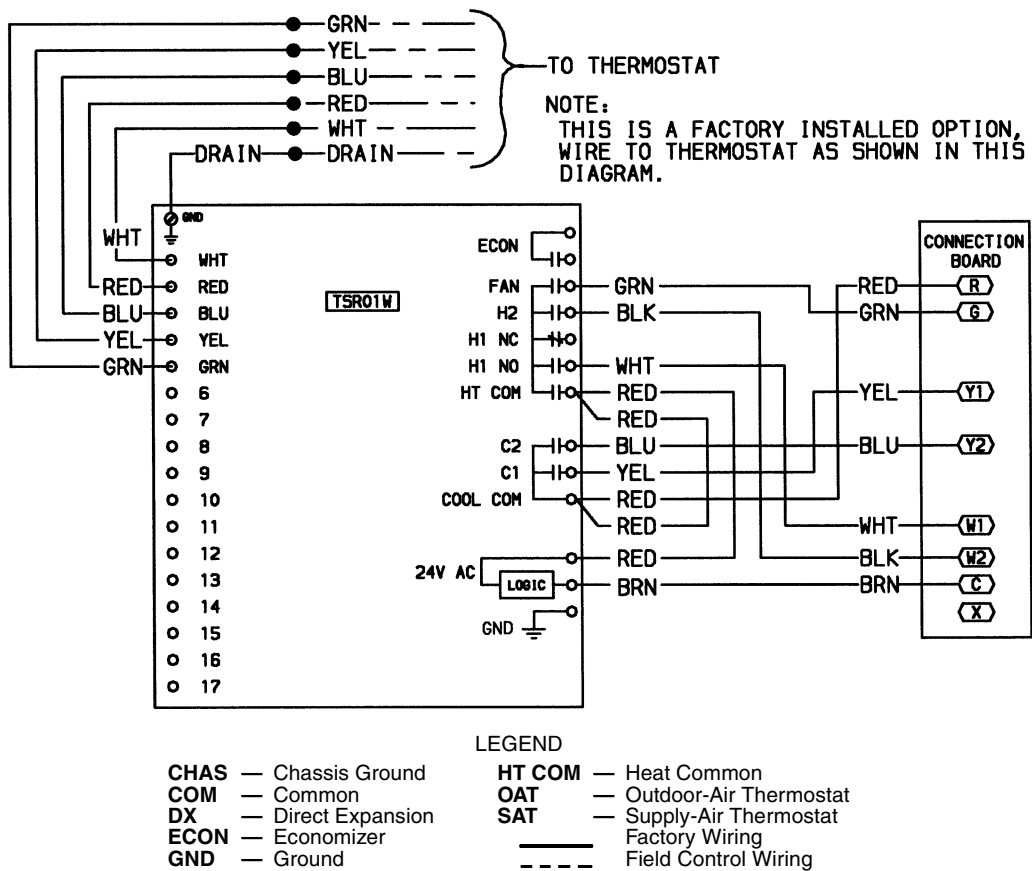
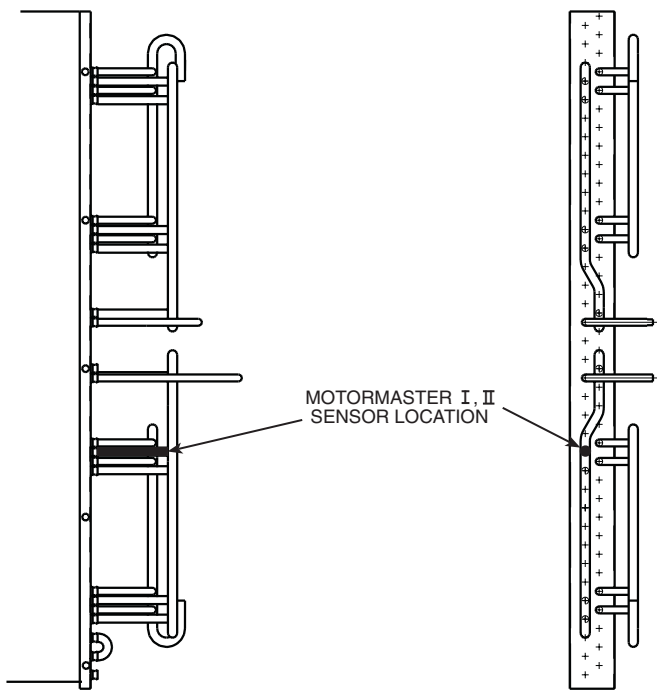
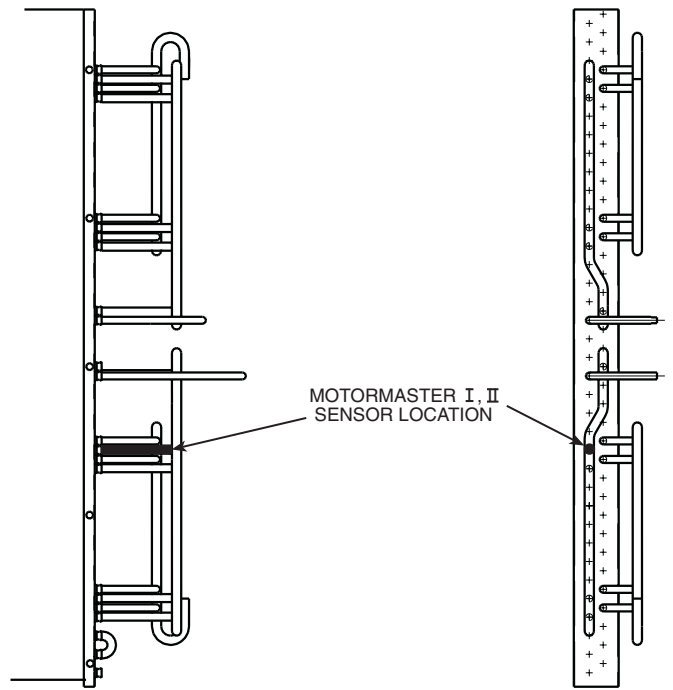


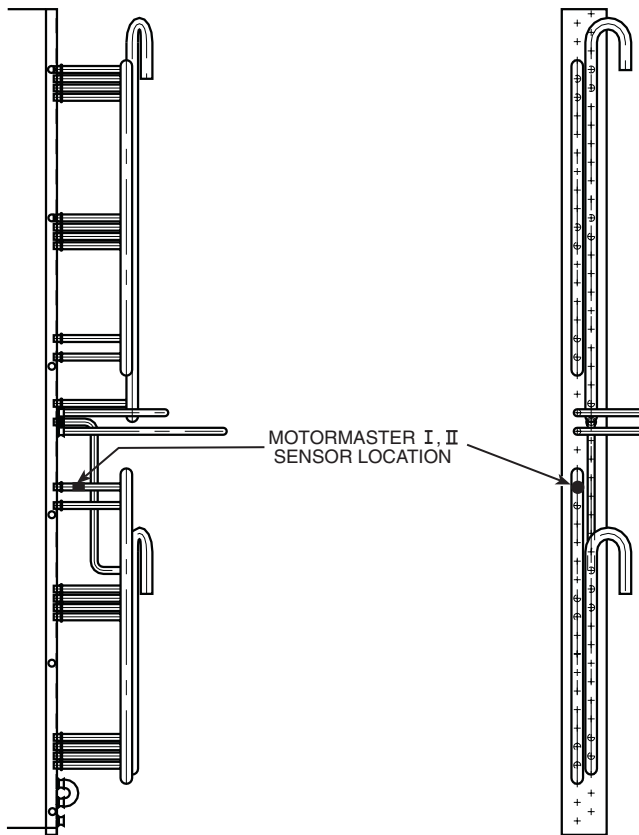
Fig. 17 — Apollo Communicating Control Wiring



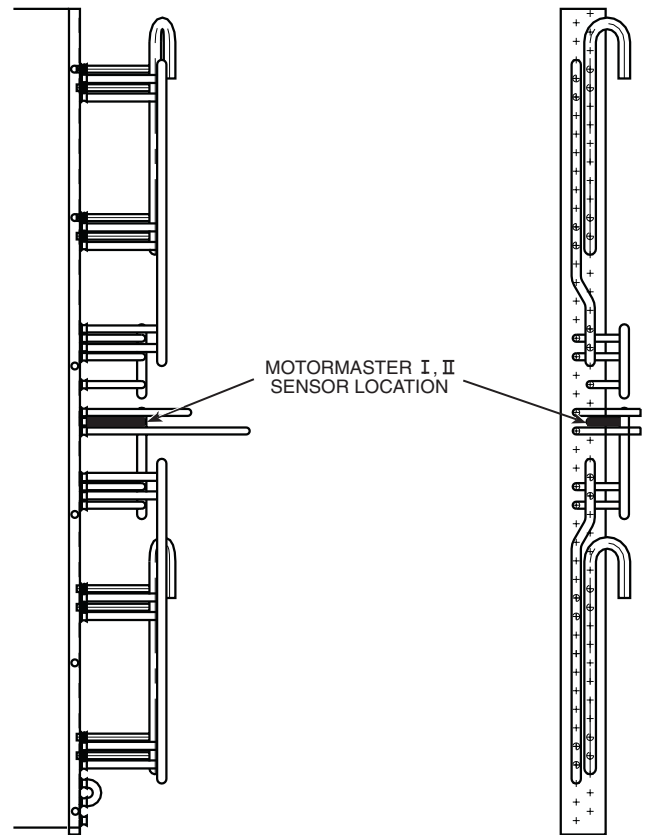
48/50HJ008



48/50HJ009



48/50HJ012



48/50HJ014

Fig. 18 — Motormaster® I or II Sensor Locations

