Number One Air Conditioning Maker

Carrier

Division of Carrier Corporation

Carrier Parkway • Syracuse, N Y 13221

Wiring Diagrams

48HD,LD, HH,LH 008

Combination Heating/Cooling Units

INDEX

Timer Sequence Chart; All Voltages . . . . . Fig 1

BASE MODEL	V-PH-HZ	LABEL DIAGRAM	FIGURE NO.	
			Schematic	Component Arrangement
48HD,LD008	208/230,460-3-60	48CH500784	2	3
48HH,LH008	208/230-3-60	48CH501184	5	4
48HH,LH008	460-3-60	48CH501194	6	7

Remote Control Center . . . . . Fig 8
Accessory Time Guard II, Field Wiring Connection Diagram . . . . . Fig. 9

LEGEND (Fig. 2 thru 7)

AHA — Adjustable Heat Anticipator
ASSY — Assembly
C — Contactor Compressor
CAP — Capacitor
CC — Cooling Compensator
CH — Crankcase Heater
CLO — Compressor Lockout
CLS — Cooling Lockout Switch
COMP — Compressor Motor
CS — Centrifugal Switch
DM — Damper Motor
DR — Damper Relay
EC — Enthalpy Control
ECT — Economizer Thermostat
EQUIP — Equipment
FU — Fuse
GND — Ground
HPS — High Pressure Switch
I — Ignitor Electrode
IDM — Induced Draft Motor
IDR — Induced Draft Relay
IFC — Indoor Fan Contactor
IFM — Indoor Fan Motor
IFR — Indoor Fan Relay
IPP — Ignitor Power Pack
L — Light
LPS — Low Pressure Switch
LS — Limit Switch
MAT. — Mixed Air Thermostat
MGV — Main Gas Valve
MTR — Motor
NS — Night Setback Switch
OAT — Outdoor Air Thermostat
OFM — Outdoor Fan Motor
PGV — Pilot Gas Valve
PL — Plug Assembly
PS — Pilot Sensor
QT — Quadruple Terminal
RLC — Rotor Locking Circuit
RS — Rollout Switch
STD — Standard
SW — Switch
TB — Terminal Block
TC — Thermostat-Cooling
TDR — Time Delay Relay
TH — Thermostat-Heating
TRAN — Transformer

Marked Wire
Denotes Connection Point Between Subbase and Thermostat
Terminal (Marked)
Terminal (Unmarked)
Terminal Block
Field Splice
Splice (Marked)
Factory Splice
Factory Wiring
Internal Connection
Accessory or Optional Wiring
Field Control Wiring
Field Power Wiring
To Indicate Common Potential Only; Not to Represent Wiring

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NOTES

1. Compressor and fan motors are thermally protected — three phase motors are protected against primary single phase conditions.
2. If any original wires must be replaced, use 90 C wire or equivalent.
3. Numbers 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. Plain (no line) number signifies a normally open contact.
4. Must use thermostat HH07AT172 or 174 with subbase HH93AZ177.
5. Set heat anticipators at 1 amp (208/230-3-60). Set heat anticipators at 1.2 amp (460-3-60).
6. Factory connected to 230-v or 460-v lead per unit rated voltage. If 208-v power supply is used, connect to 200-v lead and insulate 230-v lead.

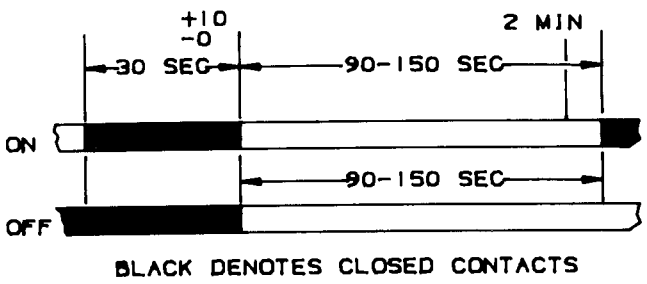


Fig. 1 — Timer Sequence Chart (TDR)

BASE UNIT OPERATING SEQUENCE

Cooling — Power on and thermostat set at COOL and desired temperature. Fan switch set at AUTO. position.

Upon a call for cooling, contact no. 1 (TC1) in thermostat closes, energizing the evaporator fan contactor (IFC), and compressor contactor (C). The compressor and the evaporator and condenser fan motors start and run.

When room thermostat is satisfied, compressor, condenser fan motor and evaporator fan motor shut down.

Heating — Power and gas on and thermostat set at HEAT and desired temperature. Fan switch set at AUTO. position.

Induced draft motor is energized with a call for heat from thermostat. When induced draft motor reaches a speed of 2200 rpm the centrifugal switch closes, pilot solenoid energizes and pilot valve opens. A spark is generated and the pilot is lit.

When pilot is "proven," the main gas valve opens and gas flows to main burners. Main burners ignite.

Automatic Changeover — When system selector switch is set at SYSTEM AUTO., unit automatically changes from heating operation to cooling operation when the temperature of the conditioned space rises to cooling lever setting. When temperature of conditioned space falls to heating lever setting, unit automatically changes from cooling operation to heating operation. Thermostat is interlocked so that cooling and heating systems cannot operate at the same time.

Air Circulation — With power on, thermostat set at SYSTEM OFF and FAN ON, indoor air fan operates continuously for air circulation. When controls are set at SYSTEM HEAT or SYSTEM COOL and FAN ON, heating and cooling operation is provided as required, while indoor air fan motor operates continuously.

BASE UNIT WITH ECONOMIZER OPERATION (HD,LD)

Cooling Mode — Upon a call for cooling and outdoor ambient is above the outdoor air thermostat setting, the indoor and outdoor fans and compressor energize. The economizer damper moves to vent position.

Upon a first stage call for cooling and outdoor ambient is below the outdoor air thermostat setting, the indoor fan starts and economizer damper goes fully open. Compressor remains off.

Upon a second stage call for cooling, the compressor is energized and mechanical cooling is integrated with economizer cooling.

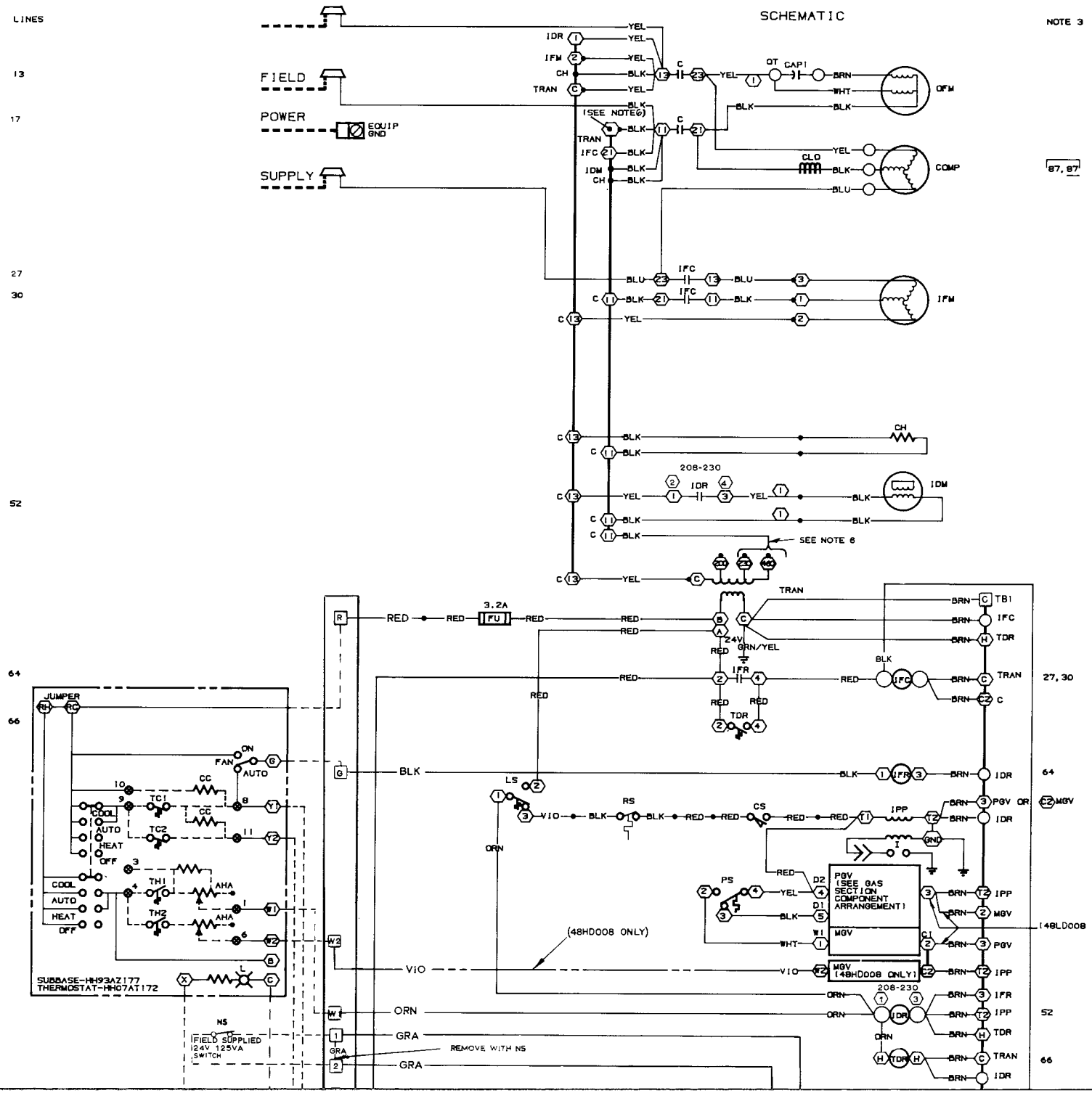
Mechanical cooling will be locked out when ambient temperature goes below 50 F.

Economizer damper modulation occurs when the mixed air temperature goes below the mixed air thermostat setting.

An Economizer Control Thermostat (ECT) is located on the evaporator coil. Its purpose is to detect a frost buildup and close the outdoor air damper. This raises the air temperature entering the evaporator coil and melts the frost. Once melted, the damper is reopened.

If a field-supplied night switch is used, the outdoor air damper will close when switch is open.

Heating Mode — Outdoor air damper stays at VENT position while evaporator air fan is operating. If a field-supplied night switch is used, the outdoor air damper will close when switch is open.


SCHEMATIC
LINES
NOTE 3
FIELD
POWER
SUPPLY
EQUIP GND
13
17
27
30
52
64
66
87, 87
27, 30
IDR
IFM
CH
TRAN
C
OT
CAP1
OFM
COMP
CLO
IFC
IDM
(SEE NOTE6)
SEE NOTE 6
208-230
3.2A
FU
24V
GRN/YEL
IFR
TDR
TB1
JUMPER
SUBBASE-MH93AZ177
THERMOSTAT-MH07AT172
FAN
ON
AUTO
COOL
HEAT
OFF
CC
TC1
TC2
TH1
TH2
AHA
NS
FIELD SUPPLIED
24V 125VA
SWITCH
REMOVE WITH NS
BLK
VIO
ORN
GRA
LS
RS
CS
IPP
PS
PGV
(SEE GAS SECTION COMPONENT ARRANGEMENT)
MGV
(48HD008 ONLY)
(48LD008 ONLY)

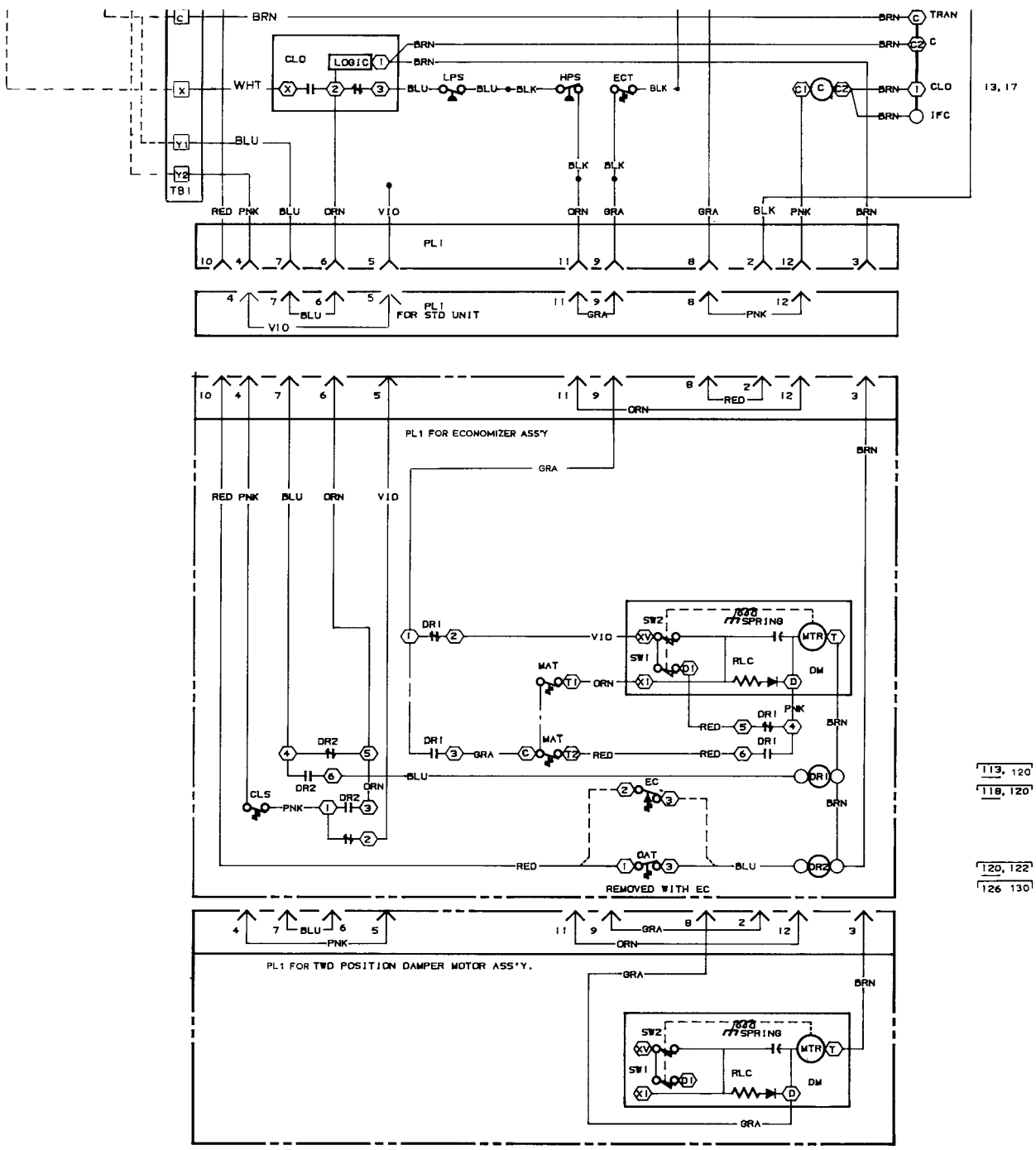


Fig. 2 — Label Diagram, Schematic; 48HD,LD008; 208/230, 460-3-60

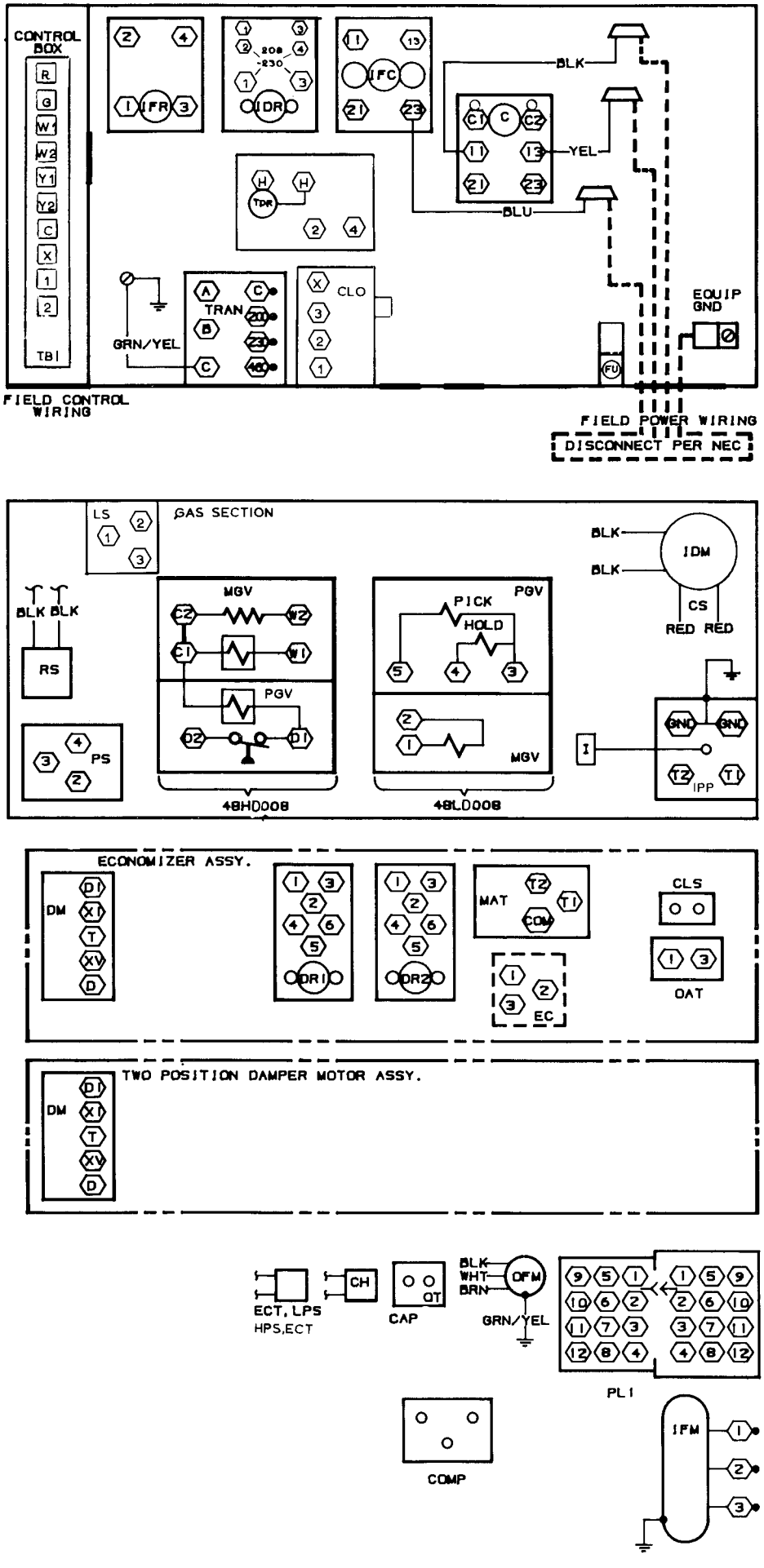


Fig. 3 — Label Diagram, Component Arrangement; 48HD,LD008; 208/230, 460-3-60

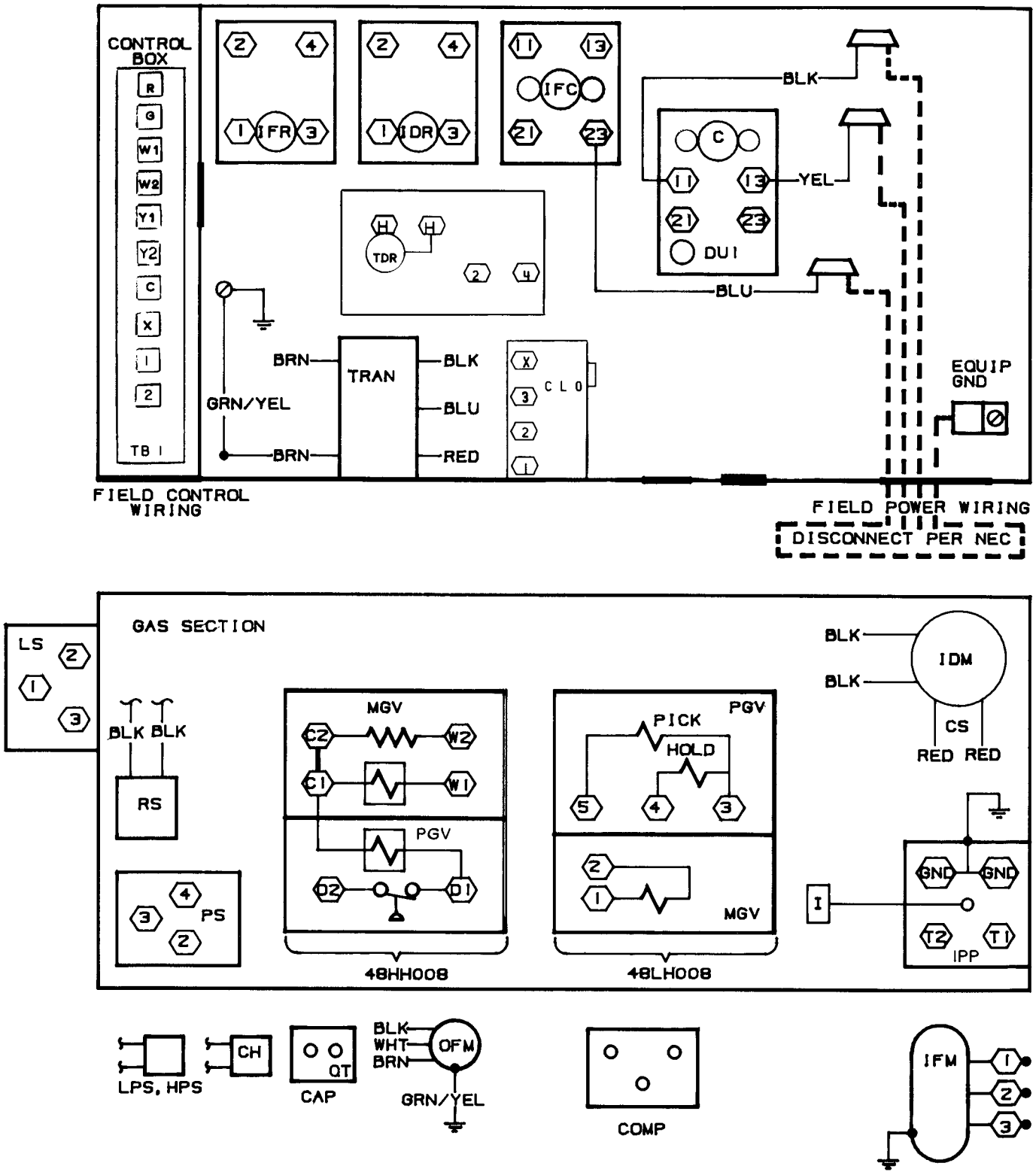
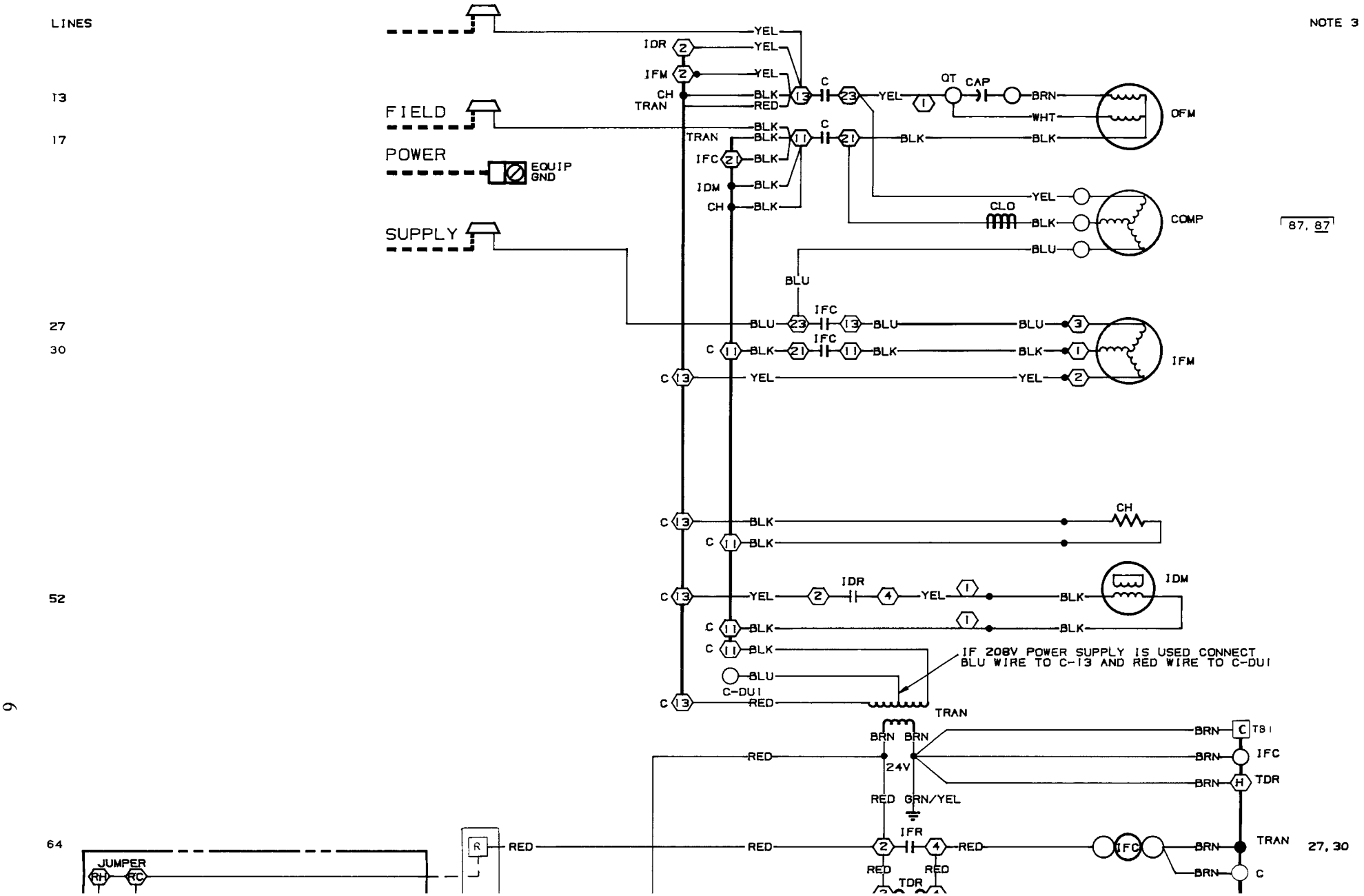


Fig. 4 — Label Diagram, Component Arrangement; 48HH,LH008; 208/230-3-60


LINES
NOTE 3
13
17
FIELD
POWER
EQUIP GND
SUPPLY
27
30
52
64
IDR
IFM
CH
TRAN
IFC
IDM
C
QT
CAP
OFM
COMP
CLO
IFM
CH
IDM
IF 208V POWER SUPPLY IS USED CONNECT BLU WIRE TO C-13 AND RED WIRE TO C-DU1
C-DU1
TRAN
24V
RED GRN/YEL
IFR
TDR
JUMPER
87, 87
27, 30
T81

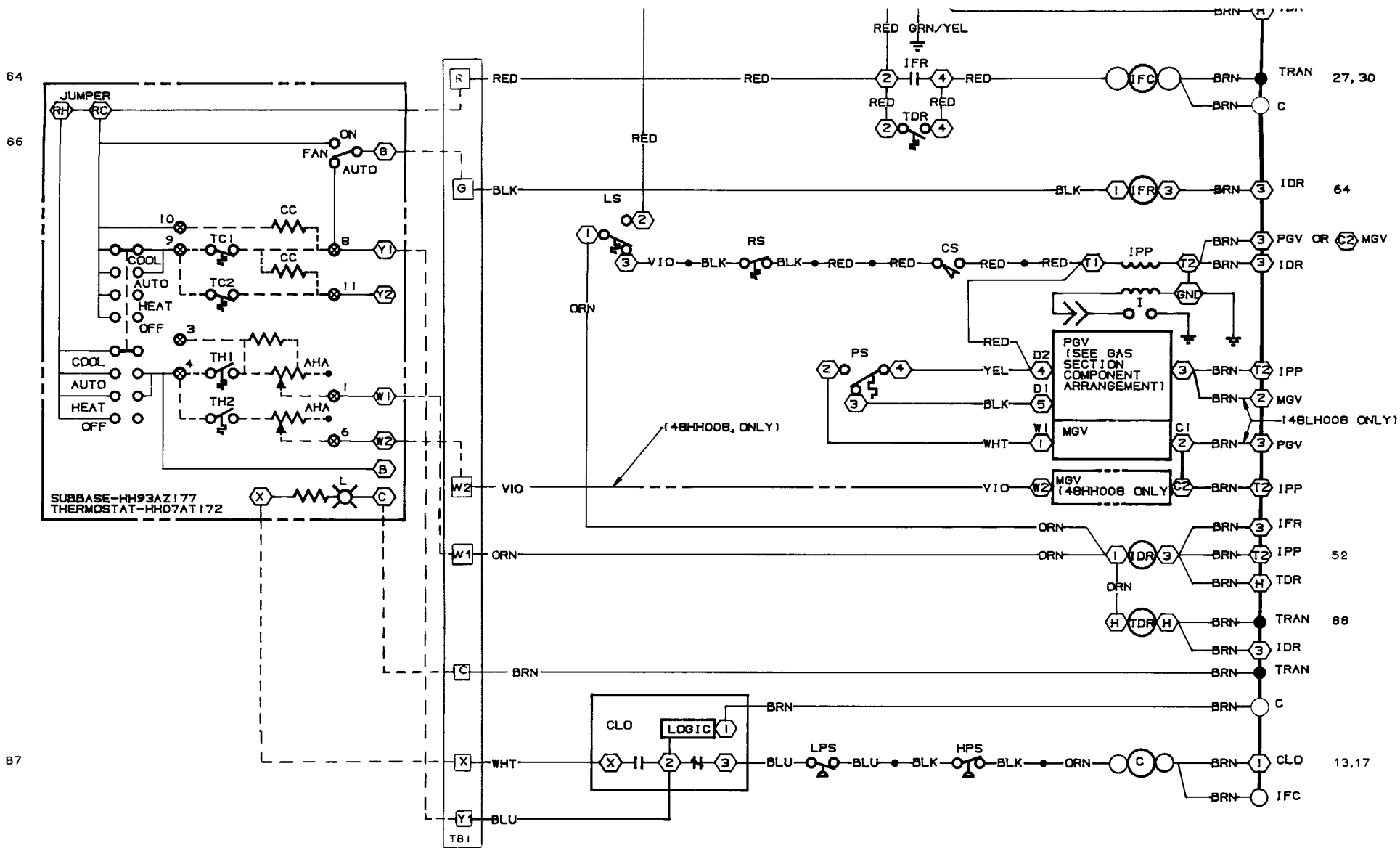


Fig. 5 — Label Diagram Schematic; 48HH,LH008; 208/230-3-60

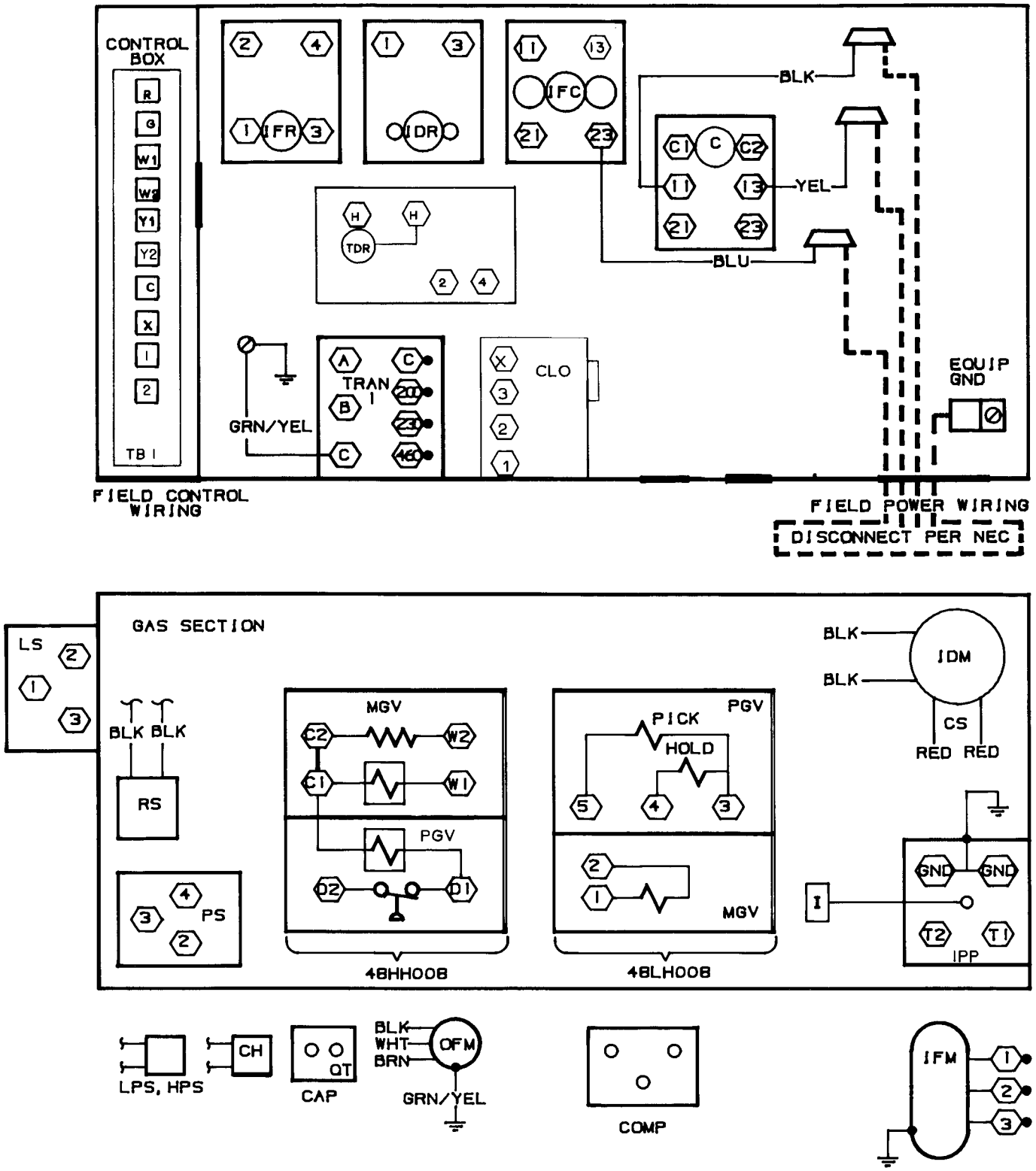
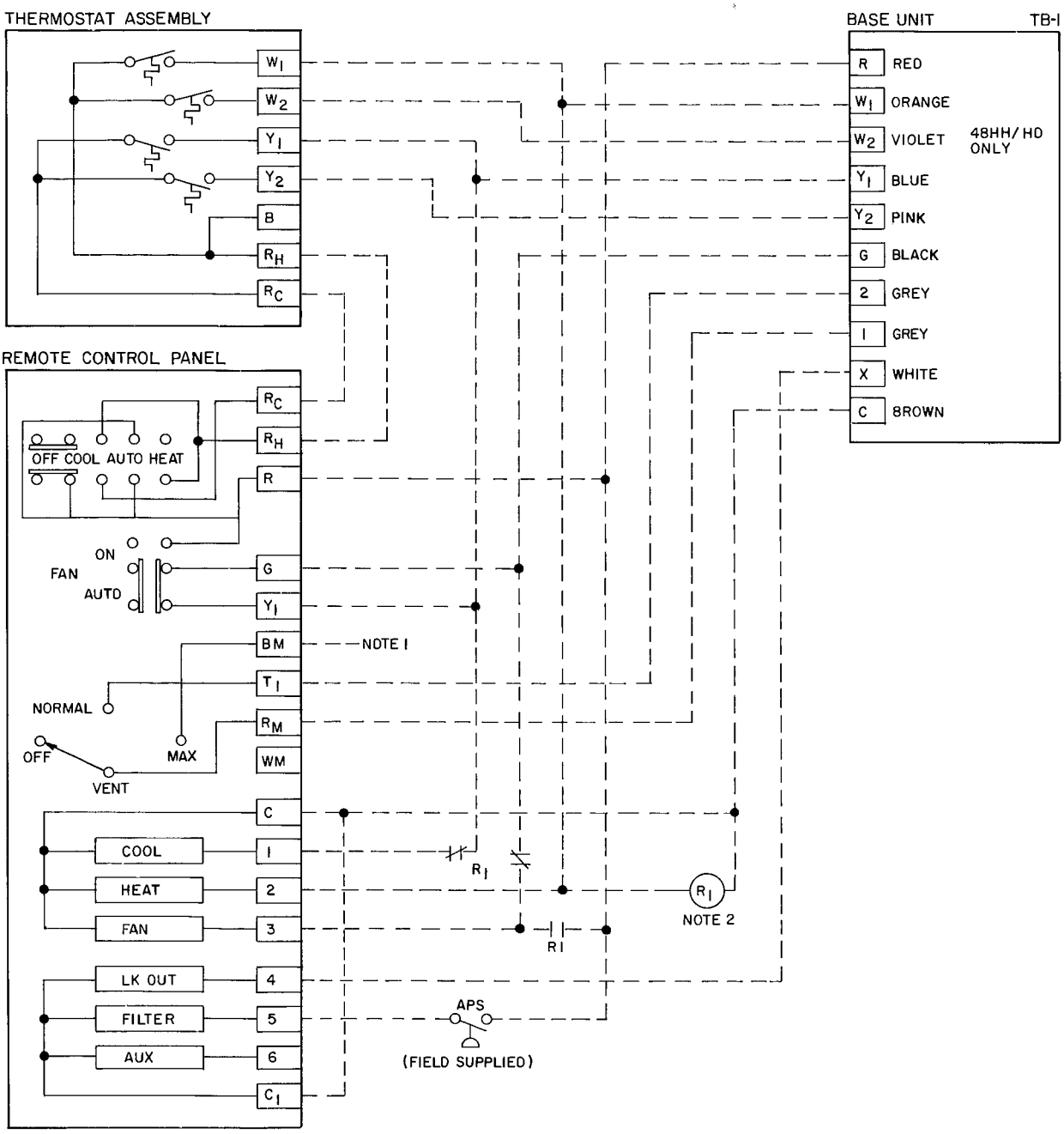


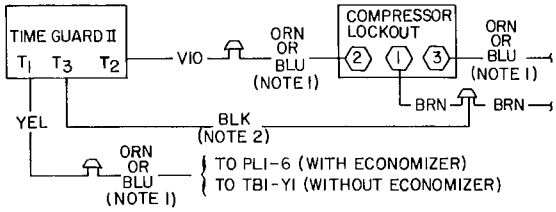
Fig. 7 — Label Diagram, Component Arrangement; 48HH,LH008; 460-3-60



APS — Air Pressure Switch
——— Factory Wiring
— — — Field Wiring
———●——— Field Splice

NOTES:
1 Connect terminal BM to DR1 (4) of economizer
2 Relay R1 is field supplied (HN61KK040)

Fig. 8 — Remote Control Center Connections



NOTES:
1 Wire color may be orange or blue depending on unit See unit label diagram for details
2 Splice black wire from Time Guard (T3) to brown wire between compressor lockout and contactor

Fig. 9 — Accessory Time Guard II, Field Wiring Connection Diagram

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