



BY JOHNSON CONTROLS

Supersedes: 155.17-W1 (407)

Form: 155.17-W1 (812)

TWO-STAGE ABSORPTION CHILLERS

WIRING DIAGRAMS

CONTRACTOR _____
ORDER NO. _____
JCI CONTRACT NO. _____
JCI ORDER NO. _____

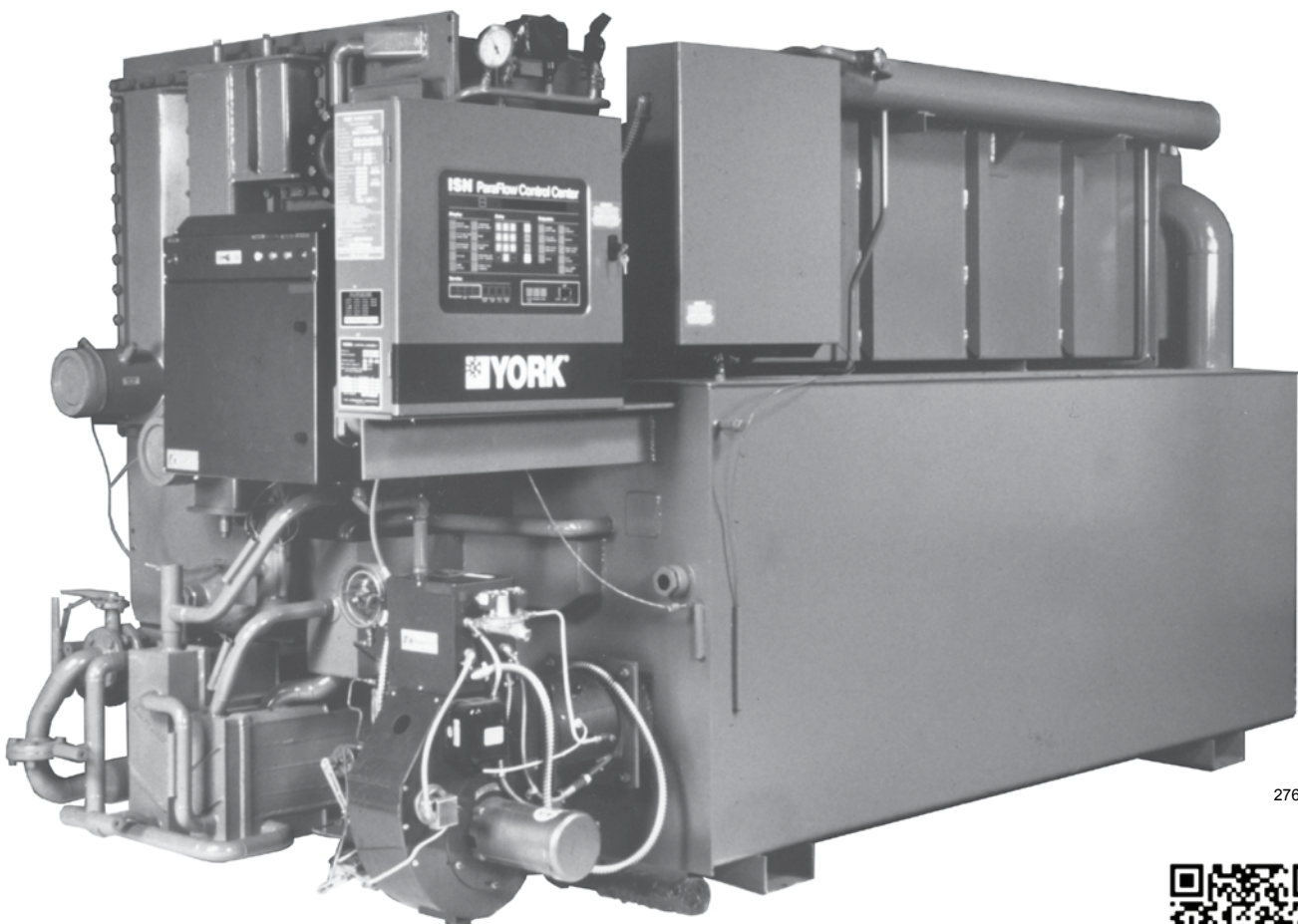
PURCHASER _____
JOB NAME _____
LOCATION _____
ENGINEER _____

☐ REFERENCE DATE _____

☐ APPROVAL DATE _____

☐ CONSTRUCTION DATE _____

MODELS: DIRECT FIRED YPC-FA-12SC Thru YPC-FZ-19S



27679A

Issue Date:
August 31, 2012



IMPORTANT!

READ BEFORE PROCEEDING!

GENERAL SAFETY GUIDELINES

This equipment is a relatively complicated apparatus. During installation, operation maintenance or service, individuals may be exposed to certain components or conditions including, but not limited to: refrigerants, materials under pressure, rotating components, and both high and low voltage. Each of these items has the potential, if misused or handled improperly, to cause bodily injury or death. It is the obligation and responsibility of operating/service personnel to identify and recognize these inherent hazards, protect themselves, and proceed safely in completing their tasks. Failure to comply with any of these requirements could result in serious damage to the equipment and the property in

which it is situated, as well as severe personal injury or death to themselves and people at the site.

This document is intended for use by owner-authorized operating/service personnel. It is expected that these individuals possess independent training that will enable them to perform their assigned tasks properly and safely. It is essential that, prior to performing any task on this equipment, this individual shall have read and understood this document and any referenced materials. This individual shall also be familiar with and comply with all applicable governmental standards and regulations pertaining to the task in question.

SAFETY SYMBOLS

The following symbols are used in this document to alert the reader to specific situations:



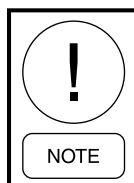
Indicates a possible hazardous situation which will result in death or serious injury if proper care is not taken.



Identifies a hazard which could lead to damage to the machine, damage to other equipment and/or environmental pollution if proper care is not taken or instructions are not followed.



Indicates a potentially hazardous situation which will result in possible injuries or damage to equipment if proper care is not taken.



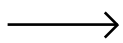
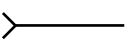

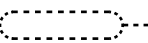
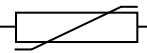


Highlights additional information useful to the technician in completing the work being performed properly.



External wiring, unless specified as an optional connection in the manufacturer's product line, is not to be connected inside the control cabinet. Devices such as relays, switches, transducers and controls and any external wiring must not be installed inside the micro panel. All wiring must be in accordance with Johnson Controls' published specifications and must be performed only by a qualified electrician. Johnson Controls will NOT be responsible for damage/problems resulting from improper connections to the controls or application of improper control signals. Failure to follow this warning will void the manufacturer's warranty and cause serious damage to property or personal injury.

LEGEND

1M	3 PHASE SOLUTION PUMP STARTER (MOUNTED IN POWER PANEL)
2M	3 PHASE REFRIGERANT PUMP MOTOR STARTER (MOUNTED IN POWER PANEL)
3M	3 PHASE PURGE PUMP MOTOR STARTER (MOUNTED IN POWER PANEL)
4M	FIRST SPRAY SOLUTION PUMP MOTOR STARTER (MOUNTED IN POWER PANEL -16SL THRU - 19S ONLY)
1R	BURNER CONTROL RELAY
2R	FIRST STAGE GENERATOR HIGH TEMPERATURE CUT-OUT RELAY
1SOL	PURGE TANK SOLENOID VALVE - AUTO-PURGE OPTION
2SOL	PURGE PUMP SOLENOID VALVE - AUTO PURGE OPTION
ISS	DPDT 3 POSITION ROCKER SWITCH
IT	CLASS 2 POWER SUPPLY TRANSFORMER
CHFLS	CHILLER WATER FLOW SWITCH CUT-OUT (BY - YORK / WIRING BY OTHERS)
FU	FUSE
HFLS	HOT WATER PUMP INTERLOCK OR FLOW SWITCH (PART OF HIGH TEMPERATURE HEAT EXCHANGER OPTION) (BY YORK / WIRING BY OTHERS)
HP1	FIRST STAGE GENERATOR HIGH PRESSURE CUT-OUT SWITCH
HT1	FIRST STAGE GENERATOR HIGH TEMP. CUT-OUT SWITCH WITH (NON-TRIP) INDICATOR AND MANUAL RESET
HWT	HOT WATER TEMP. CUT-OUT (HEATER MODE ONLY) (PROVIDED BY RT2)
LCWT S.P.	LEAVING CHILLED WATER TEMPERATURE SETPOINT
LHWT S.P.	LEAVING HOT WATER TEMPERATURE SETPOINT
LRT	LOW REFRIGERANT TEMPERATURE CUT-OUT SWITCH
LWT	LOW WATER TEMPERATURE CUT-OUT (CHIILER CHILLER/HEATER MODES ONLY) (PROVIDED BY RT1)
LS	FIRST STAGE GENERATOR SOLUTION LEVEL CUT-OUT SWITCH
MOV	METAL OXIDE VARISTOR
OL	MOTOR OVERLOAD
PT1, PT3-PT4	PRESSURE TRANSDUCER
R1-RT12	RESISTANCE TEMPERATURE SENSING ELEMENT
SUPR	TRANSIENT SUPPRESSOR
TB1, TB3, TB6	TERMINAL BLOCK - FACTORY WIRING - 
TB2, TB4, TB5	TERMINAL BLOCK - FIELD CONNECTION - 
— — — —	FIELD WIRING
—————	FACTORY WIRING
- - - - -	CIRCUIT BOARD OR ENCLOSURE BOUNDARY
	JACK (J1, J2,...)
	PLUG (P1, P2,...)
	WIRE ENTRANCE HOLE IN CONTROL PANEL
— — — —	OPTION (WHEN SUPPLIED) BY YORK
— - - - -	MECHANICAL LINKAGE
	SHIELDED CABLE
	METAL OXIDE VARISTOR

NOTES

1. This wiring diagram describes the standard electronic control scheme. Refer to the Power Panel Wiring Diagram (located in the Power Panel Enclosure) for additional information for details of standard modifications. Refer to product form 155.17PA1.
2. Field Wiring to be in accordance with the National Electrical Code as well as all other applicable codes and specifications.
3. Numbers along the left side of the diagram are line identification numbers. The numbers along the right side indicate the line number location of the relay contacts. An underlined contact location signifies a normally closed contact.
4. Main Control Panel Class 1 field wiring terminal connection points are indicated by numbers within a rectangle, I.E. 15 . Main control panel factory wiring terminal connection points are indicated by numbers within a triangle, I.E. 2 . Terminals in burner control panel are indicated by number within a hexagon, I.E. 4 . Component terminal markings are indicated by numbers within a circle, I.E. 1 . Numbers adjacent to circuit lines are the circuit identification numbers.
5. To cycle unit ON and OFF automatically with contacts other than those shown, install a cycling device between terminals 1 & 13 (line 6)(See note 7) if a cycling device is installed, jumper must be removed between terminals 1 & 13.
6. To stop unit and not permit it to start again, install a stop device between terminals 1 & 8 (Line 54)(See note 7). A remote start-stop switch may be connected to terminals 1, 7, & 8(lines 53 & 54)(See note 7). A remote start-stop switches (lines 53 & 54) are operative in only the "Remote" operating mode.
7. Device contact rating to be 5 milliamperes at 115 volts A.C.
8. Contact Rating is 5 Amps resistive at 120 Volts A.C. or 240 Volts A.C.
9. Orientation of flow switches indicate "Power Off" state.
10. The factory supplied jumper between terminals 4 & 53(line 25) must be removed when an auxiliary safety device is used.
11. Contact rating is 5 Amps resistive +/- 250 volts A.C. & 30 volts D.C.
12. Each 115 VAC field-connected inductive load: I.E. relay coil, motor starter coil, etc. shall have a transient suppressor wired in parallel with it's coil physically located at the coil spare transient suppressors and control circuit fuse are supplied in a bag attached to the fuse holder.
13. Hot water flow switch shown to be used with units having the optional high temperature heat exchanger. Units having the standard low temperature heat exchanger must have a wire jumper installed between terminals 82 (on relay board, 031-0119) and 12 (on digital input board, 031-01621) in lieu of hot water flow switch.

LIST OF FIGURES

FIGURE 1 - Elementary Diagram.....	7
FIGURE 2 - Timing Diagram.....	9
FIGURE 3 - Elementary Diagram (Ce).....	10
FIGURE 4 - Microboard Diagram	12
FIGURE 5 - I/O Board Diagram	14
FIGURE 6 - Power Supply Board Diagram	15
FIGURE 7 - Keypad Diagram	15
FIGURE 8 - Connection Diagram	16
FIGURE 9 - Connection Diagram (Ce).....	18
FIGURE 10 - Connection Diagram.....	20
FIGURE 11 - Connection Diagram (Ce)	22
FIGURE 12 - Power Panel Connection Diagram.....	24
FIGURE 13 - Power Panel Connection Diagram.....	25
FIGURE 14 - Power Panel Connection Diagram Ce (50 Hz)	26
FIGURE 15 - Power Panel Connection Diagram Ce (50Hz)	27
FIGURE 16 - Burner Panel Wiring Diagram.....	28
FIGURE 17 - Burner Panel Wiring Diagram.....	30
FIGURE 18 - Draft Control Wiring Diagram (Optional).....	32

THIS PAGE INTENTIONALLY LEFT BLANK.

YPC CONTROL CENTER ELEMENTARY DIAGRAM (STANDARD)

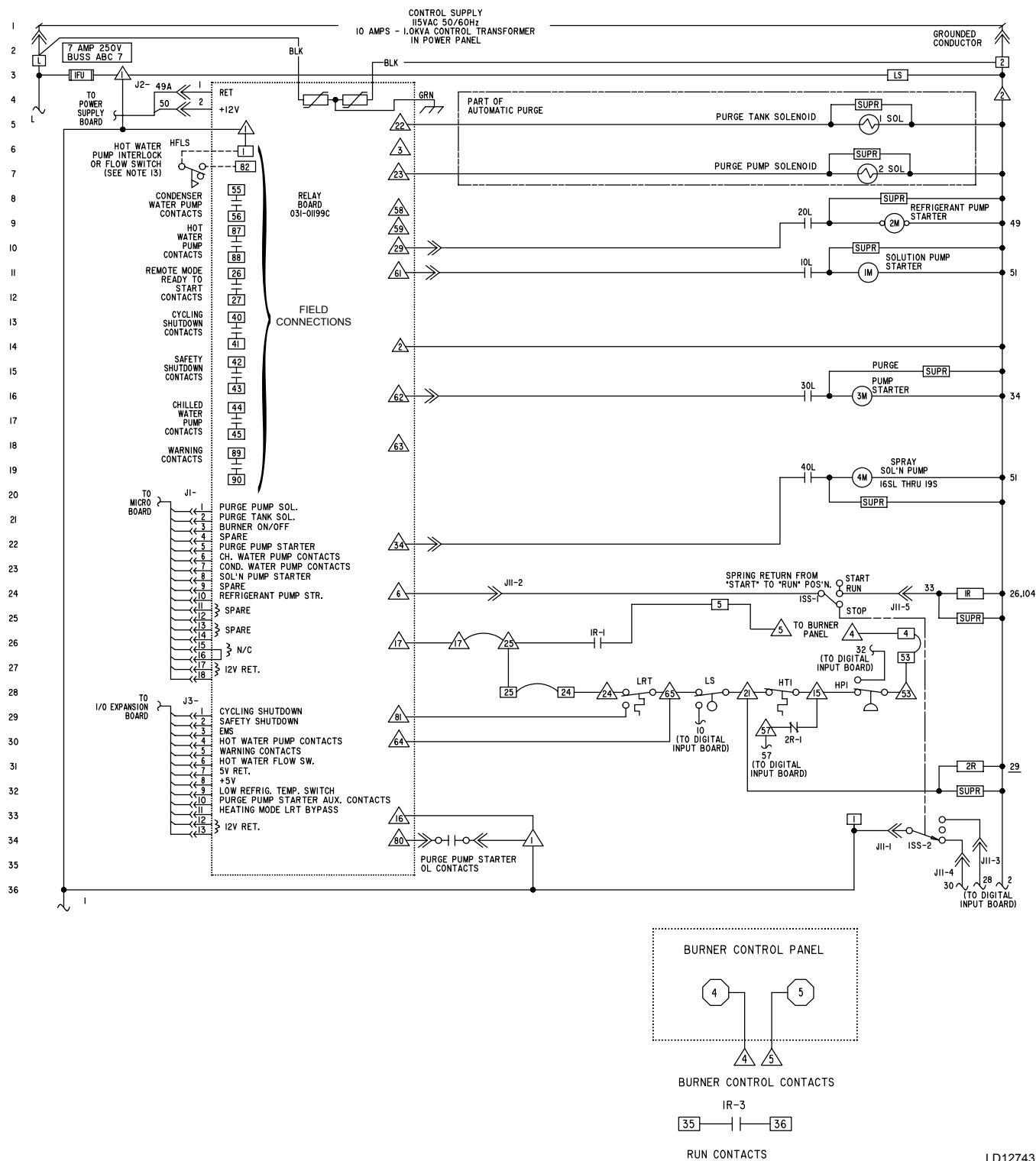
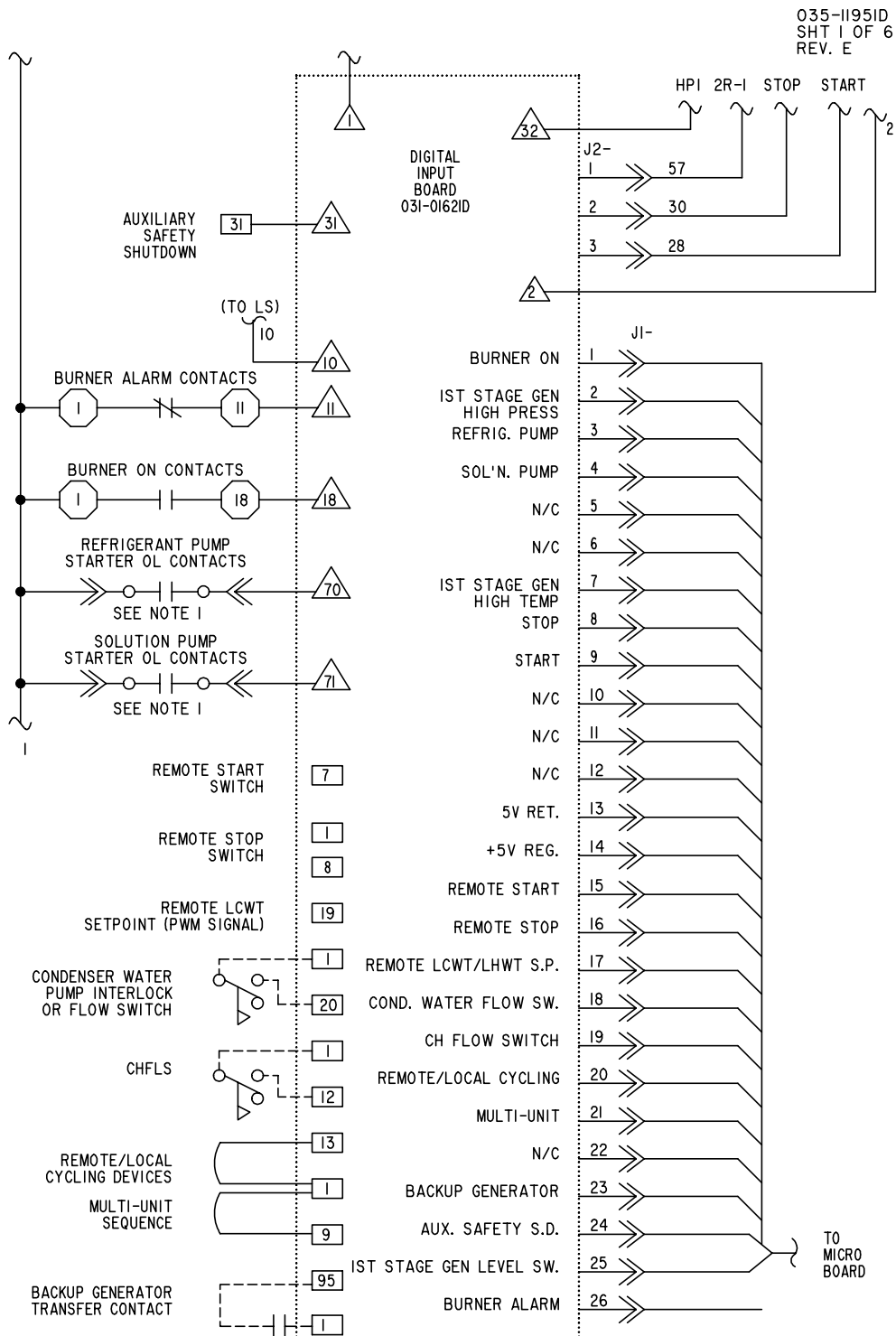


FIGURE 1 - ELEMENTARY DIAGRAM

YPC CONTROL CENTER ELEMENTARY DIAGRAM (STANDARD) (CONT'D)



LD12744

FIGURE 1 – ELEMENTARY DIAGRAM (CONT'D)

YPC CONTROL CENTER TIMING DIAGRAM (CE)

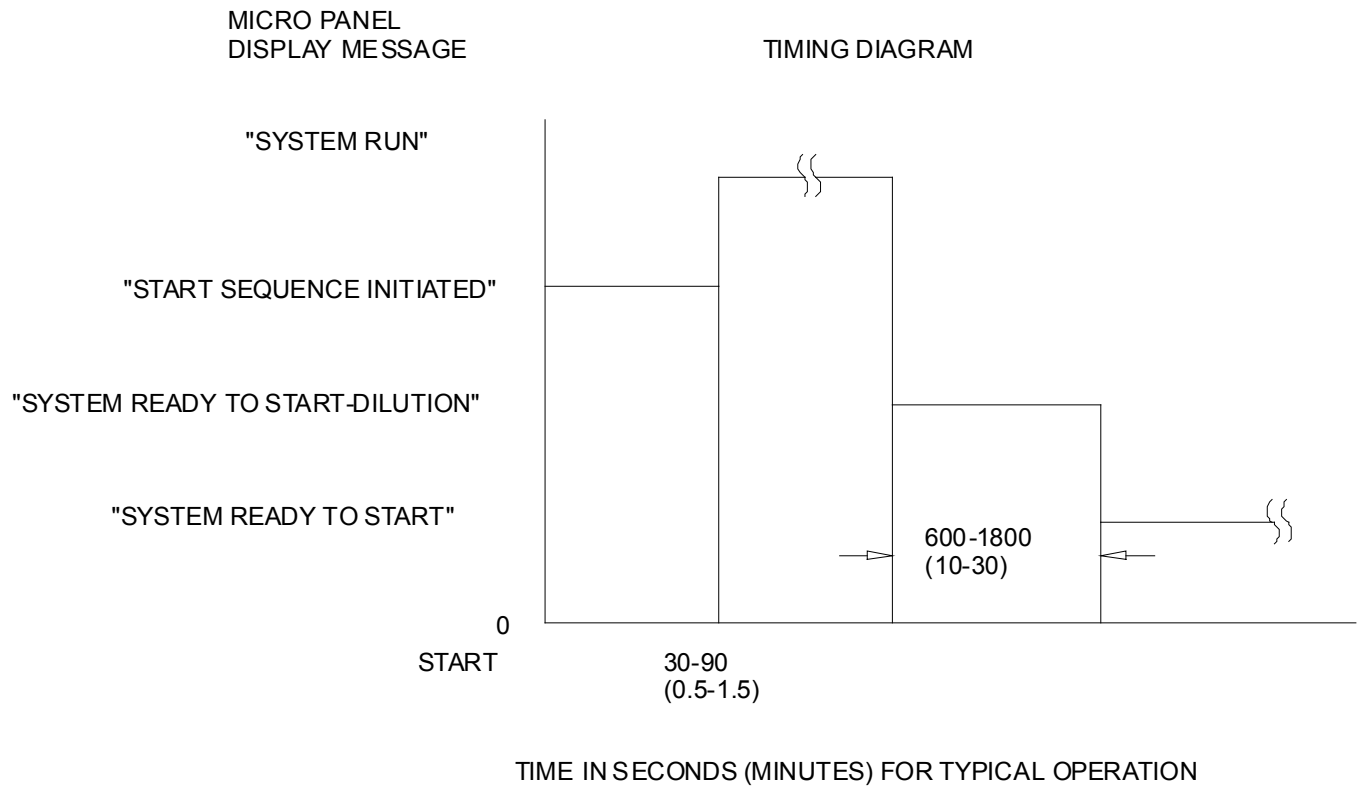


FIGURE 2 - TIMING DIAGRAM

LD00802



FIGURE 3 - ELEMENTARY DIAGRAM (CE)

YPC CONTROL CENTER ELEMENTARY DIAGRAM (CE) (CONT'D)

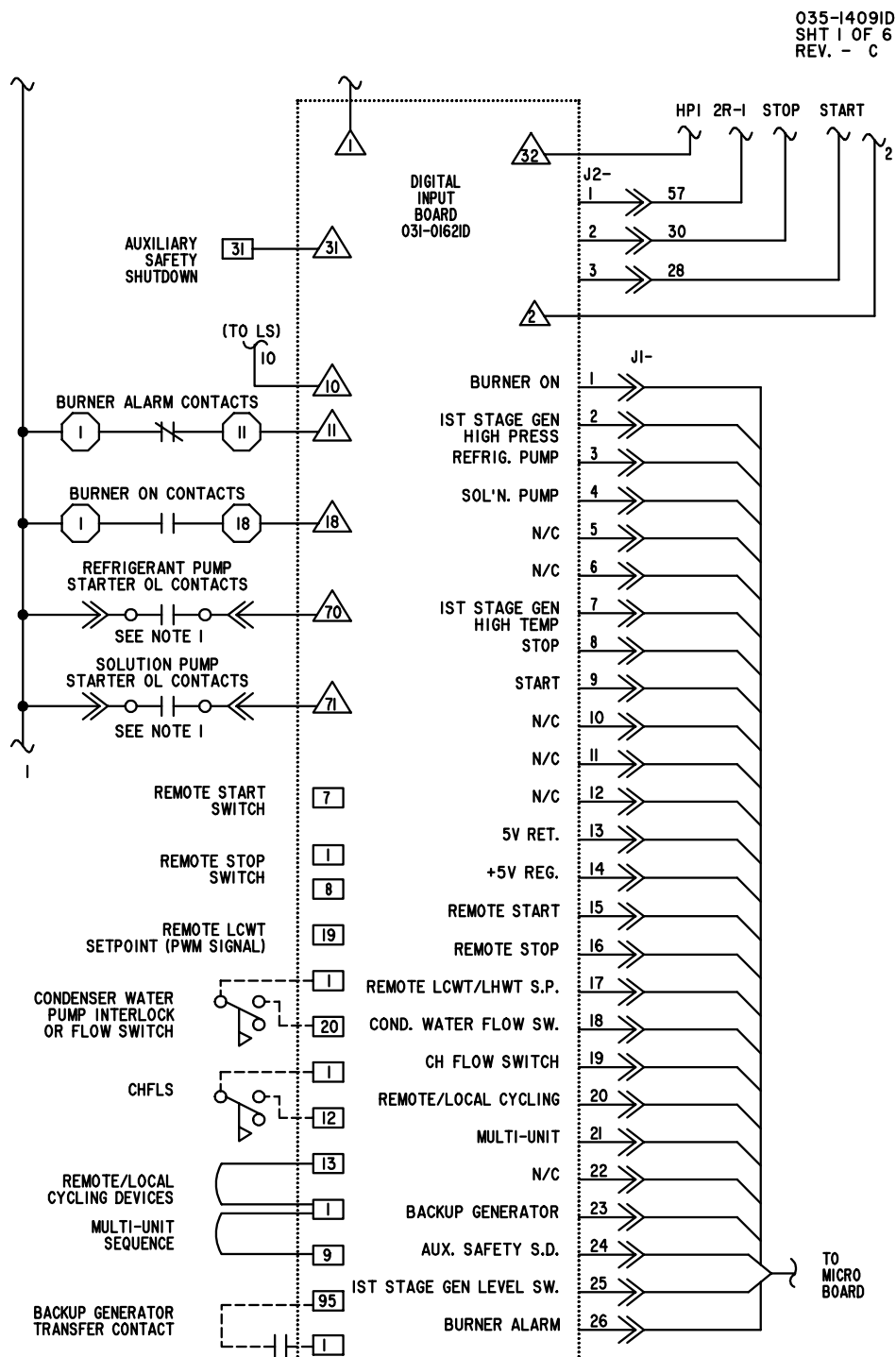
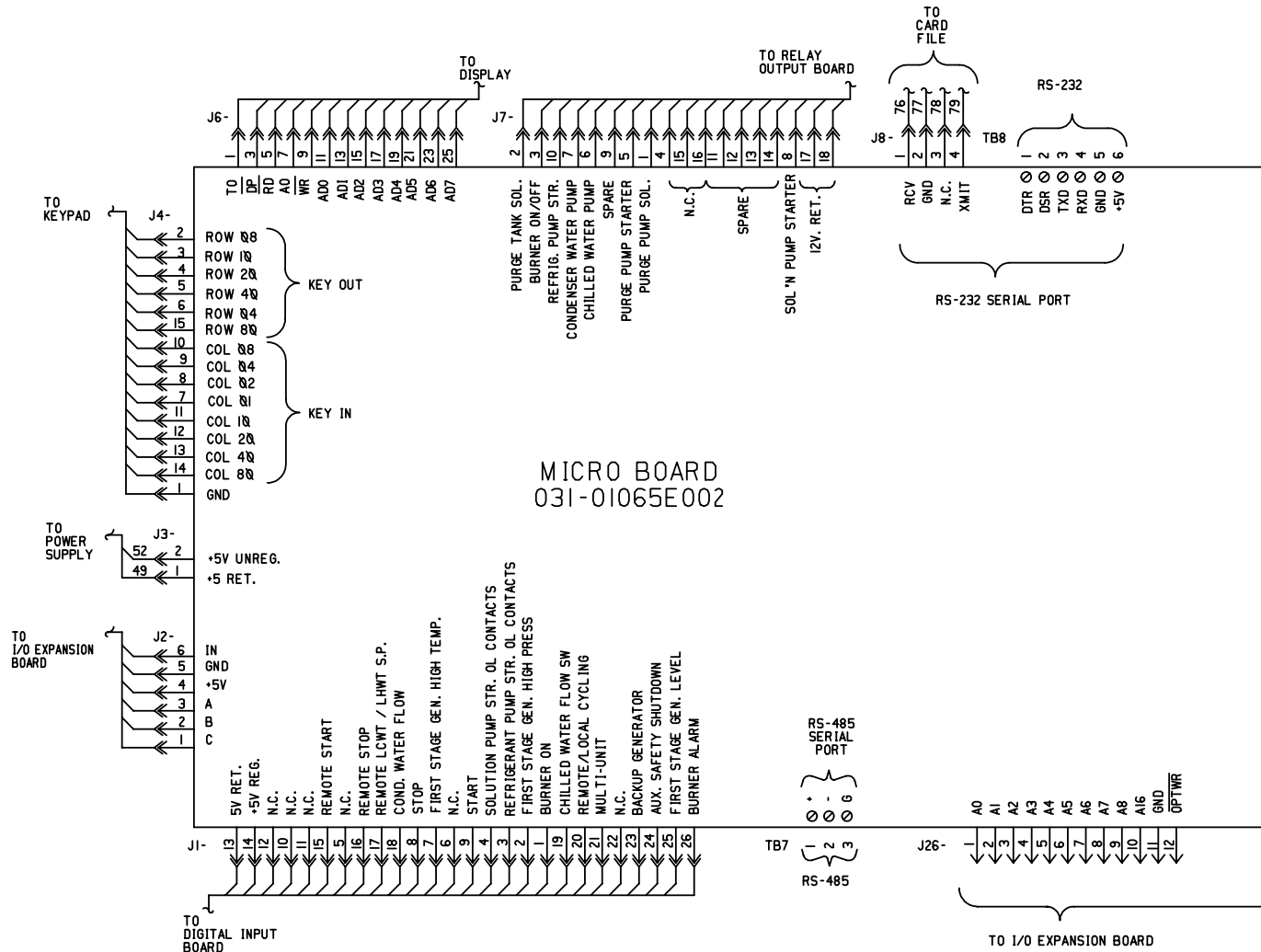


FIGURE 3 - ELEMENTARY DIAGRAM (CE) (CONT'D)

YPC CONTROL CENTER MICROBOARD DIAGRAM



LD12759

FIGURE 4 - MICROBOARD DIAGRAM

YPC CONTROL CENTER MICROBOARD DIAGRAM (CONT'D)

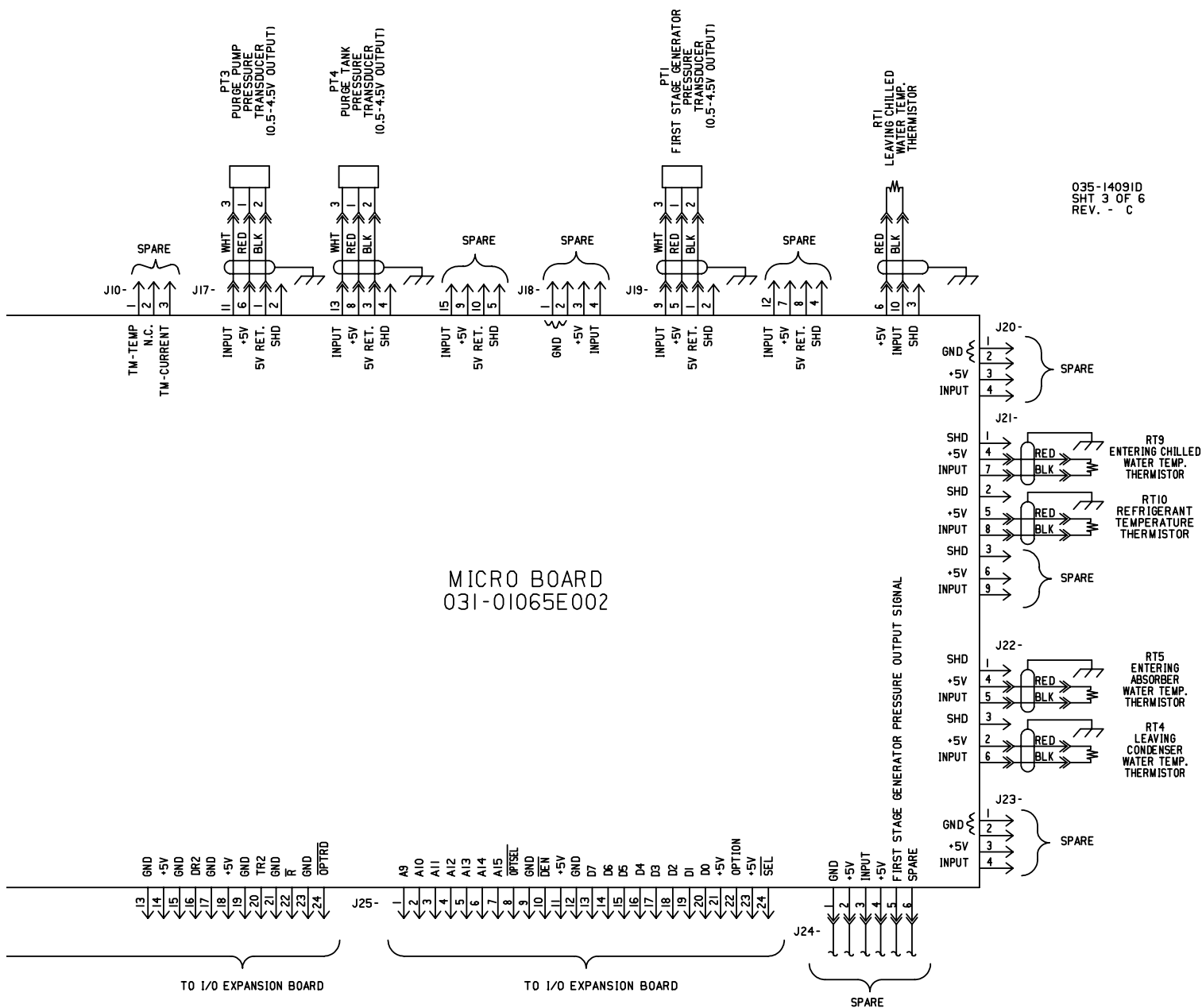


FIGURE 4 – MICROBOARD DIAGRAM (CONT'D)

LD12760

I/O BOARD DIAGRAM

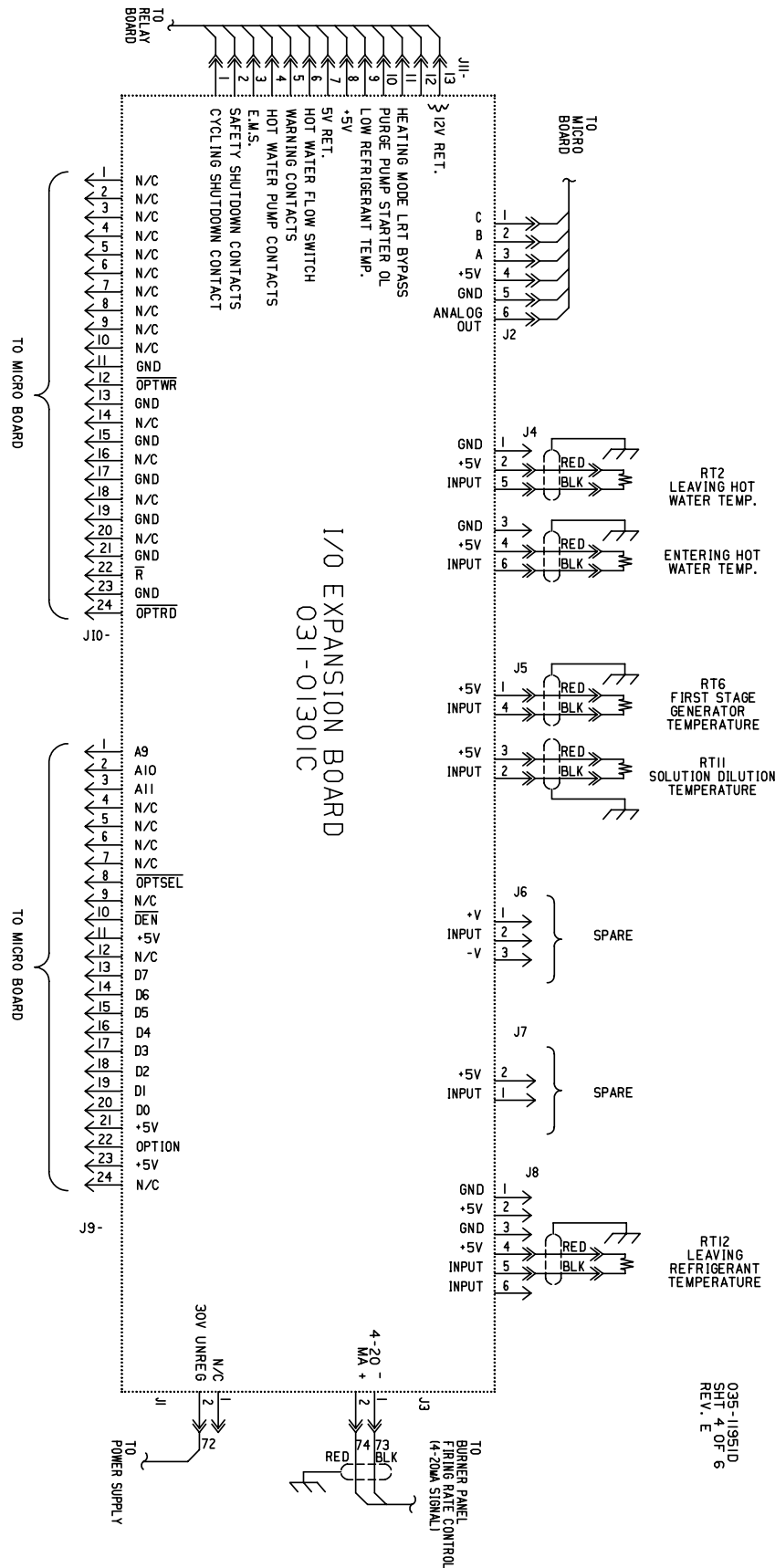
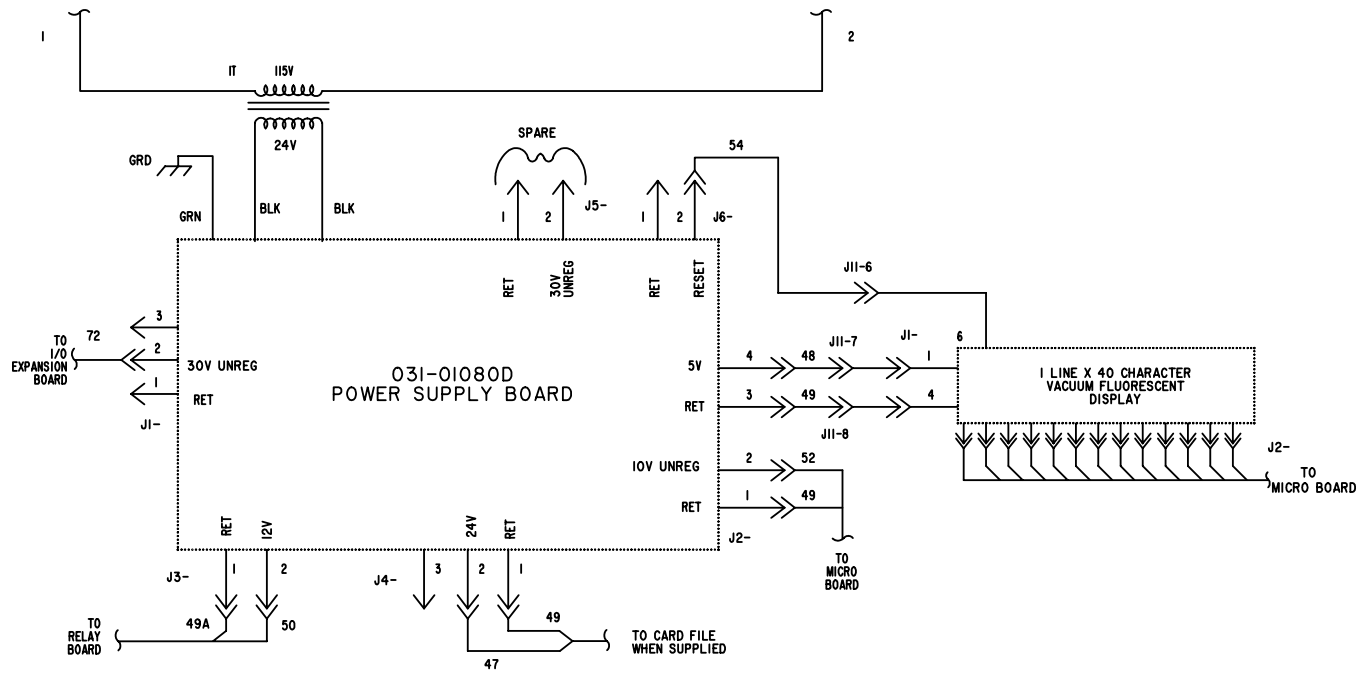


FIGURE 5 - I/O BOARD DIAGRAM

LD12747

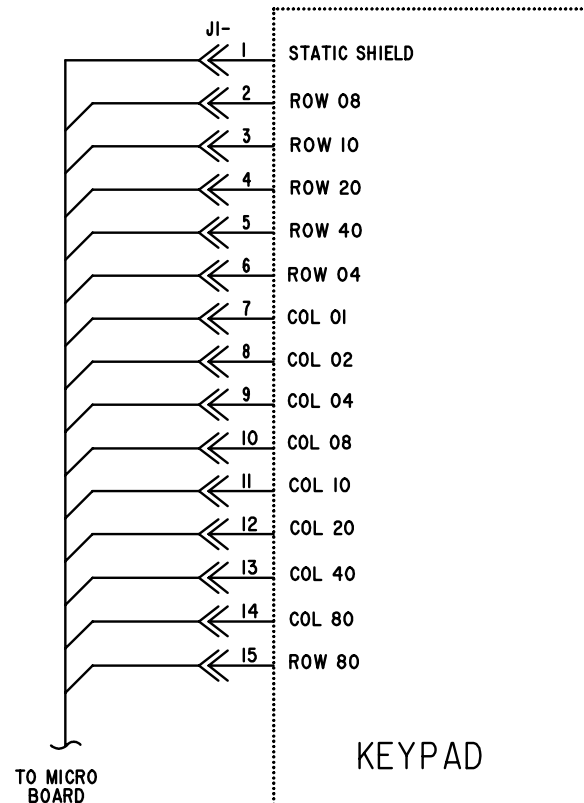
POWER SUPPLY BOARD DIAGRAM



LD12748

FIGURE 6 - POWER SUPPLY BOARD DIAGRAM

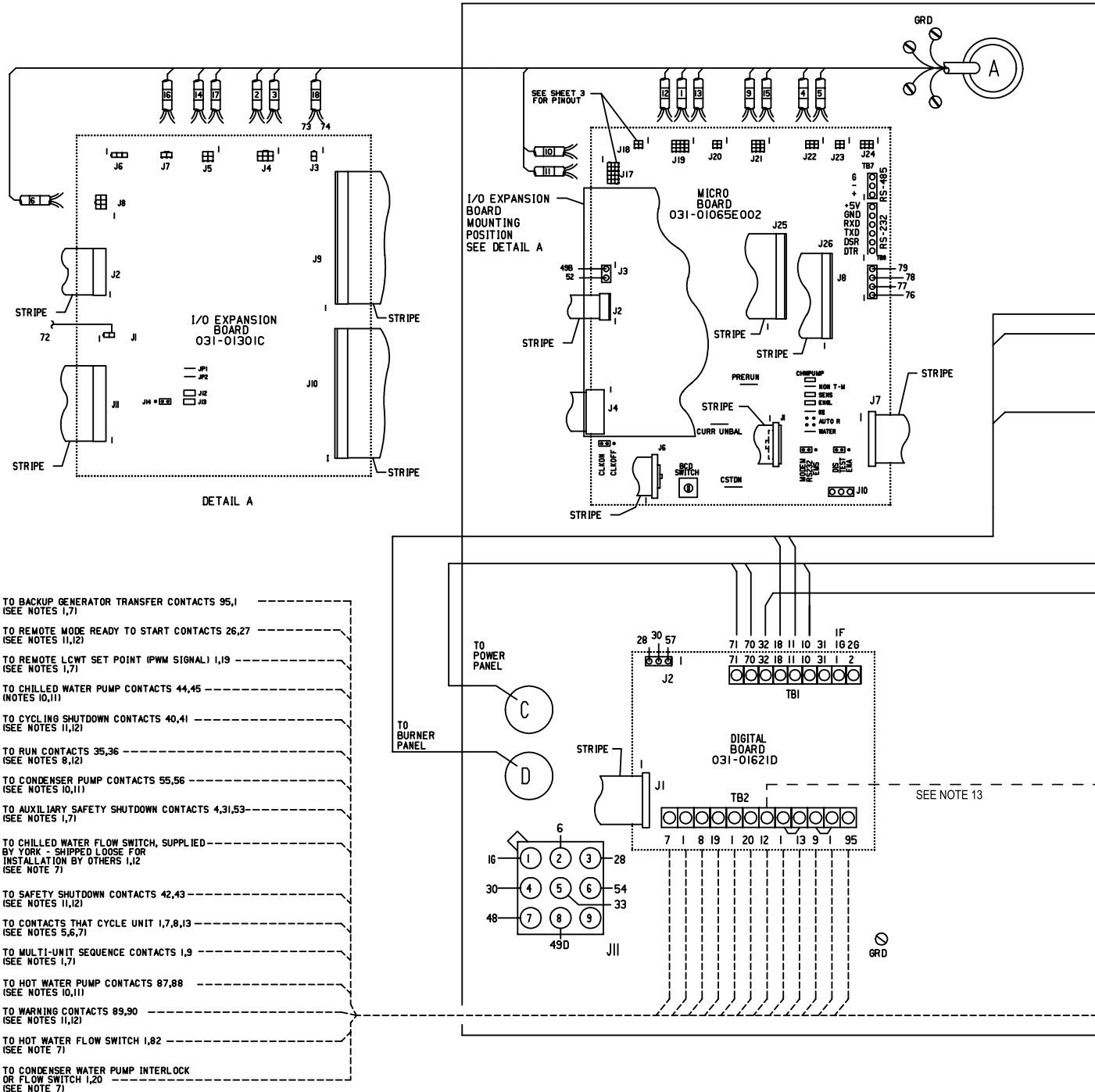
KEYPAD DIAGRAM



LD12749

FIGURE 7 - KEYPAD DIAGRAM

YPC CONTROL CENTER CONNECTION DIAGRAM (STANDARD)



YPC CONTROL CENTER CONNECTION DIAGRAM (STANDARD) (CONT'D)

035-11951D
SHT 5 OF 6
REV. E

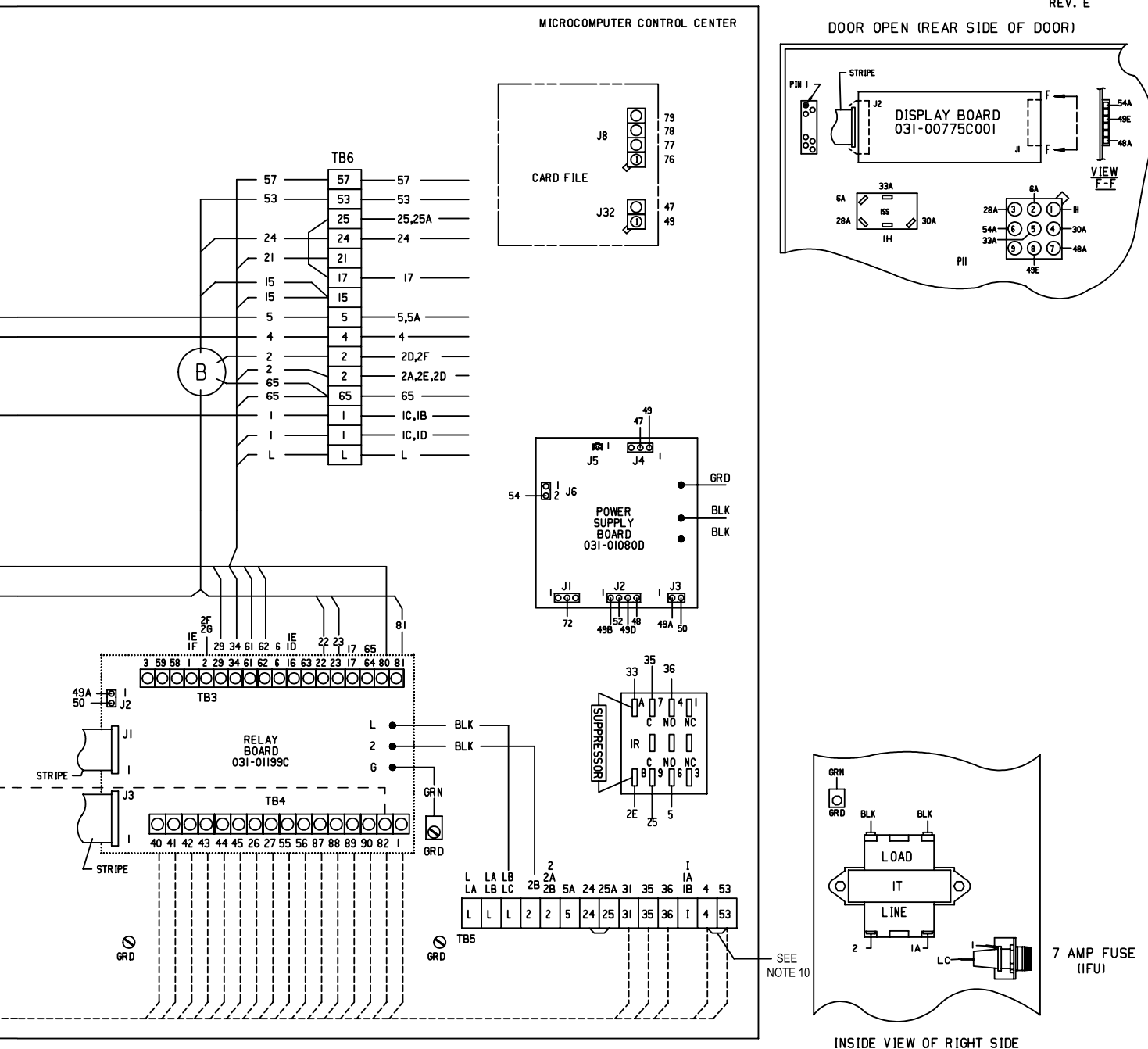
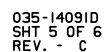
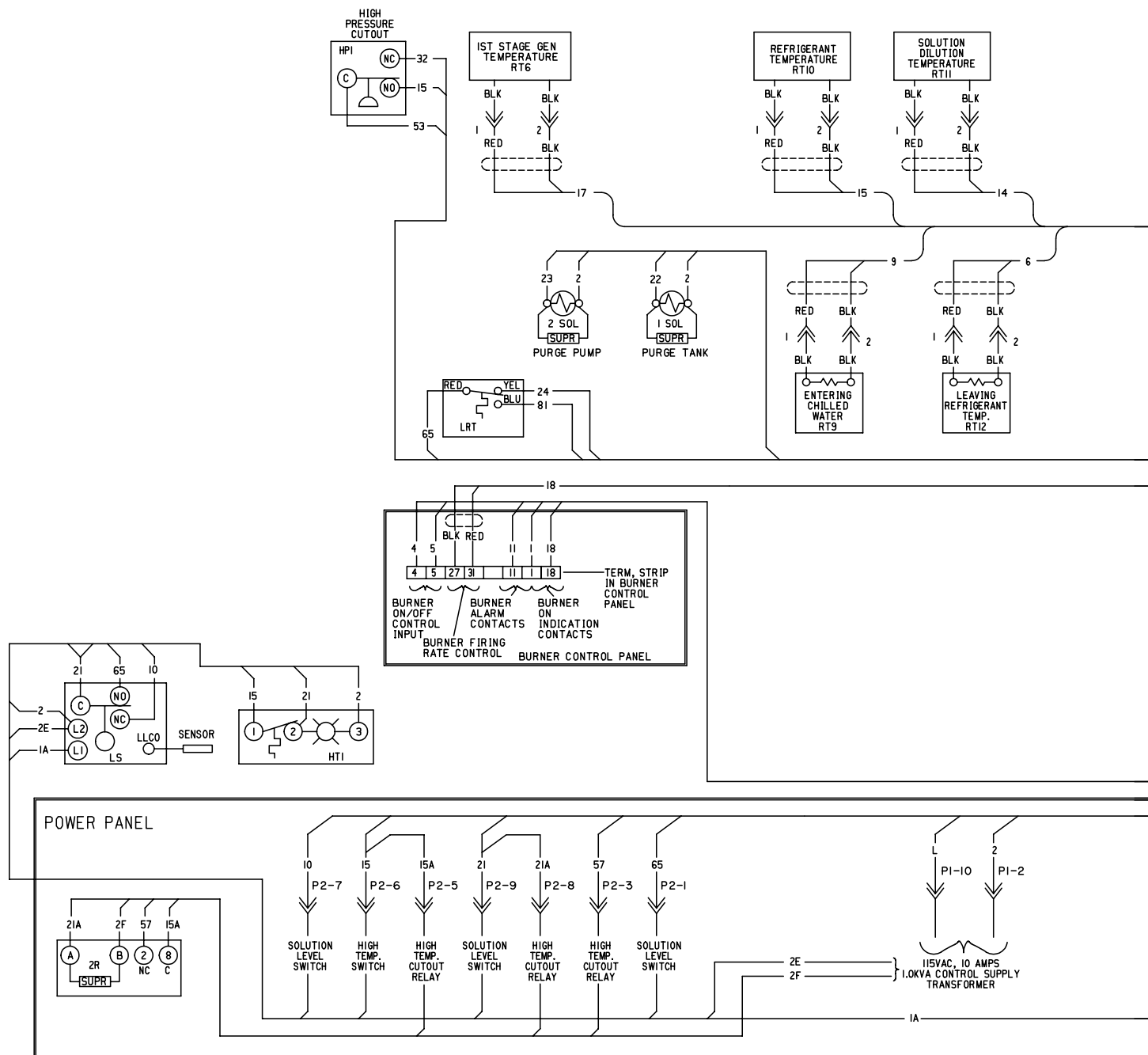


FIGURE 8 - CONNECTION DIAGRAM (CONT'D)



19

YPC CONTROL CENTER CONNECTION DIAGRAM (STANDARD)



LD12752

FIGURE 10 - CONNECTION DIAGRAM

YPC CONTROL CENTER CONNECTION DIAGRAM (STANDARD) (CONT'D)

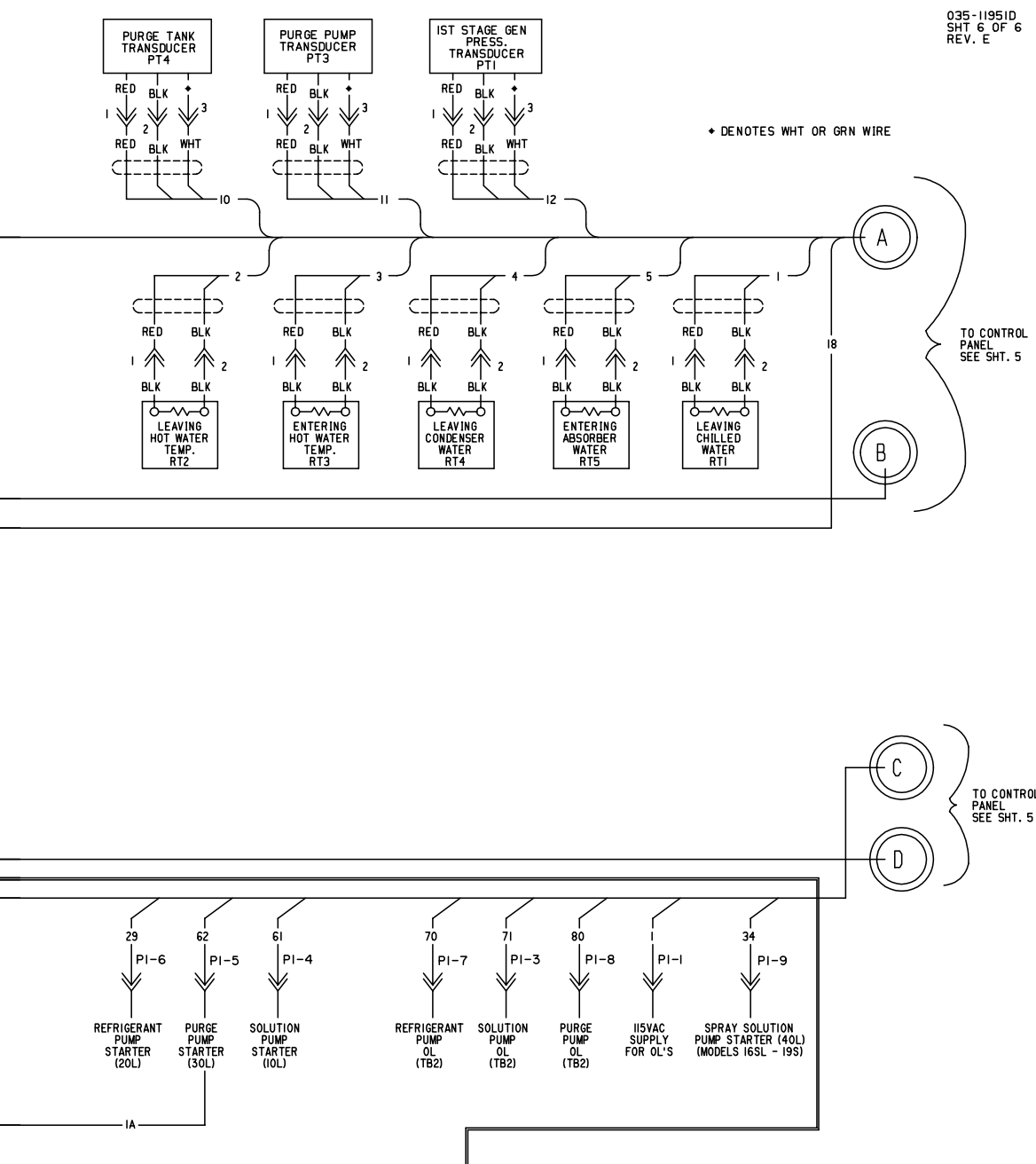
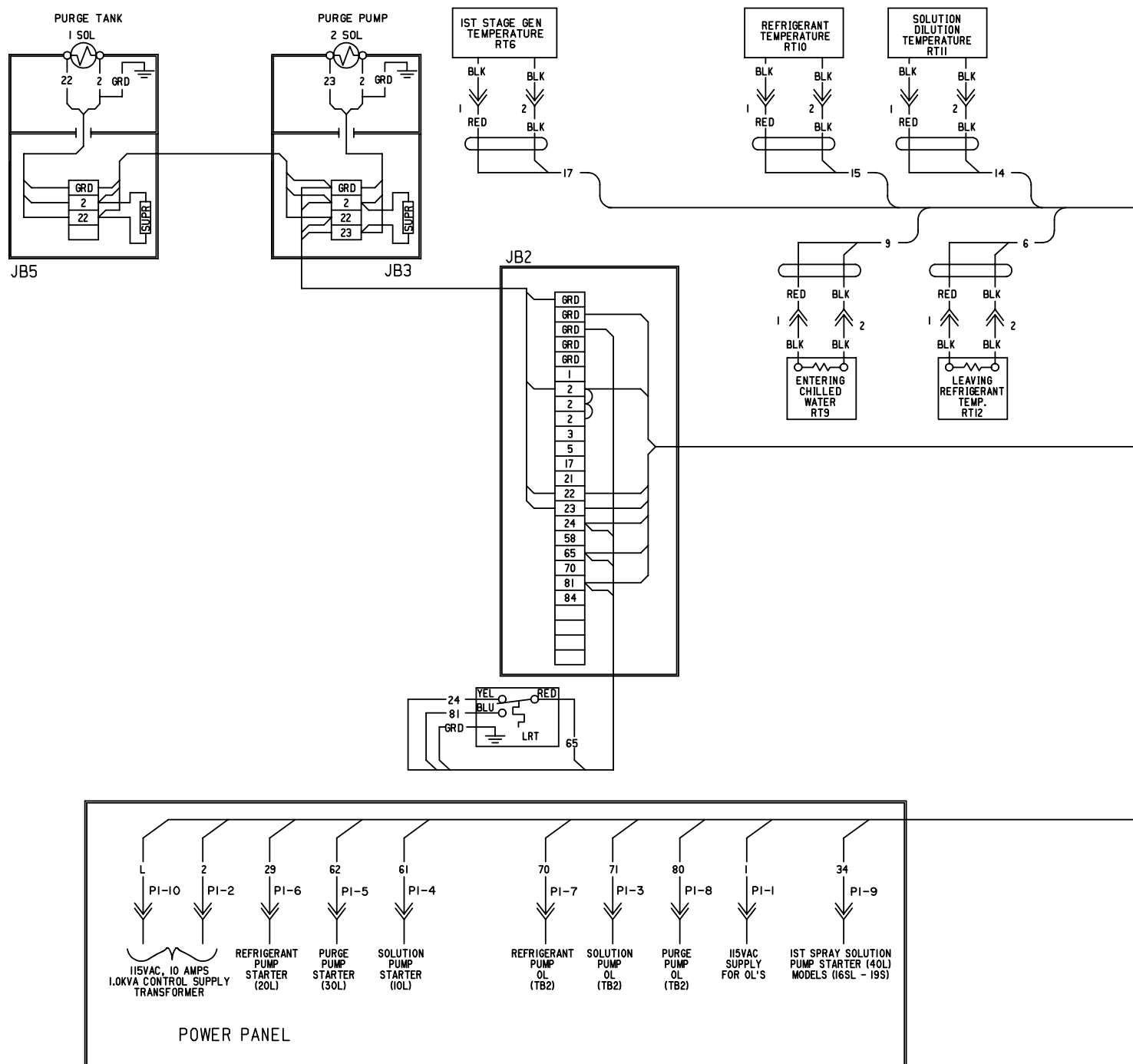


FIGURE 10 - CONNECTION DIAGRAM (CONT'D)

YPC CONTROL CENTER CONNECTION DIAGRAM (CE)



LD12763

FIGURE 11 - CONNECTION DIAGRAM (CE)

YPC CONTROL CENTER CONNECTION DIAGRAM (CE) (CONT'D)

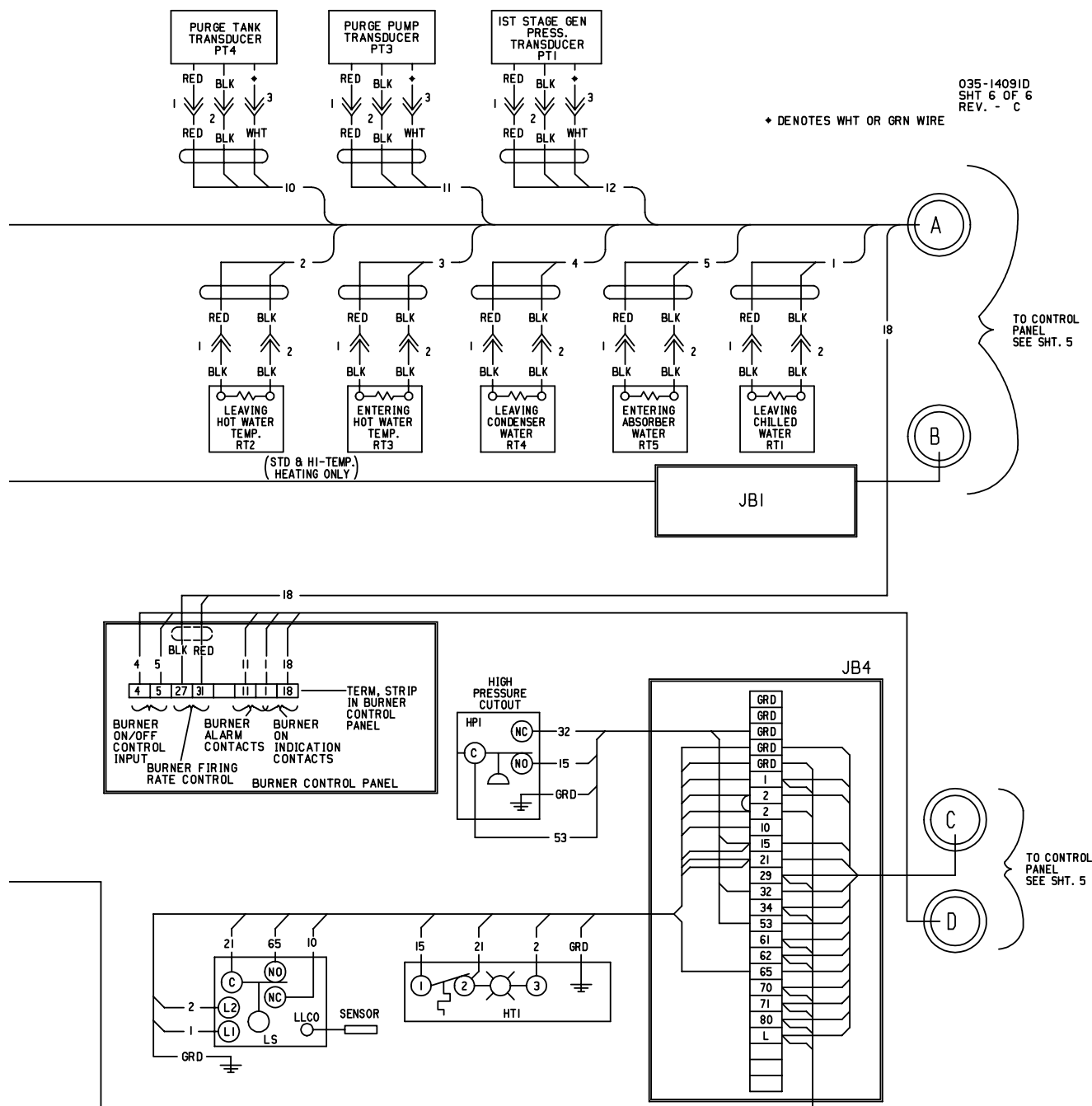


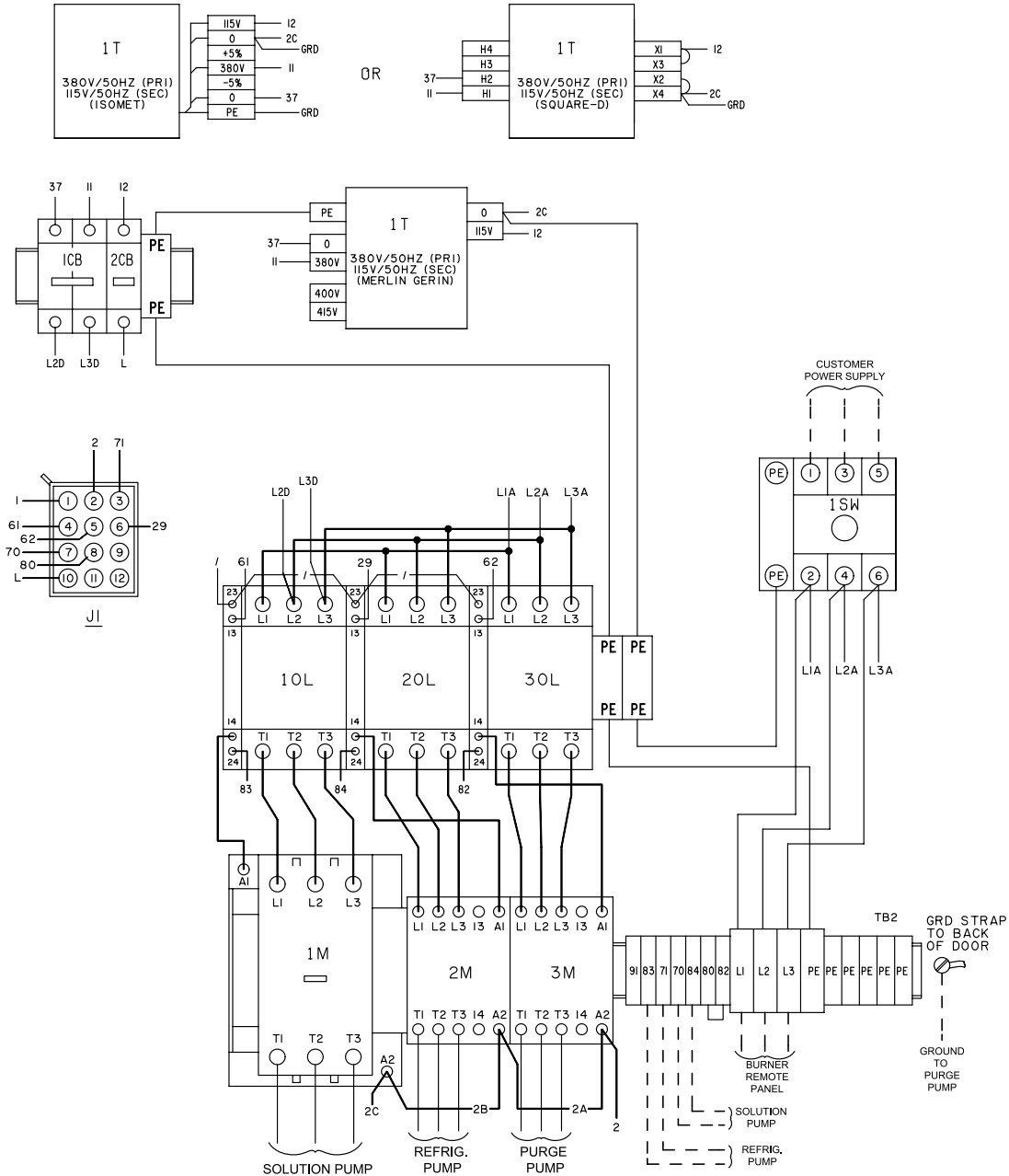
FIGURE 11 - CONNECTION DIAGRAM (CE) (CONT'D)



FIGURE 12 - POWER PANEL CONNECTION DIAGRAM

POWER PANEL CONNECTION DIAGRAM

MODELS YPC-DF-12SC TO -16S CE (50 HZ)



TRANSFORMER WIRING CONNECTION VIEWS (50 Hz)

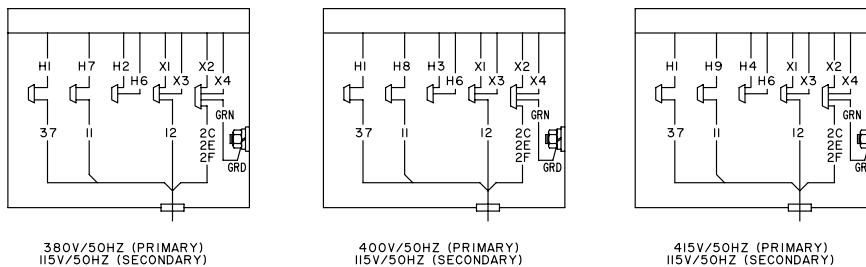


FIGURE 14 - POWER PANEL CONNECTION DIAGRAM CE (50 HZ)

LD12773

POWER PANEL CONNECTION DIAGRAM

MODELS YPC-DF-16SL TO -19S CE (50 HZ)

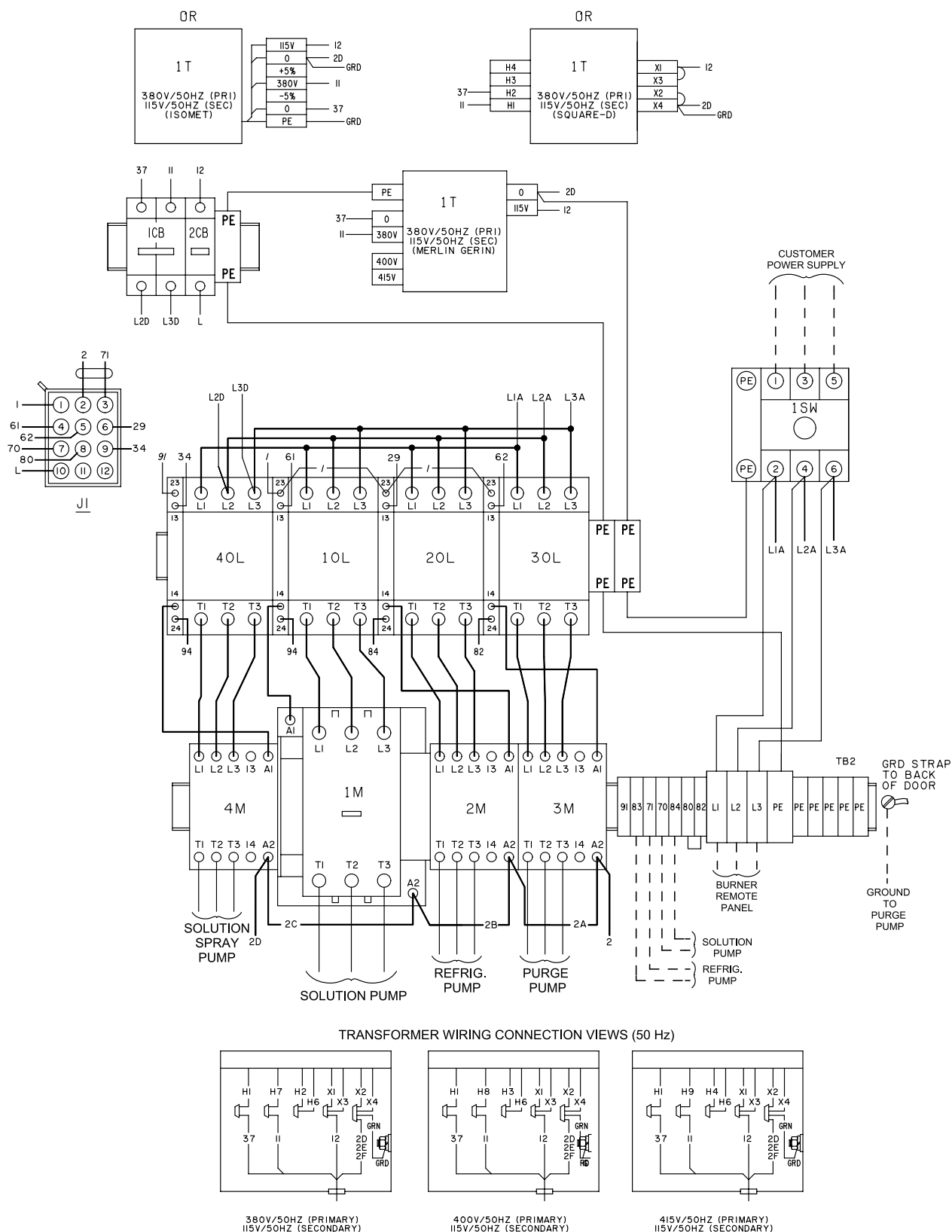
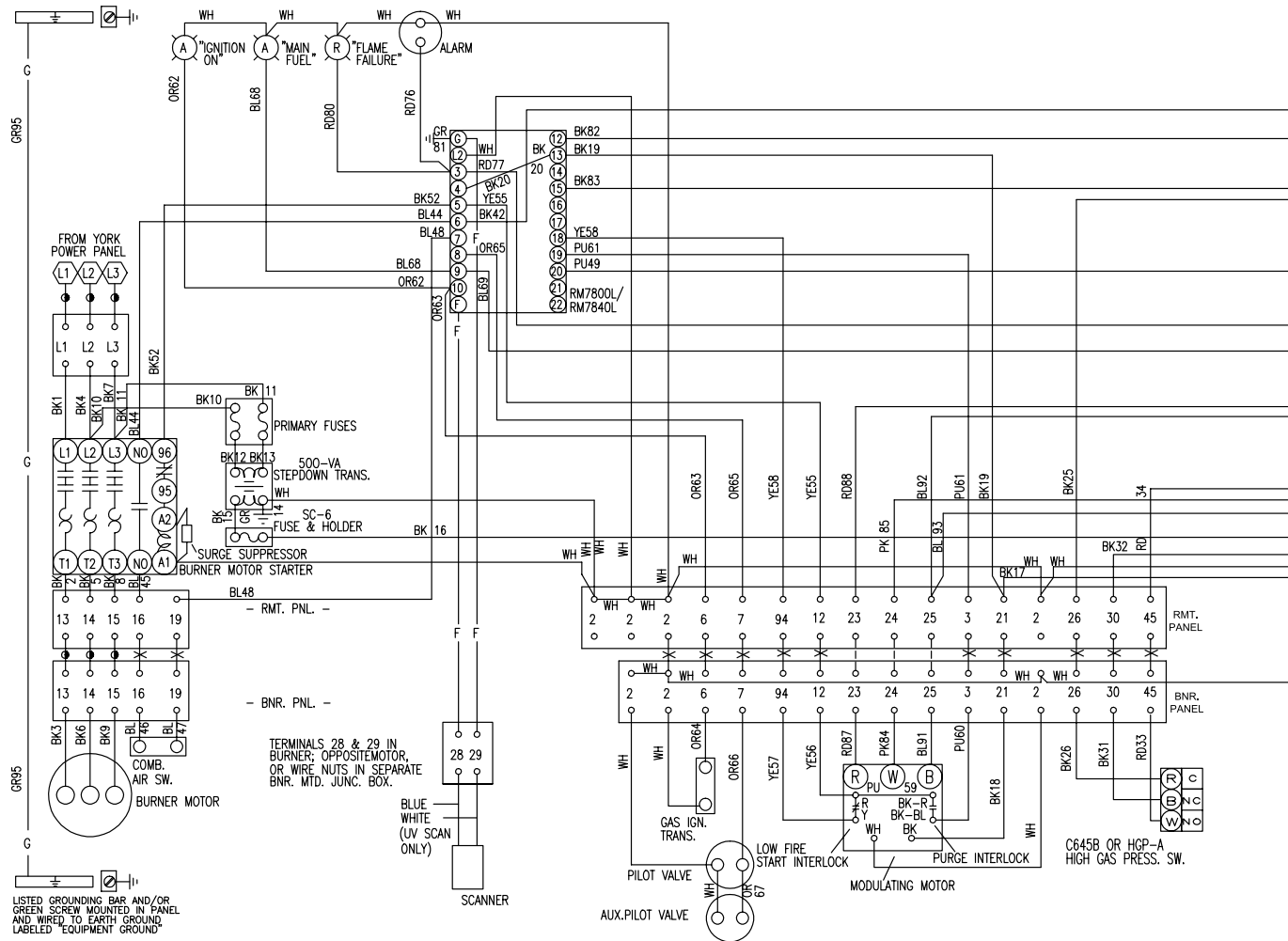


FIGURE 15 - POWER PANEL CONNECTION DIAGRAM CE (50HZ)

BURNER PANEL WIRING DIAGRAM
 (POWER FLAME ONLY)



LEGEND

ADD GREEN GROUND WIRE TO
 GROUNDING LUG FOR PILOT
 VALVES WITH GROUND WIRE.
 "USE COPPER CONDUCTORS ONLY."
 CAUTION: THROW ALL DISCONNECTS TO OFF
 BEFORE SERVICING.
 — G — EQUIPMENT GND. CONDUCTOR
 — F — FLAME CIRCUIT: RUN IN SEPARATE
 CONDUIT OR SHIELDED CABLE
 — — — — — FACTORY WIRING
 — — — — — 24V } FIELD WIRING
 — — — — — 115V } SEE SPEC. SHEET
 — — — — — 200- } FOR VOLTAGE
 — — — — — 575V }

SINGLE VALVE WITH P.O.C.
 SW. MAY OMIT AUX. GAS VALVE.
 (APPLICABLE TO UNITS WITH
 INPUTS BELOW 5,000 MBH)
 * JUMP TERM. 9 TO 10 VIA
 PURPLE LEAD IF PROOF OF
 CLOSURE IS NOT REQUIRED.
 CAUTION: ALL FIELD WIRING MUST
 BE WIRED AS SHOWN ON
 WIRING DIAGRAM

RELAYS R1 & R2			
REF.	R10 CDR	KUP	KH
COIL	7	A	13
NEU.	2	B	14
COM.	1	7,8,9	9
N.O.	3	4,5,6	5
N.C.	4	1,2,3	1

COLOR CODE
 BK - BLACK
 WH - WHITE
 RD - RED
 PK - PINK
 BL - BLUE
 OR - ORANGE
 YE - YELLOW
 PU - PURPLE
 GR - GREEN

CROSS REFERENCE RELAY LEGEND
 P-T-P JIC
 DIAG. NO. G-24266L - G-24265L
 R1 - 41CR - FLAME FAILURE
 R2 - 36CR - FLAME ON
 R3 - 46CR - OPEN DAMPER PURGE
 R4 - 47CR - RUN
 REMOTE PNL. MUST BE BONDED TO BURNER
 BY FLEXIBLE OR RIGID METAL CONDUIT
 AND METAL CONDUIT CONNECTORS.
 — — — — — TERMINALS IN YORK CONTROL PNL.

EQUIPMENT SHOWN ON DIAGRAM IS ONLY PROVIDED AND

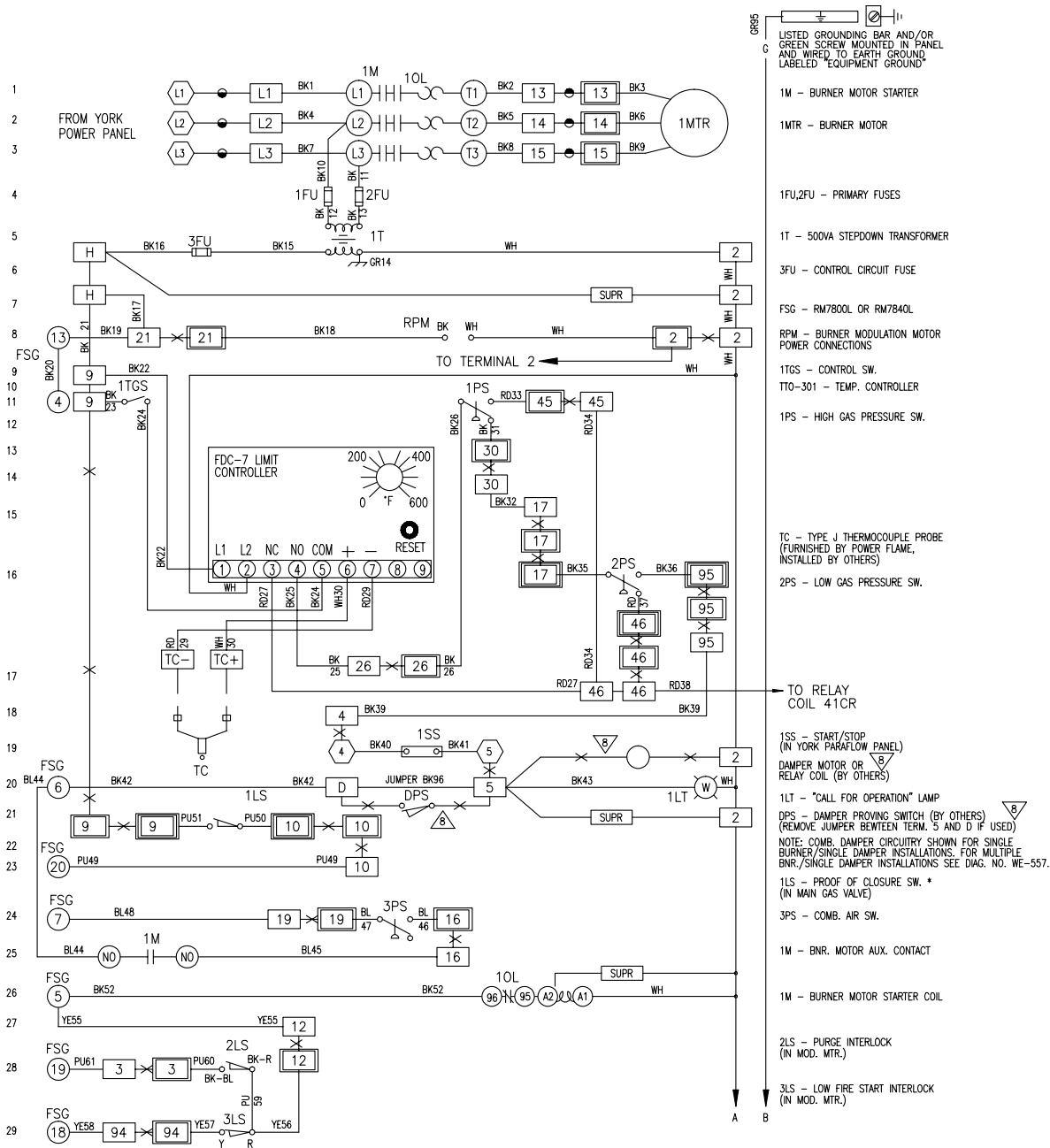
LAST WIRE NO. USED - 98

FIGURE 16 - BURNER PANEL WIRING DIAGRAM



FIGURE 16 - BURNER PANEL WIRING DIAGRAM (CONT'D)

BURNER PANEL WIRING DIAGRAM



LEGEND

REMOTE PNL. MUST BE BONDED TO BURNER
BY FLEXIBLE OR RIGID METAL CONDUIT
AND METAL CONDUIT CONNECTORS.

* JUMP TERM. 9 TO 10 VIA
PURPLE LEAD IF PROOF OF
CLOSURE IS NOT REQUIRED.

SINGLE VALVE WITH P.O.C.
SW. MAY OMIT AUX. GAS VALVE.
(APPLICABLE TO UNITS WITH
INPUTS BELOW 5,000 MBH)

"USE COPPER CONDUCTORS ONLY."

CAUTION: THROW ALL DISCONNECTS TO OFF BEFORE SERVICING.

EQUIPMENT SHOWN ON DIAGRAM IS ONLY PROVIDED AND MOUNTED BY POWER FLAME IF SPECIFICALLY CALLED FOR ON BURNER SPEC. SHEET

NEUTRAL WIRING MAY NOT BE CONNECTED AS SHOWN, BUT MAY BE WIRED TO TERMINATE AT NEUTRAL TERMINALS SUCH AS 2, 2A, T2 OR L2.

CAUTION: ALL FIELD WIRING MUST
BE WIRED AS SHOWN ON
WIRING DIAGRAM.

- - FLAME SAFEGUARD TERMINALS
- - REMOTE PANEL TERMINALS
- ▤ - BURNER PANEL TERMINALS
- ▥ - GAS TRAIN MTD. TERMINALS
- ⬡ - TERMINALS IN YORK CONTROL PANEL

— G — EQUIPMENT GND. CONDUCTOR
 — F — FLAME CIRCUIT: FIELD WIRED IN
 SEP. CONDUIT OR SHIELDED CABLE.
 — FACTORY WIRING
 — 24V — } YORK WIRING
 — 115V — } "SEE SPEC. SHEET
 — 200- — } FOR VOLTAGE
 — 575V — }
 — 24V — } FIELD WIRING
 — 115V — } "SEE SPEC. SHEET
 — 200- — } FOR VOLTAGE
 — 575V — }

RELAY CROSS REFERENCE

DIAG. NO.	JIC G-24265L	-	P-T-P G-24266L
	36CR	-	R2
	41CR	-	R1
	46CR	-	R3
	47CR	-	R4

ADD GREEN GROUND WIRE TO
GROUNDING LUG FOR PILOT
VALVES WITH GROUND WIRE.

FIGURE 17 - BURNER PANEL WIRING DIAGRAM

BURNER PANEL WIRING DIAGRAM (CONT'D)

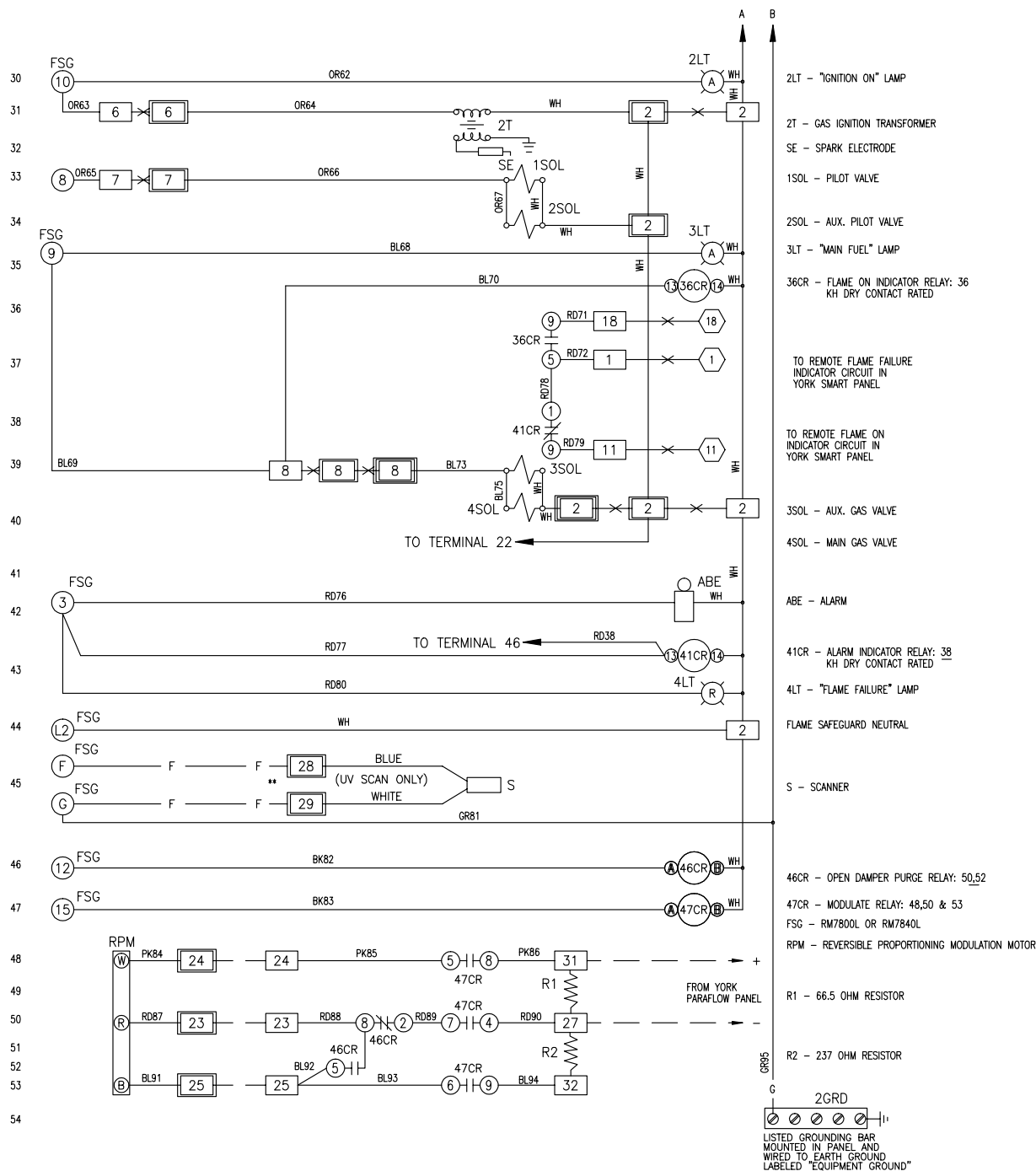


FIGURE 17 – BURNER PANEL WIRING DIAGRAM (CONT'D)

DRAFT CONTROL WIRING DIAGRAM (OPTIONAL)

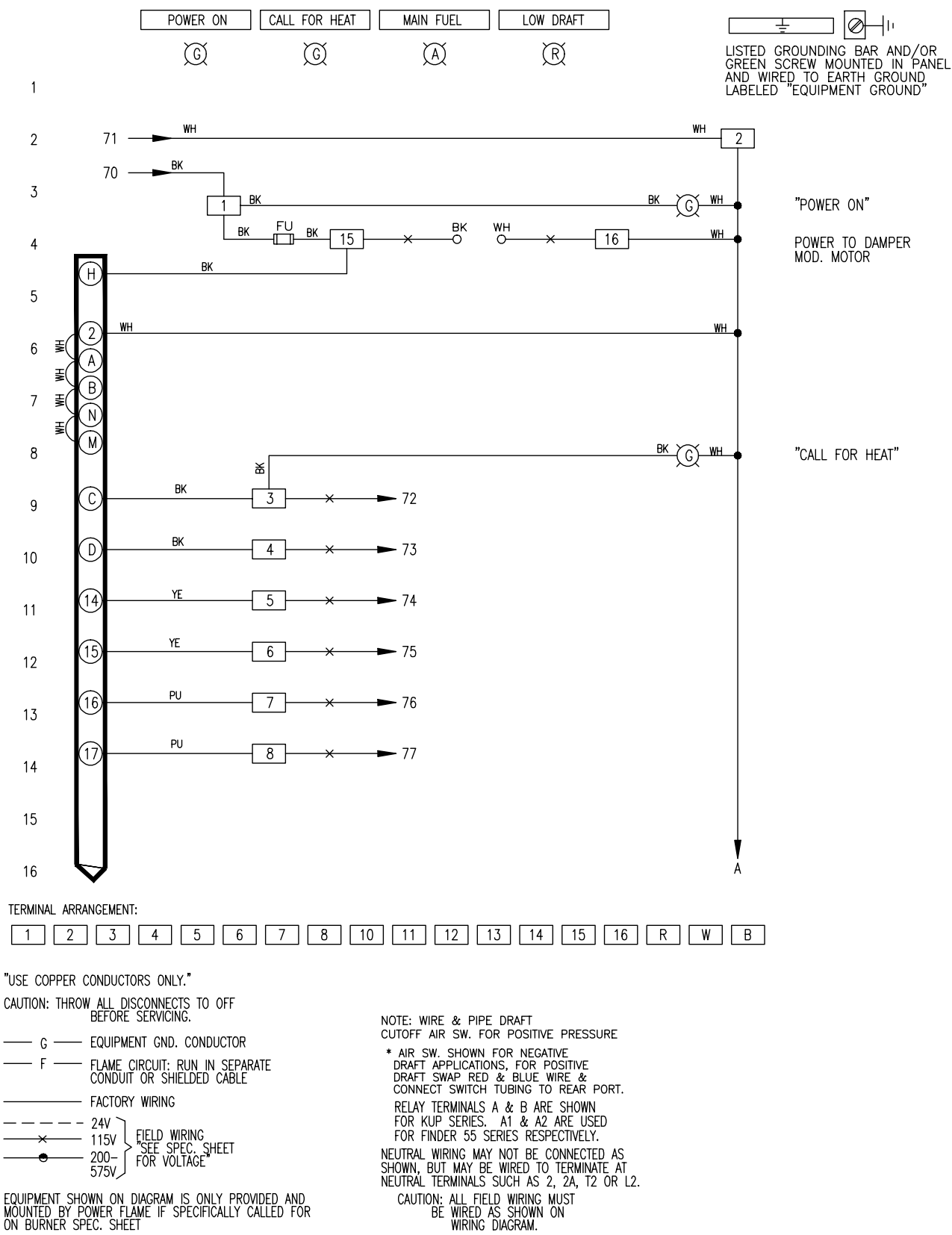
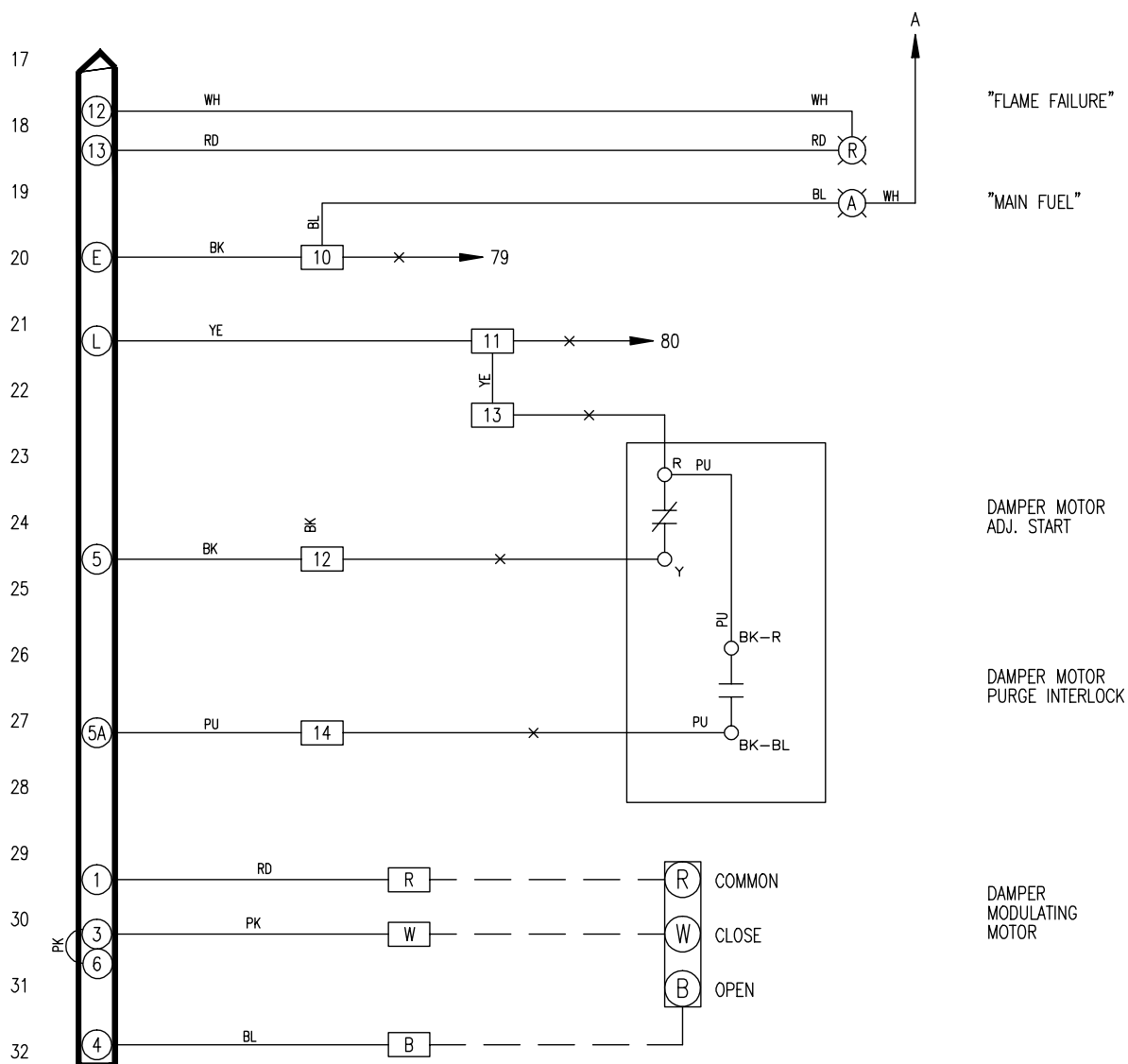


FIGURE 18 - DRAFT CONTROL WIRING DIAGRAM (OPTIONAL)

LD12769

DRAFT CONTROL WIRING DIAGRAM (OPTIONAL) (CONT'D)



LD12770

FIGURE 18 – DRAFT CONTROL WIRING DIAGRAM (OPTIONAL) (CONT'D)

DIRECT-FIRED PRESSURE - TEMPERATURE CHART

PRESSURE - TEMP CHART								
APPLICATION		DEVICE	SIGNAL TYPE	UNITS	OPERATING POINT			
DIRECT FIRED					ON RISE (INCREASING)		ON FALL (DECREAS-ING)	
COOLING	HEATING							
✓	✓	HP1	Digital	Mm Hg Abs.	Shutdown 710		Shutdown Recovery 40	
✓	✓	PT1	Analog	Mm Hg Abs.	Alarm/Load Limit 660.0	Shutdown 775.5	Load Limit Recovery 258.5	Shutdown Recovery <775.5
✓	✓	HT1	Digital	DEG. F / DEG. C	Shutdown 330/165.5		Shutdown Recovery ≤329/165	
✓	✓	RT6	Analog	DEG. F / DEG. C	Alarm/ Load Limit 326/163	Shutdown 337/169.5	Load Limit Recovery 250/121	Shudown Recovery <337/169.4
✓	-	LRT	Digital	DEG. F / DEG. C	Shutdown Recovery 40/4.4		Shutdown 35/1.6	
✓	-	RTIO	Analog	DEG. F / DEG. C	Load Limit Recovery 36.5/2.5• Shutdown Re-covery/Variable See 155.17-02		Alarm/Load Limit 36/2.2• Shutdown/Variable See 155.17-02	
✓	-	LWT	Analog	DEG. F / DEG. C	Restart > 1 DEG. F (See 155.17-02 For More Details)		Cycle Shutdown > 3 DEG. (1.7) Below LCWT Setpoint +	
-	✓	HWT	Analog	DEG. F / DEG. C	Cycle Shutdown > 5 DEG. F (2.9) Above Setpoint		Restart > 10 DEG. F (5.8) Below Setpoint	
✓	✓	LS	Digital	-	Contact Re-Established		Contact Loss	

• With Jumper J13 Removed

+ Other Conditions Apply See 155.17-02

NOTES



P.O. Box 1592, York, Pennsylvania USA 17405-1592
Copyright © by Johnson Controls 2012
Form 155.17-W1 (812)
Issue Date: August 31, 2012
Supersedes: 155.17-W1 (407)

800-861-1001
www.johnsoncontrols.com

Subject to change without notice. Printed in USA
ALL RIGHTS RESERVED