YORK
BY JOHNSON CONTROLS

Supersedes: 155.19-W1 (407) Form: 155.19-W1 (812)

# TWO-STAGE ABSORPTION CHILLERS

## WIRING DIAGRAMS

CONTRACTOR _____ PURCHASER _____
ORDER NO. _____ JOB NAME _____
JCI CONTRACT NO. _____ LOCATION _____
JCI ORDER NO. _____ ENGINEER _____

☐ REFERENCE DATE _____ ☐ APPROVAL DATE _____ ☐ CONSTRUCTION DATE _____

# MODELS:
# STEAM FIRED
# YPC-ST-14SC
# &
# YPC-ST-16SL
# Thru
# YPC-ST-19S


LD12775

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.

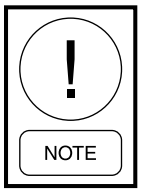
## SAFETY SYMBOLS

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 and 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

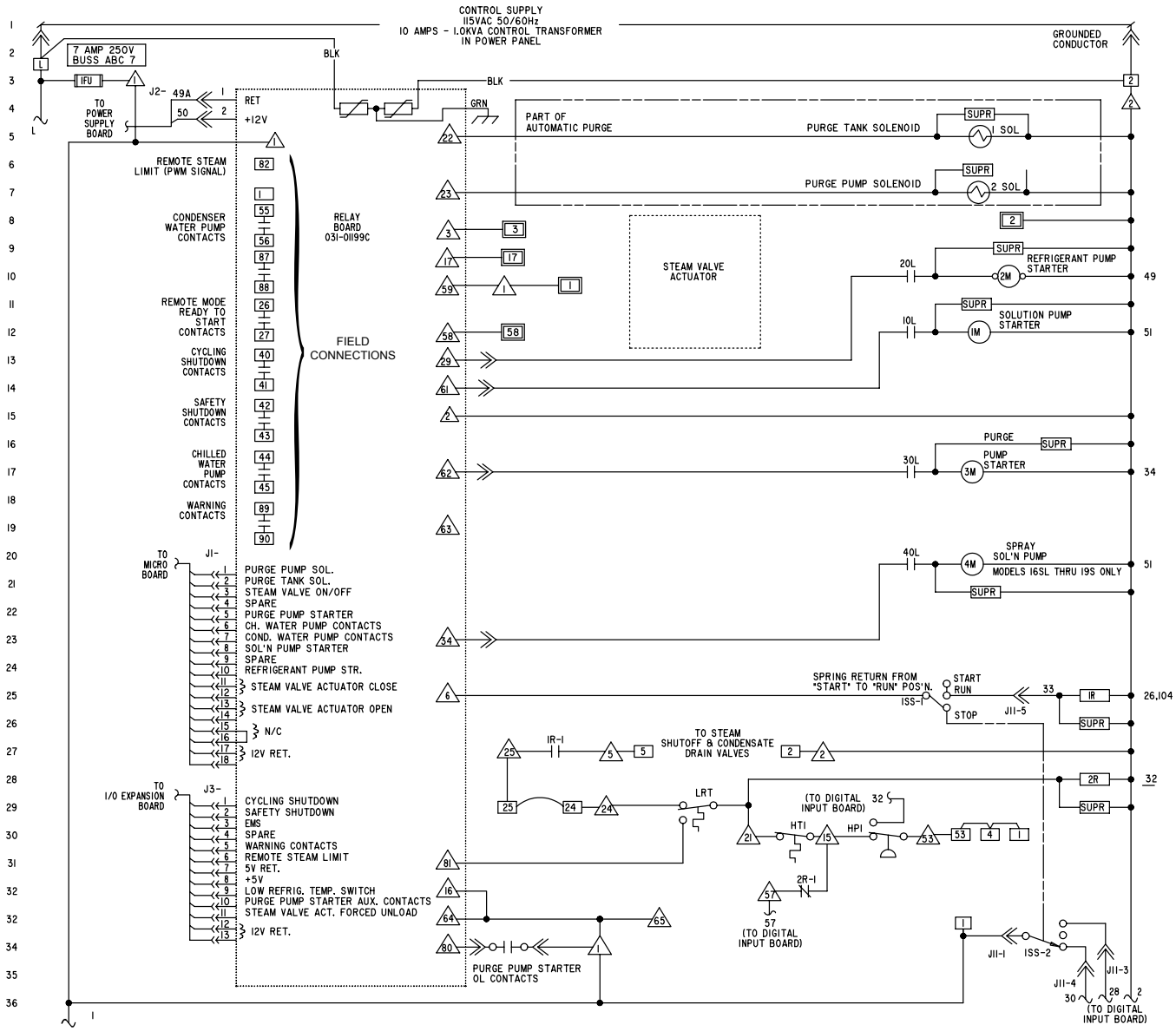
| | |
|---|---|
| 1M | 3 PHASE SOLUTION PUMP STARTER (MOUNTED IN POWER PANEL) |
| 2M | 3 PHASE REFRIGERANT PUMP MOTOR STARTER (MOUNTED IN POWER PANEL) |
| 3M | 3 PHASE PURGE PUMP MOTOR STARTER (MOUNTED IN POWER PANEL) |
| 4M | FIRST SPRAY SOLUTION PUMP MOTOR STARTER (MOUNTED IN POWER PANEL -16SL THRU - 19S ONLY) |
| 1R | STEAM SHUTOFF SOLENOID VALVE 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 |
| 4SOL | STEAM SHUTOFF SOLENOID VALVE (BY OTHERS) |
| 5SOL | STEAM CONDENSATE DRAIN SOLENOID VALVE |
| 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 |
| 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) |
| LRT | LOW REFRIGERANT TEMPERATURE CUT-OUT SWITCH |
| LWT | LOW WATER TEMPERATURE CUT-OUT (CHIILER CHILLER/HEATER MODES ONLY) (PROVIDED BY RT1) |
| 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. ⑷ . 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 devise 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. @ AMP inductive (.4 PF) +/- 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. Maximum allowable current draw is 1 AMP holding. 10 AMPS inrush for 115 VAC Field-supplied steam shutoff valve (line 100).

# LIST OF FIGURES

# YPC CONTROL CENTER ELEMENTARY DIAGRAM




LD12777

**FIGURE 1 -** ELEMENTARY DIAGRAM

# YPC CONTROL CENTER ELEMENTARY DIAGRAM (CONT'D)

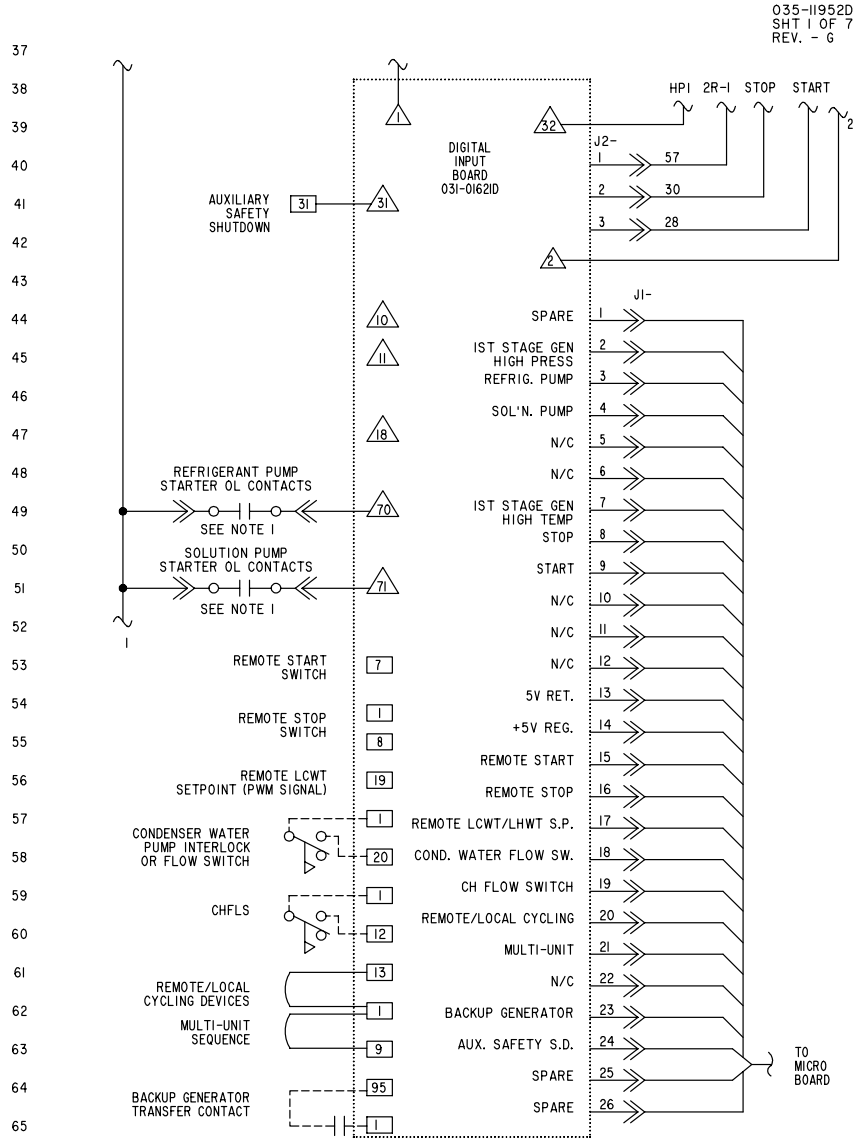



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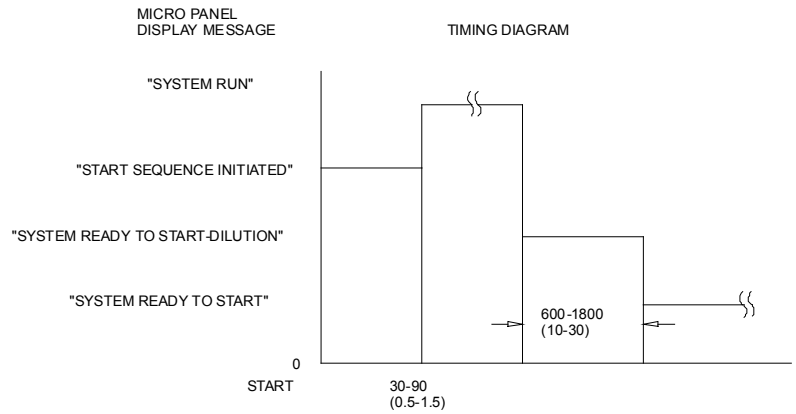
**FIGURE 1 –** ELEMENTARY DIAGRAM (CONT'D)




LD00802

**FIGURE 2 -** TIMING DIAGRAM

# YPC CONTROL CENTER
# ELEMENTARY DIAGRAM (CE)

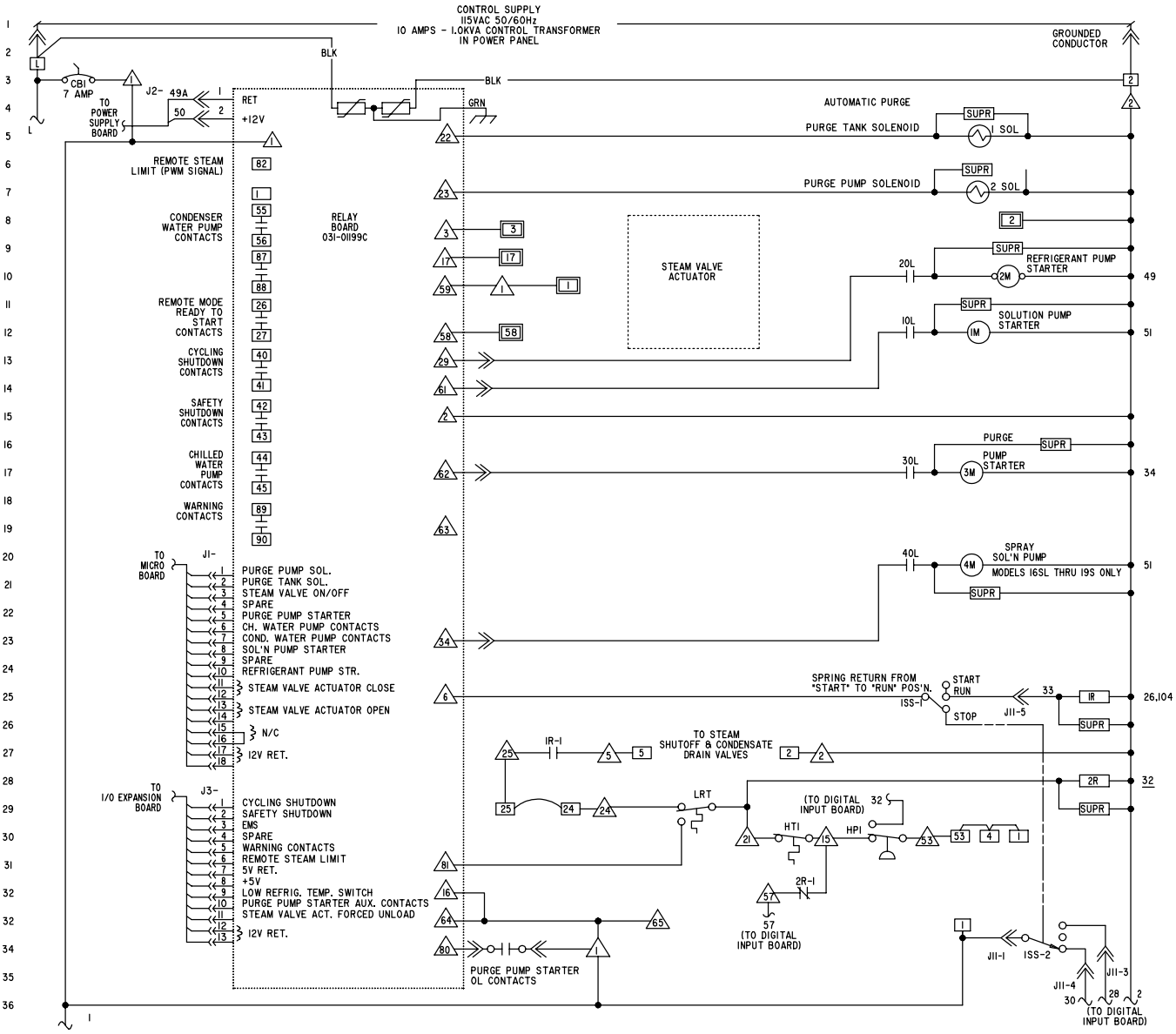



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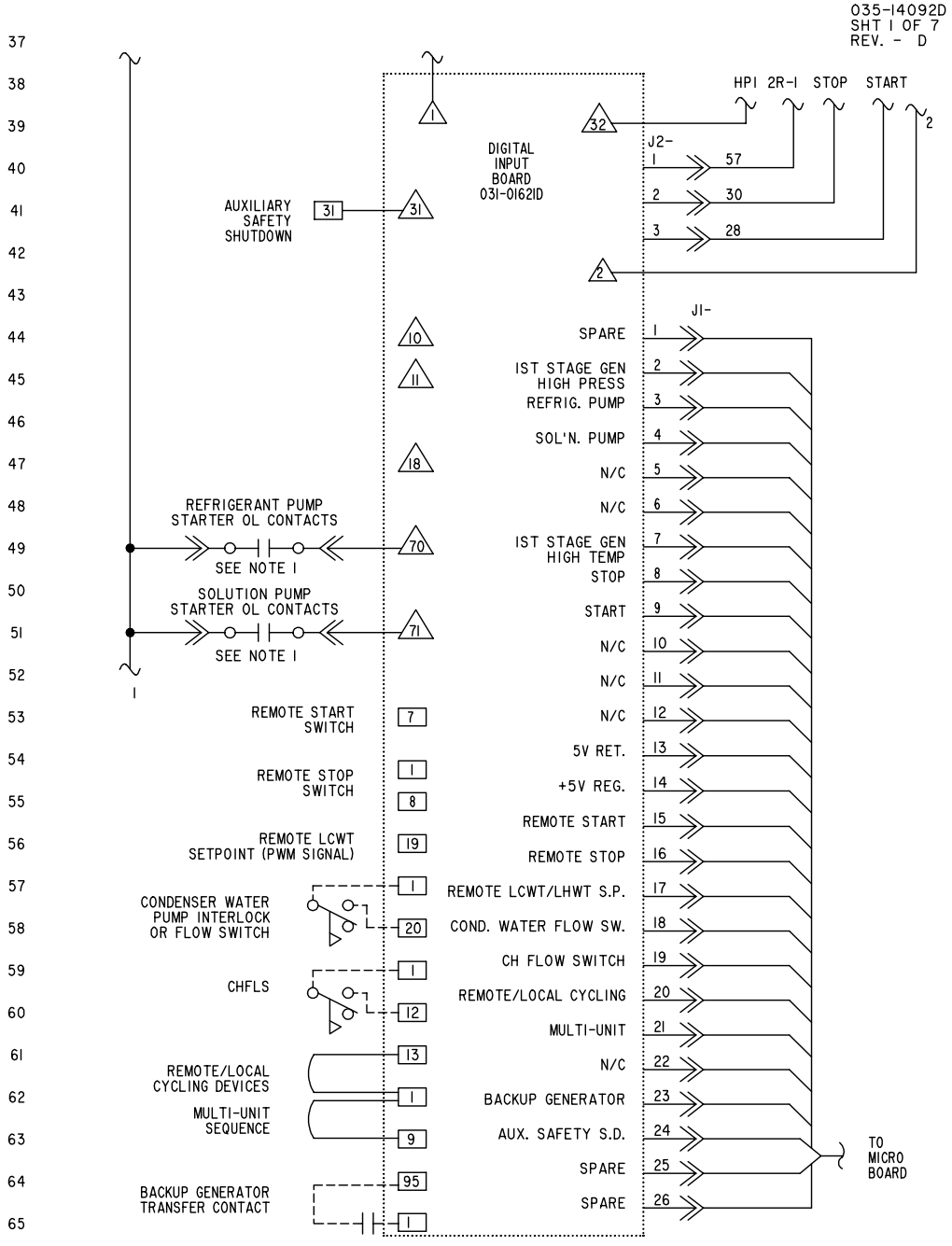
**FIGURE 3 -** ELEMENTARY DIAGRAM (CE)

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




LD12780

**FIGURE 3 –** ELEMENTARY DIAGRAM (CE) (CONT'D)

# YPC CONTROL CENTER MICROBOARD DIAGRAM

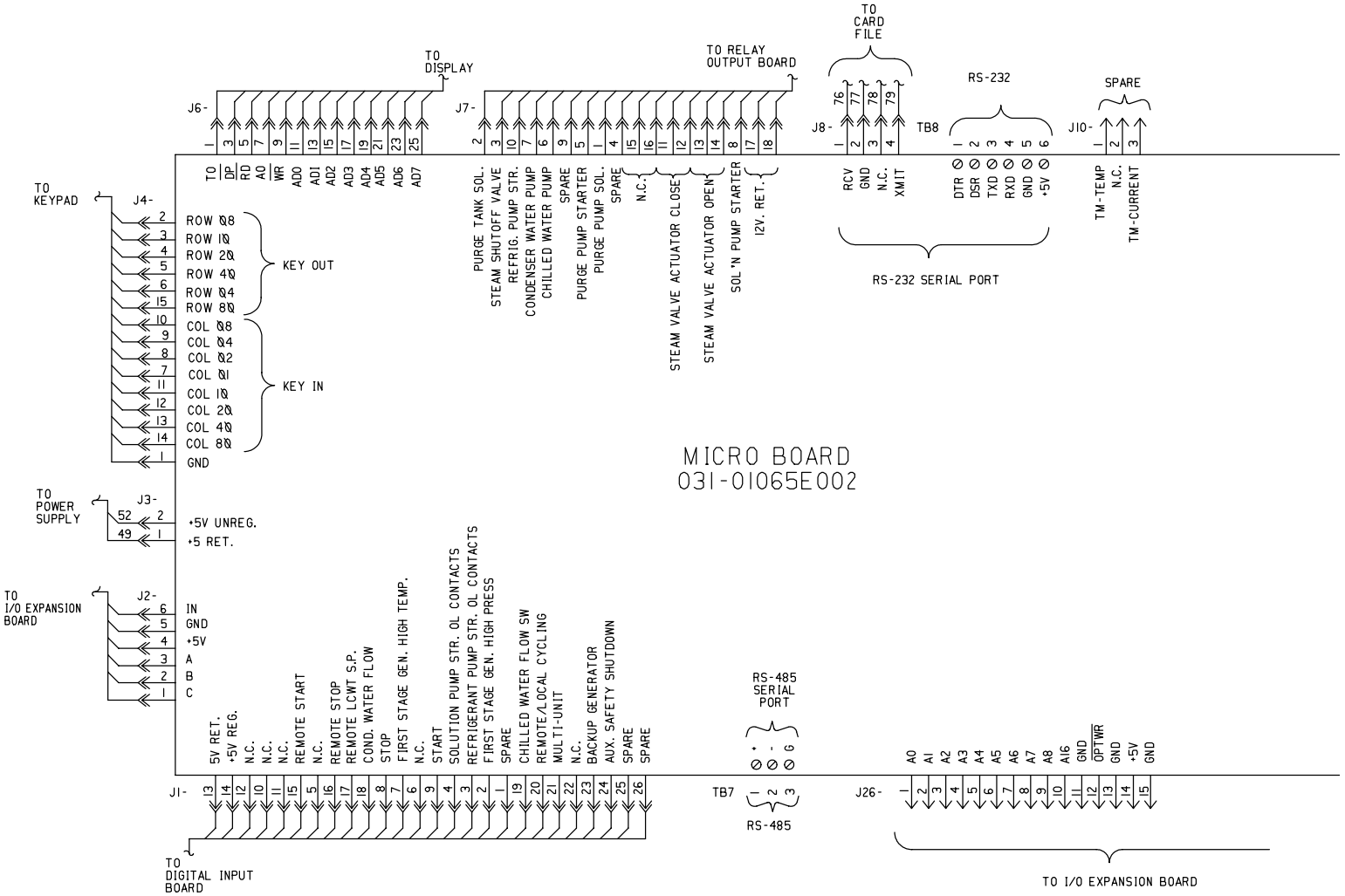



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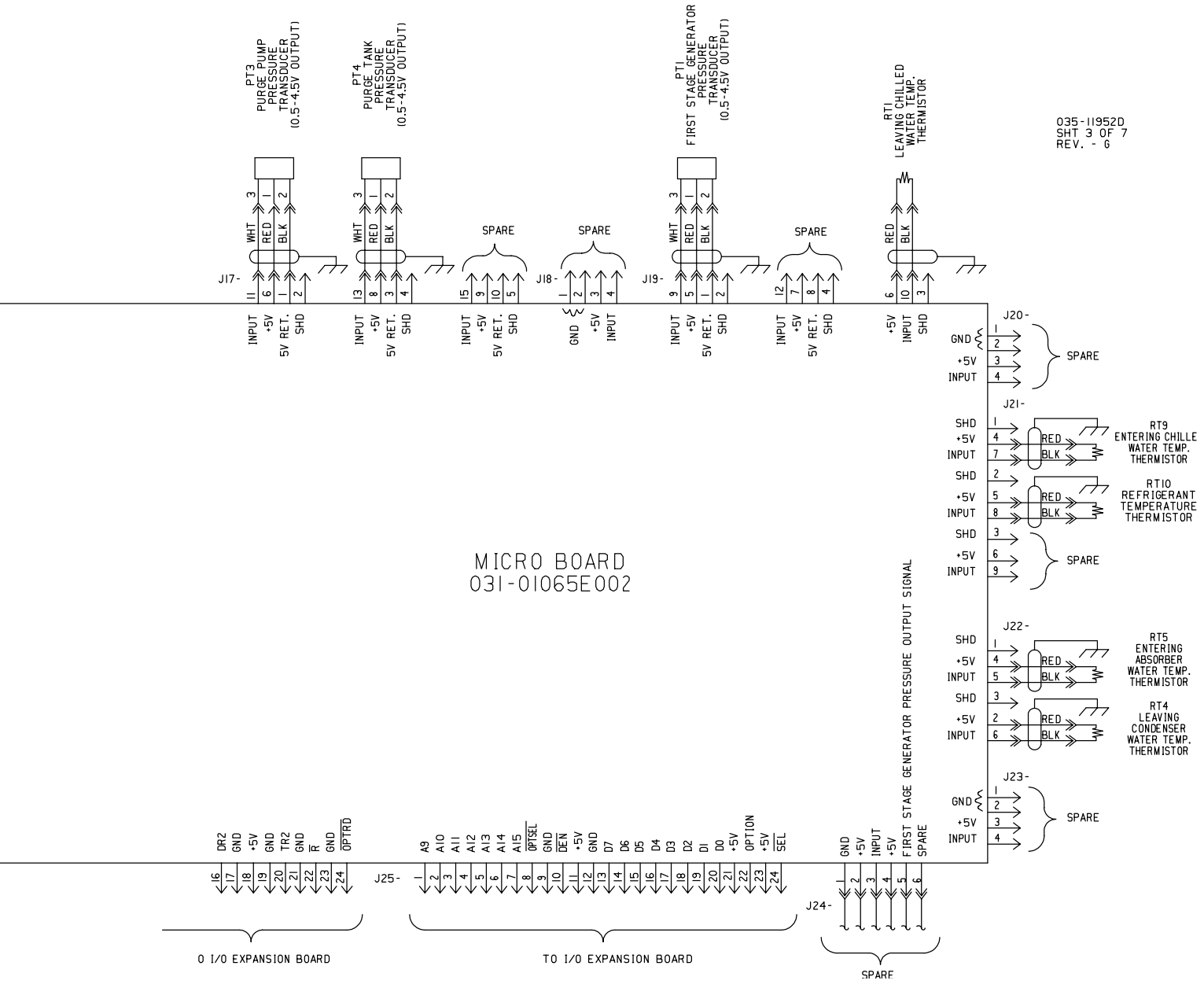
**FIGURE 4 -** MICROBOARD DIAGRAM

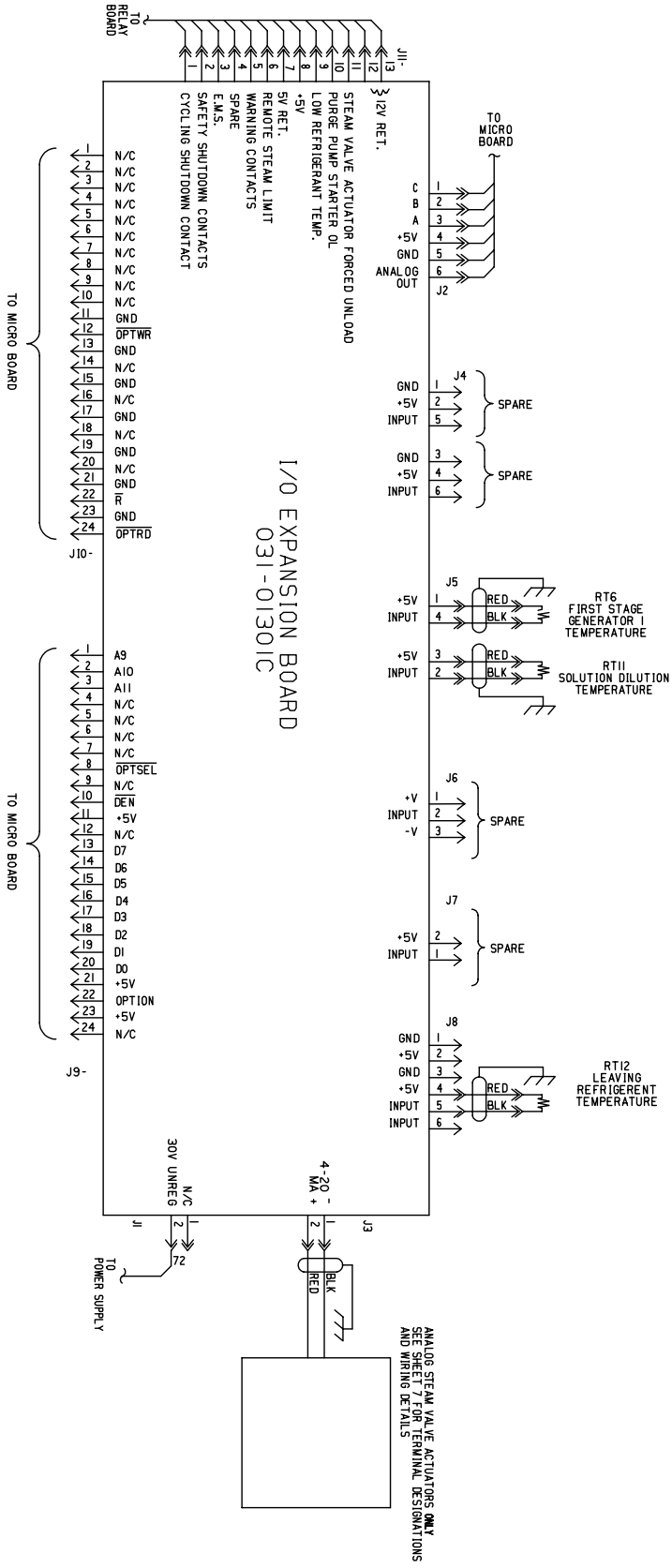
# YPC CONTROL CENTER
# MICROBOARD DIAGRAM (CONT'D)




LD12782

**FIGURE 4 –** MICROBOARD DIAGRAM (CONT'D)

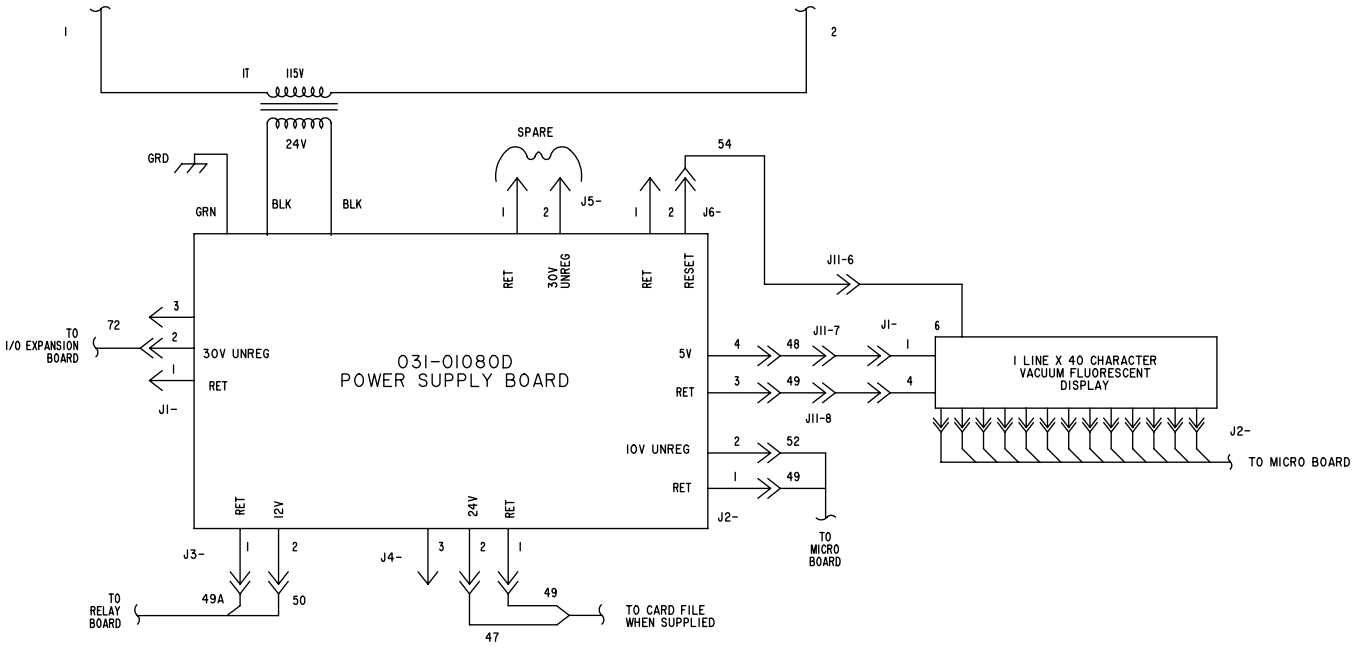
# I/O BOARD DIAGRAM




LD12783

**FIGURE 5 -** I/O BOARD DIAGRAM

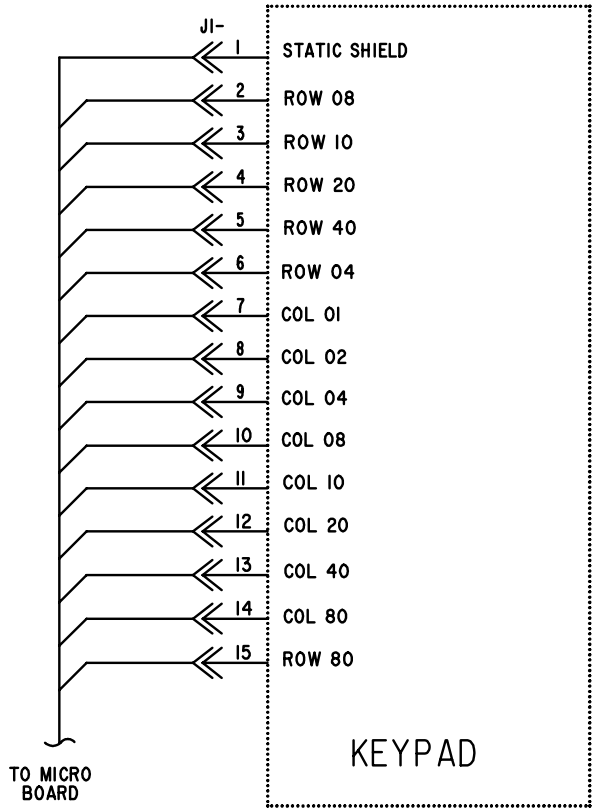
# POWER SUPPLY BOARD DIAGRAM




LD12784

**FIGURE 6 -** POWER SUPPLY BOARD DIAGRAM

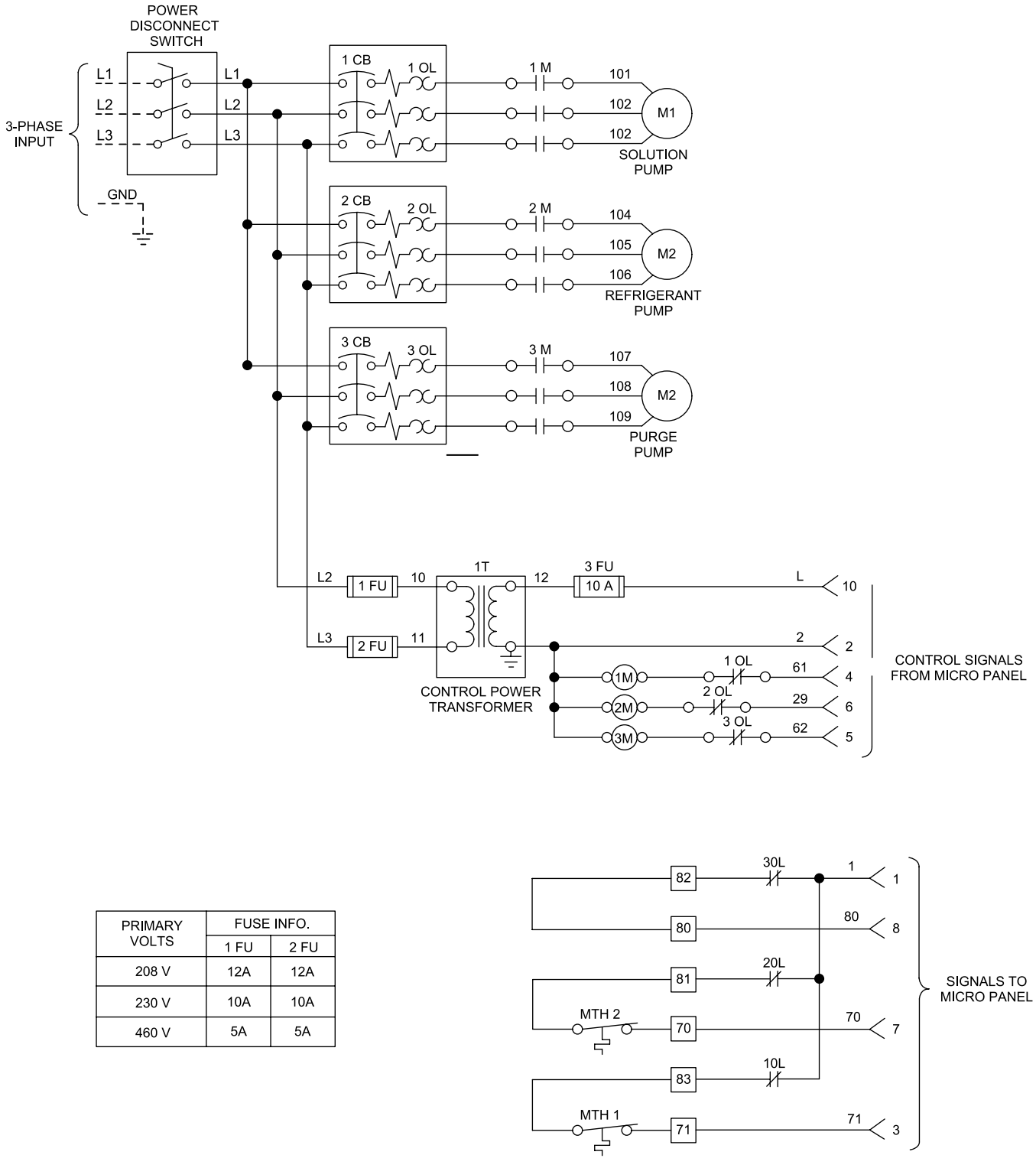
# KEYPAD DIAGRAM




LD12749

**FIGURE 7 -** KEYPAD DIAGRAM

# POWER PANEL ELEMENTARY DIAGRAM
# MODEL YPC-ST-14SC

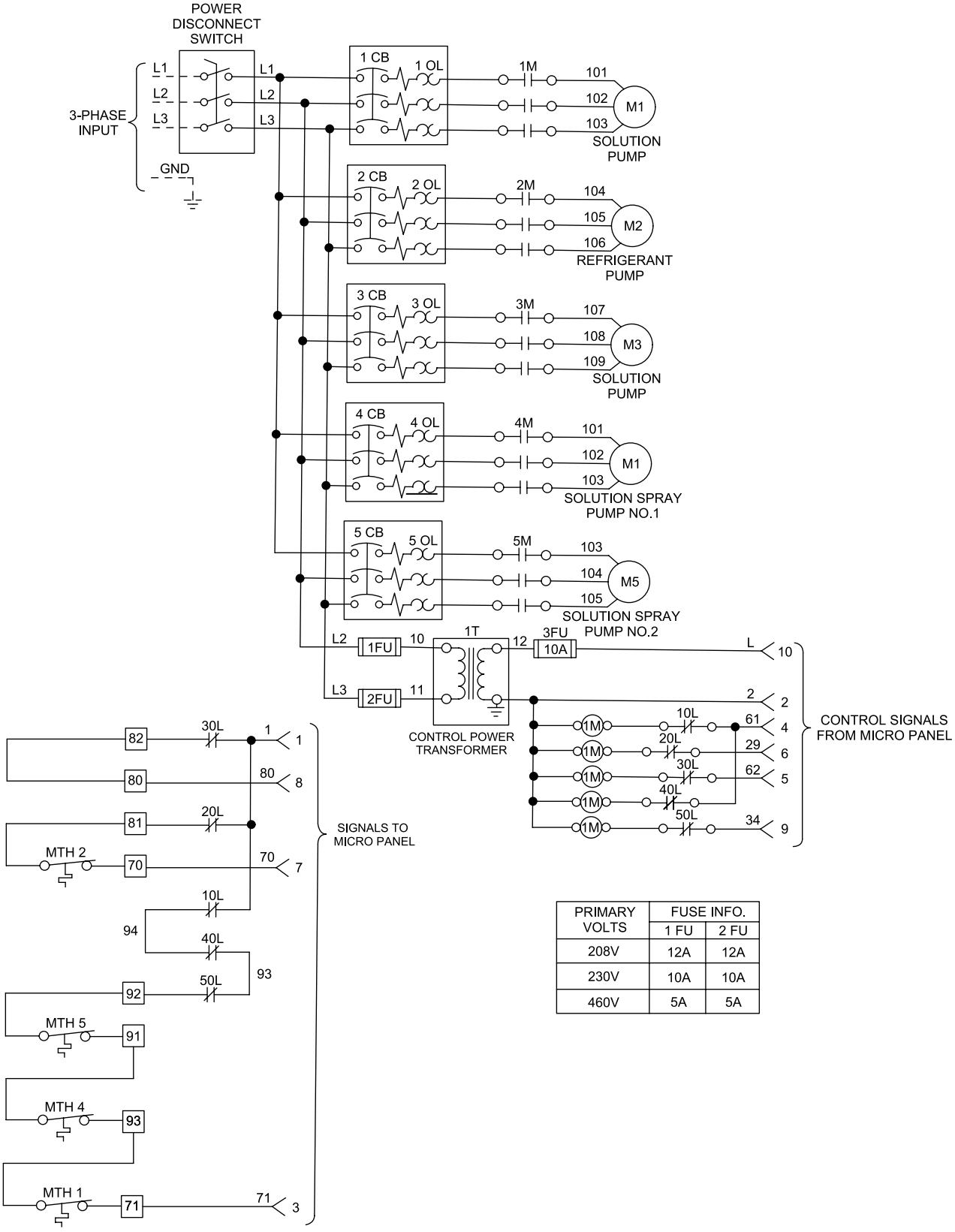



| PRIMARY VOLTS | FUSE INFO. | |
|---|---|---|
| | 1 FU | 2 FU |
| 208 V | 12A | 12A |
| 230 V | 10A | 10A |
| 460 V | 5A | 5A |

LD00794a

**FIGURE 8 -** POWER PANEL DIAGRAM (MODEL YPC-ST-14SC)

# POWER PANEL ELEMENTARY DIAGRAM
# MODEL YPC-ST-16SL THROUGH 19S

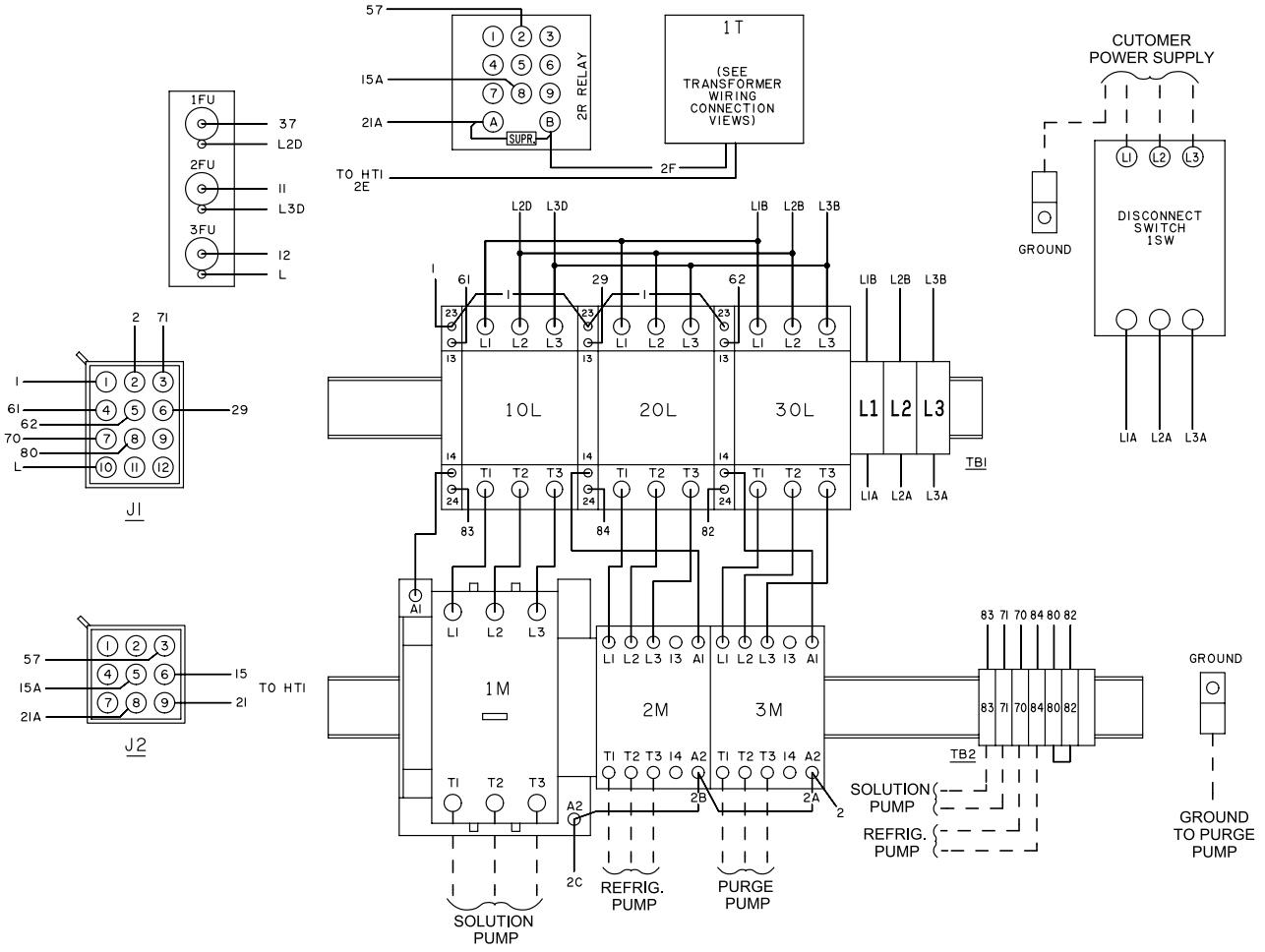


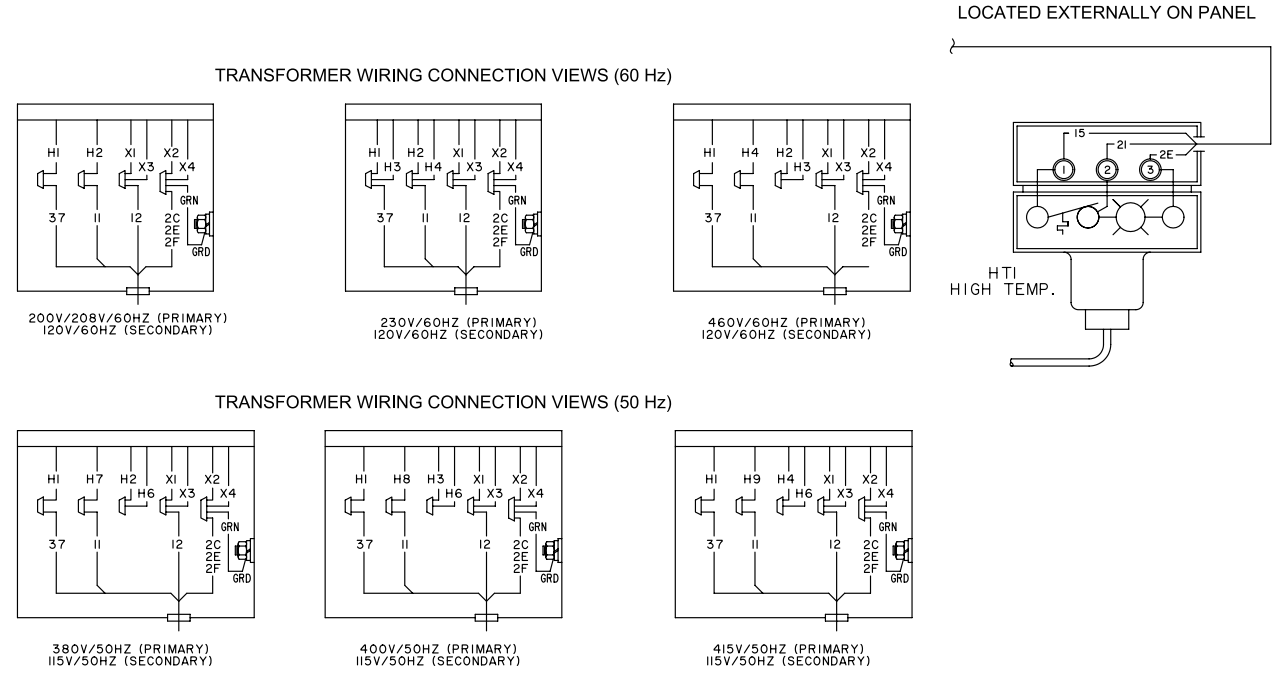

| PRIMARY VOLTS | FUSE INFO. | |
|---|---|---|
| | 1 FU | 2 FU |
| 208V | 12A | 12A |
| 230V | 10A | 10A |
| 460V | 5A | 5A |

LD00795a

**FIGURE 9 -** POWER PANEL DIAGRAM (MODEL YPC-ST-16SL THROUGH 19S)

# POWER PANEL CONNECTION DIAGRAM
# MODELS YPC-ST-14SC

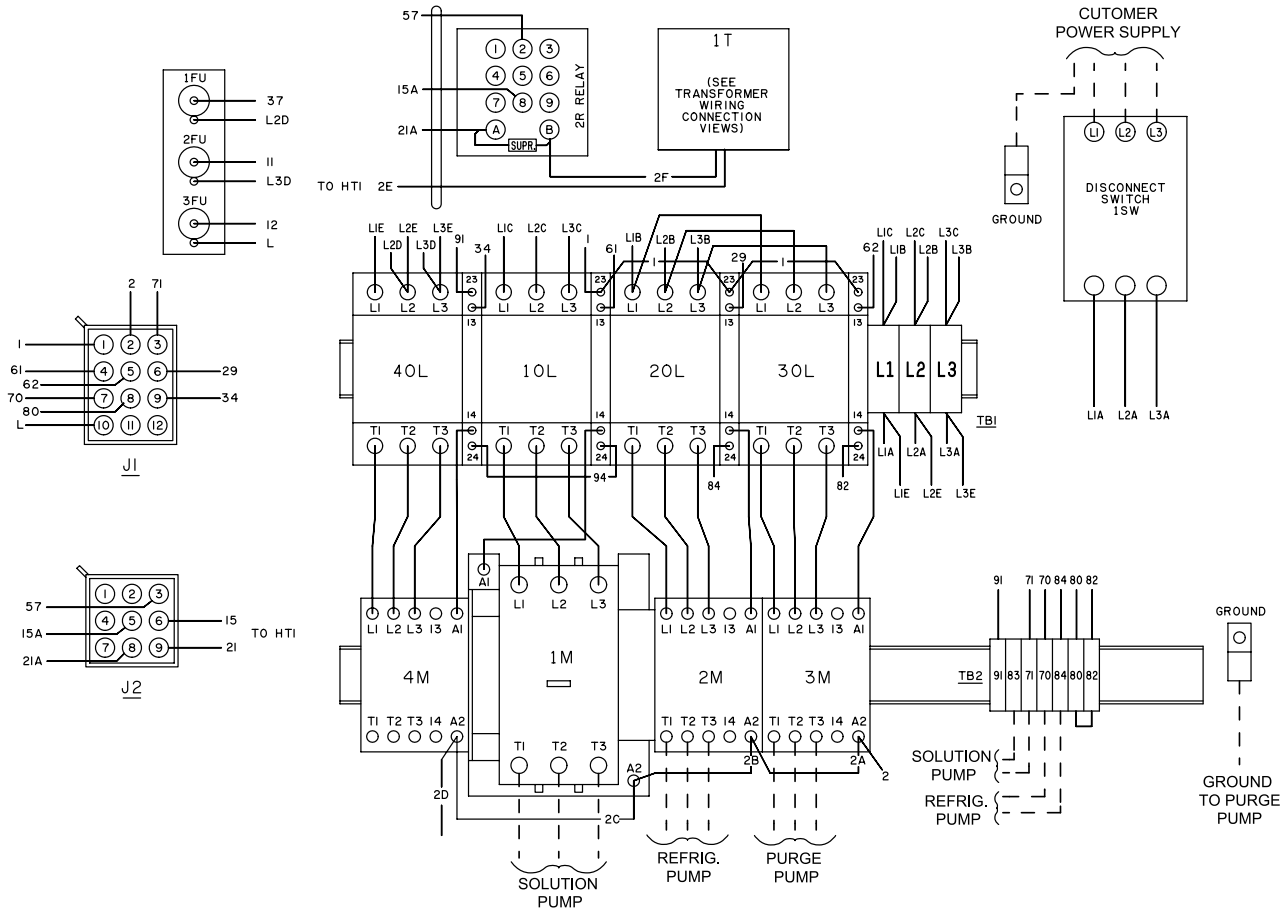



LD12785

**FIGURE 10 -** POWER PANEL CONNECTION DIAGRAM (MODEL YPC-ST-14SC)

# POWER PANEL CONNECTION DIAGRAM
# MODELS YPC-ST-16L THROUGH 19S



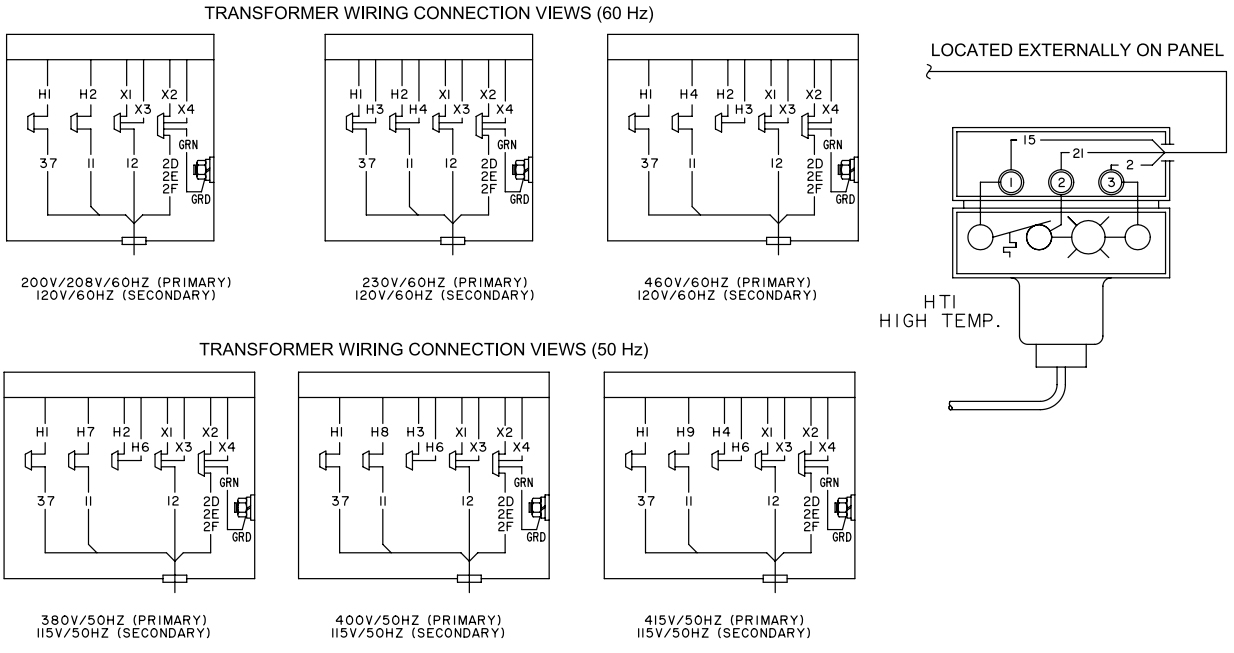




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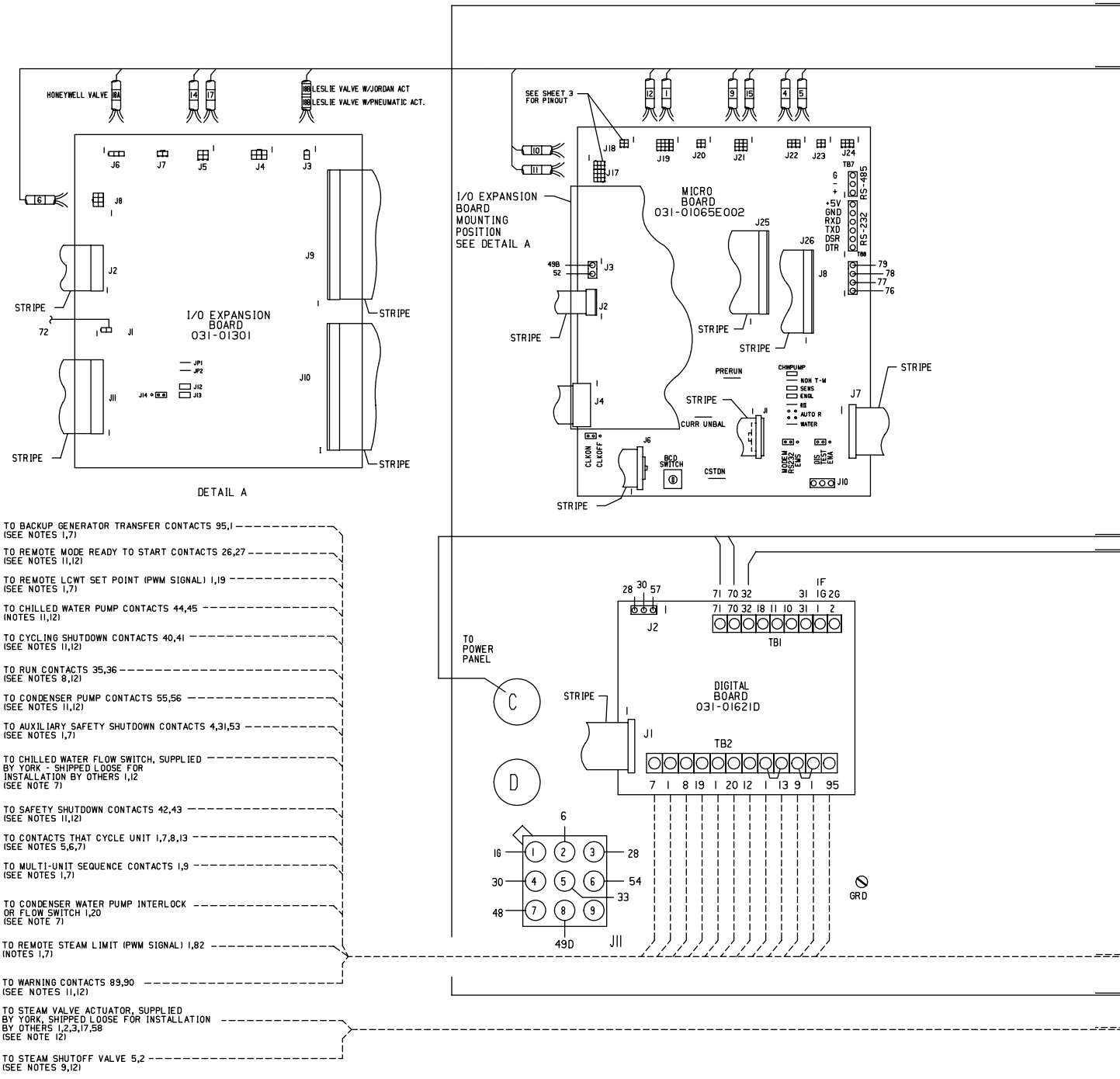
**FIGURE 11 -** POWER PANEL CONNECTION DIAGRAM (MODEL YPC-ST-16L THROUGH 19S)

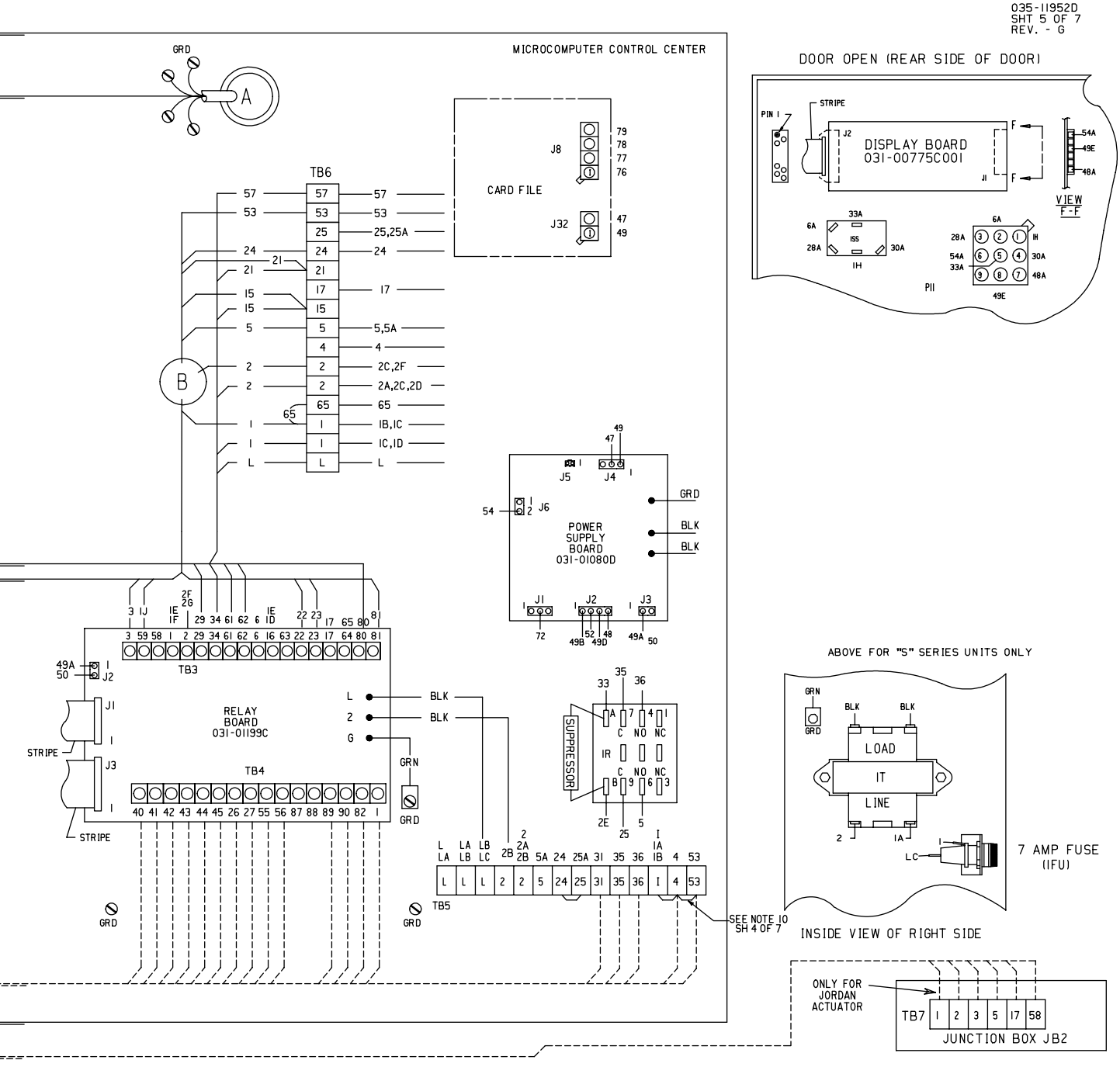
# YPC CONTROL CENTER
# CONNECTION DIAGRAM - STANDARD




LD12787

**FIGURE 12 -** CONNECTION DIAGRAM - STANDARD

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




LD12788

**FIGURE 12 –** CONNECTION DIAGRAM - STANDARD (CONT'D)

# YPC CONTROL CENTER
# CONNECTION DIAGRAM (CE)

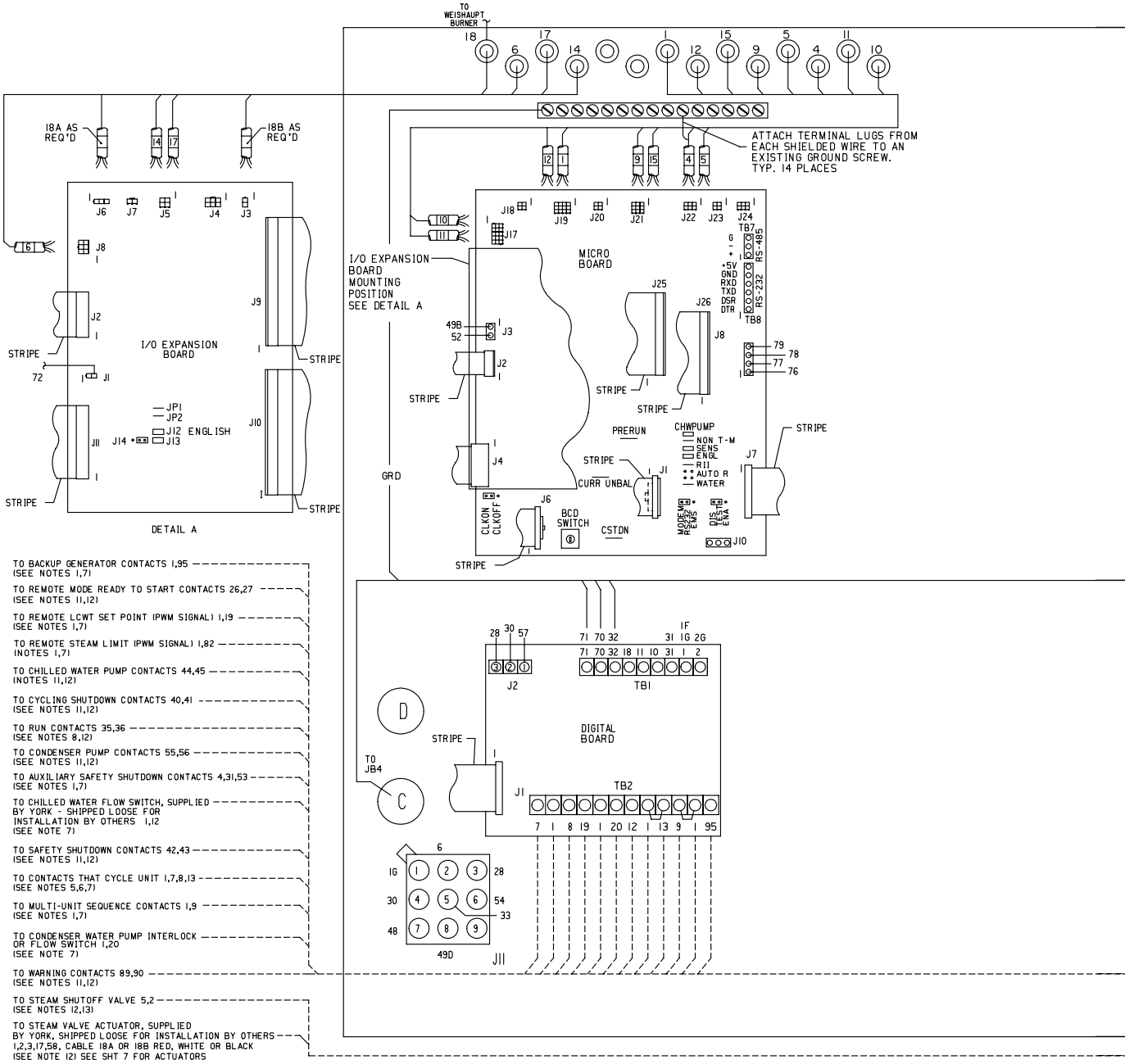



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**FIGURE 13 -** CONNECTION DIAGRAM (CE)

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

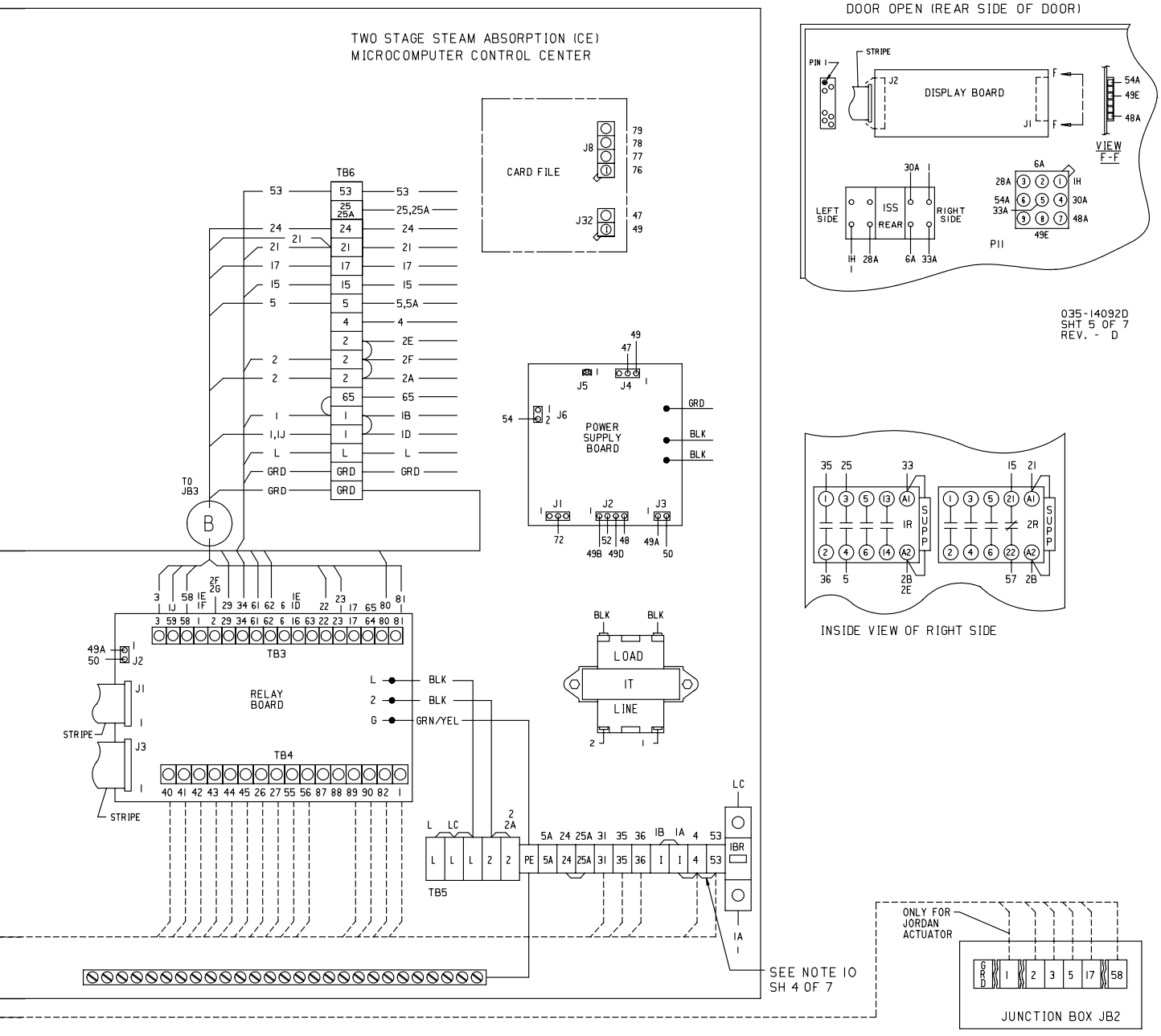











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**FIGURE 13 –** CONNECTION DIAGRAM (CE) (CONT'D)

# YPC CONTROL CENTER CONNECTION DIAGRAM

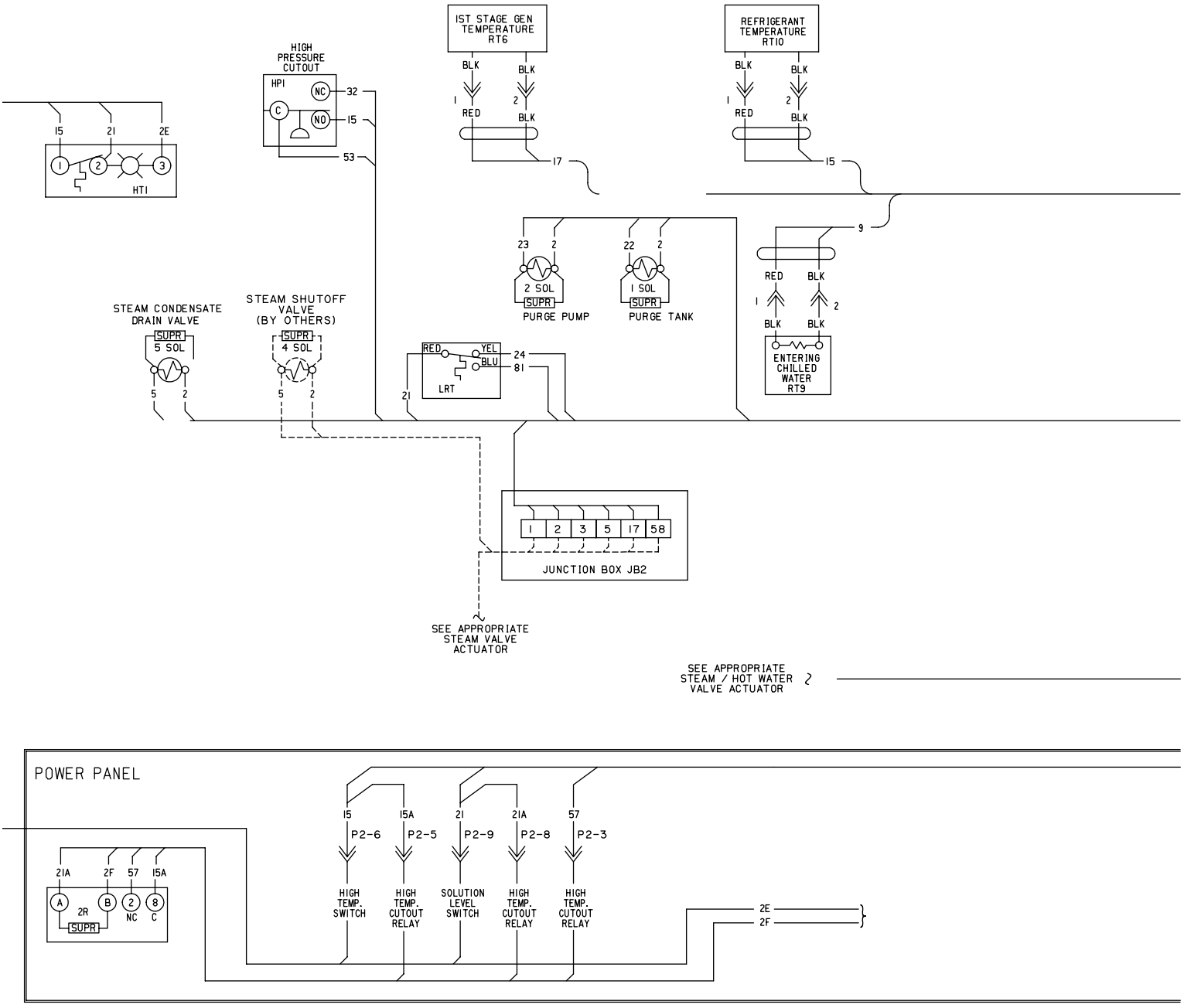


**FIGURE 14 -** CONNECTION DIAGRAM

LD12791

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

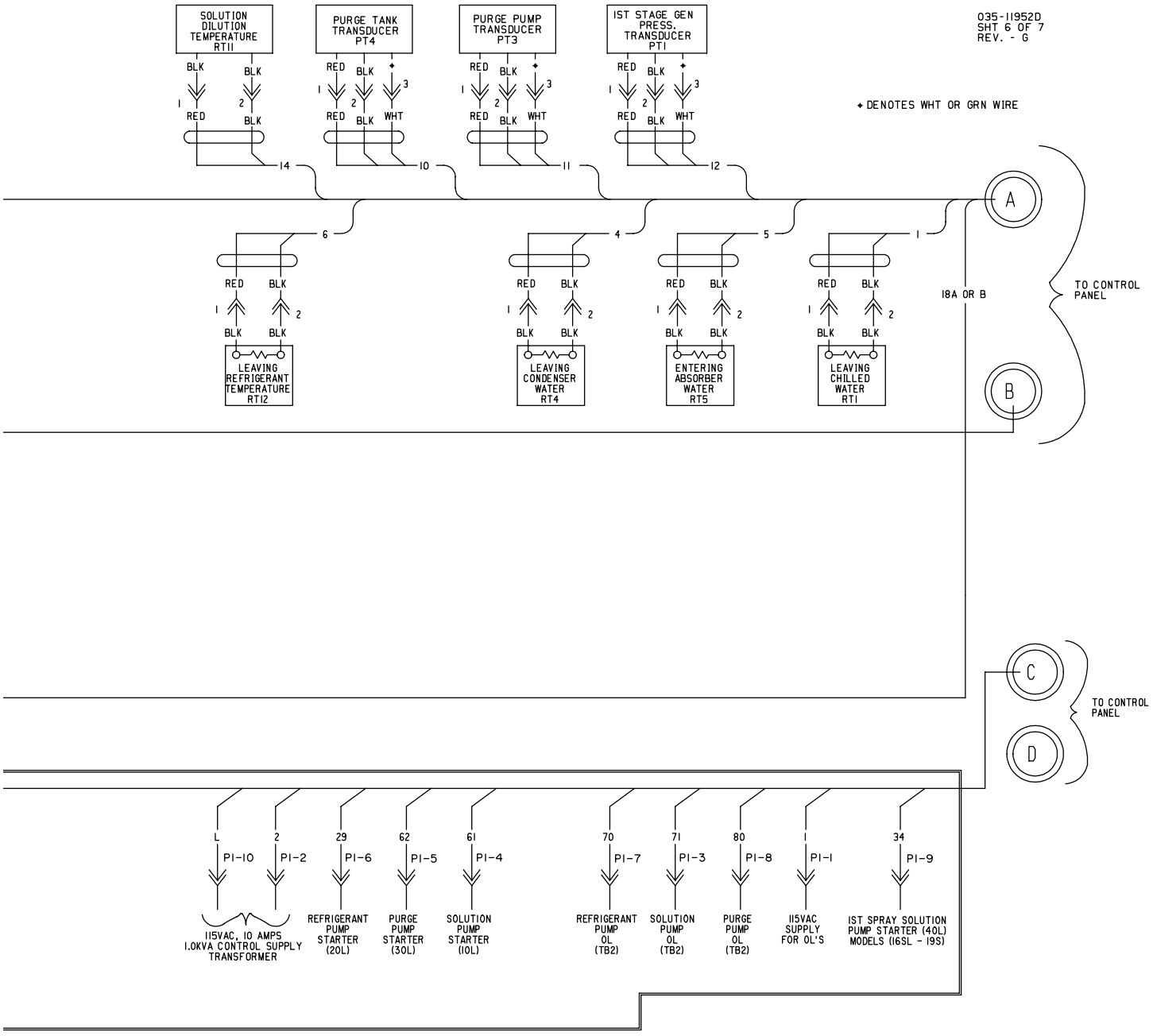


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**FIGURE 14 –** CONNECTION DIAGRAM (CONT'D)

# YPC CONTROL CENTER CONNECTION DIAGRAM (CE)

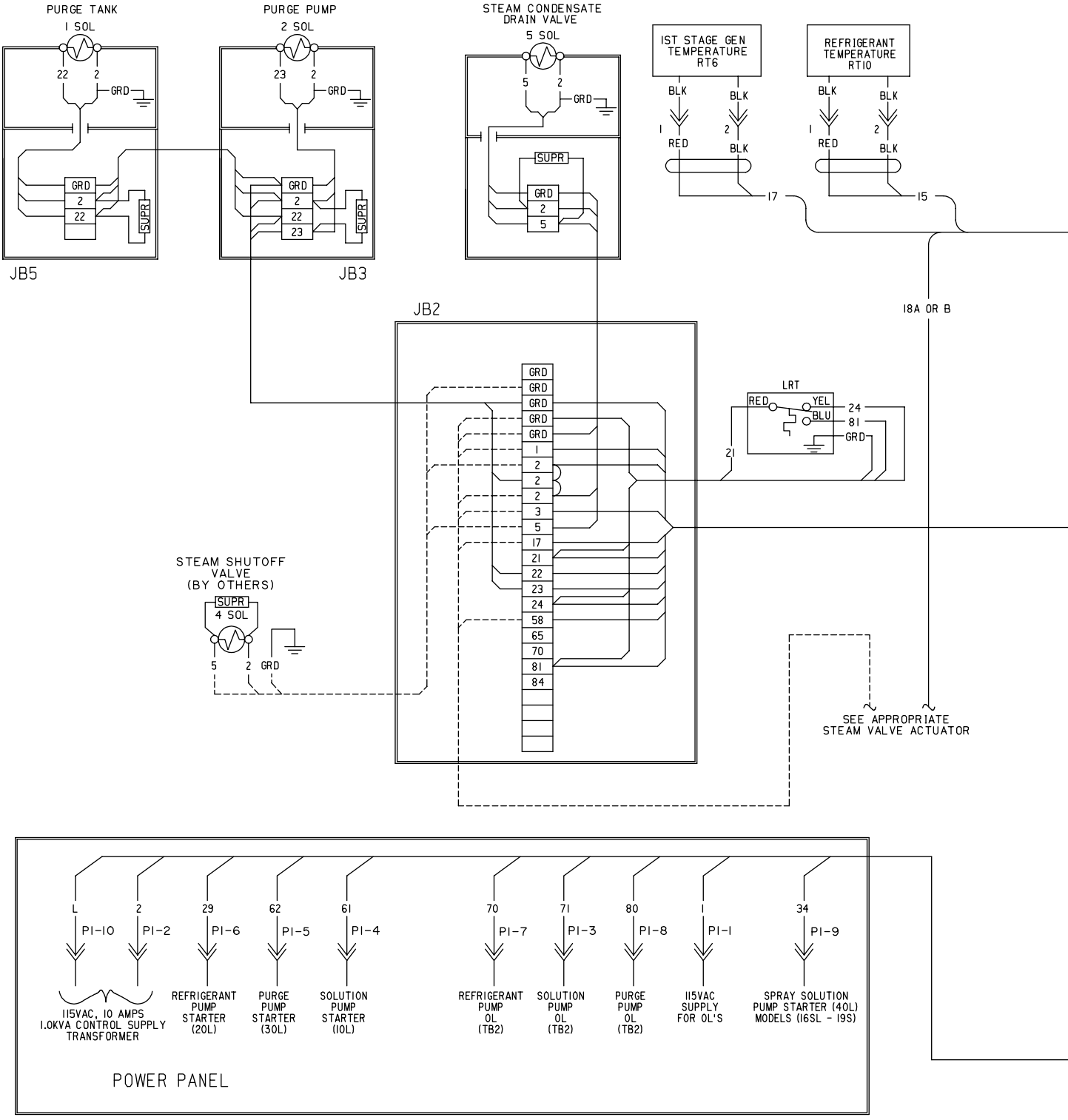


**FIGURE 15 -** CONNECTION DIAGRAM (CE)

LD12773

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

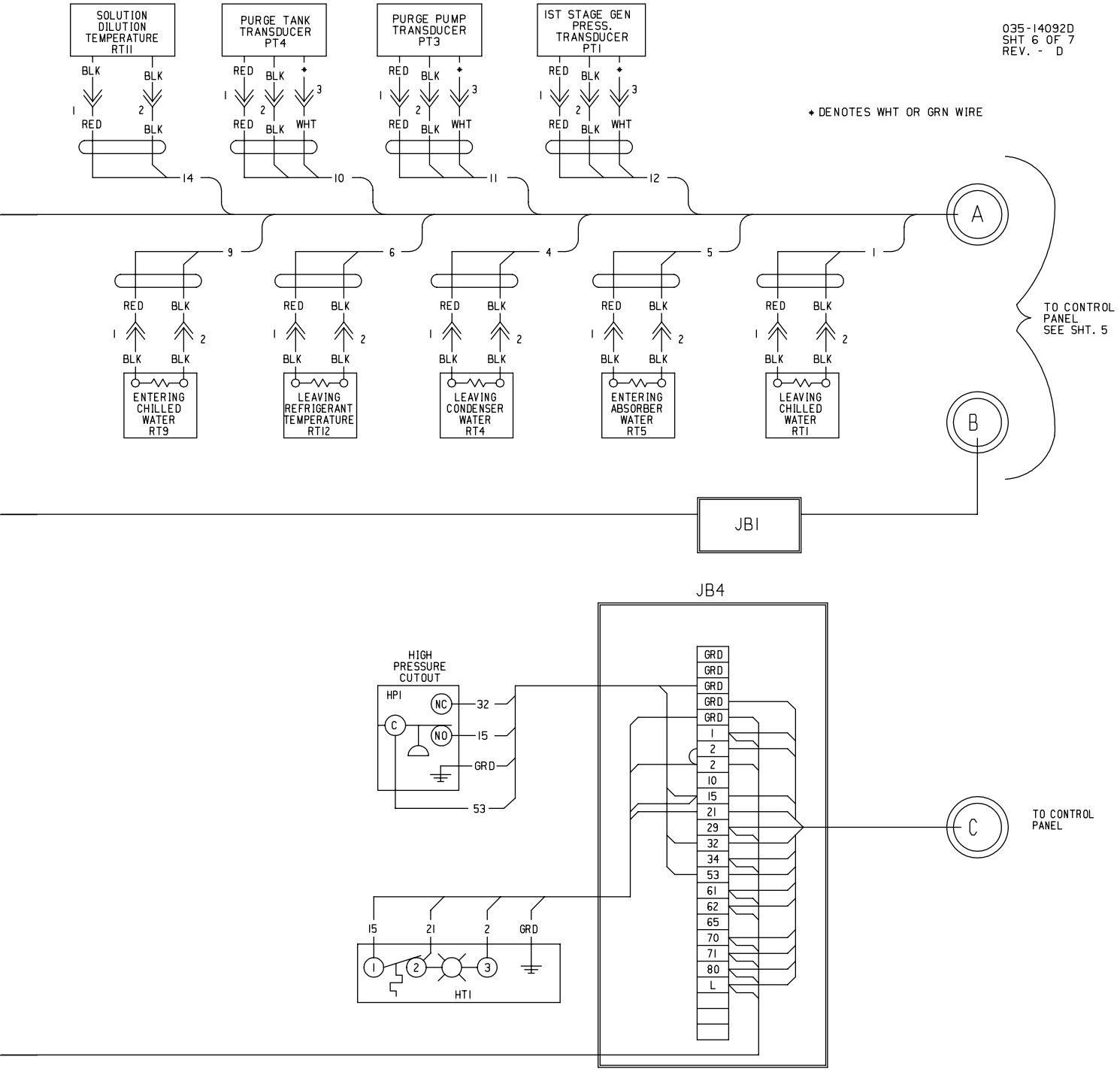


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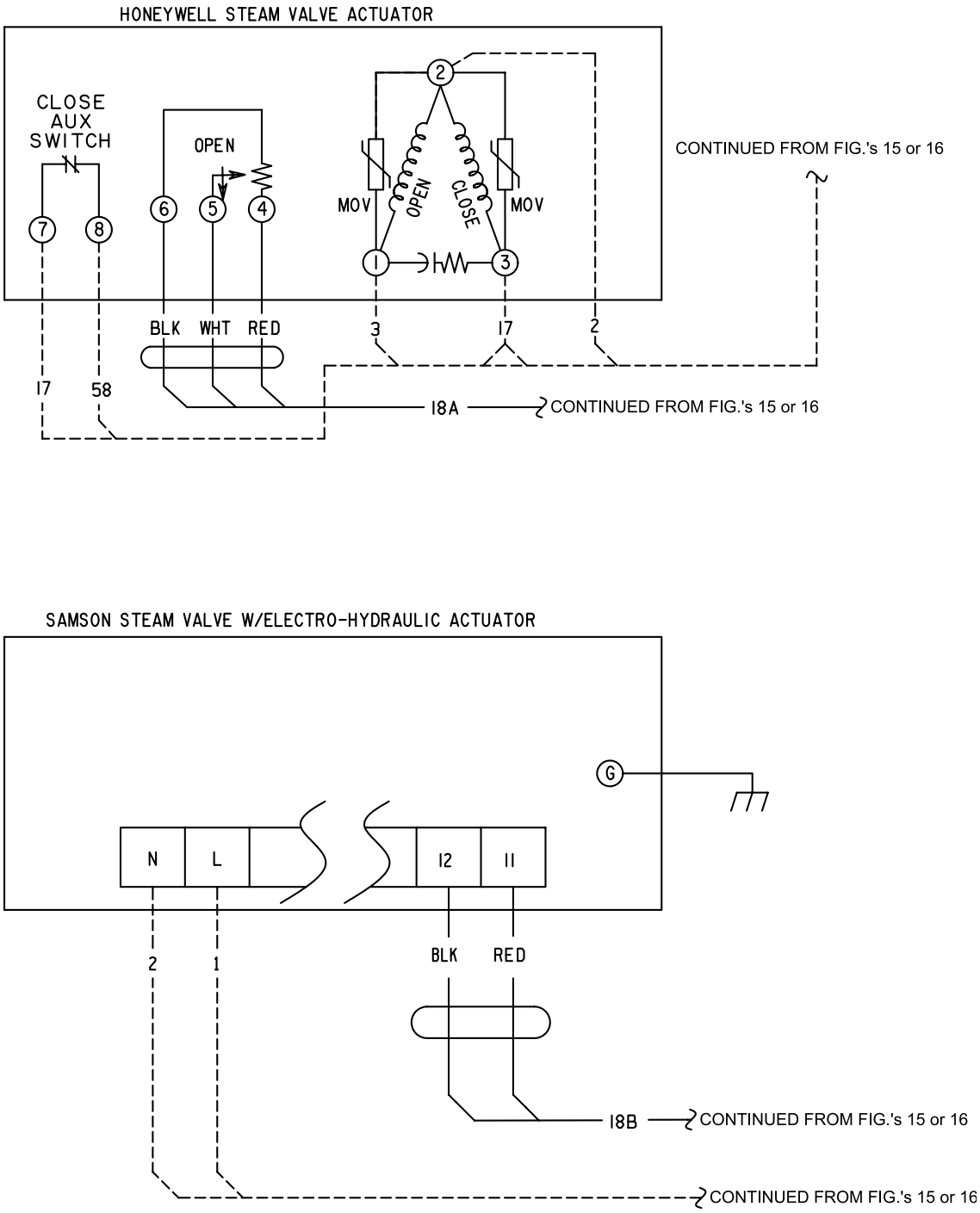
**FIGURE 15 –** CONNECTION DIAGRAM (CE) (CONT'D)

# STEAM VALVE ACTUATORS




LD12796

**FIGURE 16 -** STEAM VALVE ACTUATORS

# STEAM PRESSURE - TEMPERATURE CHART

| PRESSURE - TEMP CHART | | | | | | | |
|---|---|---|---|---|---|---|---|
| APPLICATION | DEVICE | SIGNAL TYPE | UNITS | OPERATING POINT | | | |
| STEAM | | | | ON RISE (INCREASING) | | ON FALL (DECREASING) | |
| COOLING | | | | | | | |
| ✔ | 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 | Shutdown 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 Recovery/Variable See 155.17-O2 | | Alarm / Load Limit 36/2.2• Shutdown /Variable See 155.17-O2 | |
| ✔ | LWT | Analog | DEG.F / DEG.C | Restart > 1 DEG. F (See 155.17-O2 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 | |

• With Jumper J13 Removed

+ Other Conditions Apply See 155.17-O2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