

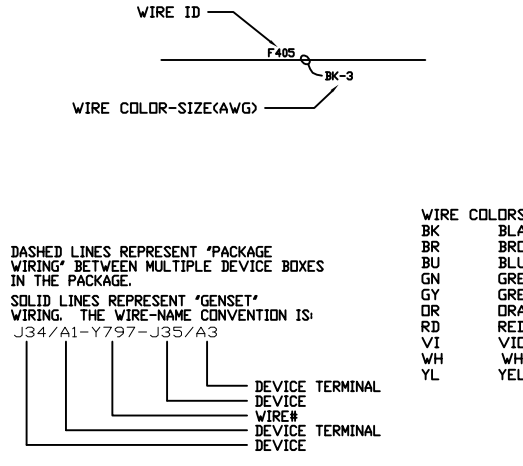
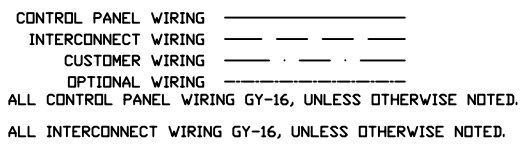
- 25 SYNC CHECK RELAY
- 27/59 OVER/UNDER VOLTAGE
- 32 REVERSE POWER RELAY
- 40 LOSS OF EXCITATION RELAY
- 47 UNDERVOLTAGE PHASE SEQUENCE RELAY
- 50 INSTANTANEOUS OVERCURRENT RELAY
- 51 TIME OVERCURRENT RELAY
- 52 CIRCUIT BREAKER
- 59 OVERVOLTAGE RELAY
- 62 TIME DELAY RELAY
- 65 OVERDR
- 810/U OVER/UNDER FREQUENCY RELAY
- 86 LOCKOUT RELAY
- 87 DIFFERENTIAL RELAY
- A AMPERE
- A4/E4 ADEM ENGINE CONTROLLER
- AC ALTERNATING CURRENT
- ADEM ADVANCED DIGITAL ENGINE MANAGEMENT
- AI ANALOG INPUT
- ALT ALTERNATOR
- AMR AUTO MODE RELAY (EMCP IN AUTO)
- ANNUN ANNUNCIATOR
- AO ANALOG OUTPUT
- ASR AUTO START RELAY
- AR ARBITRATION RELAY
- ATS AUTOMATIC TRANSFER SWITCH
- AUX AUXILIARY
- AUTO AUTOMATIC
- BATT BATTERY
- BBSR BEST BATTERY SOURCE RELAY
- BC BATTERY CHARGER
- B- BATTERY NEGATIVE
- B+ BATTERY POSITIVE
- CAE COMMON ALARM RELAY
- CB CIRCUIT BREAKER
- CBC CIRCUIT BREAKER CLOSE
- CBOR CIRCUIT BREAKER OPEN RELAY
- CBS CIRCUIT BREAKER SWITCH
- CBT CIRCUIT BREAKER TRIP
- CDL CAT DATA LINK
- CDVR CATERPILLAR DIGITAL VOLTAGE REGULATOR
- CDTR COOLDOWN TIMER RELAY
- CLFSD CRITICAL LOW FUEL SHUTDOWN
- CONN CONNECTOR
- CT CURRENT TRANSFORMER
- CTR CRANK TERMINATION RELAY
- CTSB CT SHORTING BLOCK
- D DIODE
- DBR DEAD BUS RELAY
- DDI DEDICATED DIGITAL INPUT
- DI DIGITAL INPUT
- DDI DEDICATED ISOLATED DIGITAL INPUT
- DI0 DIGITAL INPUT/OUTPUT MODULE
- DI0 DIGITAL OUTPUT
- ECM ENGINE CONTROL MODULE
- EMCP ELECTRONIC MODULAR CONTROL PANEL
- EPR EMCP POWER RELAY
- ERR ENGINE RUN RELAY
- ESPB EMERGENCY STOP BUTTON
- E-STOP EMERGENCY STOP
- EXC EXCITER
- EXT EXTERNAL
- F FUSE
- FCS FUEL TRANSFER CONTROL SWITCH
- FLG FUEL LEVEL GAUGE
- FLT FAULT
- FMS FUEL TRANSFER MODE SWITCH
- FS FUEL SENSOR
- FAR FUEL ALARM RELAY
- FMR FREQUENCY MODE RELAY
- FMRX FREQUENCY MODE RELAY SLAVE
- FTR FUEL TANK RUPTURE
- G3R GROUP 3 RELAY
- GCB GEN CIRCUIT BREAKER
- GCBR GENERATOR CIRCUIT BREAKER RELAY
- GCM GAUGE CONTROL MODULE
- GCT GROUND SENSE CURRENT TRANSFORMER
- GEN (G) GENERATOR
- GMB GENERATOR MULTIFUNCTION RELAY
- GPC GENERATOR PARALLELING CONTROL
- GSH GENERATOR SPACE HEATER
- GSHR GENERATOR SPACE HEATER RELAY

- GRR GLOBAL RUN REQUEST
- HC HEATER CONTACTOR
- HWDBA HARD WIRED DEAD BUS ARBITRATION
- HWLSLD HARD WIRED LOAD SENSE LOAD DEMAND
- HVL HIGH VOLTAGE LIGHT
- IDI ISOLATED DIGITAL INPUT
- IRS IDLE/RATED SWITCH
- JWH JACKET WATER HEATER
- KW KILDWATT
- LBR LINKBOARD RELAY
- LBS LINKBOARD SWITCH
- LDS LOAD DOOR SOLENOID
- LDSRB LOAD DOOR SOLENOID RESISTOR BOARD
- LFLSA LDW FUEL LEVEL SWITCH ALARM
- LMR LEGACY MODE RELAY
- LR LOAD RELAY (FUEL)
- LRX LOAD RELAY SLAVE (FUEL)
- LVL LDW VOLTAGE LIGHT
- MAN MANUAL
- MCH SPRING CHARGING MOTOR (GCB)
- MCM 1000 CIRCULAR MILS
- MMR MANUAL MODE RELAY (EMCP IN RUN)
- MN UNDERVOLTAGE TRIP (GCB)
- MPU MAGNETIC PICK-UP
- NAC NORMAL AFTER CLOSE
- NAT NORMAL AFTER TRIP
- N.C. NORMALLY CLOSED
- NIA NOT IN AUTO
- NEU (N) NEUTRAL
- N.O. NORMALLY OPEN
- OFS OVERFLOW SWITCH (FUEL TANK)
- OIP OPERATOR INTERFACE PANEL
- OFM OFF MODE RELAY (EMCP IN OFF)
- DVL OVERLOAD
- PAR PARALLELED WITH UTILITY RELAY
- PCS PARALLELING CONTROLS SWITCH (ON/OFF)
- PICR PARALLELING INTERCONNECT RELAY
- PICRX PARALLELING INTERCONNECT RELAY SLAVE
- PIR PARALLELING INHIBIT RELAY
- PF POWER FACTOR
- PLL PUMP LOAD LIGHT
- PS PINION SOLENOID
- PSHD PRIMARY UNIT SHIELD
- PMG PERMANENT MAGNET GENERATOR
- POT POTENTIOMETER
- PPS PRIMING PUMP SWITCH
- PSS PERSONNEL SAFETY SWITCH
- PT POTENTIAL TRANSFORMER
- PTL PULL TO LOCK
- PUL PRIMARY UNIT LIGHT
- PULL PUMP UNLOAD LIGHT
- PUR PRIMARY UNIT RELAY
- PWM PULSE WIDTH MODULATION
- PWO PULSE WIDTH OUTPUT
- PWUR PARALLELED W/ UTILITY RELAY
- RBS RUPTURE BASIN SWITCH
- R RELAY
- RDBA RELAY DEAD BUS ARBITRATION
- RES RESISTOR
- REF REFERENCE
- RSES REMOTE START ENABLE SWITCH
- RSS REMOTE START SWITCH
- RSR REMOTE START RELAY
- RTN RETURN
- SC SHUNT COIL
- SCN SCREEN (SHIELD)
- SDE BELL ALARM CONTACT
- SHD SHIELD/SHIELDED
- SHDN SHUTDOWN
- SM STARTER MOTOR
- SPSR SHORE POWER SOURCE RELAY
- SPWR SHORE POWER
- SMMS STARTER MOTOR MAGNETIC SWITCH
- SP SPEED POTENTIOMETER
- SR SLAVE RELAY
- SSR SOURCE SELECTOR RELAY
- TERM TERMINATION
- T.O.M. TETHERED OPERATING MODULE
- TR TRIP UNIT (GCB)
- UCBR UTILITY CIRCUIT BREAKER RELAY
- UMR UTILITY MULTIFUNCTION RELAY
- UR UNLOAD RELAY (FUEL)
- URX UNLOAD RELAY SLAVE (FUEL)
- UTTR UTILITY TRANSFER TRIP RELAY
- VAR VOLT-AMPERES REACTIVE
- VFSS VOLTAGE/FREQUENCY SELECT SWITCH
- XF CLOSE COIL (GCB)
- a NORMALLY OPEN CONTACT
- b NORMALLY CLOSED CONTACT
- c a AND b WITH COMMON
- mA MILLIAMPERE
- mV MILLIVOLT
- A PHASE
- B PHASE
- C PHASE

INPUT/OUTPUT CONTENTS

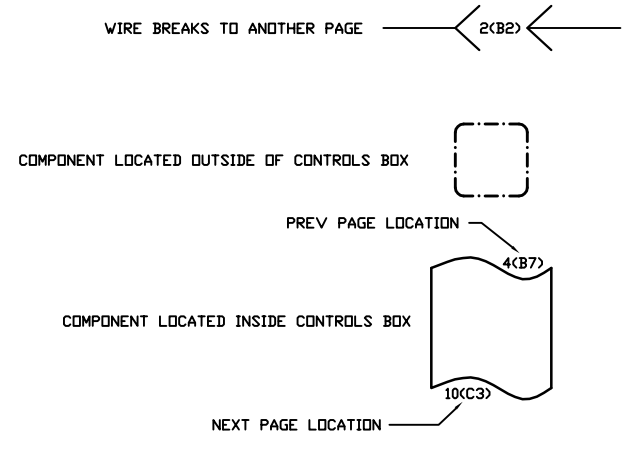
I/O#	FUNCTION
EMCP RELAYS (DIGITAL OUTPUTS)	
R01	FUEL LEVEL HIGH ALARM
R02	OFF MODE
R03	REDUCED POWER MODE OFF (NOTE D)
R04	ENGINE START INITIATED
R05	COMMON SHUTDOWN
R06	VOLTAGE SELECTION IS LOW
R07	STOP MODE
R08	COMMON ALARM
R09	AUTO MODE
R10	ENGINE RUNNING
R11	VOLTS/ HZ WITHIN LIMITS
R12	TRANSFER FUEL IN
R13	TRANSFER FUEL OUT
R14	FREQUENCY SELECTION IS LOW
R15	DISABLE AUX AC
R16	FUEL LEVEL LOW ALARM
R17	LIVE BUS INDICATION
EMCP INPUTS	
DDI-01	EMERGENCY STOP INPUT
DDI-02	REMOTE INITIATE COMMAND
DDI-03	GENERATOR CIRCUIT BREAKER AUX a
DDI-04	GENERATOR CIRCUIT BREAKER AUX b
DI-01	IDLE MODE COMMAND
DI-02	EMERGENCY STOP SWITCH (EXTERNAL)
DI-03	UTILITY BBREAKER AUX a (BASELOAD MODE)
DI-04	TANK LEAK
DI-05	AUTO LOAD FUEL
DI-06	AUTO UNLOAD FUEL
DI-07	DISABLE AUTO PARALLELING CMD
DI-08	SMS IN CHECK
IDI-01	VOLTAGE SELECTION IS LOW
IDI-02	FREQUENCY SELECTION IS LOW
IDI-03	CUSTOM (LOCK-OUT RELAY TRIPPED)
IDI-04	KVAR POWER SHARE INHIBIT
DDI-01	GROUP START INPUT
DDI-02	BELL ALARM
DDI-03	GENERATOR CIRCUIT BREAKER TRIP COMMAND
DDI-04	GENERATOR CIRCUIT BREAKER CLOSE COMMAND
EMCP ANALOG INPUTS	
A11	AVAILABLE
A12	AVAILABLE
A13	FUEL LEVEL
A14	AVAILABLE
EMCP ANALOG OUTPUTS	
A01	FUEL LEVEL DISPLAY
A02	AVAILABLE
A03	AVAILABLE
EMCP PWM OUTPUTS	
PW01	AVAILABLE
PW02	AVAILABLE

400V 50Hz	480V 60Hz		
208V 60Hz	240V 60Hz		
POSITION 1	POSITION 2		
GROUP SELECTION			
SELECTION	VFSS	LINKBOARD	GROUP#
480V 60 Hz	2	HV	1
240V 60Hz	2	LV	2
400V 50Hz	1	HV	3
208V 60Hz	1	LV	4



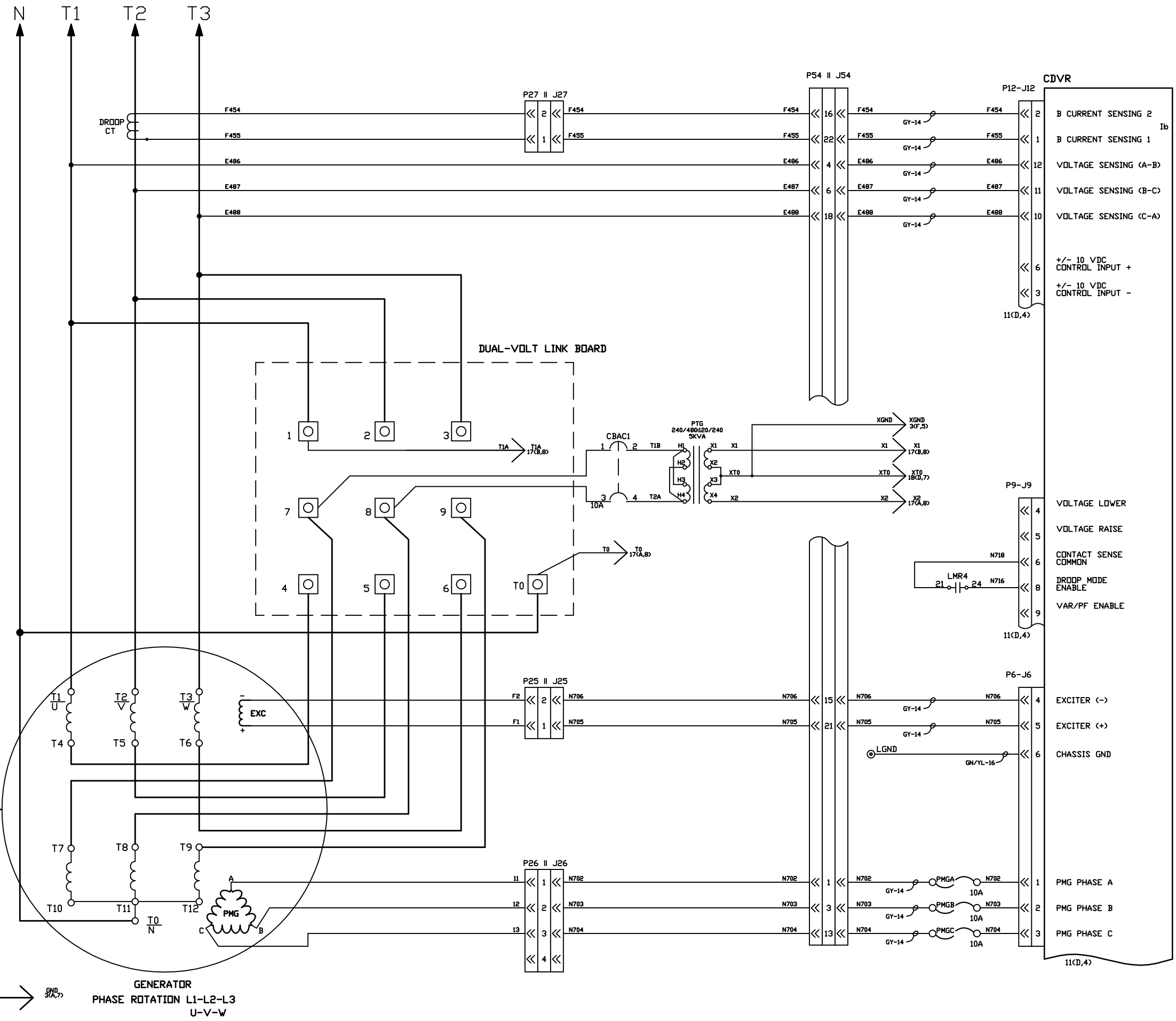
- CONTROL PANEL WIRING
- INTERCONNECT WIRING
- CUSTOMER WIRING
- OPTIONAL WIRING
- ALL CONTROL PANEL WIRING GY-16, UNLESS OTHERWISE NOTED.
- ALL INTERCONNECT WIRING GY-16, UNLESS OTHERWISE NOTED.
- WIRE ID
- WIRE COLOR-SIZE(AWG)
- WIRE COLORS:
- BK BLACK
- BR BROWN
- BU BLUE
- GN GREEN
- GY GREY
- DR DRANGE
- RD RED
- VI VIOLET
- WH WHITE
- YL YELLOW

- NOTE A: CLOSURE PLUG MUST BE INSTALLED WHEN UMR OPTION IS NOT INSTALLED.
- NOTE B: INSTALL SCREWS IN EACH HOLE ON SHORTING BLOCK WHILE CTS ARE NOT IN USE. WHEN CTS ARE IN USE, REMOVE SCREWS ON WIRES LABELED F448, F450, & F452. DO NOT REMOVE SCREWS FOR F453 WIRES..
- NOTE C: WHEN OPERATING EMCP 4.4 IN LEGACY MODE, ONLY ONE UNIT (PRIMARY UNIT) SHOULD JUMPER 93 TO 94 IN INTERCONNECT BOX. WHEN OPERATING EMCP 4.4 IN STAND ALONE MODE JUMPER 93 TO 94. WHEN OPERATING EMCP 4.4 IN PARALLELING MODE (EMCP 4.4 ONLY BASED CONTROLS) JUMPER 93 TO 94 ON ALL UNITS. ALLOWS BREAKER CLOSURE TO A DEAD BUS.
- NOTE D: SPARE CIRCUITS BETWEEN INTERCONNECT BOX AND AC/DC BOX.
- NOTE E: UTILITY CKT BKR STATUS. CONNECT TO AUX "a" NORMALLY OPEN CONTACT OF UTILITY CIRCUIT BREAKER.
- NOTE F: UTILITY TRANSFER TRIP. OPENS CKT BKR AND ACTIVATES 86 LOCKOUT UNTIL MANUALLY RESET.
- NOTE G: SHIELD WIRES SHOULD BE CONNECTED TO TERMINAL BLOCKS ON PRIMARY UNIT ONLY. ON MIDDLE UNITS, CONNECT SHIELDS TOGETHER. ON END UNIT, DO NOT CONNECT SHIELD WIRES.
- NOTE H: WHEN CONNECTING THE EMCP 4.4 TO LEGACY UNITS (WITH LOAD SHARE MODULES) FOR ISLAND MODE LOAD SHARING, VAR SHARING IS NOT AVAILABLE. CONNECT LS+ AND LS- AMONG ALL UNITS AND USE VOLTAGE DROOP TO REGULATE VARS. DO NOT CONNECT VS+ AND VS- ON ANY UNITS.
- NOTE I: PARAMETER SET TO DISABLED AS DEFAULT, OPERATOR TO SET AS LISTED WHEN DESIRED AND NOT USING GROUP START
- NOTE J: END USER TO INSTALL JUMPER ON FIRST UNIT ONLY WHEN CONNECTED FOR PARALLELING



ALTORFER		ALTORFER POWER SYSTEMS	
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CHANGE NOTICE	ALL DIMENSIONS IN INCHES UNLESS OTHERWISE SPECIFIED	FILE	PROJECT REFERENCE
	TOLERANCES: XX ± 0.100 ANGLE THIRD PROJECTION XXX ± 0.050 SHEET	SCALE/SHEET SIZE 1=40/D	DRAWN BY D. RICHARDSON
	ANGULAR ± 1°	1 OF 23	DATE 8/15/14
	TITLE SCHEMATIC	SHEET	WORK ORDER NUMBER
APS1000A EMCP 4.4		DRAWING NUMBER	81E500

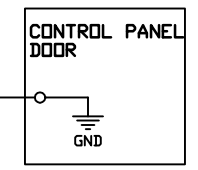
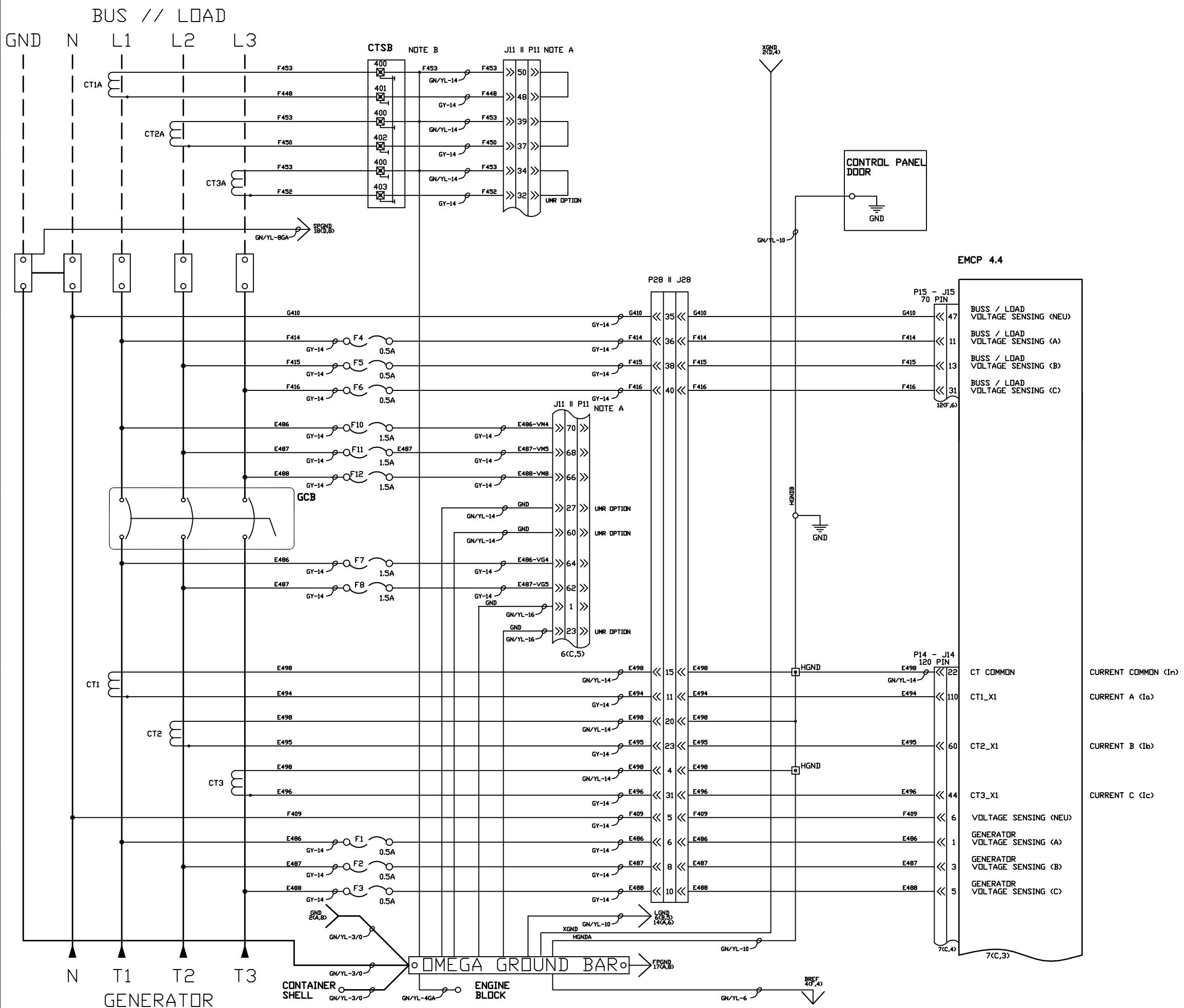
GENERATOR



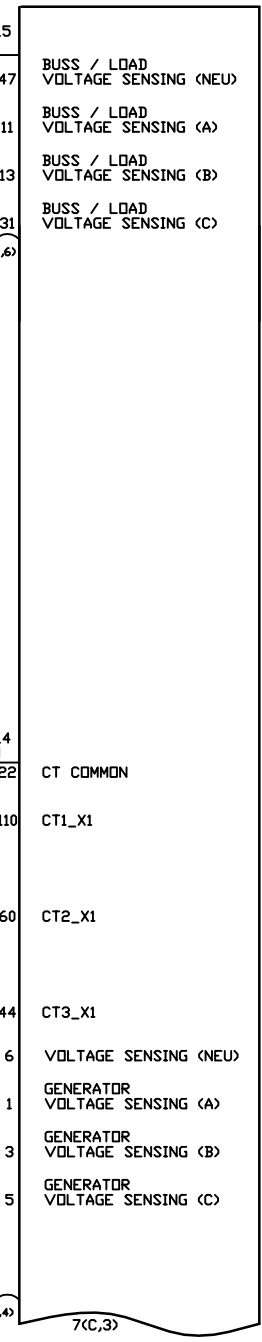
GENERATOR
PHASE ROTATION L1-L2-L3
U-V-W

AC GENERATOR AND REGULATOR SENSING
FOR NOTES SEE SHEET ONE

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CHANGE NOTICE ALL DIMENSIONS IN INCHES UNLESS OTHERWISE SPECIFIED TOLERANCES: XX ± 0.100 XXX ± 0.050 XXXX ± 0.025 ANGULAR ± 1°	FILE DF/81E	SCALE/SHEET SIZE 1=40/D	PROJECT REFERENCE APS1000A
	THIRD ANGLE PROJECTION	SHEET 2 OF 23	DRAWN BY D. RICHARDSON
	TITLE SCHEMATIC APS1000A EMCP 4.4	DATE 8/15/14	QUOTE NUMBER -
	DRAWING NUMBER 81E500	WORK ORDER NUMBER -	DRAWING NUMBER 81E500

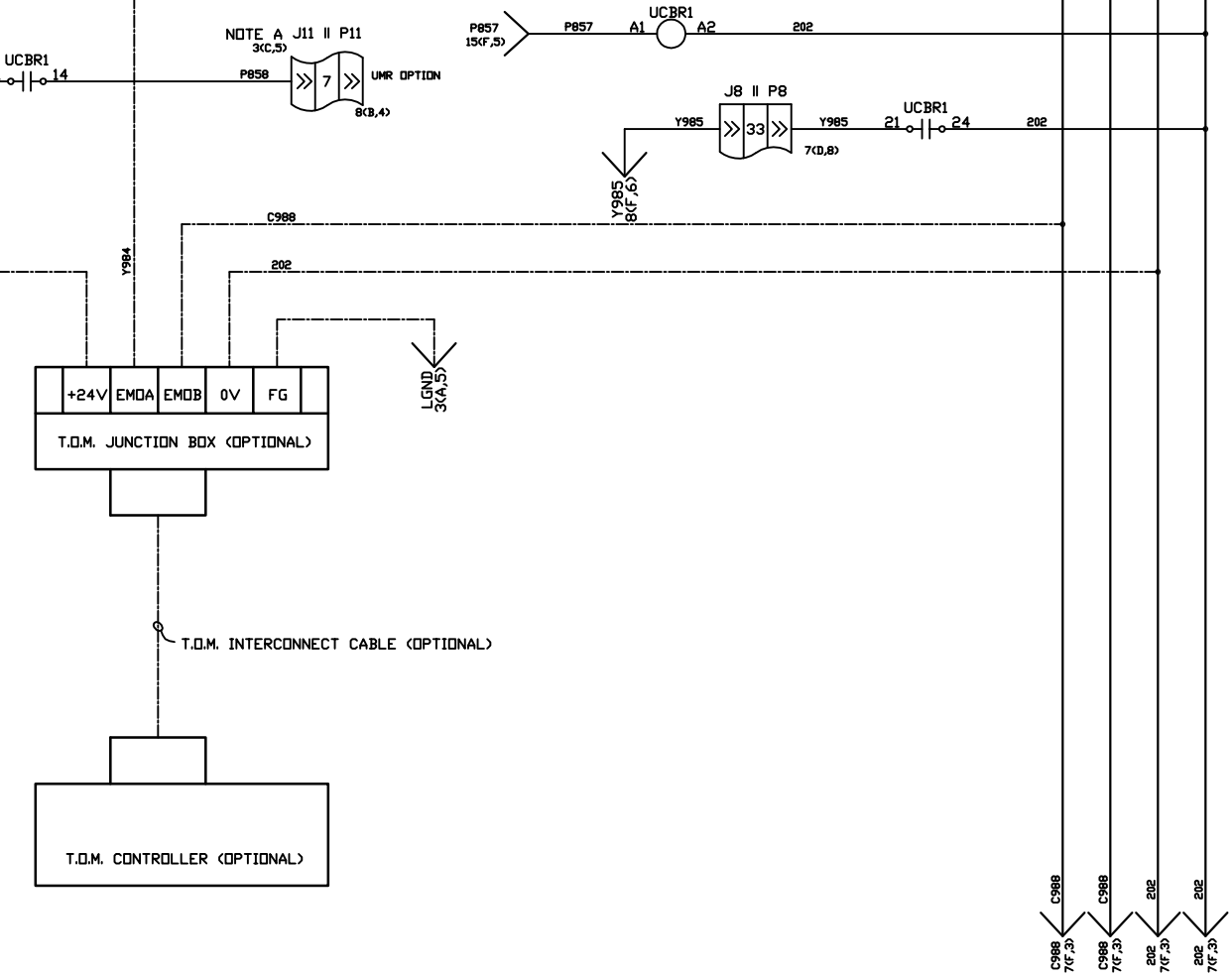
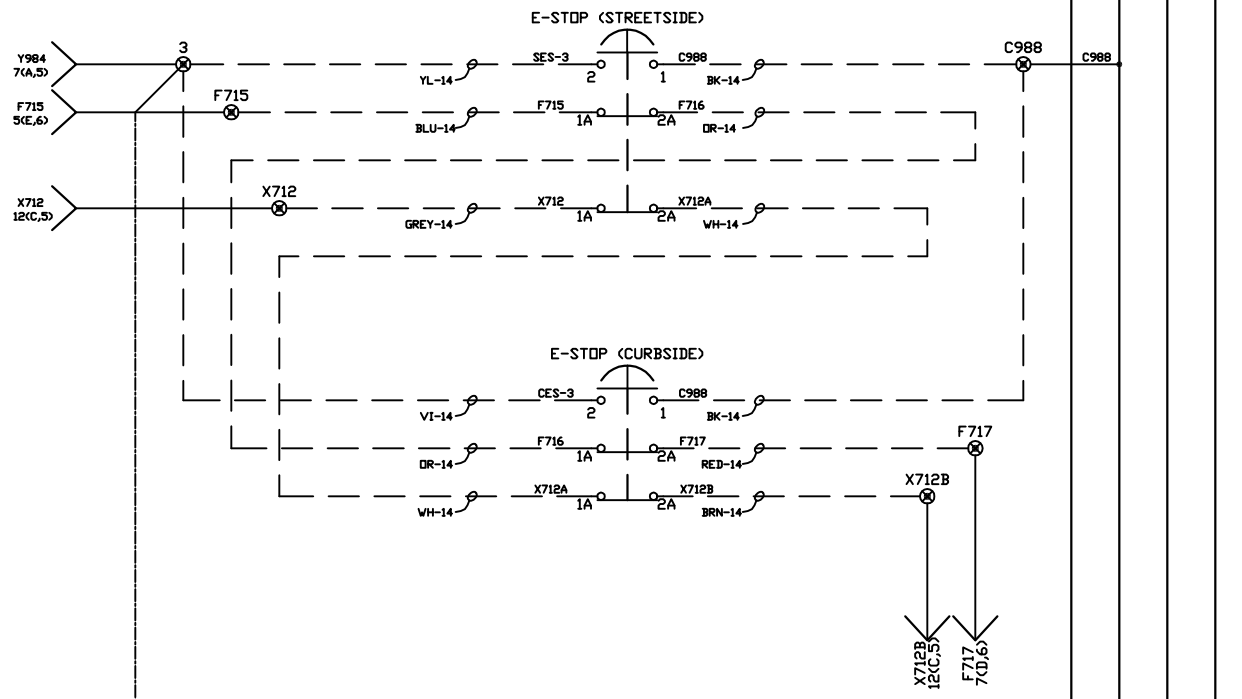
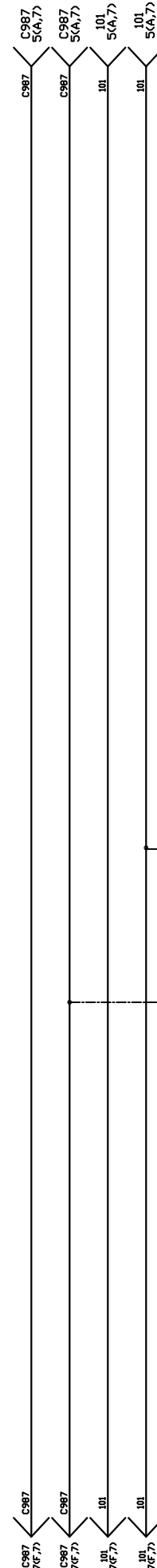


EMCP 4.4



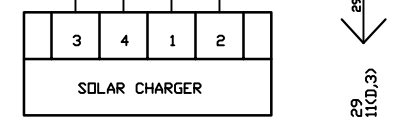
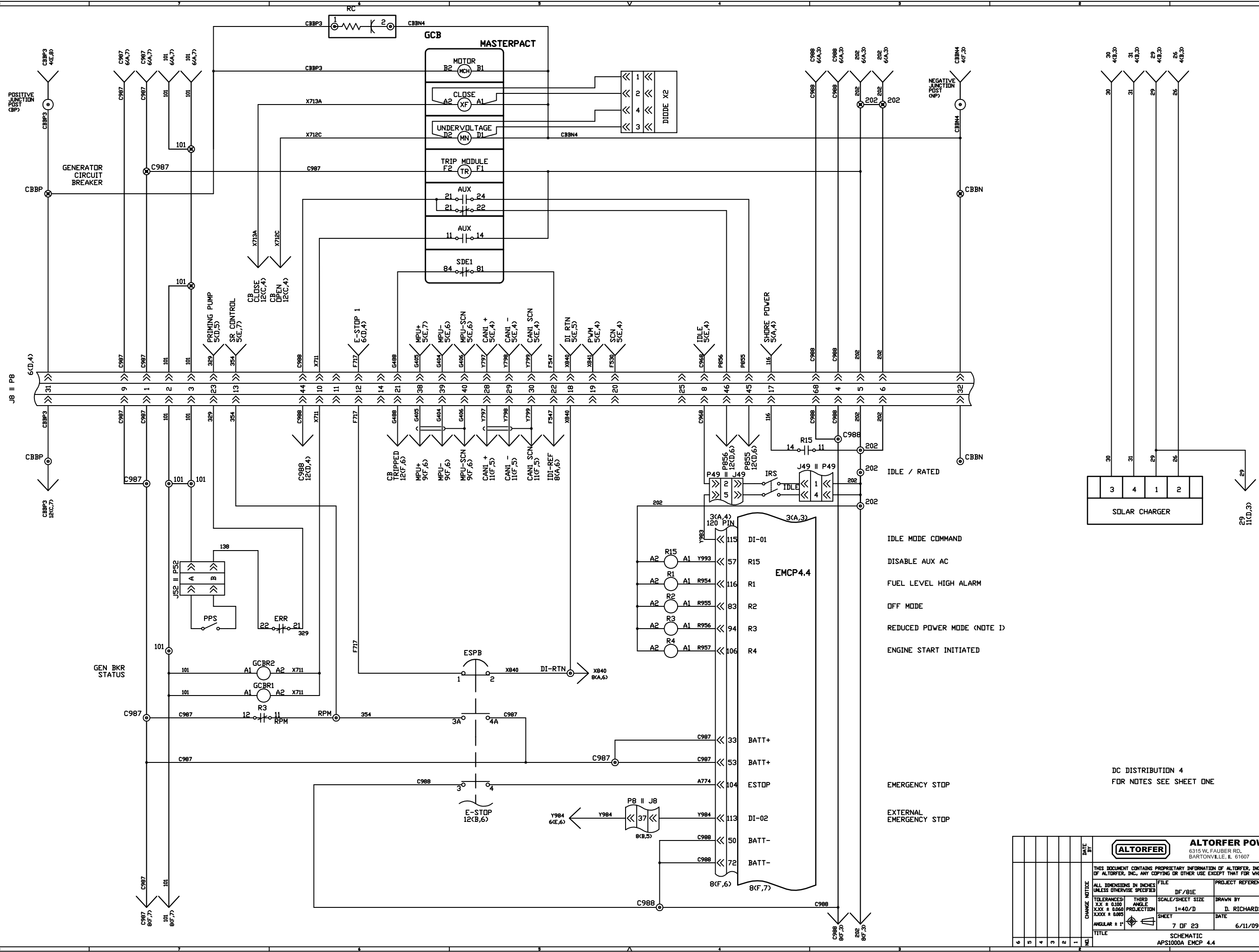
AC EMCP SENSING FOR NOTES SEE SHEET ONE

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	SCALE/SHEET SIZE 1=40/D	DRAWN BY D. RICHARDSON	WORK ORDER NUMBER -
	SHEET 3 OF 23	DATE 8/15/14	DRAWING NUMBER 81E500
	TITLE SCHEMATIC APS1000A EMCP 4.4		



DC DISTRIBUTION 3
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	SCALE/SHEET SIZE 1=40/D	DRAWN BY D. RICHARDSON	QUOTE NUMBER -
	SHEET 6 OF 23	DATE 8/15/14	WORK ORDER NUMBER -
	TITLE SCHEMATIC APS1000A EMCP 4.4	DRAWING NUMBER 81E500	



- IDLE / RATED
- IDLE MODE COMMAND
- DISABLE AUX AC
- FUEL LEVEL HIGH ALARM
- OFF MODE
- REDUCED POWER MODE (NOTE 1)
- ENGINE START INITIATED
- BATT+
- BATT+
- EMERGENCY STOP
- EXTERNAL EMERGENCY STOP

DC DISTRIBUTION 4
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	SCALE/SHEET SIZE 1=40/D	DRAWN BY D. RICHARDSON	WORK ORDER NUMBER -	
	SHEET 7 OF 23	DATE 6/11/09	DRAWING NUMBER 81E500	TITLE SCHEMATIC APS1000A EMCP 4.4
	TITLE SCHEMATIC APS1000A EMCP 4.4			DRAWING NUMBER 81E500

UTILITY BREAKER AUX α
(BASELOAD MODE)

REMOTE START

TANK LEAK ALARM

AUTO
LOAD FUEL

AUTO
UNLOAD FUEL

KW SHARE INHIBIT

SMS IN CHECK

COMMON SHUTDOWN

VOLTAGE SELECTION IS LOW

STOP MODE

COMMON ALARM

AUTO MODE

ENGINE RUNNING

VOLTS/HZ WITHIN LIMITS

AUTO LOAD FUEL

AUTO UNLOAD FUEL

FREQUENCY SELECTION IS LOW

FUEL LEVEL LOW ALARM

VOLTAGE SELECTION IS LOW

FREQUENCY SELECTION IS LOW

CUSTOM
(LOCK OUT
RELAY TRIPPED)
KVAR SHARE INHIBIT

ISOLATED DIGITAL
INPUT REFERENCE

EMCP 4.4

7(A,4)

DI-03

82

7(A,4)

120 PIN

Y985

BASELOAD
6(C,5)

Y985

879

START

91

879

15(E,7)

Y986

DI-04

93

Y986

Y986

Y986

Y986

Y987

DI-05

103

Y987

Y988

DI-06

81

Y988

Y989A

DI-07

102

Y989A

Y990

DI-08

92

Y990

R5

84

R958

R6

95

R959

R7

105

R960

R8

68

R961

R9

67

R962

R10

66

R963

R11

65

R964

R12

75

R965

R13

59

R966

R14

58

R968

R16

73

Y994

IDI-01

109

F405

IDI-02

120

F406

IDI-03

108

F407

IDI-04

107

F408

IDI-REF

118

F547

9(F,7)

9(F,6)

101

LMRS

11

145

PICR

11

146

Y723

36

Y723

5(E,4)

Y723

7

IDI-REF

12(F,4)

9(F,5)

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FUEL LEVEL GAUGE

FUEL LEVEL SIGNAL ANALOG OUTPUT 1 +

ANALOG OUTPUT 1 -

ANALOG OUTPUT 1 SCN

ANALOG DUPUT 2 +

ANALOG OUTPUT 2 -

ANALOG OUTPUT 2 SCN

ANALOG DUPUT 3 +

ANALOG OUTPUT 3 -

ANALOG OUTPUT 3 SCN

PWM DUPUT 1 +

PWM OUTPUT 1 -

PWM OUTPUT 1 SCN

PWM DUPUT 2 +

PWM OUTPUT 2 -

PWM OUTPUT 2 SCN

ANALOG INPUT 1 POWER

ANALOG INPUT 1 +

ANALOG INPUT 1 -

ANALOG INPUT 1 SCN

ANALOG INPUT 2 POWER

ANALOG INPUT 2 +

ANALOG INPUT 2 -

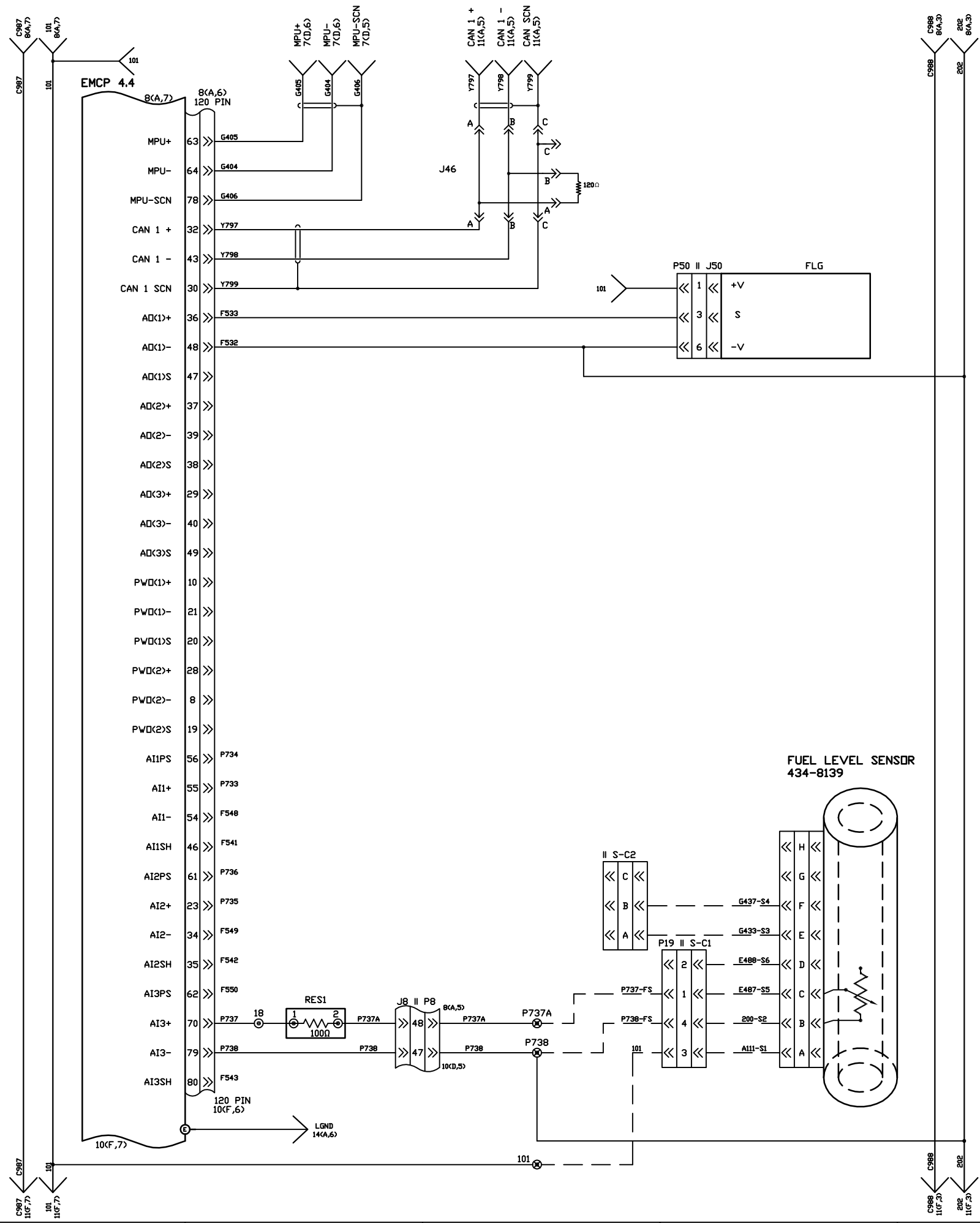
ANALOG INPUT 2 SCN

ANALOG INPUT 3 POWER

FUEL LEVEL SIGNAL ANALOG INPUT 3 +

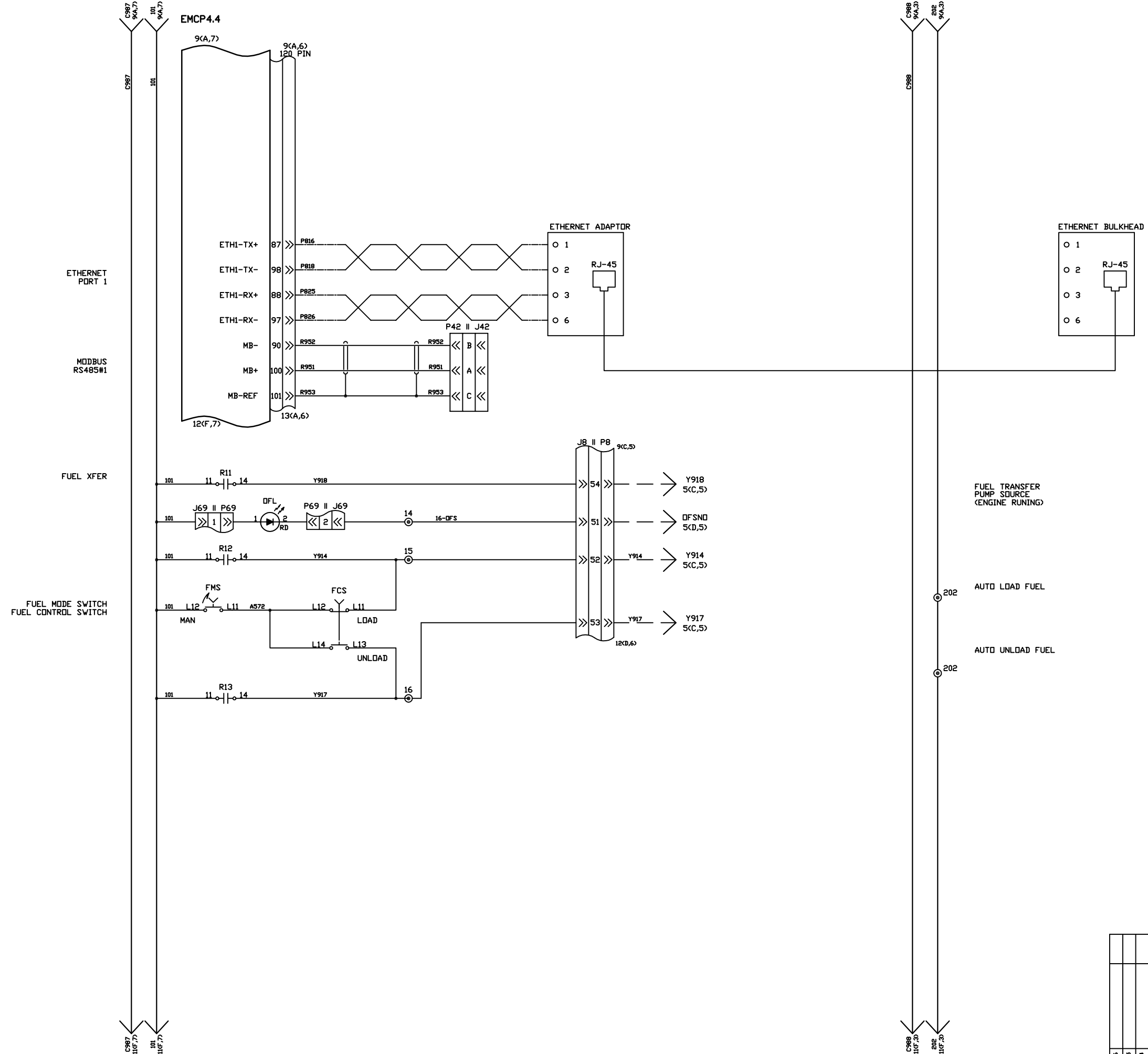
FUEL LEVEL - ANALOG INPUT 3 -

ANALOG INPUT 3 SCN



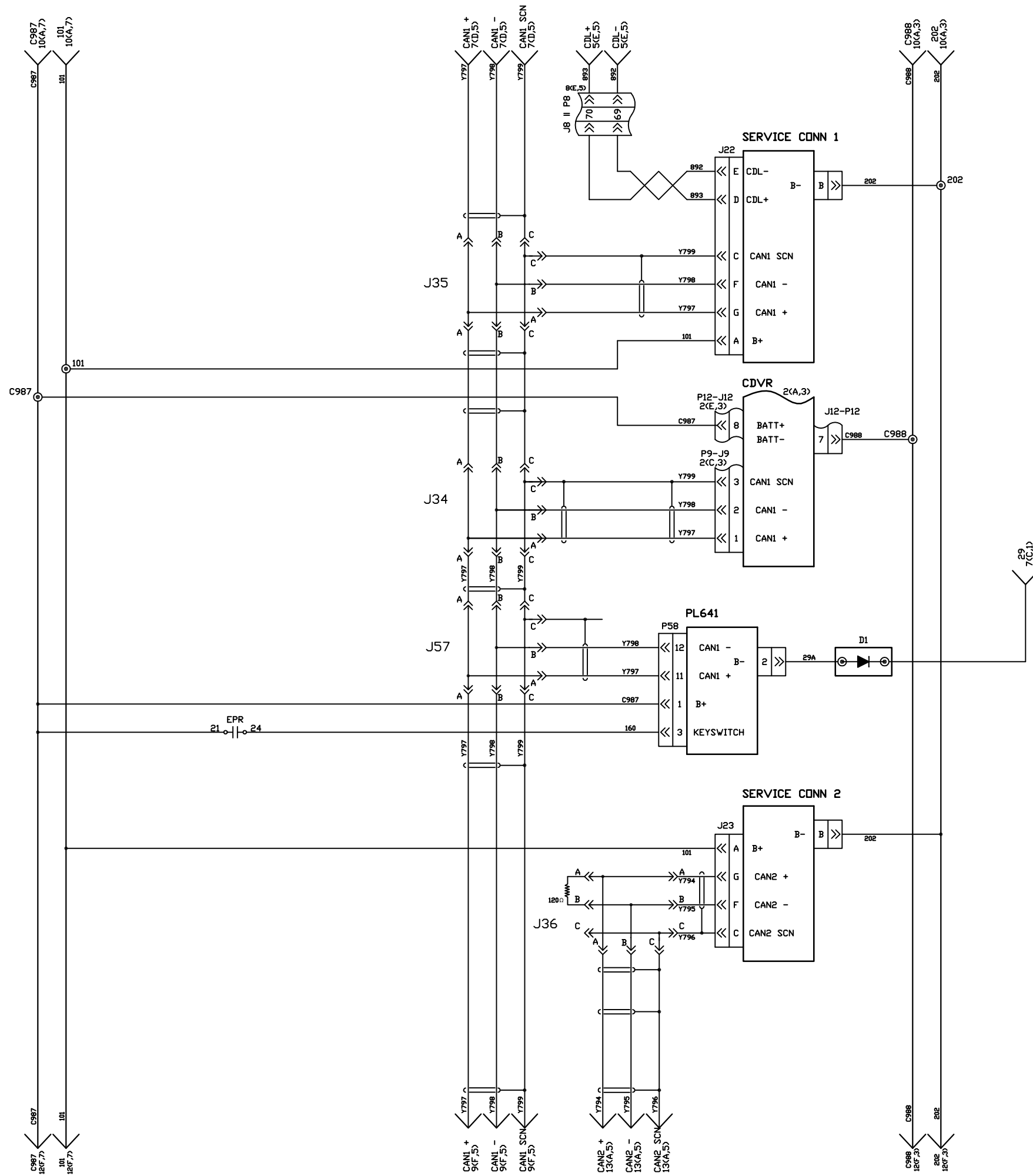
DC DISTRIBUTION 6
FOR NOTES SEE SHEET ONE

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CHANGE NOTICE ALL DIMENSIONS IN INCHES UNLESS OTHERWISE SPECIFIED TOLERANCES: XX ± 0.100 XXX ± 0.050 ANGLE PROJECTION SHEET ANGULAR ± 1° TITLE	FILE DF/81E	SCALE/SHEET SIZE 1=40/D	PROJECT REFERENCE APS1000A	
	DRAWN BY D. RICHARDSON	QUOTE NUMBER -	DATE 8/15/14	
	SHEET 9 OF 23	WORK ORDER NUMBER -	DRAWING NUMBER 81E500	TITLE SCHEMATIC APS1000A EMCP 4.4
	INCH 81E500			



DC DISTRIBUTION 7
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CHANGE NOTICE ALL DIMENSIONS IN INCHES UNLESS OTHERWISE SPECIFIED TOLERANCES: XX ± 0.100 XXX ± 0.050 ANGULAR ± 1°	FILE DF/81E	PROJECT REFERENCE APS1000A	
	SCALE/SHEET SIZE 1=40/D	DRAWN BY D. RICHARDSON	QUOTE NUMBER -
	SHEET 10 OF 23	DATE 8/15/14	WORK ORDER NUMBER -
	TITLE SCHEMATIC APS1000A EMCP 4.4		DRAWING NUMBER 81E500



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CHANGE NOTICE ALL DIMENSIONS IN INCHES UNLESS OTHERWISE SPECIFIED TOLERANCES: .XX ± 0.100 .XXX ± 0.050 .XXX ± 0.025 ANGULAR ± 1°	FILE DF/81E	PROJECT REFERENCE APS1000A	QUOTE NUMBER -
	SCALE/SHEET SIZE 1=40/D	DRAWN BY D. RICHARDSON	WORK ORDER NUMBER -
	SHEET 11 OF 23	DATE 8/15/14	DRAWING NUMBER 81E500
	TITLE SCHEMATIC APS1000A EMCP 4.4		

GROUP START INPUT
 BELL ALARM
 (CIRCUIT BREAKER TRIPPED)
 GENERATOR CIRCUIT BREAKER
 TRIP COMMAND
 GENERATOR CIRCUIT BREAKER
 CLOSE COMMAND

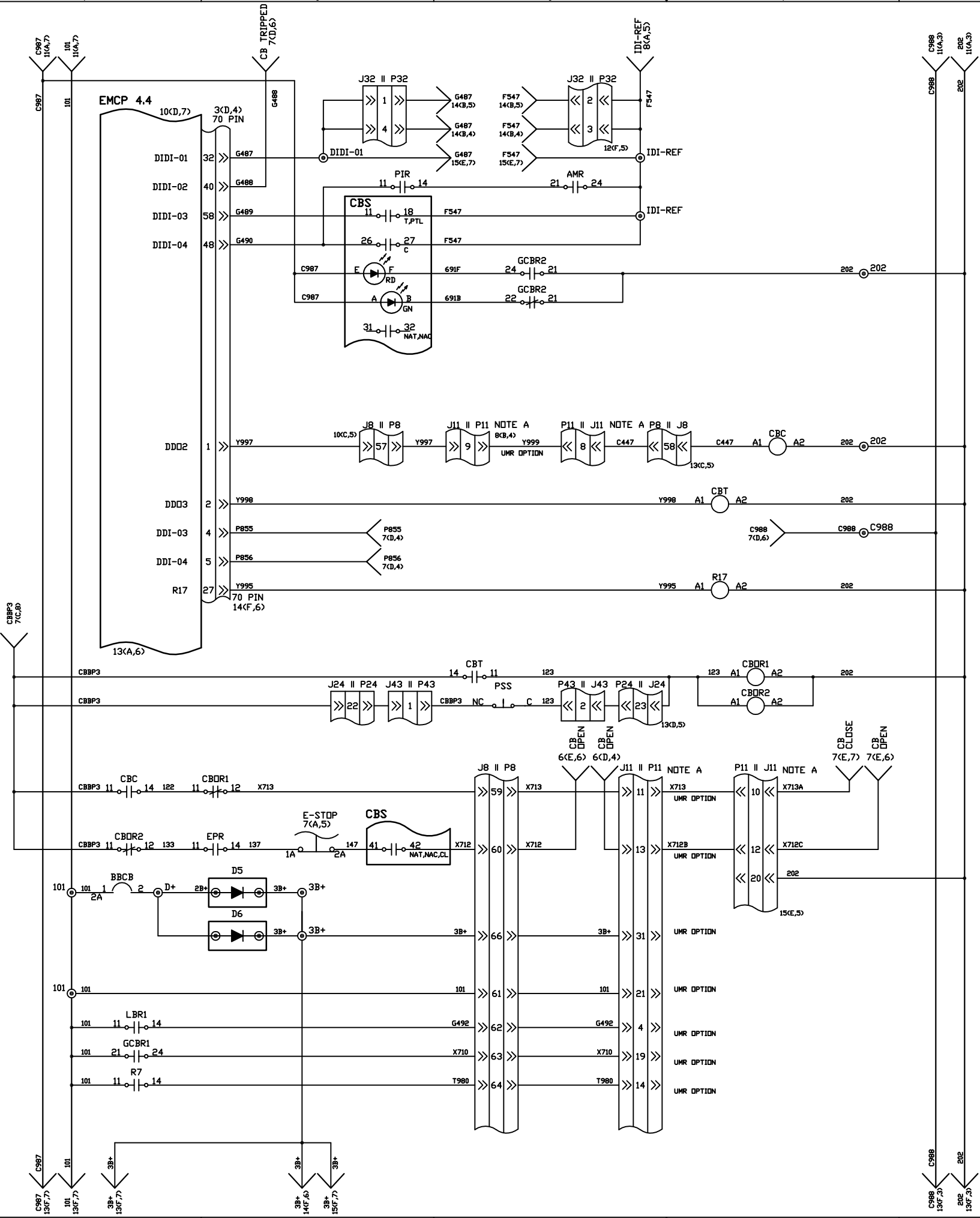
CIRCUIT BREAKER CLOSE
 OPTION UMR SYNCH CHECK
 CIRCUIT BREAKER TRIP
 CIRCUIT BREAKER
 CLOSED POSITION
 CIRCUIT BREAKER
 OPEN POSITION
 LIVE BUS INDICATION

CIRCUIT BREAKER TRIP LOGIC
 PERSONNEL SAFETY SWITCH

CIRCUIT BREAKER CLOSE
 OPTION UMR LOCKOUT RELAY LOGIC

CIRCUIT BREAKER OPEN
 OPTION UMR LOCKOUT RELAY LOGIC
 BEST BATTERY
 SUPPLY

VOLTAGE SELECTION
 RELAY SIGNAL
 OPTION UMR
 GENERATOR BREAKER STATUS
 OPTION UMR
 OFF MODE
 OPTION UMR RESET



DC DISTRIBUTION 9
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ALL DIMENSIONS IN INCHES UNLESS OTHERWISE SPECIFIED TOLERANCES: XX ± 0.100 ANGLE XXX ± 0.060 PROJECTION XXXX ± 0.005 SHEET ANGULAR ± 1°	FILE DF/81E SCALE/SHEET SIZE 1=40/D SHEET 12 OF 23 TITLE SCHEMATIC APS1000A EMCP 4.4	PROJECT REFERENCE APS1000A DRAWN BY D. RICHARDSON DATE 8/15/14 DRAWING NUMBER 81E500	QUOTE NUMBER - WORK ORDER NUMBER - DRAWING NUMBER 81E500

LEAGACY MODE RELAY

LEAD UNIT SELECT

PRIMARY UNIT RELAY

PARALLEL INTERCONNECT RELAY

DEAD BUSS RELAY

COOLDOWN TIMER RELAY

LOAD DDDR SOLENOID RESISTOR BOARD

LOAD DDDR SOLENOID

GROUP 3 RELAY

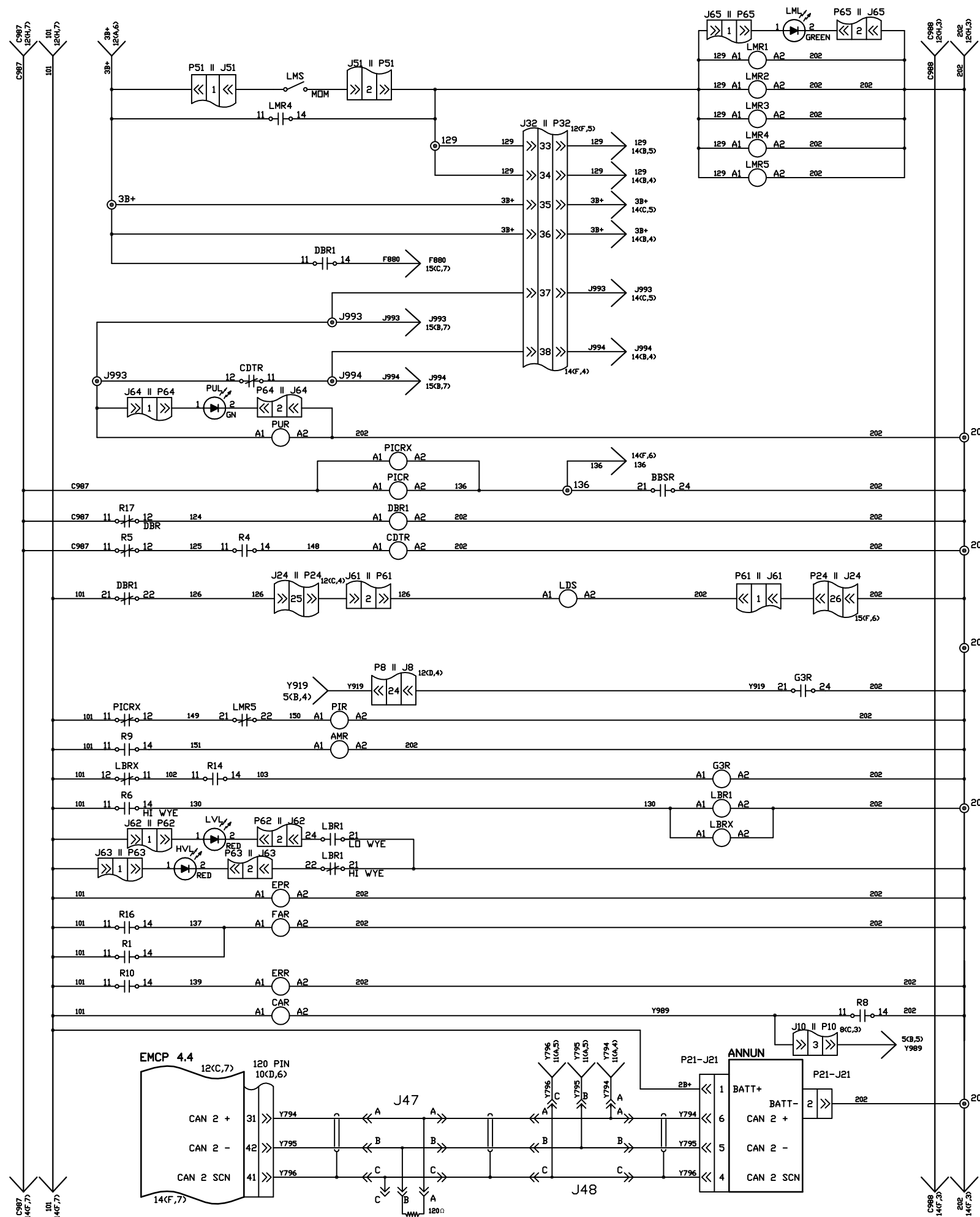
LINK BOARD RELAY

EMCP POWER RELAY

FUEL ALARM RELAY

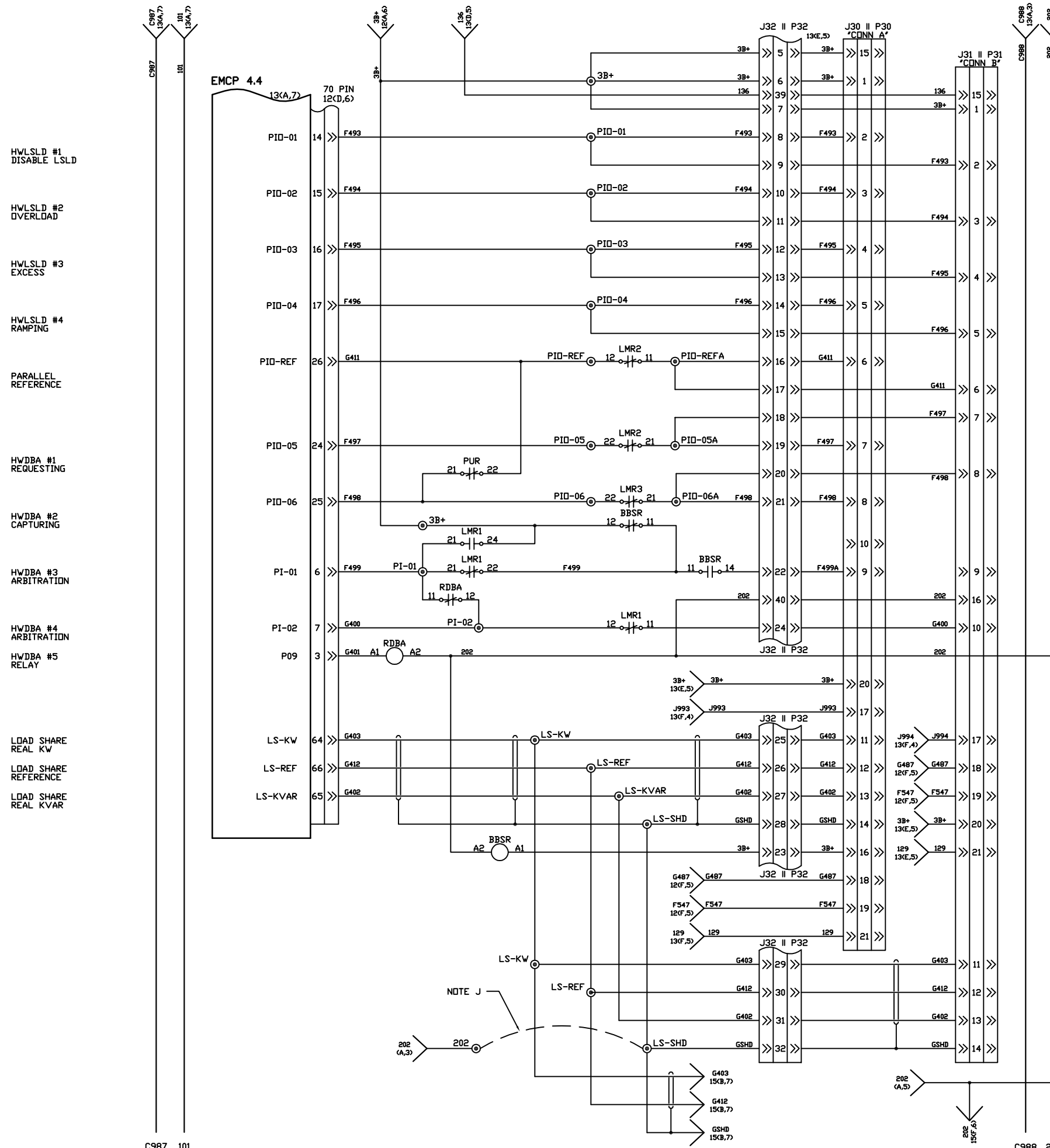
ENGINE RUNNING RELAY

COMMON ALARM RELAY



DC DISTRIBUTION 10
FOR NOTES SEE SHEET ONE

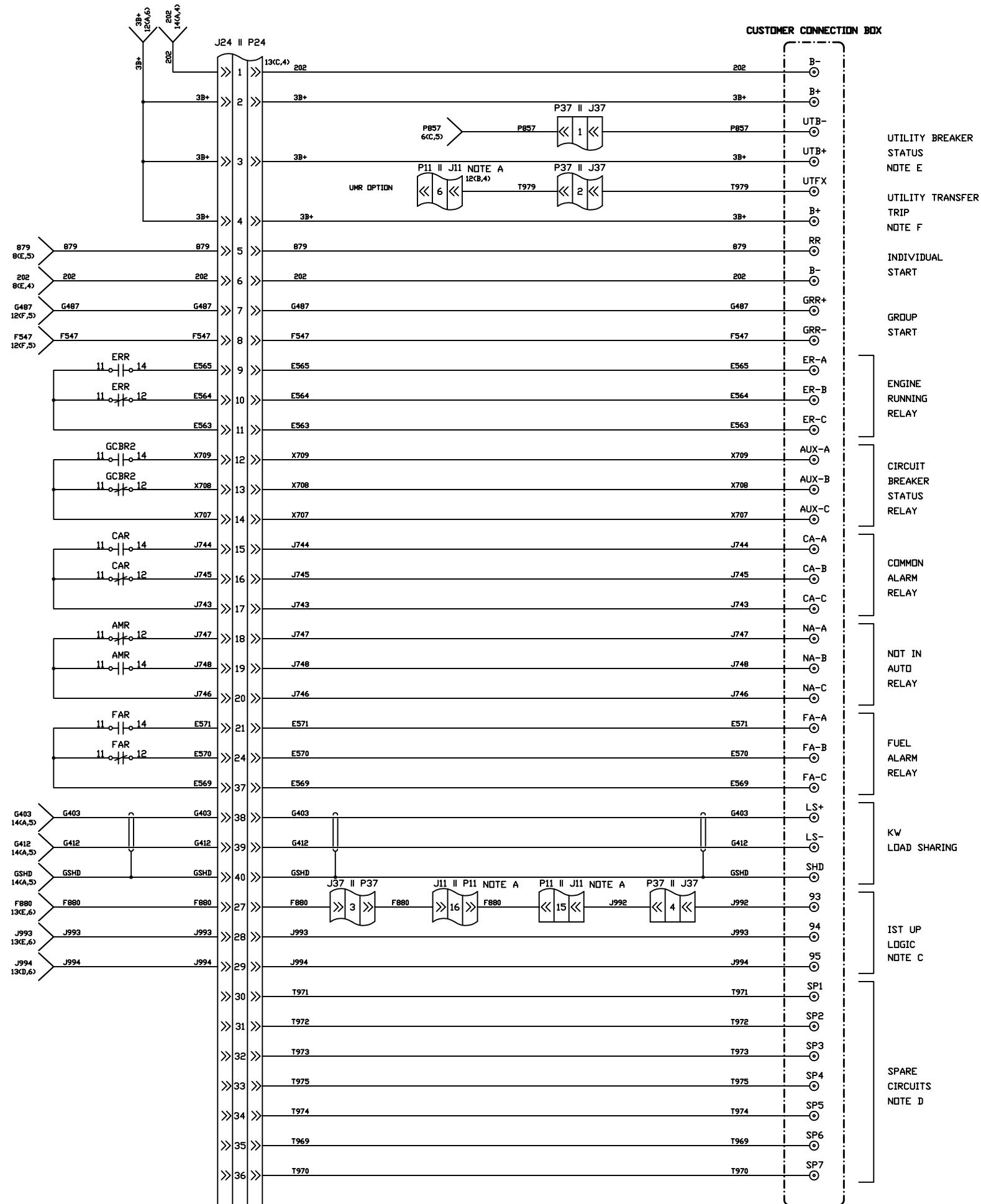
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	THIRD ANGLE PROJECTION	SHEET 13 OF 23	DRAWN BY D. RICHARDSON
	DATE 8/15/14	WORK ORDER NUMBER -	QUOTE NUMBER -
	TITLE SCHEMATIC APS1000A EMCP 4.4	DRAWING NUMBER 81E500	SHEET 13 OF 23



DC DISTRIBUTION 11
FOR NOTES SEE SHEET ONE

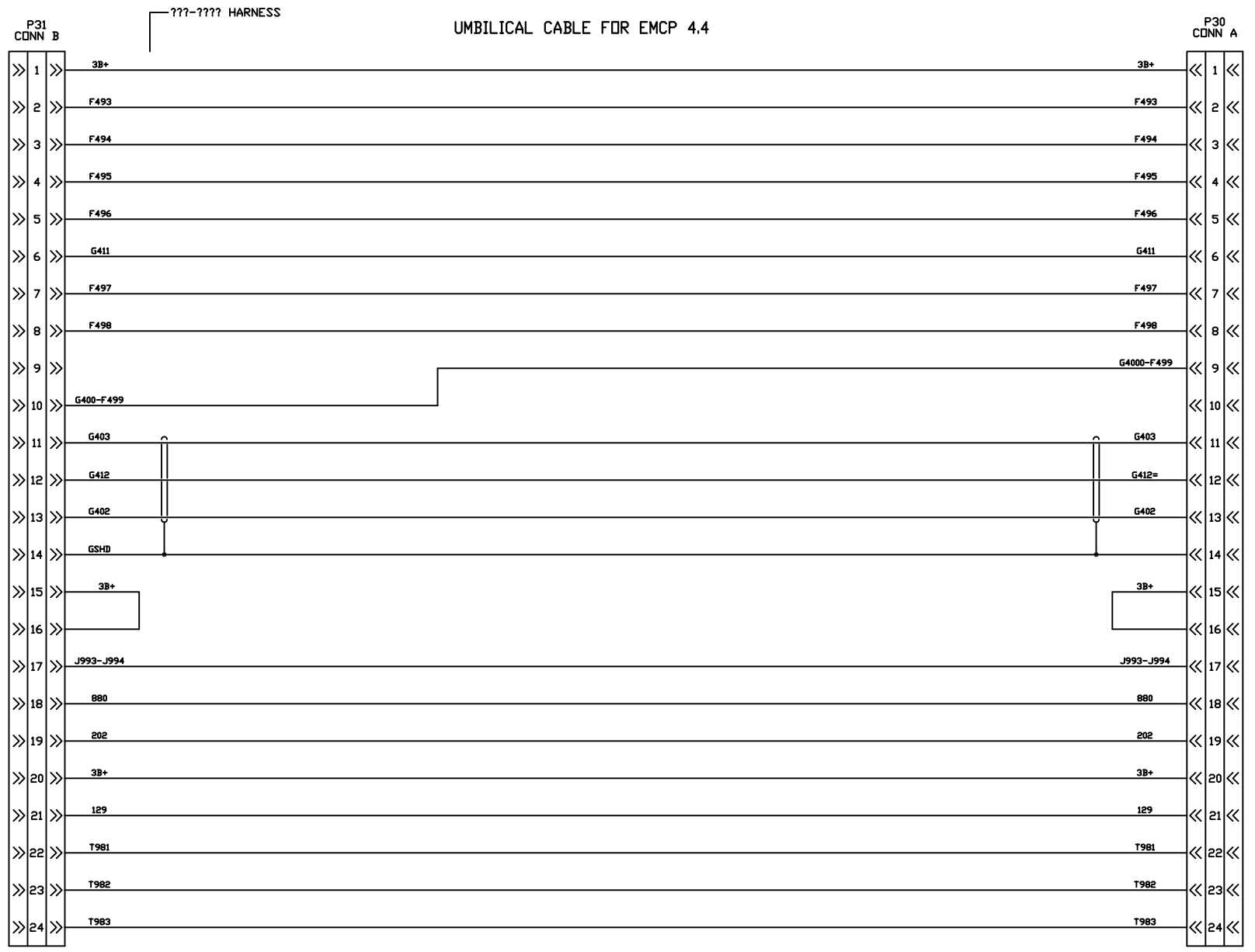
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CHANGE NOTICE ALL DIMENSIONS IN INCHES UNLESS OTHERWISE SPECIFIED TOLERANCES: XX ± 0.100 XXX ± 0.050 XXXX ± 0.025 ANGULAR ± 1°	FILE	PROJECT REFERENCE	QUOTE NUMBER
	SCALE/SHEET SIZE	DRAWN BY	DATE
	THIRD ANGLE PROJECTION	DATE	WORK ORDER NUMBER
	SHEET	14 OF 23	8/15/14
TITLE	SCHEMATIC		DRAWING NUMBER
APS1000A EMCP 4.4			81E500

CUSTOMER CONNECTIONS

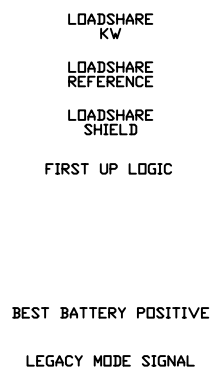
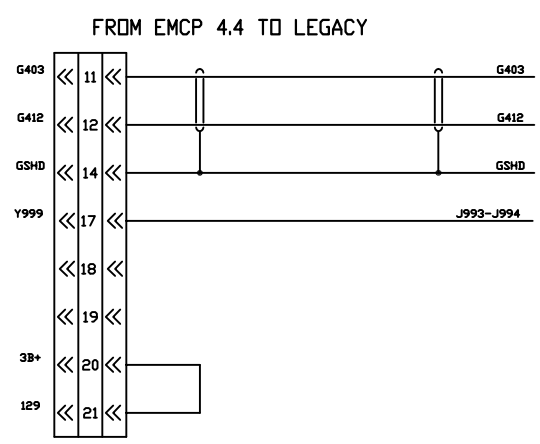
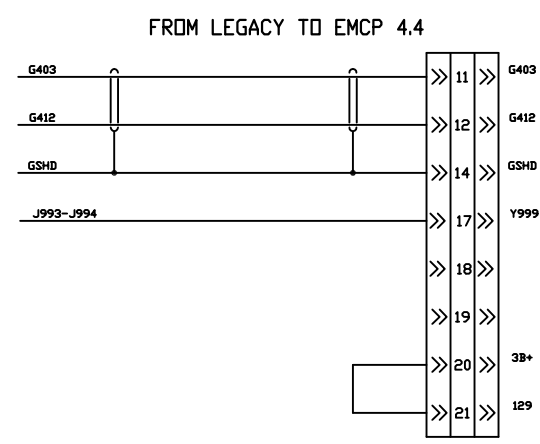


DC DISTRIBUTION 12
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CHANGE NOTICE ALL DIMENSIONS IN INCHES UNLESS OTHERWISE SPECIFIED TOLERANCES: XX ± 0.100 XXX ± 0.050 XXXX ± 0.025 ANGULAR ± 1°	FILE DF/81E	PROJECT REFERENCE APS1000A	QUOTE NUMBER -
	SCALE/SHEET SIZE 1=40/D	DRAWN BY D. RICHARDSON	WORK ORDER NUMBER -
	SHEET 15 OF 23	DATE 8/15/14	DRAWING NUMBER 81E500
	TITLE SCHEMATIC APS1000A EMCP 4.4		



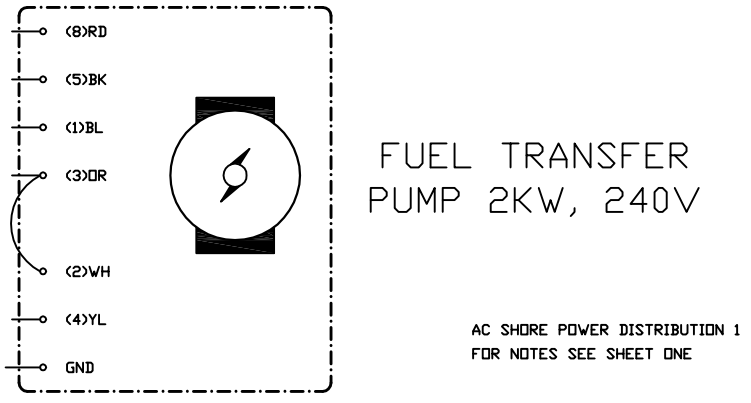
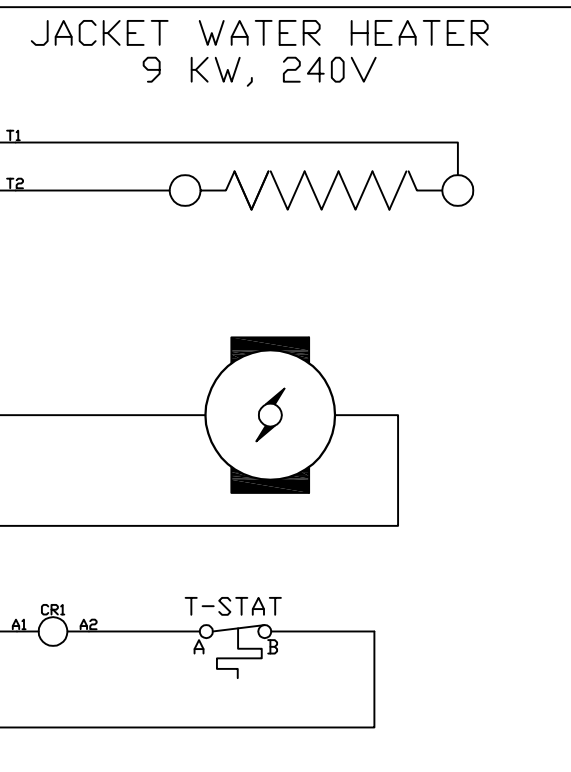
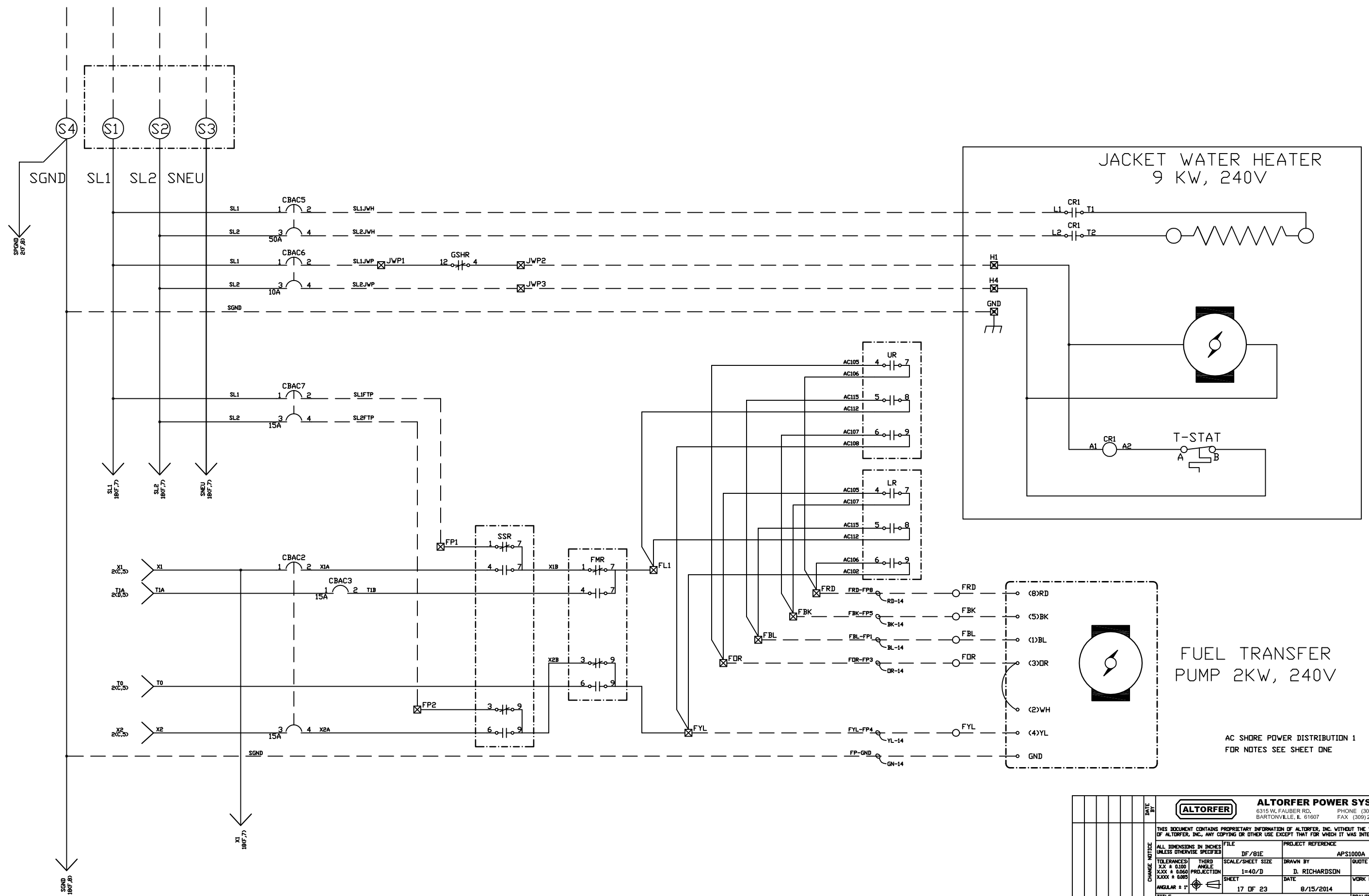
ADAPTOR CABLE ASSEMBLIES FOR LEGACY POWER MODULES



PARALLELING INTERCONNECT CABLE
FOR NOTES SEE SHEET ONE

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CHANGE NOTICE ALL DIMENSIONS IN INCHES UNLESS OTHERWISE SPECIFIED	TOLERANCES: XX ± 0.100 XXX ± 0.050 XXXX ± 0.025 ANGULAR ± 1°	THIRD ANGLE PROJECTION	SCALE/SHEET SIZE 1=40/D SHEET 16 OF 23	PROJECT REFERENCE APS1000A
	TITLE SCHEMATIC APS1000A EMCP 4.4		DRAWN BY D. RICHARDSON	QUOTE NUMBER -
			DATE 8/15/14	WORK ORDER NUMBER -
			DRAWING NUMBER 81E500	

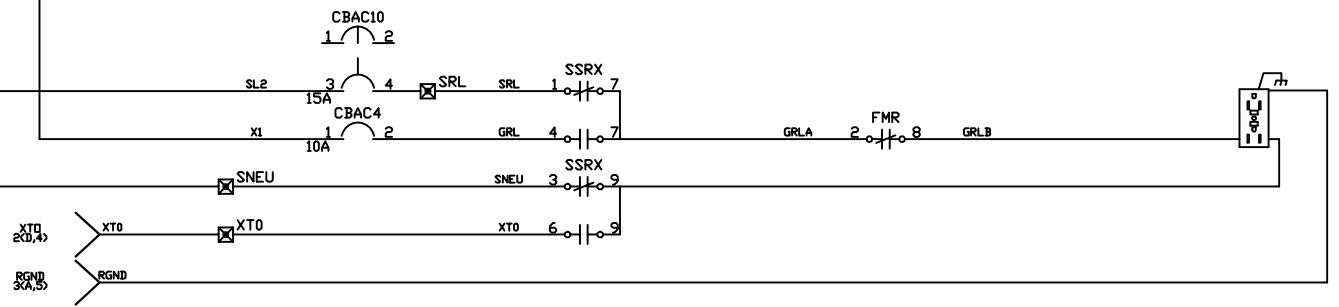
100A 240V



AC SHORE POWER DISTRIBUTION 1
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CHANGE NOTICE ALL DIMENSIONS IN INCHES UNLESS OTHERWISE SPECIFIED TOLERANCES: XX ± 0.100 XXX ± 0.050 XXXX ± 0.025 ANGULAR ± 1°	FILE DF/81E	PROJECT REFERENCE APS1000A	QUOTE NUMBER -
	SCALE/SHEET SIZE 1=40/D	DRAWN BY D. RICHARDSON	WORK ORDER NUMBER -
	SHEET 17 OF 23	DATE 8/15/2014	DRAWING NUMBER 81E500
	TITLE SCHEMATIC APS1000A EMCP 4.4		

SGND
17C,8D
SL1
17C,7
SL2
17C,7
SNEU
17C,7
X1
17A,7

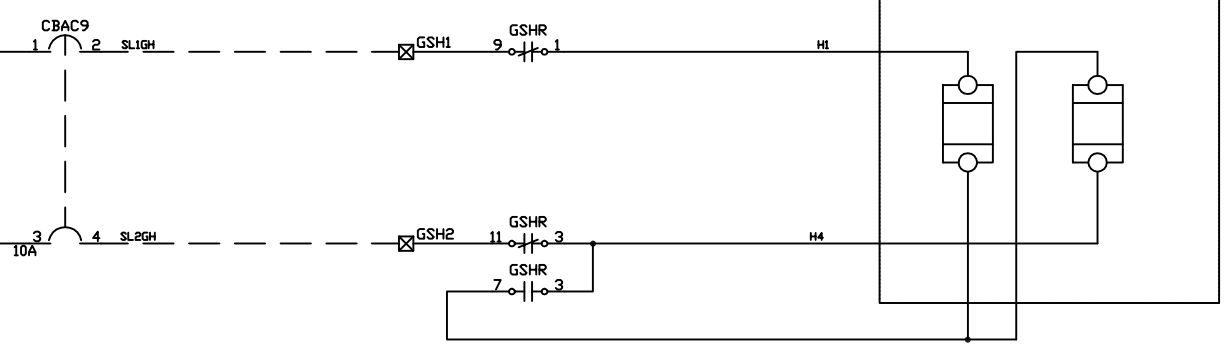


SERVICE RECEPTACLE

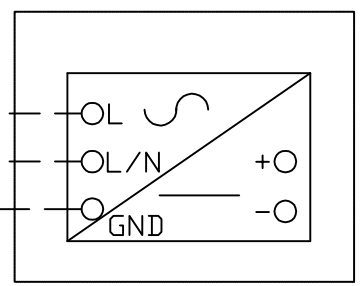
SGND

SGND

SPACE HEATER
1.2 KW, 240V

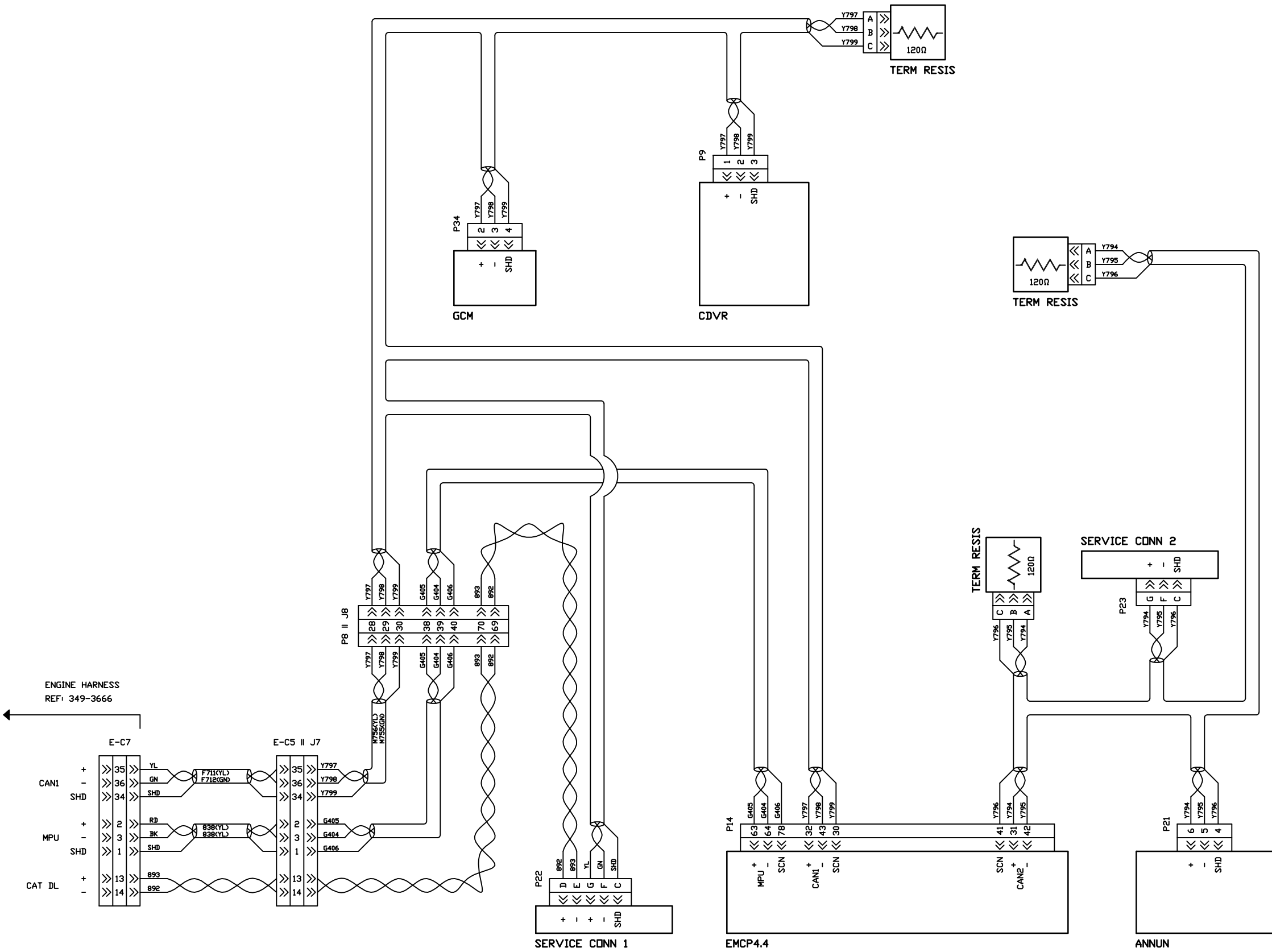


BATTERY CHARGER
240V



AC SHORE POWER DISTRIBUTION 2
FOR NOTES SEE SHEET ONE

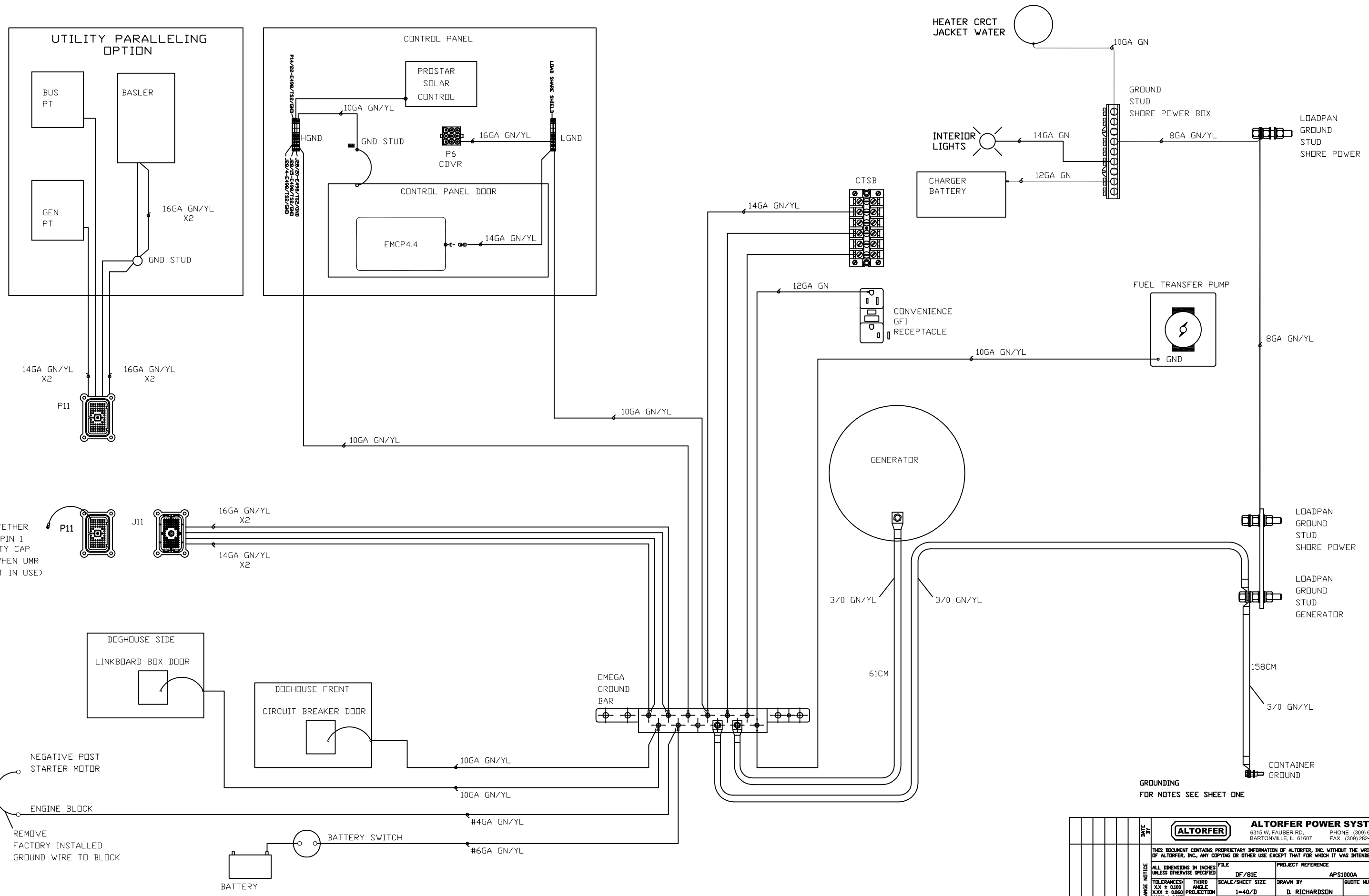
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	SCALE/SHEET SIZE 1=40/D	DRAWN BY D. RICHARDSON	WORK ORDER NUMBER -
	SHEET 18 OF 23	DATE 8/15/2014	DRAWING NUMBER 81E500
	TITLE SCHEMATIC APS1000A EMCP 4.4		DRAWING NUMBER 81E500



ENGINE HARNESS
REF: 349-3666

COMMUNICATIONS
FOR NOTES SEE SHEET ONE

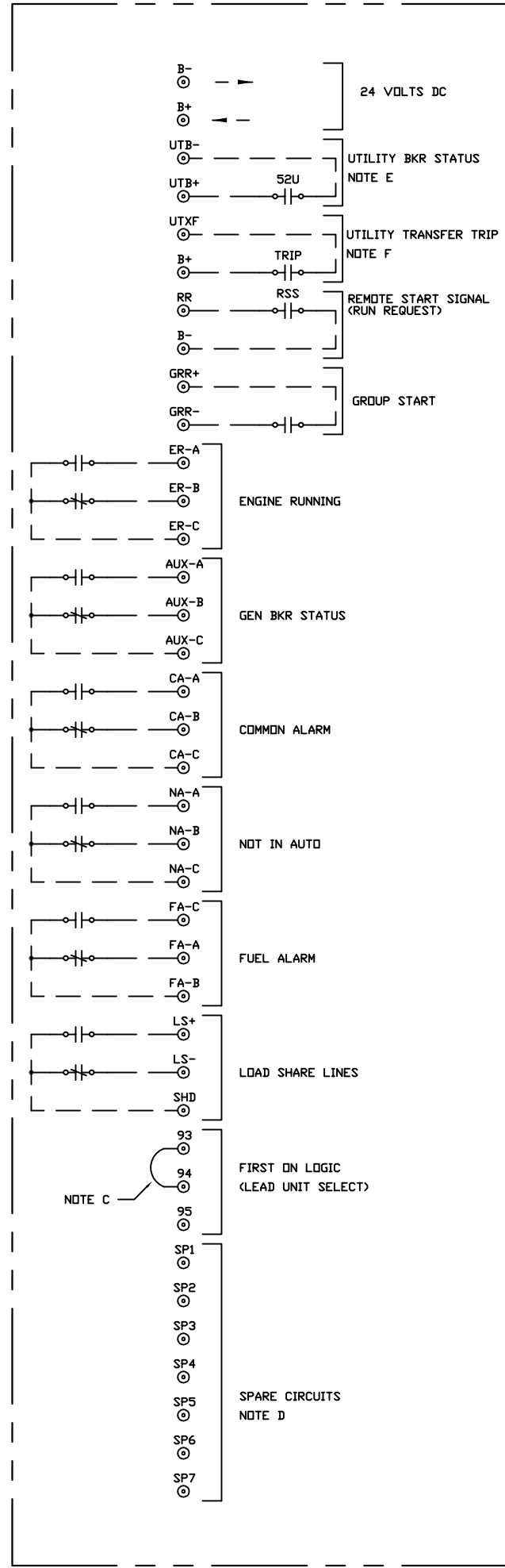
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	THIRD ANGLE PROJECTION	SHEET 19 OF 23	DRAWN BY D. RICHARDSON
	DATE 8/15/14	WORK ORDER NUMBER -	QUOTE NUMBER -
	TITLE SCHEMATIC APS1000A EMCP 4.4	DRAWING NUMBER 81E500	SHEET 19 OF 23



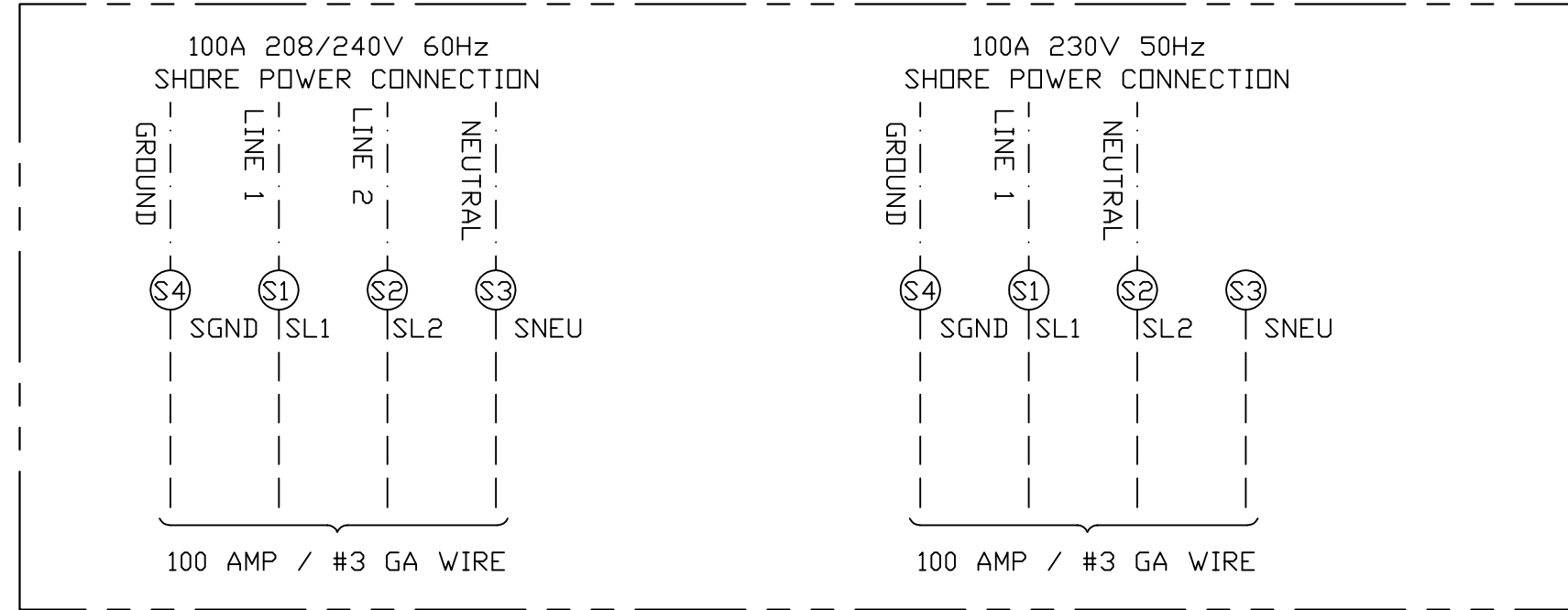
GROUNDING FOR NOTES SEE SHEET ONE

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	THIRD ANGLE PROJECTION	SHEET 20 OF 23	DRAWN BY D. RICHARDSON
	TITLE SCHEMATIC APS1000A EMCP 4.4	DATE 8/15/14	QUOTE NUMBER -
	DRAWING NUMBER 81E500	WORK ORDER NUMBER -	DATE 8/15/14

POWER MODULE INTERCONNECT BOX- DC TERMINALS



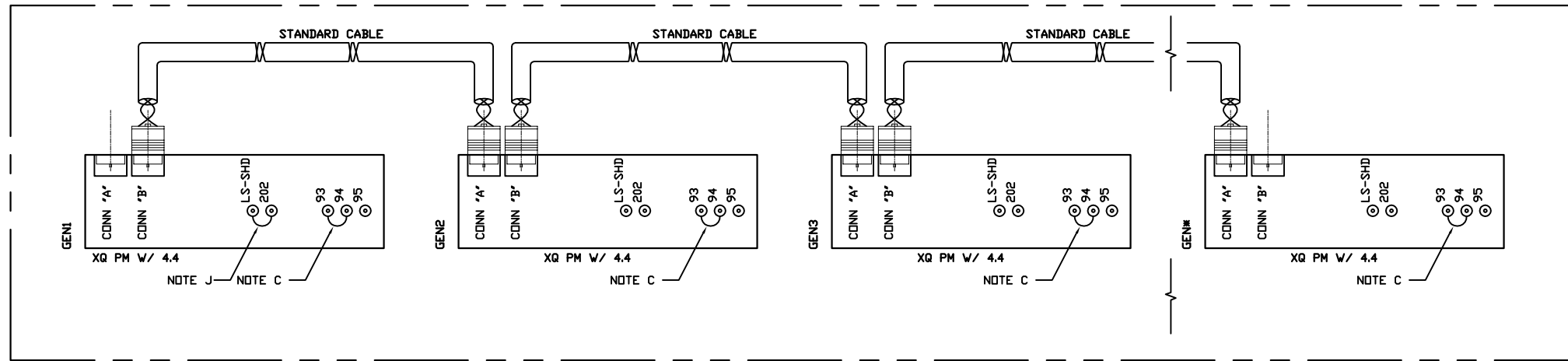
SHORE POWER CONNECTION POWER MODULE INTERCONNECT BOX - AC TERMINALS



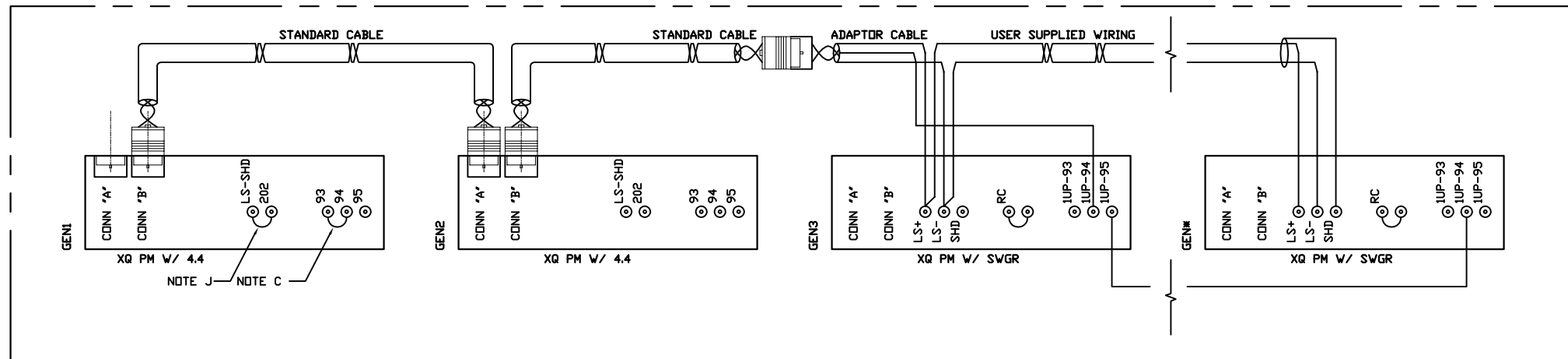
CUSTOMER CONNECTIONS FOR NOTES SEE SHEET ONE

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	SCALE/SHEET SIZE 1=40/D	DRAWN BY D. RICHARDSON	WORK ORDER NUMBER -
	SHEET 21 OF 23	DATE 8/15/14	DRAWING NUMBER 81E500
	TITLE SCHEMATIC APS1000A EMCP 4.4		

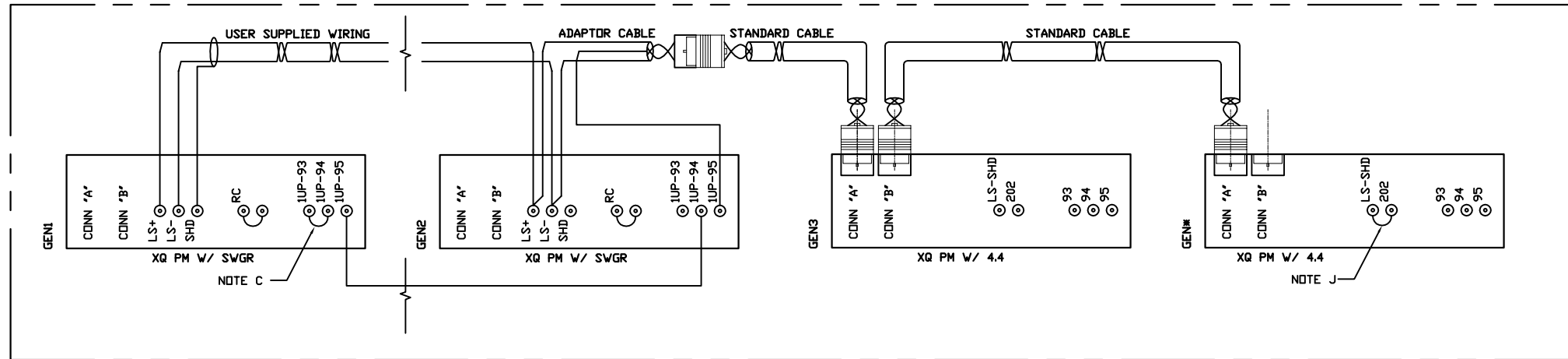
LOAD SHARE CONNECTIONS-(ALL EMCP 4.4 UNITS)



LOAD SHARE CONNECTIONS-(EMCP 4.4 AND LEGACY UNITS) (EMCP 4.4 LEAD UNIT SELECT)

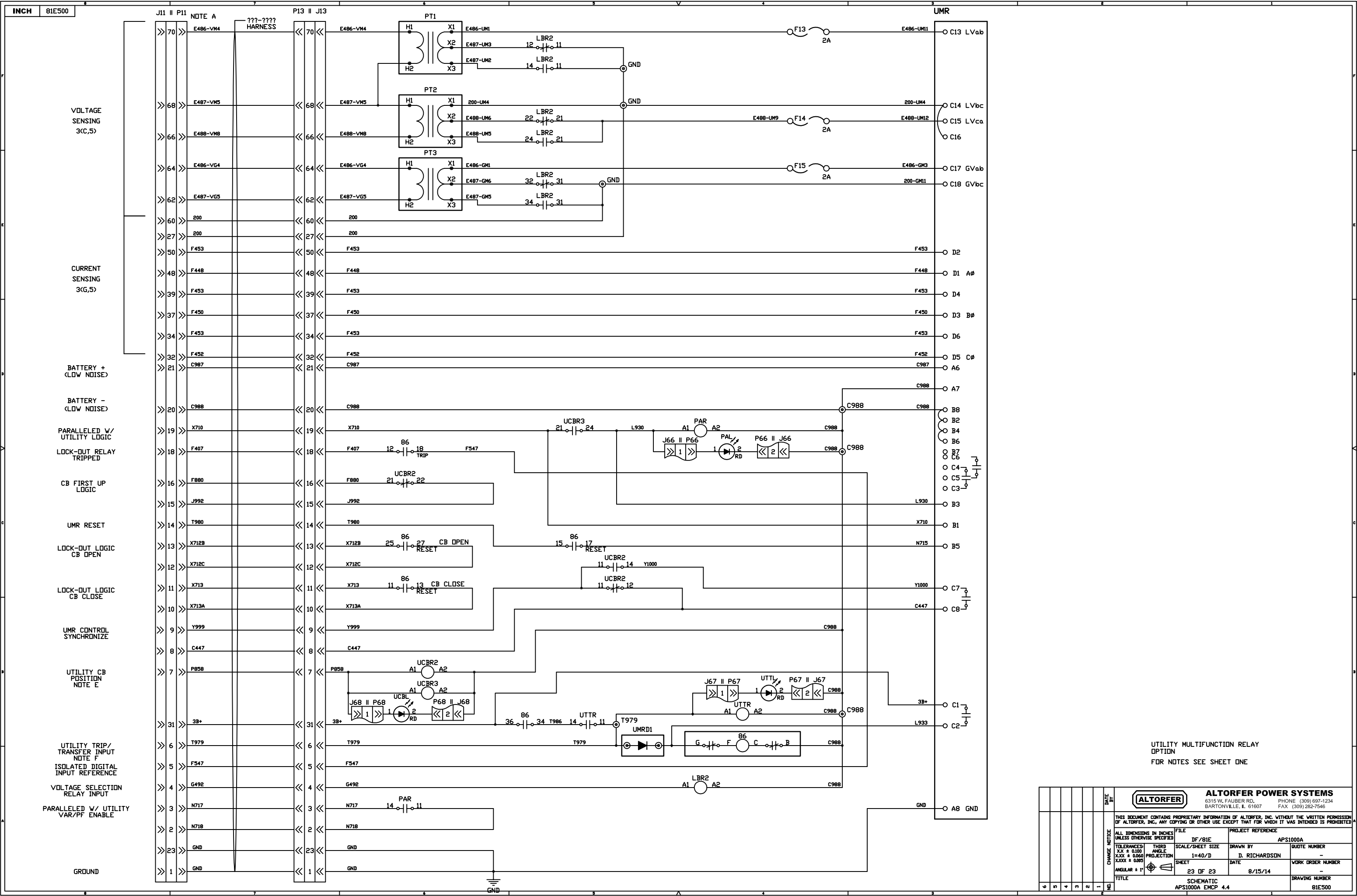


LOAD SHARE CONNECTIONS-(EMCP 4.4 AND LEGACY UNITS) (LEGACY LEAD UNIT SELECT)



CUSTOMER PARALLELING CONNECTIONS
FOR NOTES SEE SHEET ONE

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	THIRD ANGLE PROJECTION	SCALE/SHEET SIZE 1=40/D	DRAWN BY D. RICHARDSON
	SHEET 22 OF 23	DATE 8/15/14	QUOTE NUMBER - WORK ORDER NUMBER -
	TITLE SCHEMATIC APS1000A EMCP 4.4	DRAWING NUMBER 81E500	



INCH 81E500

J11 || P11

NOTE A

70 >> E486-VM4

68 >> E487-VM5

66 >> E488-VM8

64 >> E486-VG4

62 >> E487-VG5

60 >> 200

27 >> 200

50 >> F453

48 >> F448

39 >> F453

37 >> F450

34 >> F453

32 >> F452

21 >> C987

20 >> C988

19 >> X710

18 >> F407

16 >> F880

15 >> J992

14 >> T980

13 >> X712B

12 >> X712C

11 >> X713

10 >> X713A

9 >> Y999

8 >> C447

7 >> P858

31 >> 3B+

6 >> T979

5 >> F547

4 >> G492

3 >> N717

2 >> N718

23 >> GND

1 >> GND

P13 || J13

70 << E486-VM4

68 << E487-VM5

66 << E488-VM8

64 << E486-VG4

62 << E487-VG5

60 << 200

27 << 200

50 << F453

48 << F448

39 << F453

37 << F450

34 << F453

32 << F452

21 << C987

20 << C988

19 << X710

18 << F407

16 << F880

15 << J992

14 << T980

13 << X712B

12 << X712C

11 << X713

10 << X713A

9 << Y999

8 << C447

7 << P858

31 << 3B+

6 << T979

5 << F547

4 << G492

3 << N717

2 << N718

23 << GND

1 << GND

UMR

C13 LVab

C14 LVbc

C15 LVca

C16

C17 GVab

C18 GVbc

D2

D1 Aφ

D4

D3 Bφ

D5 Cφ

A6

A7

B8

B2

B4

B6

C4

C5

C3

B3

B1

B5

C7

C8

C1

C2

A8 GND

UTILITY MULTIFUNCTION RELAY
OPTION
FOR NOTES SEE SHEET ONE

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	THIRD ANGLE PROJECTION	DRAWN BY D. RICHARDSON	QUOTE NUMBER -
	SHEET 23 OF 23	DATE 8/15/14	WORK ORDER NUMBER -
	TITLE SCHEMATIC APS1000A EMCP 4.4	DRAWING NUMBER 81E500	