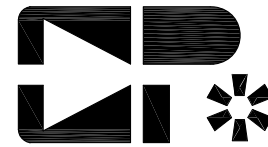




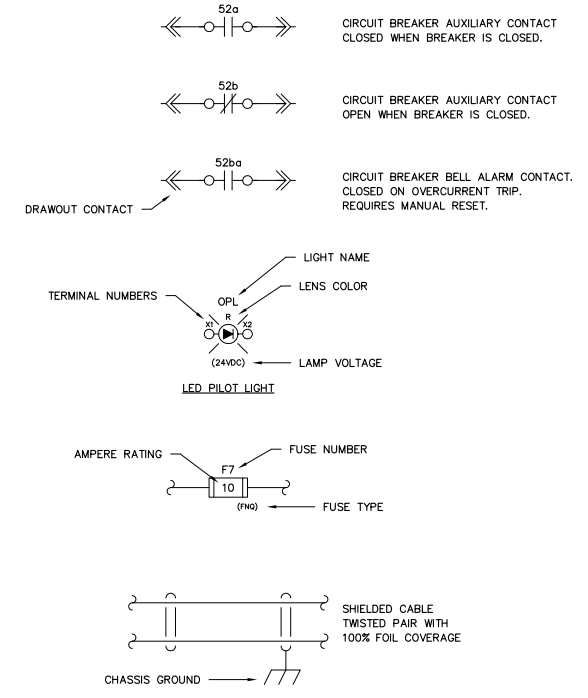
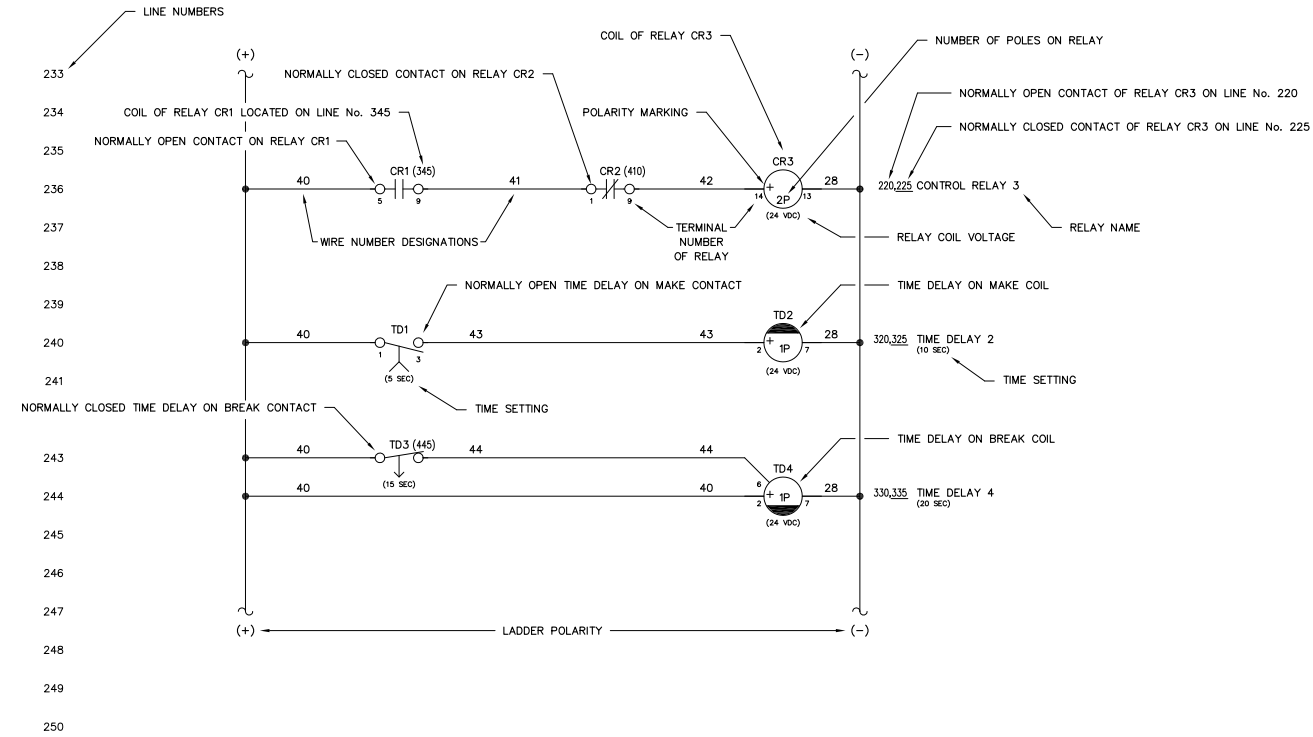
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**NIKOLSKI VILLAGE GENERATOR SWITCHGEAR UPGRADE
ALASKA ENERGY AUTHORITY PURCHASE ORDER No. PREPAID
CONTROLLED POWER, INC. JOB No. 8555**

<u>DRAWING No.</u>	<u>DRAWING TITLE</u>
8555-2101-D	COVER SHEET
8555-3101-D	SCHEMATIC LEGEND AND NOTES
8555-4101-D	GENERATOR SWITCHGEAR ELEVATION VIEW, OUTLINE DIAGRAM
8555-4102-D	WALLMOUNT ENCLOSURE ELEVATION VIEW, OUTLINE DIAGRAM
8555-4103-D	BOILER PANEL ELEVATION VIEW, OUTLINE DIAGRAM
8555-5101-D	SINGLE LINE, SCHEMATIC DIAGRAM
8555-5201-D	GENERATOR 1 AC THREE LINE, SCHEMATIC DIAGRAM
8555-5202-D	GENERATOR 2 AC THREE LINE, SCHEMATIC DIAGRAM
8555-5203-D	GENERATOR 3 AC THREE LINE, SCHEMATIC DIAGRAM
8555-5204-D	MASTER AC THREE LINE AND DISTRIBUTION, SCHEMATIC DIAGRAM
8555-5301-D	GENERATOR 1 DC CONTROL, SCHEMATIC DIAGRAM
8555-5302-D	GENERATOR 1 DC CONTROL, SCHEMATIC DIAGRAM
8555-5303-D	GENERATOR 1 DC CONTROL, SCHEMATIC DIAGRAM
8555-5304-D	GENERATOR 2 DC CONTROL, SCHEMATIC DIAGRAM
8555-5305-D	GENERATOR 2 DC CONTROL, SCHEMATIC DIAGRAM
8555-5306-D	GENERATOR 2 DC CONTROL, SCHEMATIC DIAGRAM
8555-5307-D	GENERATOR 3 DC CONTROL, SCHEMATIC DIAGRAM
8555-5308-D	GENERATOR 3 DC CONTROL, SCHEMATIC DIAGRAM
8555-5309-D	GENERATOR 3 DC CONTROL, SCHEMATIC DIAGRAM
8555-5310-D	MASTER DC CONTROL, SCHEMATIC DIAGRAM
8555-5311-D	MASTER DC CONTROL, SCHEMATIC DIAGRAM
8555-5312-D	MASTER DC CONTROL, SCHEMATIC DIAGRAM
8555-5313-D	FUEL FLOW SYSTEM WIRING, SCHEMATIC DIAGRAM
8555-5501-D	PLC COMMUNICATION DIAGRAM
8555-5601-D	COMMUNICATION NETWORK DIAGRAM
8555-5602-D	EPM MONITORING AND SYSTEM COMMUNICATION DIAGRAM
8555-5701-D	HEATER & LIGHTING CONTROL, SCHEMATIC DIAGRAM
8555-6101-D	CONTROL SWITCH TARGET DIAGRAM
8555-6201-D	NAMEPLATE ENGRAVING SCHEDULE, FABRICATION DETAIL
8555-7101-D	INTERCONNECTION DIAGRAM



- NOTES:**
- SCHEMATIC IS SHOWN AS FOLLOWS:
 - ALL AC AND DC POWER REMOVED
 - ALL RELAY CONTACTS DE-ENERGIZED
 - ALL CIRCUIT BREAKERS IN THE OPEN/RESET POSITION
 - ALL MODE SWITCHES IN THE "OFF" POSITION
 - ALL EMERGENCY STOP SWITCHES IN THE "NORMAL" POSITION
 - ALL PRESSURE SWITCHES SHOWN WITHOUT PRESSURE PRESENT
 - ALL LEVEL SWITCHES SHOWN WITHOUT FLUID PRESENT
 - ALL TEMPERATURE SWITCHES SHOWN AT AMBIENT
 - ⊙ INDICATES FIELD TERMINALS IN GENERATOR CONTROL SECTION.
 - ⊠ INDICATES TERMINALS AT ENGINE/GENERATOR.
 - ⊡ INDICATES INTERCONNECT TERMINALS IN MASTER SECTION.
 - ⊙ INDICATES FIELD TERMINALS IN MASTER SECTION.
 - ⊡ INDICATES INTERCONNECT TERMINALS IN GENERATOR CONTROL SECTION.
 - - - INDICATES FIELD WIRING BY OTHERS
 - ALL CONTROL WIRING TO BE No. 14 AWG, 600 VOLT, TYPE SIS EXCEPT AS NOTED
 - SHIELDED WIRING TO BE No. 18 AWG, 300 VOLT, TWISTED LINE WITH 100% FOIL COVERAGE
 - ALL DIODES ARE 1N4007 EXCEPT AS NOTED

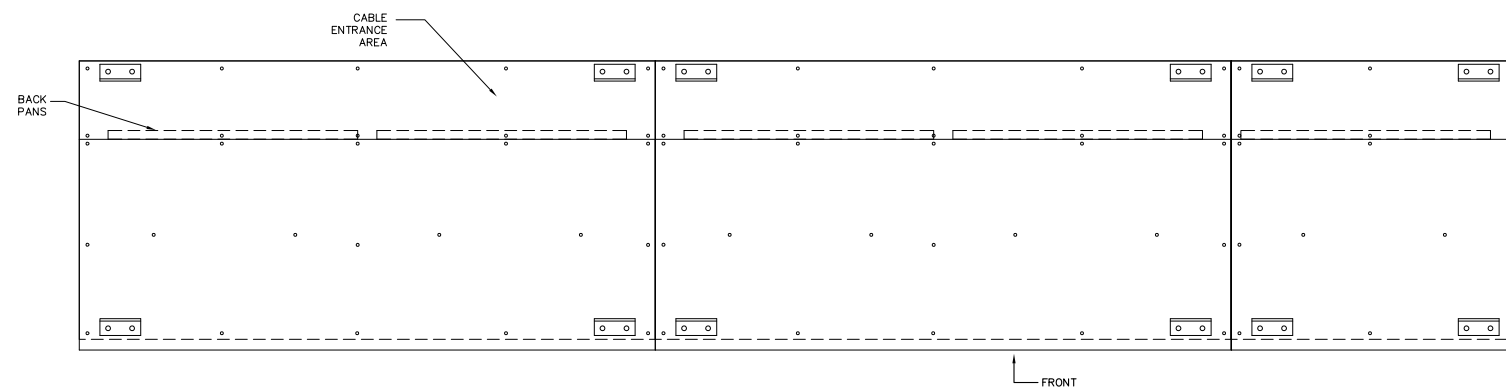
NOTE:
1. FOR GENERAL WIRING & CONSTRUCTION NOTES, SEE DRAWING No. 8555-3101-D.

REV.	DATE	DESCRIPTION	BY
A	03-24-17	FIELD REVISION	GPN
AEA PURCHASE ORDER No. PREPAID		CONTROLLED POWER JOB No. 8555	
TITLE: SCHEMATIC LEGEND & NOTES			
SCALE: NONE	DATE: 03-14-17	DWN. BY: GPN	
DWG. No: 8555-3101-D	SHEET: 1 OF 1	CKD. BY: RTH	
JOB: NIKOLSKI UPGRADE			

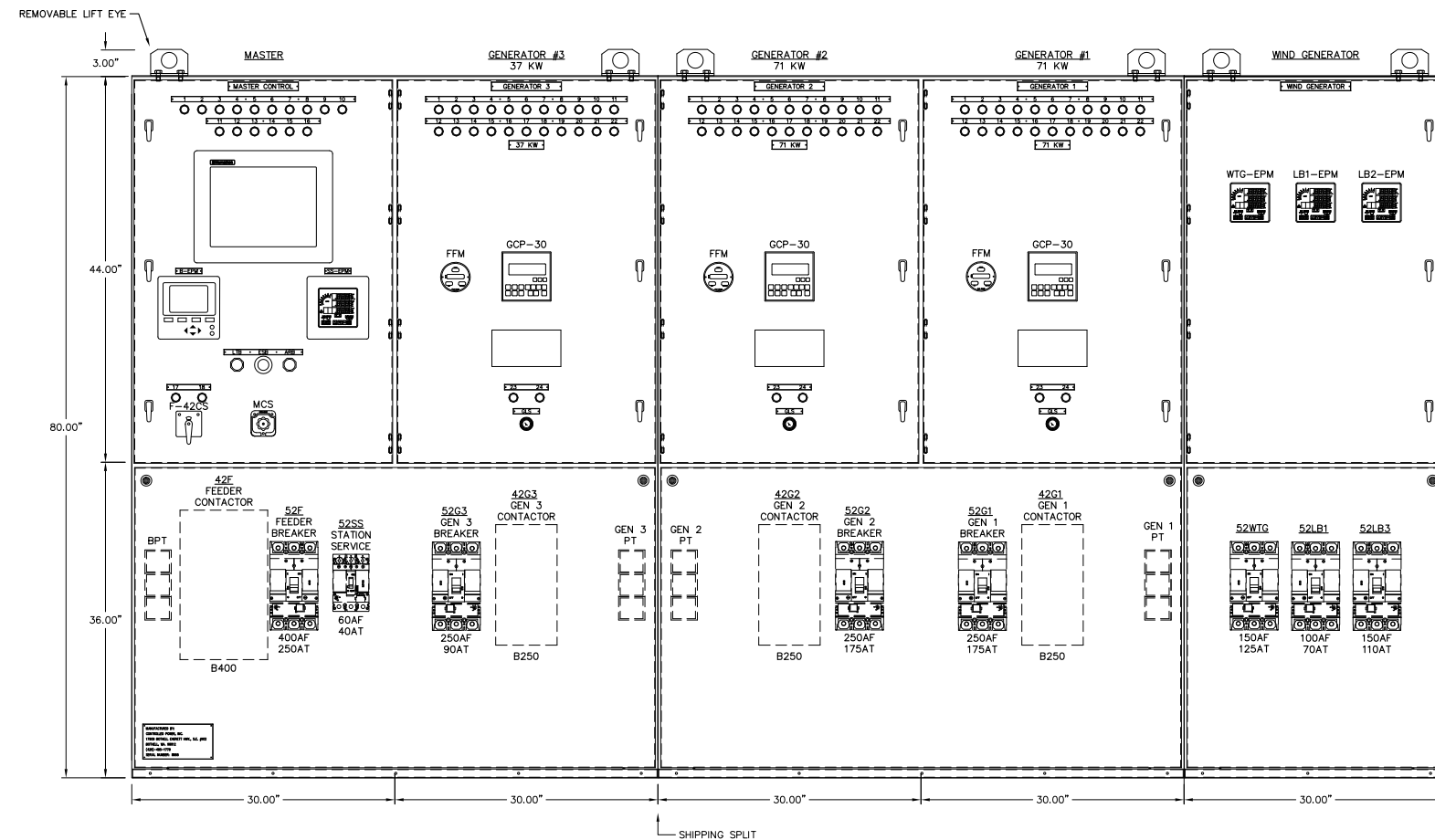
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RURAL ENERGY GROUP
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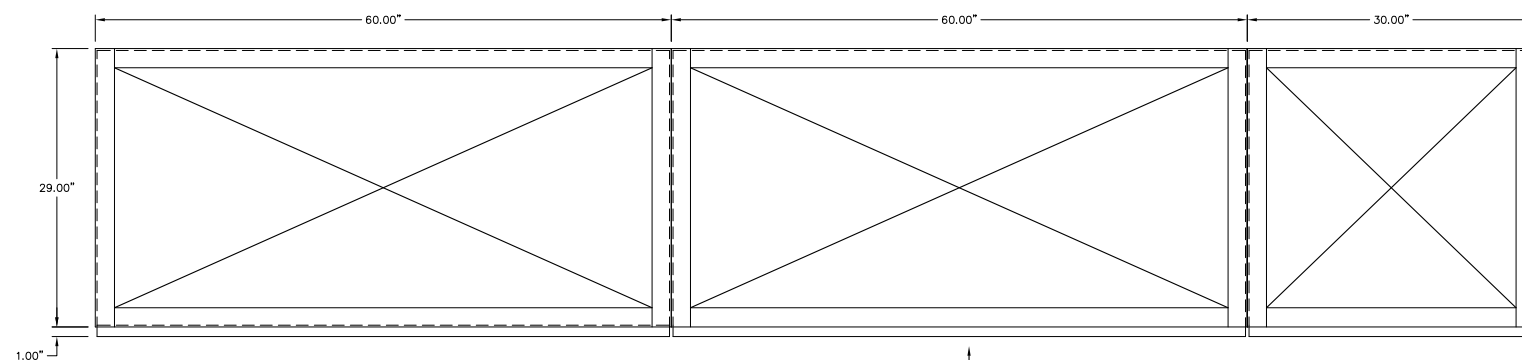
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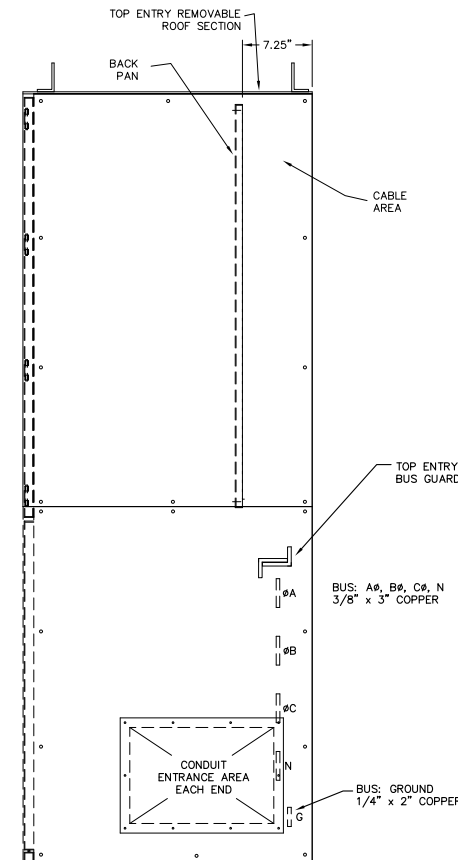
GENERATOR SWITCHGEAR - TOP VIEW



GENERATOR SWITCHGEAR - FRONT VIEW



GENERATOR SWITCHGEAR - PLAN VIEW



GENERATOR SWITCHGEAR - SIDE VIEW

GCP HEADOUT

* INCLUDES, BUT IS NOT LIMITED TO THE FOLLOWING LIST OF METERING, STATUS, AND ALARMS.

METERING LEGEND

- VOLTS: A#, B#, C#
- L-N, L-L
- AMPS: A#, B#, C#
- KW
- PF
- KWH

ALARM LEGEND

- LOW OIL PRESSURE ALARM
- LOW OIL PRESSURE SHUTDOWN
- HIGH WATER TEMPERATURE ALARM
- HIGH WATER TEMPERATURE SHUTDOWN
- OVERCRANK
- OVERSPEED
- LOW OIL LEVEL

ANALOG INPUT LEGEND

- OIL PRESSURE (PSI)
- WATER TEMP (*F)

MISC. LEGEND

- ENGINE HOURS
- ENGINE START COUNTER
- MAINTENANCE CALL

GCP FUNCTIONS

* INCLUDES, BUT NOT LIMITED TO:

- 27/59
- 81 o/u
- 32
- 50/51
- 40
- 47

NOMENCLATURE

SYMBOL	DESCRIPTION
ARB	ALARM RESET BUTTON
B-EPM	BUS ELECTRONIC POWER METER - 6200ION
ESB	EMERGENCY STOP BUTTON
F-EPM	FEEDER ELECTRONIC POWER METER - 7500ION
FFM	FUEL FLOW METER
GCP	GENERATOR CONTROL PACKAGE
GLS	GENERATOR LOCKOUT SWITCH
OIU	OPERATOR INTERFACE UNIT
LTB	LAMP TEST BUTTON
MCS	MASTER CONTROL SWITCH
SS-EPM	STATION SERVICE POWER METER - 6200ION
42xx	CONTACTOR
52CS	BREAKER CONTROL SWITCH
52xx	CIRCUIT BREAKER

GENERATOR ANNUNCIATOR LEGEND:

- ENGINE RUNNING
- ENGINE IDLE
- ENGINE ALARM
- LOW OIL PRESSURE
- OIL LEVEL
- HIGH OIL TEMPERATURE
- HIGH WATER TEMPERATURE
- OVERSPEED
- OVERCRANK
- COOLDOWN/LOCKOUT
- BATTERY CHARGER FAILURE
- NORMAL STOP
- NOT IN AUTO POSITION
- GENERATOR BREAKER OPEN
- FAIL TO SYNCHRONIZE
- UNDERCURRENT
- UNDER VOLTAGE
- OVER VOLTAGE
- UNDER FREQUENCY
- OVER FREQUENCY
- LOSS OF EXCITATION
- REVERSE POWER
- CONTACTOR OPEN
- CONTACTOR CLOSED

MASTER ANNUNCIATOR LEGEND

- FIRE ALARM LIGHT
- EMERGENCY STOP LIGHT
- SYSTEM LOW WATER LEVEL LIGHT
- DAY TANK CRITICAL LOW LIGHT
- BUS UNDER/OVER VOLTAGE LIGHT
- BUS UNDER/OVER FREQUENCY LIGHT
- FEEDER BREAKER OVERCURRENT LIGHT
- PRIMARY PLC FAILURE
- OPERATING ON BACKUP PLC
- BACKUP PLC FAILURE
- SPARE 1
- SPARE 2
- SPARE 3
- SPARE 4
- SPARE 5
- WIND TURBINE ON
- FEEDER CONTACTOR OPEN
- FEEDER CONTACTOR CLOSED

NOTE:

- FOR GENERAL WIRING & CONSTRUCTION NOTES, SEE DRAWING No. 8555-3101-D.

REV.	DATE	DESCRIPTION	BY
A	03-24-17	FIELD REVISION	GPN

AEA PURCHASE ORDER No. PREPAID CONTROLLED POWER JOB No. 8555

TITLE: GENERATOR SWITCHGEAR ELEVATION VIEW, OUTLINE DIAGRAM

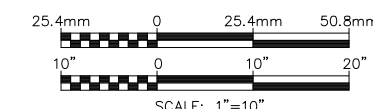
SCALE: NONE DATE: 03-14-17 DWN. BY: GPN

DWG. No: 8555-4101-D SHEET: 1 OF 1 CKD. BY: RTH

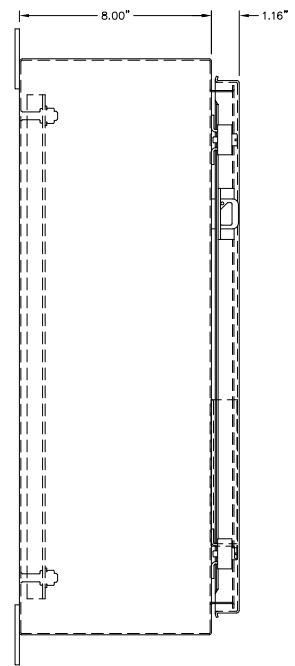
JOB: NIKOLSKI UPGRADE

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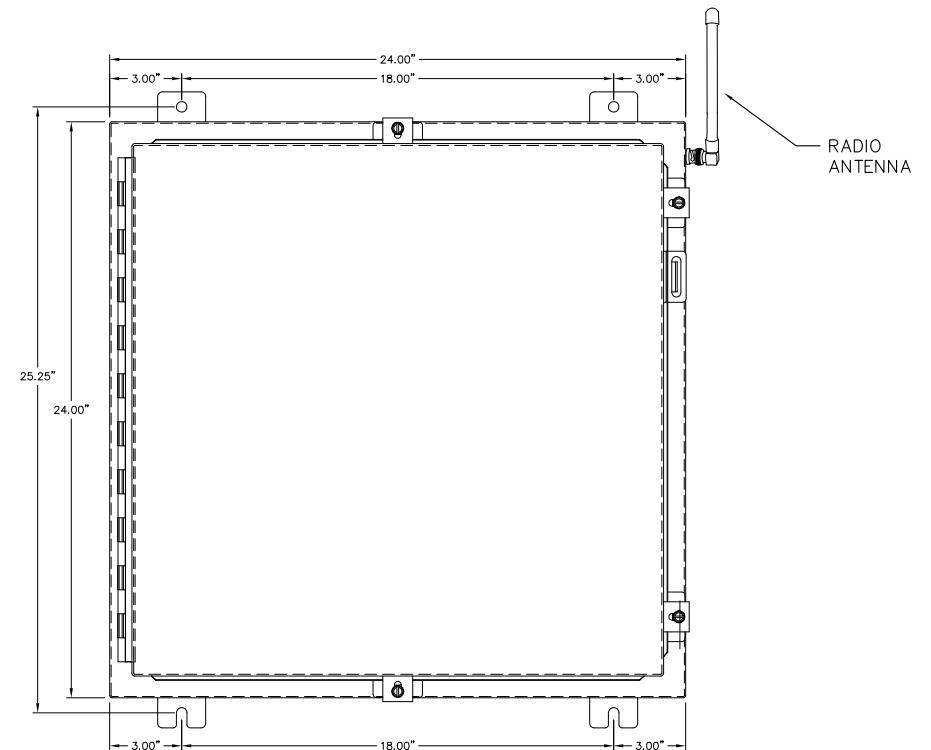
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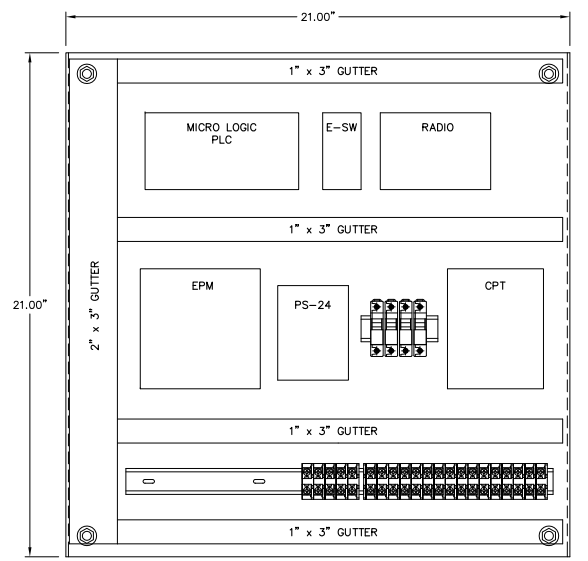
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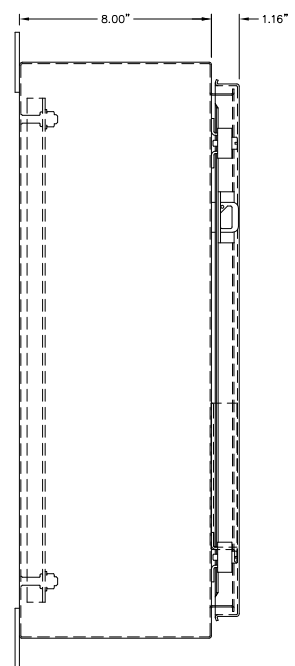
SIDE VIEW



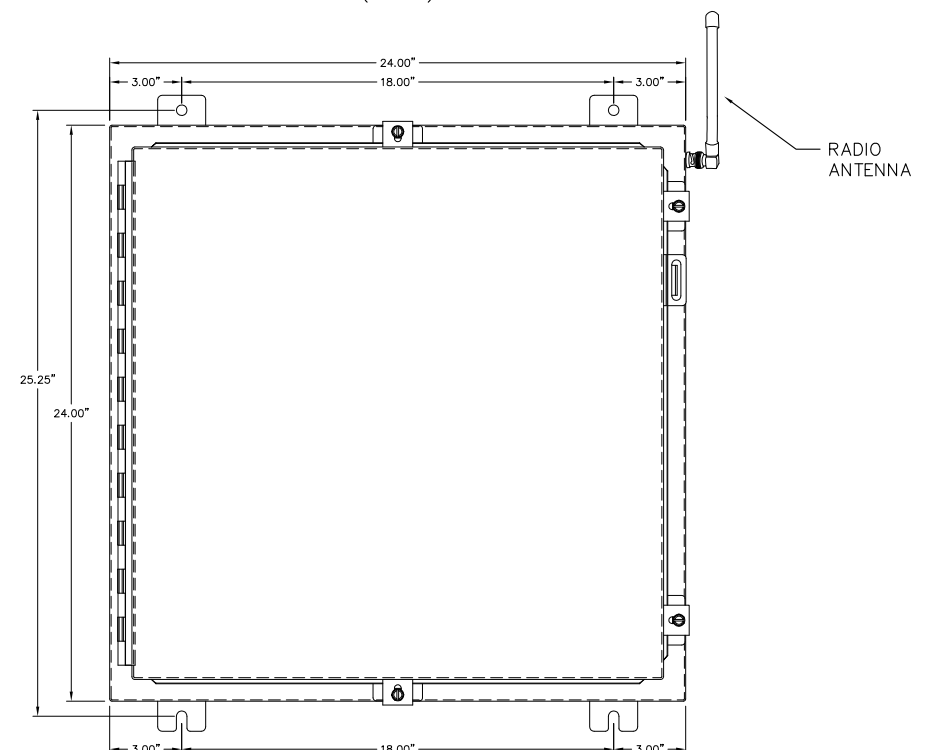
THERMAL NODE 2
(LODGE)



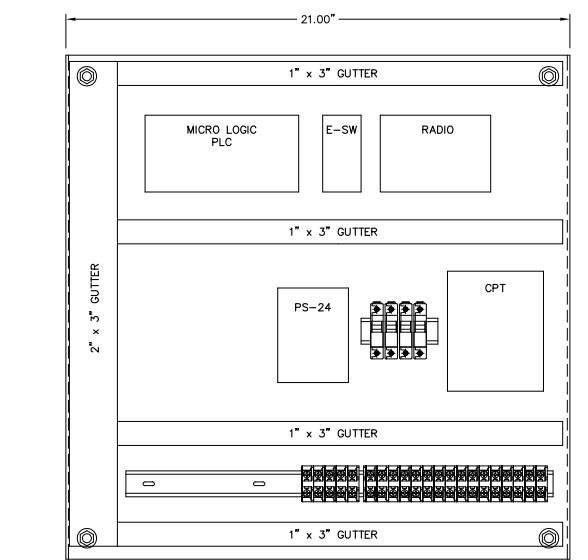
INTERNAL BACK PAN



SIDE VIEW



THERMAL NODE 1
(SHCOOL)



INTERNAL BACK PAN

NOTE:
1. FOR GENERAL WIRING & CONSTRUCTION NOTES, SEE DRAWING No. 8555-3101-D.

REV.	DATE	DESCRIPTION	BY
A	03-24-17	FIELD REVISION	GPN

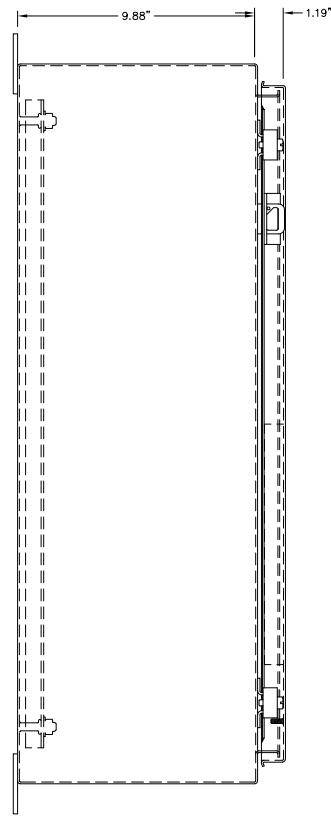
AEA PURCHASE ORDER No. PREPAID CONTROLLED POWER JOB No. 8555
TITLE: WALLMOUNT ENCLOSURE & BACK PAN, OUTLINE DIAGRAM

SCALE: NONE DATE: 03-14-17 DWN. BY: GPN
DWG. No: 8555-4102-D SHEET: 1 OF 1 CKD. BY: RTH
JOB: NIKOLSKI UPGRADE

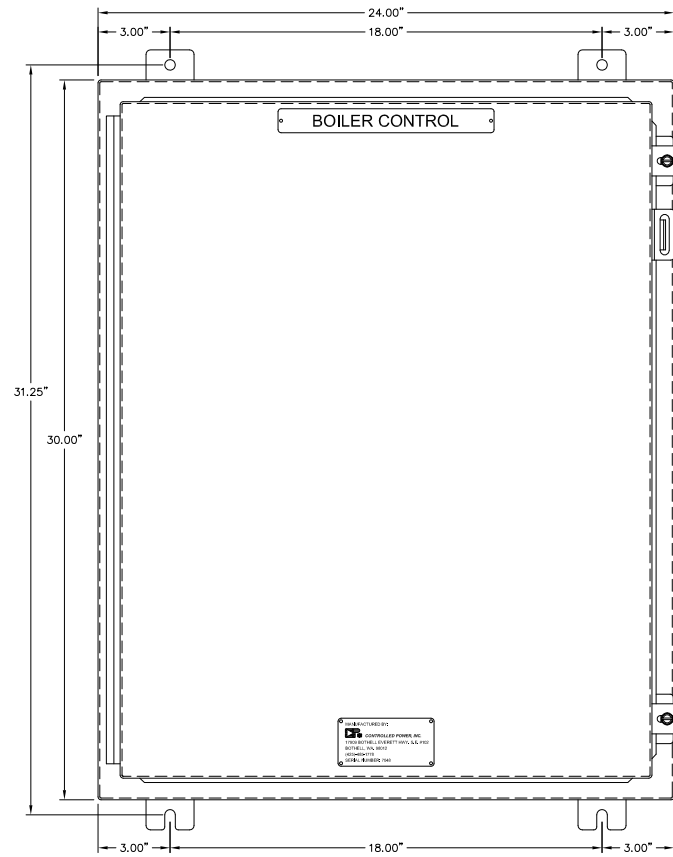
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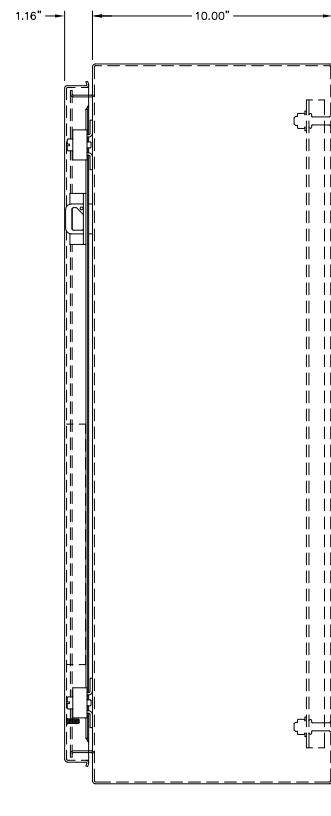
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LEFT SIDE VIEW



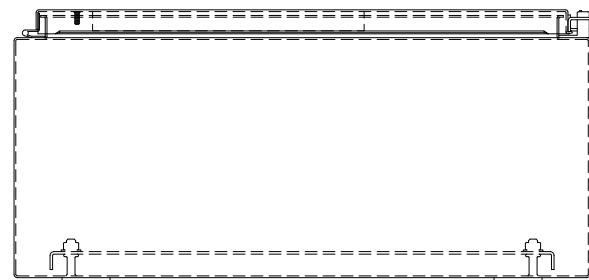
BOILER PANEL - TYPICAL FRONT VIEW



RIGHT SIDE VIEW



INTERNAL BACK PAN



TYPICAL BOTTOM VIEW

NOTE:

- FOR GENERAL WIRING & CONSTRUCTION NOTES, SEE DRAWING No. 8555-3101-D.

REV.	DATE	DESCRIPTION	BY
A	03-24-17	FIELD REVISION	GPN

AEA PURCHASE ORDER No. PREPAID CONTROLLED POWER JOB No. 8555
 TITLE: BOILER PANEL ELEVATION VIEW, OUTLINE DIAGRAM

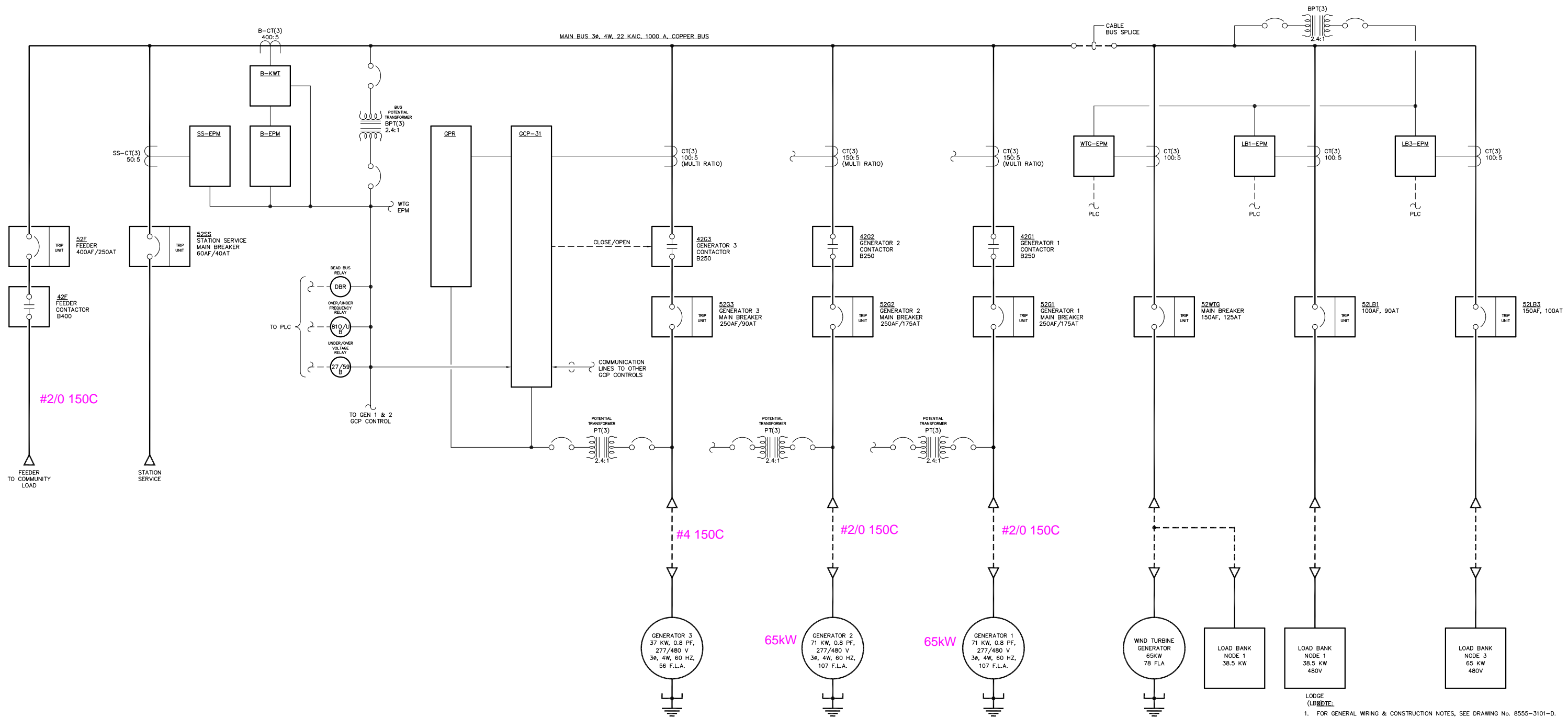
SCALE: NONE	DATE: 03-14-17	DWN. BY: GPN
DWG. No: 8555-4103-D	SHEET: 1 OF 1	CKD. BY: RTH
JOB: NIKOLSKI UPGRADE		

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#2/0 150C

#4 150C

#2/0 150C

#2/0 150C

65kW

65kW

NOTES:
1. GENERATORS 1 & 2 SIMILAR TO GENERATOR 3.

Notes:
1) Conductor sizes and temperature ratings shown based on original design and have not been confirmed. Field verify.
2) Breaker trip setpoints shown based on 2017 field revision and may not match present operating conditions. Field verify.

1. FOR GENERAL WIRING & CONSTRUCTION NOTES, SEE DRAWING No. 8555-3101-D.

REV.	DATE	DESCRIPTION	BY
A	03-24-17	FIELD REVISION	GPN

AEA PURCHASE ORDER No. PREPAID CONTROLLED POWER JOB No. 8555
TITLE: SINGLE LINE, SCHEMATIC DIAGRAM

SCALE: NONE DATE: 03-14-17 DWN. BY: GPN
DWG. No: 8555-5101-D SHEET: 1 OF 1 CKD. BY: RTH

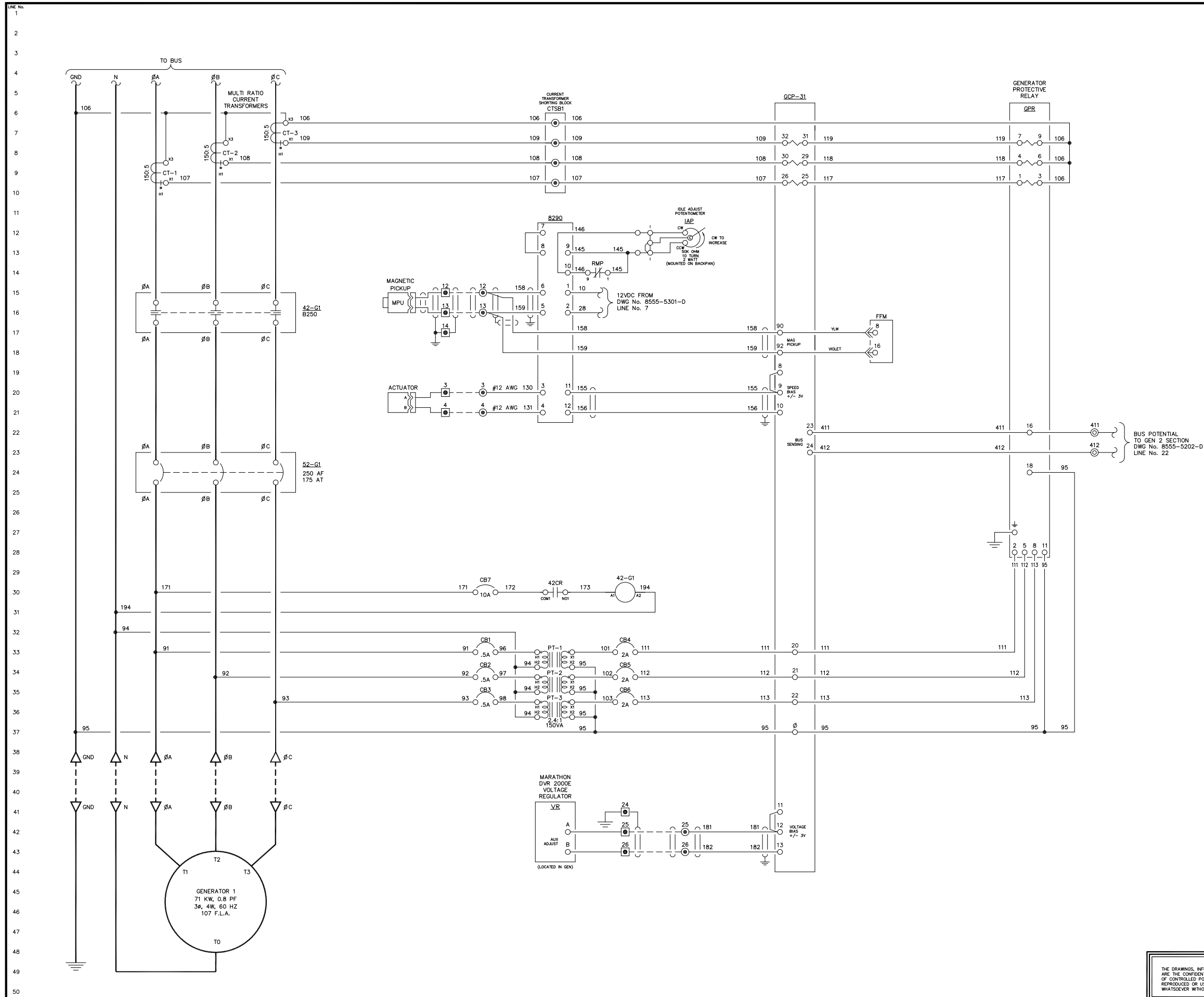
JOB: NIKOLSKI UPGRADE

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NOTE:
1. FOR GENERAL WIRING & CONSTRUCTION NOTES, SEE DRAWING No. 8555-3101-D.

REV.	DATE	DESCRIPTION	BY
A	03-24-17	FIELD REVISION	GPN

AEA PURCHASE ORDER No. PREPAID CONTROLLED POWER JOB No. 8555

TITLE: GENERATOR 1 AC THREE LINE, SCHEMATIC DIAGRAM

SCALE: NONE DATE: 03-14-17 DWN. BY: GPN

DWG. No: 8555-5201-D SHEET: 1 OF 1 CKD. BY: RTH

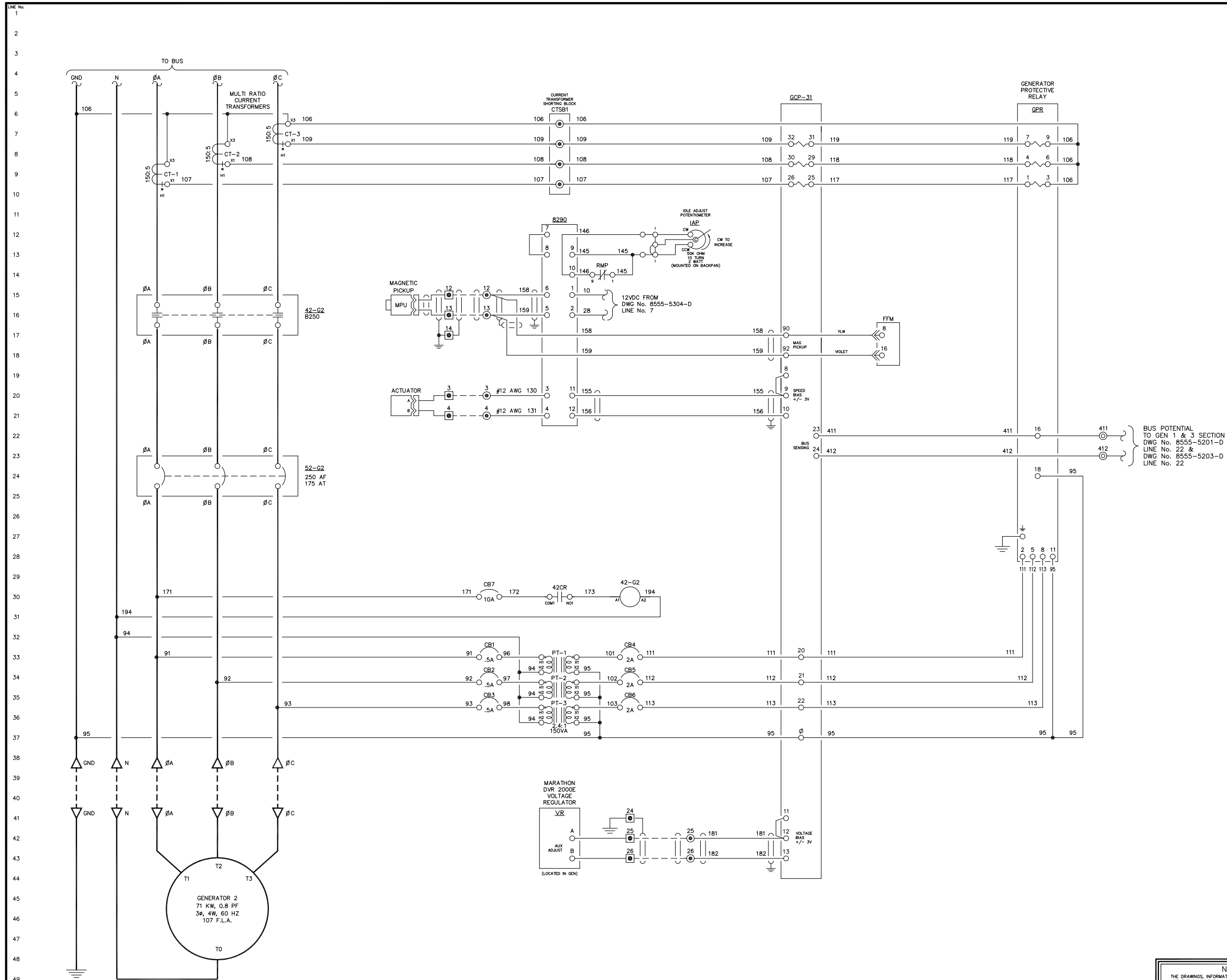
JOB: NIKOLSKI UPGRADE

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BUS POTENTIAL
TO GEN 1 & 3 SECTION
DWG No. 8555-5201-D
LINE No. 22 &
DWG No. 8555-5203-D
LINE No. 22

NOTE:
1. FOR GENERAL WIRING & CONSTRUCTION NOTES, SEE DRAWING No. 8555-3101-D.

REV.	DATE	DESCRIPTION	BY
A	03-24-17	FIELD REVISION	GPN

AEA PURCHASE ORDER No. PREPAID CONTROLLED POWER JOB No. 8555
TITLE: GENERATOR 2 AC THREE LINE, SCHEMATIC DIAGRAM

SCALE: NONE DATE: 03-14-17 DWN. BY: GPN
DWG. No: 8555-5202-D SHEET: 1 OF 1 CKD. BY: RTH
JOB: NIKOLSKI UPGRADE

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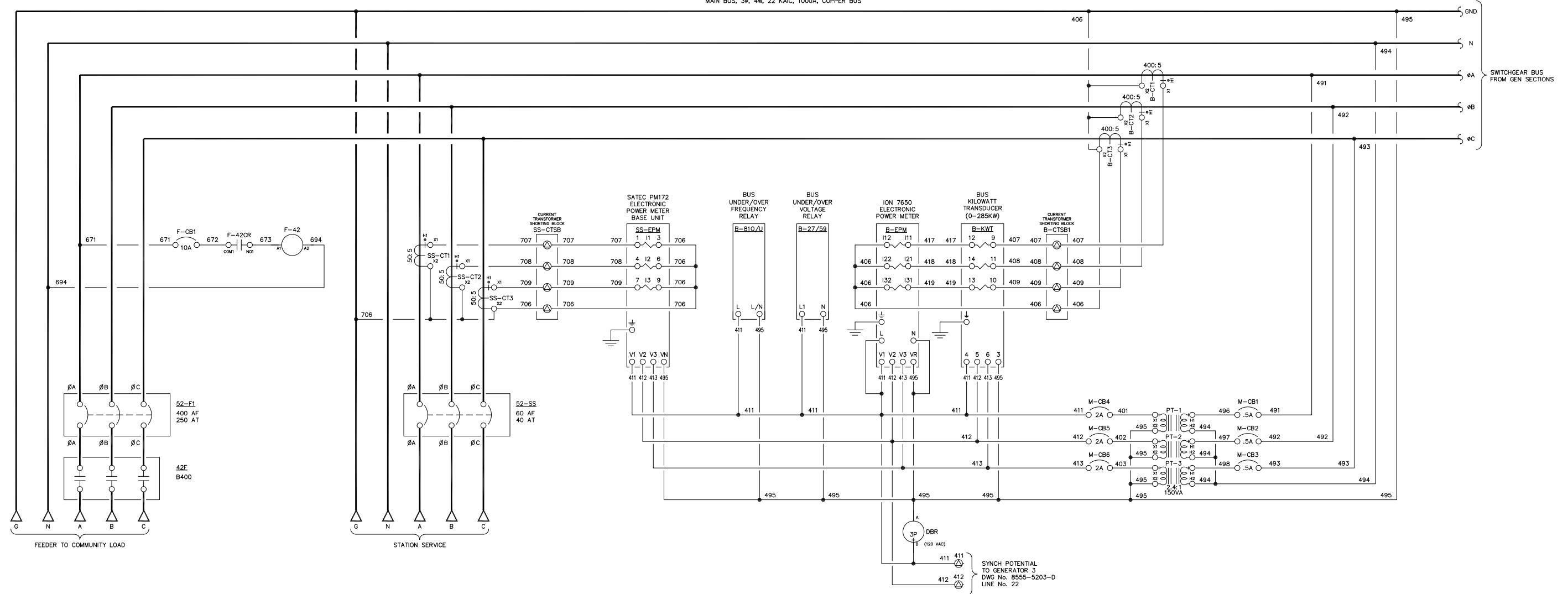
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MAIN BUS, 3Ø, 4W, 22 KAIC, 1000A, COPPER BUS



NOTE:
1. FOR GENERAL WIRING & CONSTRUCTION NOTES, SEE DRAWING No. 8555-3101-D.

REV.	DATE	DESCRIPTION	BY
A	03-24-17	FIELD REVISION	GPN

AEA PURCHASE ORDER No. PREPAID CONTROLLED POWER JOB No. 8555
TITLE: MASTER AC THREE LINE, SCHEMATIC DIAGRAM

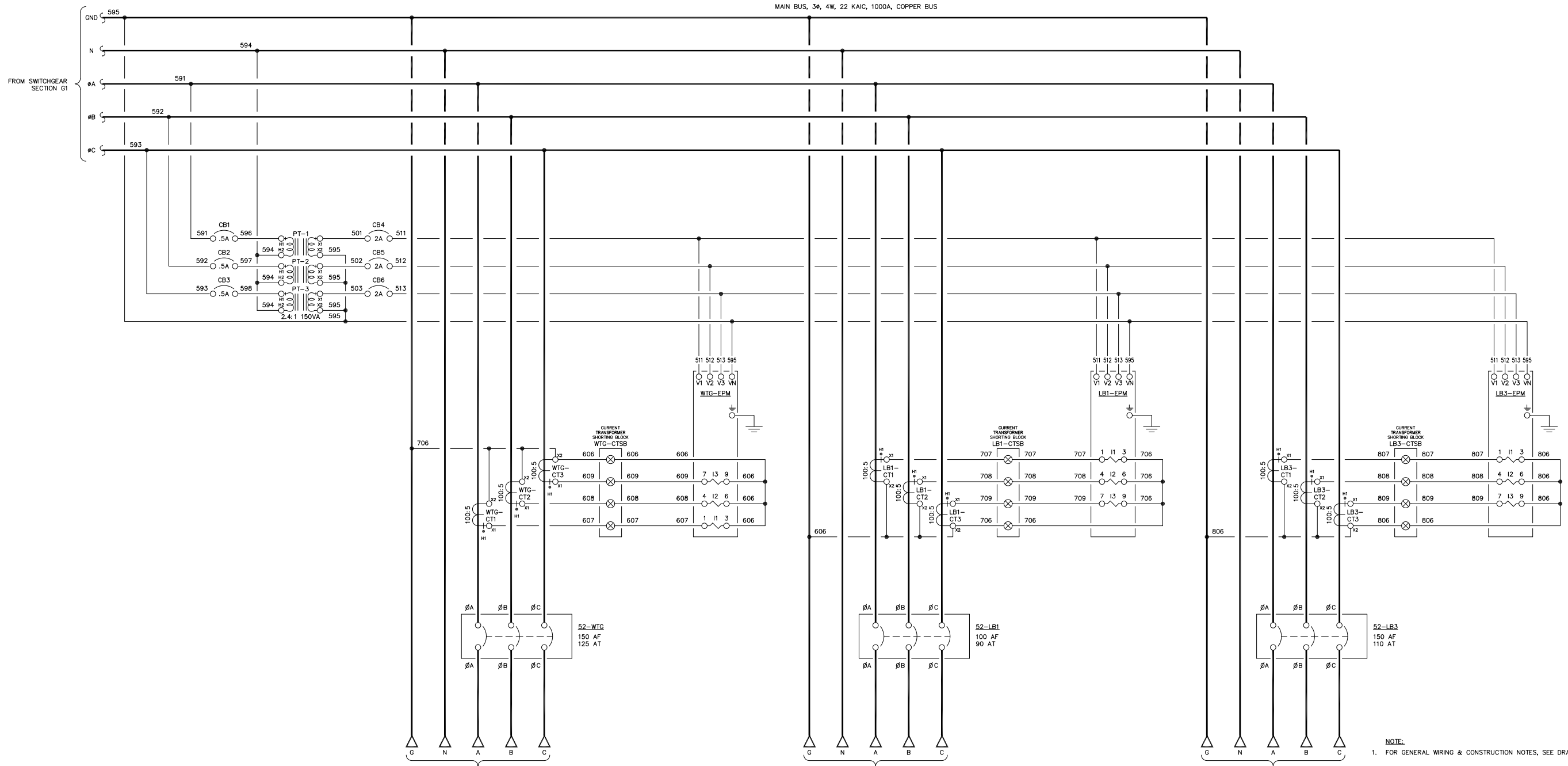
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DWG. No: 8555-5204-D SHEET: 1 OF 1 CKD. BY: RTH
JOB: NIKOLSKI UPGRADE

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REV.	DATE	DESCRIPTION	BY
A	03-24-17	FIELD REVISION	GPN

AEA PURCHASE ORDER No. PREPAID CONTROLLED POWER JOB No. 8555

TITLE: WTG AC THREE LINE & DISTRIBUTION, SCHEMATIC DIAGRAM

SCALE: NONE DATE: 03-14-17 DWN. BY: GPN

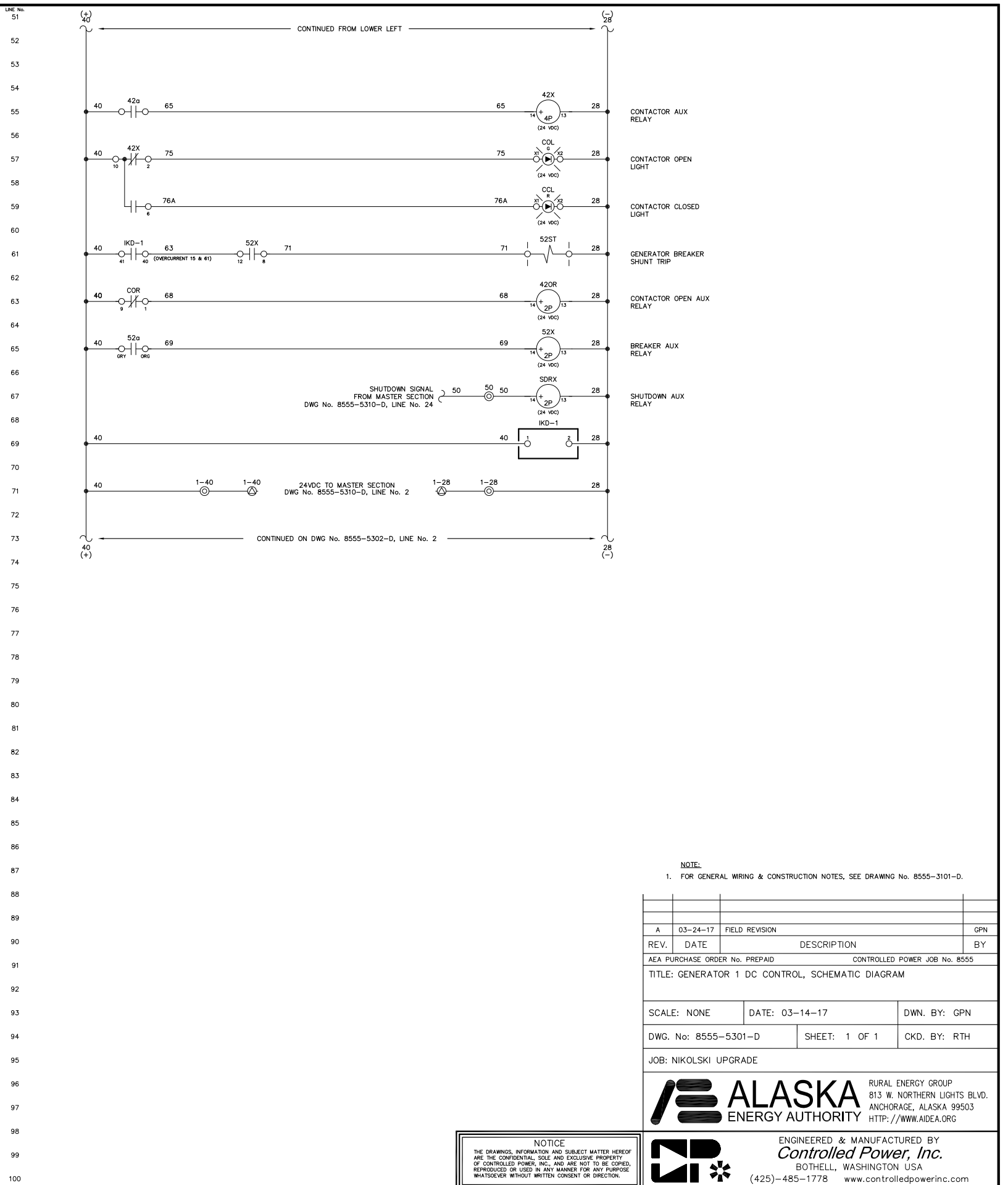
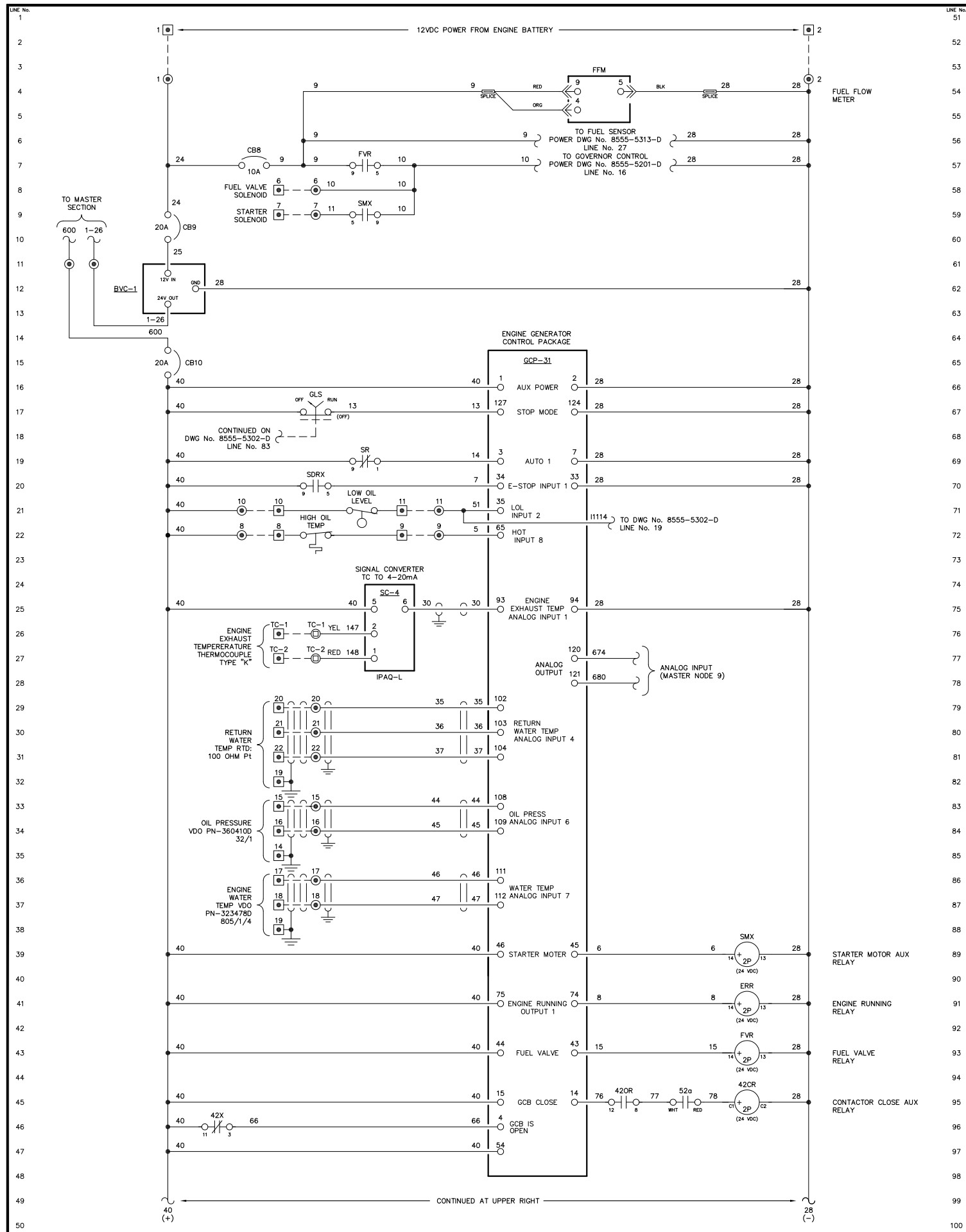
DWG. No: 8555-5205-D SHEET: 1 OF 1 CKD. BY: RTH

JOB: NIKOLSKI UPGRADE

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NOTE:
1. FOR GENERAL WIRING & CONSTRUCTION NOTES, SEE DRAWING No. 8555-3101-D.

REV.	DATE	DESCRIPTION	BY
A	03-24-17	FIELD REVISION	GPN

AEA PURCHASE ORDER No. PREPAID CONTROLLED POWER JOB No. 8555

TITLE: GENERATOR 1 DC CONTROL, SCHEMATIC DIAGRAM

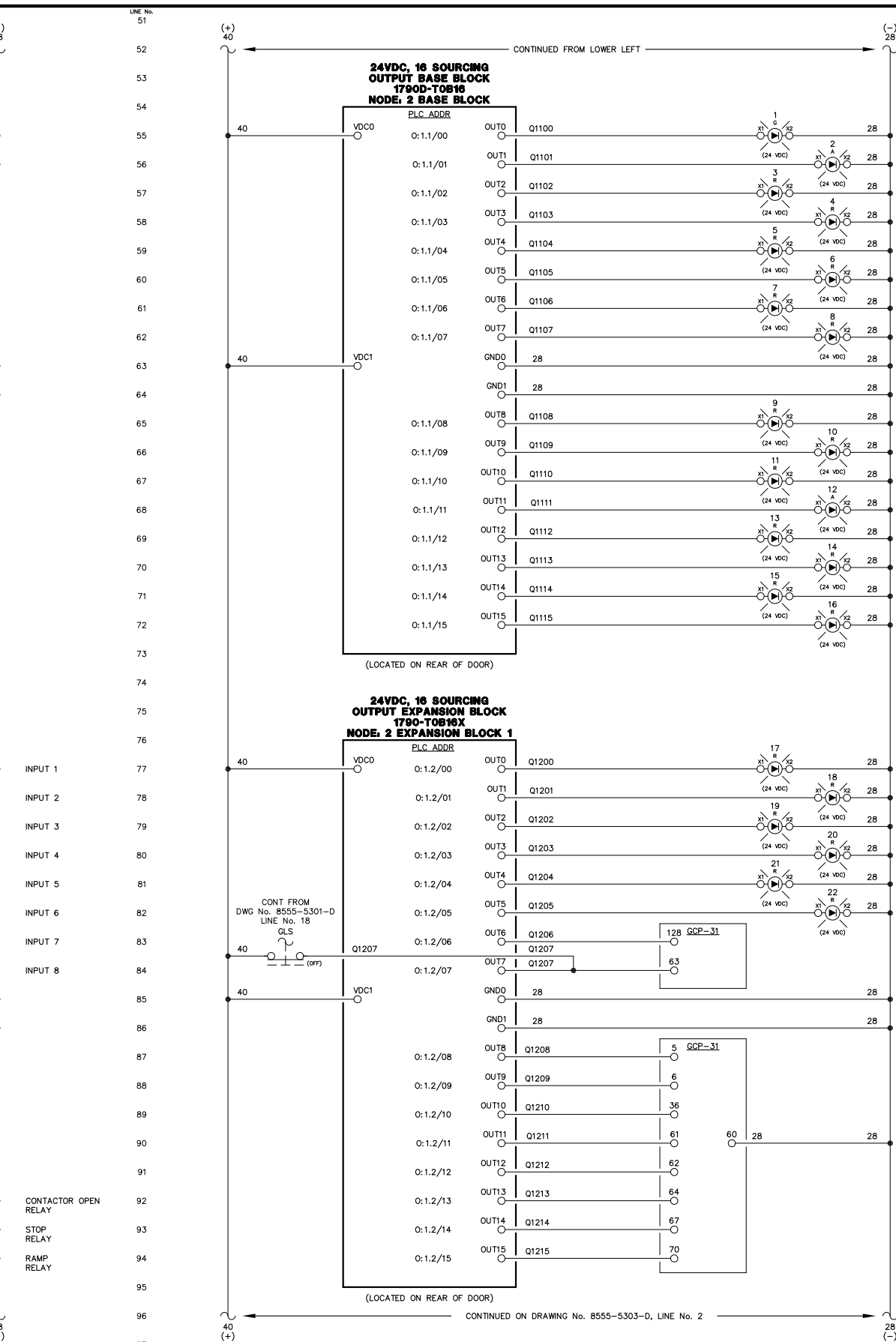
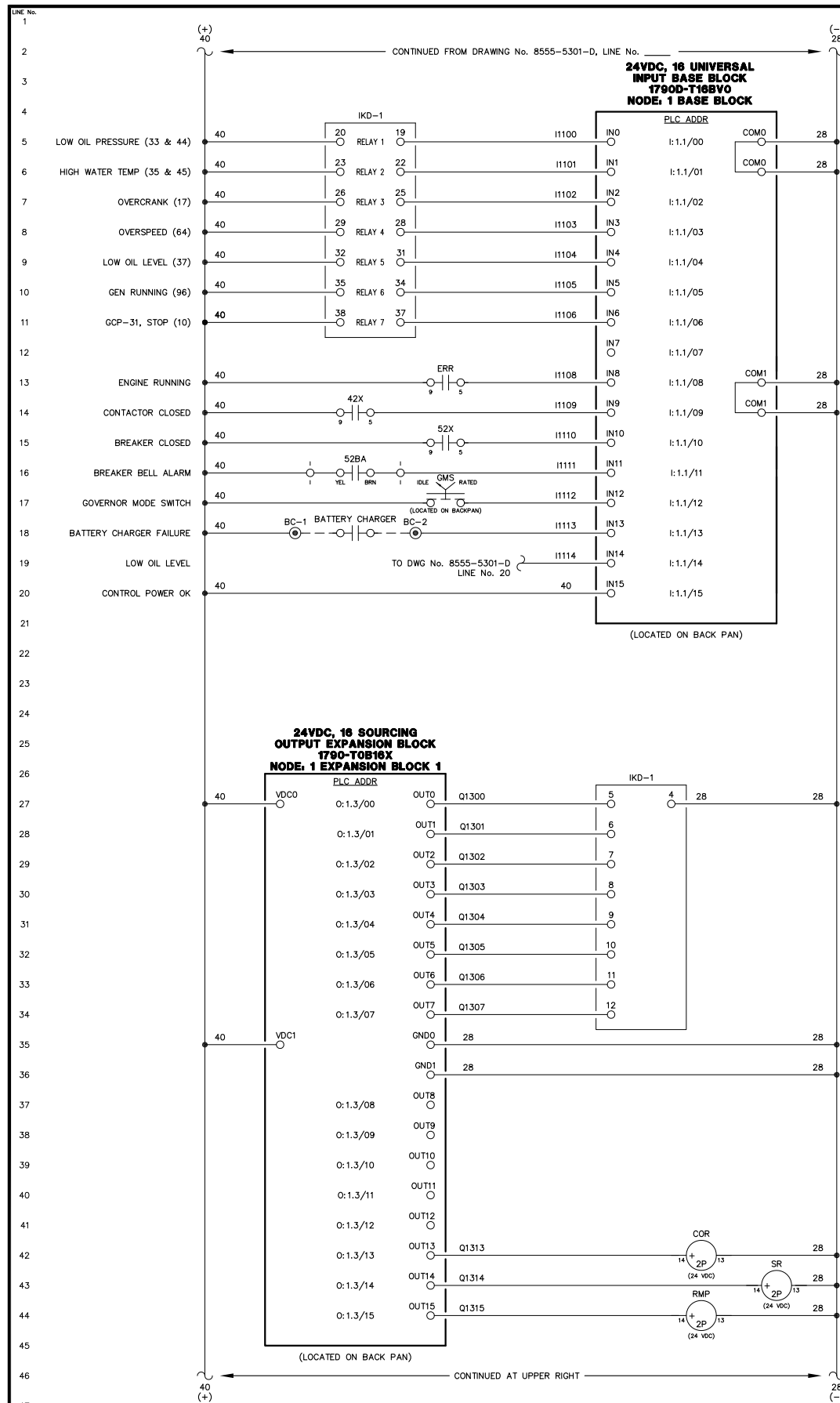
SCALE: NONE DATE: 03-14-17 DWN. BY: GPN

DWG. No: 8555-5301-D SHEET: 1 OF 1 CKD. BY: RTH

JOB: NIKOLSKI UPGRADE

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ENGINE RUNNING LIGHT
ENGINE IDLE LIGHT
ENGINE ALARM LIGHT
LOW OIL PRESSURE LIGHT
OIL LEVEL LIGHT
HIGH OIL TEMPERATURE LIGHT
HIGH WATER TEMPERATURE LIGHT
OVERSPEED LIGHT
OVERCRANK LIGHT
COOLDOWN LOCKOUT LIGHT
BATTERY CHARGER FAIL LIGHT
NORMAL STOP LIGHT
NOT IN AUTO LIGHT
GENERATOR BREAKER OPEN LIGHT
FAIL TO SYNC LIGHT
OVERCURRENT LIGHT
UNDER VOLTAGE LIGHT
OVER VOLTAGE LIGHT
UNDER FREQUENCY LIGHT
OVER FREQUENCY LIGHT
LOSS OF EXCITATION LIGHT
REVERSE POWER LIGHT
AUTOMATIC MODE
MODE SELECTION LOCK
AUTO 2
MULTIFUNCTION
INPUT 3 - COOLDOWN/LOCKOUT
INPUT 4 - MASTER SHUTDOWN
INPUT 5
INPUT 7
INPUT 10
INPUT 13

NOTE:
1. FOR GENERAL WIRING & CONSTRUCTION NOTES, SEE DRAWING No. 8555-3101-D.

REV.	DATE	DESCRIPTION	BY
A	03-24-17	FIELD REVISION	GPN

AEA PURCHASE ORDER No. PREPAID CONTROLLED POWER JOB No. 8555
TITLE: GENERATOR 1 DC CONTROL, SCHEMATIC DIAGRAM

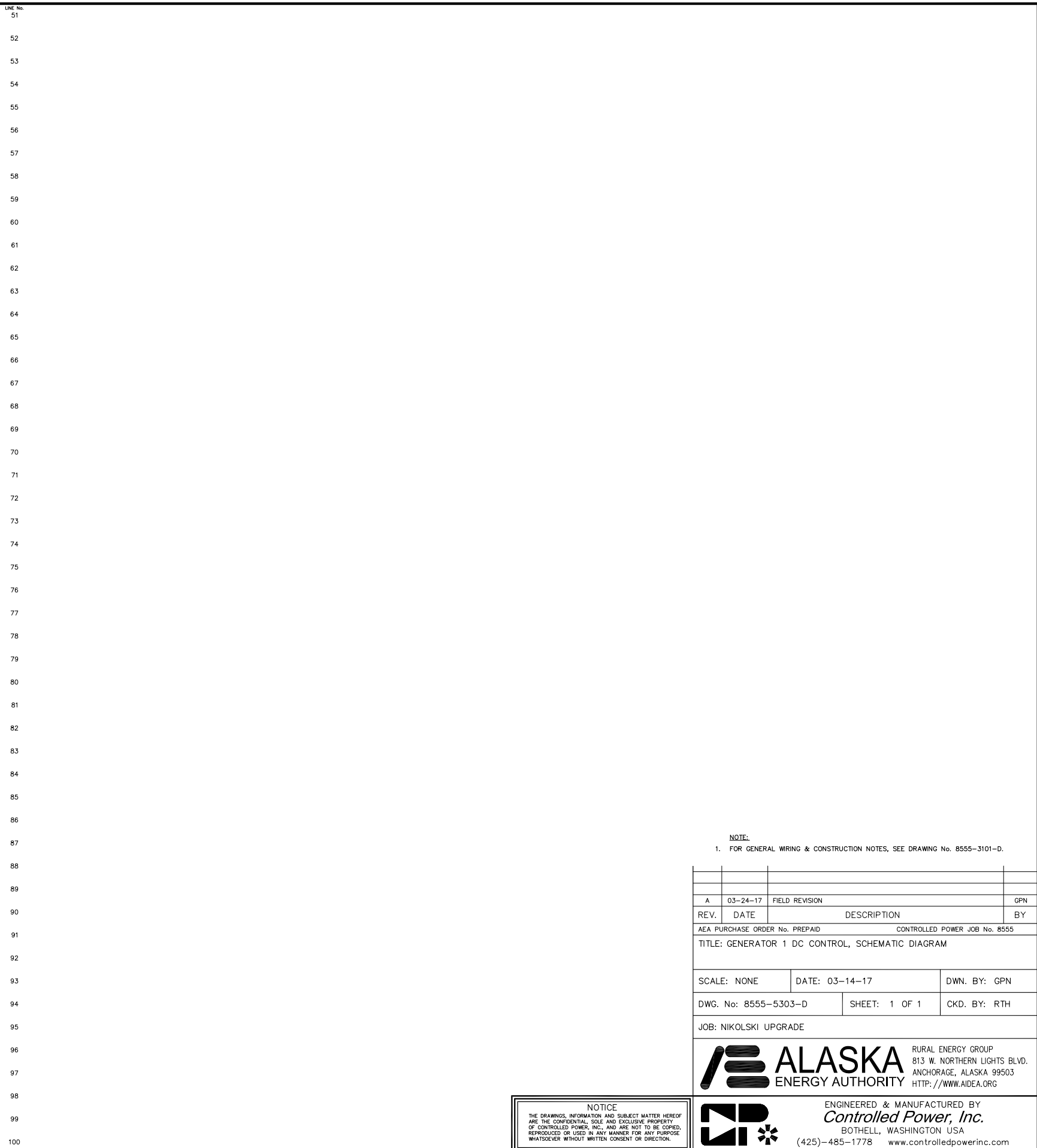
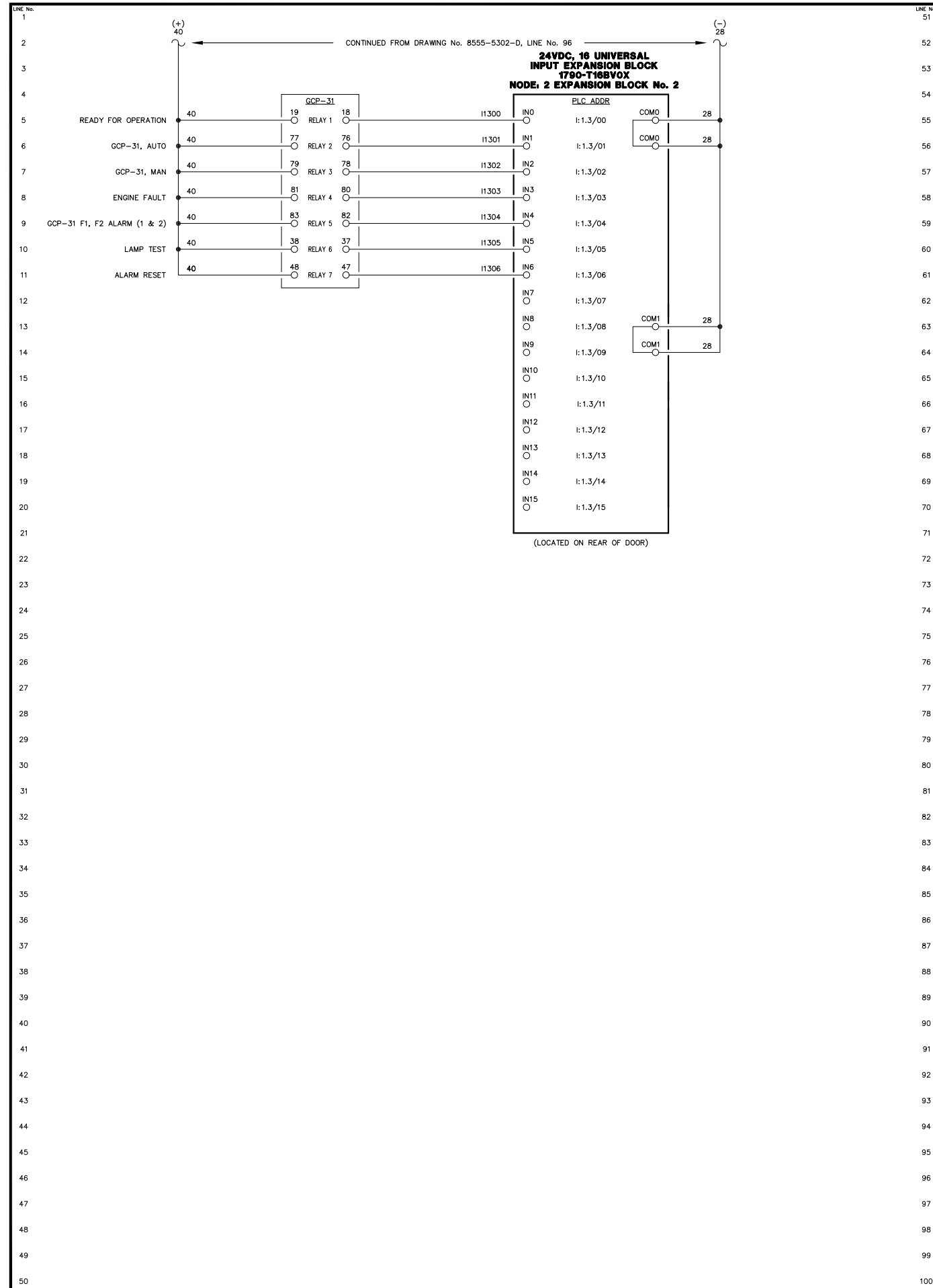
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DWG. No: 8555-5302-D SHEET: 1 OF 1 CKD. BY: RTH

JOB: NIKOLSKI UPGRADE

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REV.	DATE	DESCRIPTION	BY
A	03-24-17	FIELD REVISION	GPN

AEA PURCHASE ORDER No. PREPAID CONTROLLED POWER JOB No. 8555

TITLE: GENERATOR 1 DC CONTROL, SCHEMATIC DIAGRAM

SCALE: NONE DATE: 03-14-17 DWN. BY: GPN

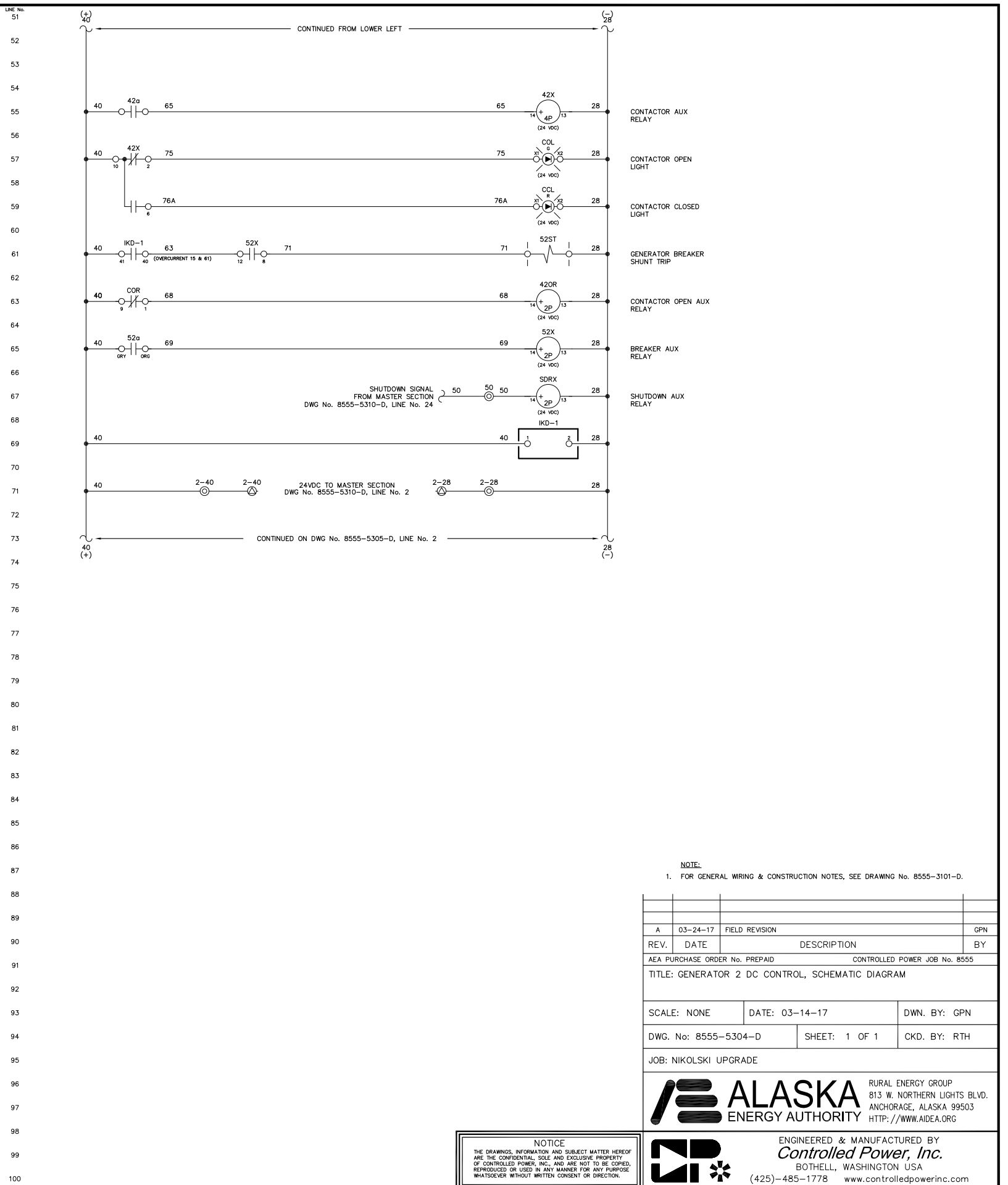
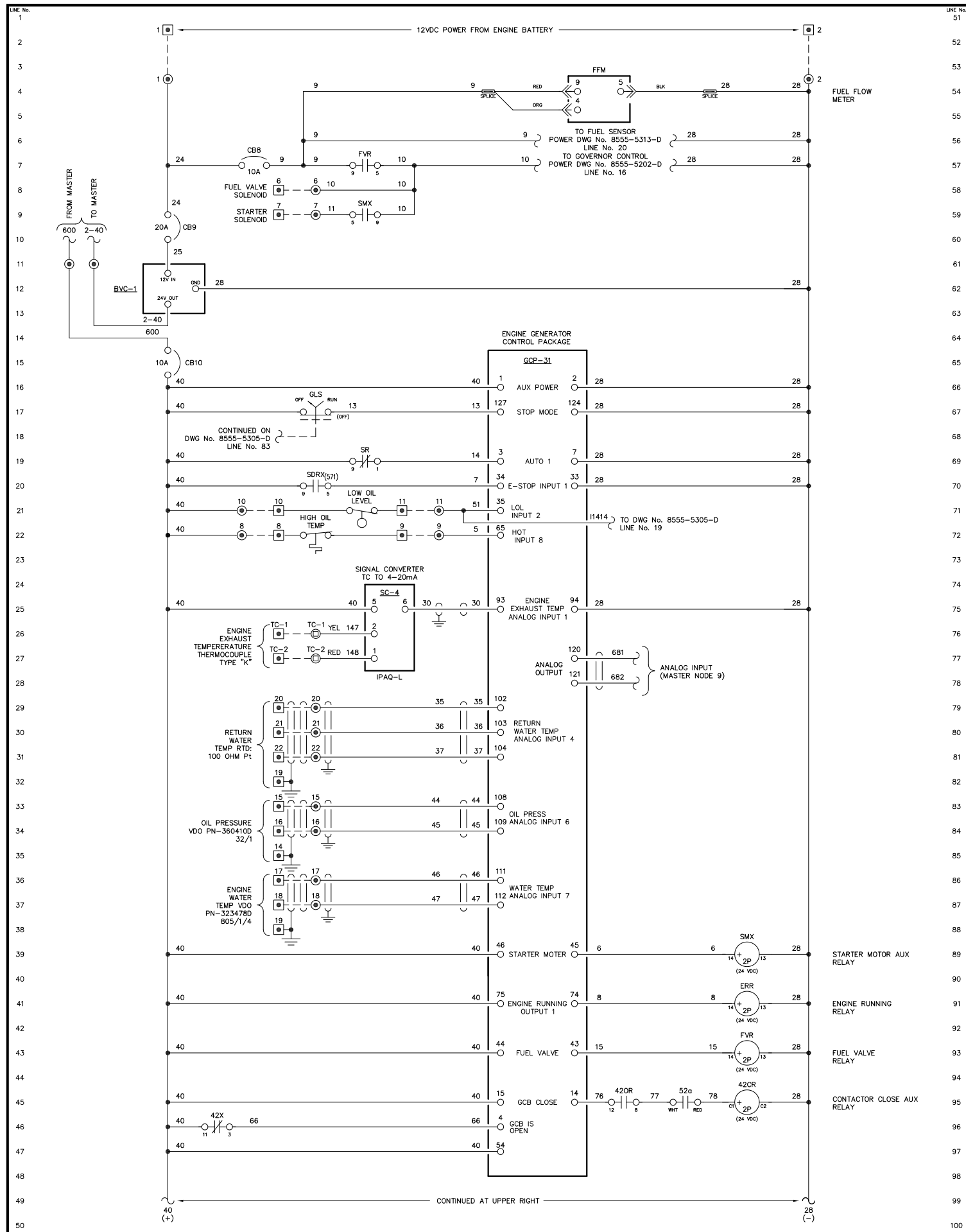
DWG. No: 8555-5303-D SHEET: 1 OF 1 CKD. BY: RTH

JOB: NIKOLSKI UPGRADE

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REV.	DATE	DESCRIPTION	BY
A	03-24-17	FIELD REVISION	GPN

AEA PURCHASE ORDER No. PREPAID CONTROLLED POWER JOB No. 8555

TITLE: GENERATOR 2 DC CONTROL, SCHEMATIC DIAGRAM

SCALE: NONE DATE: 03-14-17 DWN. BY: GPN

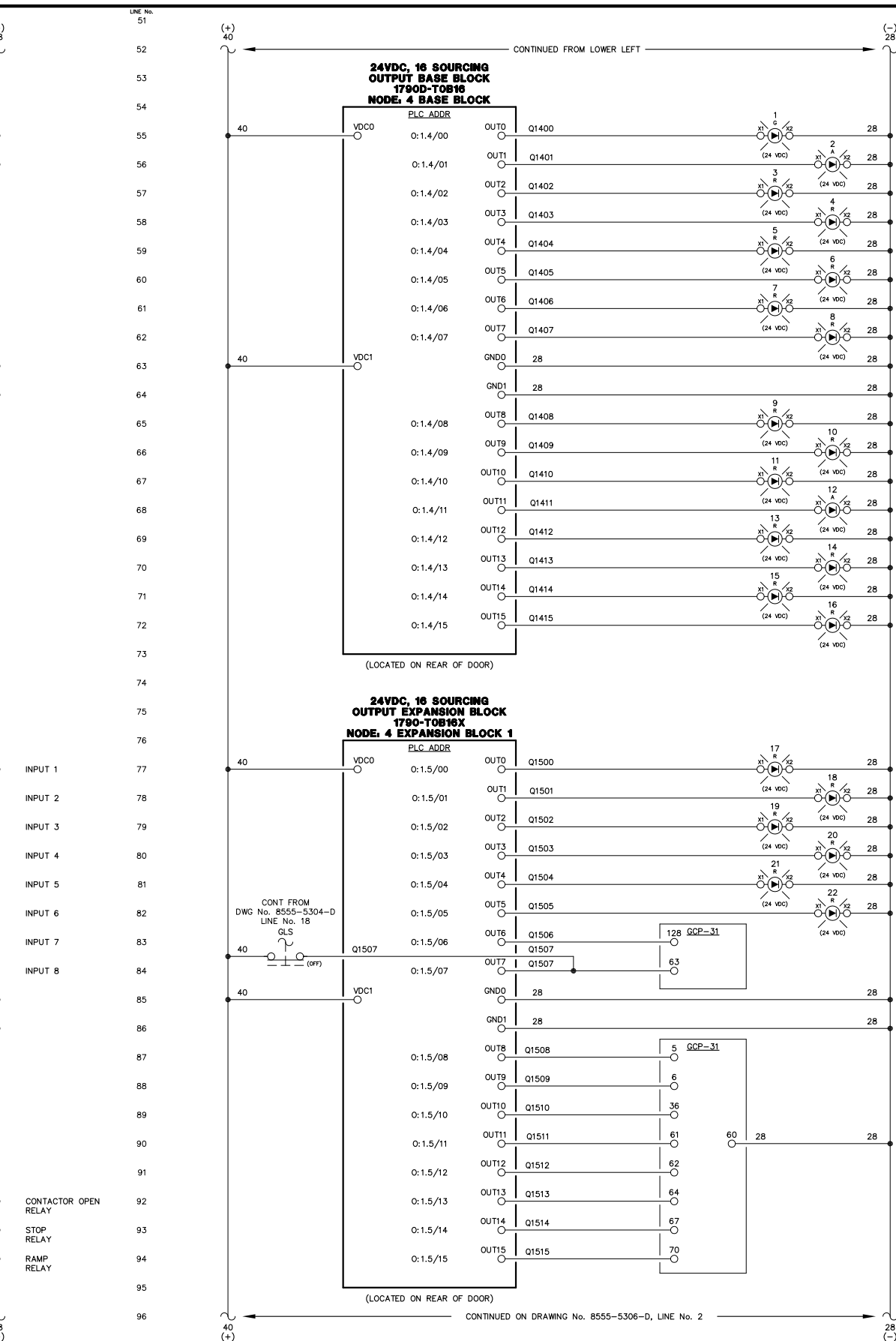
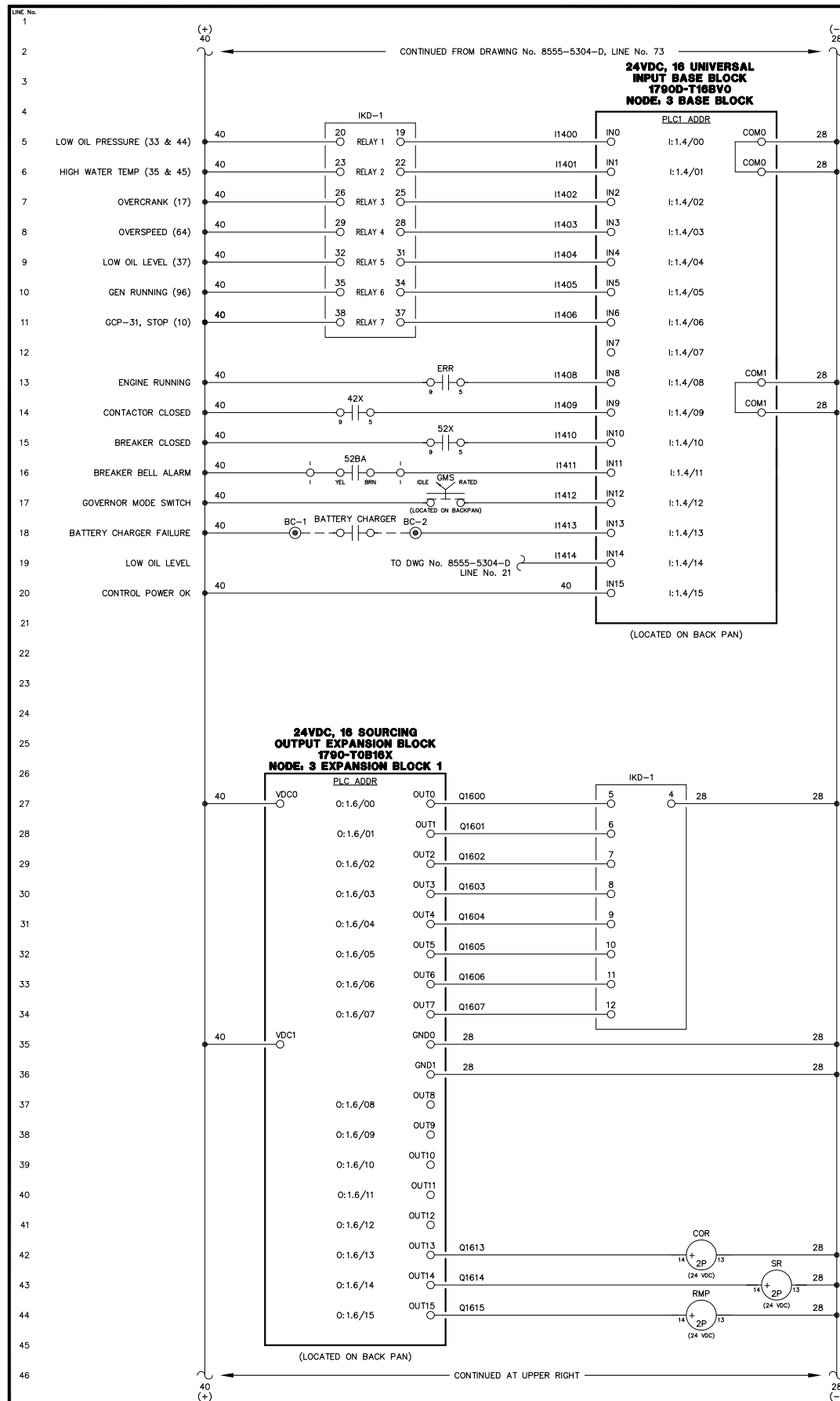
DWG. No: 8555-5304-D SHEET: 1 OF 1 CKD. BY: RTH

JOB: NIKOLSKI UPGRADE

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REV.	DATE	DESCRIPTION	BY
A	03-24-17	FIELD REVISION	GPN

AEV PURCHASE ORDER No. PREPAID CONTROLLED POWER JOB No. 8555
TITLE: GENERATOR 2 DC CONTROL, SCHEMATIC DIAGRAM

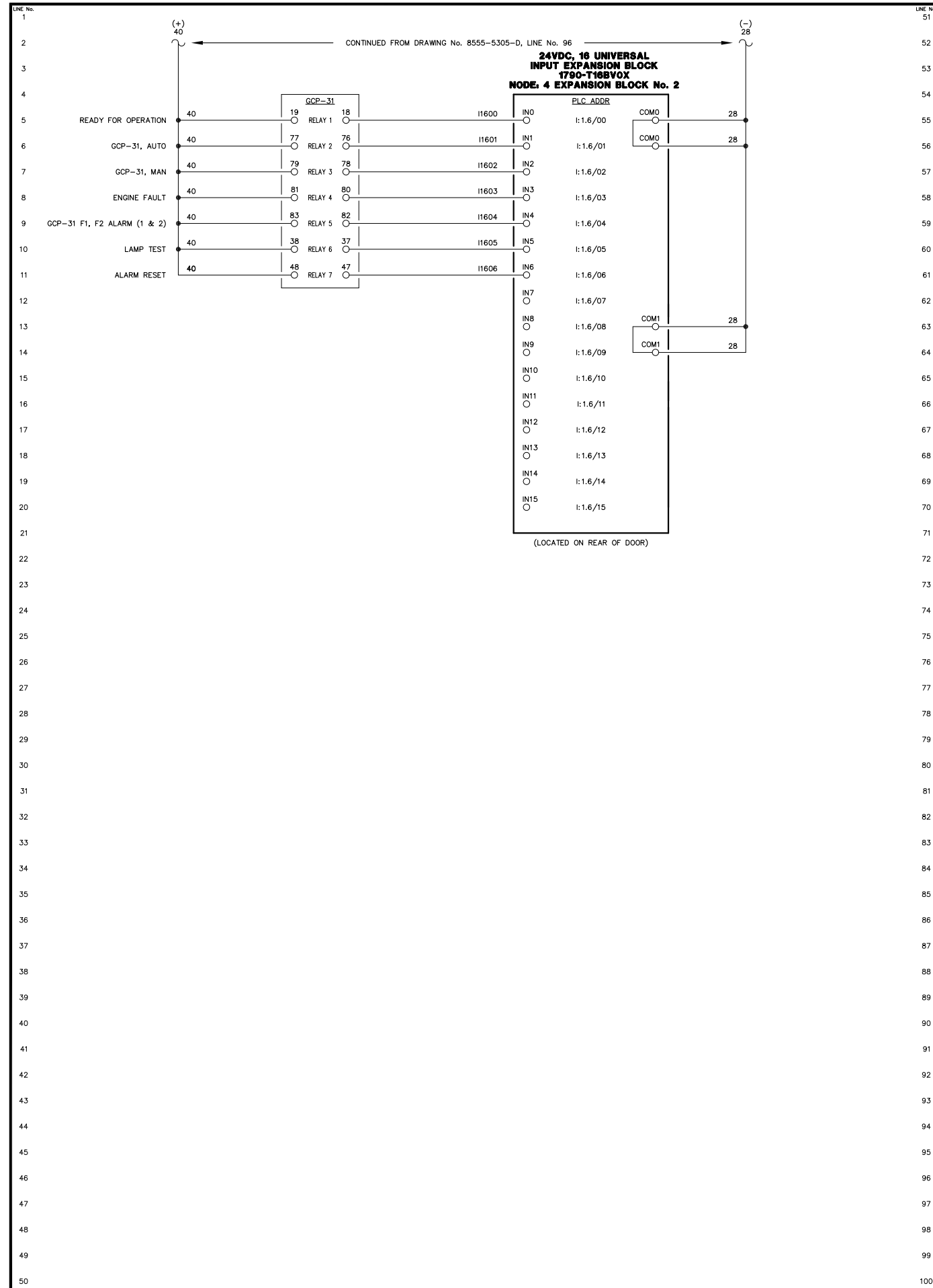
SCALE: NONE	DATE: 03-14-17	DWN. BY: GPN
DWG. No: 8555-5305-D	SHEET: 1 OF 1	CKD. BY: RTH

JOB: NIKOLSKI UPGRADE

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REV.	DATE	DESCRIPTION	BY
A	03-24-17	FIELD REVISION	GPN

AEA PURCHASE ORDER No. PREPAID CONTROLLED POWER JOB No. 8555
TITLE: GENERATOR 2 DC CONTROL, SCHEMATIC DIAGRAM

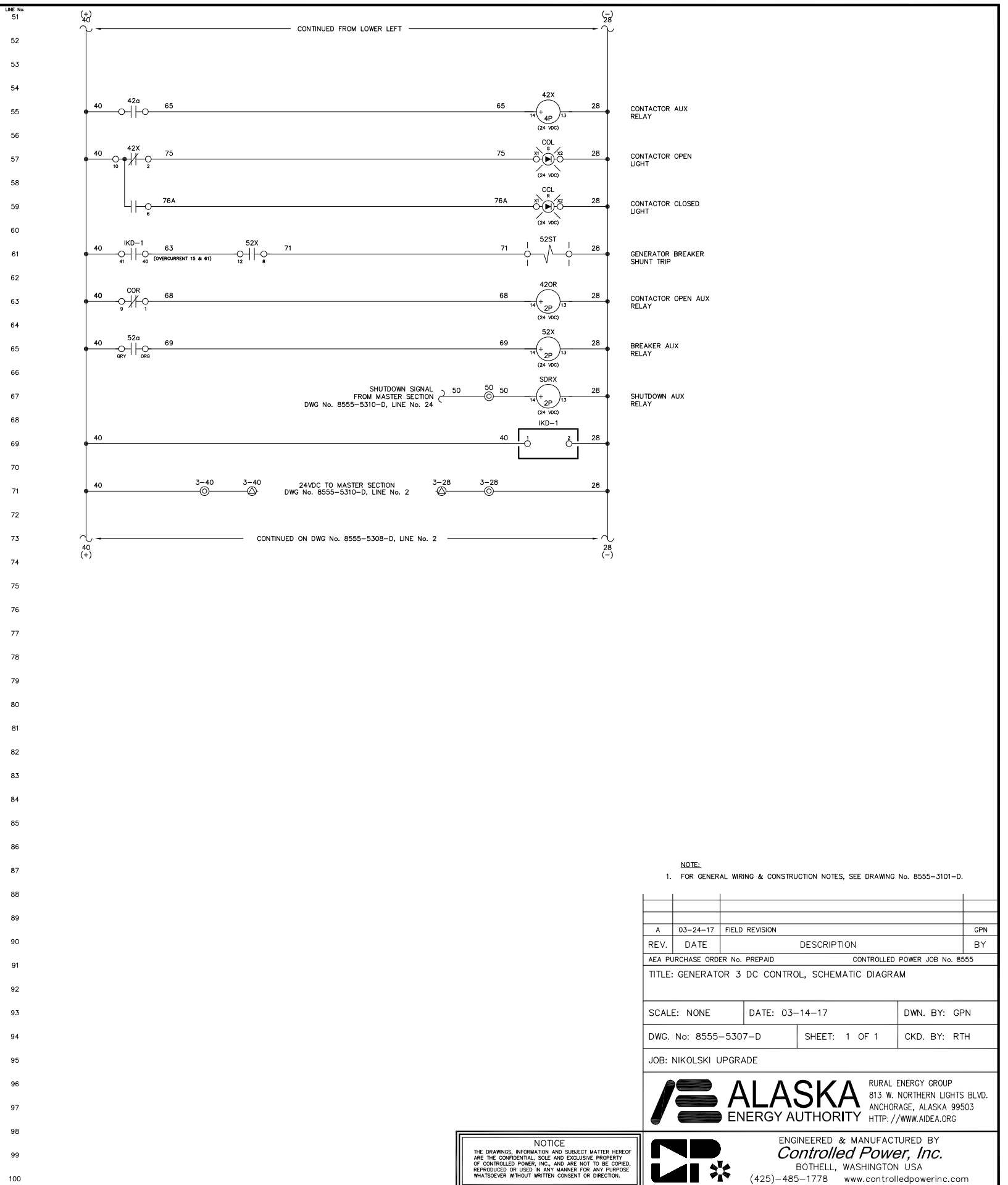
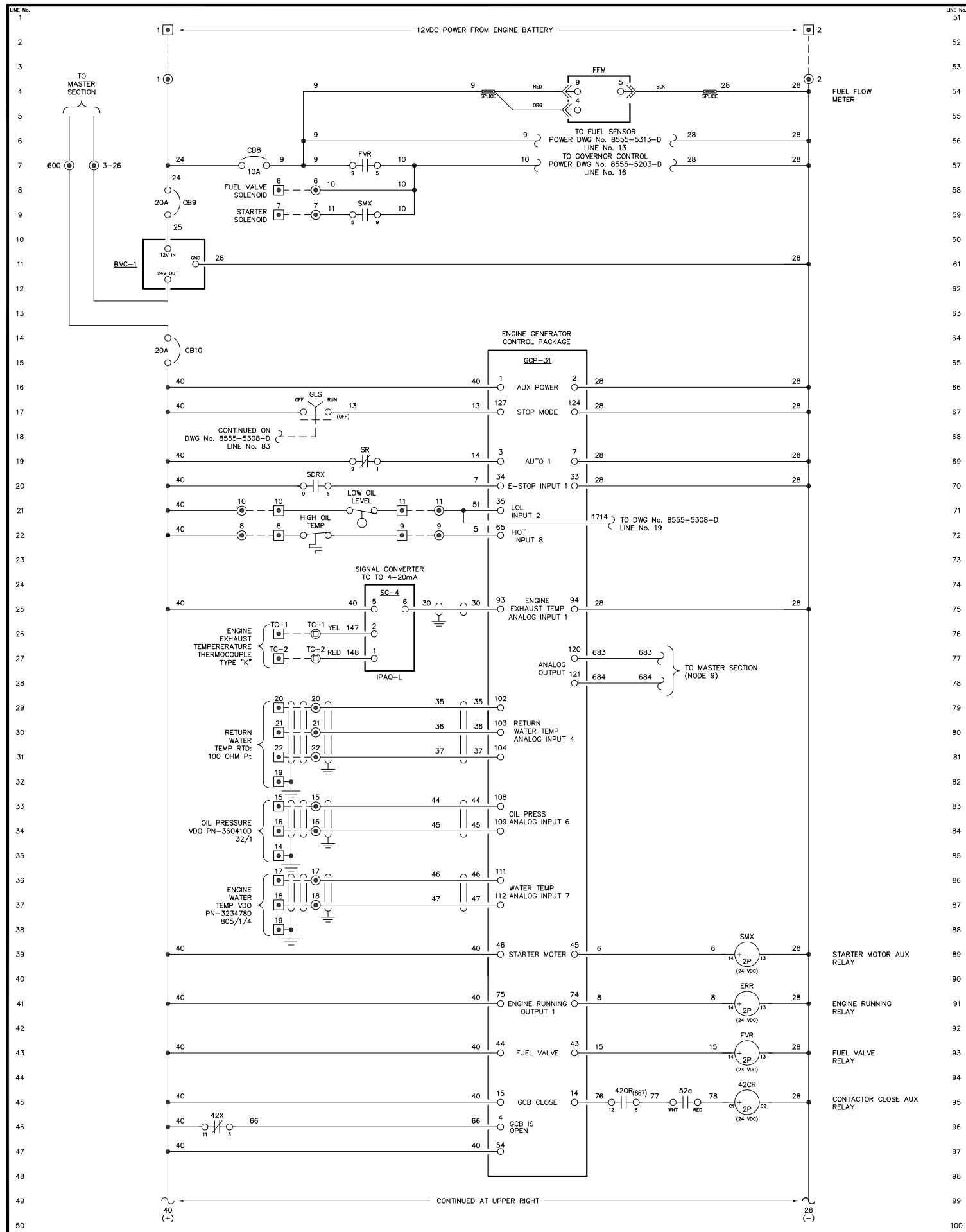
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DWG. No: 8555-5306-D SHEET: 1 OF 1 CKD. BY: RTH
JOB: NIKOLSKI UPGRADE

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REV.	DATE	DESCRIPTION	BY
A	03-24-17	FIELD REVISION	GPN

AEA PURCHASE ORDER No. PREPAID CONTROLLED POWER JOB No. 8555

TITLE: GENERATOR 3 DC CONTROL, SCHEMATIC DIAGRAM

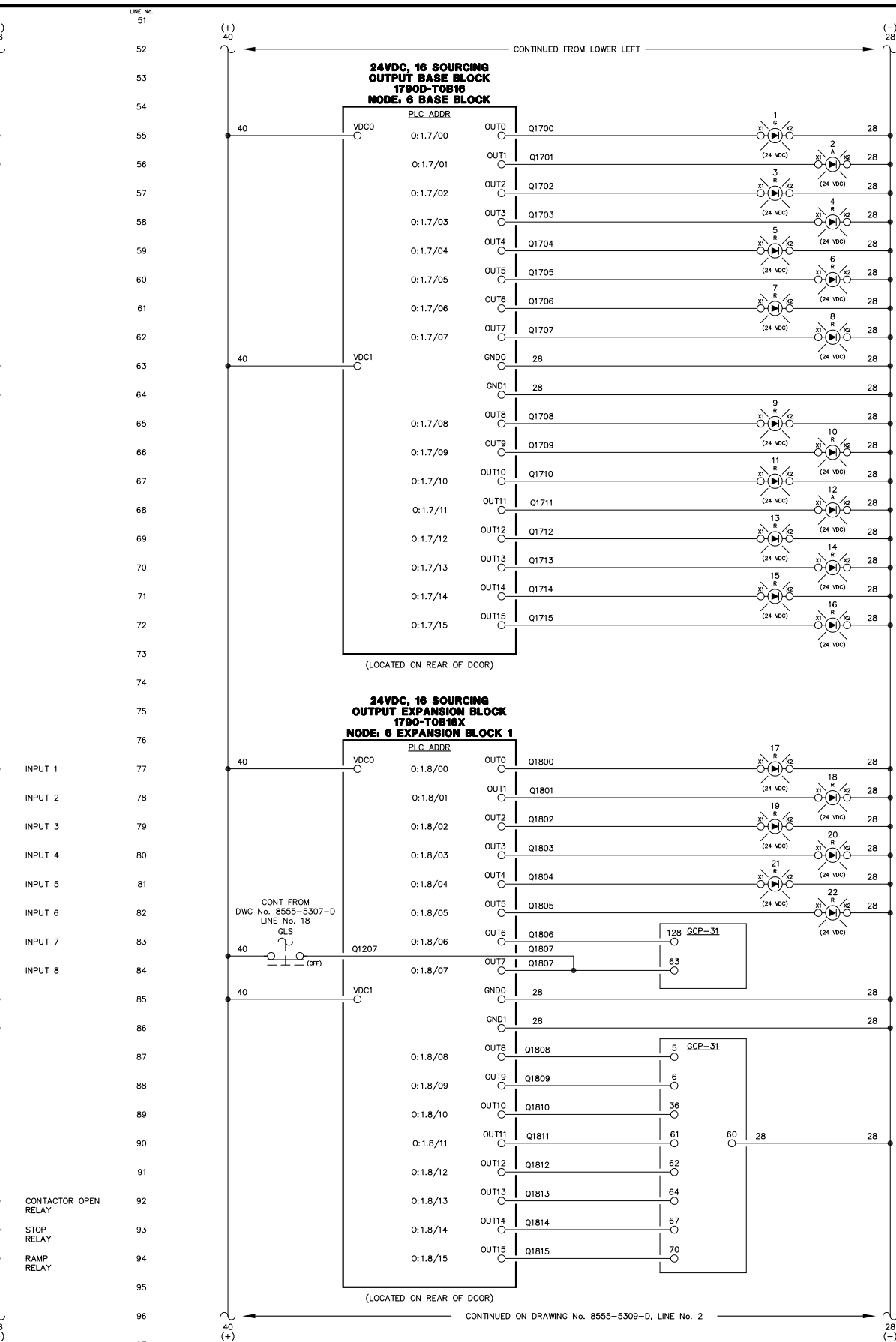
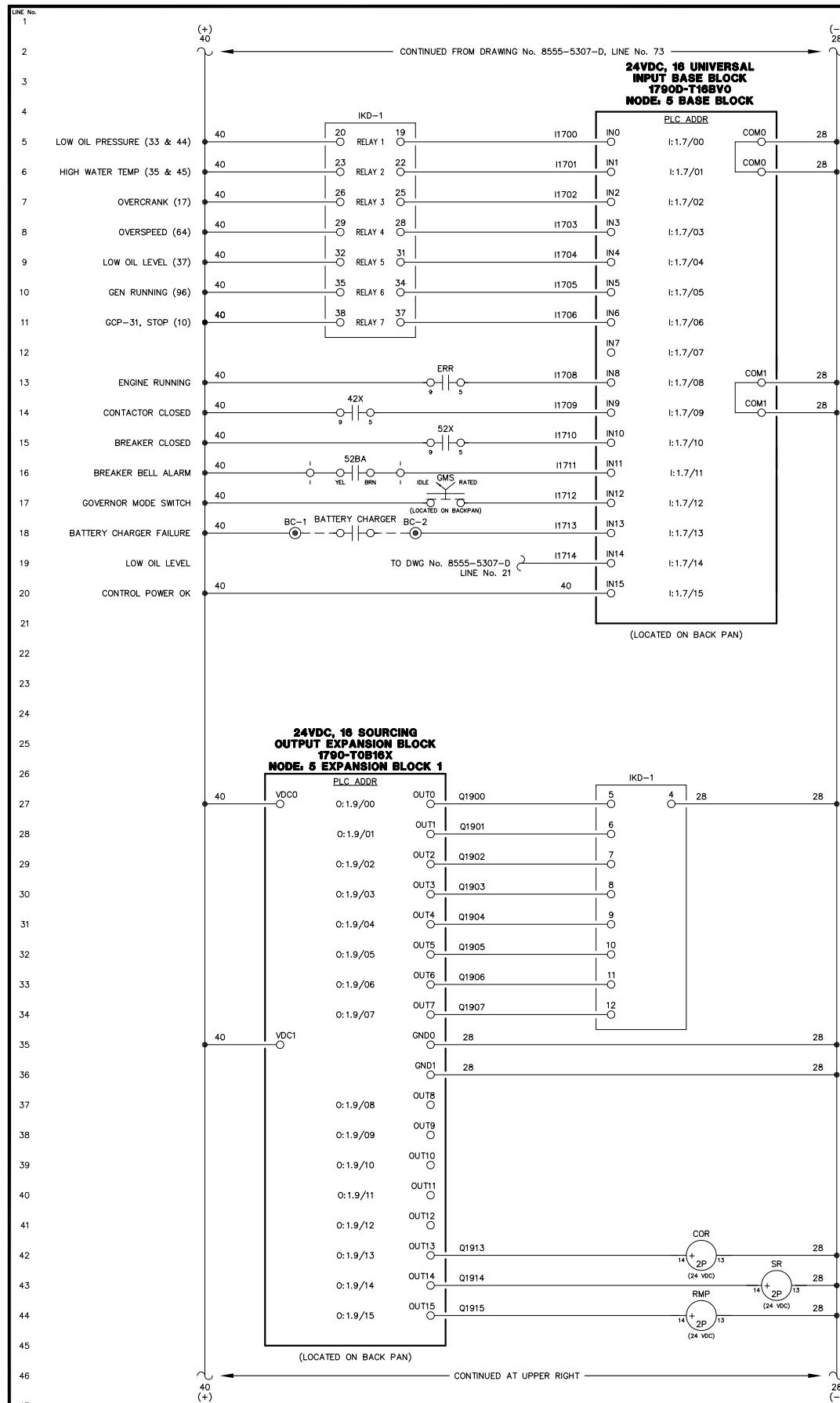
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DWG. No: 8555-5307-D	SHEET: 1 OF 1	CKD. BY: RTH

JOB: NIKOLSKI UPGRADE

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REV.	DATE	DESCRIPTION	BY
A	03-24-17	FIELD REVISION	GPN

AEA PURCHASE ORDER No. PREPAID CONTROLLED POWER JOB No. 8555
TITLE: GENERATOR 3 DC CONTROL, SCHEMATIC DIAGRAM

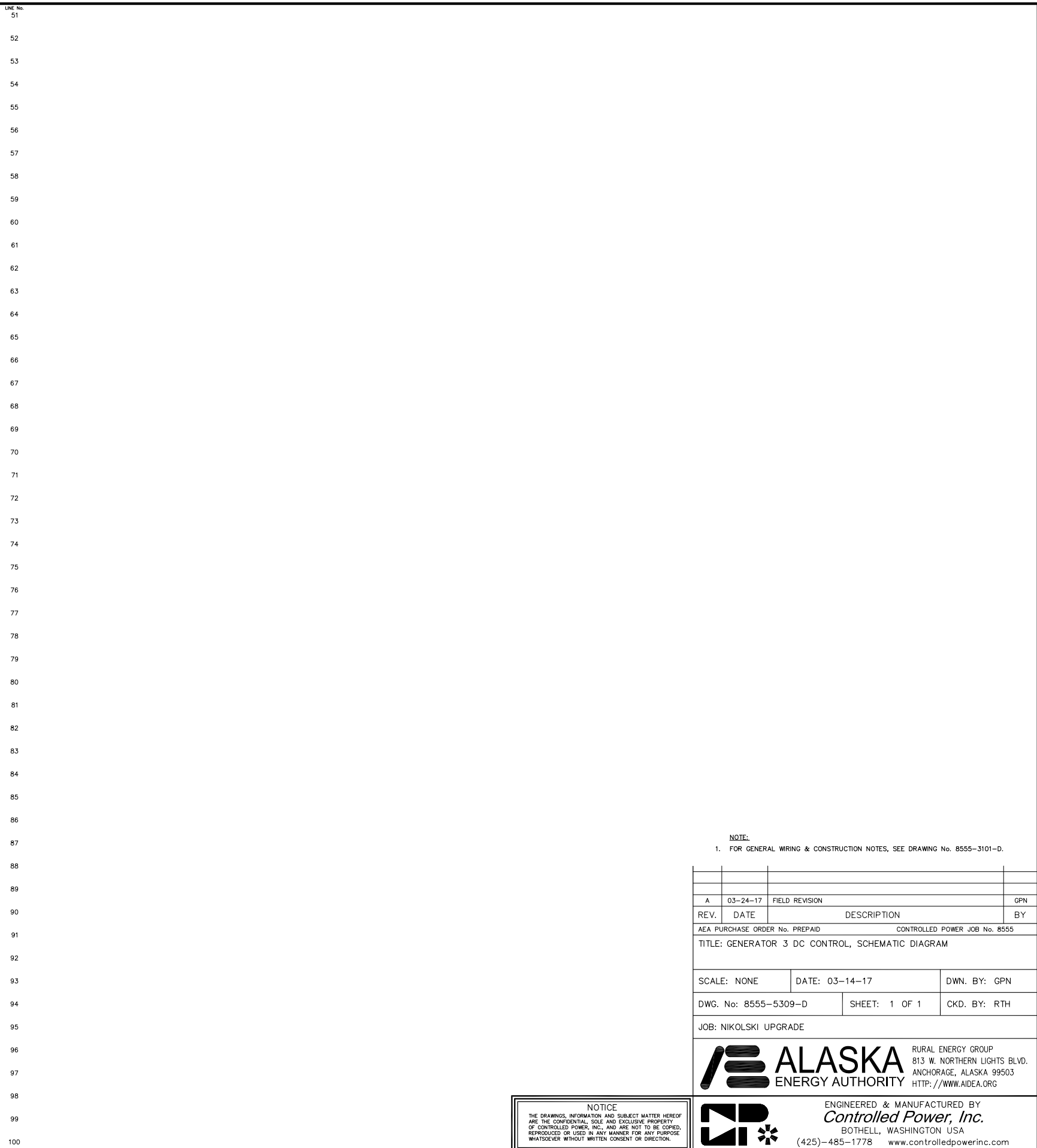
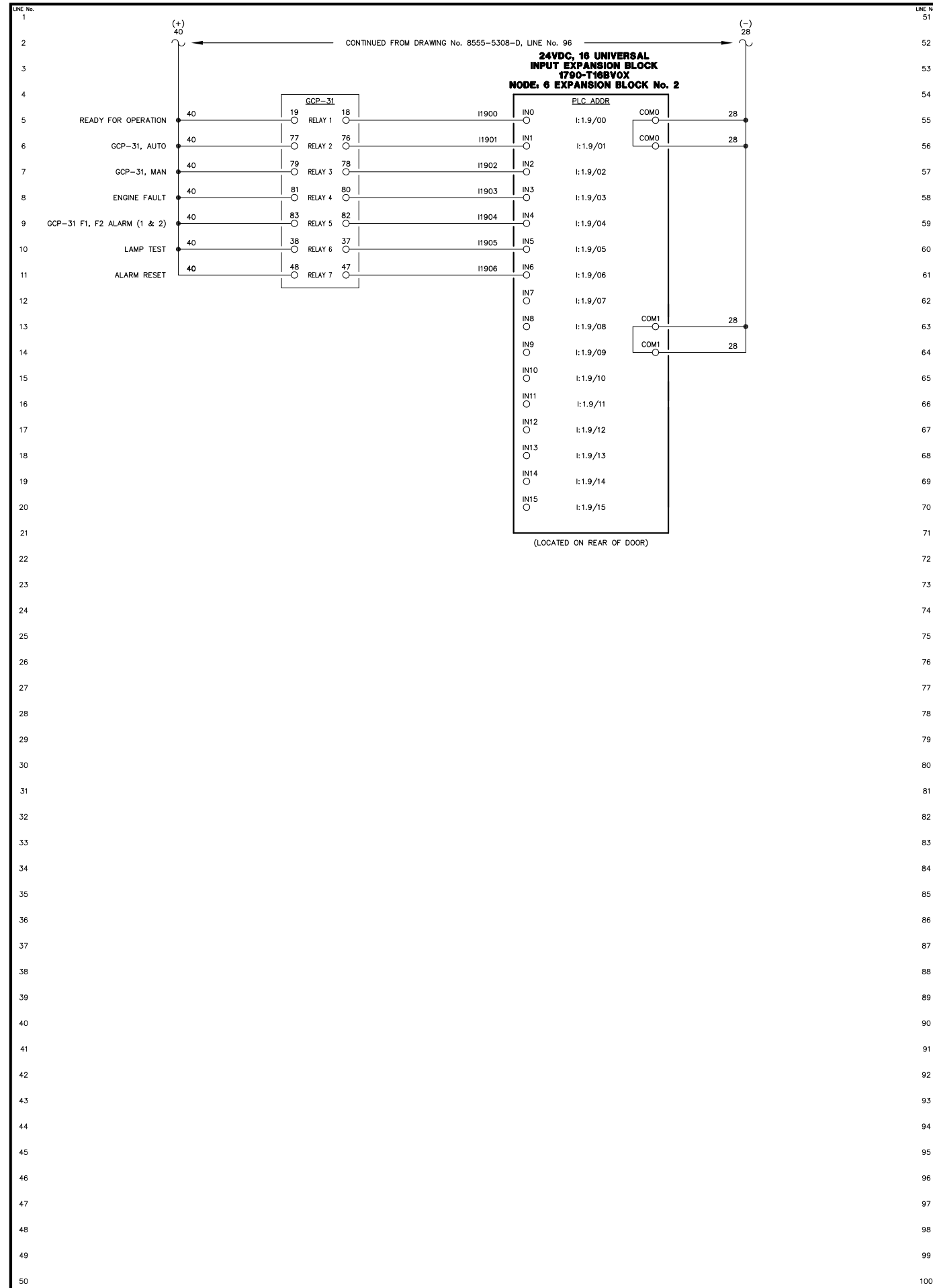
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DWG. No: 8555-5308-D SHEET: 1 OF 1 CKD. BY: RTH

JOB: NIKOLSKI UPGRADE

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REV.	DATE	DESCRIPTION	BY
A	03-24-17	FIELD REVISION	GPN

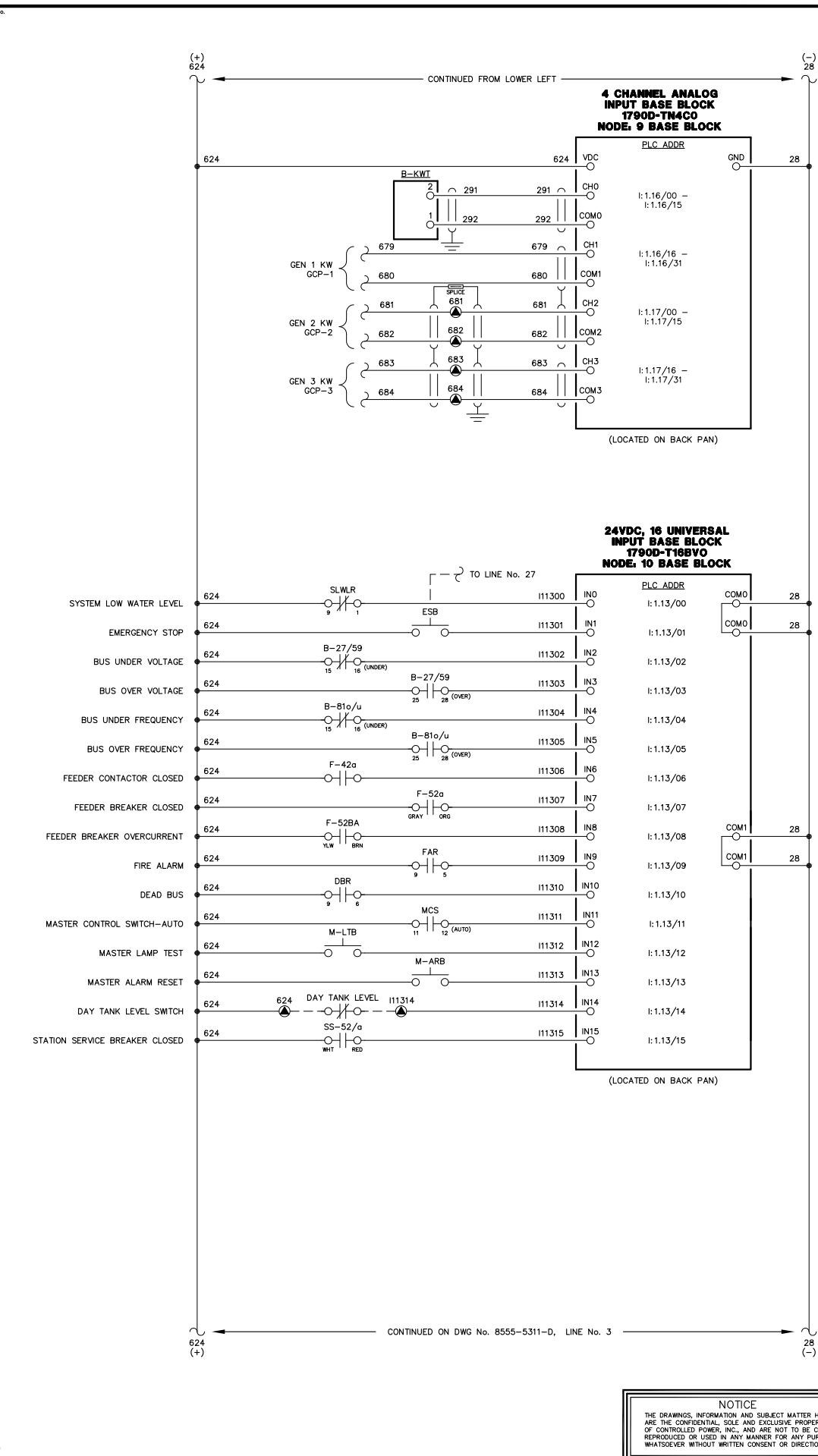
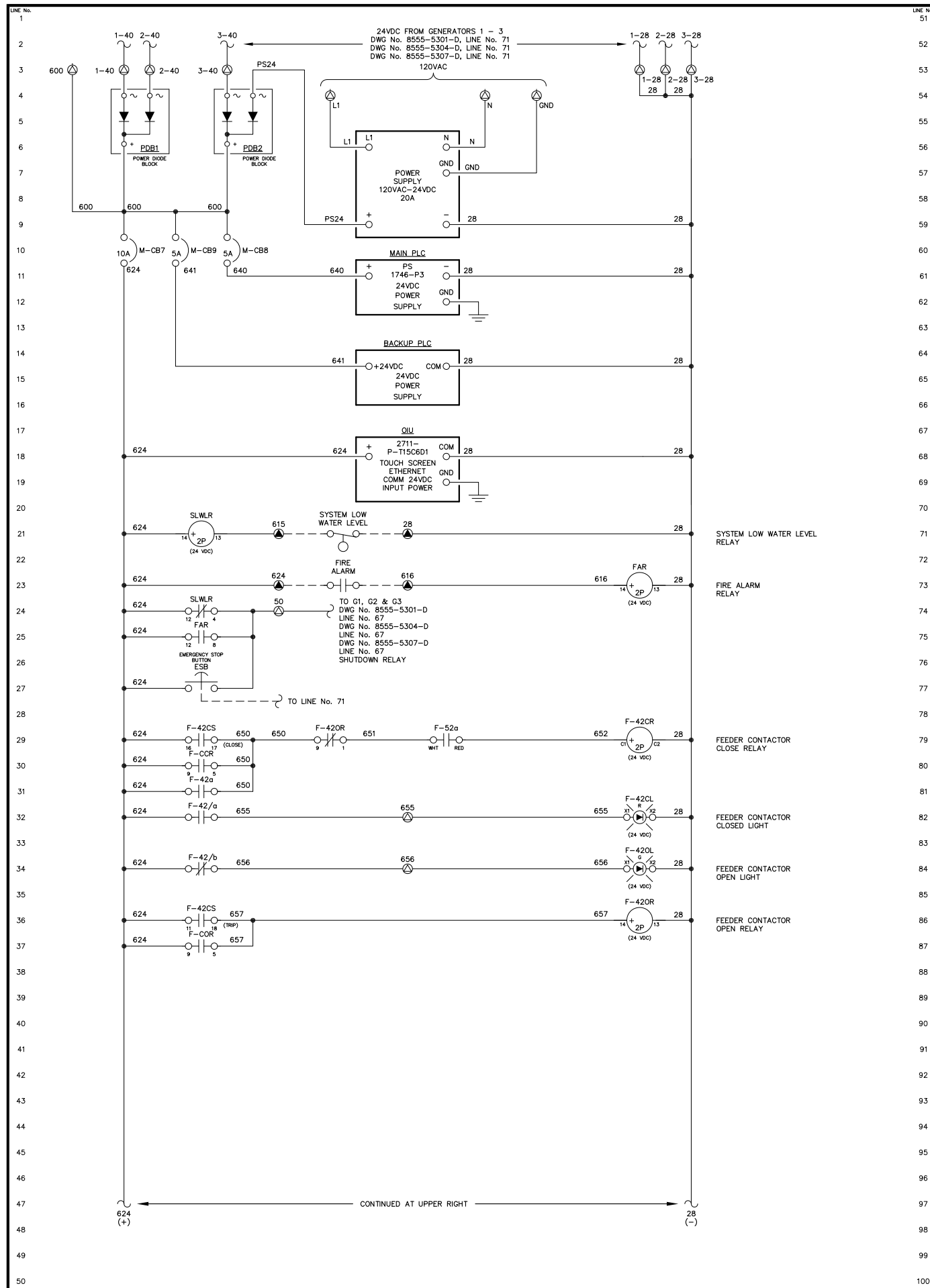
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TITLE: GENERATOR 3 DC CONTROL, SCHEMATIC DIAGRAM

SCALE: NONE DATE: 03-14-17 DWN. BY: GPN
DWG. No: 8555-5309-D SHEET: 1 OF 1 CKD. BY: RTH
JOB: NIKOLSKI UPGRADE

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REV.	DATE	DESCRIPTION	BY
A	03-24-17	FIELD REVISION	GPN

AEA PURCHASE ORDER No. PREPAID CONTROLLED POWER JOB No. 8555

TITLE: MASTER DC CONTROL, SCHEMATIC DIAGRAM

SCALE: NONE DATE: 03-14-17 DWN. BY: GPN

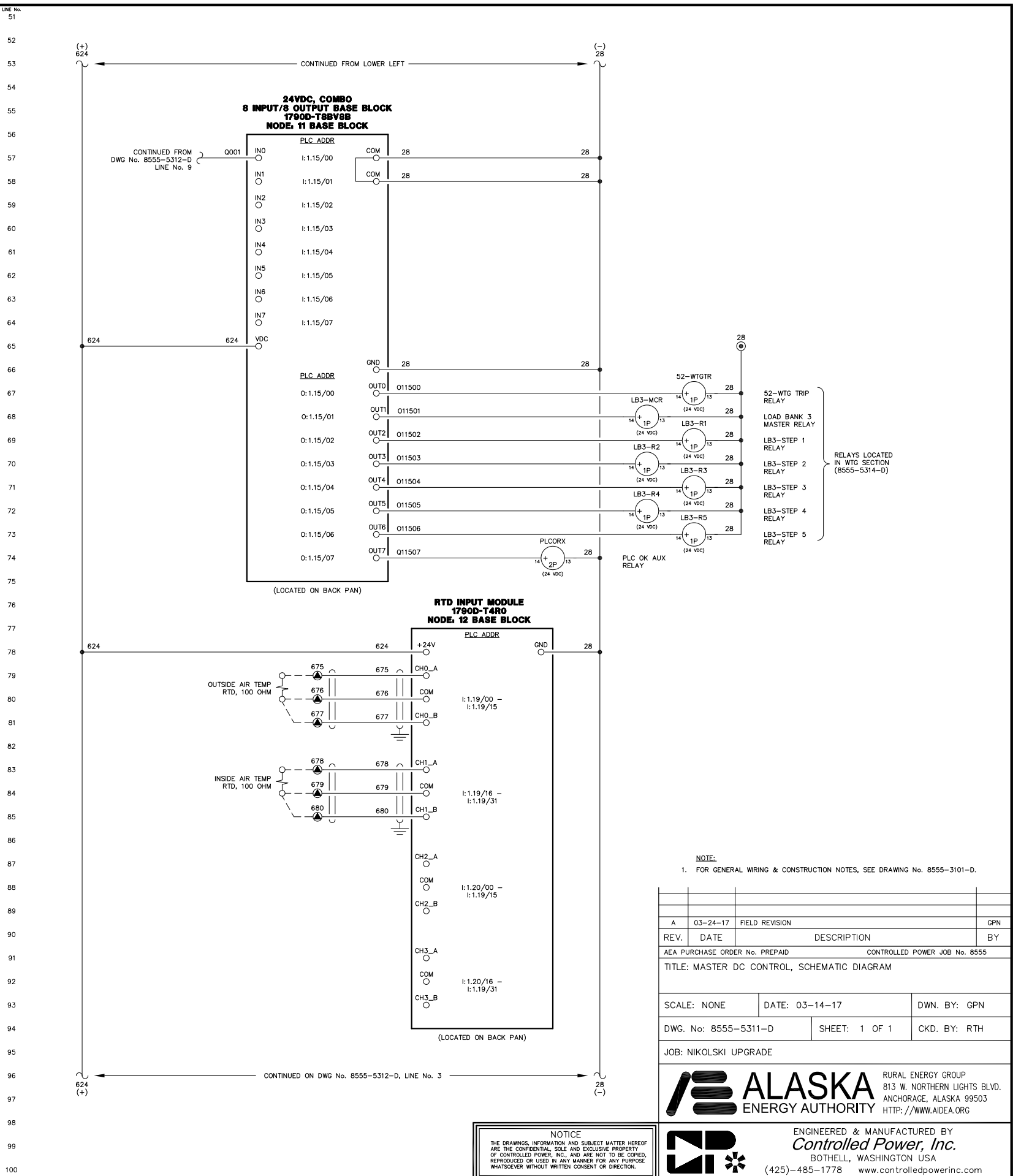
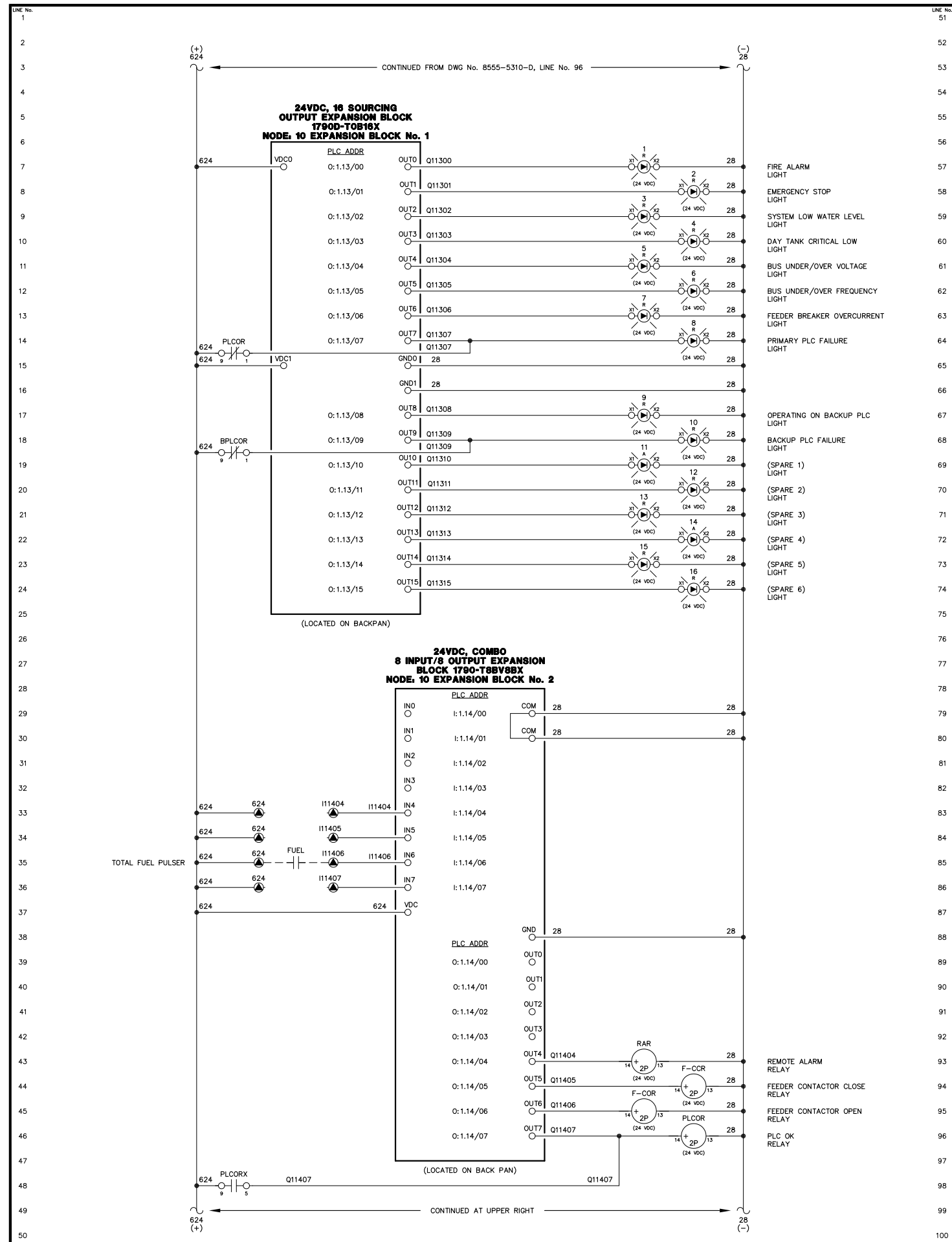
DWG. No: 8555-5310-D SHEET: 1 OF 1 CKD. BY: RTH

JOB: NIKOLSKI UPGRADE

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REV.	DATE	DESCRIPTION	BY
A	03-24-17	FIELD REVISION	GPN

AEA PURCHASE ORDER No. PREPAID CONTROLLED POWER JOB No. 8555

TITLE: MASTER DC CONTROL, SCHEMATIC DIAGRAM

SCALE: NONE DATE: 03-14-17 DWN. BY: GPN

DWG. No: 8555-5311-D SHEET: 1 OF 1 CKD. BY: RTH

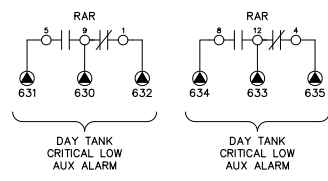
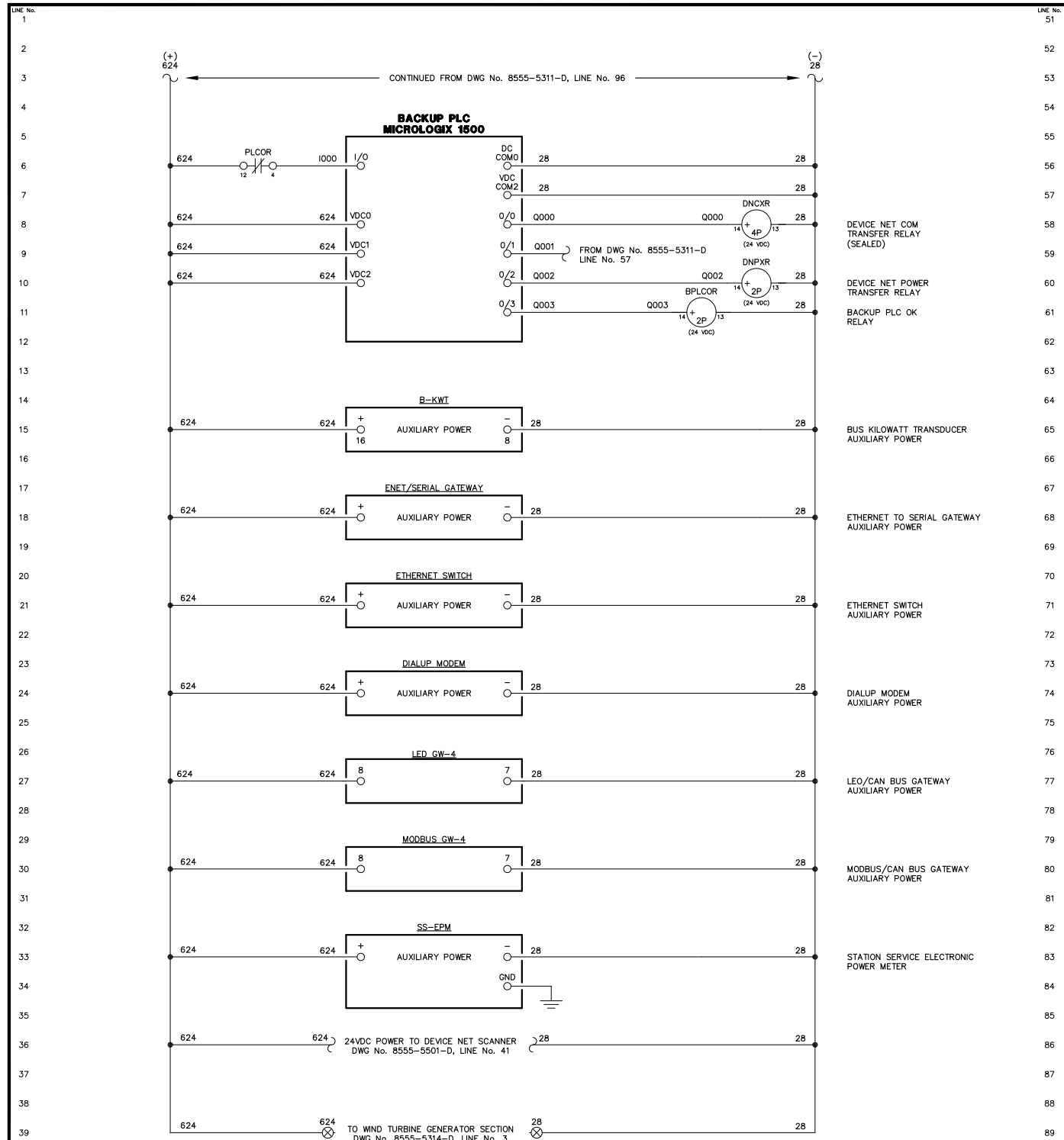
JOB: NIKOLSKI UPGRADE

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REV.	DATE	DESCRIPTION	BY
A	03-24-17	FIELD REVISION	GPN

AEA PURCHASE ORDER No. PREPAID CONTROLLED POWER JOB No. 8555

TITLE: MASTER DC CONTROL, SCHEMATIC DIAGRAM

SCALE: NONE DATE: 03-14-17 DWN. BY: GPN

DWG. No: 8555-5312-D SHEET: 1 OF 1 CKD. BY: RTH

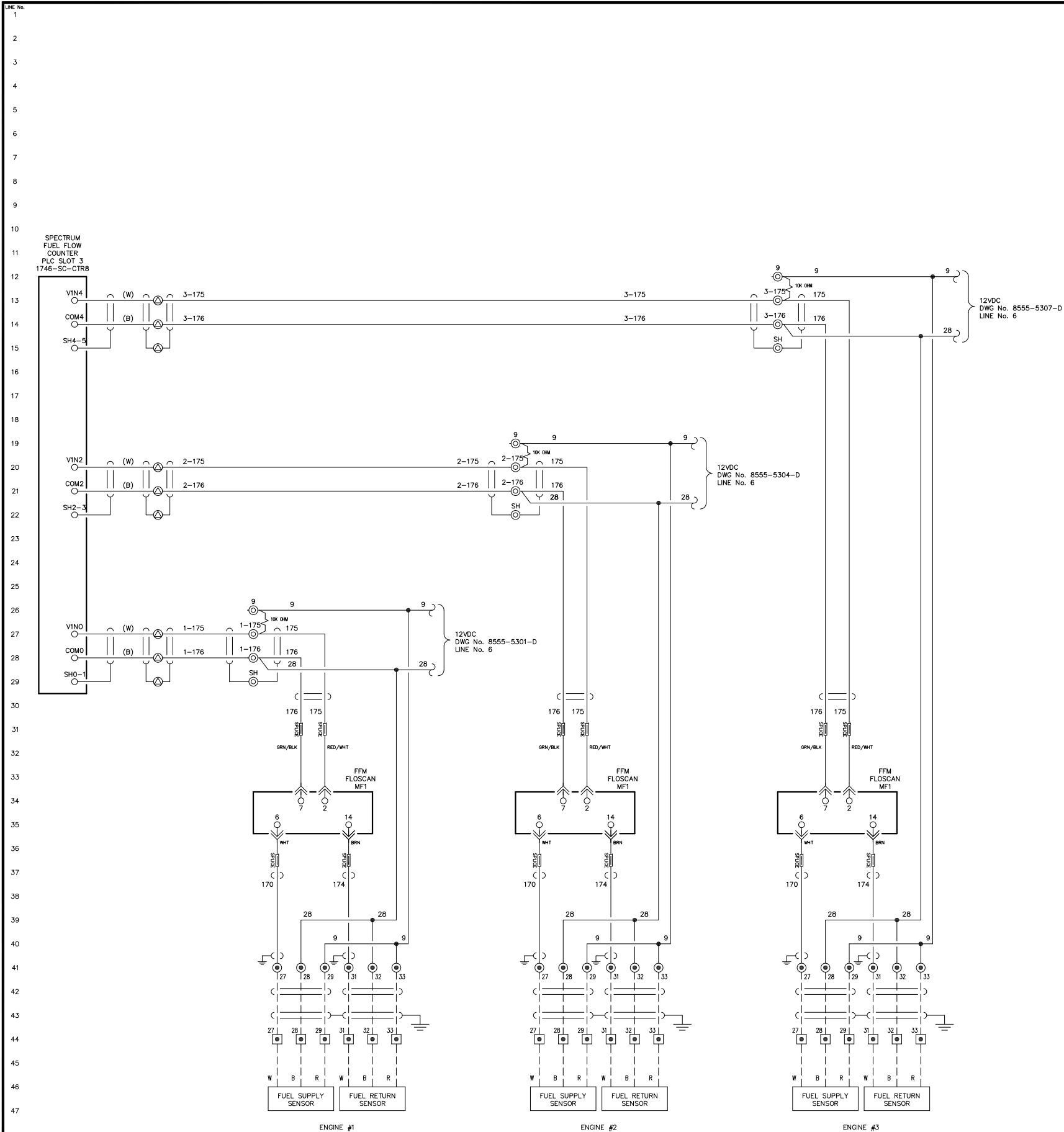
JOB: NIKOLSKI UPGRADE

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REV.	DATE	DESCRIPTION	BY
A	03-24-17	FIELD REVISION	GPN

AEA PURCHASE ORDER No. PREPAID CONTROLLED POWER JOB No. 8555

TITLE: FUEL FLOW SYSTEM, SCHEMATIC DIAGRAM

SCALE: NONE DATE: 03-14-17 DWN. BY: GPN

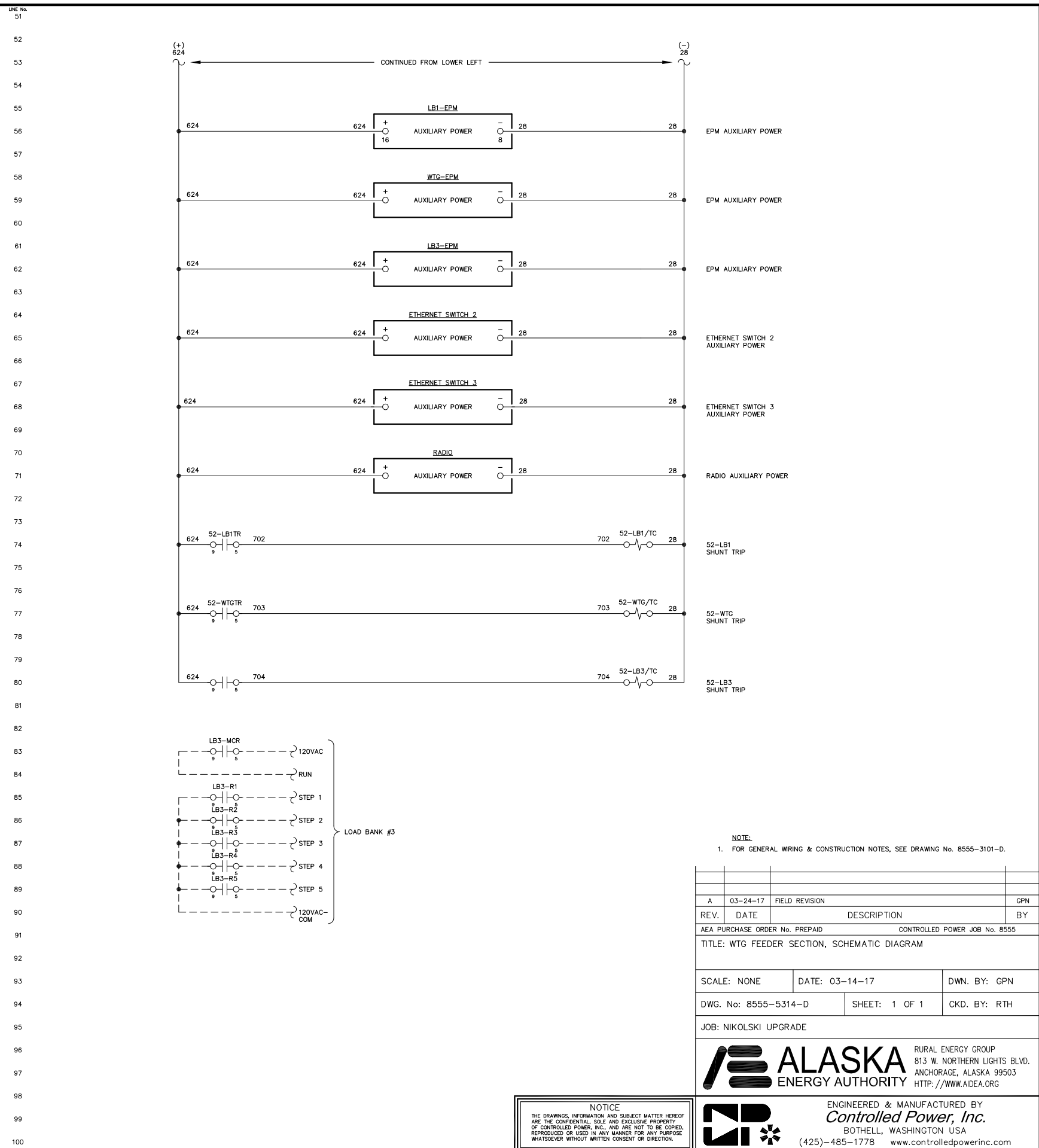
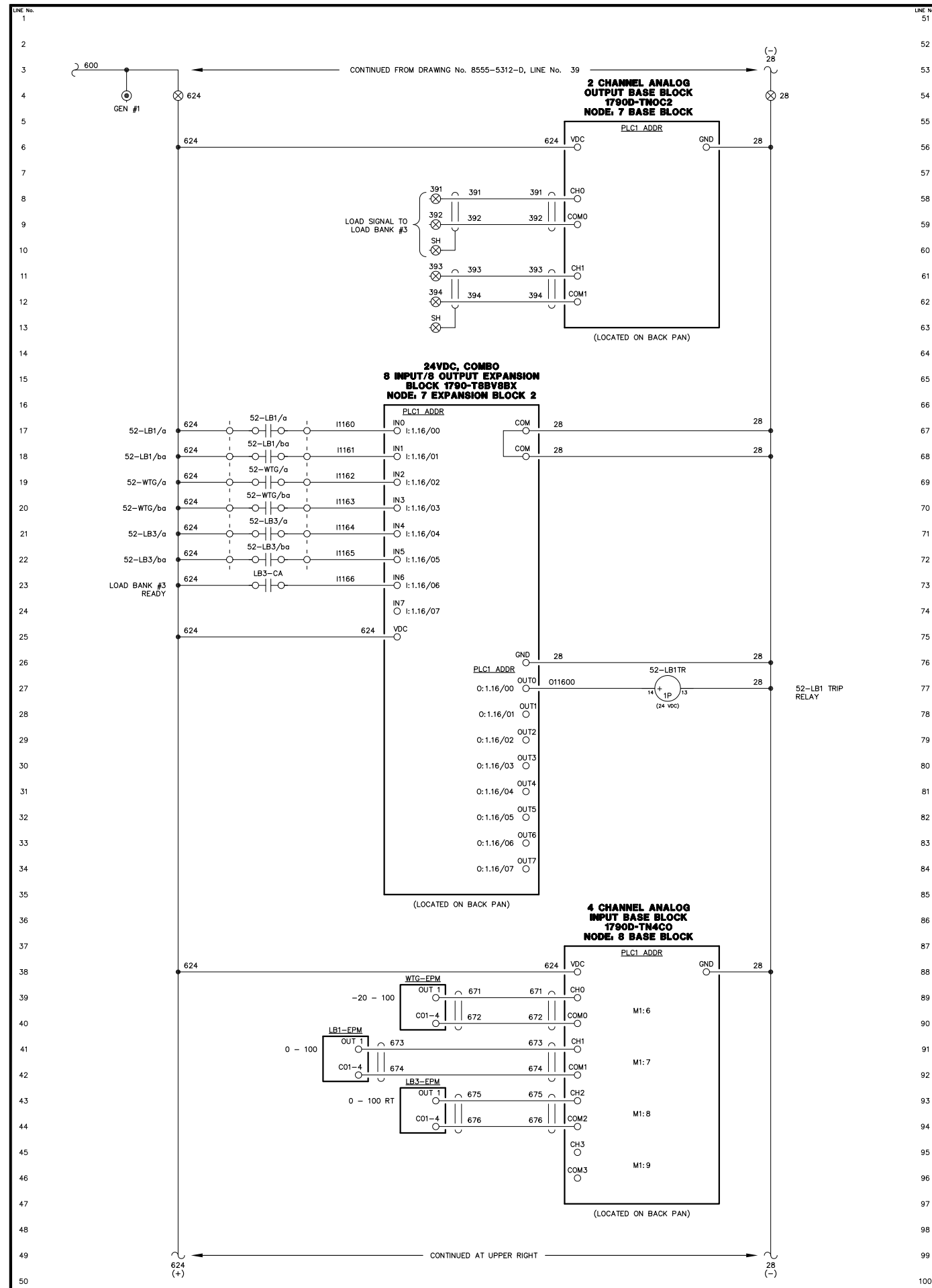
DWG. No: 8555-5313-D SHEET: 1 OF 1 CKD. BY: RTH

JOB: NIKOLSKI UPGRADE

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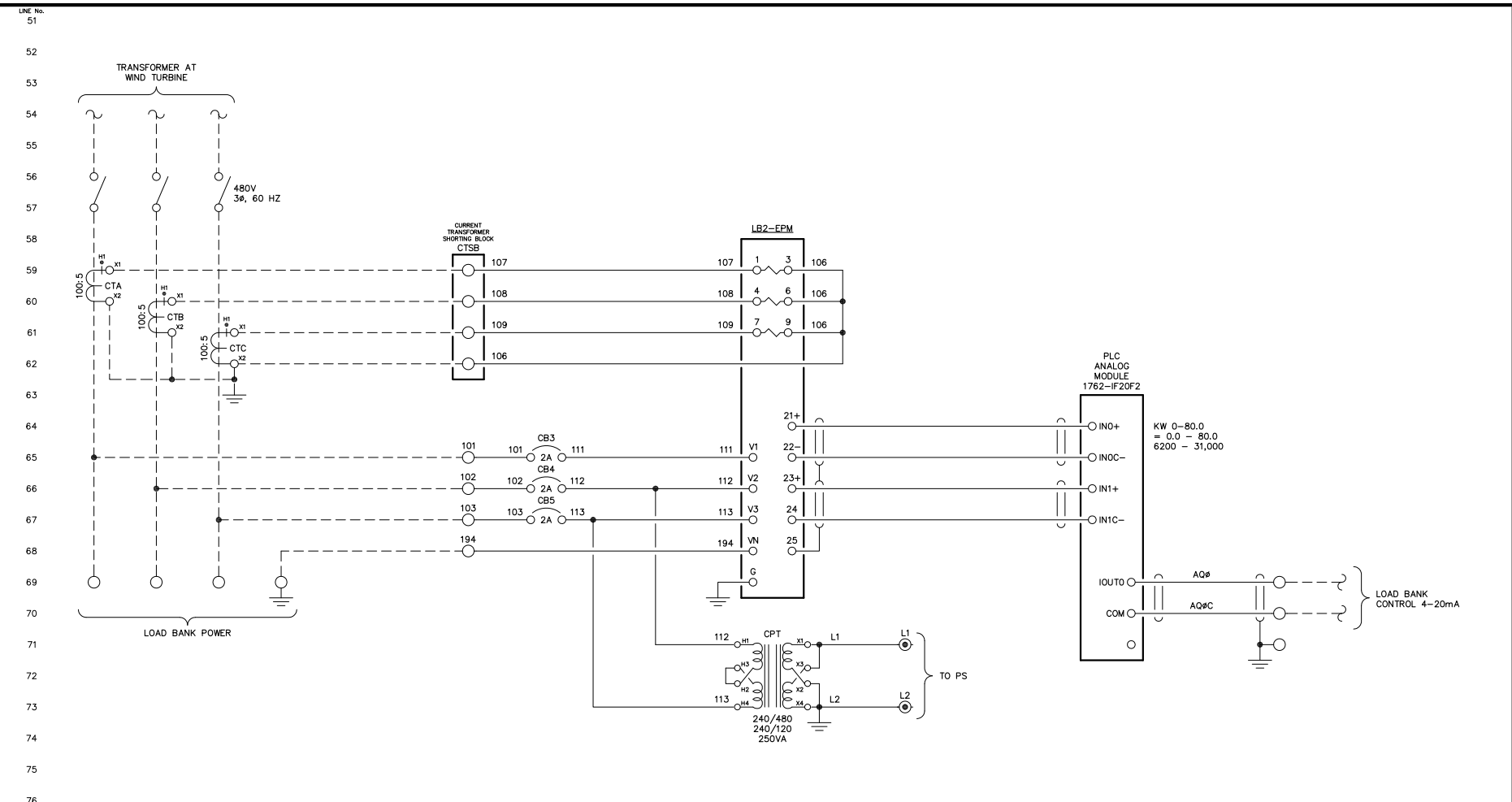
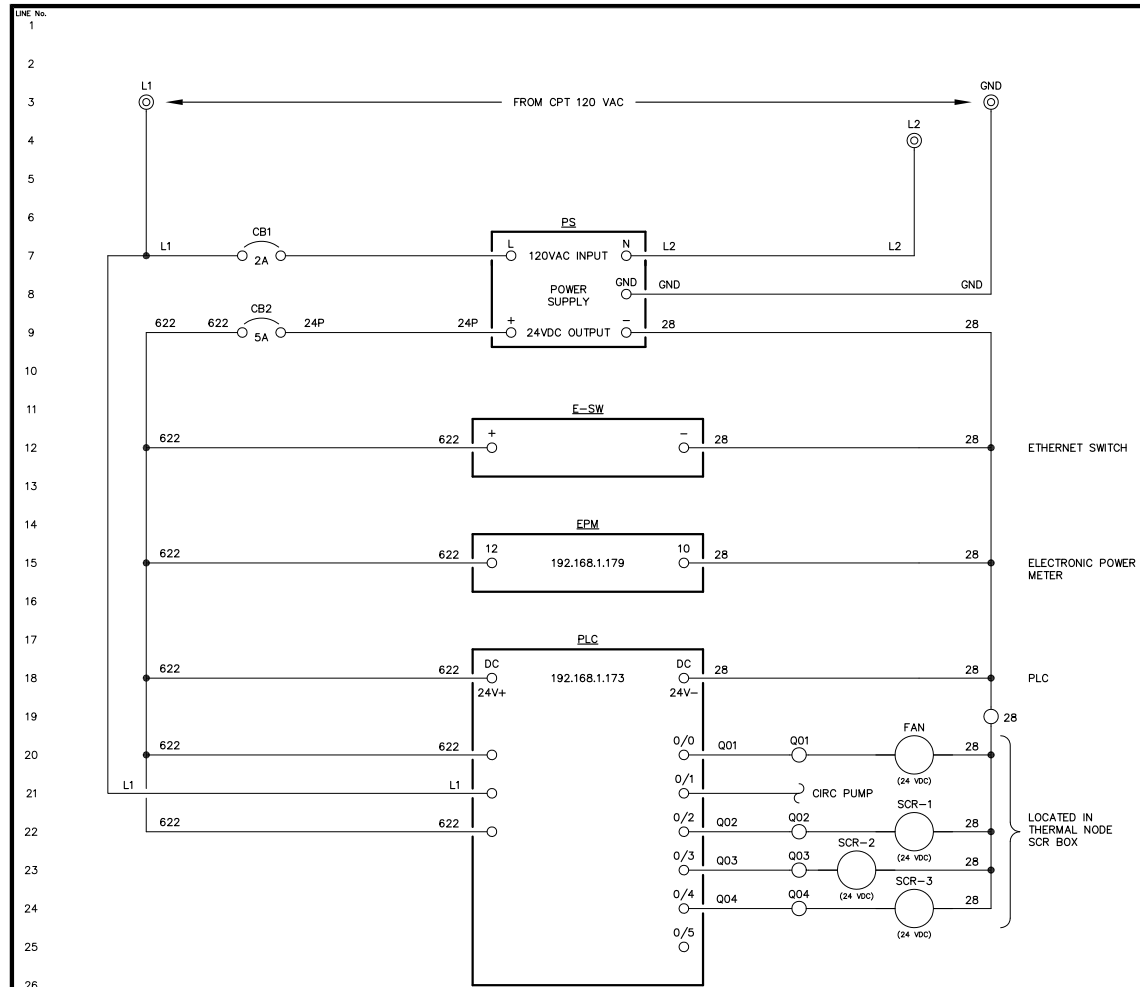
REV.	DATE	DESCRIPTION	BY
A	03-24-17	FIELD REVISION	GPN

AEA PURCHASE ORDER No. PREPAID CONTROLLED POWER JOB No. 8555
 TITLE: WTG FEEDER SECTION, SCHEMATIC DIAGRAM

SCALE: NONE DATE: 03-14-17 DWN. BY: GPN
 DWG. No: 8555-5314-D SHEET: 1 OF 1 CKD. BY: RTH
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REV.	DATE	DESCRIPTION	BY
A	03-24-17	FIELD REVISION	GPN

AEA PURCHASE ORDER No. PREPAID CONTROLLED POWER JOB No. 8555

TITLE: AC & DC CONTROL, SCHEMATIC DIAGRAM
THERMAL NODE 2 (LODGE)

SCALE: NONE DATE: 03-14-17 DWN. BY: GPN

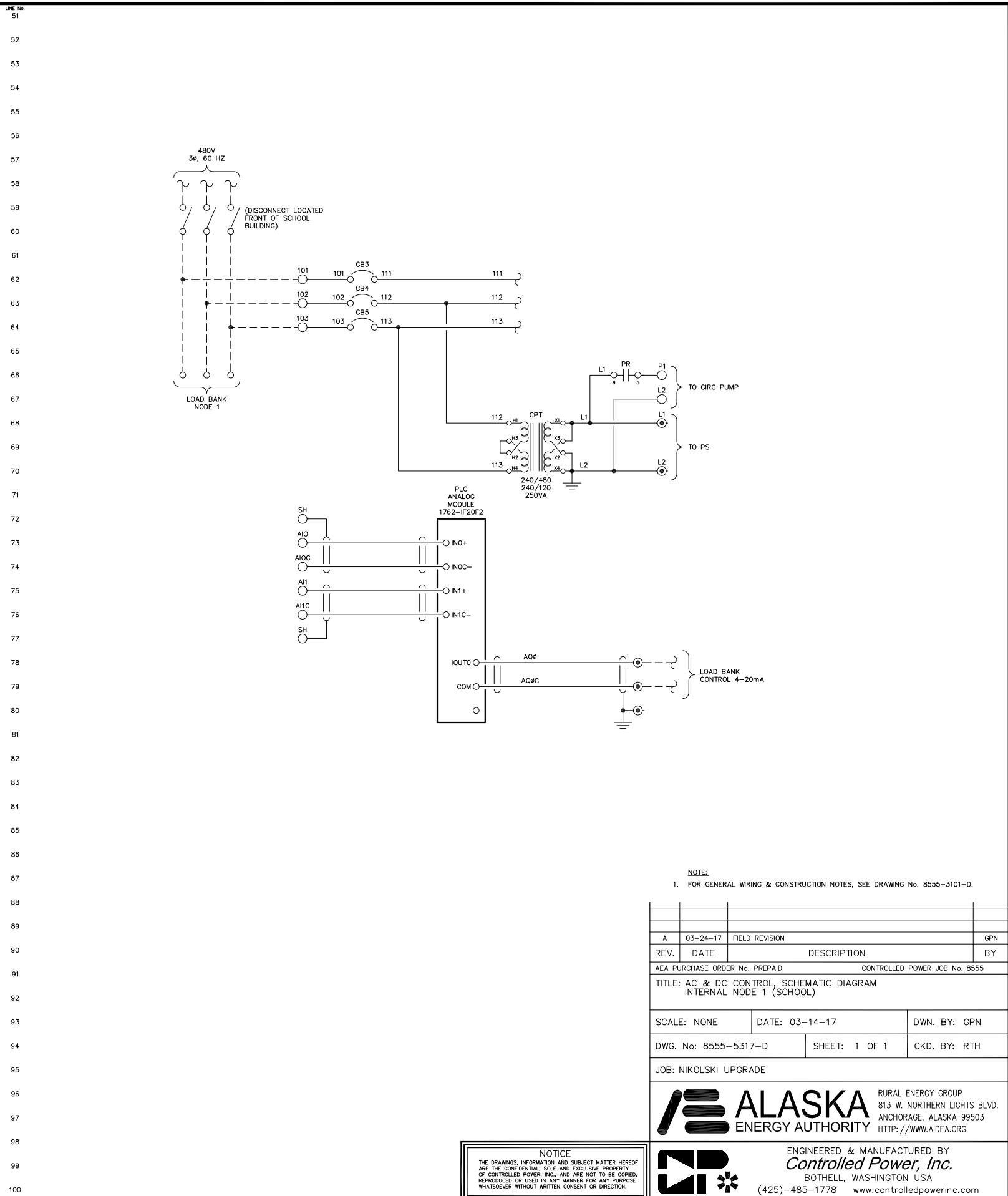
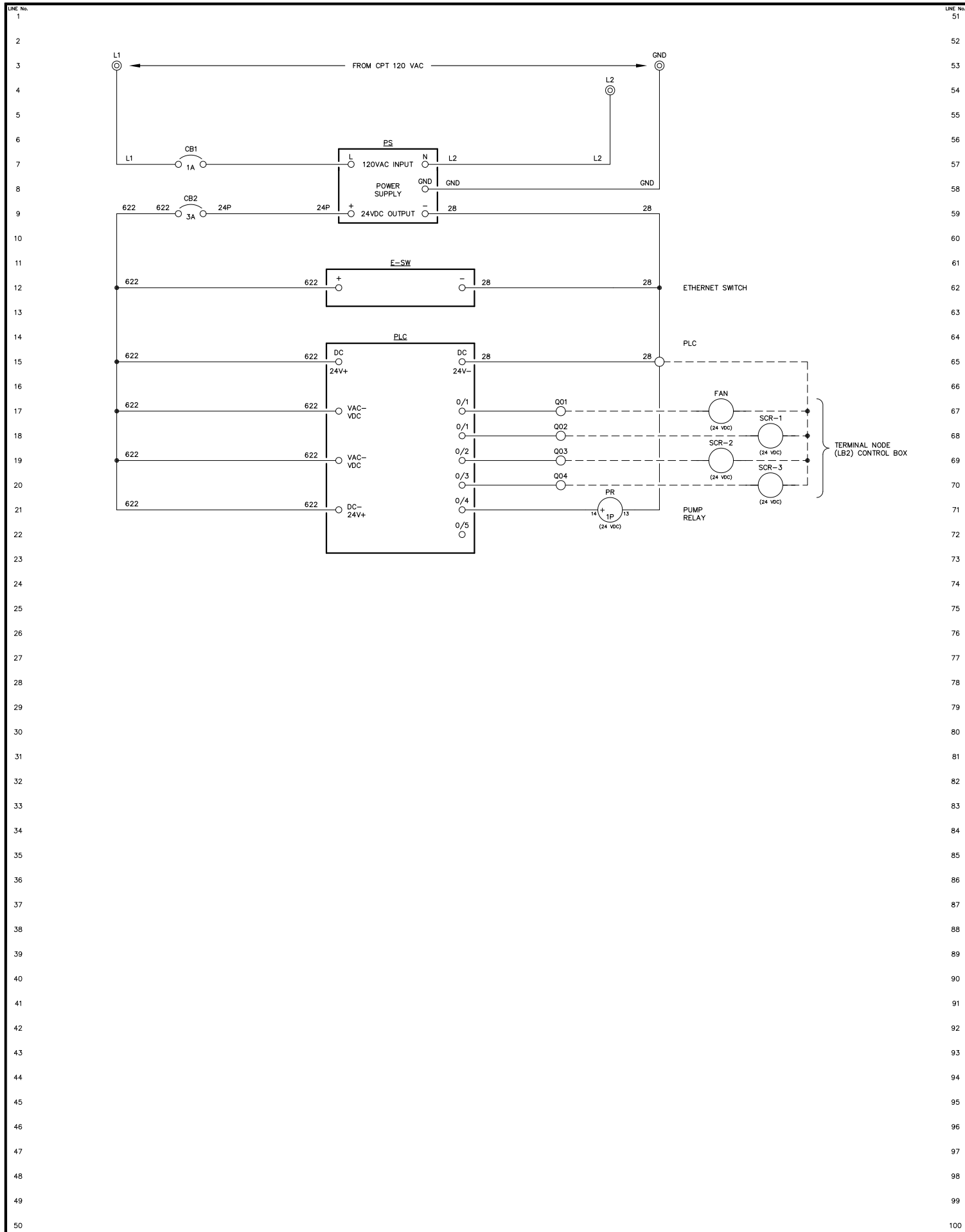
DWG. No: 8555-5316-D SHEET: 1 OF 1 CKD. BY: RTH

JOB: NIKOLSKI UPGRADE

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REV.	DATE	DESCRIPTION	BY
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AEA PURCHASE ORDER No. PREPAID CONTROLLED POWER JOB No. 8555

TITLE: AC & DC CONTROL, SCHEMATIC DIAGRAM
INTERNAL NODE 1 (SCHOOL)

SCALE: NONE DATE: 03-14-17 DWN. BY: GPN

DWG. No: 8555-5317-D SHEET: 1 OF 1 CKD. BY: RTH

JOB: NIKOLSKI UPGRADE

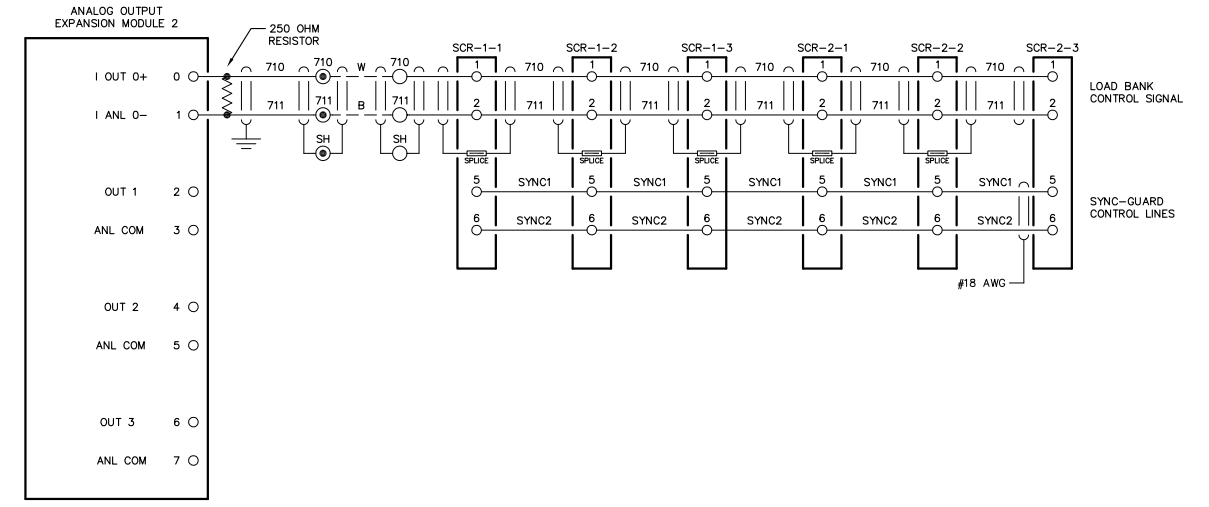
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NOTE:
1. FOR GENERAL WIRING & CONSTRUCTION NOTES, SEE DRAWING No. 8555-3101-D.

REV.	DATE	DESCRIPTION	BY
A	03-24-17	FIELD REVISION	GPN

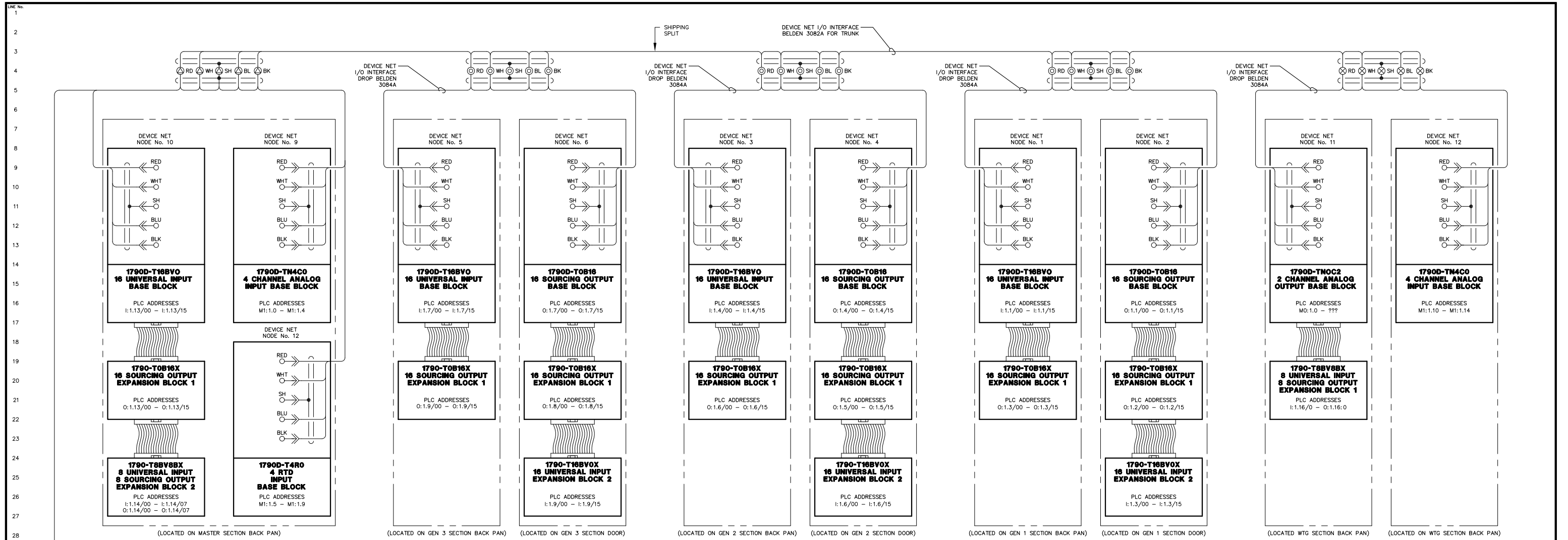
AEA PURCHASE ORDER No. PREPAID CONTROLLED POWER JOB No. 8555
TITLE: ANALOG OUTPUTS, SCHEMATIC DIAGRAM

SCALE: NONE DATE: 03-14-17 DWN. BY: GPN
DWG. No: 8555-5318-D SHEET: 1 OF 1 CKD. BY: RTH
JOB: NIKOLSKI UPGRADE

ALASKA ENERGY AUTHORITY
RURAL ENERGY GROUP
813 W. NORTHERN LIGHTS BLVD.
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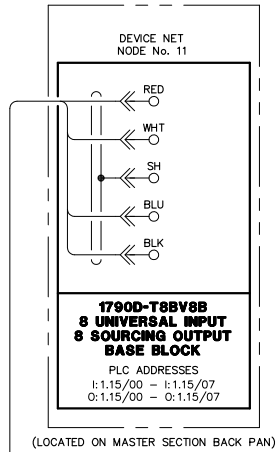
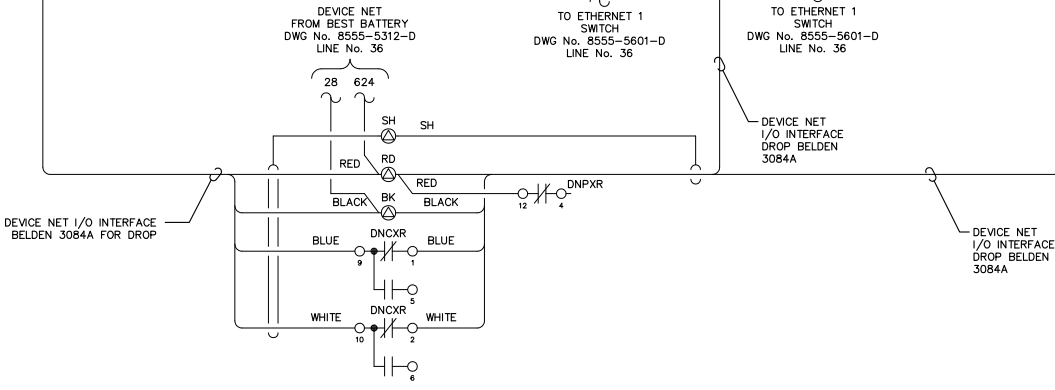
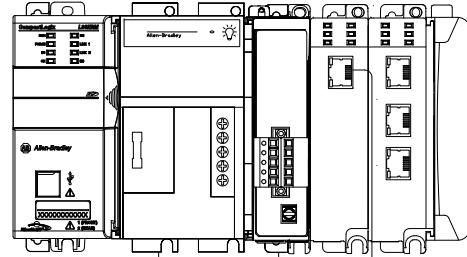
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MASTER PLC

PLC



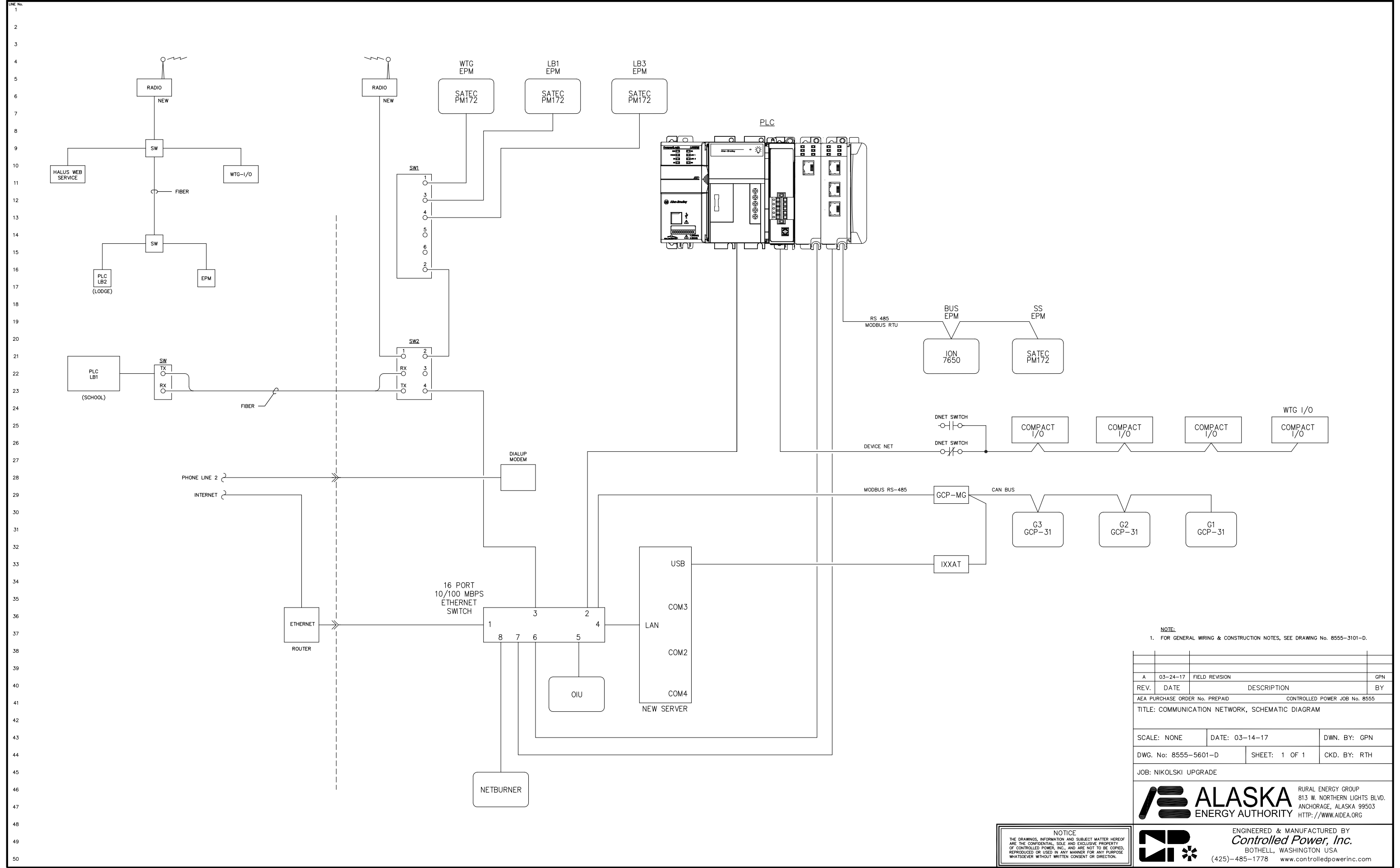
NOTE:
1. FOR GENERAL WIRING & CONSTRUCTION NOTES, SEE DRAWING No. 8555-3101-D.

REV.	DATE	DESCRIPTION	BY
A	03-24-17	FIELD REVISION	GPN
AEV PURCHASE ORDER No. PREPAID		CONTROLLED POWER JOB No. 8555	
TITLE: PLC COMMUNICATION, SCHEMATIC DIAGRAM			
SCALE: NONE	DATE: 03-14-17	DWN. BY: GPN	
DWG. No: 8555-5501-D	SHEET: 1 OF 1	CKD. BY: RTH	
JOB: NIKOLSKI UPGRADE			

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NOTE:
1. FOR GENERAL WIRING & CONSTRUCTION NOTES, SEE DRAWING No. 8555-3101-D.

REV.	DATE	DESCRIPTION	BY
A	03-24-17	FIELD REVISION	GPN

AEA PURCHASE ORDER No. PREPAID CONTROLLED POWER JOB No. 8555
TITLE: COMMUNICATION NETWORK, SCHEMATIC DIAGRAM

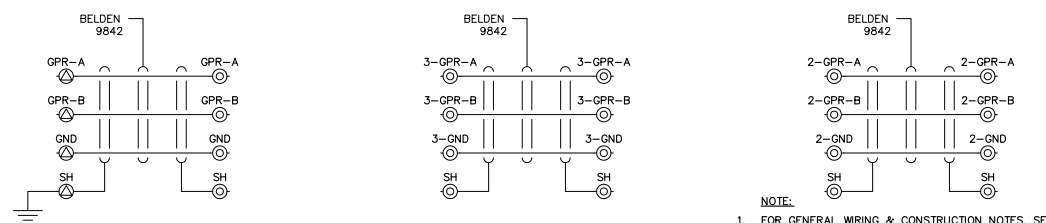
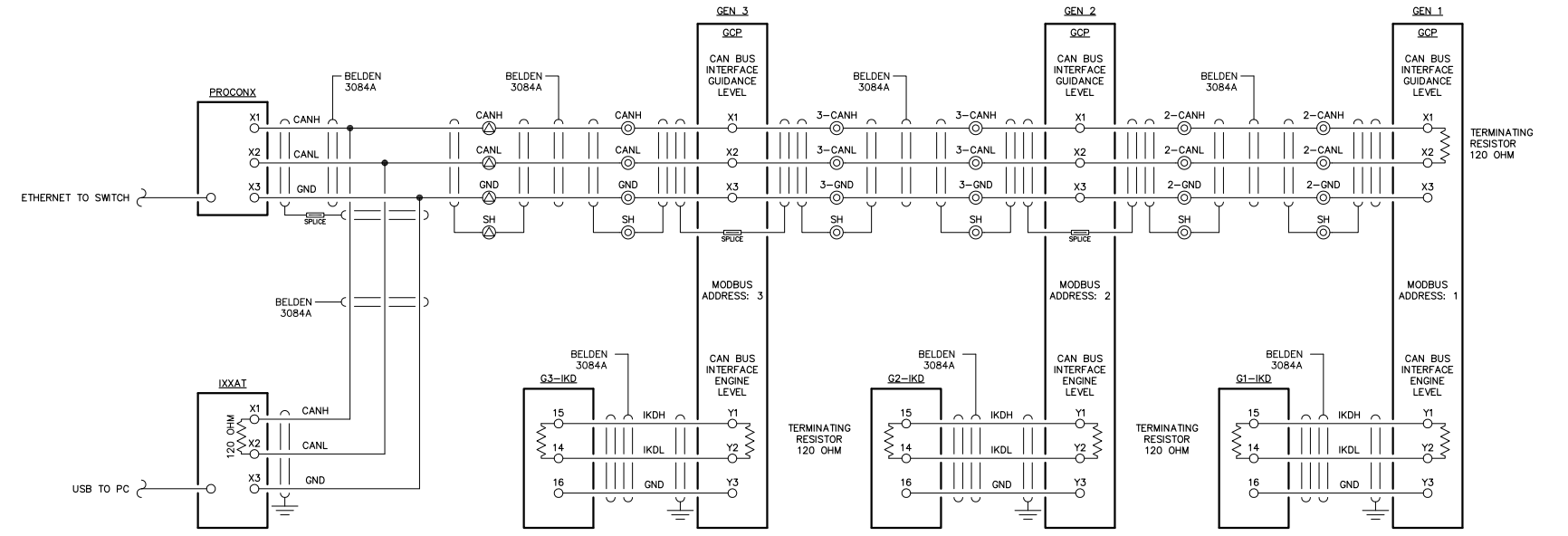
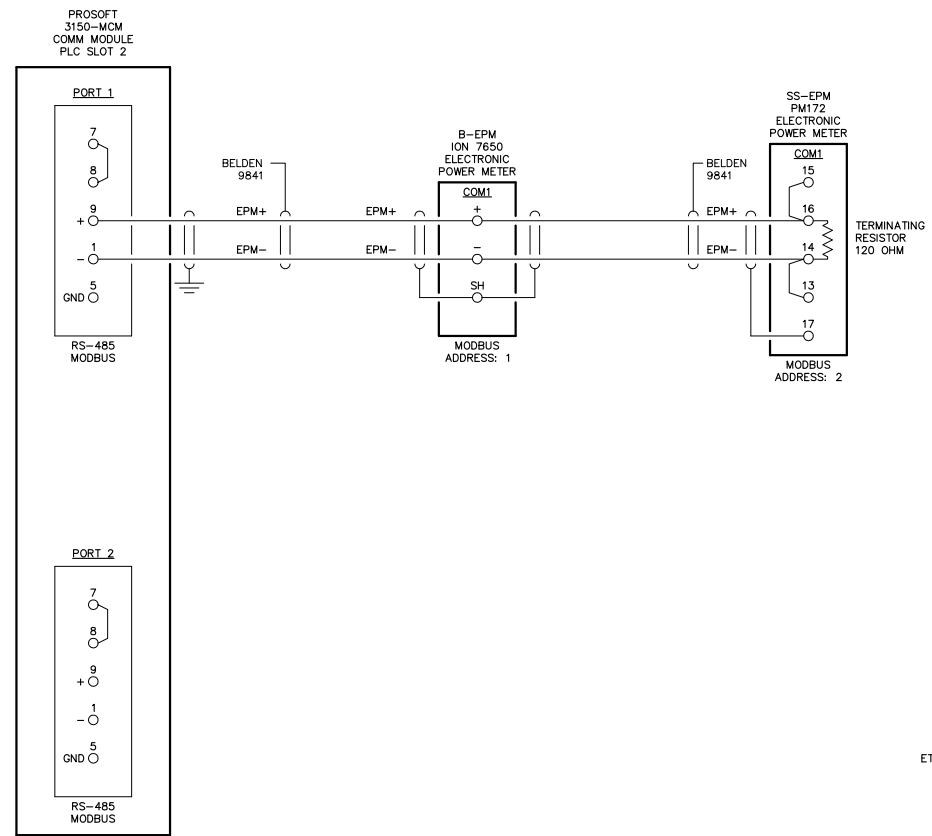
SCALE: NONE DATE: 03-14-17 DWN. BY: GPN
DWG. No: 8555-5601-D SHEET: 1 OF 1 CKD. BY: RTH
JOB: NIKOLSKI UPGRADE

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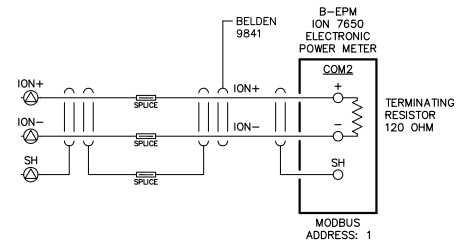
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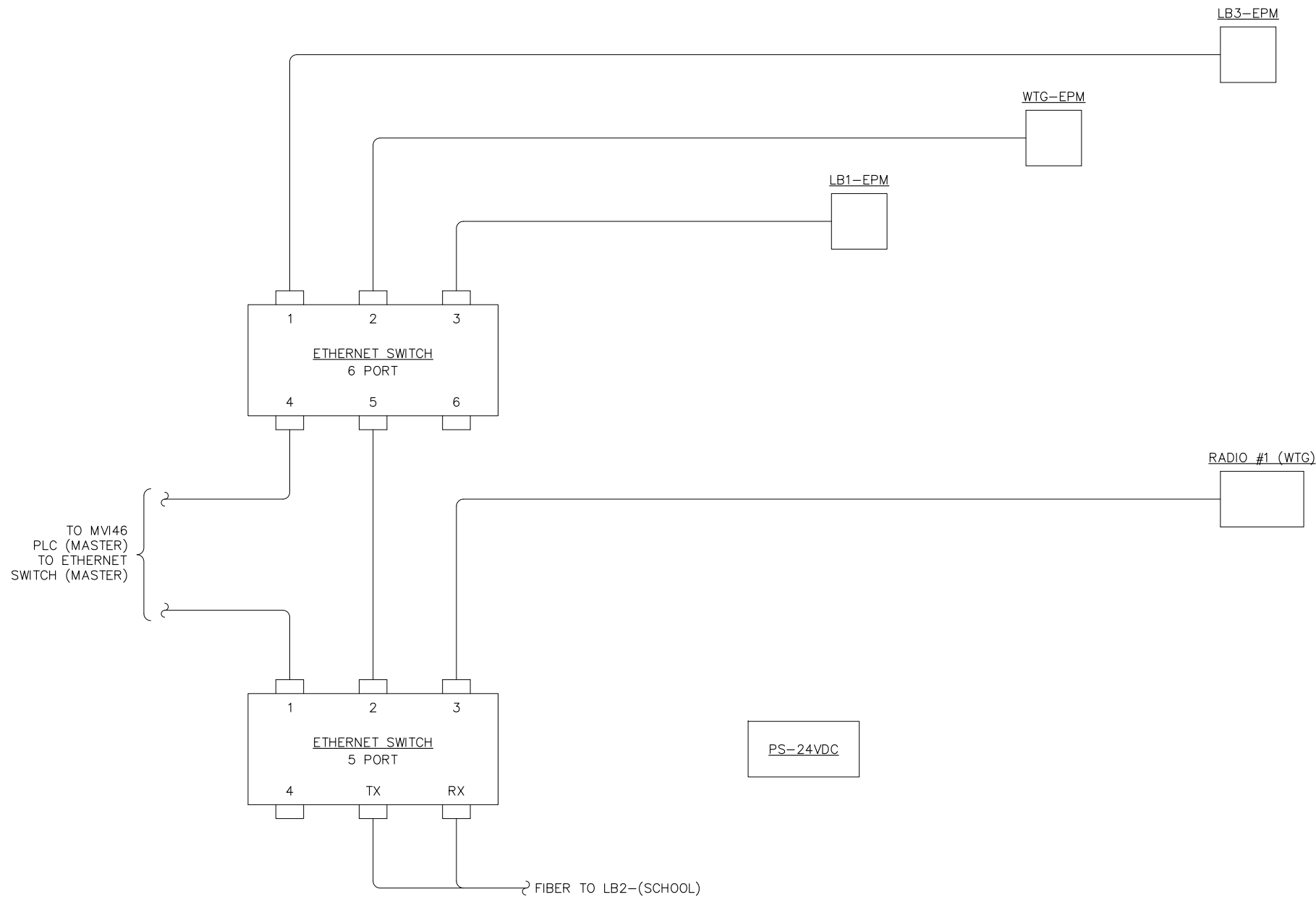
NOTE:
1. FOR GENERAL WIRING & CONSTRUCTION NOTES, SEE DRAWING No. 8555-3101-D.



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REV.	DATE	DESCRIPTION	BY
A	03-24-17	FIELD REVISION	GPN
AEA PURCHASE ORDER No. PREPAID CONTROLLED POWER JOB No. 8555			
TITLE: EPM MONITORING & SYSTEM COMMUNICATION, SCHEMATIC DIAGRAM			
SCALE: NONE	DATE: 03-14-17	DWN. BY: GPN	
DWG. No: 8555-5602-D	SHEET: 1 OF 1	CKD. BY: RTH	
JOB: NIKOLSKI UPGRADE			
		RURAL ENERGY GROUP 813 W. NORTHERN LIGHTS BLVD. ANCHORAGE, ALASKA 99503 HTTP://WWW.AIDEA.ORG	
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NIKOLSKI ETHERNET NETWORK, JOB No. 8555.

DEVICE	I/P ADDRESS	LOCATION
PLC PRIMARY	192.168.1.183	GEN SWITCHGEAR
SERVER / SCADA	192.168.1.242	POWERHOUSE
OIU	192.168.1.182	GEN SWITCHGEAR
SERIAL GATEWAY	192.168.1.164	GEN SWITCHGEAR
MVI46 PROSOFT @ PLC	192.168.1.170	GEN SWITCHGEAR
RADIO 1, ACCESS POINT SN 402915, SUBNET ID=WTG-1	192.168.1.161	GEN SWITCHGEAR
WTG CONTROLLER I/O MODULE	192.168.1.189	WIND TURBINE
RADIO 2, REMOTE SN 403032, SUBNET ID=WTG-1	192.168.1.163	WIND TURBINE
PLC LOAD BANK 2	192.168.1.173	LODGE
PLC LOAD BANK 1	192.168.1.171	SCHOOL
EPM - WTG	192.168.1.175	GEN SWITCHGEAR
EPM - LB1	192.168.1.177	GEN SWITCHGEAR
EPM - LB2	192.168.1.179	LODGE
EPM - LB3	192.168.1.181	GEN SWITCHGEAR
WTG WEB SERVER, UN & PW = SERVIC OR ADMINI	192.168.1.201	WIND TURBINE
ROUTER	?	POWERHOUSE
WEB CAM	?	POWERHOUSE

NOTE:
1. FOR GENERAL WIRING & CONSTRUCTION NOTES, SEE DRAWING No. 8555-3101-D.

REV.	DATE	DESCRIPTION	BY
A	03-24-17	FIELD REVISION	GPN

AEA PURCHASE ORDER No. PREPAID CONTROLLED POWER JOB No. 8555
TITLE: ETHERNET NETWORK, SCHEMATIC DIAGRAM

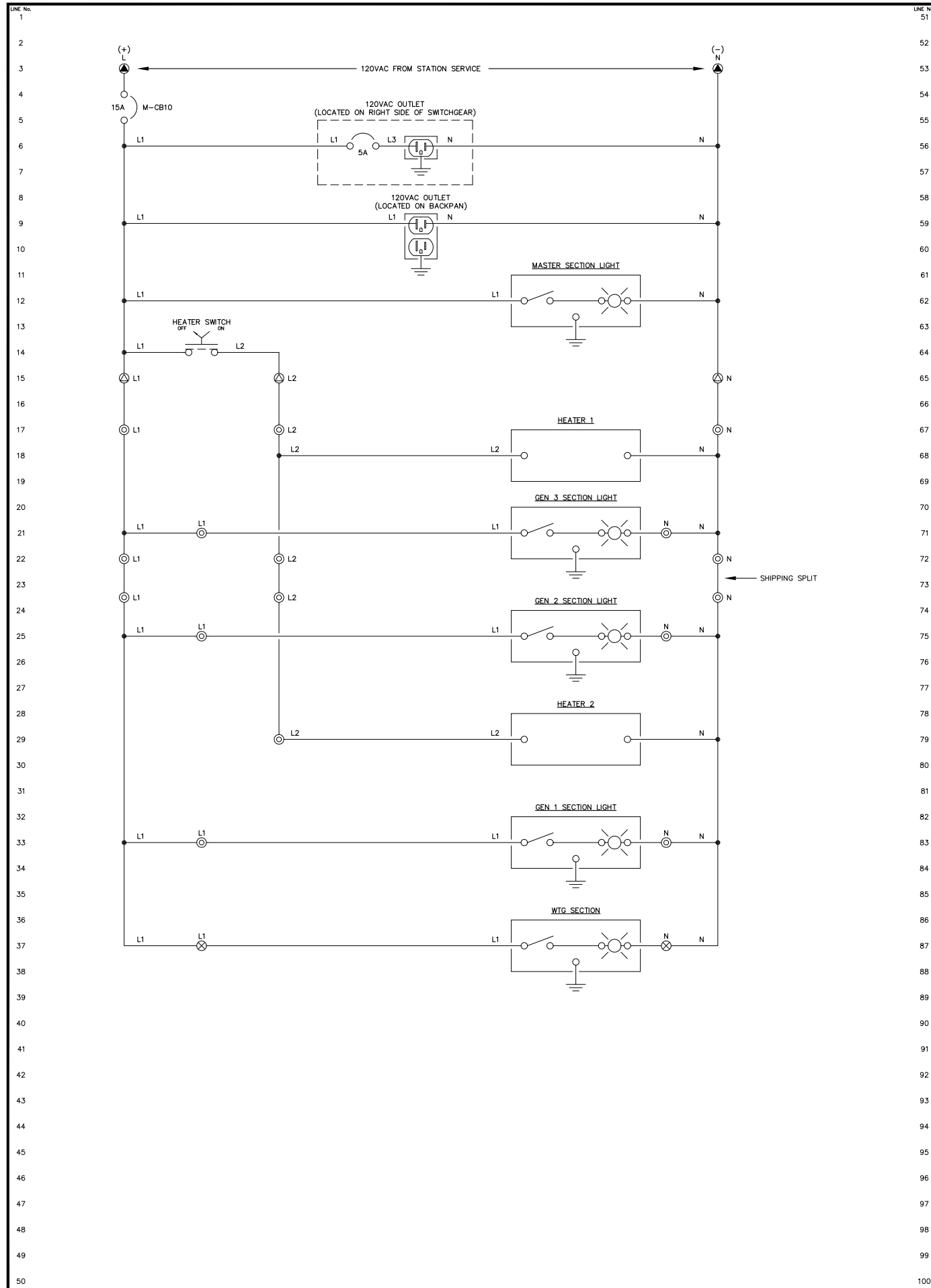
SCALE: NONE DATE: 03-14-17 DWN. BY: GPN
DWG. No: 8555-5603-D SHEET: 1 OF 1 CKD. BY: RTH
JOB: NIKOLSKI UPGRADE

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NOTE:
1. FOR GENERAL WIRING & CONSTRUCTION NOTES, SEE DRAWING No. 8555-3101-D.

REV.	DATE	DESCRIPTION	BY
A	03-24-17	FIELD REVISION	GPN

AEA PURCHASE ORDER No. PREPAID CONTROLLED POWER JOB No. 8555
TITLE: HEATER & LIGHTING CONTROL, SCHEMATIC DIAGRAM

SCALE: NONE DATE: 03-14-17 DWN. BY: GPN

DWG. No: 8555-5701-D SHEET: 1 OF 1 CKD. BY: RTH

JOB: NIKOLSKI UPGRADE

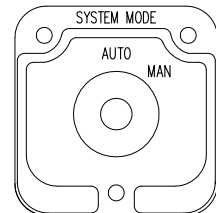
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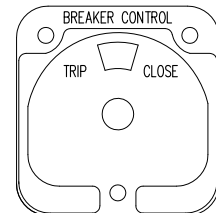
SYSTEM MODE SWITCH - SMS



(ELECTROSWITCH 24201C)
KNURLED HANDLE
QTY 1

DECK	CONTACTS	POS.
1	12	11
	13	13
	15	15
	17	17

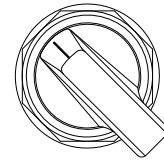
BREAKER CONTROL SWITCH - 52CS



(ELECTROSWITCH 2438D)
PISTOL GRIP HANDLE
SPRING RETURN TO CENTER
QTY 1

DECK	CONTACTS	TRIP	POS.
1	11	18	NORM.
	16	17	CLOSE

GOVERNOR MODE SWITCH - GMS

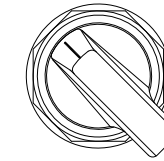


(MAINTAINED)
LOCATED ON BACK PAN

POS.
IDL
RATED



HEATER CONTROL SWITCH - HCS

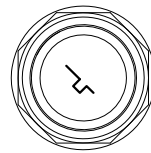


(MAINTAINED)
LOCATED ON MASTER BACK PAN

POS.
OFF
ON



ENGINE CONTROL SWITCH - ECS



(MAINTAINED)

POS.
OFF
RUN



NOTE:

- FOR GENERAL WIRING & CONSTRUCTION NOTES, SEE DRAWING No. 8555-3101-D.

REV.	DATE	DESCRIPTION	BY
A	03-24-17	FIELD REVISION	GPN

AEA PURCHASE ORDER No. PREPAID CONTROLLED POWER JOB No. 8555

TITLE: CONTROL SWITCH TARGET DIAGRAM

SCALE: NONE DATE: 03-14-17 DWN. BY: GPN

DWG. No: 8555-6101-D SHEET: 1 OF 1 CKD. BY: RTH

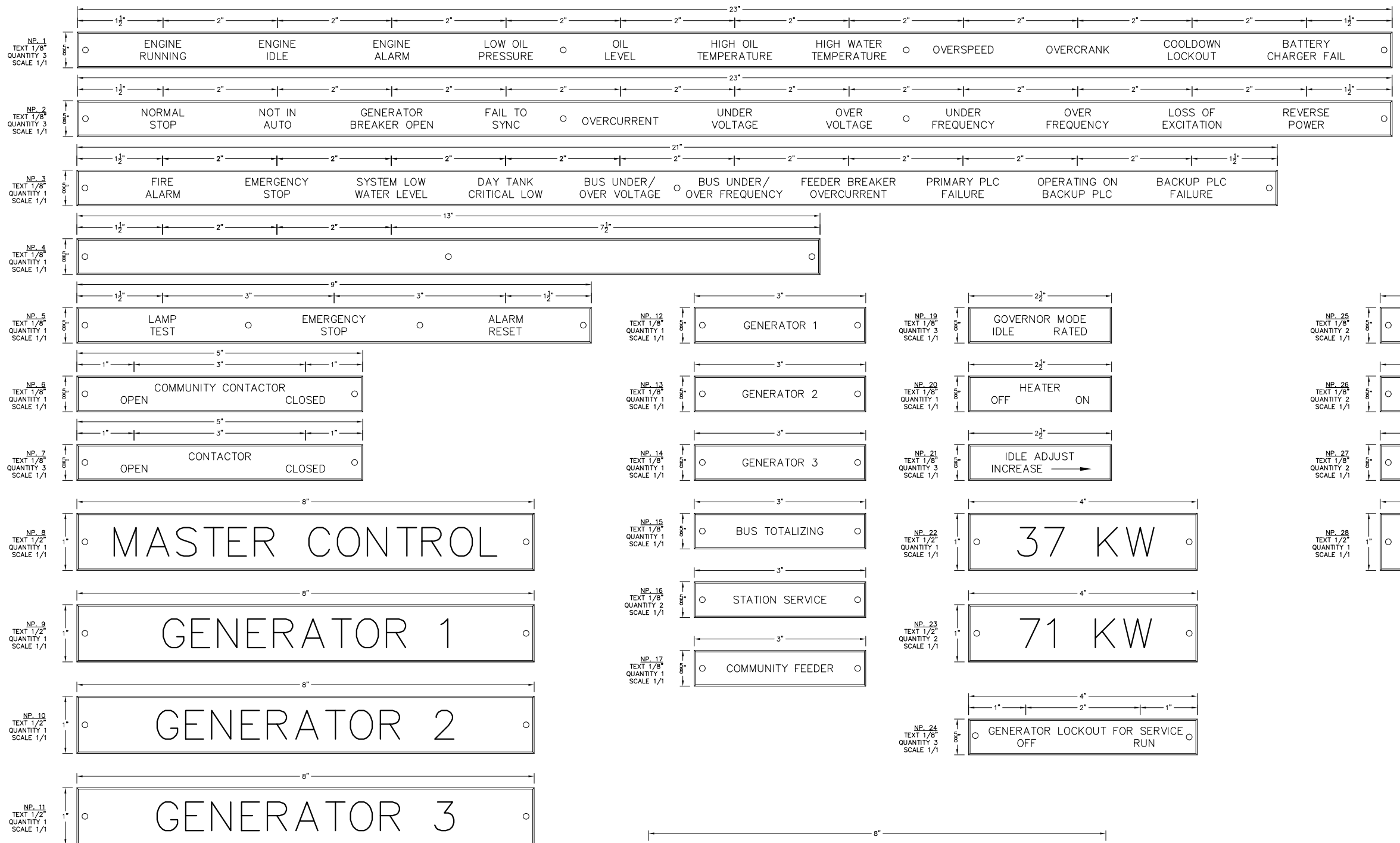
JOB: NIKOLSKI UPGRADE

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- NOTES:**
1. ALL NAMEPLATES SHALL BE BLACK FACE WITH WHITE LETTERS EXCEPT AS NOTED.
 2. ALL NAMEPLATES SHALL HAVE PRESSURE SENSITIVE ADHESIVE ON BACK, 100 % COVERAGE.
 3. ALL NAMEPLATES SHALL HAVE MOUNTING HOLES DRILLED, (1) EACH END.
- ▲ INDICATES THAT NAMEPLATE SHALL BE BRUSHED ALUMINUM WITH BLACK ENGRAVED LETTERS.

NOTE:
1. FOR GENERAL WIRING & CONSTRUCTION NOTES, SEE DRAWING No. 8555-3101-D.

REV.	DATE	DESCRIPTION	BY
A	03-24-17	FIELD REVISION	GPN

AEA PURCHASE ORDER No. PREPAID CONTROLLED POWER JOB No. 8555
TITLE: NAMEPLATE ENGRAVING SCHEDULE, FABRICATION DIAGRAM

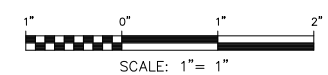
SCALE: NONE DATE: 03-14-17 DWN. BY: GPN
DWG. No: 8555-6201-D SHEET: 1 OF 1 CKD. BY: RTH
JOB: NIKOLSKI UPGRADE

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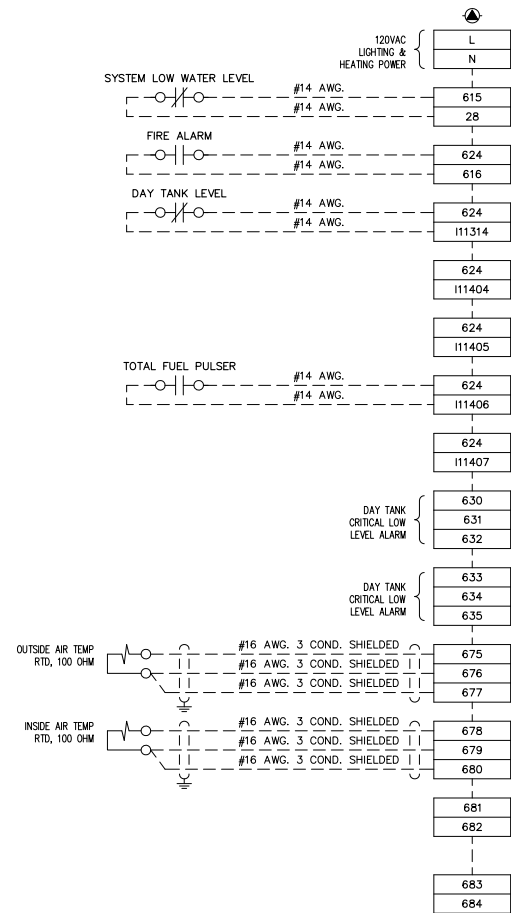
NP-18
TEXT 1/4"
QUANTITY 1
SCALE 1/1
▲ SEE NOTE 4

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SERIAL NUMBER: 8555

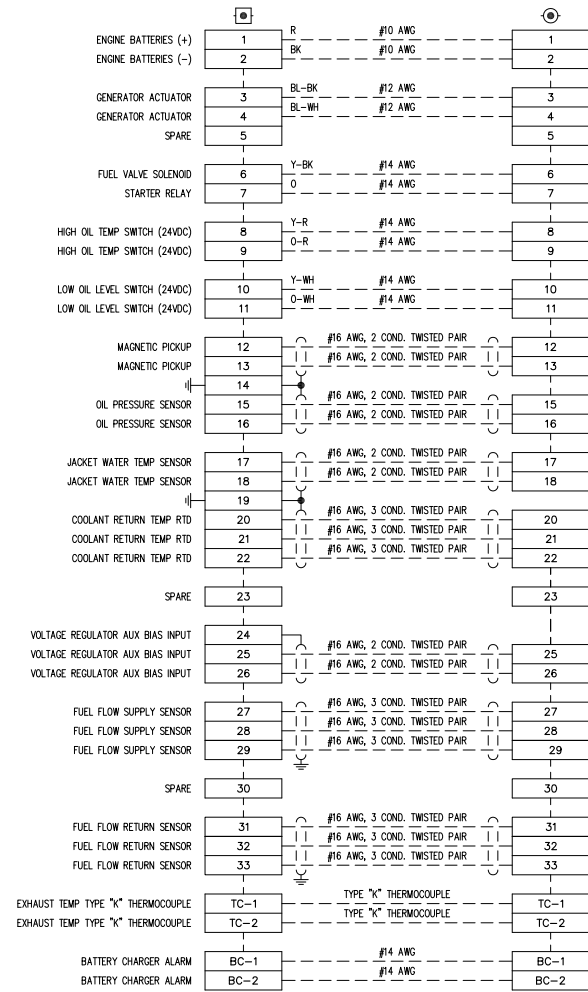


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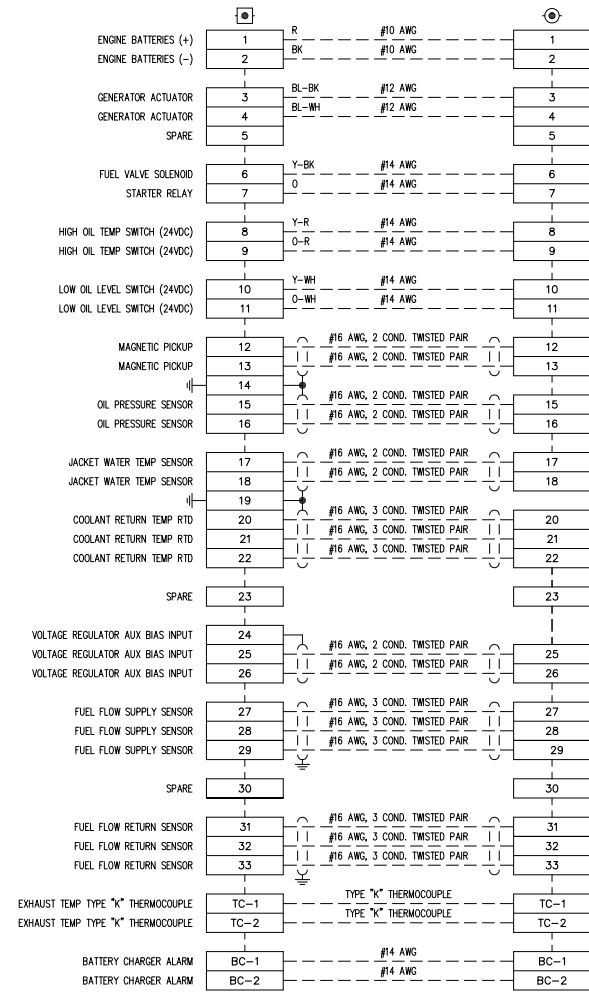
MASTER CONTROL



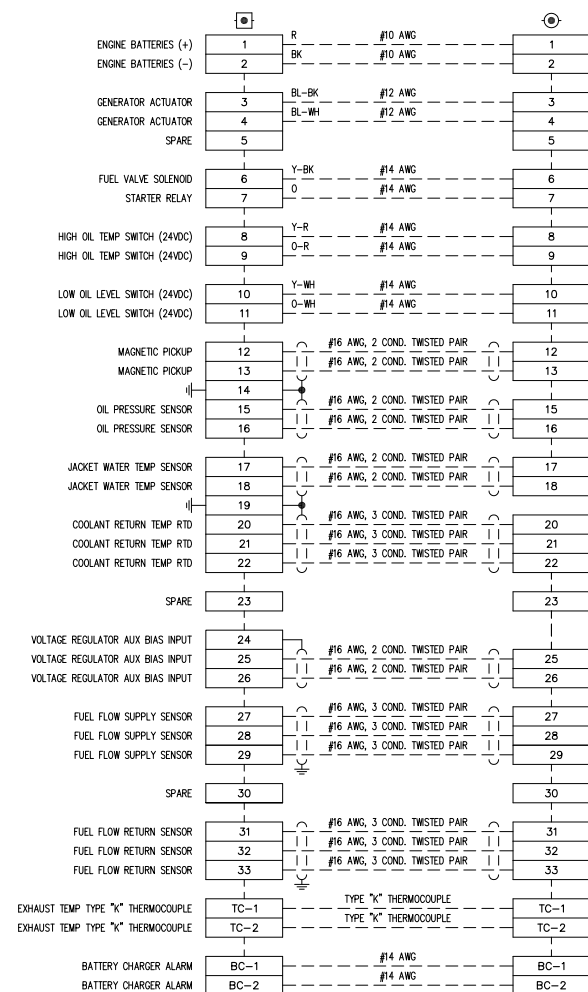
GENERATOR 3



GENERATOR 2



GENERATOR 1



NOTE:
1. FOR GENERAL WIRING & CONSTRUCTION NOTES, SEE DRAWING No. 8555-3101-D.

REV.	DATE	DESCRIPTION	BY
A	03-24-17	FIELD REVISION	GPN

AEA PURCHASE ORDER No. PREPAID CONTROLLED POWER JOB No. 8555

TITLE: INTERCONNECTION DIAGRAM

SCALE: NONE DATE: 03-14-17 DWN. BY: GPN

DWG. No: 8555-7101-D SHEET: 1 OF 1 CKD. BY: RTH

JOB: NIKOLSKI UPGRADE

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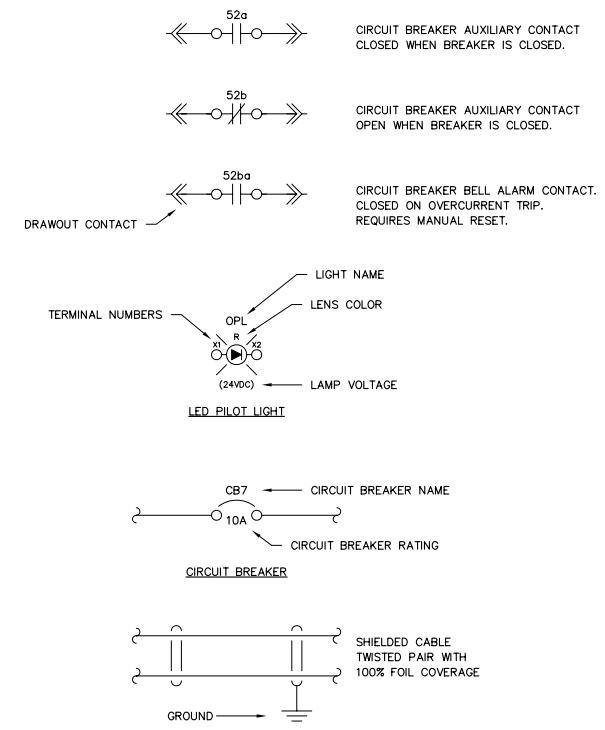
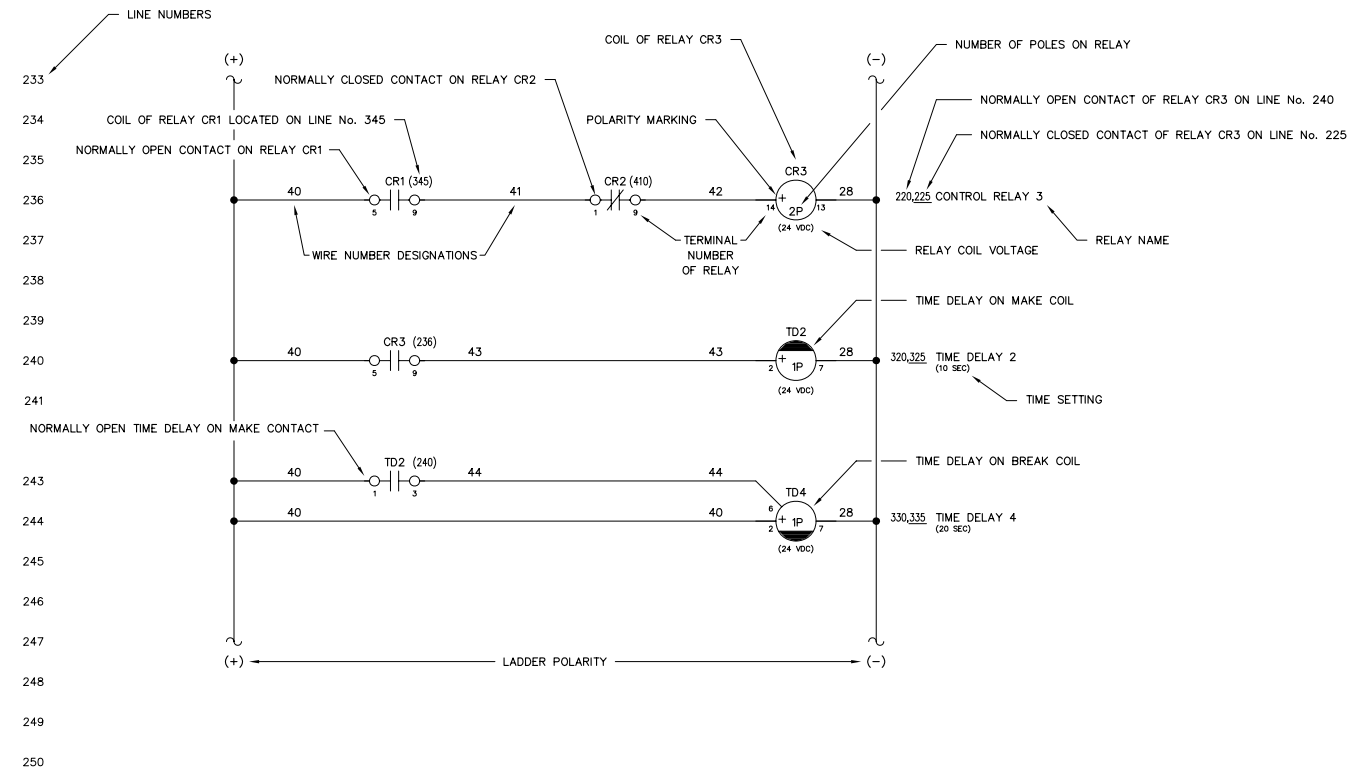
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RUBY GENERATOR SWITCHGEAR
ALASKA ENERGY AUTHORITY PURCHASE ORDER No. REG-11-044
CONTROLLED POWER, INC. JOB No. 7146

<u>DRAWING No.</u>	<u>DRAWING TITLE</u>
7146-2101-D	COVER SHEET
7146-3101-D	SCHEMATIC LEGEND AND NOTES
7146-4101-D	GENERATOR SWITCHGEAR ELEVATION VIEW, OUTLINE DIAGRAM
7146-4201-D	GENERATOR SWITCHGEAR PLAN VIEW, OUTLINE DIAGRAM
7146-5101-D	GENERATOR SINGLE LINE, SCHEMATIC DIAGRAM
7146-5201-D	GENERATOR 1 AC THREE LINE, SCHEMATIC DIAGRAM
7146-5202-D	GENERATOR 2 AC THREE LINE, SCHEMATIC DIAGRAM
7146-5203-D	GENERATOR 3 AC THREE LINE, SCHEMATIC DIAGRAM
7146-5204-D	MASTER AC THREE LINE, SCHEMATIC DIAGRAM
7146-5205-D	VFD AC THREE LINE, SCHEMATIC DIAGRAM
7146-5301-D	GENERATOR 1 DC CONTROL, SCHEMATIC DIAGRAM
7146-5302-D	GENERATOR 1 DC CONTROL, SCHEMATIC DIAGRAM
7146-5303-D	GENERATOR 1 DC CONTROL, SCHEMATIC DIAGRAM
7146-5304-D	GENERATOR 2 DC CONTROL, SCHEMATIC DIAGRAM
7146-5305-D	GENERATOR 2 DC CONTROL, SCHEMATIC DIAGRAM
7146-5306-D	GENERATOR 2 DC CONTROL, SCHEMATIC DIAGRAM
7146-5307-D	GENERATOR 3 DC CONTROL, SCHEMATIC DIAGRAM
7146-5308-D	GENERATOR 3 DC CONTROL, SCHEMATIC DIAGRAM
7146-5309-D	GENERATOR 3 DC CONTROL, SCHEMATIC DIAGRAM
7146-5310-D	MASTER DC CONTROL, SCHEMATIC DIAGRAM
7146-5311-D	MASTER DC CONTROL, SCHEMATIC DIAGRAM
7146-5312-D	MASTER DC CONTROL, SCHEMATIC DIAGRAM
7146-5313-D	MASTER DC CONTROL, SCHEMATIC DIAGRAM
7146-5314-D	MASTER DC CONTROL, SCHEMATIC DIAGRAM
7146-5315-D	VFD DC CONTROL, SCHEMATIC DIAGRAM
7146-5316-D	VFD DC CONTROL, SCHEMATIC DIAGRAM
7146-5317-D	VFD DC CONTROL, SCHEMATIC DIAGRAM
7146-5318-D	VFD/DISTRIBUTION DC CONTROL, SCHEMATIC DIAGRAM
7146-5401-D	FEEDER BREAKER CONTROL, SCHEMATIC DIAGRAM
7146-5501-D	PLC COMMUNICATION, SCHEMATIC DIAGRAM
7146-5502-D	PLC COMMUNICATION, SCHEMATIC DIAGRAM
7146-5601-D	COMMUNICATION NETWORK DIAGRAM
7146-5602-D	COMMUNICATION NETWORK DIAGRAM
7146-5701-D	HEATER, LIGHTING & FAN CONTROL, SCHEMATIC DIAGRAM
7146-6101-D	CONTROL SWITCH TARGET DIAGRAM
7146-6201-D	NAMEPLATE ENGRAVING SCHEDULE, FABRICATION DIAGRAM
7146-6202-D	ANNUNCIATOR WINDOWS, FABRICATION DIAGRAM
7146-7101-D	INTERCONNECTION DIAGRAM

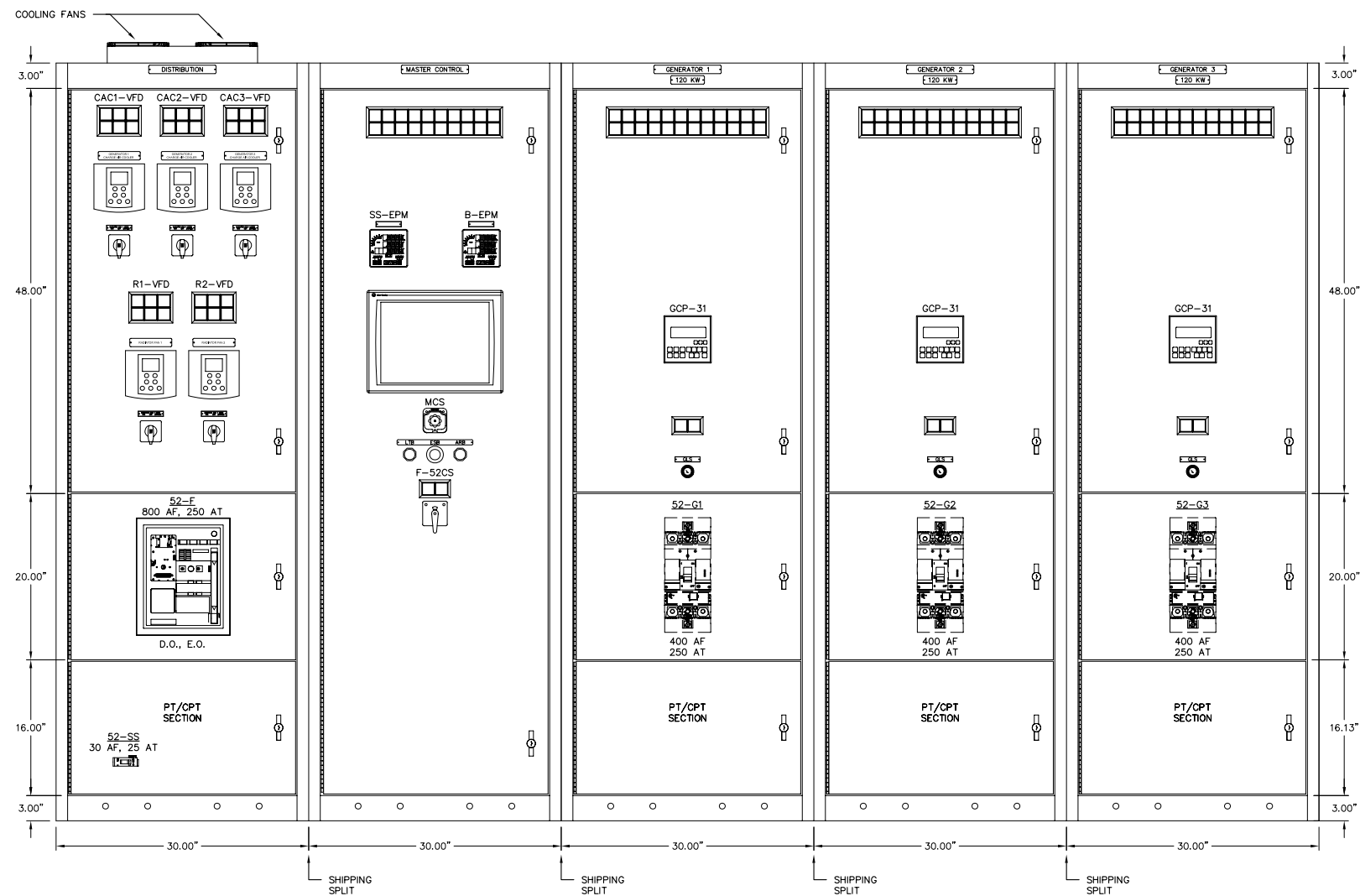


- NOTES:**
- SCHEMATIC IS SHOWN AS FOLLOWS:
 - ALL AC AND DC POWER REMOVED
 - ALL RELAY CONTACTS DE-ENERGIZED
 - ALL CIRCUIT BREAKERS IN THE OPEN/RESET POSITION
 - ALL MODE SWITCHES IN THE "OFF" POSITION
 - ALL EMERGENCY STOP SWITCHES IN THE "NORMAL" POSITION
 - ALL PRESSURE SWITCHES SHOWN WITHOUT PRESSURE PRESENT
 - ALL LEVEL SWITCHES SHOWN WITHOUT FLUID PRESENT
 - ALL TEMPERATURE SWITCHES SHOWN AT AMBIENT
 - ⊙ INDICATES FIELD TERMINALS IN GENERATOR CONTROL SECTION.
 - ⊠ INDICATES TERMINALS AT ENGINE/GENERATOR.
 - ⊡ INDICATES INTERCONNECT TERMINALS IN MASTER SECTION.
 - ⊢ INDICATES FIELD TERMINALS IN MASTER SECTION.
 - ⊣ INDICATES INTERCONNECT TERMINALS IN GENERATOR CONTROL SECTION.
 - ⊤ INDICATES INTERCONNECT TERMINALS IN VFD/DIST SECTION.
 - ⊥ INDICATES FIELD TERMINALS IN VFD/DIST SECTION.
 - - - INDICATES FIELD WIRING BY OTHERS
 - ALL CONTROL WIRING TO BE No. 14 AWG, 600 VOLT, TYPE SIS EXCEPT AS NOTED
 - SHIELDED WIRING TO BE No. 18 AWG, 300 VOLT, TWISTED LINE WITH 100% FOIL COVERAGE
 - ALL DIODES ARE 1N4007 EXCEPT AS NOTED

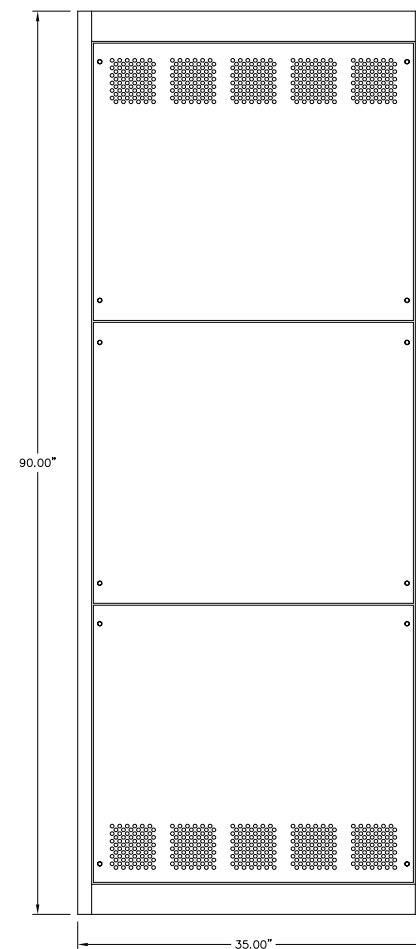
REV.	DATE	DESCRIPTION	BY
A	05-04-11	SHOP AS BUILT	GPN
AEA PURCHASE ORDER No. REG-11-044		CONTROLLED POWER JOB No. 7146	
TITLE: SCHEMATIC LEGEND & NOTES			
SCALE: NONE	DATE: 03-01-11	DWN. BY: GPN	
DWG. No: 7146-3101-D	SHEET: 1 OF 1	CKD. BY: JMD	
JOB: RUBY GENERATOR SWITCHGEAR			

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GENERATOR SWITCHGEAR – FRONT VIEW
277/480V, 1600A, COPPER BUS, 3Ø, 4W 65 KAIC



SIDE VIEW

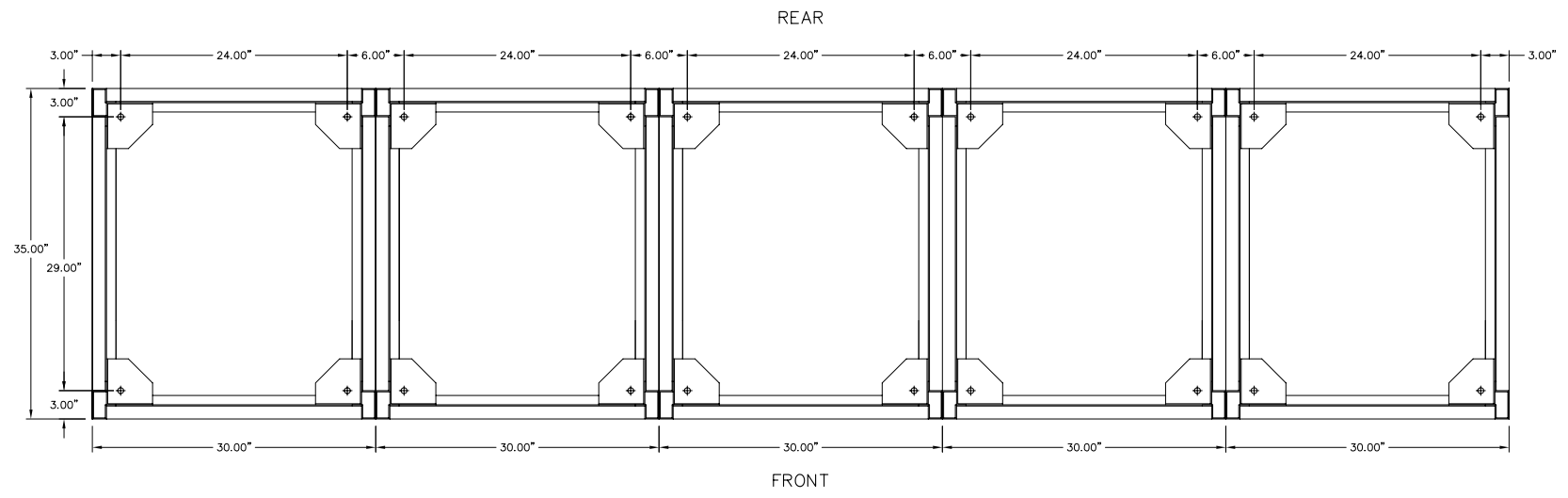
NOTES:

1. EACH SECTION SHIPPED INDIVIDUALLY.

REV.	DATE	DESCRIPTION	BY
A	05-04-11	SHOP AS BUILT	GPN
AEA PURCHASE ORDER No. REG-11-044		CONTROLLED POWER JOB No. 7146	
TITLE: GENERATOR SWITCHGEAR ELEVATION VIEW, OUTLINE DIAGRAM			
SCALE: 1/10	DATE: 02-09-11	DWN. BY: GPN	
DWG. No: 7146-4101-D	SHEET: 1 OF 1	CKD. BY: JMD	
JOB: RUBY GENERATOR SWITCHGEAR			

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GENERATOR SWITCHGEAR – PLAN VIEW

- NOTES:
 1. EACH SECTION SHIPPED INDIVIDUALLY.

REV.	DATE	DESCRIPTION	BY
A	05-04-11	SHOP AS BUILT	GPN

AEA PURCHASE ORDER No. REG-11-044 CONTROLLED POWER JOB No. 7146

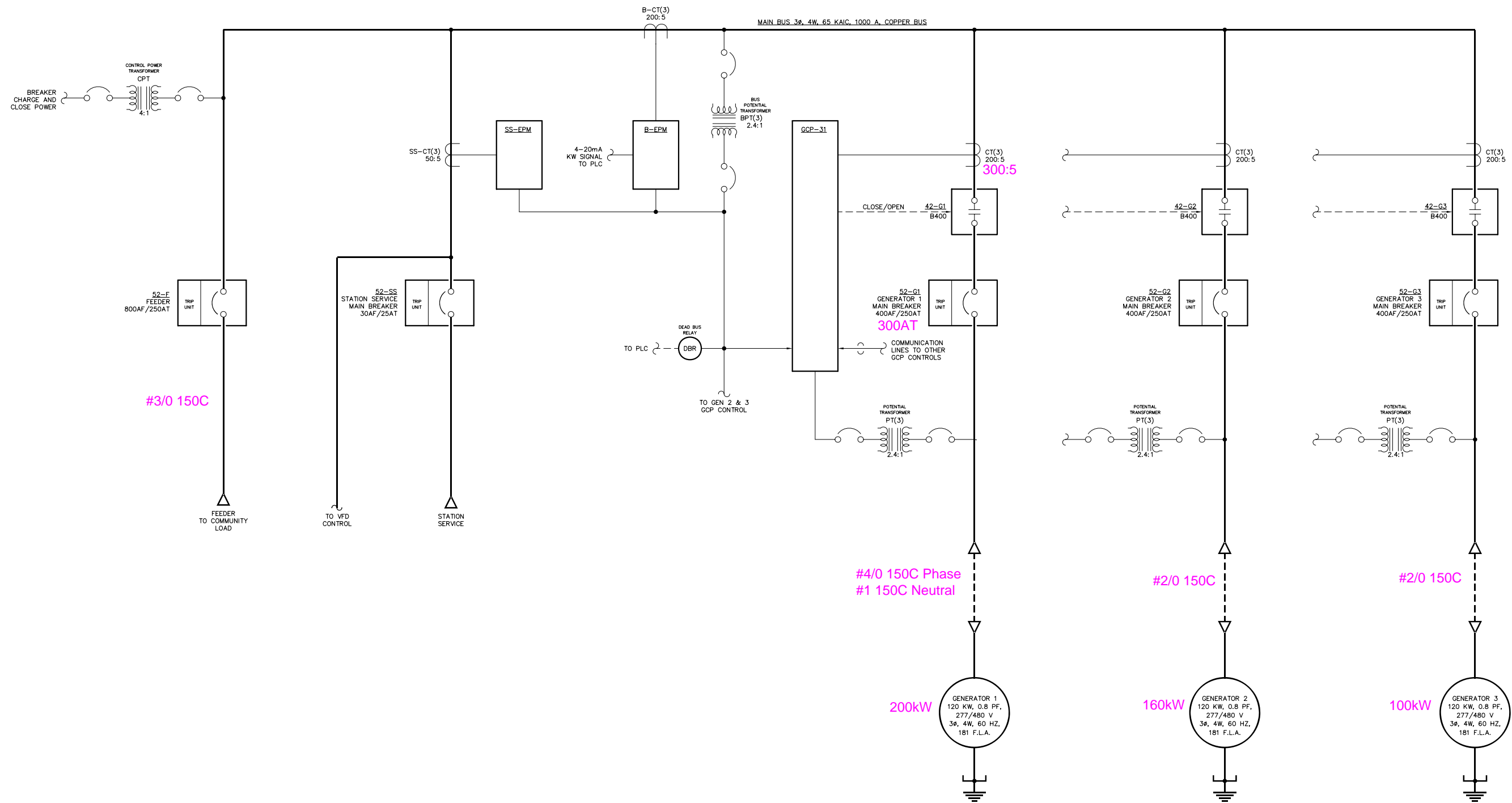
TITLE: GENERATOR SWITCHGEAR PLAN VIEW, OUTLINE DIAGRAM

SCALE: 1/10	DATE: 03-01-11	DWN. BY: GPN
DWG. No: 7146-4201-D	SHEET: 1 OF 1	CKD. BY: JMD

JOB: RUBY GENERATOR SWITCHGEAR

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NOTES:
1. GENERATORS 1 & 2 SIMILAR TO GENERATOR 3.

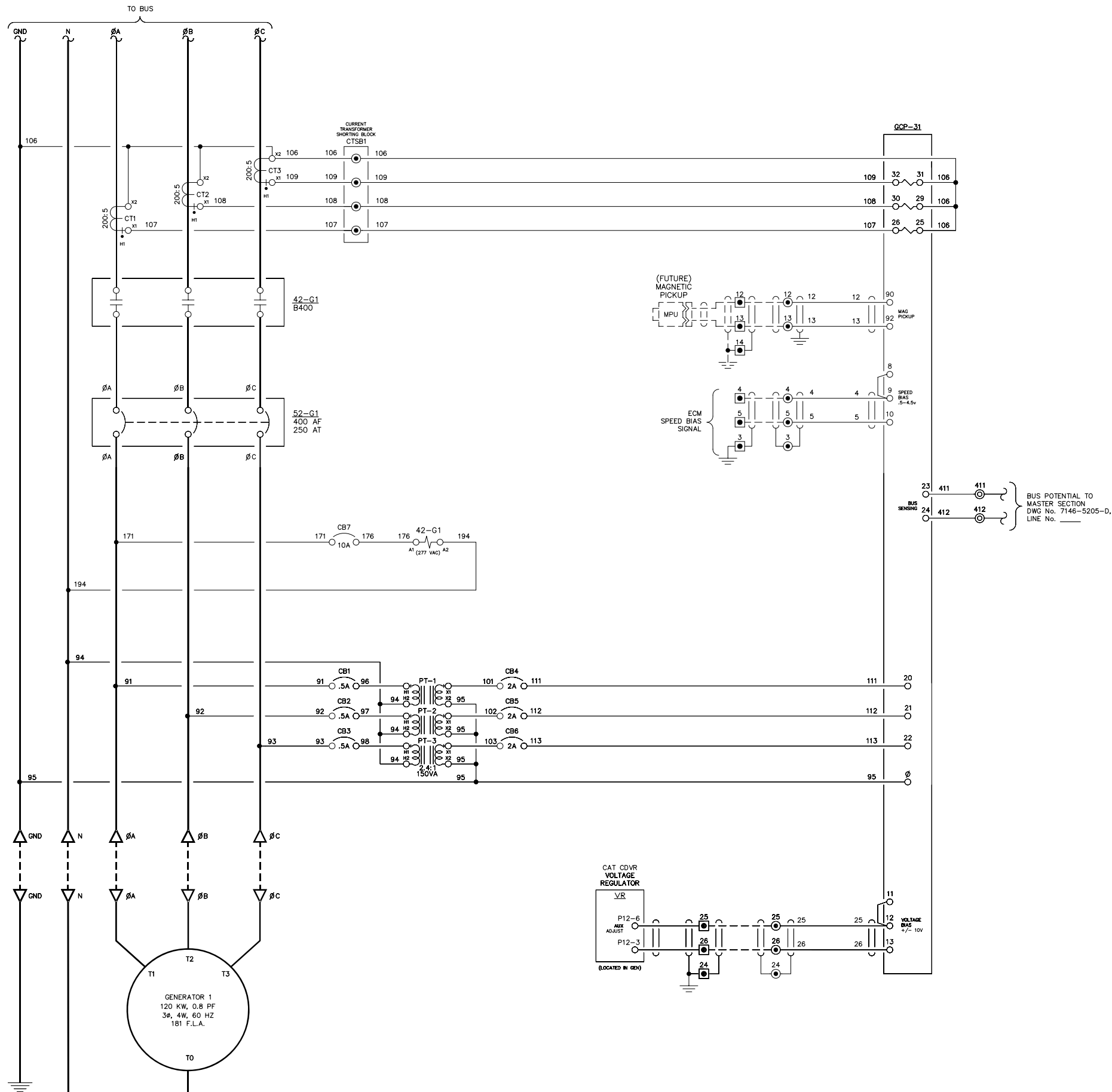
- Notes:
- 1) Conductor sizes and temperature ratings shown based on original design and have not been confirmed. Field verify.
 - 2) Breaker trip setpoints shown based on 2023 DERA upgrade project commissioning and may not match present operating conditions. Field verify.
 - 3) Gen #1 225ekW prime rated engine load limited by demand control to 200kW due to ampacity of existing conductors.
 - 4) Gen #2 210ekW prime rated engine load limited by demand control to 160kW due to ampacity of existing conductors.

NOTE:
1. FOR GENERAL WIRING & CONSTRUCTION NOTES, SEE DRAWING No. 7146-3101-D.

REV.	DATE	DESCRIPTION	BY
A	05-04-11	SHOP AS BUILT	GPN
AEA PURCHASE ORDER No. REG-11-044		CONTROLLED POWER JOB No. 7146	
TITLE: GENERATOR SWITCHGEAR SINGLE LINE, SCHEMATIC DIAGRAM			
SCALE: NONE	DATE: 02-10-11	DWN. BY: GPN	
DWG. No: 7146-5101-D	SHEET: 1 OF 1	CKD. BY: JMD	
JOB: RUBY GENERATOR SWITCHGEAR			

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NOTE:
1. FOR GENERAL WIRING & CONSTRUCTION NOTES, SEE DRAWING No. 7146-3101-D.

REV.	DATE	DESCRIPTION	BY
A	05-04-11	SHOP AS BUILT	GPN

AEA PURCHASE ORDER No. REG-11-044 CONTROLLED POWER JOB No. 7146

TITLE: GENERATOR 1 AC THREE LINE, SCHEMATIC DIAGRAM

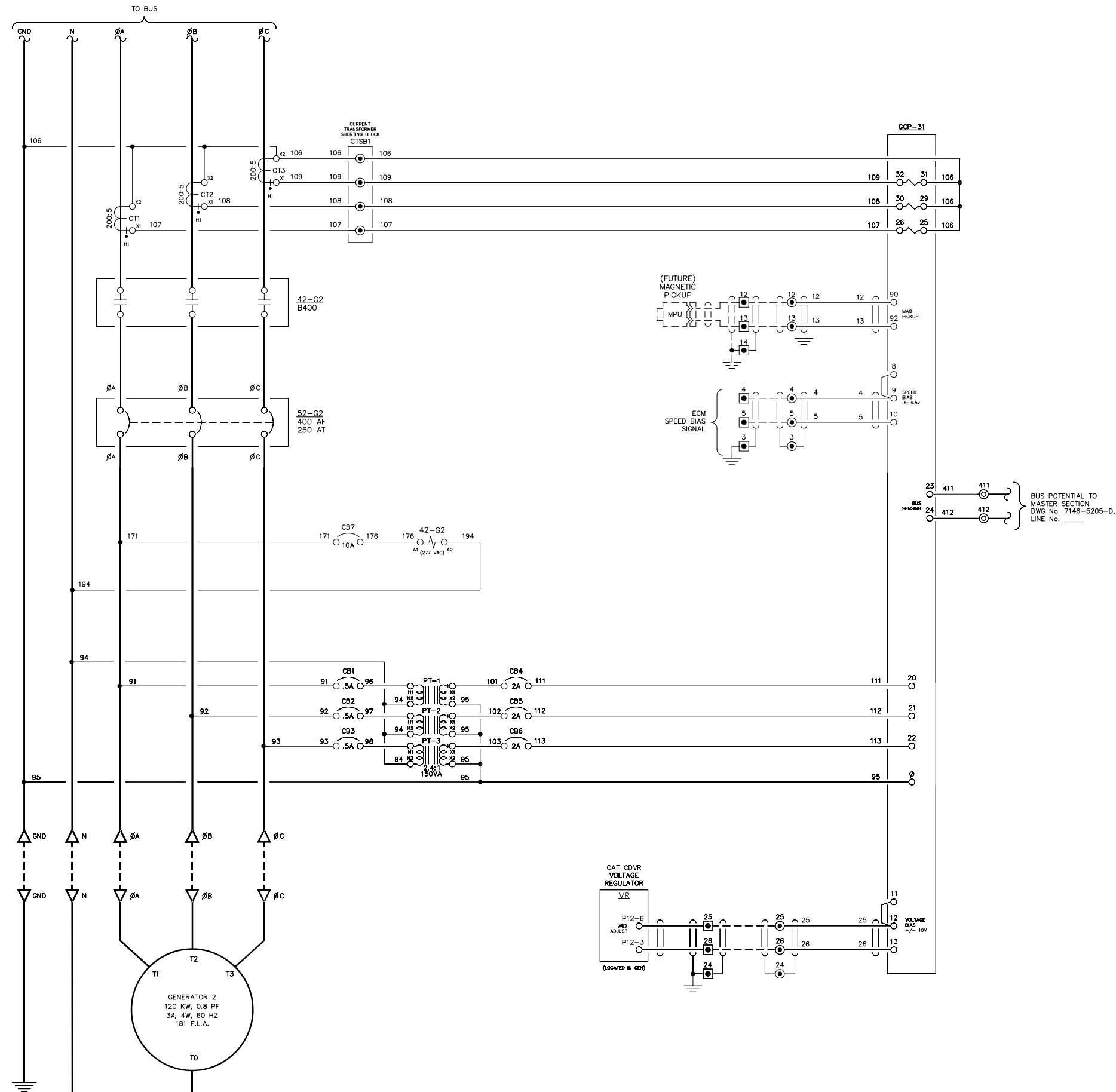
SCALE: NONE	DATE: 03-01-11	DWN. BY: GPN
DWG. No: 7146-5201-D	SHEET: 1 OF 1	CKD. BY: JMD

JOB: RUBY GENERATOR SWITCHGEAR

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LINE No. 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100



NOTE:
1. FOR GENERAL WIRING & CONSTRUCTION NOTES, SEE DRAWING No. 7146-3101-D.

REV.	DATE	DESCRIPTION	BY
A	05-04-11	SHOP AS BUILT	GPN

AEA PURCHASE ORDER No. REG-11-044 CONTROLLED POWER JOB No. 7146
TITLE: GENERATOR 2 AC THREE LINE, SCHEMATIC DIAGRAM

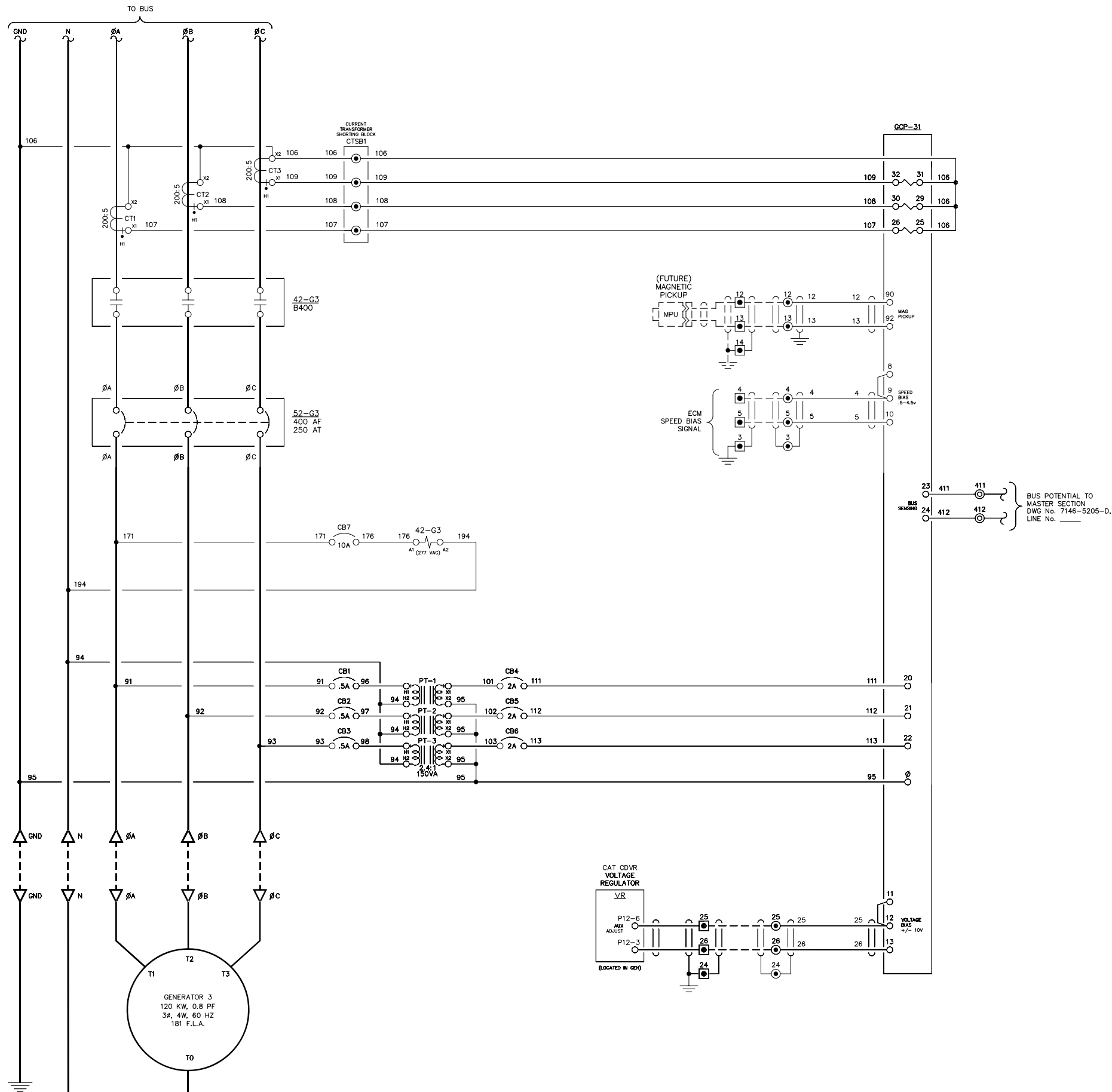
SCALE: NONE	DATE: 03-01-11	DWN. BY: GPN
DWG. No: 7146-5202-D	SHEET: 1 OF 1	CKD. BY: JMD

JOB: RUBY GENERATOR SWITCHGEAR

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NOTE:
1. FOR GENERAL WIRING & CONSTRUCTION NOTES, SEE DRAWING No. 7146-3101-D.

REV.	DATE	DESCRIPTION	BY
A	05-04-11	SHOP AS BUILT	GPN

AEA PURCHASE ORDER No. REG-11-044 CONTROLLED POWER JOB No. 7146

TITLE: GENERATOR 3 AC THREE LINE, SCHEMATIC DIAGRAM

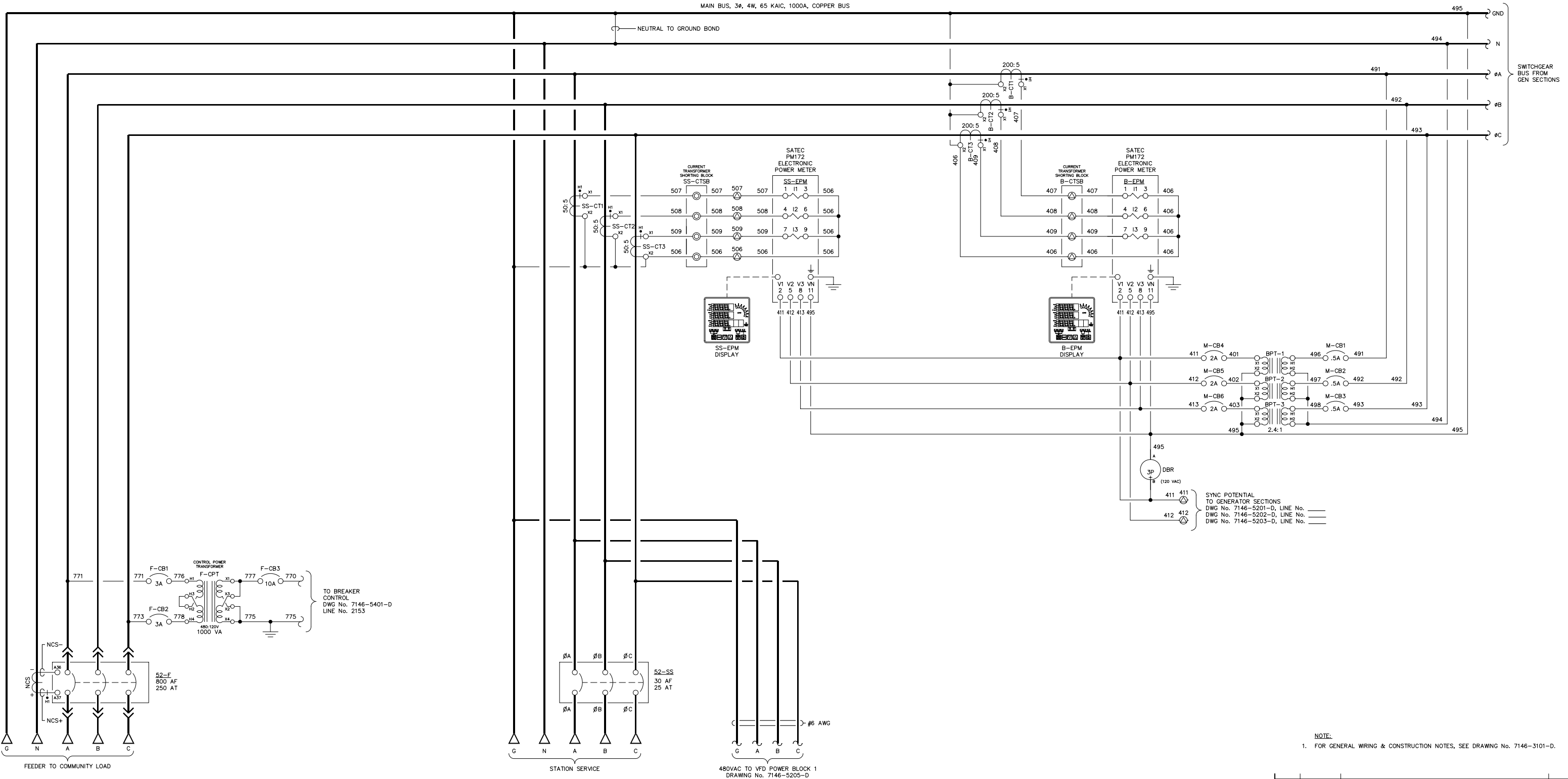
SCALE: NONE	DATE: 03-01-11	DWN. BY: GPN
DWG. No: 7146-5203-D	SHEET: 1 OF 1	CKD. BY: JMD

JOB: RUBY GENERATOR SWITCHGEAR

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NOTE:
1. FOR GENERAL WIRING & CONSTRUCTION NOTES, SEE DRAWING No. 7146-3101-D.

REV.	DATE	DESCRIPTION	BY
A	05-04-11	SHOP AS BUILT	GPN

AEA PURCHASE ORDER No. REG-11-044 CONTROLLED POWER JOB No. 7146

TITLE: MASTER AC THREE LINE, SCHEMATIC DIAGRAM

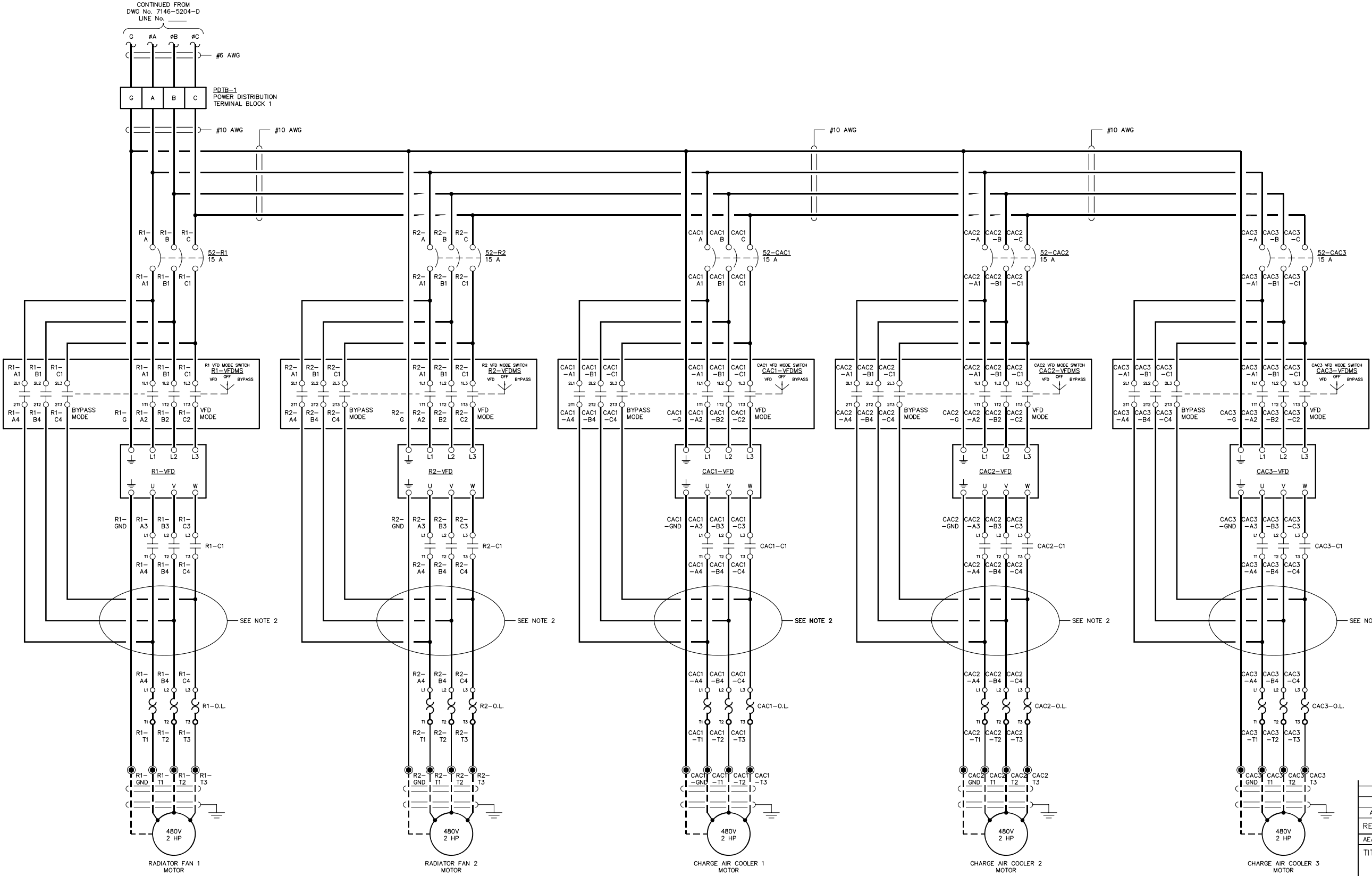
SCALE: NONE	DATE: 03-01-11	DWN. BY: GPN
DWG. No: 7146-5204-D	SHEET: 1 OF 1	CKD. BY: JMD

JOB: RUBY GENERATOR SWITCHGEAR

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- NOTE:
- FOR GENERAL WRING & CONSTRUCTION NOTES, SEE DRAWING No. 7146-3101-D.
 - VFD LOAD WIRES SHALL BE ROUTED SEPARATE FROM ALL OTHER WRING OR SHIELDED TO AVOID RF INTERFERENCE.

REV.	DATE	DESCRIPTION	BY
A	05-04-11	SHOP AS BUILT	GPN

AEA PURCHASE ORDER No. REG-11-044 CONTROLLED POWER JOB No. 7146

TITLE: VFD THREE LINE, SCHEMATIC DIAGRAM

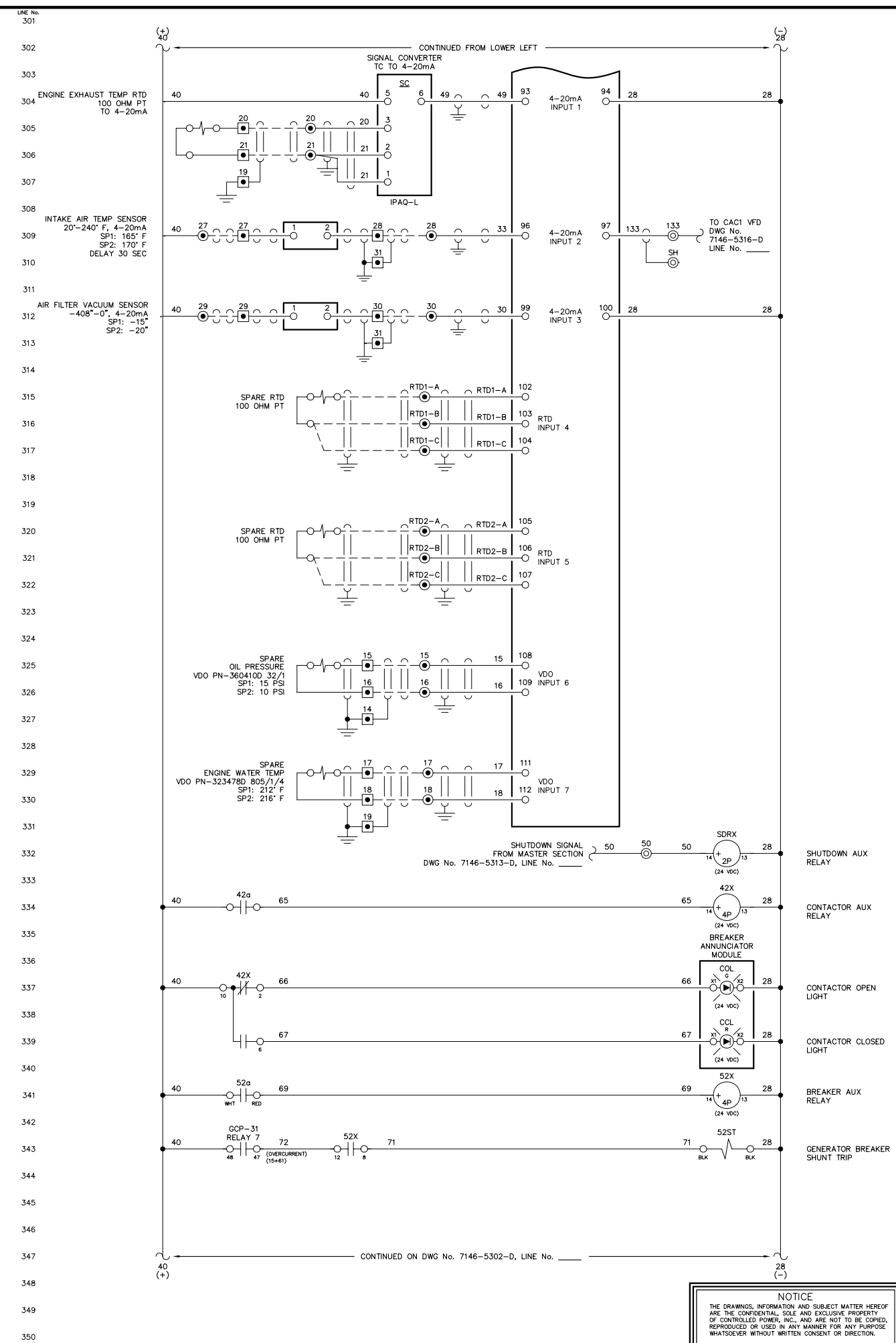
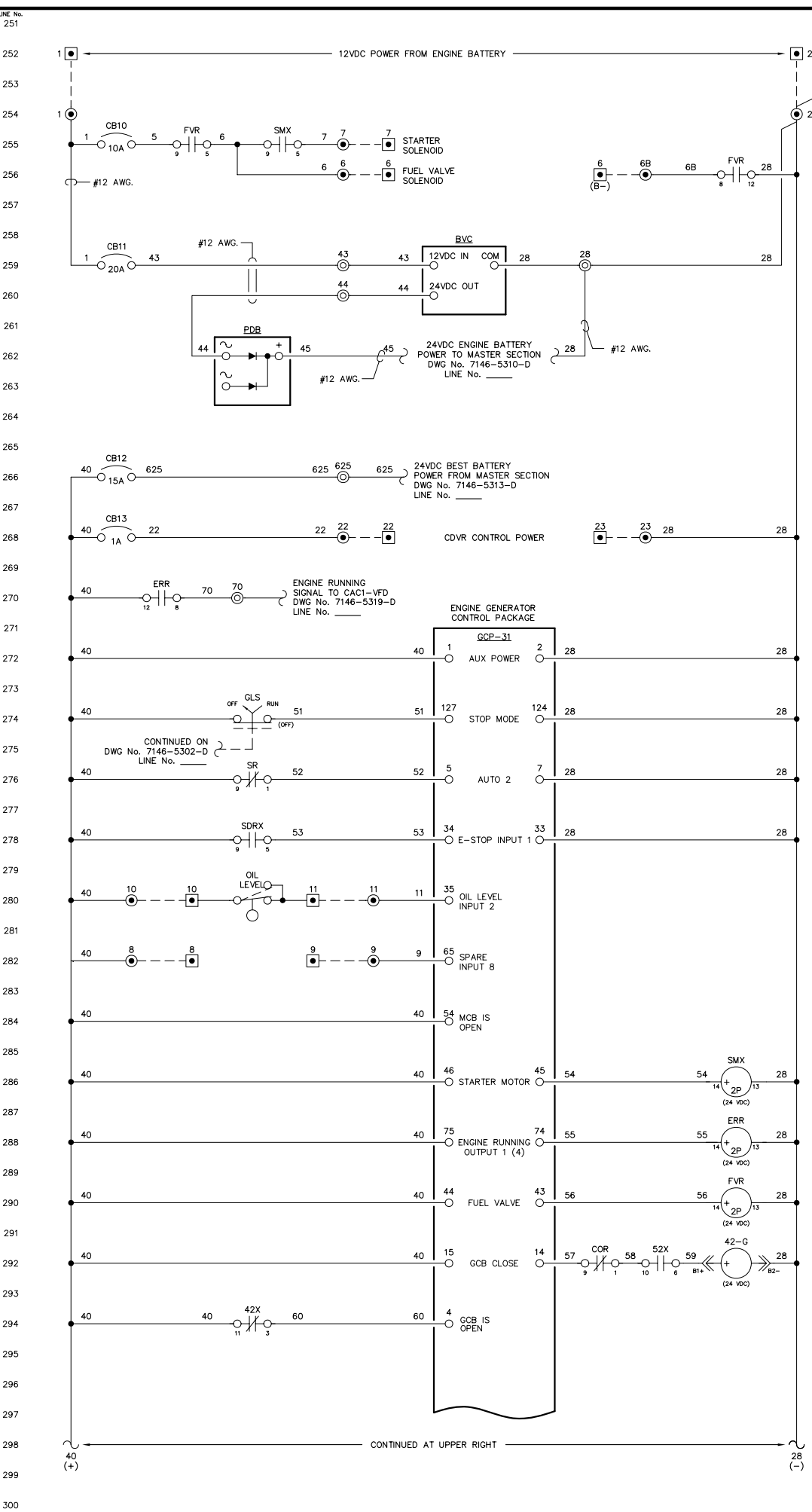
SCALE: NONE	DATE: 03-01-11	DWN. BY: GPN
DWG. No: 7146-5205-D	SHEET: 1 OF 1	CKD. BY: JMD

JOB: RUBY GENERATOR SWITCHGEAR

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NOTE:
1. FOR GENERAL WIRING & CONSTRUCTION NOTES, SEE DRAWING No. 7146-3101-D.

REV.	DATE	DESCRIPTION	BY
A	05-04-11	SHOP AS BUILT	GPB

AEA PURCHASE ORDER No. REG-11-044 CONTROLLED POWER JOB No. 7146

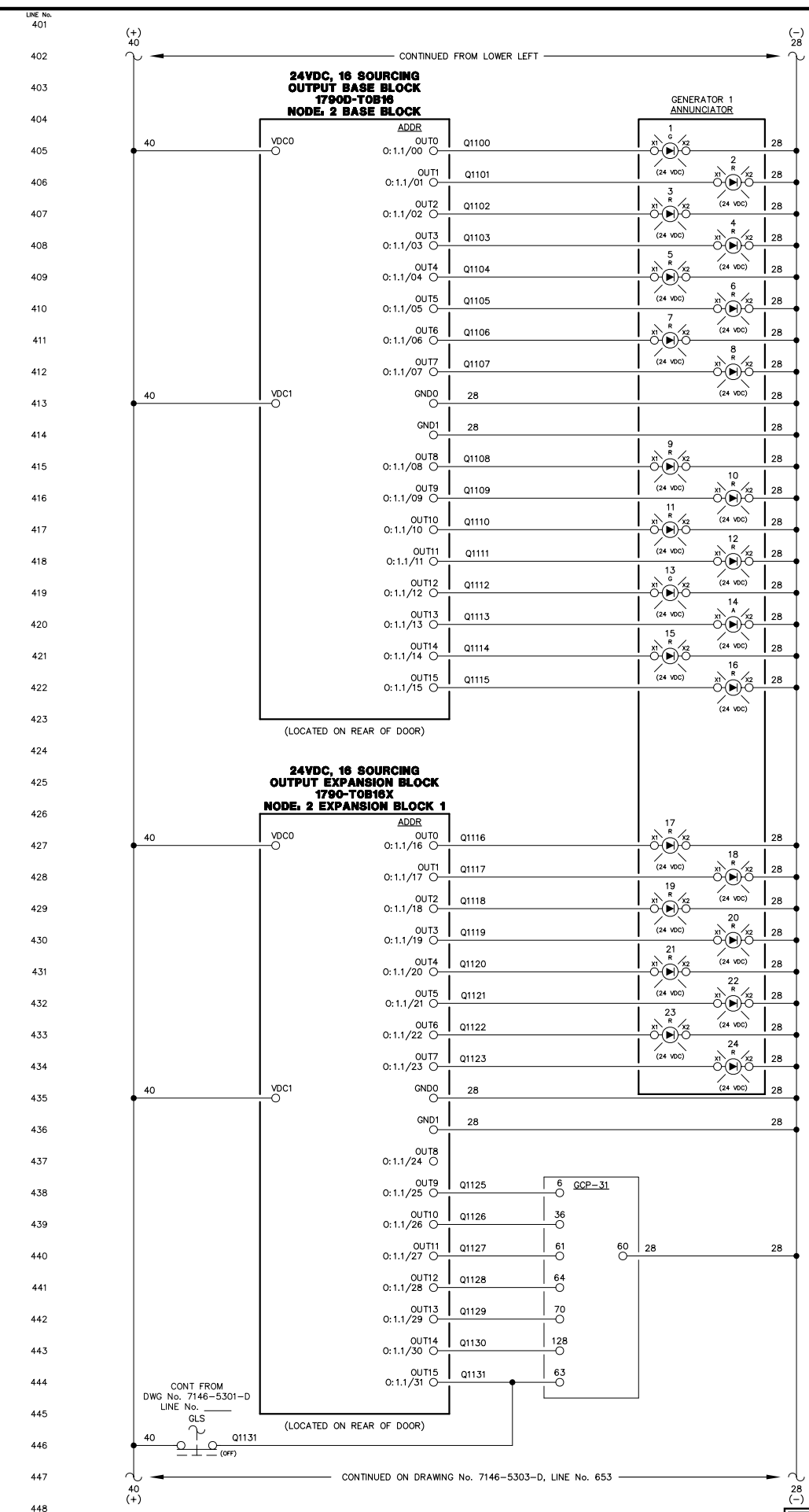
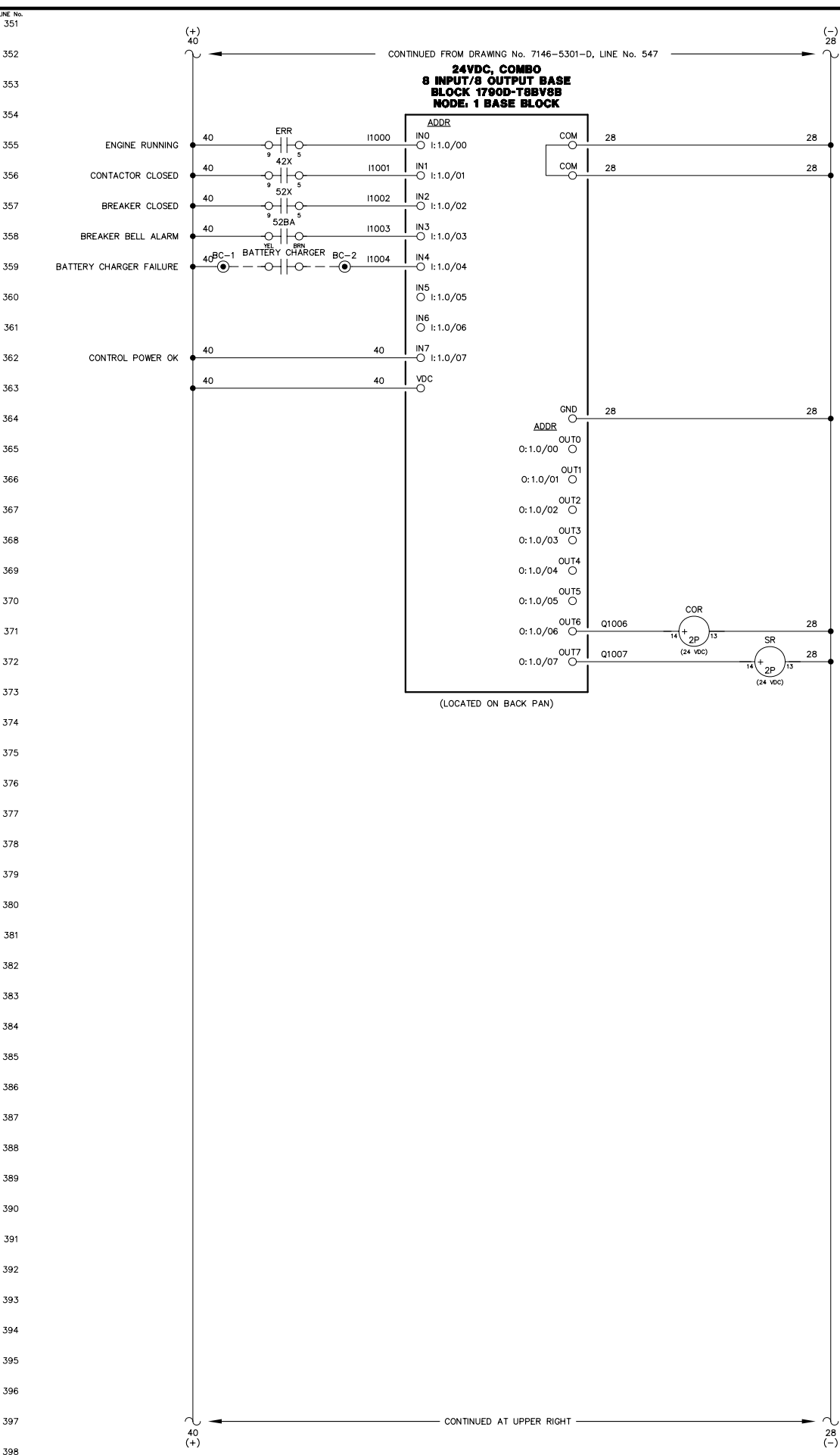
TITLE: GENERATOR 1 DC CONTROL, SCHEMATIC DIAGRAM

SCALE: NONE	DATE: 03-01-11	DWN. BY: GPB
DWG. No: 7146-5301-D	SHEET: 1 OF 1	CKD. BY: JMD

JOB: RUBY GENERATOR SWITCHGEAR

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- ENGINE RUNNING LIGHT
- ALARM/LOCKOUT LIGHT
- LOW OIL PRESSURE LIGHT
- OIL LEVEL LIGHT
- HIGH COOLANT TEMPERATURE LIGHT
- OVERSPEED LIGHT
- OVERCRANK LIGHT
- RUNNING TIMEOUT LIGHT
- BATTERY CHARGER FAILURE LIGHT
- AIR FILTER PLUGGED LIGHT
- HIGH EXHAUST TEMPERATURE LIGHT
- HIGH CHARGE AIR TEMPERATURE LIGHT
- LEAD ENGINE LIGHT
- NORMAL STOP LIGHT
- NOT IN AUTO LIGHT
- GENERATOR BREAKER TRIP LIGHT
- FAIL TO SYNCHRONIZE LIGHT
- OVERCURRENT LIGHT
- UNDER VOLTAGE LIGHT
- OVER VOLTAGE LIGHT
- UNDER FREQUENCY LIGHT
- OVER FREQUENCY LIGHT
- REVERSE POWER LIGHT
- CHARGE AIR VFD FAILURE LIGHT
- MULTIFUNCTION (REMOTE ACK)
- INPUT 3 - RUNNING TIMEOUT
- INPUT 4 - MASTER SHUTDOWN
- INPUT 7 - BREAKER LOGIC
- INPUT 13 - CAC VFD FAULT
- AUTOMATIC MODE
- MODE SELECTION LOCK

NOTE:
1. FOR GENERAL WIRING & CONSTRUCTION NOTES, SEE DRAWING No. 7146-3101-D.

REV.	DATE	DESCRIPTION	BY
A	05-04-11	SHOP AS BUILT	GPN

AEA PURCHASE ORDER No. REG-11-044 CONTROLLED POWER JOB No. 7146

TITLE: GENERATOR 1 DC CONTROL, SCHEMATIC DIAGRAM

SCALE: NONE	DATE: 03-01-11	DWN. BY: GPN
DWG. No: 7146-5302-D	SHEET: 1 OF 1	CKD. BY: JMD

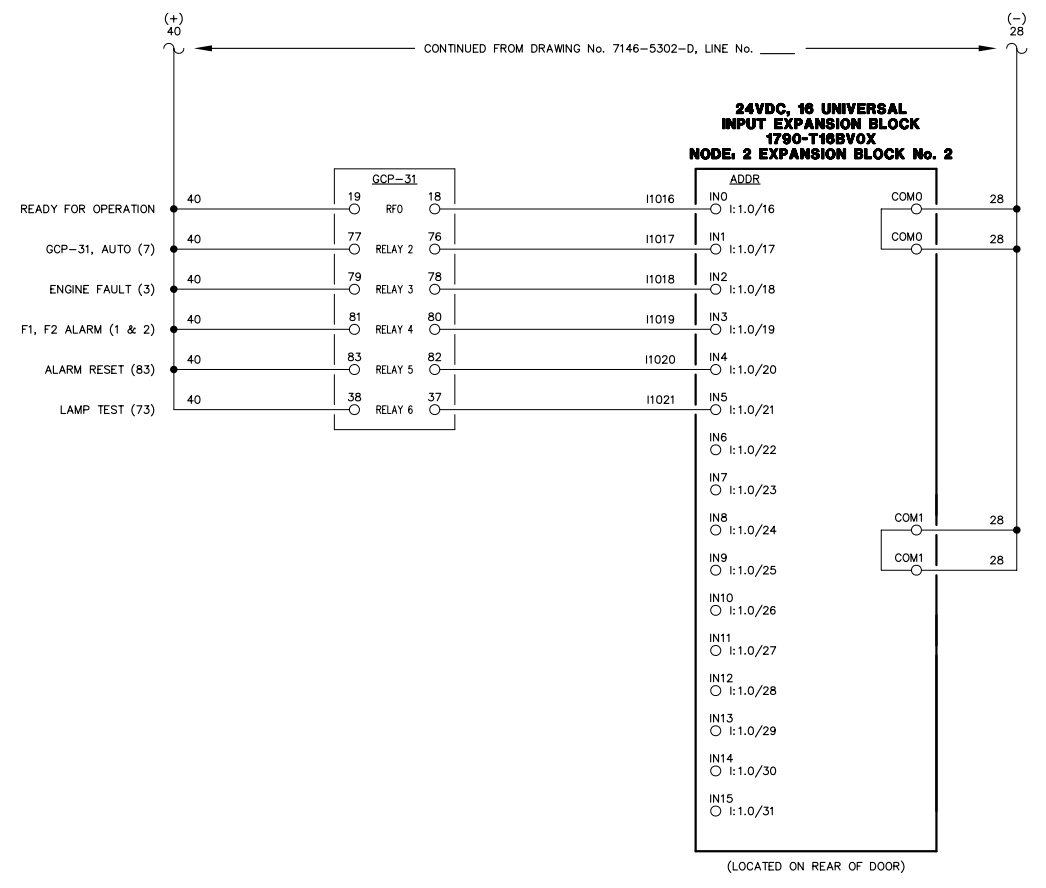
JOB: RUBY GENERATOR SWITCHEAR

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NOTE:
1. FOR GENERAL WIRING & CONSTRUCTION NOTES, SEE DRAWING No. 7146-3101-D.

REV.	DATE	DESCRIPTION	BY
A	05-04-11	SHOP AS BUILT	GPN

AEA PURCHASE ORDER No. REG-11-044 CONTROLLED POWER JOB No. 7146

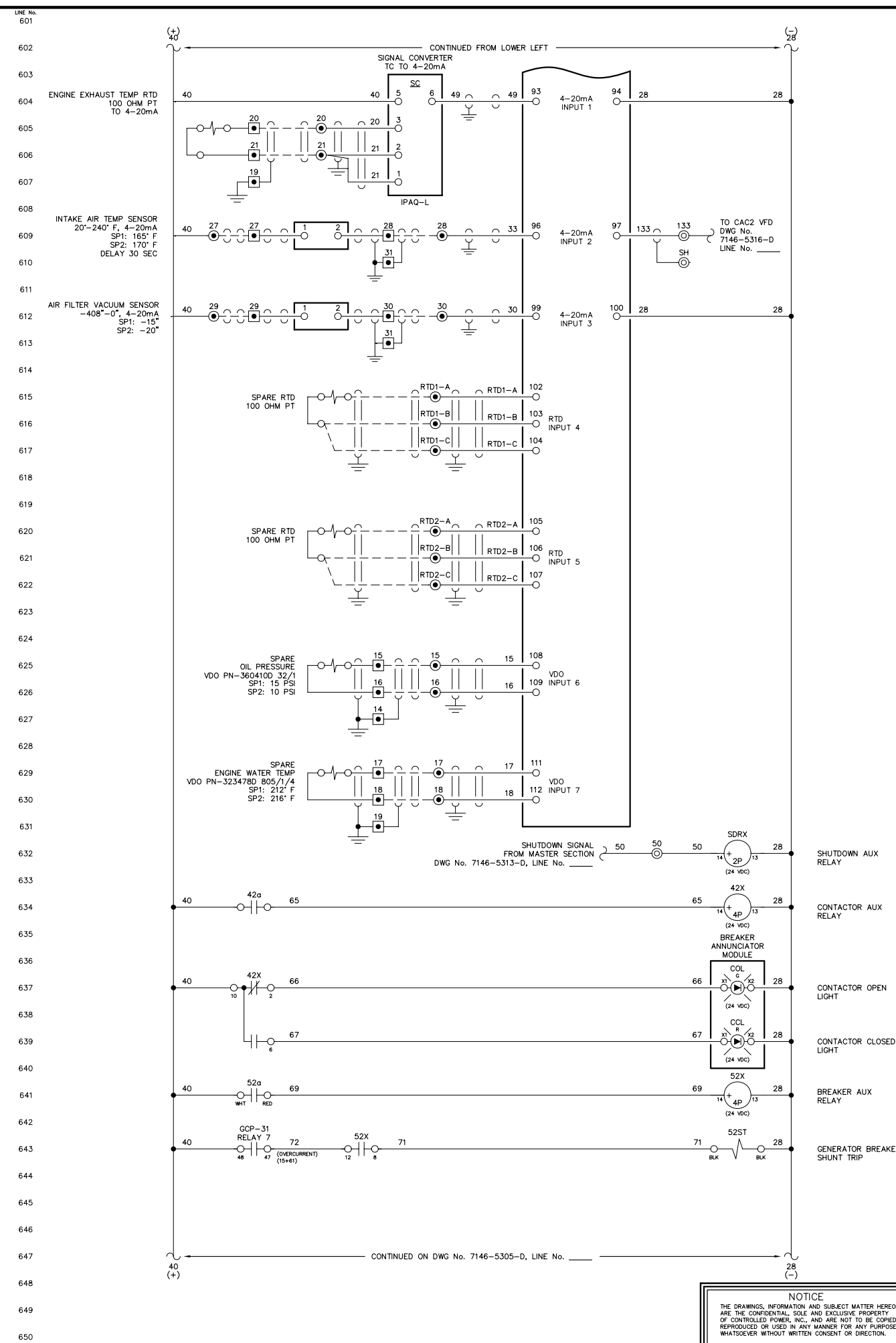
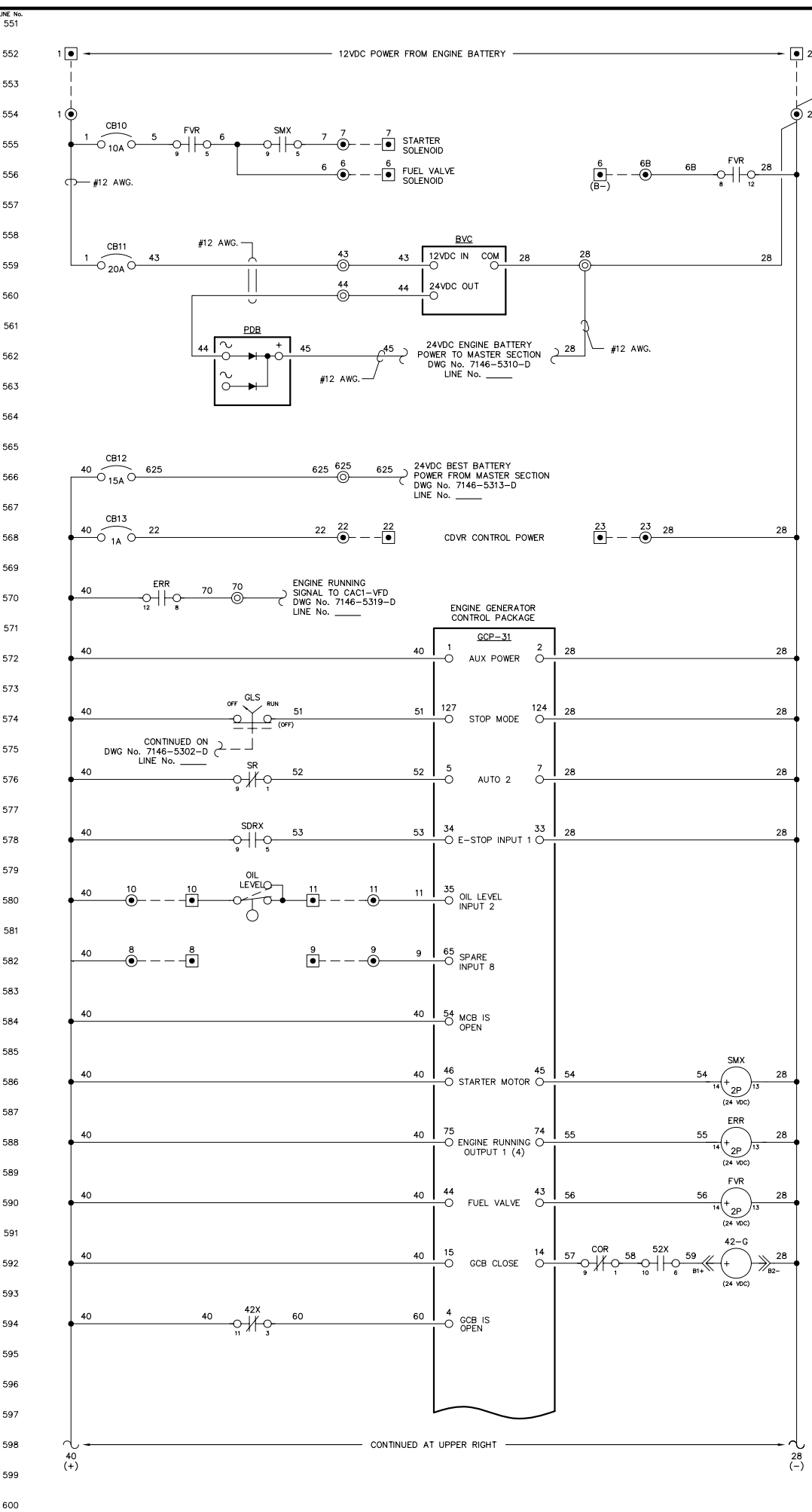
TITLE: GENERATOR 1 DC CONTROL, SCHEMATIC DIAGRAM

SCALE: NONE	DATE: 03-01-11	DWN. BY: GPN
DWG. No: 7146-5303-D	SHEET: 1 OF 1	CKD. BY: JMD

JOB: RUBY GENERATOR SWITCHGEAR

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NOTE:
1. FOR GENERAL WIRING & CONSTRUCTION NOTES, SEE DRAWING No. 7146-3101-D.

REV.	DATE	DESCRIPTION	BY
A	05-04-11	SHOP AS BUILT	GPB

AEA PURCHASE ORDER No. REG-11-044 CONTROLLED POWER JOB No. 7146

TITLE: GENERATOR 2 DC CONTROL, SCHEMATIC DIAGRAM

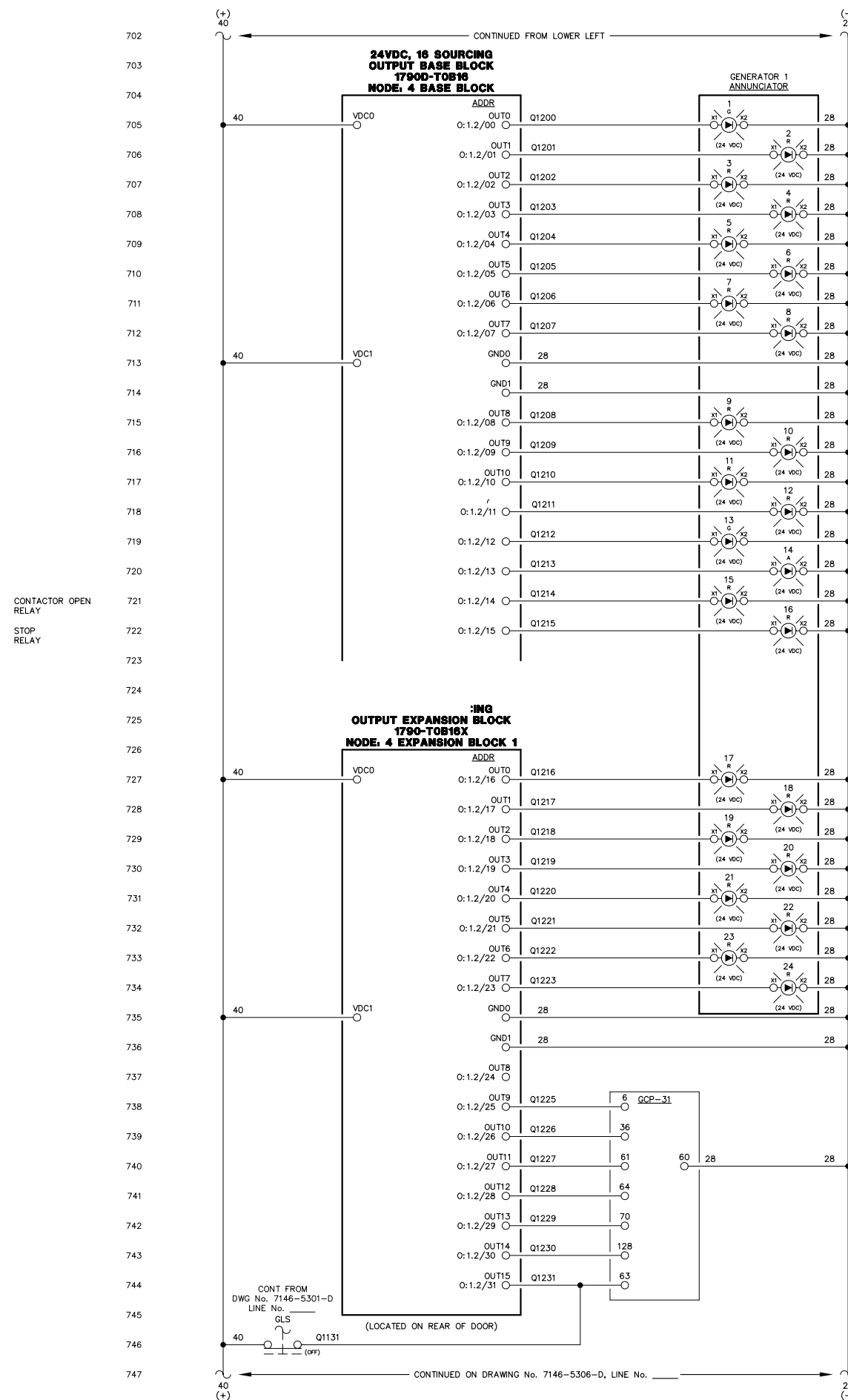
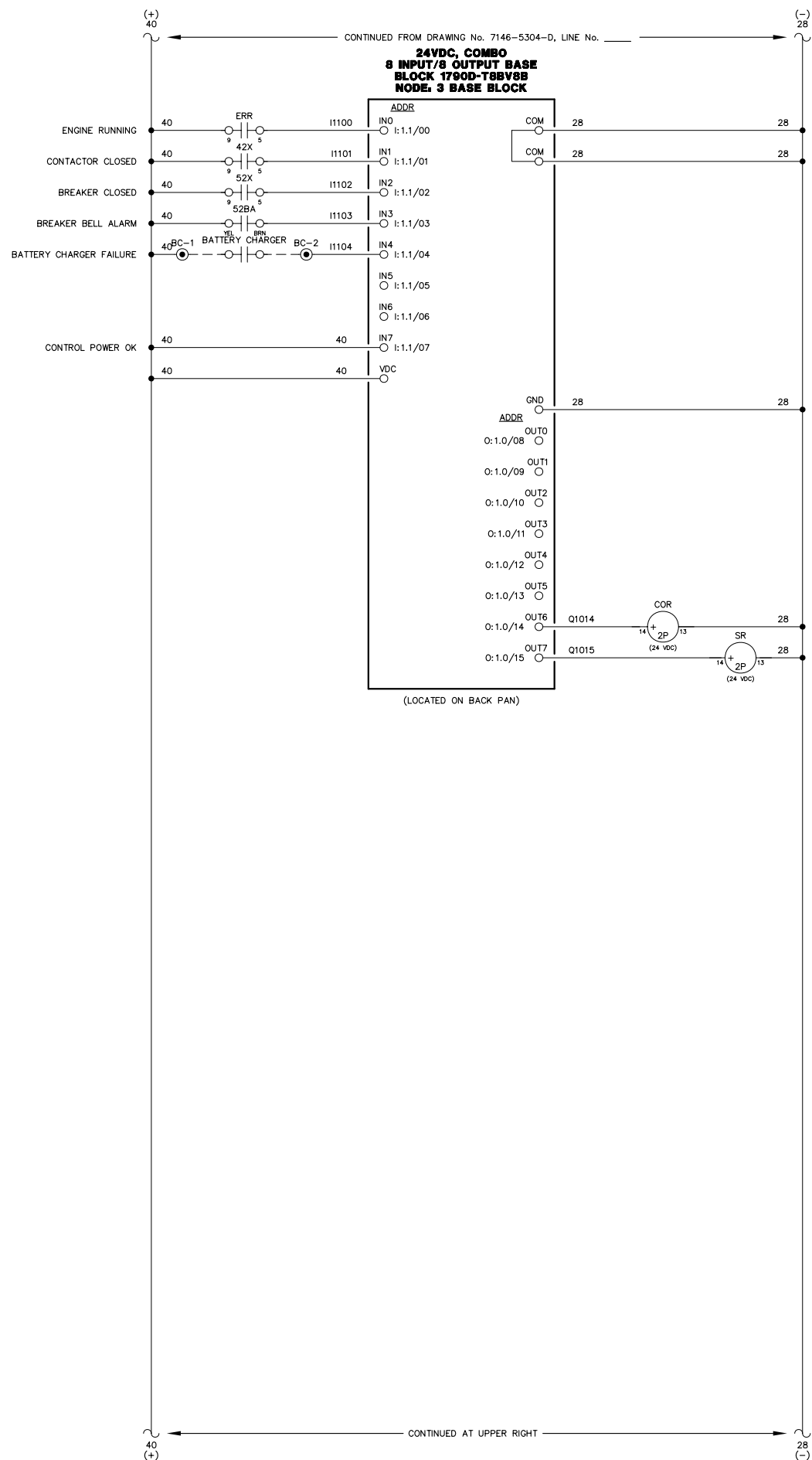
SCALE: NONE	DATE: 03-01-11	DWN. BY: GPB
DWG. No: 7146-5304-D	SHEET: 1 OF 1	CKD. BY: JMD

JOB: RUBY GENERATOR SWITCHGEAR

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- ENGINE RUNNING LIGHT
- ALARM/LOCKOUT LIGHT
- LOW OIL PRESSURE LIGHT
- OIL LEVEL LIGHT
- HIGH COOLANT TEMPERATURE LIGHT
- OVERSPEED LIGHT
- OVERCRANK LIGHT
- RUNNING TIMEOUT LIGHT
- BATTERY CHARGER FAILURE LIGHT
- AIR FILTER PLUGGED LIGHT
- HIGH EXHAUST TEMPERATURE LIGHT
- HIGH CHARGE AIR TEMPERATURE LIGHT
- LEAD ENGINE LIGHT
- NORMAL STOP LIGHT
- NOT IN AUTO LIGHT
- GENERATOR BREAKER TRIP LIGHT

- FAIL TO SYNCHRONIZE LIGHT
- OVERCURRENT LIGHT
- UNDER VOLTAGE LIGHT
- OVER VOLTAGE LIGHT
- UNDER FREQUENCY LIGHT
- OVER FREQUENCY LIGHT
- REVERSE POWER LIGHT
- CHARGE AIR VFD FAILURE LIGHT

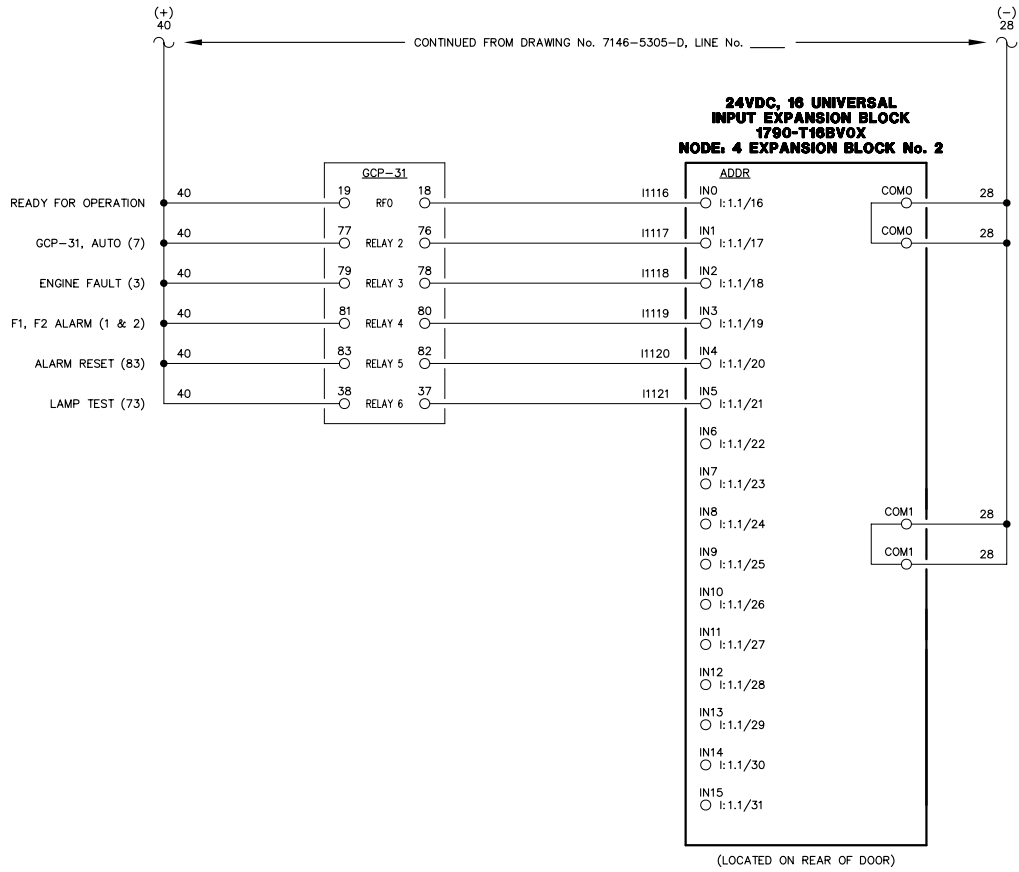
- MULTIFUNCTION (REMOTE ACK)
- INPUT 3 - RUNNING TIMEOUT
- INPUT 4 - MASTER SHUTDOWN
- INPUT 7 - BREAKER LOGIC
- INPUT 13 - CAC VFD FAULT
- AUTOMATIC MODE
- MODE SELECTION LOCK

NOTE:
1. FOR GENERAL WIRING & CONSTRUCTION NOTES, SEE DRAWING No. 7146-3101-D.

REV.	DATE	DESCRIPTION	BY
A	05-04-11	SHOP AS BUILT	GPN
SCALE: NONE		DATE: 03-01-11	DWN. BY: GPN
DWG. No: 7146-5305-D		SHEET: 1 OF 1	CKD. BY: JMD
JOB: RUBY GENERATOR SWITHGEAR			

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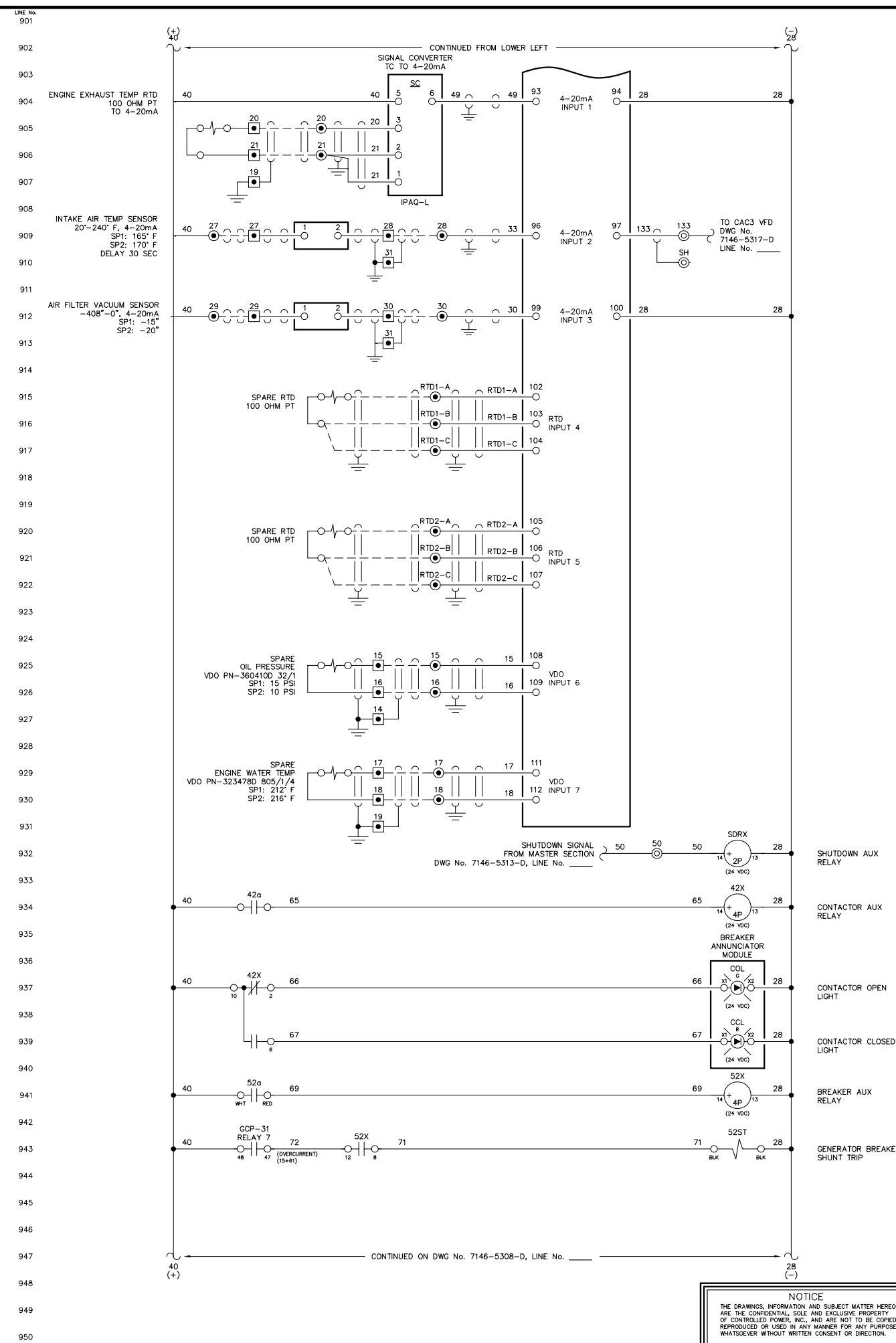
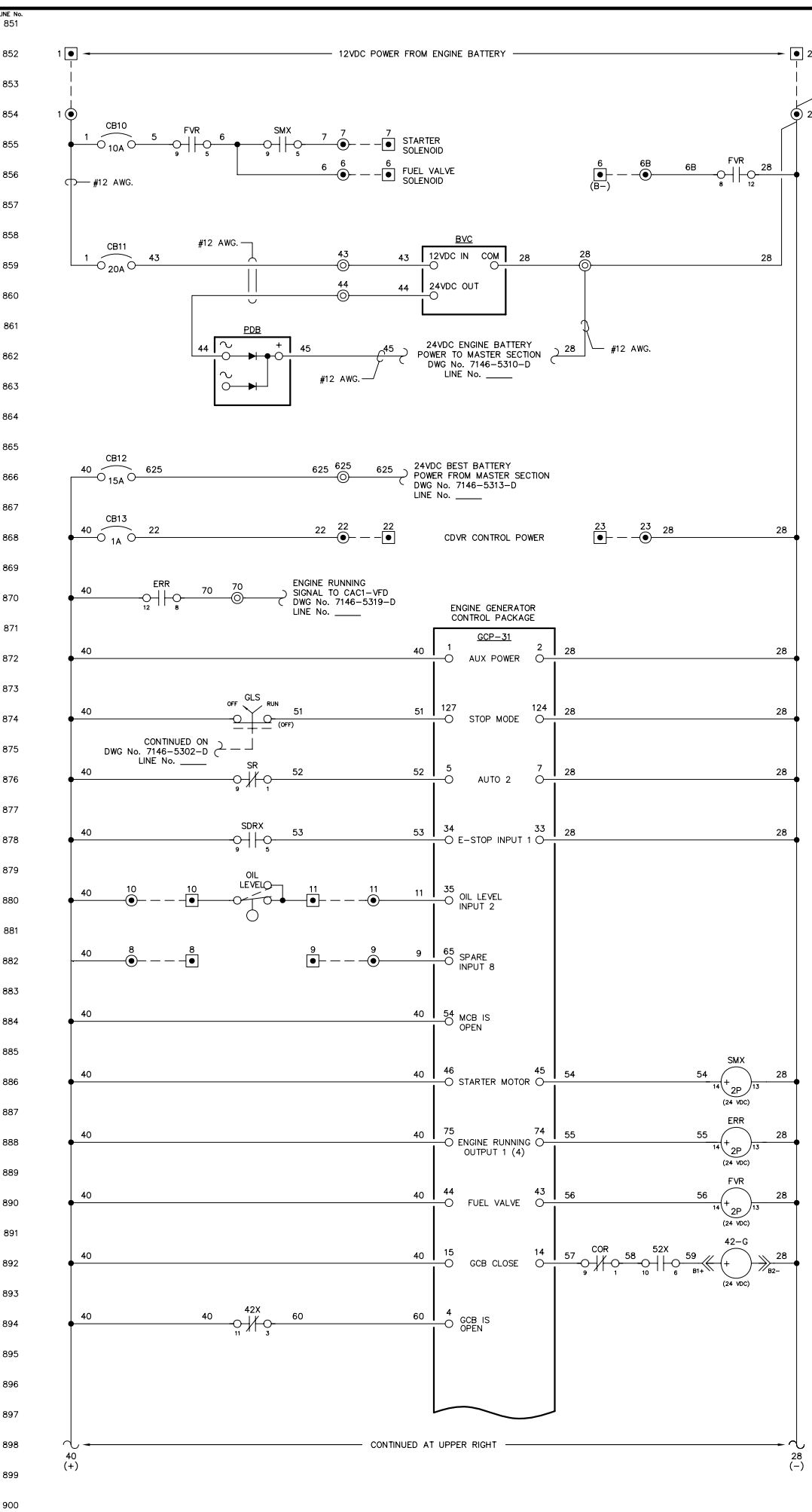


NOTE:
1. FOR GENERAL WIRING & CONSTRUCTION NOTES, SEE DRAWING No. 7146-3101-D.

REV.	DATE	DESCRIPTION	BY
A	05-04-11	SHOP AS BUILT	GPN
AEA PURCHASE ORDER No. REG-11-044			CONTROLLED POWER JOB No. 7146
TITLE: GENERATOR 2 DC CONTROL, SCHEMATIC DIAGRAM			
SCALE: NONE	DATE: 03-01-11	DWN. BY: GPN	
DWG. No: 7146-5306-D	SHEET: 1 OF 1	CKD. BY: JMD	
JOB: RUBY GENERATOR SWITCHGEAR			

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NOTE:
1. FOR GENERAL WIRING & CONSTRUCTION NOTES, SEE DRAWING No. 7146-3101-D.

REV.	DATE	DESCRIPTION	BY
A	05-04-11	SHOP AS BUILT	GPB

AEA PURCHASE ORDER No. REG-11-044 CONTROLLED POWER JOB No. 7146

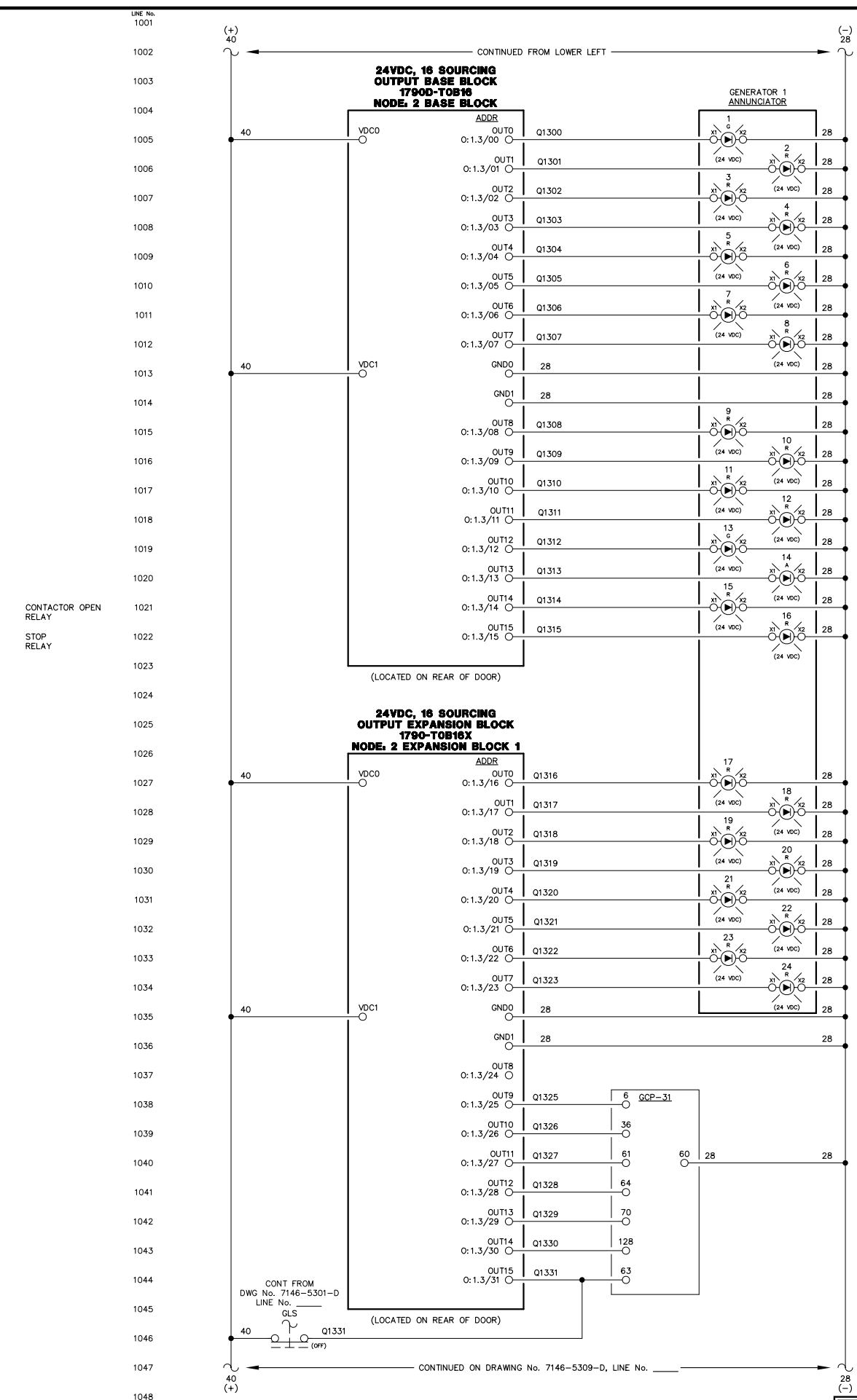
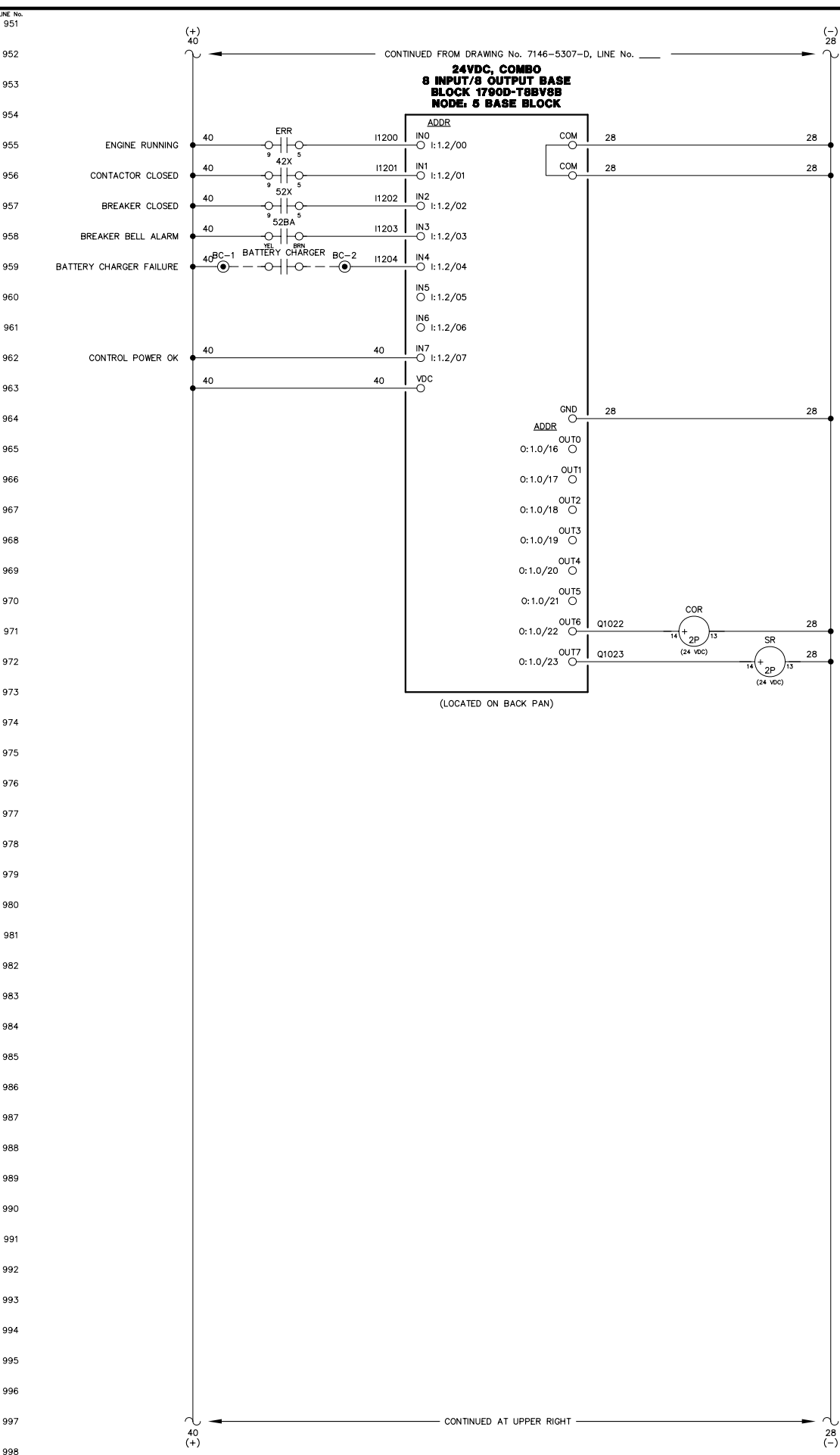
TITLE: GENERATOR 3 DC CONTROL, SCHEMATIC DIAGRAM

SCALE: NONE	DATE: 03-01-11	DWN. BY: GPB
DWG. No: 7146-5307-D	SHEET: 1 OF 1	CKD. BY: JMD

JOB: RUBY GENERATOR SWITCHGEAR

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- ENGINE RUNNING LIGHT
- ALARM/LOCKOUT LIGHT
- LOW OIL PRESSURE LIGHT
- OIL LEVEL LIGHT
- HIGH COOLANT TEMPERATURE LIGHT
- OVERSPEED LIGHT
- OVERCRANK LIGHT
- RUNNING TIMEOUT LIGHT
- BATTERY CHARGER FAILURE LIGHT
- AIR FILTER PLUGGED LIGHT
- HIGH EXHAUST TEMPERATURE LIGHT
- HIGH CHARGE AIR TEMPERATURE LIGHT
- LEAD ENGINE LIGHT
- NORMAL STOP LIGHT
- NOT IN AUTO LIGHT
- GENERATOR BREAKER TRIP LIGHT
- FAIL TO SYNCHRONIZE LIGHT
- OVERCURRENT LIGHT
- UNDER VOLTAGE LIGHT
- OVER VOLTAGE LIGHT
- UNDER FREQUENCY LIGHT
- OVER FREQUENCY LIGHT
- REVERSE POWER LIGHT
- CHARGE AIR VFD FAILURE LIGHT
- MULTIFUNCTION (REMOTE ACK)
- INPUT 3 - RUNNING TIMEOUT
- INPUT 4 - MASTER SHUTDOWN
- INPUT 7 - BREAKER LOGIC
- INPUT 13 - CAC VFD FAULT
- AUTOMATIC MODE
- MODE SELECTION LOCK

NOTE:
1. FOR GENERAL WIRING & CONSTRUCTION NOTES, SEE DRAWING No. 7146-3101-D.

REV.	DATE	DESCRIPTION	BY
A	05-04-11	SHOP AS BUILT	GPN

AEA PURCHASE ORDER No. REG-11-044 CONTROLLED POWER JOB No. 7146

TITLE: GENERATOR 3 DC CONTROL, SCHEMATIC DIAGRAM

SCALE: NONE	DATE: 03-01-11	DWN. BY: GPN
DWG. No: 7146-5308-D	SHEET: 1 OF 1	CKD. BY: JMD

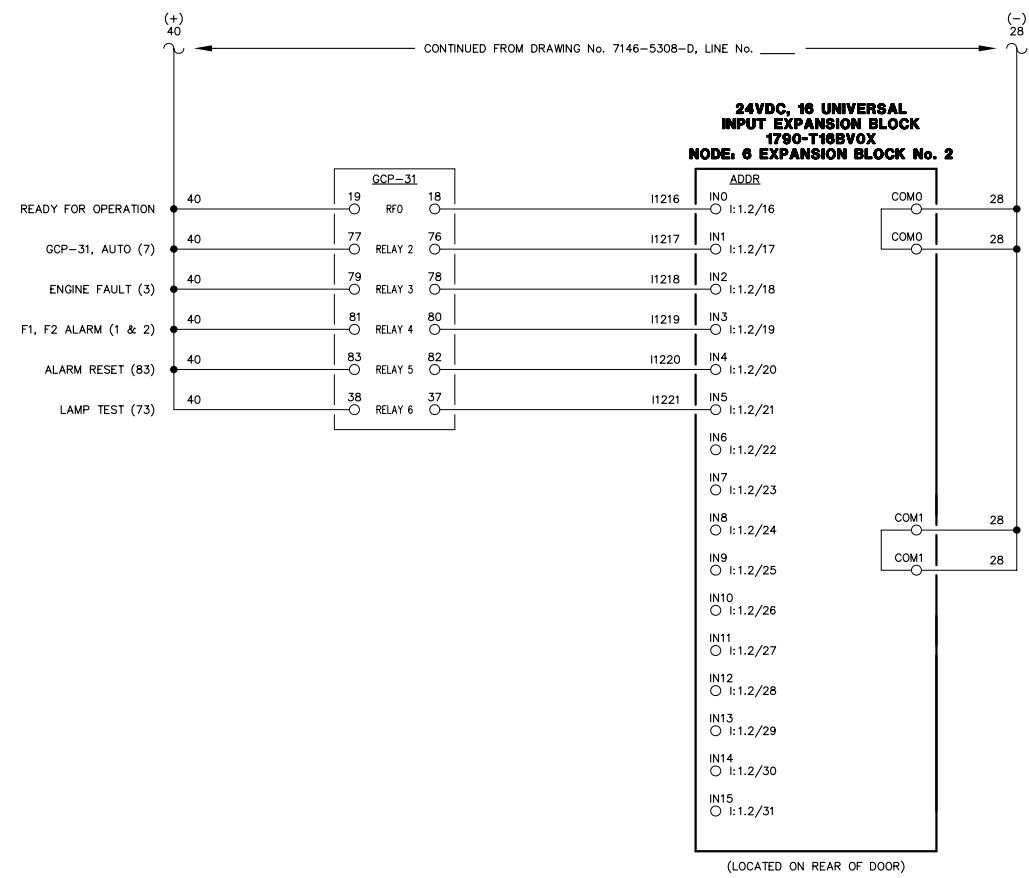
JOB: RUBY GENERATOR SWITHGEAR

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NOTE:
1. FOR GENERAL WIRING & CONSTRUCTION NOTES, SEE DRAWING No. 7146-3101-D.

REV.	DATE	DESCRIPTION	BY
A	05-04-11	SHOP AS BUILT	GPN

AEA PURCHASE ORDER No. REG-11-044 CONTROLLED POWER JOB No. 7146

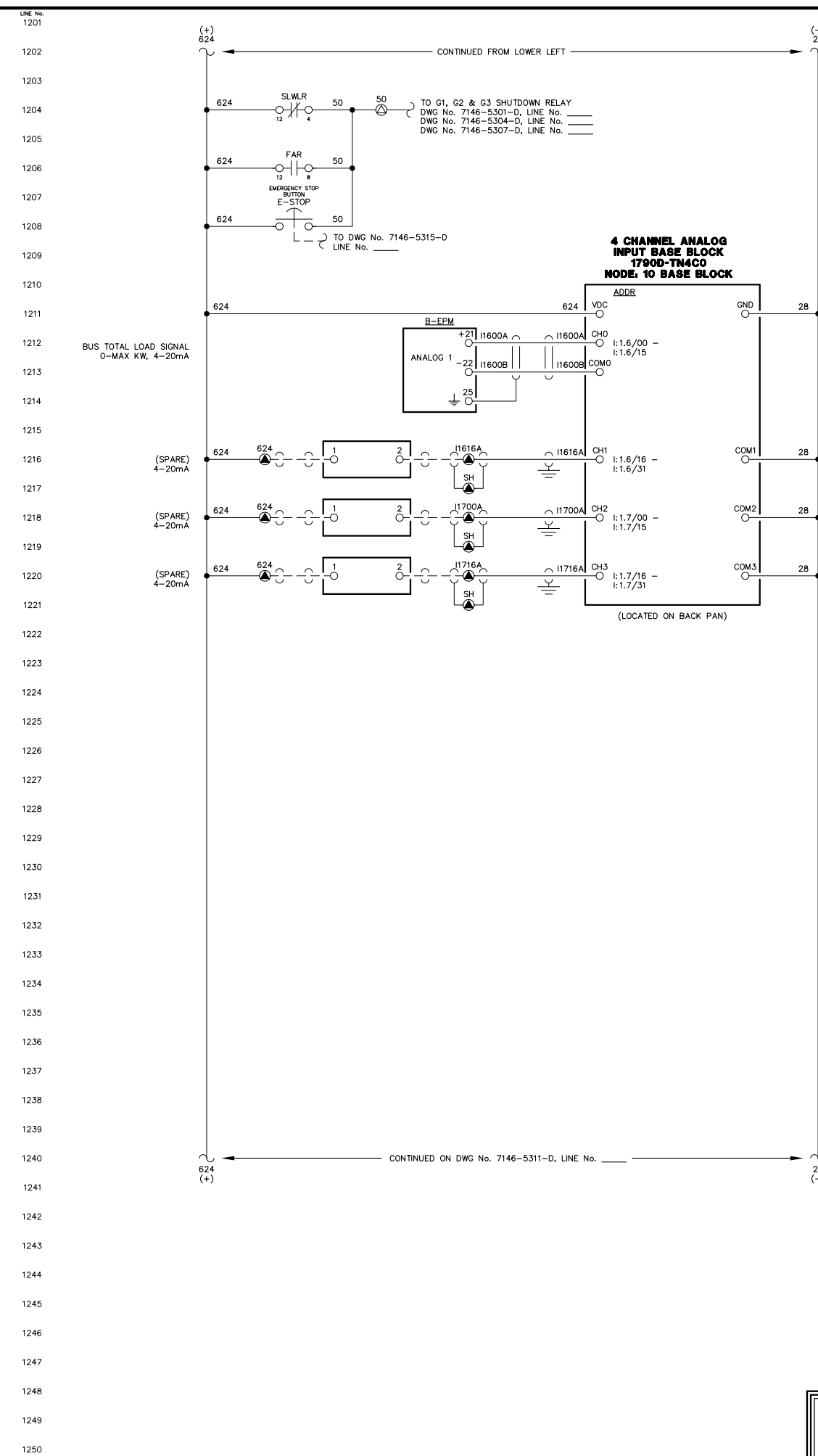
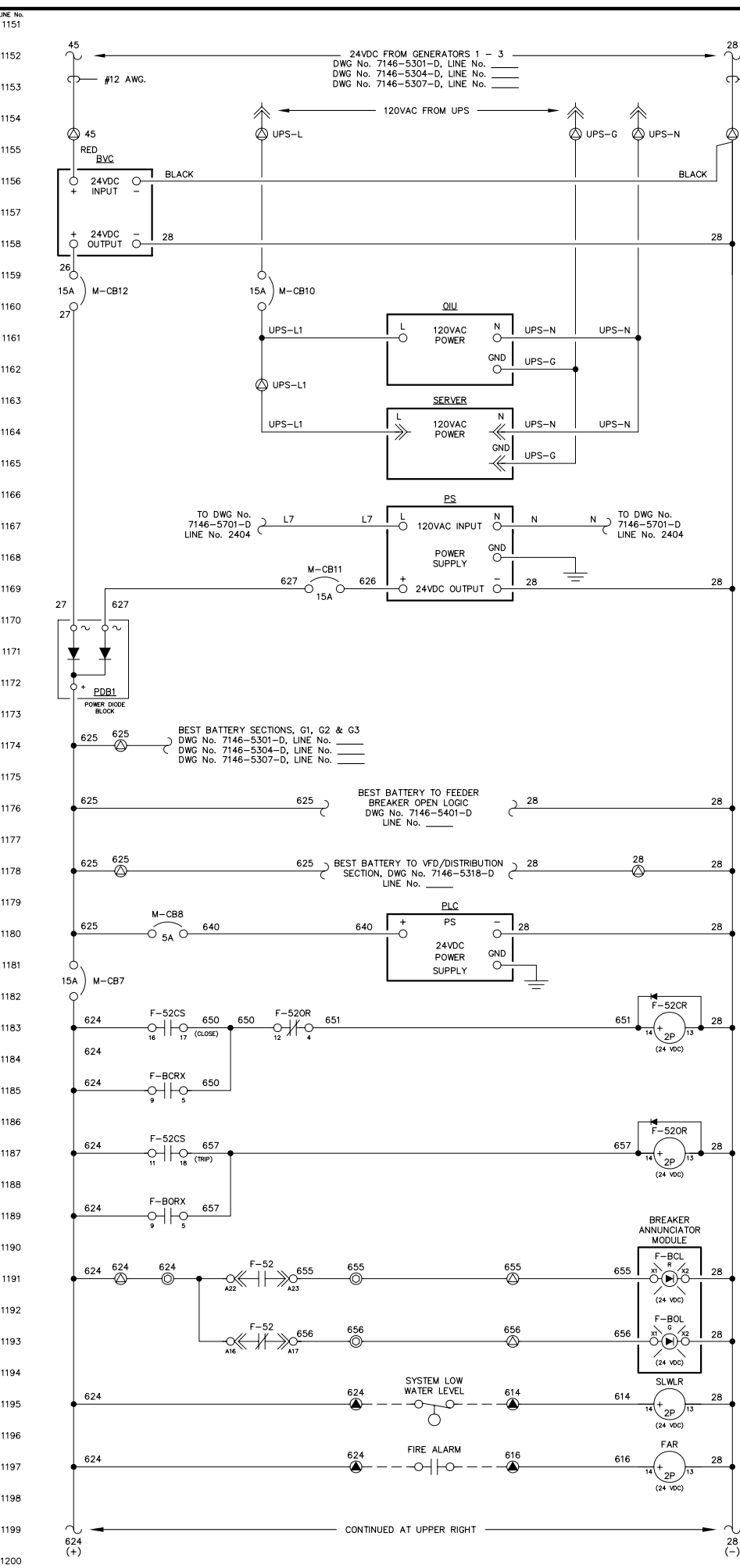
TITLE: GENERATOR 3 DC CONTROL, SCHEMATIC DIAGRAM

SCALE: NONE	DATE: 03-01-11	DWN. BY: GPN
DWG. No: 7146-5309-D	SHEET: 1 OF 1	CKD. BY: JMD

JOB: RUBY GENERATOR SWITCHGEAR

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NOTE:
1. FOR GENERAL WIRING & CONSTRUCTION NOTES, SEE DRAWING No. 7146-3101-D.

REV.	DATE	DESCRIPTION	BY
A	05-04-11	SHOP AS BUILT	GPN

AEA PURCHASE ORDER No. REG-11-044 CONTROLLED POWER JOB No. 7146

TITLE: MASTER DC CONTROL, SCHEMATIC DIAGRAM

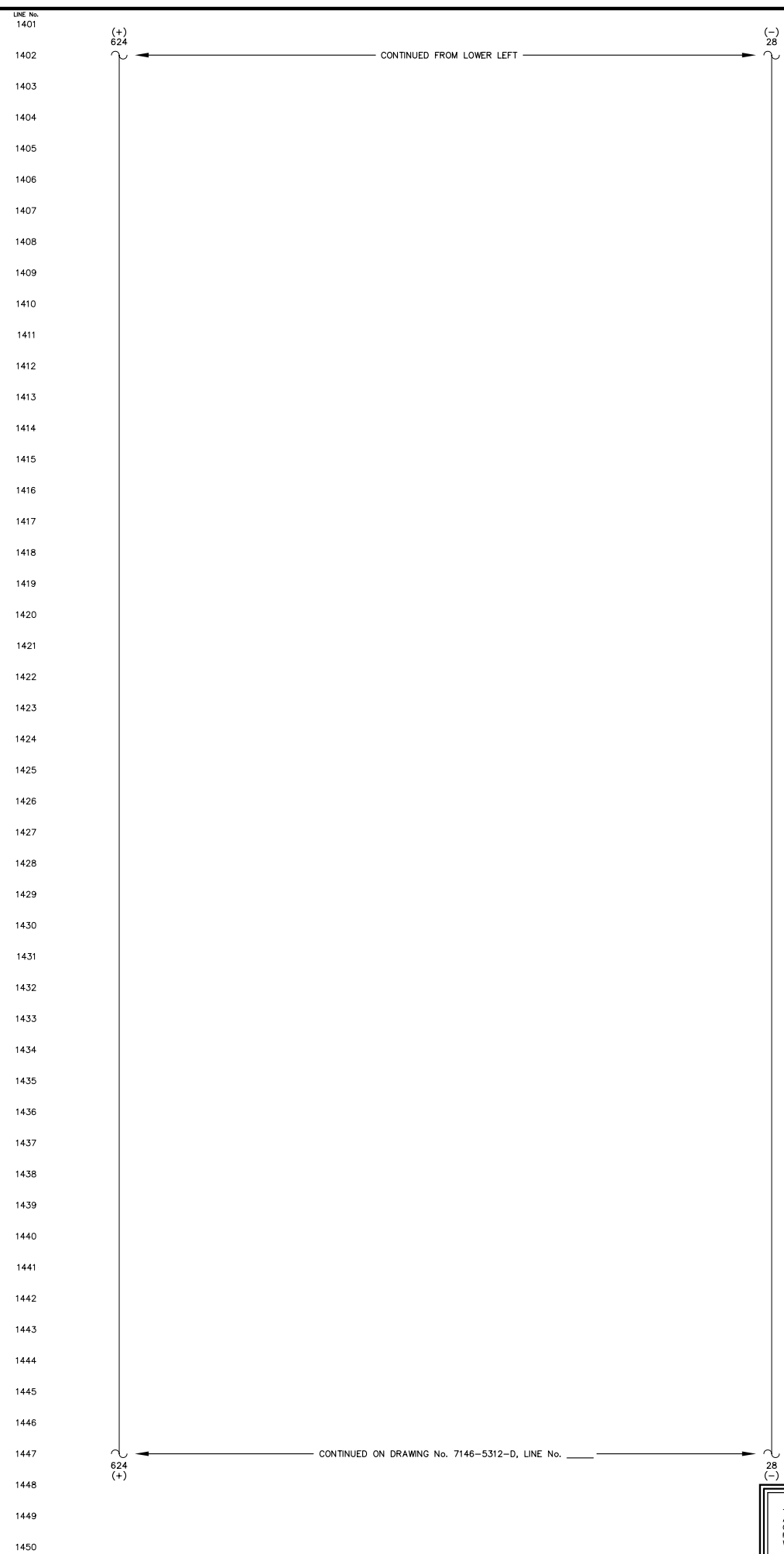
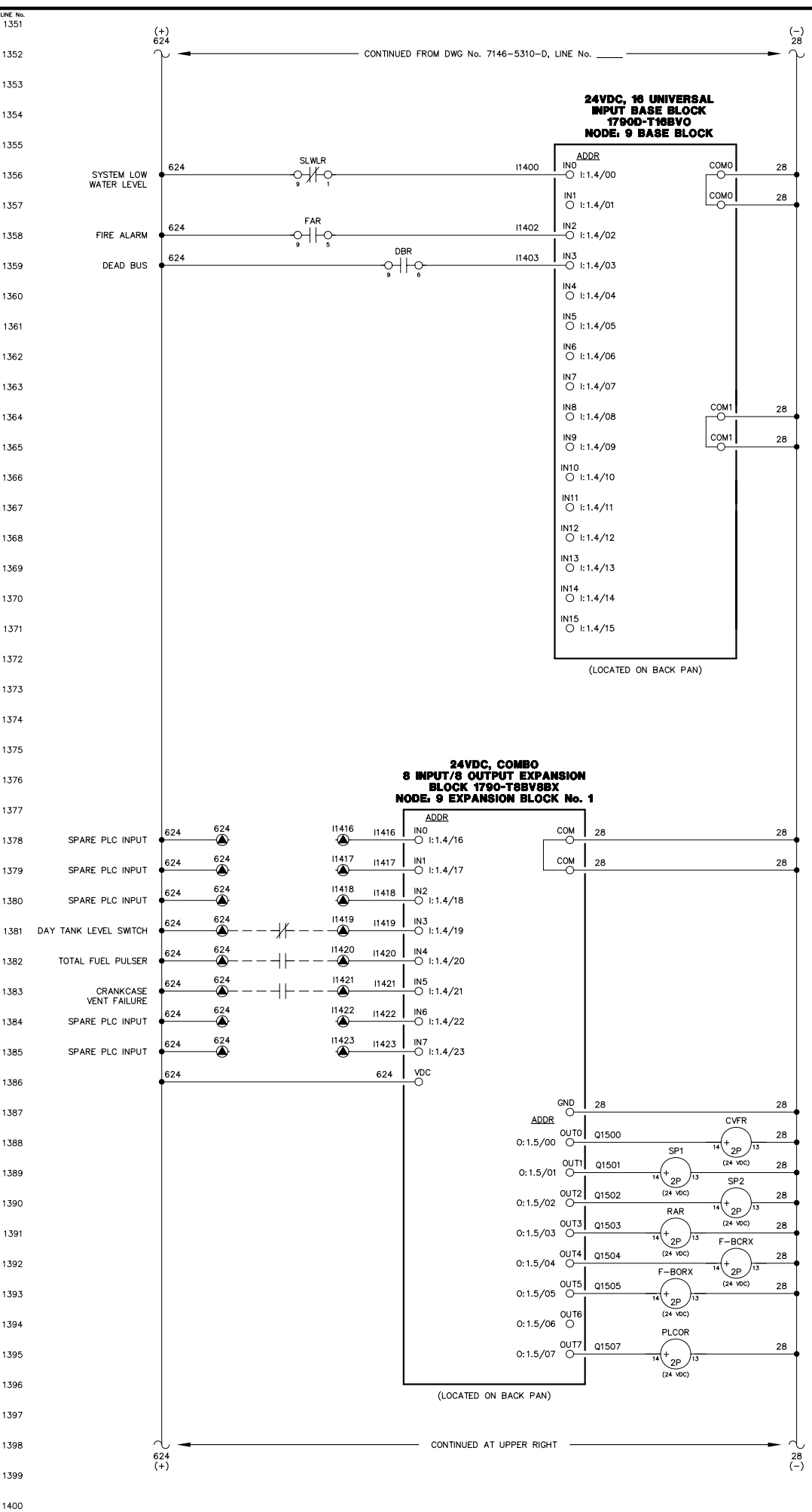
SCALE: NONE	DATE: 03-01-11	DWN. BY: GPN
DWG. No: 7146-5310-D	SHEET: 1 OF 1	CKD. BY: JMD

JOB: RUBY GENERATOR SWITCHGEAR

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RURAL ENERGY GROUP
813 W. NORTHERN LIGHTS BLVD.
ANCHORAGE, ALASKA 99503
HTTP://WWW.AIDEA.ORG

Plot date: 2011/5/4 - 14:07



NOTE:
1. FOR GENERAL WIRING & CONSTRUCTION NOTES, SEE DRAWING No. 7146-3101-D.

REV.	DATE	DESCRIPTION	BY
A	05-04-11	SHOP AS BUILT	GPN

AEA PURCHASE ORDER No. REG-10-042 CONTROLLED POWER JOB No. 7146

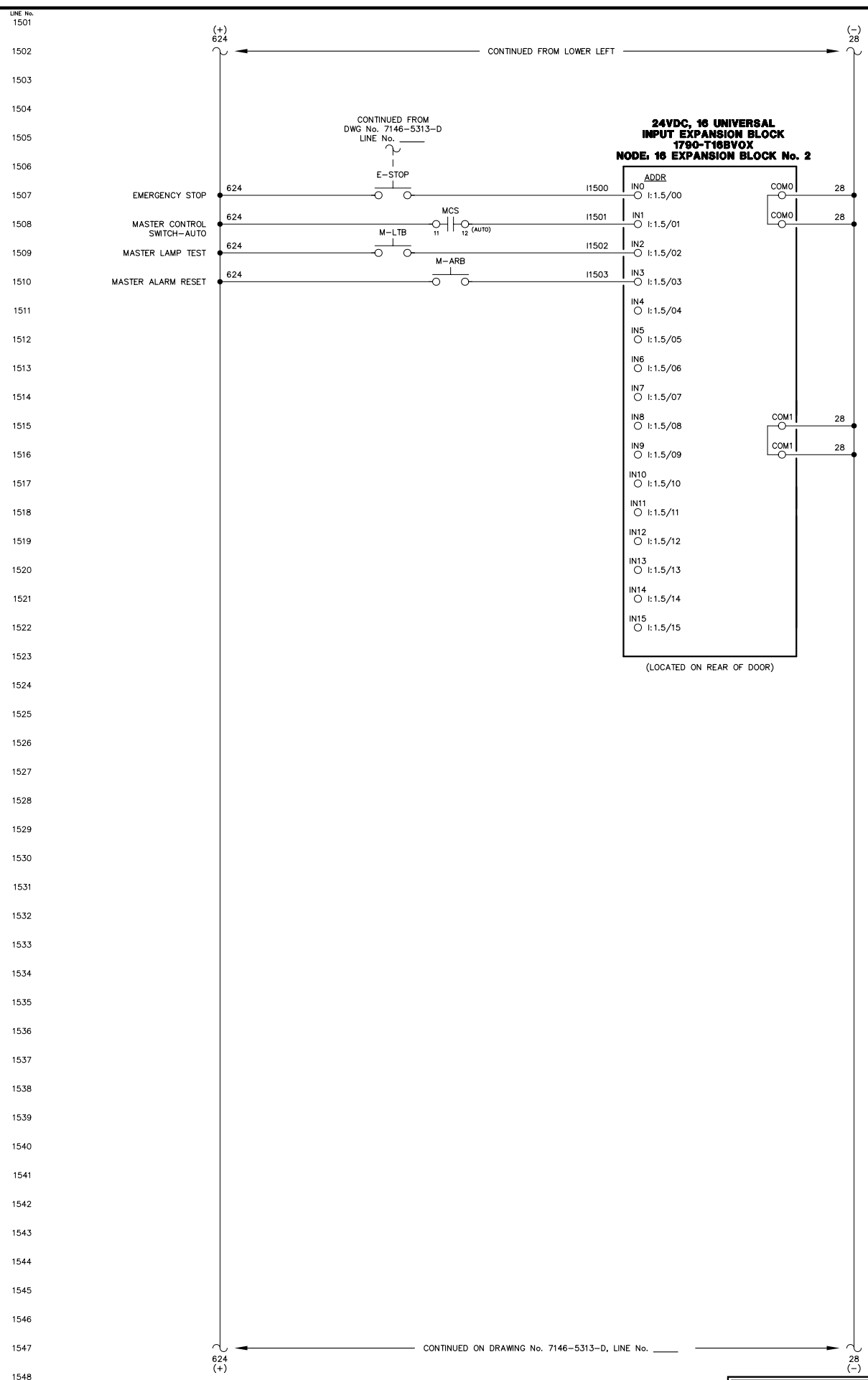
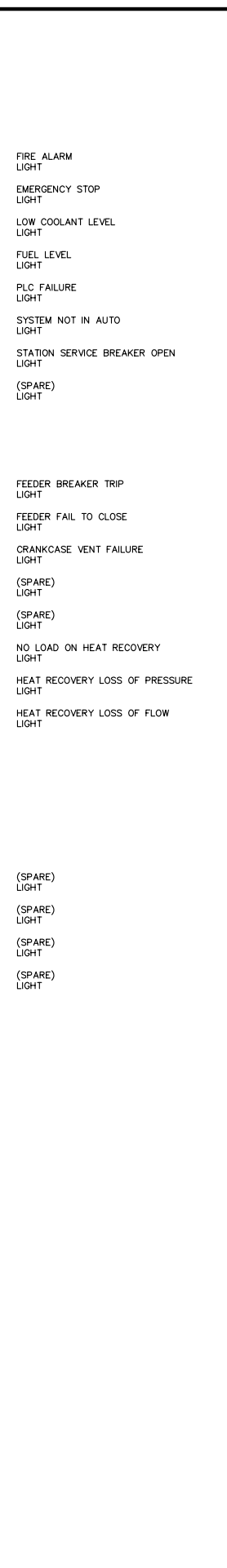
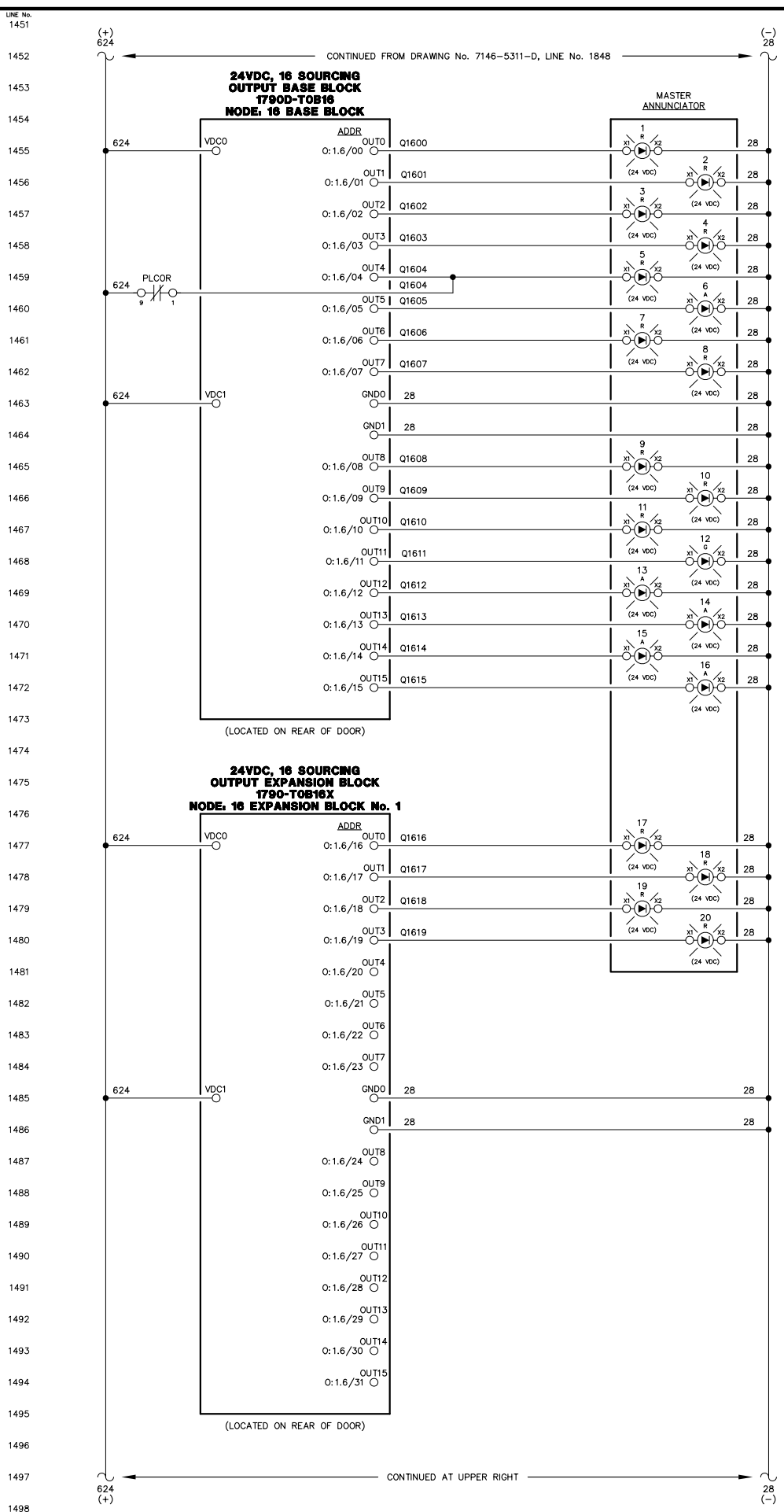
TITLE: MASTER DC CONTROL, SCHEMATIC DIAGRAM

SCALE: NONE	DATE: 03-01-11	DWN. BY: GPN
DWG. No: 7146-5311-D	SHEET: 1 OF 1	CKD. BY: JMD

JOB: RUBY GENERATOR SWITCHGEAR

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NOTE:
1. FOR GENERAL WIRING & CONSTRUCTION NOTES, SEE DRAWING No. 7146-3101-D.

REV.	DATE	DESCRIPTION	BY
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AEA PURCHASE ORDER No. REG-11-044 CONTROLLED POWER JOB No. 7146

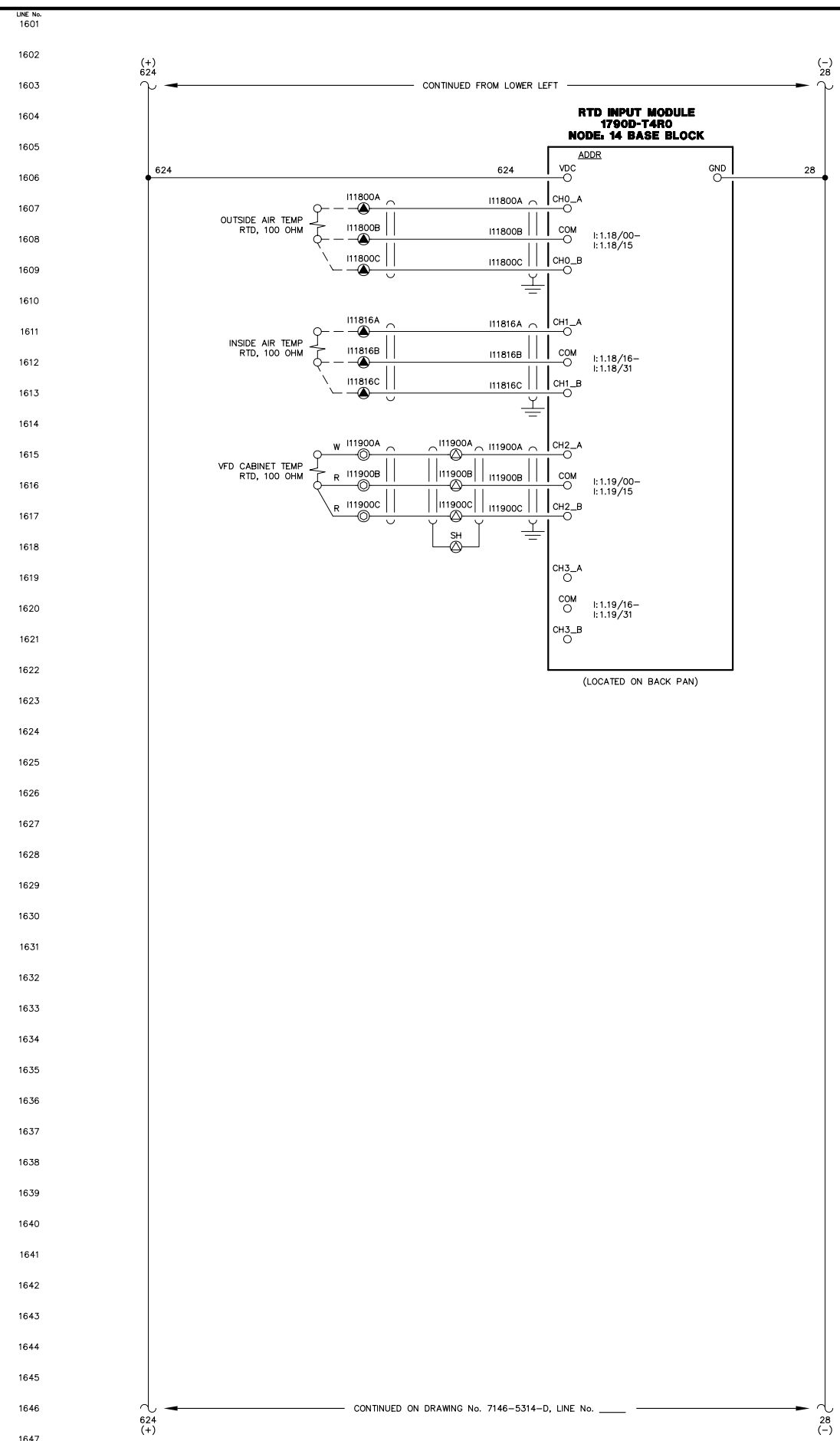
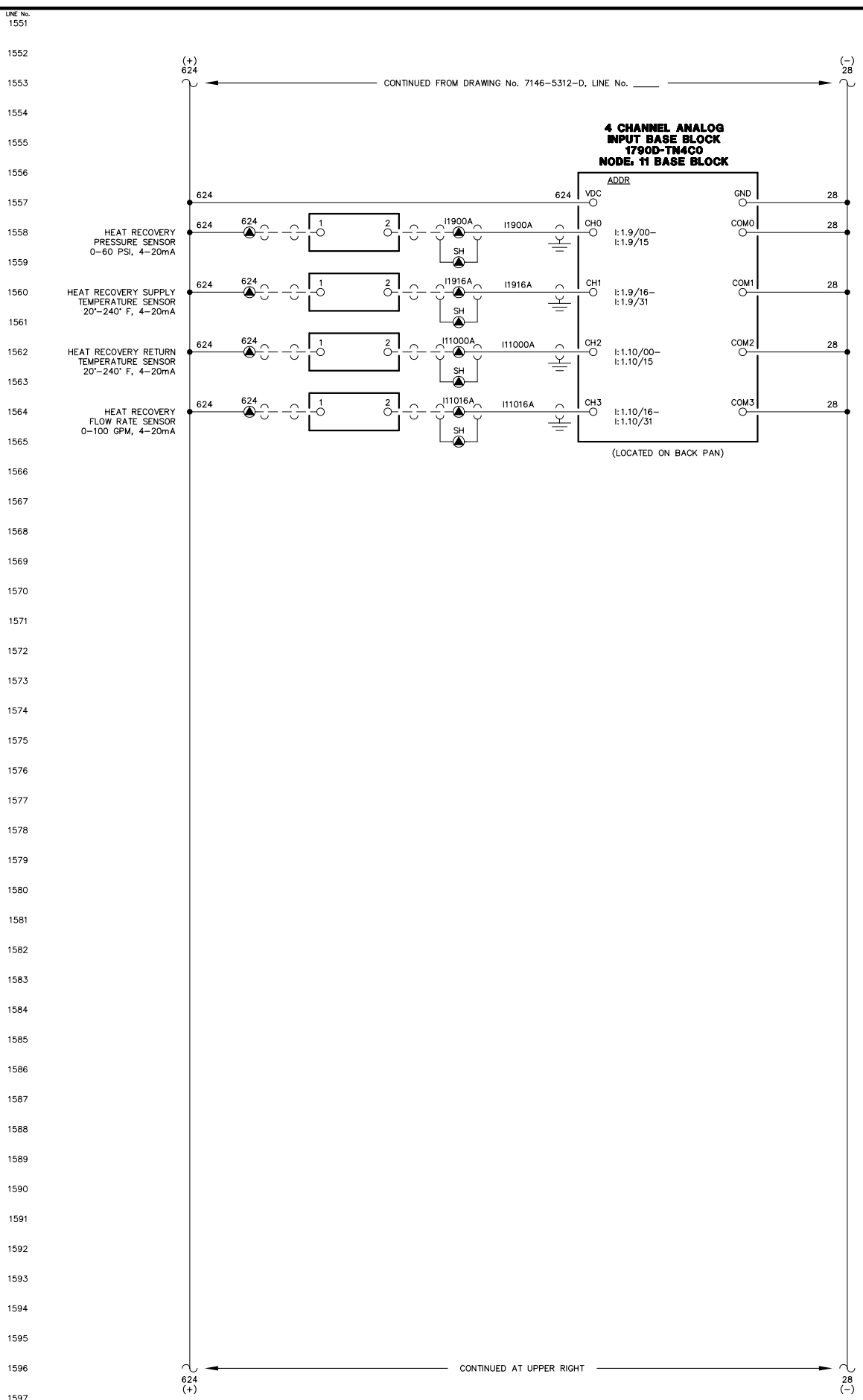
TITLE: MASTER DC CONTROL, SCHEMATIC DIAGRAM

SCALE: NONE	DATE: 03-01-11	DWN. BY: GPN
DWG. No: 7146-5312-D	SHEET: 1 OF 1	CKD. BY: JMD

JOB: RUBY GENERATOR SWITCHGEAR

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NOTE:
1. FOR GENERAL WIRING & CONSTRUCTION NOTES, SEE DRAWING No. 7146-3101-D.

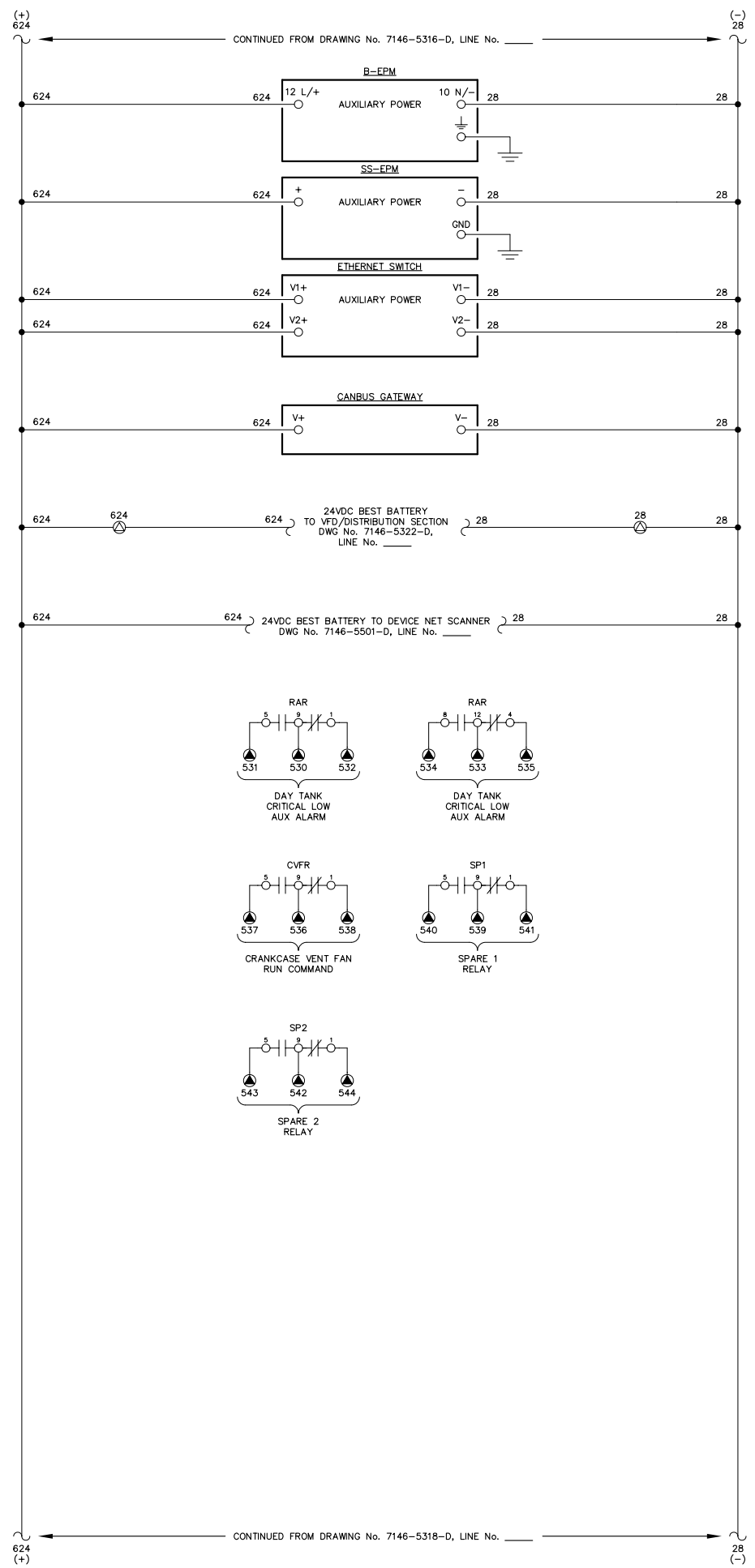
REV.	DATE	DESCRIPTION	BY
A	05-04-11	SHOP AS BUILT	GPN
AEA PURCHASE ORDER No. REG-11-044		CONTROLLED POWER JOB No. 7146	
TITLE: MASTER DC CONTROL, SCHEMATIC DIAGRAM			
SCALE: NONE	DATE: 03-01-11	DWN. BY: GPN	
DWG. No: 7146-5313-D	SHEET: 1 OF 1	CKD. BY: JMD	
JOB: RUBY GENERATOR SWITCHGEAR			

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NOTE:
1. FOR GENERAL WIRING & CONSTRUCTION NOTES, SEE DRAWING No. 7146-3101-D.

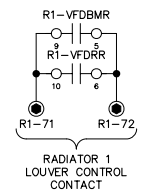
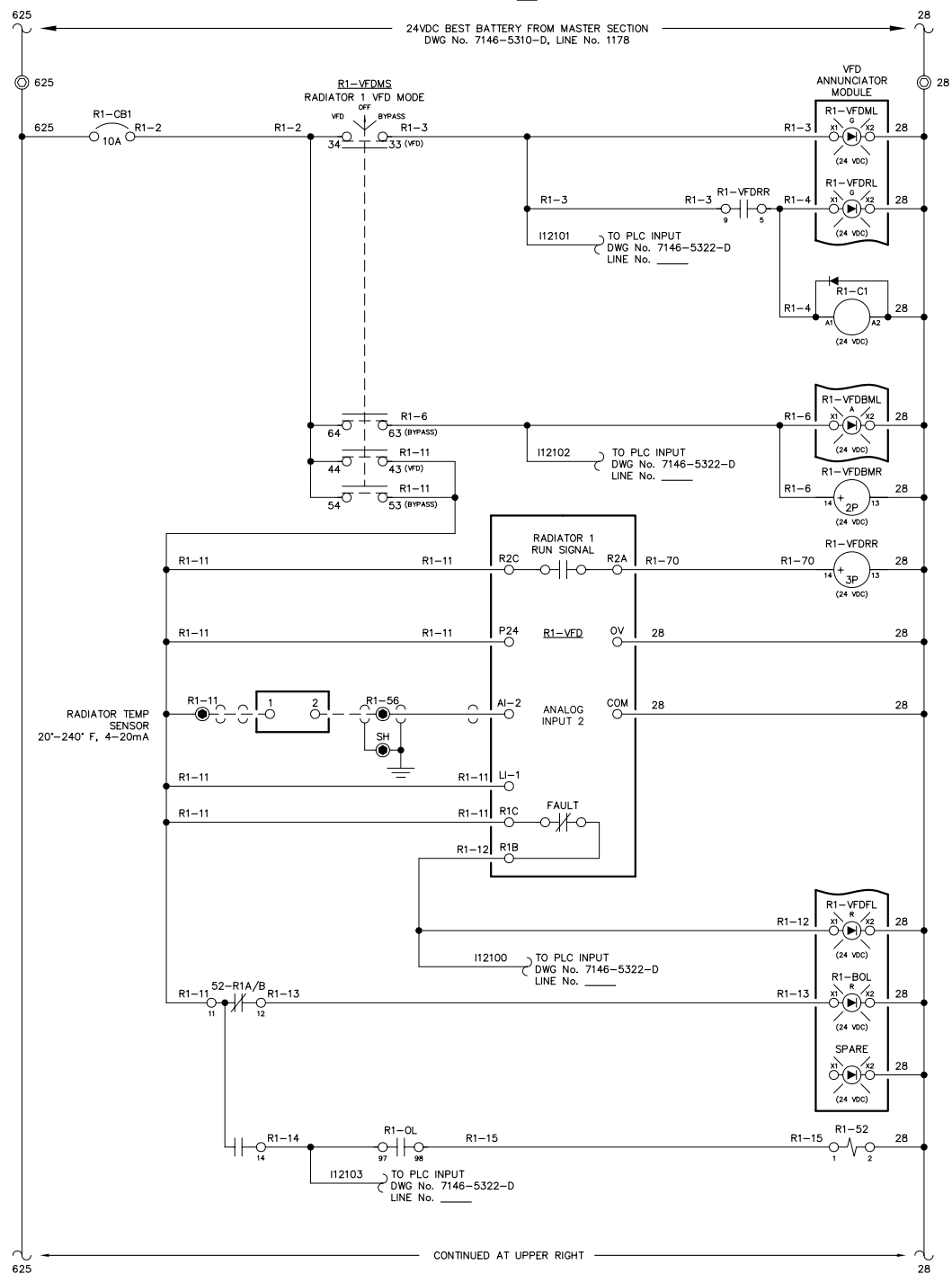
REV.	DATE	DESCRIPTION	BY
A	05-04-11	SHOP AS BUILT	GPN
AEA PURCHASE ORDER No. REG-11-044 CONTROLLED POWER JOB No. 7146			
TITLE: MASTER DC CONTROL, SCHEMATIC DIAGRAM			
SCALE: NONE	DATE: 03-01-11	DWN. BY: GPN	
DWG. No: 7146-5314-D	SHEET: 1 OF 1	CKD. BY: JMD	
JOB: RUBY GENERATOR SWITCHGEAR			

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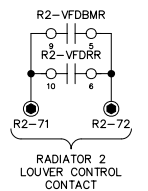
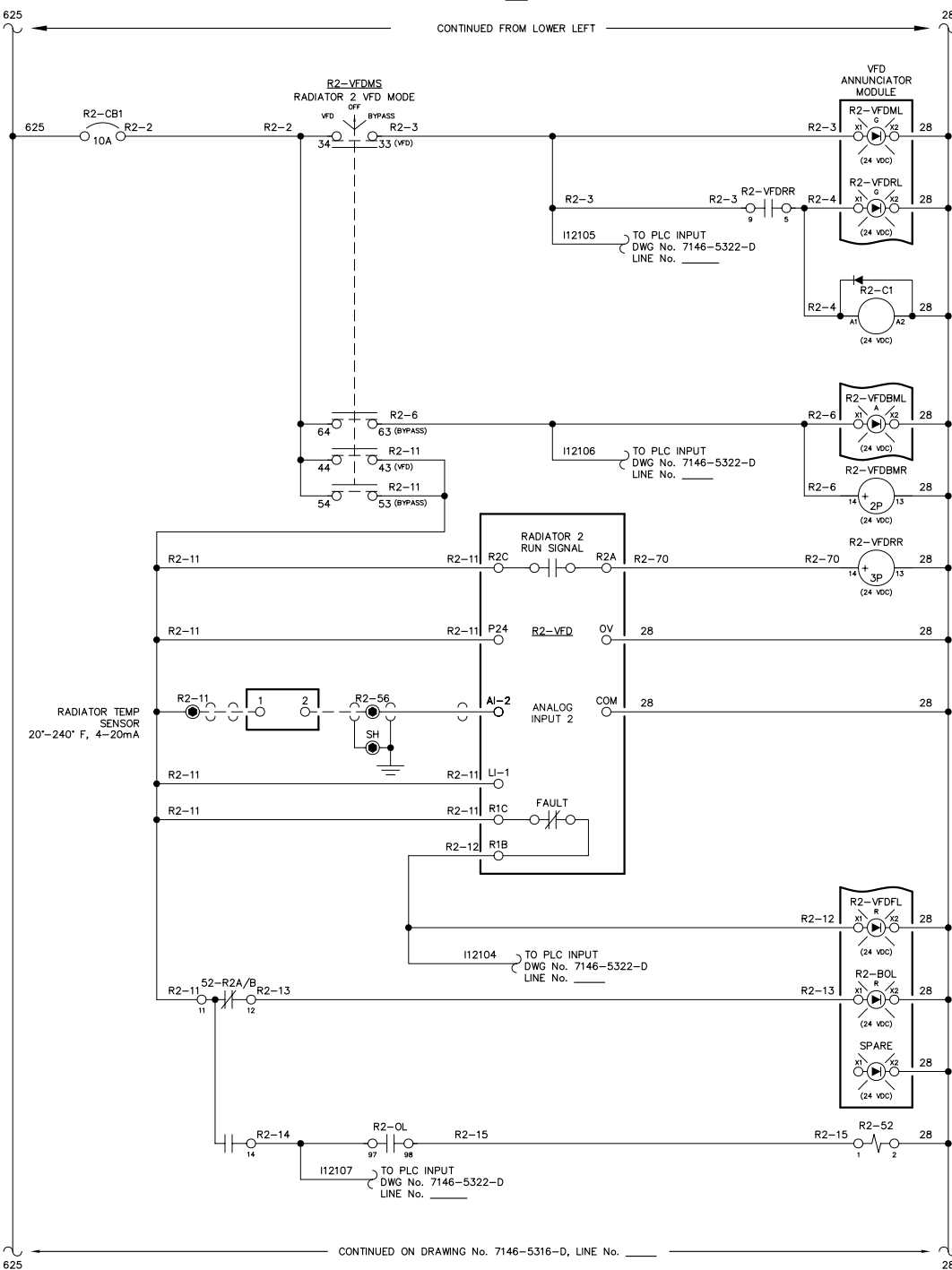
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RADIATOR 1 VFD
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RADIATOR 2 VFD
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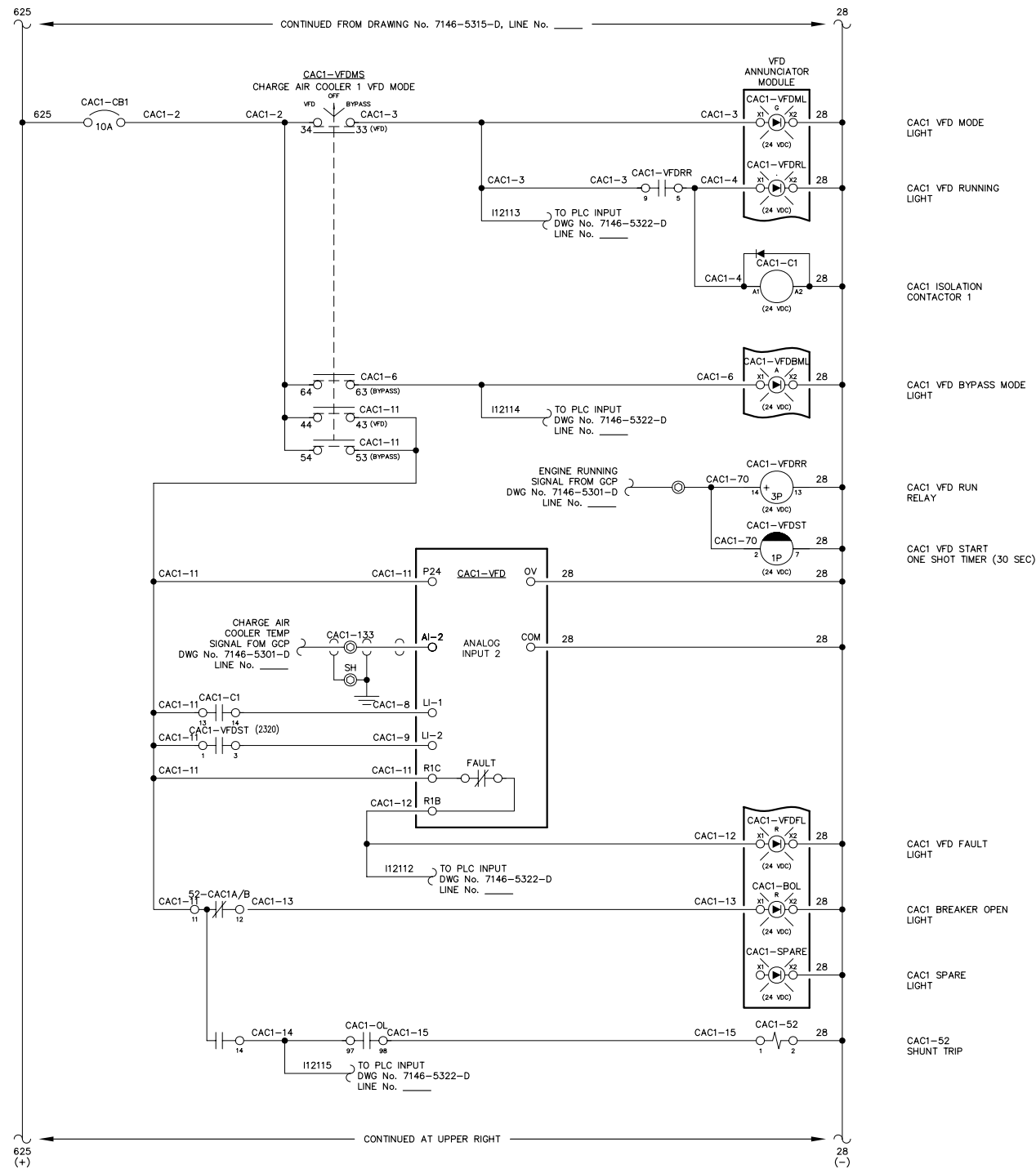
NOTE:
1. FOR GENERAL WIRING & CONSTRUCTION NOTES, SEE DRAWING No. 7146-3101-D.

REV.	DATE	DESCRIPTION	BY
A	05-04-11	SHOP AS BUILT	GPN
AEA PURCHASE ORDER No. REG-11-044		CONTROLLED POWER JOB No. 7146	
TITLE: VFD DC CONTROL, SCHEMATIC DIAGRAM			
SCALE: NONE	DATE: 03-01-11	DWN. BY: GPN	
DWG. No: 7146-5315-D	SHEET: 1 OF 1	CKD. BY: JMD	
JOB: RUBY GENERATOR SWITCHGEAR			

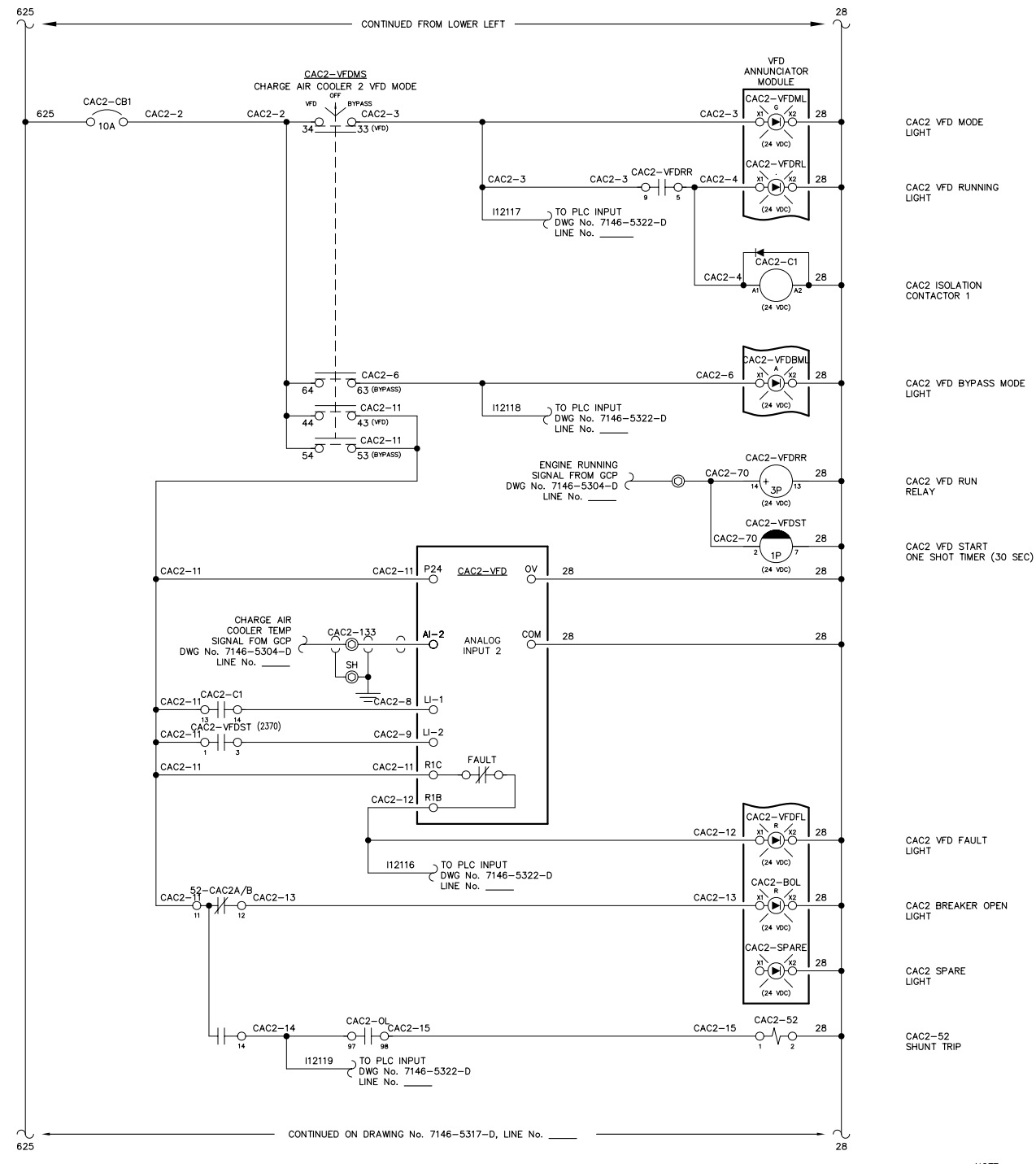
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CHARGE AIR COOLER 1 VFD
CAC1



CHARGE AIR COOLER 2 VFD
CAC2



NOTE:
1. FOR GENERAL WIRING & CONSTRUCTION NOTES, SEE DRAWING No. 7146-3101-D.

REV.	DATE	DESCRIPTION	BY
A	05-04-11	SHOP AS BUILT	GPN

AEA PURCHASE ORDER No. REG-11-044 CONTROLLED POWER JOB No. 7146

TITLE: VFD DC CONTROL, SCHEMATIC DIAGRAM

SCALE: NONE	DATE: 03-01-11	DWN. BY: GPN
DWG. No: 7146-5316-D	SHEET: 1 OF 1	CKD. BY: JMD

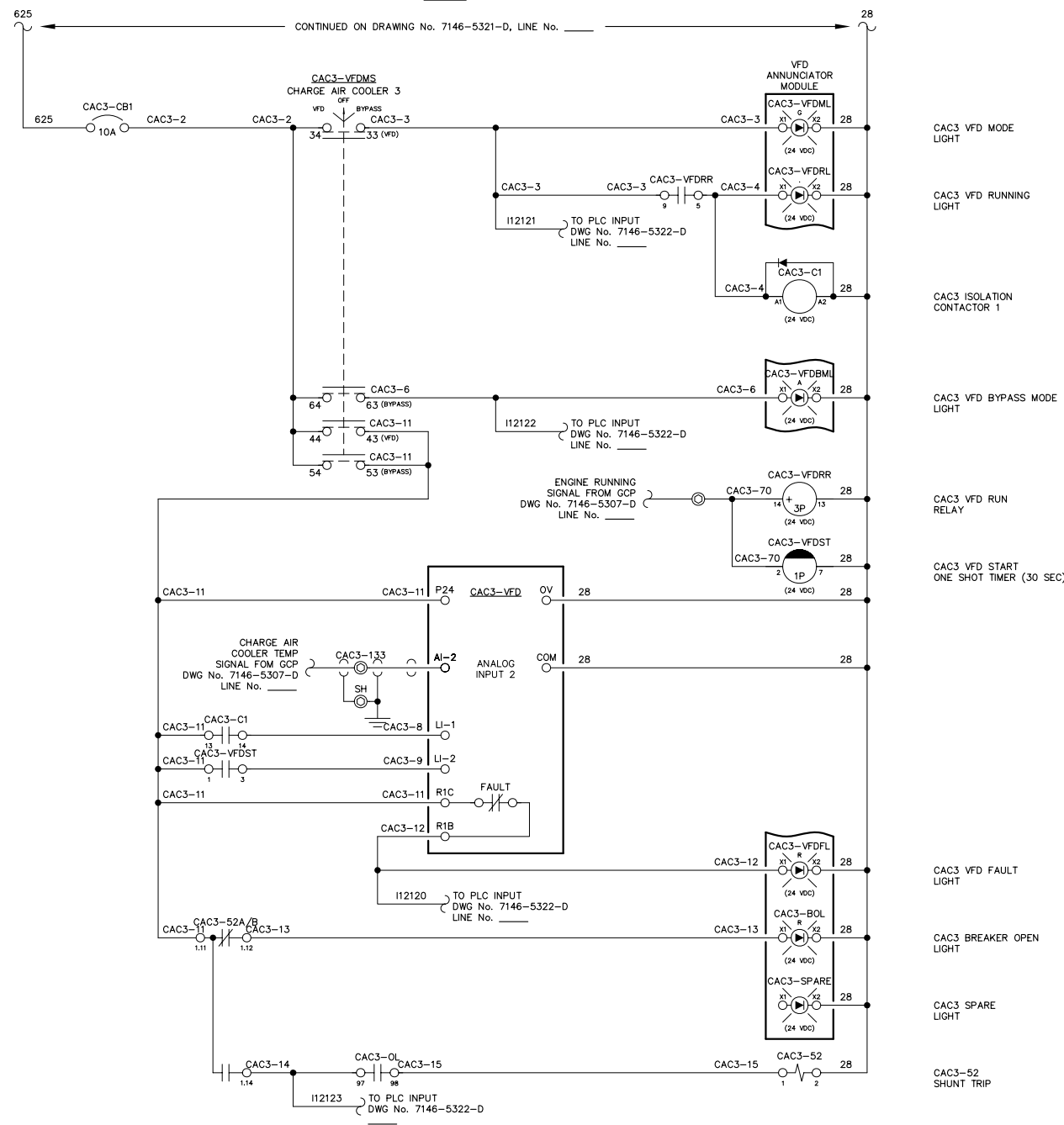
JOB: RUBY GENERATOR SWITCHGEAR

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CHARGE AIR COOLER 3 VFD
CAC3



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NOTE:
1. FOR GENERAL WIRING & CONSTRUCTION NOTES, SEE DRAWING No. 7146-3101-D.

REV.	DATE	DESCRIPTION	BY
A	05-04-11	SHOP AS BUILT	GPN

AEA PURCHASE ORDER No. REG-11-044 CONTROLLED POWER JOB No. 7146

TITLE: VFD DC CONTROL, SCHEMATIC DIAGRAM

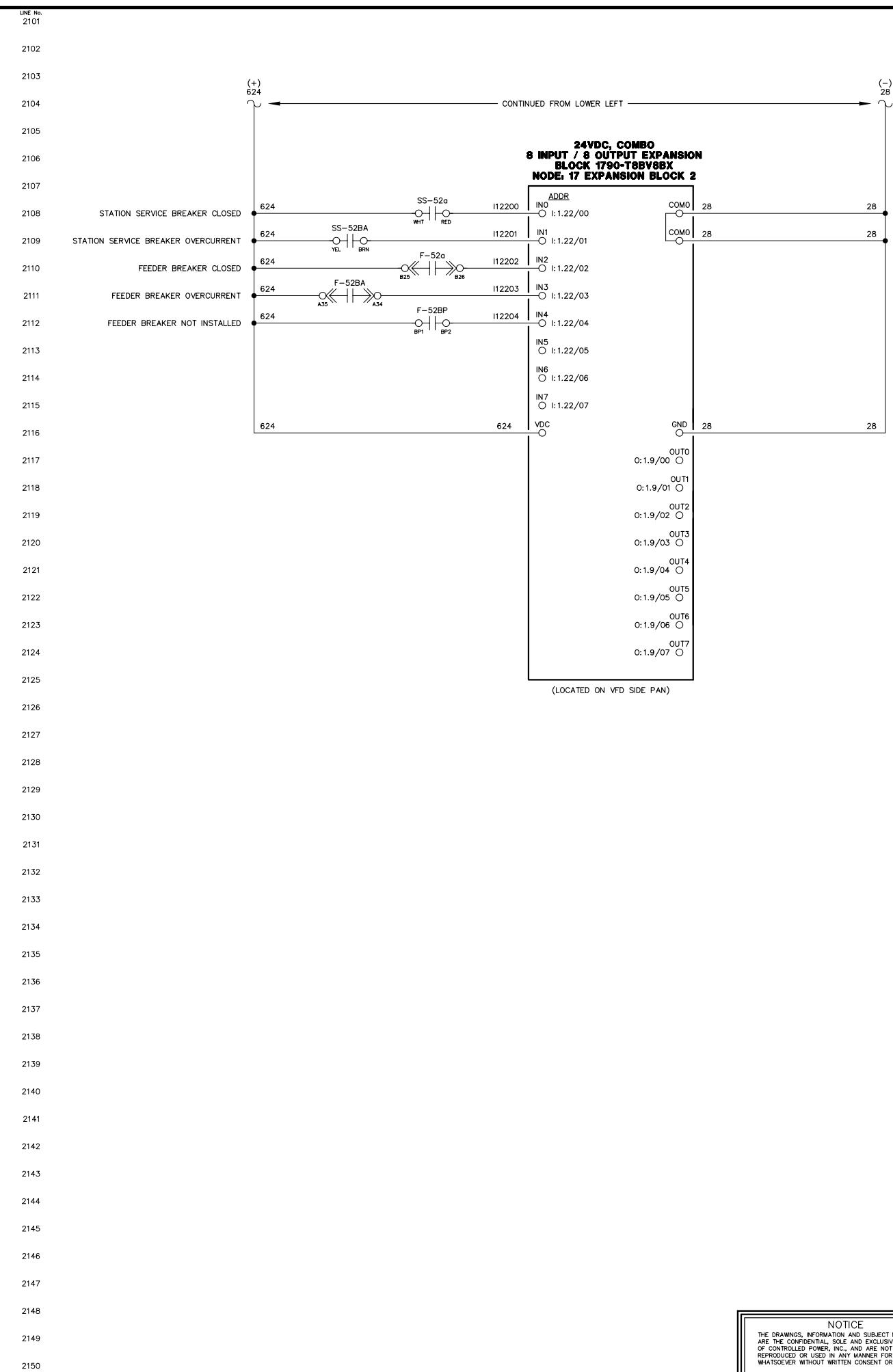
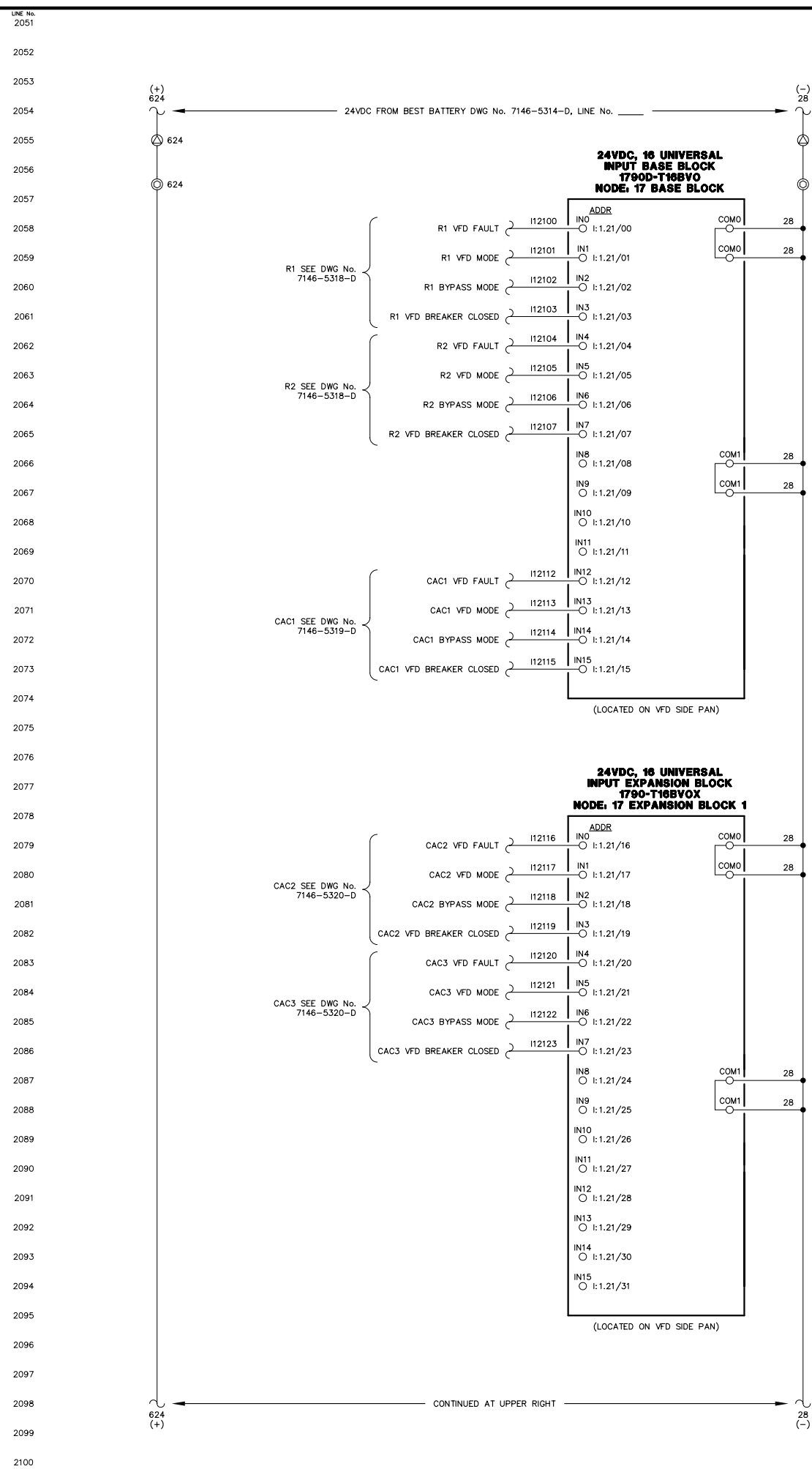
SCALE: NONE DATE: 03-01-11 DWN. BY: GPN

DWG. No: 7146-5317-D SHEET: 1 OF 1 CKD. BY: JMD

JOB: RUBY GENERATOR SWITCHGEAR

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NOTE:
1. FOR GENERAL WIRING & CONSTRUCTION NOTES, SEE DRAWING No. 7146-3101-D.

REV.	DATE	DESCRIPTION	BY
A	05-04-11	SHOP AS BUILT	GPN

AEA PURCHASE ORDER No. REG-10-042 CONTROLLED POWER JOB No. 7146

TITLE: VFD/DISTRIBUTION DC CONTROL, SCHEMATIC DIAGRAM

SCALE: NONE DATE: 04-06-10 DWN. BY: GPN

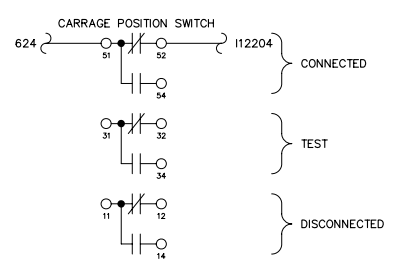
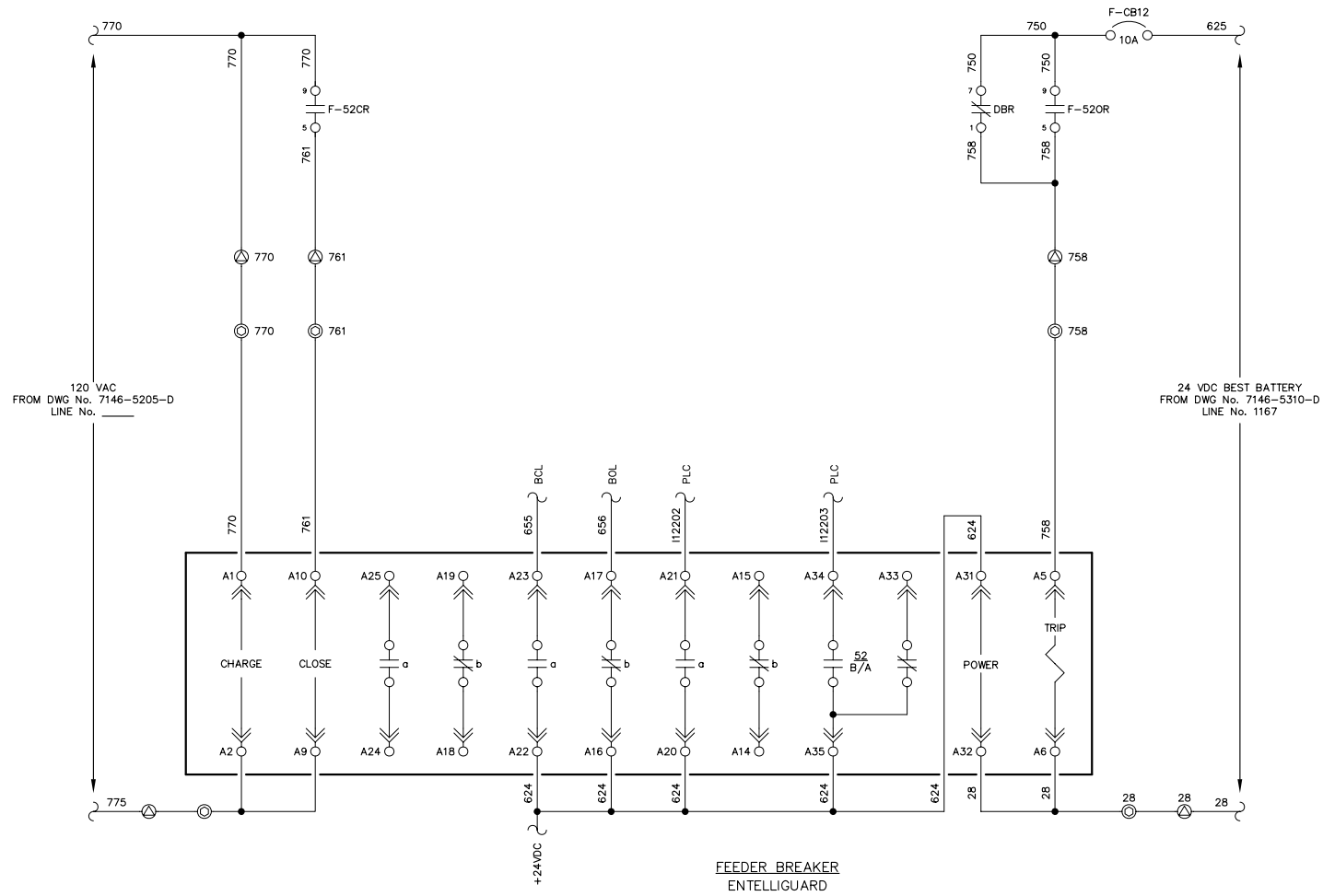
DWG. No: 7146-5318-D SHEET: 1 OF 1 CKD. BY: JMD

JOB: RUBY GENERATOR SWITCHGEAR

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NOTE:
1. FOR GENERAL WIRING & CONSTRUCTION NOTES, SEE DRAWING No. 7146-3101-D.

REV.	DATE	DESCRIPTION	BY
A	05-04-11	SHOP AS BUILT	GPN

AEA PURCHASE ORDER No. REG-11-044 CONTROLLED POWER JOB No. 7146

TITLE: FEEDER BREAKER CONTROL, SCHEMATIC DIAGRAM

SCALE: NONE DATE: 03-01-11 DWN. BY: GPN

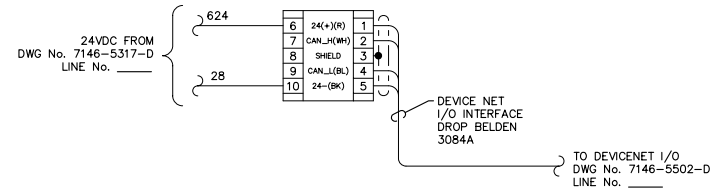
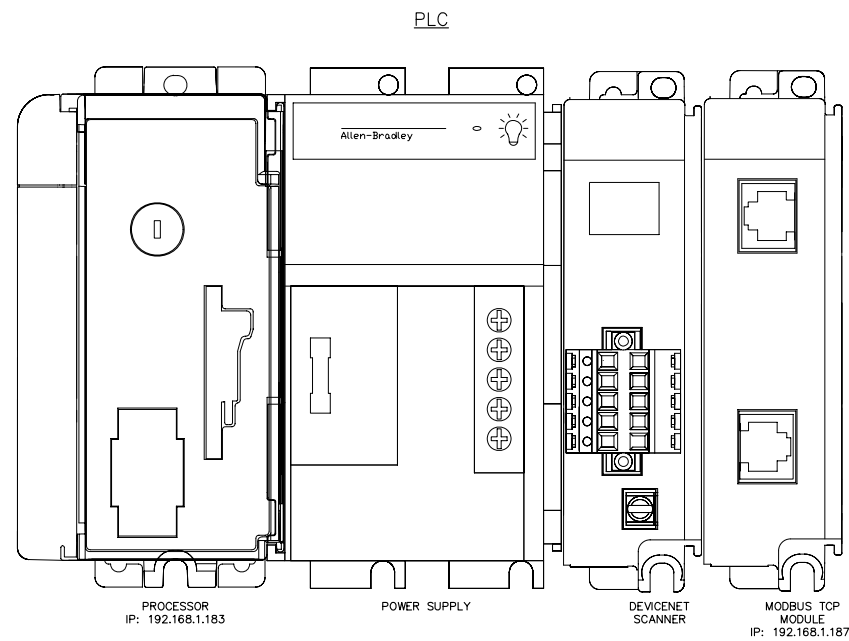
DWG. No: 7146-5401-D SHEET: 1 OF 1 CKD. BY: JMD

JOB: RUBY GENERATOR SWITCHGEAR

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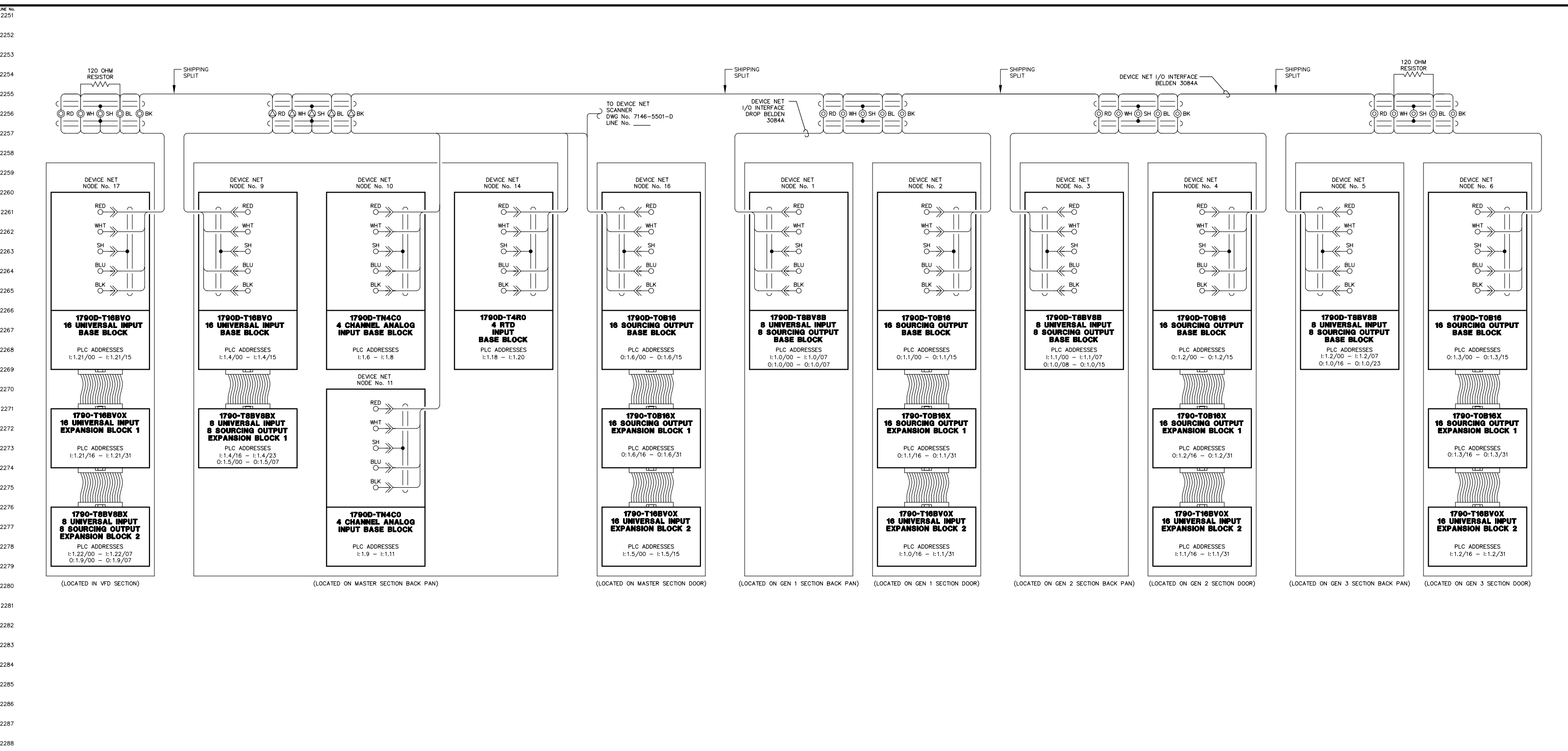


NOTE:
 1. FOR GENERAL WIRING & CONSTRUCTION NOTES, SEE DRAWING No. 7146-3101-D.

REV.	DATE	DESCRIPTION	BY
A	05-04-11	SHOP AS BUILT	GPN
AEA PURCHASE ORDER No. REG-11-044		CONTROLLED POWER JOB No. 7146	
TITLE: PLC COMMUNICATION, SCHEMATIC DIAGRAM			
SCALE: NONE		DATE: 03-01-11	DWN. BY: GPN
DWG. No: 7146-5501-D		SHEET: 1 OF 1	CKD. BY: JMD
JOB: RUBY GENERATOR SWITCHGEAR			

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 HTTP://WWW.AIDEA.ORG



NOTE:
1. FOR GENERAL WRING & CONSTRUCTION NOTES, SEE DRAWING No. 7146-3101-D.

REV.	DATE	DESCRIPTION	BY
A	05-04-11	SHOP AS BUILT	GPN

AEA PURCHASE ORDER No. REG-11-044 CONTROLLED POWER JOB No. 7146

TITLE: PLC COMMUNICATION, SCHEMATIC DIAGRAM

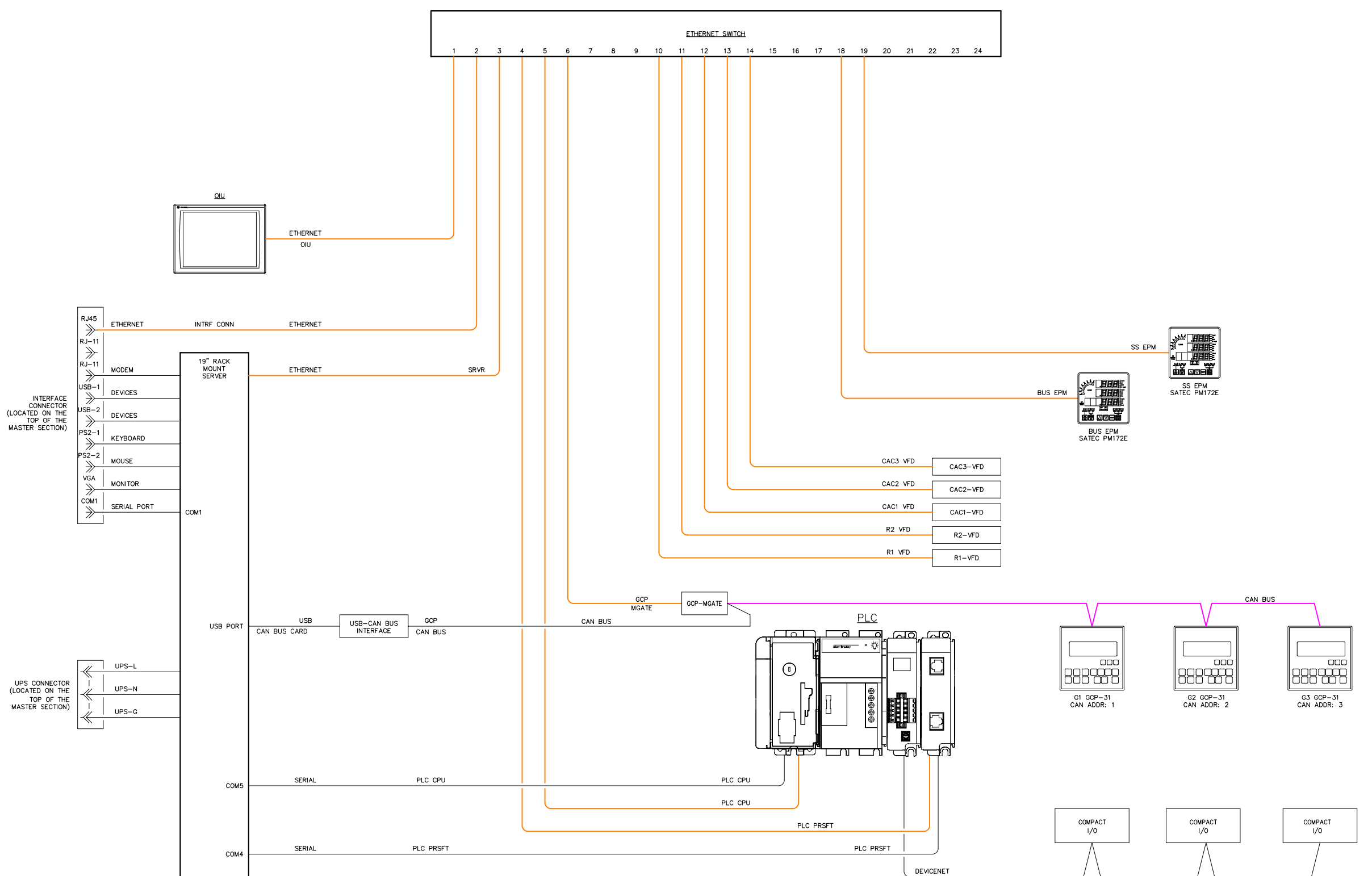
SCALE: NONE	DATE: 03-01-11	DWN. BY: GPN
DWG. No: 7146-5502-D	SHEET: 1 OF 1	CKD. BY: JMD

JOB: RUBY GENERATOR SWITCHGEAR

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DEVICE	IP ADDRESS
PLC CPU	192.168.1.183
MNET	192.168.1.187
R1 VFD	192.168.1.171
R2 VFD	192.168.1.172
CAC1 VFD	192.168.1.174
CAC2 VFD	192.168.1.175
CAC3 VFD	192.168.1.176

DEVICE	IP ADDRESS
BUS EPM	192.168.1.190
SS EPM	192.168.1.191
SERVER	192.168.1.142
OIU	192.168.1.182
GCP MGATE	192.168.1.186

NOTE:
1. FOR GENERAL WIRING & CONSTRUCTION NOTES, SEE DRAWING No. 7146-3101-D.

REV.	DATE	DESCRIPTION	BY
A	05-04-11	SHOP AS BUILT	GPN

AEA PURCHASE ORDER No. _____ CONTROLLED POWER JOB No. 7146

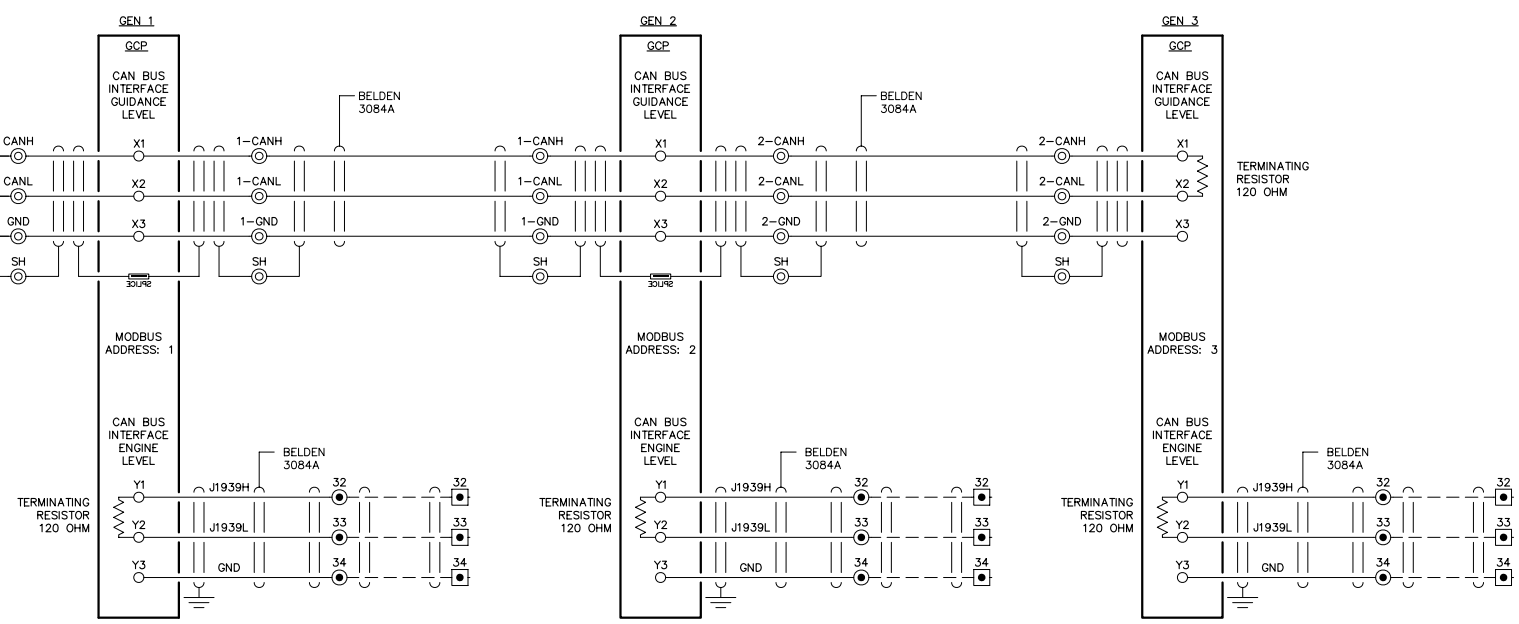
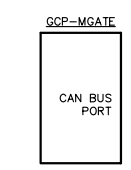
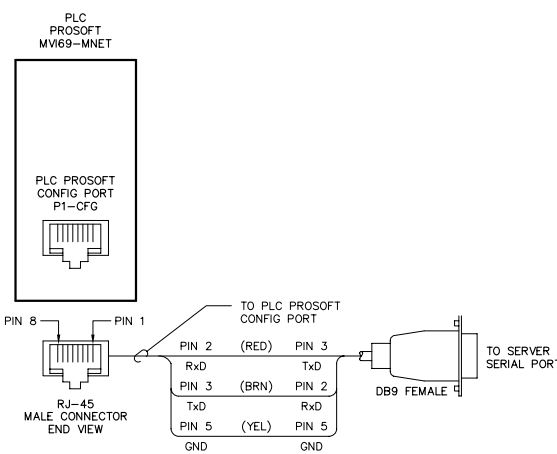
TITLE: COMMUNICATION NETWORK DIAGRAM

SCALE: NONE	DATE: 03-01-11	DWN. BY: GPN
DWG. No: 7146-5601-D	SHEET: 1 OF 1	CKD. BY: JMD

JOB: RUBY GENERATOR SWITCHGEAR

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NOTE:
1. FOR GENERAL WIRING & CONSTRUCTION NOTES, SEE DRAWING No. 7146-3101-D.

REV.	DATE	DESCRIPTION	BY
A	05-04-11	SHOP AS BUILT	GPN

AEA PURCHASE ORDER No. REG-11-044 CONTROLLED POWER JOB No. 7146

TITLE: COMMUNICATION NETWORK DIAGRAM

SCALE: NONE DATE: 03-01-11 DWN. BY: GPN

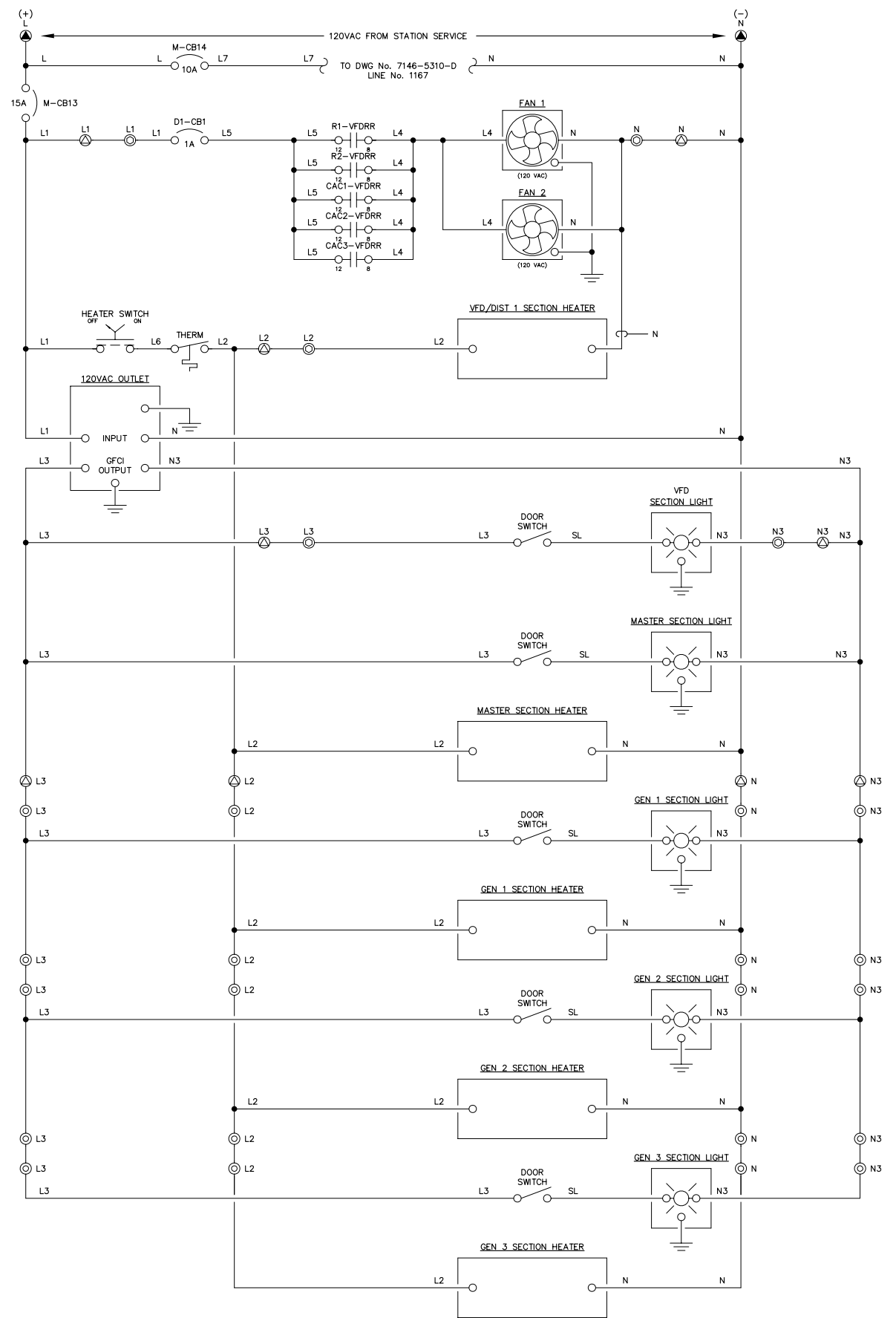
DWG. No: 7146-5602-D SHEET: 1 OF 1 CKD. BY: JMD

JOB: RUBY GENERATOR SWITCHGEAR

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LINE No. 2401
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NOTE:
1. FOR GENERAL WIRING & CONSTRUCTION NOTES, SEE DRAWING No. 7146-3101-D.

REV.	DATE	DESCRIPTION	BY
A	05-04-11	SHOP AS BUILT	GPN

AEA PURCHASE ORDER No. REG-11-044 CONTROLLED POWER JOB No. 7146

TITLE: HEATER, LIGHTING & FAN CONTROL, SCHEMATIC DIAGRAM

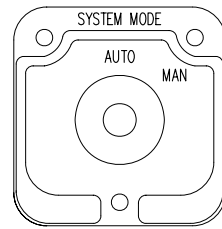
SCALE: NONE	DATE: 03-01-11	DWN. BY: GPN
DWG. No: 7146-5701-D	SHEET: 1 OF 1	CKD. BY: JMD

JOB: RUBY GENERATOR SWITCHGEAR

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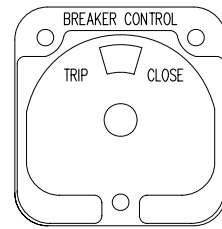
SYSTEM MODE SWITCH - SMS



(ELECTROSWITCH 24201C)
KNURLED HANDLE
QTY 1

DECK	CONTACTS		POS.	
	AUTO	MAN	AUTO	MAN
1	12	11	X	X
	13	13	X	X
	16	15	X	X
1	11	18	X	X
	12	12	X	X
	14	14	X	X
1	15	16	X	X
	16	16	X	X

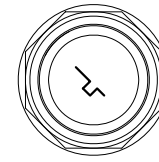
BREAKER CONTROL SWITCH - 52CS



(ELECTROSWITCH 2438D)
PISTOL GRIP HANDLE
SPRING RETURN TO CENTER
QTY 1

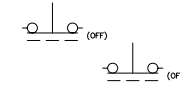
DECK	CONTACTS		POS.	
	TRIP	NORM. CLOSE	TRIP	CLOSE
1	11	18	X	X
	16	17	X	X

GENERATOR LOCKOUT SWITCH - GLS

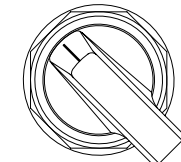


KEY OPERATED
2 POS MAINTAINED
QTY 3

POS	OFF	RUN
1	X	X
2	X	X



HEATER CONTROL SWITCH - HCS

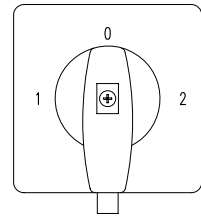


MAINTAINED
LOCATED ON MASTER
BACK PAN

POS	OFF	ON
1	X	X
2	X	X



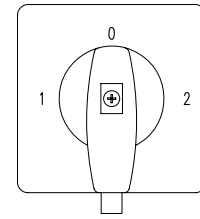
VARIABLE FREQUENCY DRIVE SWITCH - VFDS



3 POS MAINTAINED

71322		44	34	1L1	1L2	1L3	2L1	2L2	2L3	53	63
POSITION	43	33	1T1	1T2	1T3	2T1	2T2	2T3	54	64	POSITION
	SMD	1	MD	71300						ME	2

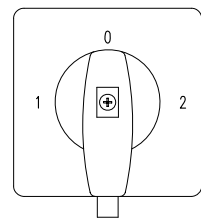
VARIABLE FREQUENCY DRIVE SWITCH - VFDS



3 POS MAINTAINED

71322		44	34	1L1	1L2	1L3	2L1	2L2	2L3	53	63
POSITION	43	33	1T1	1T2	1T3	2T1	2T2	2T3	54	64	POSITION
	SMD	1	MD	71300						ME	2

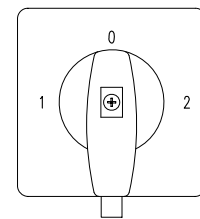
VARIABLE FREQUENCY DRIVE SWITCH - VFDS



3 POS MAINTAINED

71322		44	34	1L1	1L2	1L3	2L1	2L2	2L3	53	63
POSITION	43	33	1T1	1T2	1T3	2T1	2T2	2T3	54	64	POSITION
	SMD	1	MD	71300						ME	2

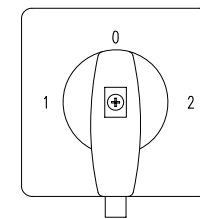
VARIABLE FREQUENCY DRIVE SWITCH - VFDS



3 POS MAINTAINED

71322		44	34	1L1	1L2	1L3	2L1	2L2	2L3	53	63
POSITION	43	33	1T1	1T2	1T3	2T1	2T2	2T3	54	64	POSITION
	SMD	1	MD	71300						ME	2

VARIABLE FREQUENCY DRIVE SWITCH - VFDS



3 POS MAINTAINED

71322		44	34	1L1	1L2	1L3	2L1	2L2	2L3	53	63
POSITION	43	33	1T1	1T2	1T3	2T1	2T2	2T3	54	64	POSITION
	SMD	1	MD	71300						ME	2

NOTE:
1. FOR GENERAL WIRING & CONSTRUCTION NOTES, SEE DRAWING No. 7146-3101-D.

REV.	DATE	DESCRIPTION	BY
A	05-04-11	SHOP AS BUILT	GPN

AEA PURCHASE ORDER No. REG-11-044 CONTROLLED POWER JOB No. 7146

TITLE: CONTROL SWITCH TARGET DIAGRAM

SCALE: NONE	DATE: 03-01-11	DWN. BY: GPN
DWG. No: 7146-6101-D	SHEET: 1 OF 1	CKD. BY: JMD

JOB: RUBY GENERATOR SWITCHGEAR

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ANCHORAGE, ALASKA 99503
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MANUFACTURED BY:



CONTROLLED POWER, INC.
 17909 BOTHELL EVERETT HWY. S.E. #102
 BOTHELL, WA. 98012
 (425)-485-1778
 SERIAL NUMBER: 7146

NP, TEXT 1/4", QUANTITY 1, SCALE 1/1
 SEE NOTE 4

MASTER CONTROL

NP, TEXT 1/2", QUANTITY 1, SCALE 1/1

GENERATOR 1

NP, TEXT 1/2", QUANTITY 1, SCALE 1/1

GENERATOR 2

NP, TEXT 1/2", QUANTITY 1, SCALE 1/1

GENERATOR 3

NP, TEXT 1/2", QUANTITY 1, SCALE 1/1

VFD/DISTRIBUTION

NP, TEXT 1/2", QUANTITY 1, SCALE 1/1

120 KW

NP, TEXT 1/2", QUANTITY 3, SCALE 1/1

RADIATOR FAN 1

NP, TEXT 1/4", QUANTITY 1, SCALE 1/1

RADIATOR FAN 2

NP, TEXT 1/4", QUANTITY 1, SCALE 1/1

GENERATOR 1
CHARGE AIR COOLER

NP, TEXT 1/4", QUANTITY 1, SCALE 1/1

GENERATOR 2
CHARGE AIR COOLER

NP, TEXT 1/4", QUANTITY 1, SCALE 1/1

GENERATOR 3
CHARGE AIR COOLER

NP, TEXT 1/4", QUANTITY 1, SCALE 1/1

GENERATOR LOCKOUT FOR SERVICE
OFF RUN

NP, TEXT 1/8", QUANTITY 3, SCALE 1/1

GENERATOR 1

NP, TEXT 1/8", QUANTITY 1, SCALE 1/1

GENERATOR 2

NP, TEXT 1/8", QUANTITY 1, SCALE 1/1

GENERATOR 3

NP, TEXT 1/8", QUANTITY 1, SCALE 1/1

BUS TOTALIZING

NP, TEXT 1/8", QUANTITY 1, SCALE 1/1

LAMP TEST EMERGENCY STOP ALARM RESET

NP, TEXT 1/8", QUANTITY 2, SCALE 1/1

FEEDER

NP, TEXT 1/8", QUANTITY 1, SCALE 1/1

HEATER
OFF ON

NP, TEXT 1/8", QUANTITY 1, SCALE 1/1

STATION SERVICE

NP, TEXT 1/8", QUANTITY 2, SCALE 1/1

RADIATOR FAN 1
VFD OFF BYPASS

NP, TEXT 1/8", QUANTITY 1, SCALE 1/1

RADIATOR FAN 2
VFD OFF BYPASS

NP, TEXT 1/8", QUANTITY 1, SCALE 1/1

GEN 1 CHARGE AIR COOLER
VFD OFF BYPASS

NP, TEXT 1/8", QUANTITY 1, SCALE 1/1

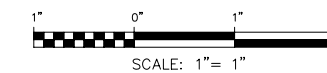
GEN 2 CHARGE AIR COOLER
VFD OFF BYPASS

NP, TEXT 1/8", QUANTITY 1, SCALE 1/1

GEN 3 CHARGE AIR COOLER
VFD OFF BYPASS

NP, TEXT 1/8", QUANTITY 1, SCALE 1/1

- NOTES:
1. ALL NAMEPLATES SHALL BE BLACK FACE WITH WHITE LETTERS EXCEPT AS NOTED.
 2. ALL NAMEPLATES SHALL HAVE PRESSURE SENSITIVE ADHESIVE ON BACK, 100 % COVERAGE.
 3. ALL NAMEPLATES SHALL HAVE MOUNTING HOLES DRILLED AS INDICATED.
- ▲ INDICATES THAT NAMEPLATE SHALL BE BRUSHED ALUMINUM WITH BLACK ENGRAVED LETTERS.

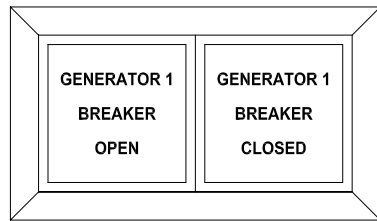


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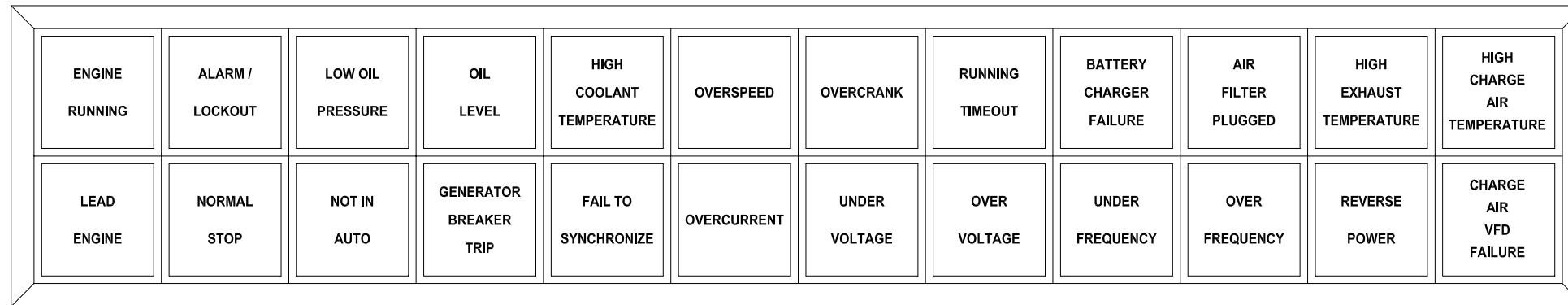
REV.	DATE	DESCRIPTION	BY
A	05-04-11	SHOP AS BUILT	GPN
AEA PURCHASE ORDER No. REG-11-044		CONTROLLED POWER JOB No. 7146	
TITLE: NAMEPLATE ENGRAVING SCHEDULE, FABRICATION DIAGRAM			
SCALE: NONE	DATE: 03-01-11	DWN. BY: GPN	
DWG. No: 7146-6201-D	SHEET: 1 OF 1	CKD. BY: JMD	
JOB: RUBY GENERATOR SWITCHGEAR			



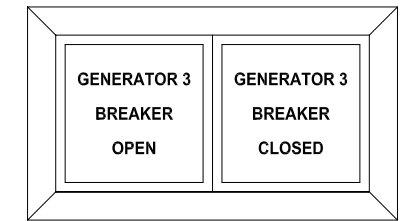
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 RURAL ENERGY GROUP
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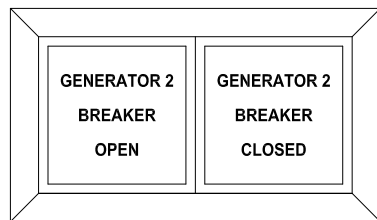
GEN 1 BREAKER ANNUNCIATOR
QTY 1



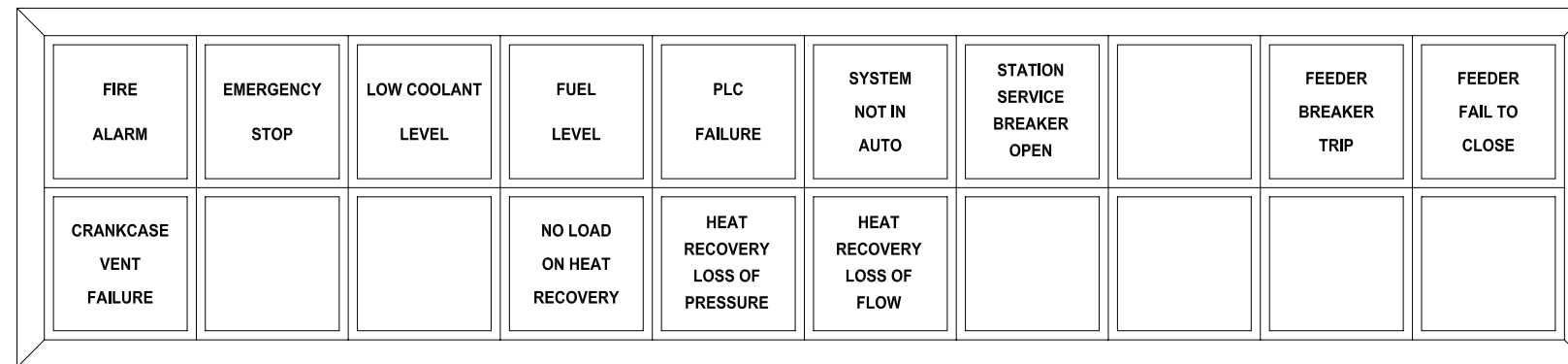
GENERATOR ANNUNCIATOR
QTY 3



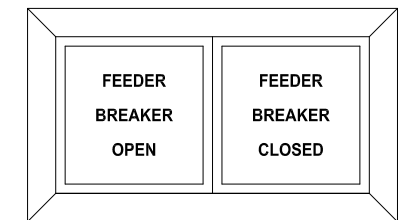
GEN 3 BREAKER ANNUNCIATOR
QTY 1



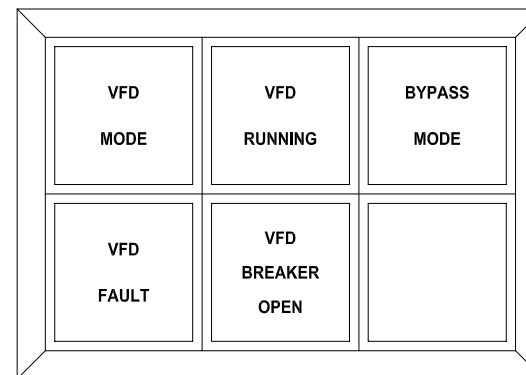
GEN 2 BREAKER ANNUNCIATOR
QTY 1



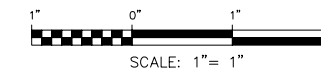
MASTER ANNUNCIATOR
QTY 1



FEEDER BREAKER ANNUNCIATOR
QTY 1



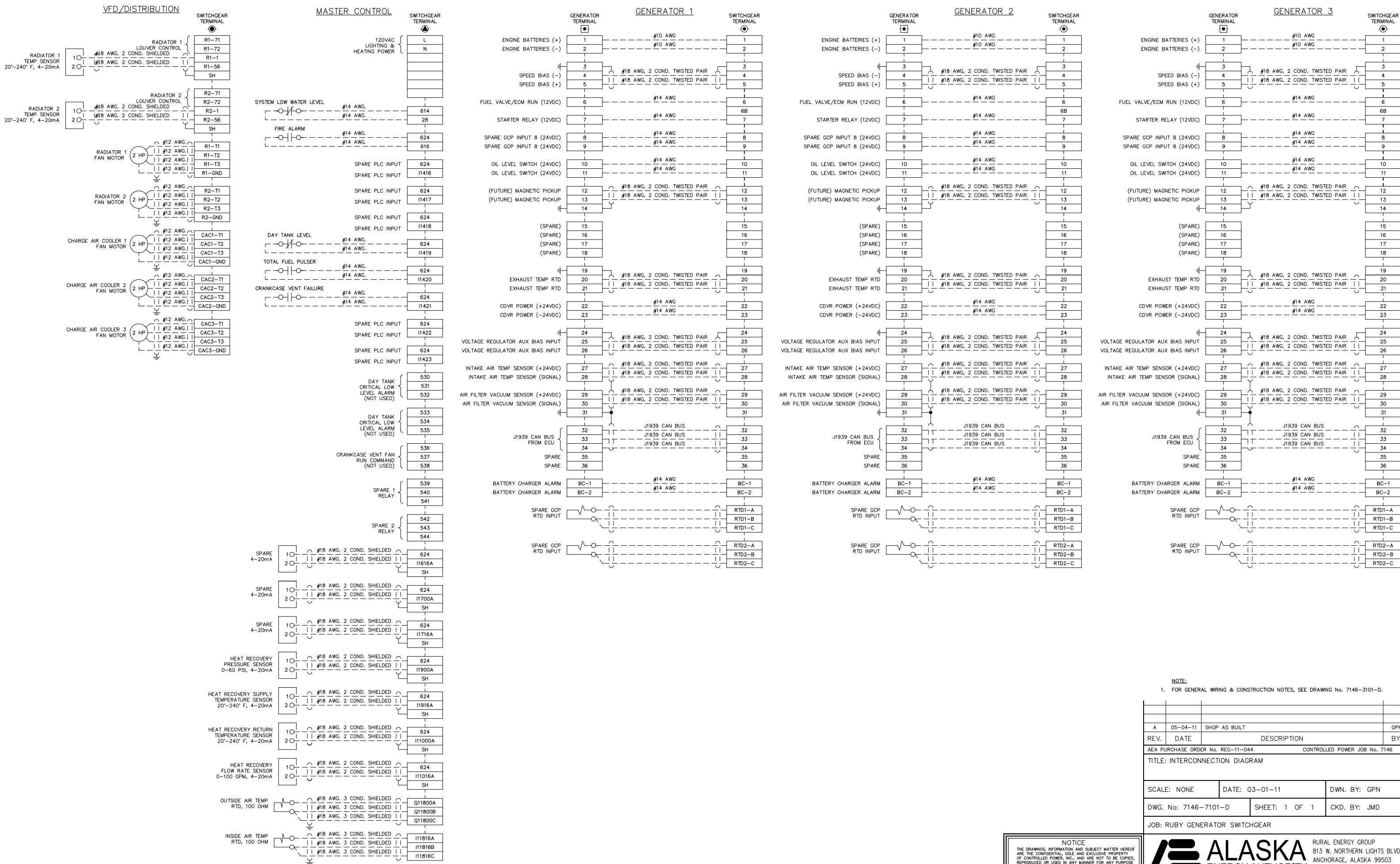
VFD ANNUNCIATOR
QTY 5



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REV.	DATE	DESCRIPTION	BY
AEA PURCHASE ORDER No. REG-11-044		CONTROLLED POWER JOB No. 7146	
TITLE: ANNUNCIATOR WINDOWS, FABRICATION DIAGRAM			
SCALE: NONE	DATE: 04-13-11	DWN. BY: GPN	
DWG. No: 7146-6202-D	SHEET: 1 OF 1	CKD. BY: JMD	
JOB: RUBY GENERATOR SWITCHGEAR			

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NOTE:
1. FOR GENERAL WIRING & CONSTRUCTION NOTES, SEE DRAWING No. 7146-3101-D.

REV.	DATE	DESCRIPTION	BY
A	05-04-11	SHOP AS BUILT	GPB
AEA PURCHASE ORDER No. REG-11-044		CONTROLLED POWER JOB No. 7146	
TITLE: INTERCONNECTION DIAGRAM			
SCALE: NONE	DATE: 03-01-11	DWN. BY: GPB	
DWG. No: 7146-7101-D		SHEET: 1 OF 1	CKD. BY: JMD
JOB: RUBY GENERATOR SWITCHGEAR			

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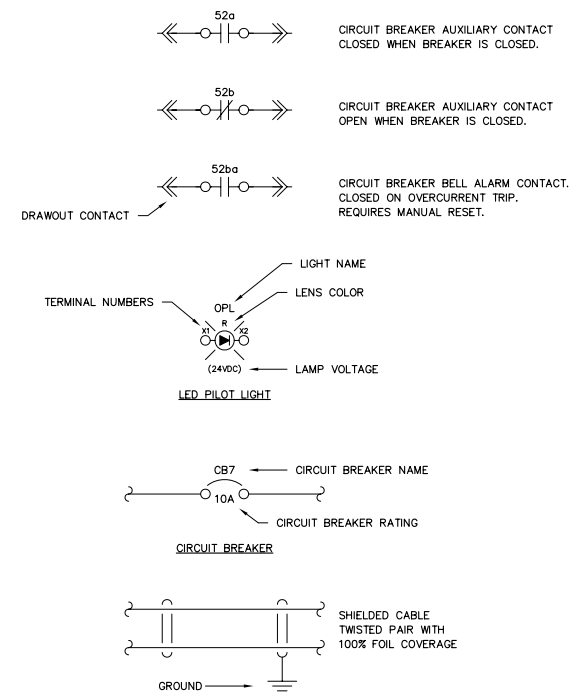
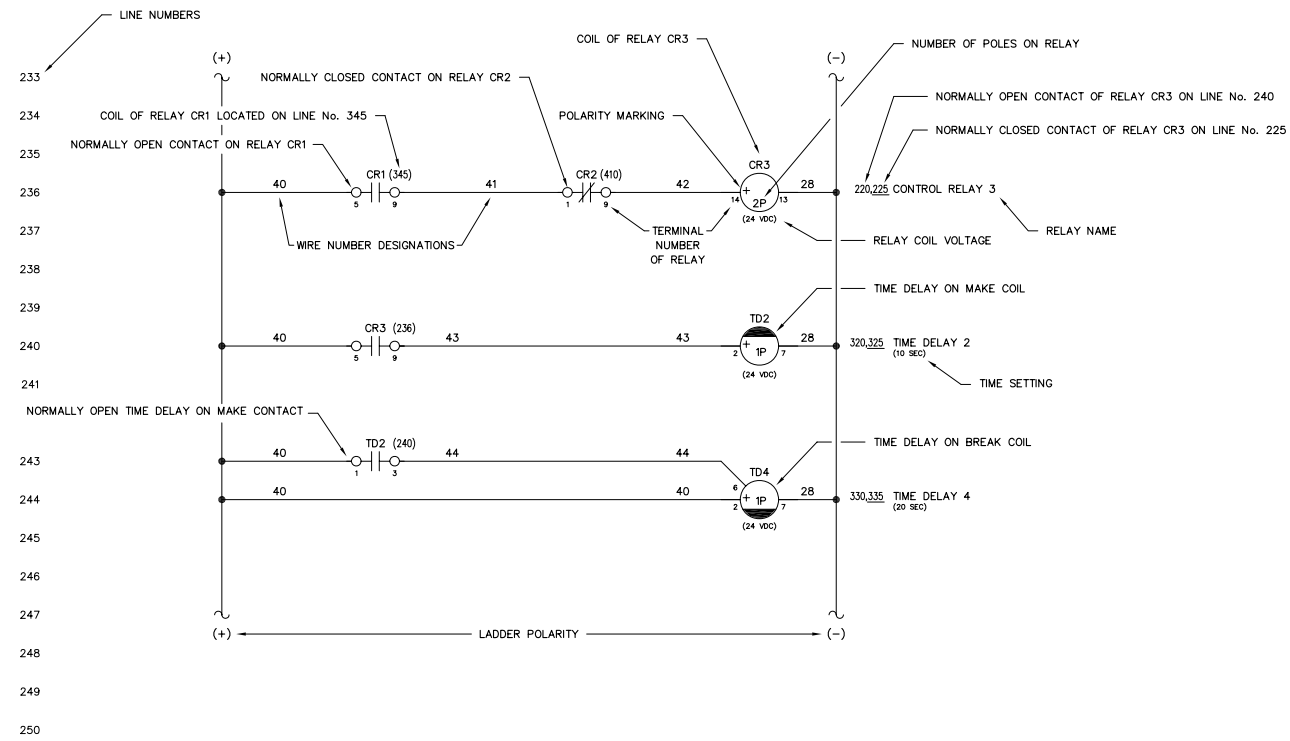
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AKIAK GENERATOR SWITCHGEAR
ALASKA ENERGY AUTHORITY PURCHASE ORDER No. REG-12-058
CONTROLLED POWER, INC. JOB No. 7455

<u>DRAWING No.</u>	<u>DRAWING TITLE</u>
7455-2101-D	COVER SHEET
7455-3101-D	SCHEMATIC LEGEND AND NOTES
7455-4101-D	GENERATOR SWITCHGEAR ELEVATION VIEW, OUTLINE DIAGRAM
7455-5101-D	GENERATOR SINGLE LINE, SCHEMATIC DIAGRAM
7455-5201-D	GENERATOR 1 AC THREE LINE, SCHEMATIC DIAGRAM
7455-5202-D	GENERATOR 2 AC THREE LINE, SCHEMATIC DIAGRAM
7455-5203-D	GENERATOR 3 AC THREE LINE, SCHEMATIC DIAGRAM
7455-5204-D	GENERATOR 3 AC THREE LINE, SCHEMATIC DIAGRAM
7455-5205-D	MASTER AC THREE LINE, SCHEMATIC DIAGRAM
7455-5206-D	VFD AC THREE LINE, SCHEMATIC DIAGRAM
7455-5301-D	GENERATOR 1 DC CONTROL, SCHEMATIC DIAGRAM
7455-5302-D	GENERATOR 1 DC CONTROL, SCHEMATIC DIAGRAM
7455-5303-D	GENERATOR 1 DC CONTROL, SCHEMATIC DIAGRAM
7455-5304-D	GENERATOR 2 DC CONTROL, SCHEMATIC DIAGRAM
7455-5305-D	GENERATOR 2 DC CONTROL, SCHEMATIC DIAGRAM
7455-5306-D	GENERATOR 2 DC CONTROL, SCHEMATIC DIAGRAM
7455-5307-D	GENERATOR 3 DC CONTROL, SCHEMATIC DIAGRAM
7455-5308-D	GENERATOR 3 DC CONTROL, SCHEMATIC DIAGRAM
7455-5309-D	GENERATOR 3 DC CONTROL, SCHEMATIC DIAGRAM
7455-5310-D	GENERATOR 4 DC CONTROL, SCHEMATIC DIAGRAM
7455-5311-D	GENERATOR 4 DC CONTROL, SCHEMATIC DIAGRAM
7455-5312-D	GENERATOR 4 DC CONTROL, SCHEMATIC DIAGRAM
7455-5313-D	MASTER DC CONTROL, SCHEMATIC DIAGRAM
7455-5314-D	MASTER DC CONTROL, SCHEMATIC DIAGRAM
7455-5315-D	MASTER DC CONTROL, SCHEMATIC DIAGRAM
7455-5316-D	MASTER DC CONTROL, SCHEMATIC DIAGRAM
7455-5317-D	FEEDER DC CONTROL, SCHEMATIC DIAGRAM
7455-5318-D	VFD DC CONTROL, SCHEMATIC DIAGRAM
7455-5319-D	VFD DC CONTROL, SCHEMATIC DIAGRAM
7455-5401-D	FEEDER BREAKER CONTROL, SCHEMATIC DIAGRAM
7455-5501-D	PLC COMMUNICATION, SCHEMATIC DIAGRAM
7455-5502-D	PLC COMMUNICATION, SCHEMATIC DIAGRAM
7455-5601-D	COMMUNICATION NETWORK DIAGRAM
7455-5602-D	COMMUNICATION NETWORK DIAGRAM
7455-5701-D	HEATER, LIGHTING & FAN CONTROL, SCHEMATIC DIAGRAM
7455-6101-D	CONTROL SWITCH TARGET DIAGRAM
7455-6201-D	NAMEPLATE ENGRAVING SCHEDULE, FABRICATION DIAGRAM
7455-6202-D	ANNUNCIATOR WINDOWS, FABRICATION DIAGRAM
7455-7101-D	INTERCONNECTION DIAGRAM
7455-7102-D	INTERCONNECTION DIAGRAM



NOTES:

1. SCHEMATIC IS SHOWN AS FOLLOWS:
 - ALL AC AND DC POWER REMOVED
 - ALL RELAY CONTACTS DE-ENERGIZED
 - ALL CIRCUIT BREAKERS IN THE OPEN/RESET POSITION
 - ALL MODE SWITCHES IN THE "OFF" POSITION
 - ALL EMERGENCY STOP SWITCHES IN THE "NORMAL" POSITION
 - ALL PRESSURE SWITCHES SHOWN WITHOUT PRESSURE PRESENT
 - ALL LEVEL SWITCHES SHOWN WITHOUT FLUID PRESENT
 - ALL TEMPERATURE SWITCHES SHOWN AT AMBIENT
2. (⊙) INDICATES FIELD TERMINALS IN GENERATOR CONTROL SECTION.
3. (⊠) INDICATES TERMINALS AT ENGINE/GENERATOR.
4. (⊡) INDICATES INTERCONNECT TERMINALS IN MASTER SECTION.
5. (⊣) INDICATES FIELD TERMINALS IN MASTER SECTION.
6. (⊚) INDICATES INTERCONNECT TERMINALS IN GENERATOR CONTROL SECTION.
7. (⊙) INDICATES INTERCONNECT TERMINALS IN VFD/DIST SECTION.
8. (⊙) INDICATES FIELD TERMINALS IN VFD/DIST SECTION.
9. - - INDICATES FIELD WIRING BY OTHERS
10. ALL CONTROL WIRING TO BE No. 14 AWG, 600 VOLT, TYPE SIS EXCEPT AS NOTED
11. SHIELDED WIRING TO BE No. 18 AWG, 300 VOLT, TWISTED LINE WITH 100% FOIL COVERAGE
12. ALL DIODES ARE 1N4007 EXCEPT AS NOTED

REV.	DATE	DESCRIPTION	BY
B	03-14-13	SHOP AS BUILT	GPN
A	04-10-12	REVISED PER ENGINEERING REVIEW	GPN

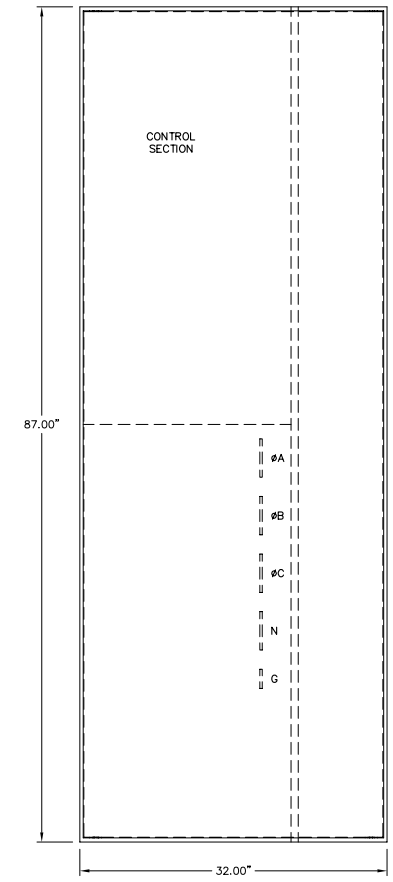
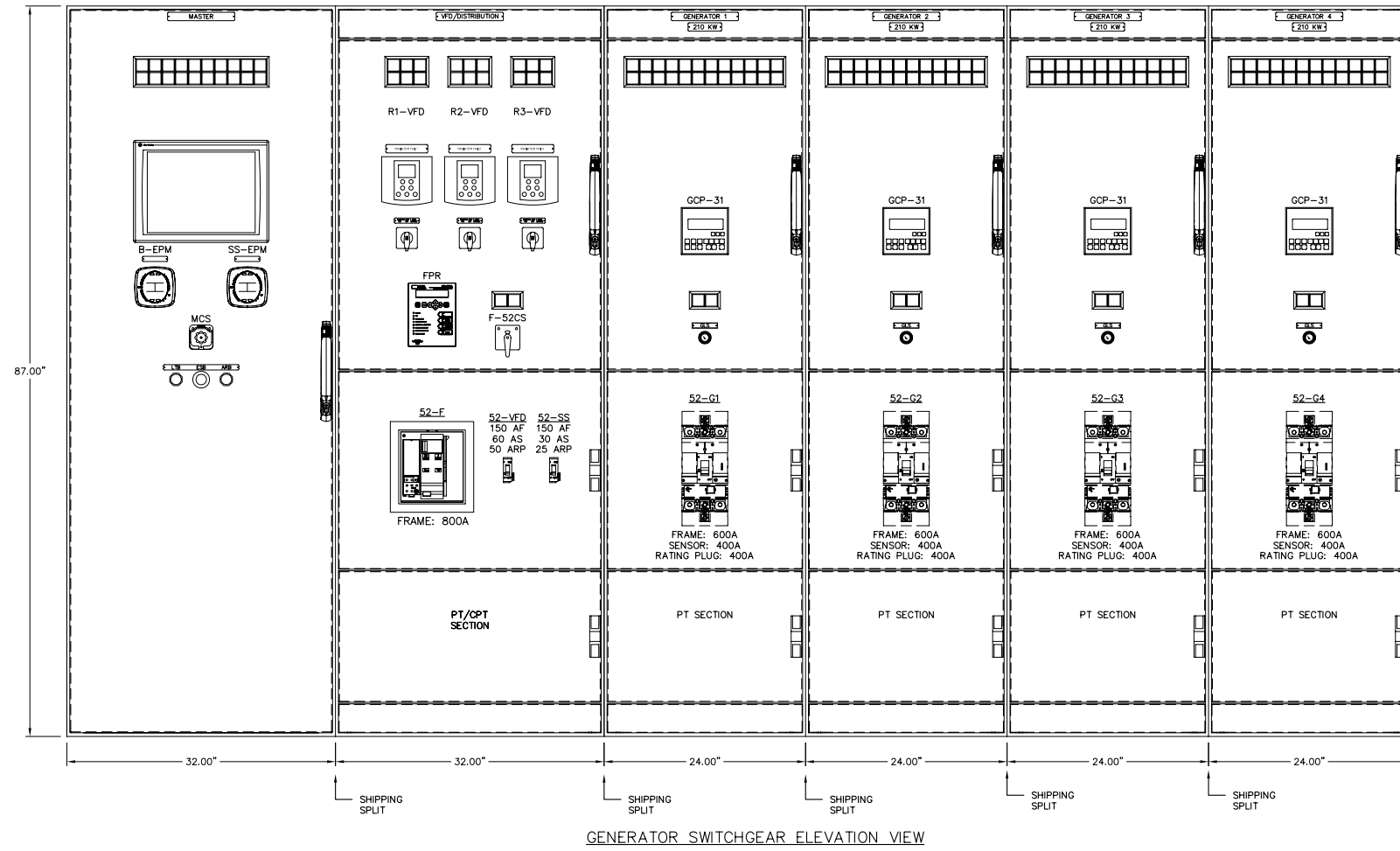
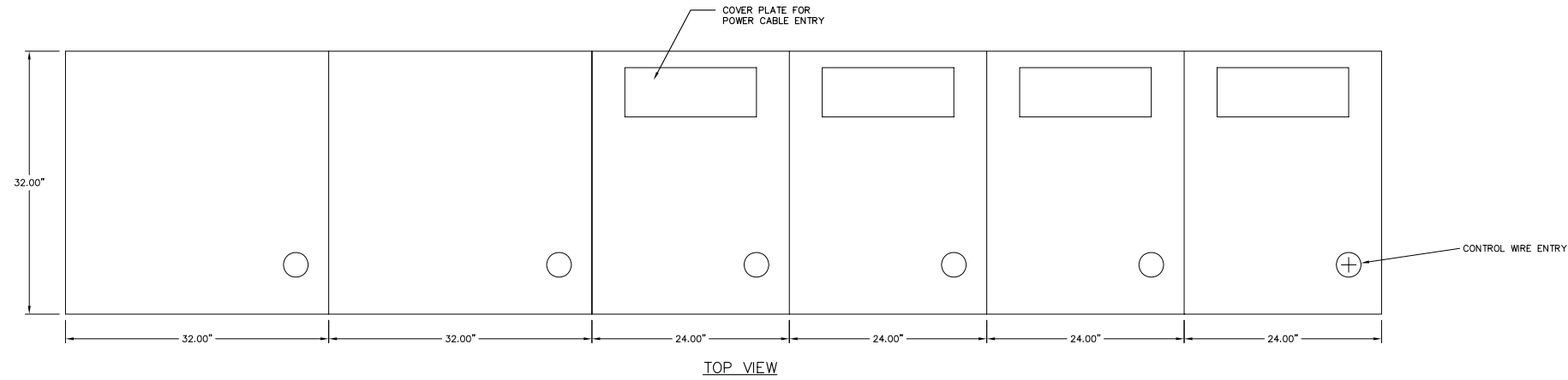
AEA PURCHASE ORDER No. REG-12-058 CONTROLLED POWER JOB No. 7455

TITLE: SCHEMATIC LEGEND & NOTES

SCALE: NONE	DATE: 03-12-12	DWN. BY: GPN
DWG. No: 7455-3101-D	SHEET: 1 OF 1	CKD. BY: JMD
JOB: AKIAK GENERATOR SWITCHGEAR		

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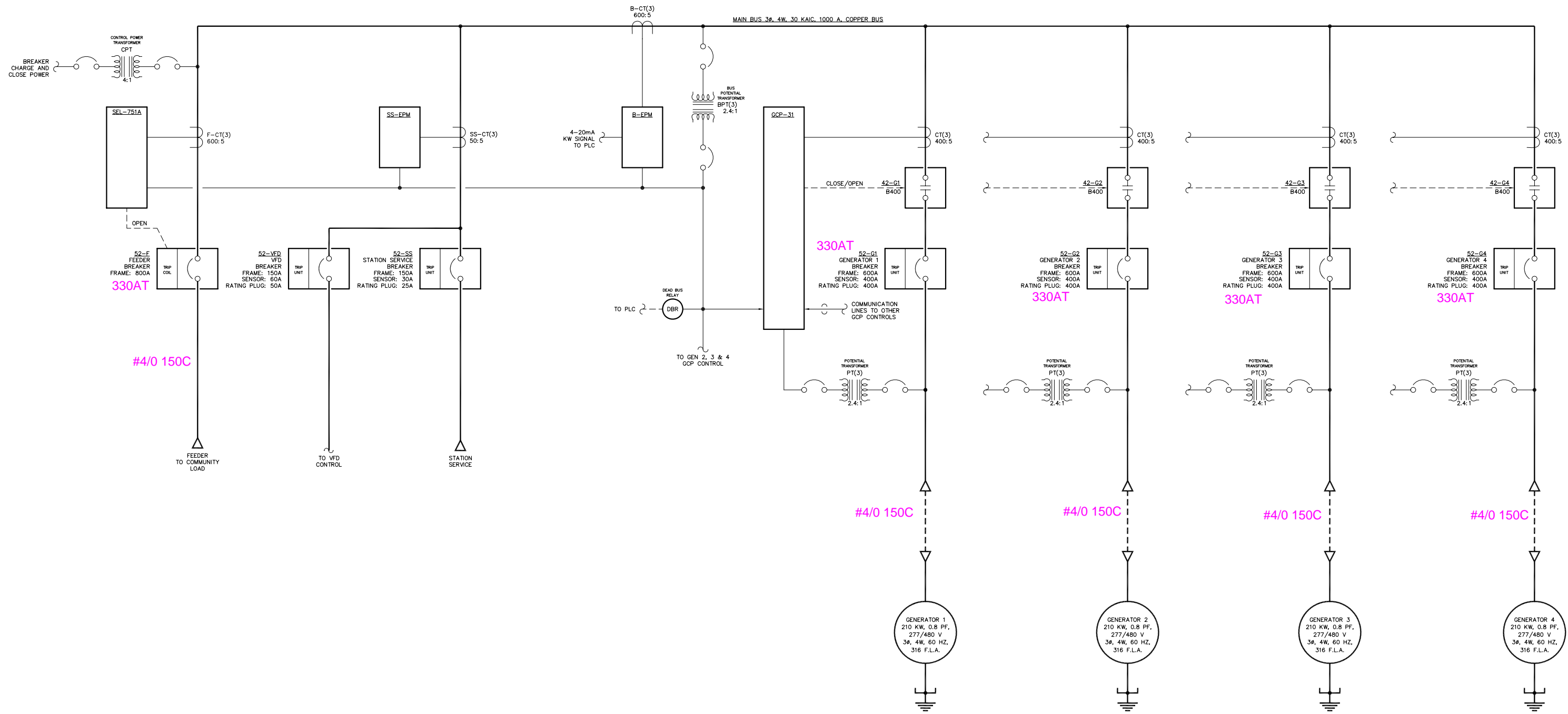


B	03-14-13	SHOP AS BUILT	GPN
A	04-10-12	REVISED PER ENGINEERING REVIEW	GPN
REV.	DATE	DESCRIPTION	BY
AEA PURCHASE ORDER No. 03-12-12		CONTROLLED POWER JOB No. 7455	
TITLE: GENERATOR SWITCHGEAR ELEVATION VIEW, OUTLINE DIAGRAM			
SCALE: 1/10	DATE: 03-12-12	DWN. BY: GPN	
DWG. No: 7455-4101-D	SHEET: 1 OF 1	CKD. BY: JMD	
JOB: AKIAK SWITCHGEAR			

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NOTES:
 1. GENERATORS 2, 3 & 4 SIMILAR TO GENERATOR 1.

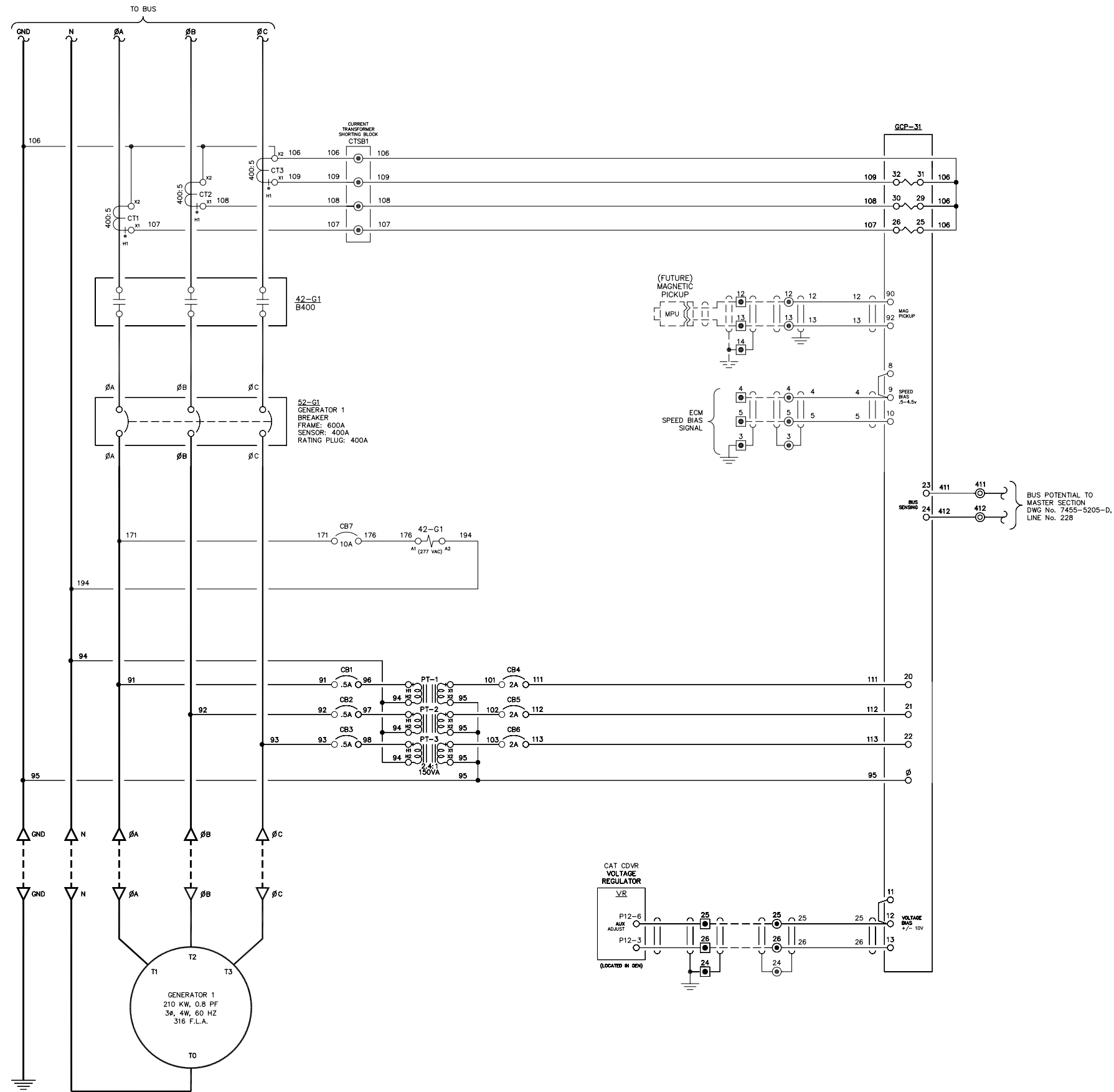
Notes:
 1) Conductor sizes and temperature ratings shown based on original design and have not been confirmed. Field verify.
 2) Breaker trip setpoints shown based on original commissioning and may not match present operating conditions. Field verify.

NOTE:
 1. FOR GENERAL WIRING & CONSTRUCTION NOTES, SEE DRAWING No. 7455-3101-D.

B	03-14-13	SHOP AS BUILT	GPN
A	04-10-12	REVISED PER ENGINEERING REVIEW	GPN
REV.	DATE	DESCRIPTION	BY
AEA PURCHASE ORDER No. REG-12-058		CONTROLLED POWER JOB No. 7455	
TITLE: GENERATOR SWITCHGEAR SINGLE LINE, SCHEMATIC DIAGRAM			
SCALE: NONE	DATE: 03-12-12	DWN. BY: GPN	
DWG. No: 7455-5101-D	SHEET: 1 OF 1	CKD. BY: JMD	
JOB: AKIAK GENERATOR SWITCHGEAR			

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NOTE:
1. FOR GENERAL WIRING & CONSTRUCTION NOTES, SEE DRAWING No. 7455-3101-D.

B	03-14-13	SHOP AS BUILT	GPN
A	04-10-12	REVISED PER ENGINEERING REVIEW	GPN
REV.	DATE	DESCRIPTION	BY

AEA PURCHASE ORDER No. CONTROLLED POWER JOB No. 7455

TITLE: GENERATOR 1 AC THREE LINE, SCHEMATIC DIAGRAM

SCALE: NONE DATE: 03-12-12 DWN. BY: GPN

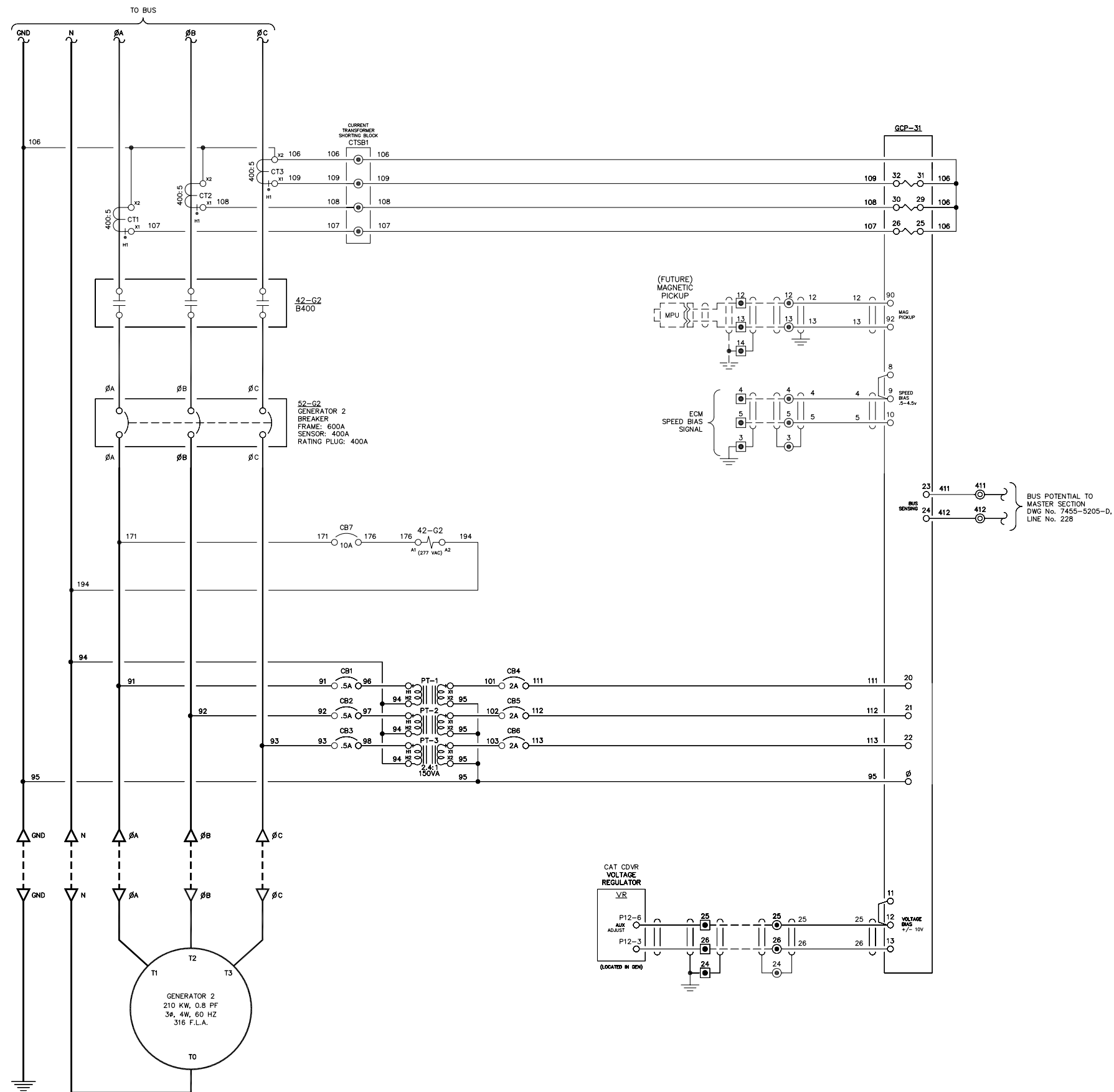
DWG. No: 7455-5201-D SHEET: 1 OF 1 CKD. BY: JMD

JOB: AKIAK GENERATOR SWITCHGEAR

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NOTE:
1. FOR GENERAL WIRING & CONSTRUCTION NOTES, SEE DRAWING No. 7455-3101-D.

REV.	DATE	DESCRIPTION	BY
B	03-14-13	SHOP AS BUILT	GPN
A	04-10-12	REVISED PER ENGINEERING REVIEW	GPN

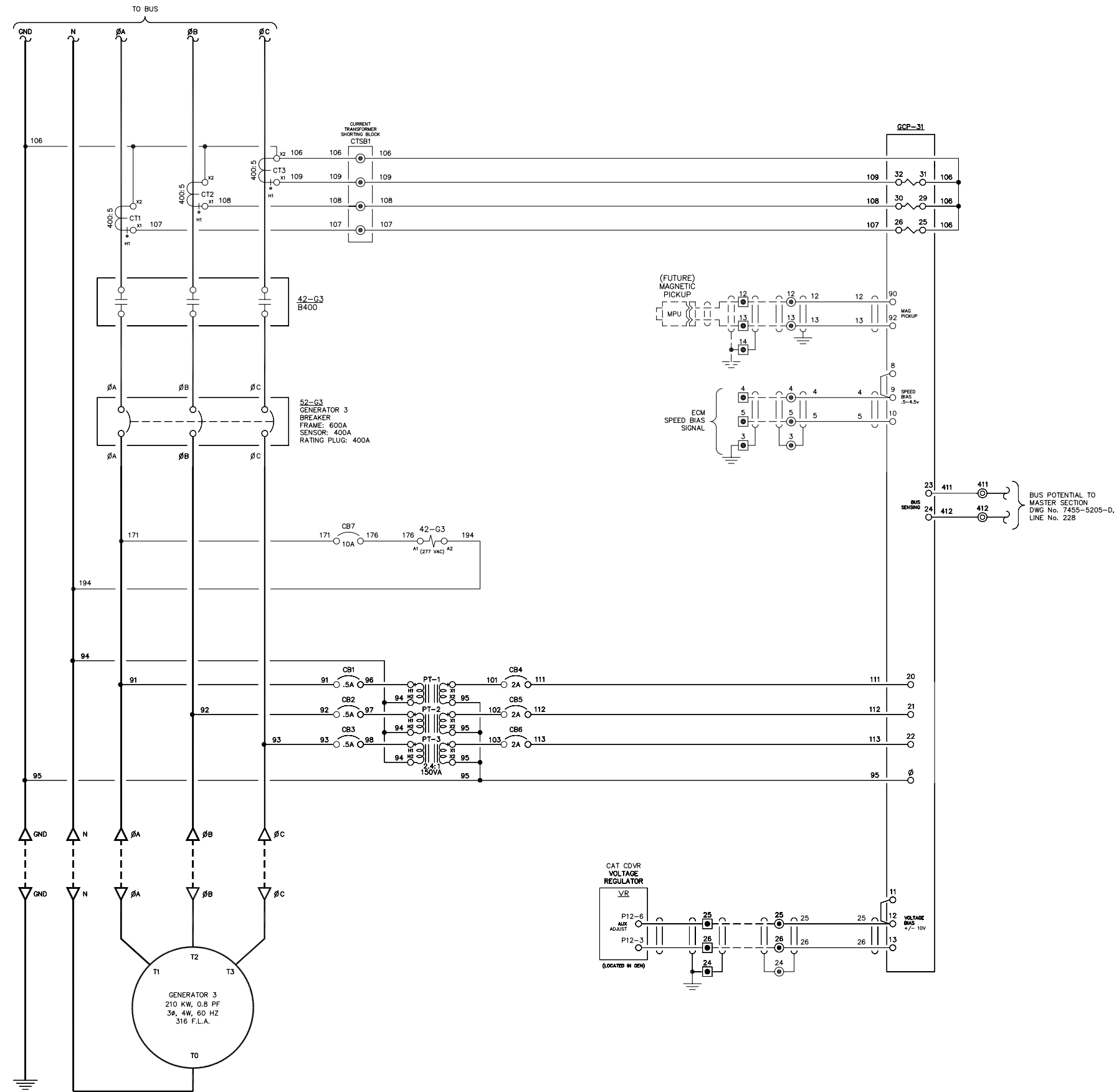
AEA PURCHASE ORDER No. CONTROLLED POWER JOB No. 7455
TITLE: GENERATOR 2 AC THREE LINE, SCHEMATIC DIAGRAM

SCALE: NONE	DATE: 03-12-12	DWN. BY: GPN
DWG. No: 7455-5202-D	SHEET: 1 OF 1	CKD. BY: JMD
JOB: AKIAK GENERATOR SWITCHGEAR		

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NOTE:
1. FOR GENERAL WIRING & CONSTRUCTION NOTES, SEE DRAWING No. 7455-3101-D.

B	03-14-13	SHOP AS BUILT	GPN
A	04-10-12	REVISED PER ENGINEERING REVIEW	GPN
REV.	DATE	DESCRIPTION	BY

AEA PURCHASE ORDER No. CONTROLLED POWER JOB No. 7455

TITLE: GENERATOR 3 AC THREE LINE, SCHEMATIC DIAGRAM

SCALE: NONE DATE: 03-12-12 DWN. BY: GPN

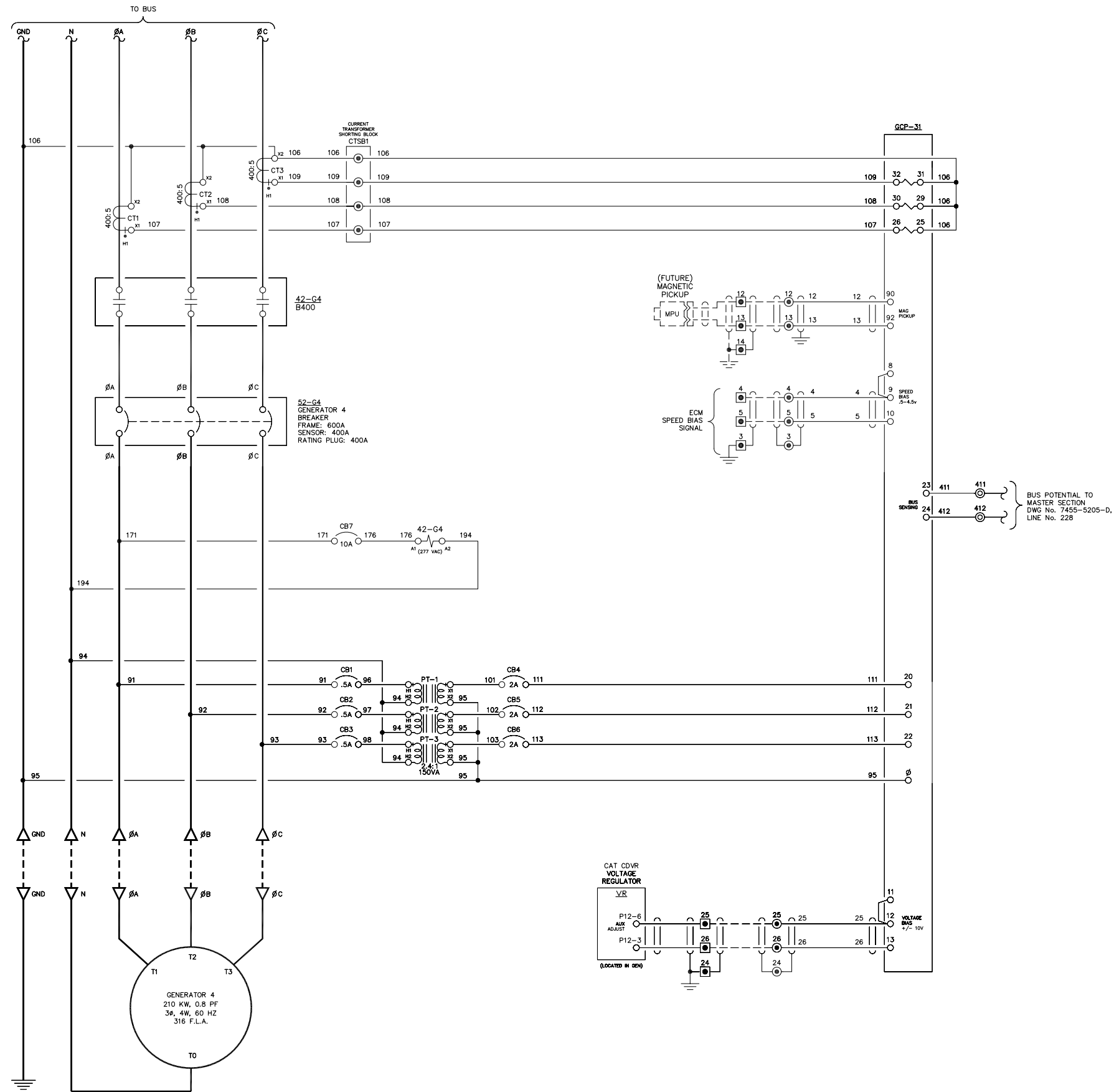
DWG. No: 7455-5203-D SHEET: 1 OF 1 CKD. BY: JMD

JOB: AKIAK GENERATOR SWITCHGEAR

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NOTE:
1. FOR GENERAL WIRING & CONSTRUCTION NOTES, SEE DRAWING No. 7455-3101-D.

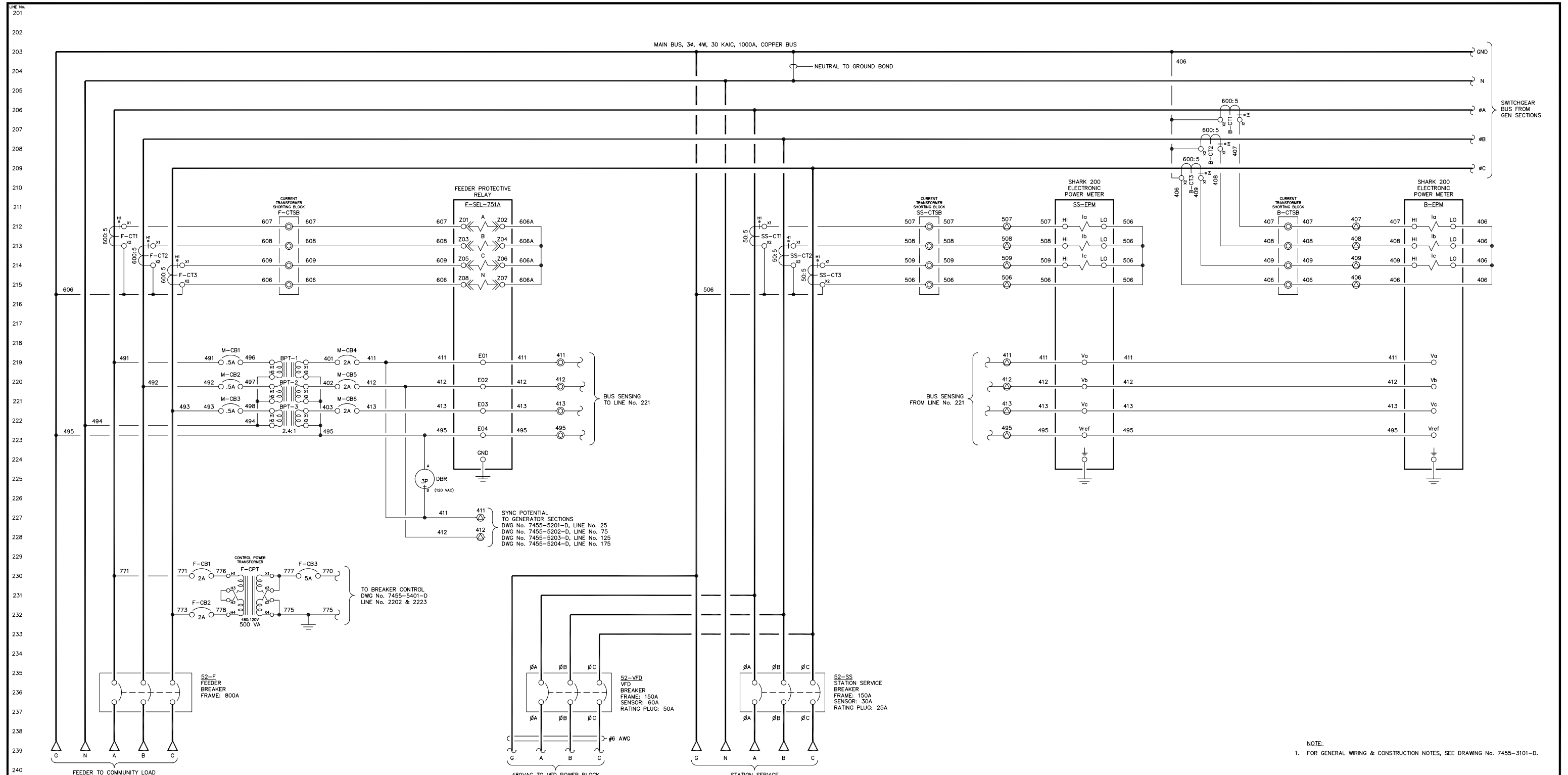
REV.	DATE	DESCRIPTION	BY
B	03-14-13	SHOP AS BUILT	GPN
A	04-10-12	REVISED PER ENGINEERING REVIEW	GPN

AEA PURCHASE ORDER No. CONTROLLED POWER JOB No. 7455
TITLE: GENERATOR 4 AC THREE LINE, SCHEMATIC DIAGRAM

SCALE: NONE	DATE: 03-12-12	DWN. BY: GPN
DWG. No: 7455-5204-D	SHEET: 1 OF 1	CKD. BY: JMD

JOB: AKIAK GENERATOR SWITCHGEAR





NOTE:
1. FOR GENERAL WIRING & CONSTRUCTION NOTES, SEE DRAWING No. 7455-3101-D.

B	03-14-13	SHOP AS BUILT	GPN
A	04-10-12	REVISED PER ENGINEERING REVIEW	GPN
REV.	DATE	DESCRIPTION	BY

AEA PURCHASE ORDER No. REG-12-058 CONTROLLED POWER JOB No. 7455
TITLE: MASTER AC THREE LINE, SCHEMATIC DIAGRAM

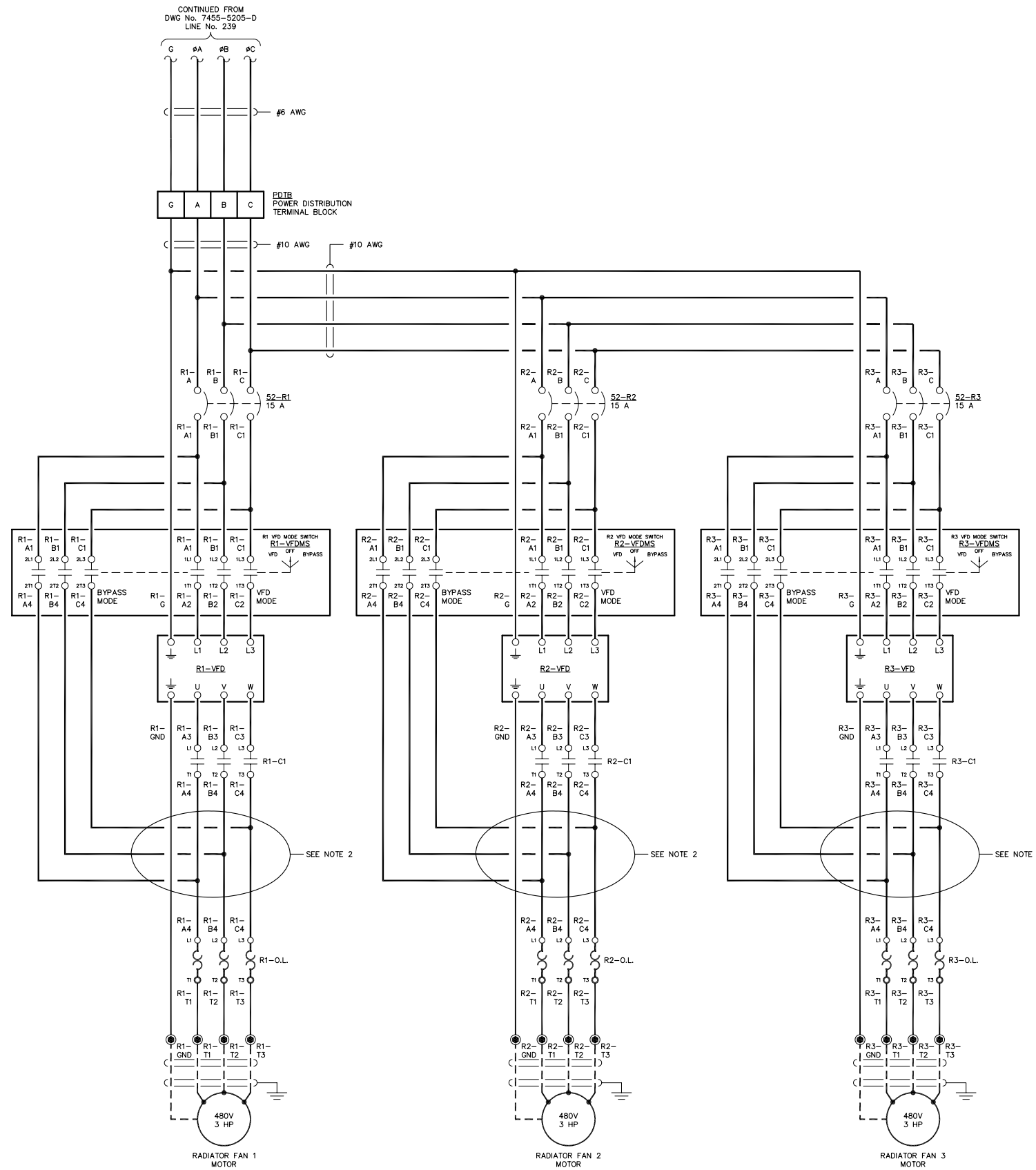
SCALE: NONE	DATE: 03-12-12	DWN. BY: GPN
DWG. No: 7455-5205-D	SHEET: 1 OF 1	CKD. BY: JMD

JOB: AKIAK GENERATOR SWITCHGEAR

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- NOTE:
- FOR GENERAL WIRING & CONSTRUCTION NOTES, SEE DRAWING No. 7455-3101-D.
 - VFD LOAD WIRES SHALL BE ROUTED SEPARATE FROM ALL OTHER WIRING OR SHIELDED TO AVOID RF INTERFERENCE.

REV.	DATE	DESCRIPTION	BY
B	03-14-13	SHOP AS BUILT	GPN
A	04-10-12	REVISED PER ENGINEERING REVIEW	GPN
AEA PURCHASE ORDER No. REG-12-058		CONTROLLED POWER JOB No. 7455	

TITLE: VFD THREE LINE, SCHEMATIC DIAGRAM

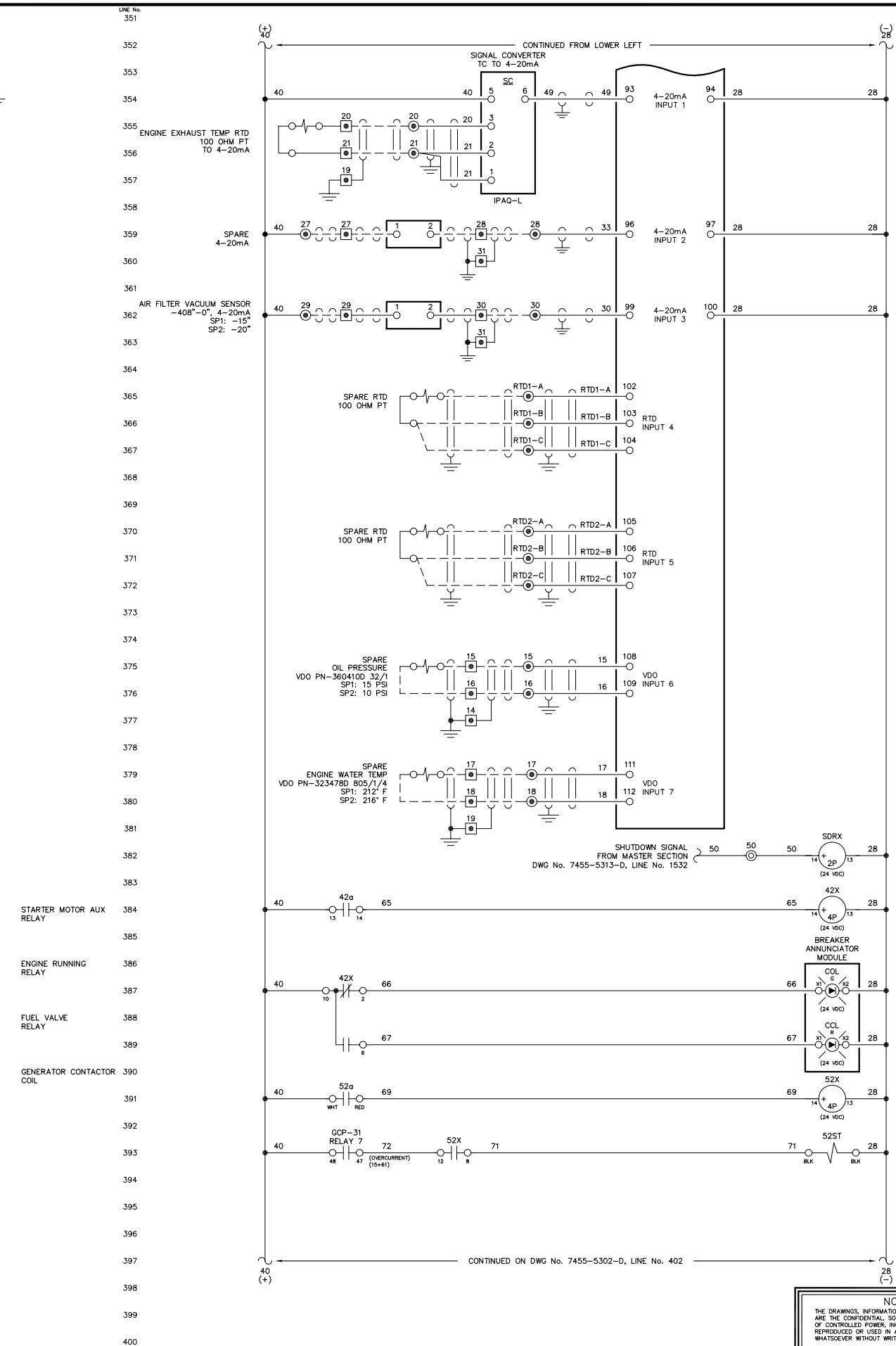
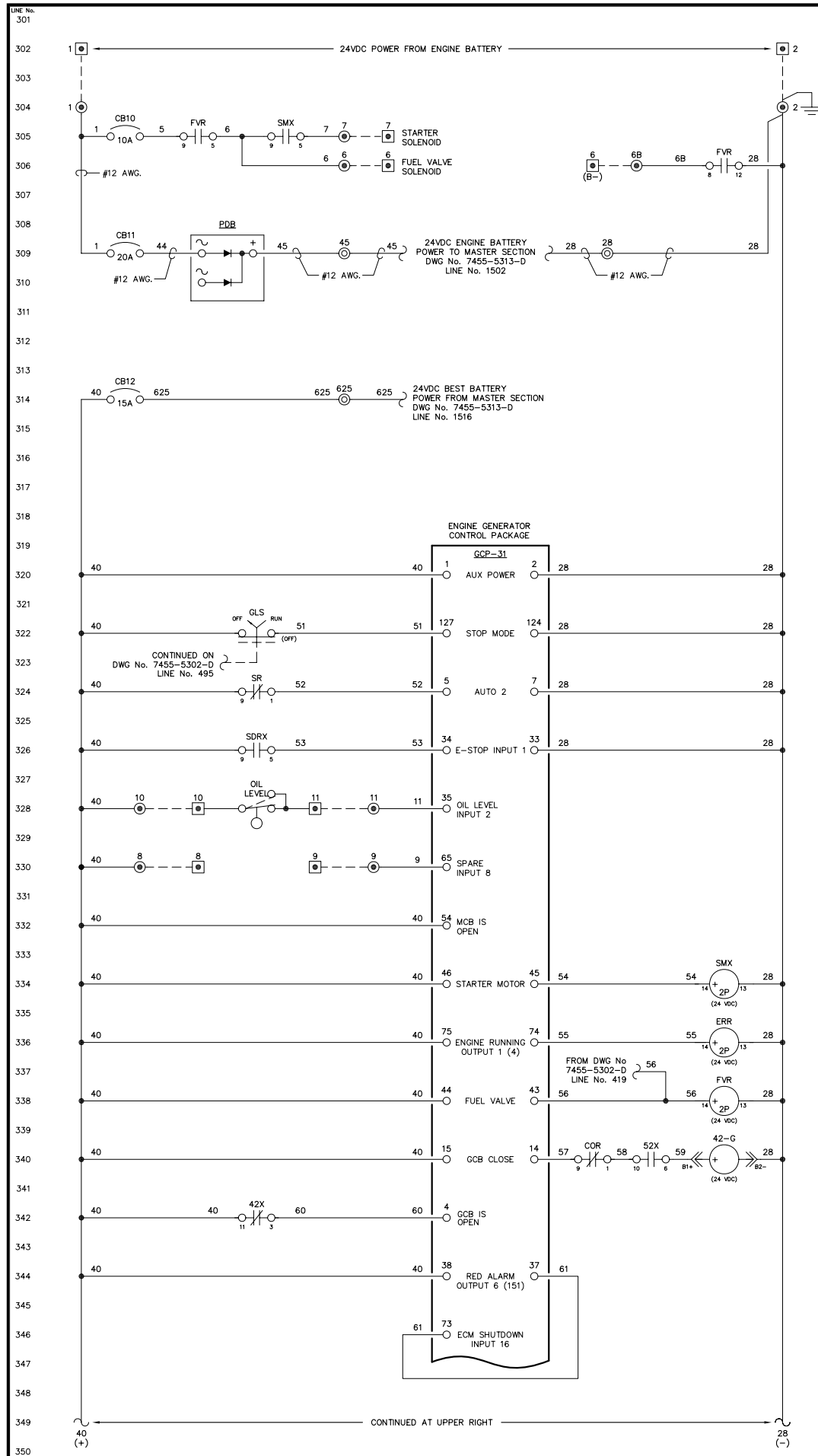
SCALE: NONE DATE: 03-12-12 DWN. BY: GPN

DWG. No: 7455-5206-D SHEET: 1 OF 1 CKD. BY: JMD

JOB: AKIAK GENERATOR SWITCHGEAR

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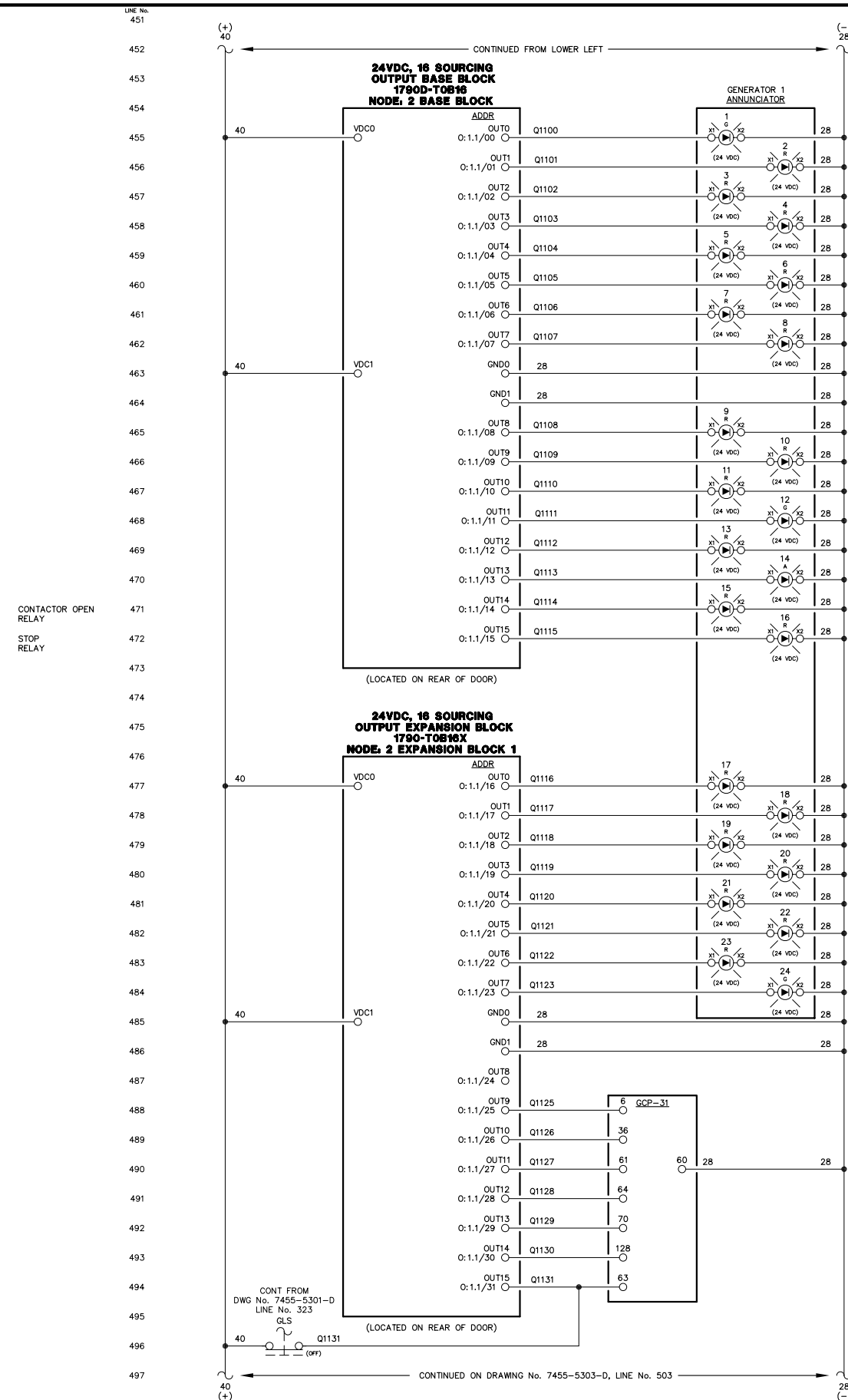
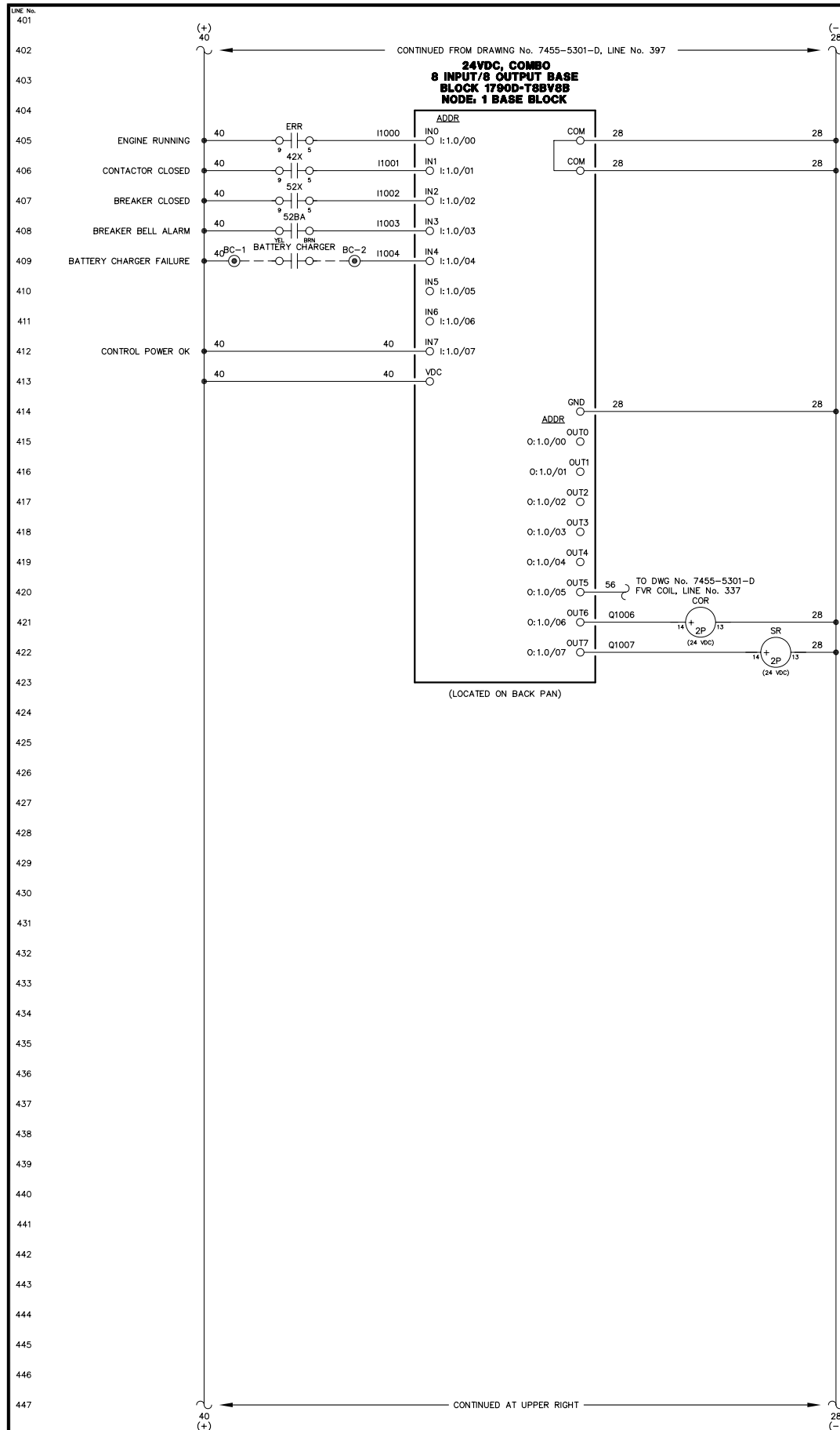


NOTE:
1. FOR GENERAL WIRING & CONSTRUCTION NOTES, SEE DRAWING No. 7455-3101-D.

REV.	DATE	DESCRIPTION	BY
B	03-14-13	SHOP AS BUILT	GPN
A	04-10-12	REVISED PER ENGINEERING REVIEW	GPN
		DESCRIPTION	BY
AEA PURCHASE ORDER No. REG-12-058		CONTROLLED POWER JOB No. 7455	
TITLE: GENERATOR 1 DC CONTROL, SCHEMATIC DIAGRAM			
SCALE: NONE	DATE: 03-12-12	DWN. BY: GPN	
DWG. No: 7455-5301-D	SHEET: 1 OF 1	CKD. BY: JMD	
JOB: AKIAK GENERATOR SWITCHGEAR			

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- ENGINE RUNNING LIGHT
- ALARM/LOCKOUT LIGHT
- LOW OIL PRESSURE LIGHT
- OIL LEVEL LIGHT
- HIGH COOLANT TEMPERATURE LIGHT
- OVERSPEED LIGHT
- OVERCRANK LIGHT
- RUNNING TIMEOUT LIGHT
- BATTERY CHARGER FAILURE LIGHT
- AIR FILTER PLUGGED LIGHT
- HIGH EXHAUST TEMPERATURE LIGHT
- LEAD ENGINE LIGHT
- SPARE LIGHT
- NORMAL STOP LIGHT
- NOT IN AUTO LIGHT
- GENERATOR BREAKER TRIP LIGHT
- FAIL TO SYNCHRONIZE LIGHT
- OVERCURRENT LIGHT
- UNDER VOLTAGE LIGHT
- OVER VOLTAGE LIGHT
- UNDER FREQUENCY LIGHT
- OVER FREQUENCY LIGHT
- REVERSE POWER LIGHT
- SPARE LIGHT
- MULTIFUNCTION (REMOTE ACK)
- INPUT 3 - RUNNING TIMEOUT
- INPUT 4 - MASTER SHUTDOWN
- INPUT 7 - BREAKER LOGIC
- INPUT 13 - SPARE
- AUTOMATIC MODE
- MODE SELECTION LOCK

NOTE:
1. FOR GENERAL WIRING & CONSTRUCTION NOTES, SEE DRAWING No. 7455-3101-D.

B	03-14-13	SHOP AS BUILT	GPN
A	04-10-12	REVISED PER ENGINEERING REVIEW	GPN
REV.	DATE	DESCRIPTION	BY

AEA PURCHASE ORDER No. REG=12-058 CONTROLLED POWER JOB No. 7455

TITLE: GENERATOR 1 DC CONTROL, SCHEMATIC DIAGRAM

SCALE: NONE DATE: 03-12-12 DWN. BY: GPN

DWG. No: 7455-5302-D SHEET: 1 OF 1 CKD. BY: JMD

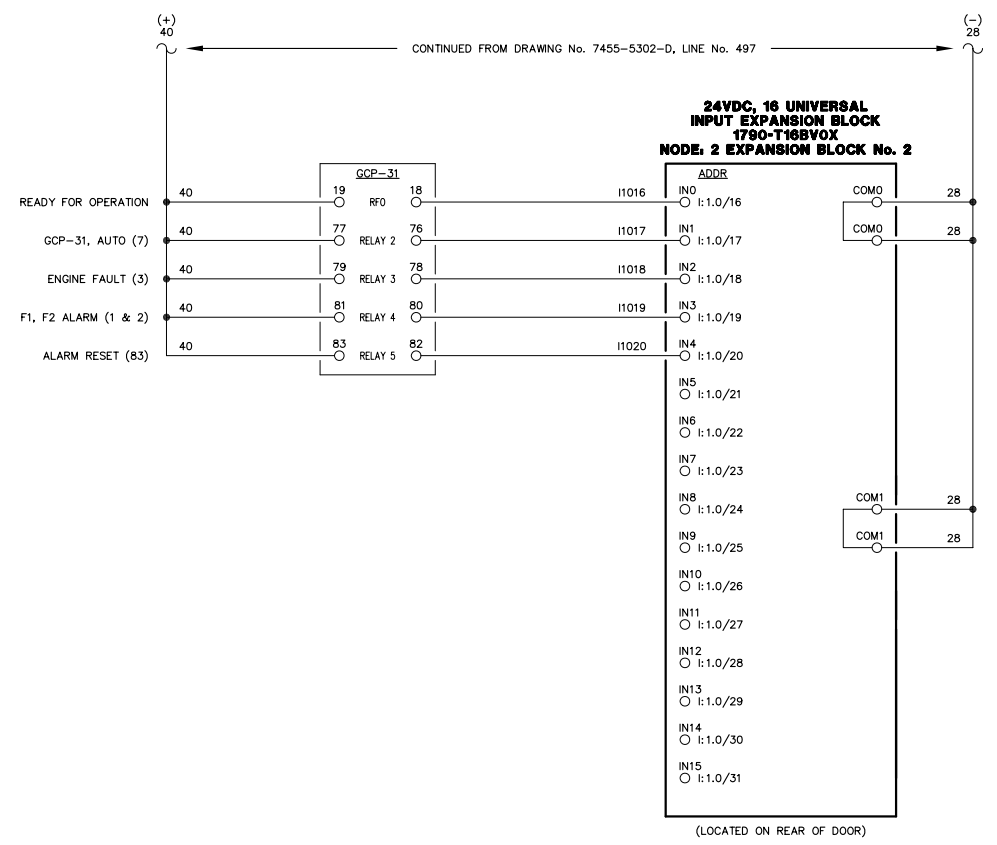
JOB: AKIAK GENERATOR SWITCHGEAR

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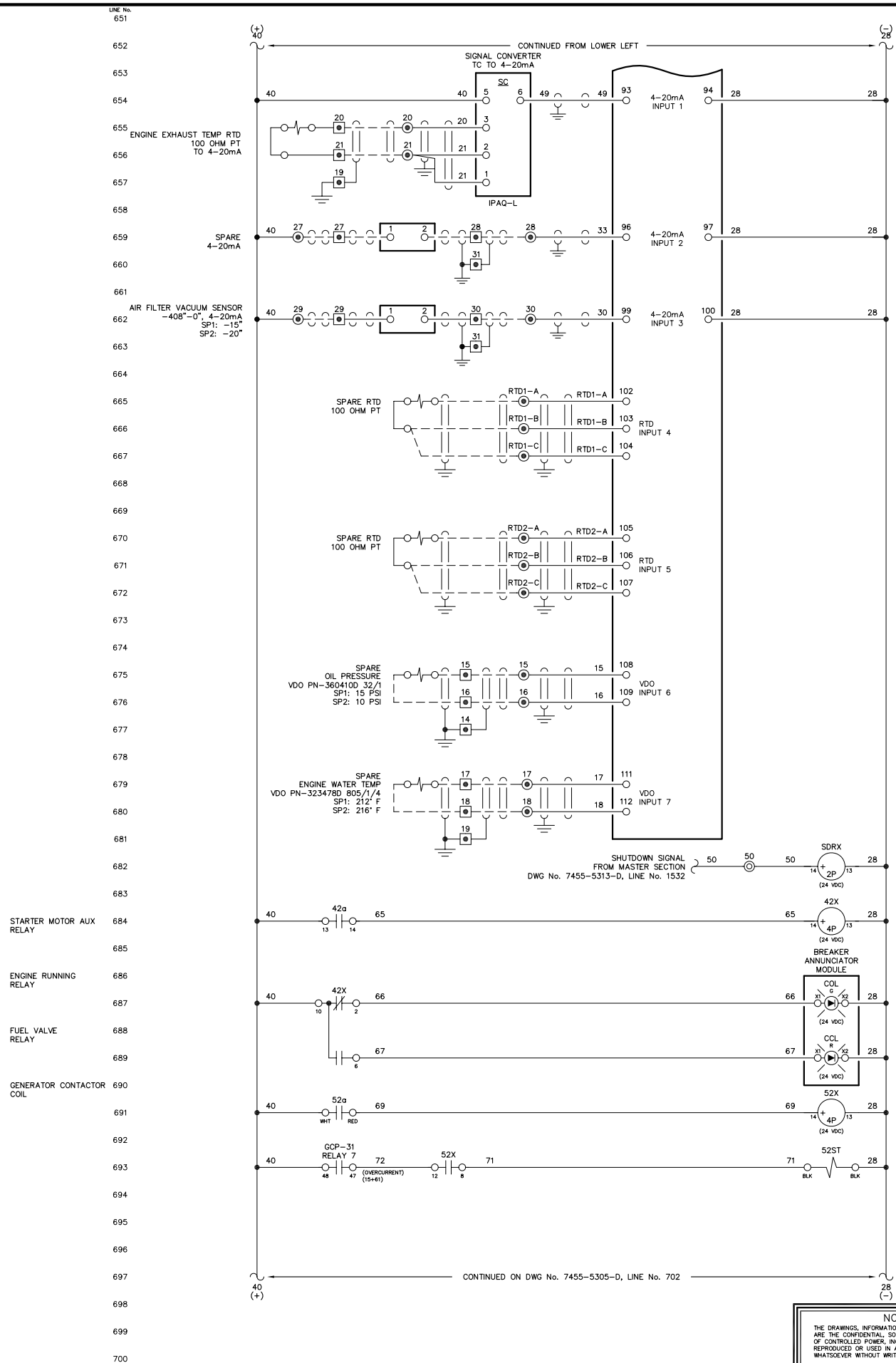
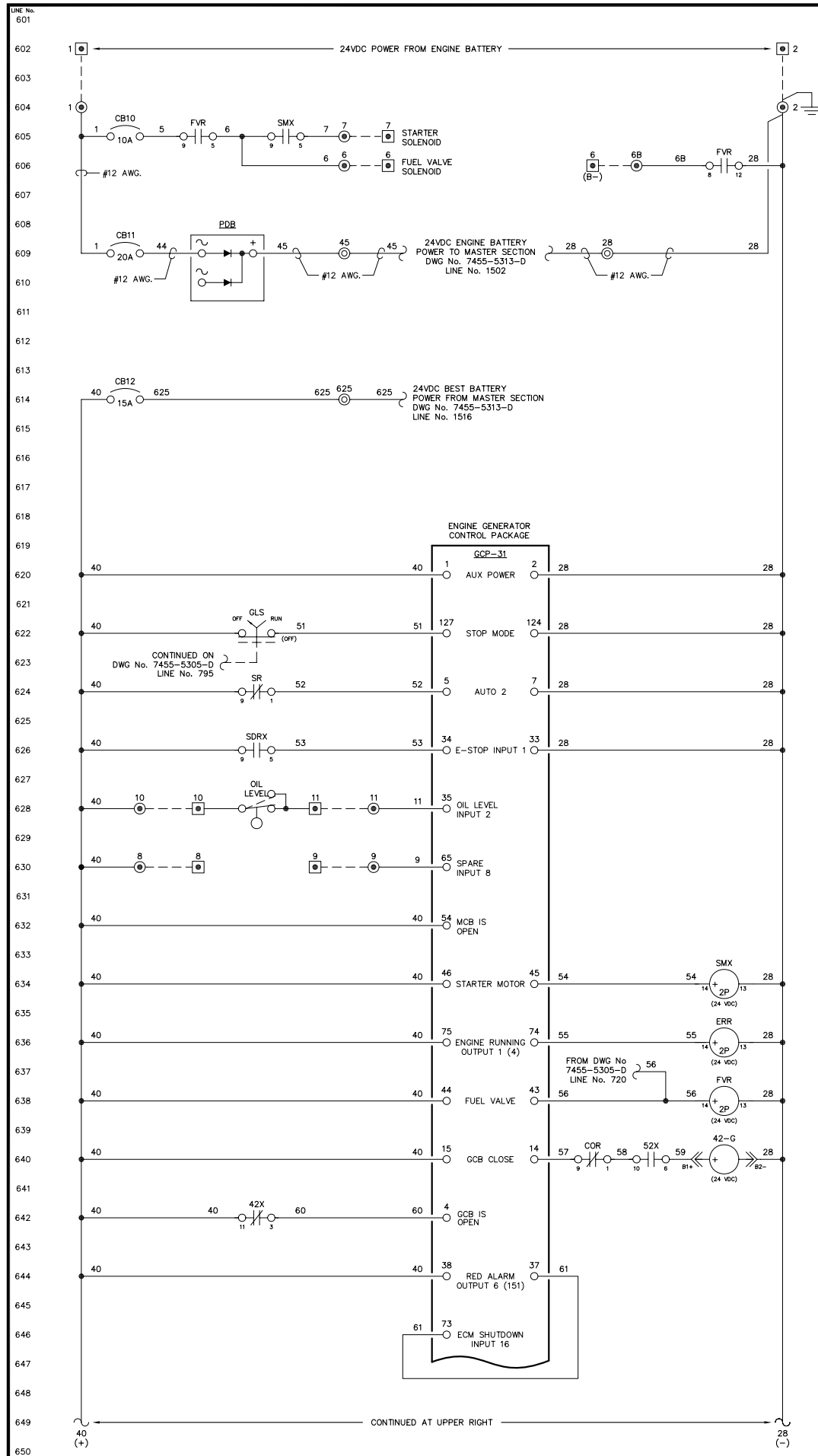


NOTE:
1. FOR GENERAL WIRING & CONSTRUCTION NOTES, SEE DRAWING No. 7455-3101-D.

B	03-14-13	SHOP AS BUILT	GPN
A	04-10-12	REVISED PER ENGINEERING REVIEW	GPN
REV.	DATE	DESCRIPTION	BY
AEA PURCHASE ORDER No. REG-12-058		CONTROLLED POWER JOB No. 7455	
TITLE: GENERATOR 1 DC CONTROL, SCHEMATIC DIAGRAM			
SCALE: NONE	DATE: 03-12-12	DWN. BY: GPN	
DWG. No: 7455-5303-D	SHEET: 1 OF 1	CKD. BY: JMD	
JOB: AKIAK GENERATOR SWITCHGEAR			

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NOTE:
1. FOR GENERAL WIRING & CONSTRUCTION NOTES, SEE DRAWING No. 7455-3101-D.

REV.	DATE	DESCRIPTION	BY
B	03-14-13	SHOP AS BUILT	GPN
A	04-10-12	REVISED PER ENGINEERING REVIEW	GPN

AEA PURCHASE ORDER No. REG-12-058 CONTROLLED POWER JOB No. 7455

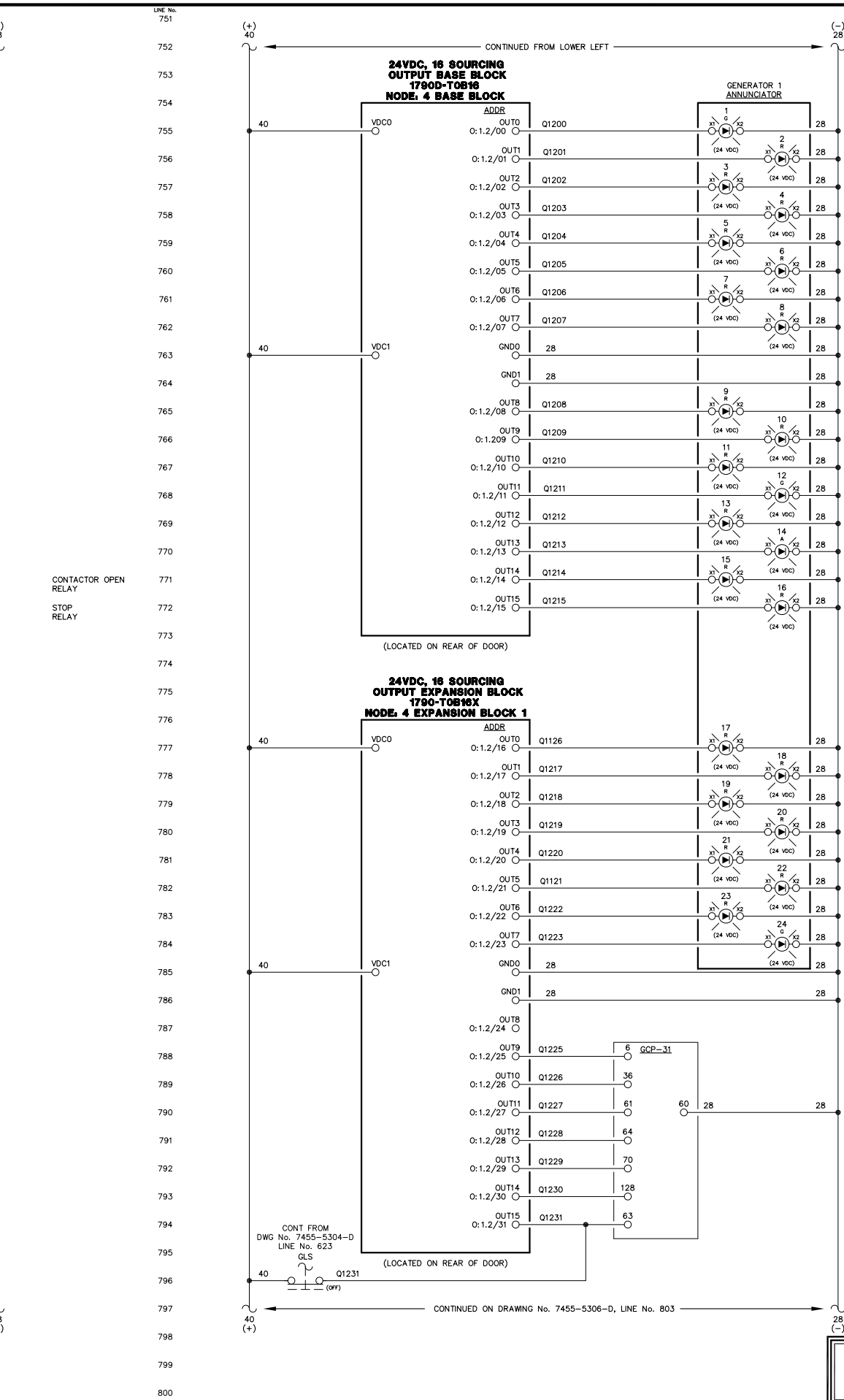
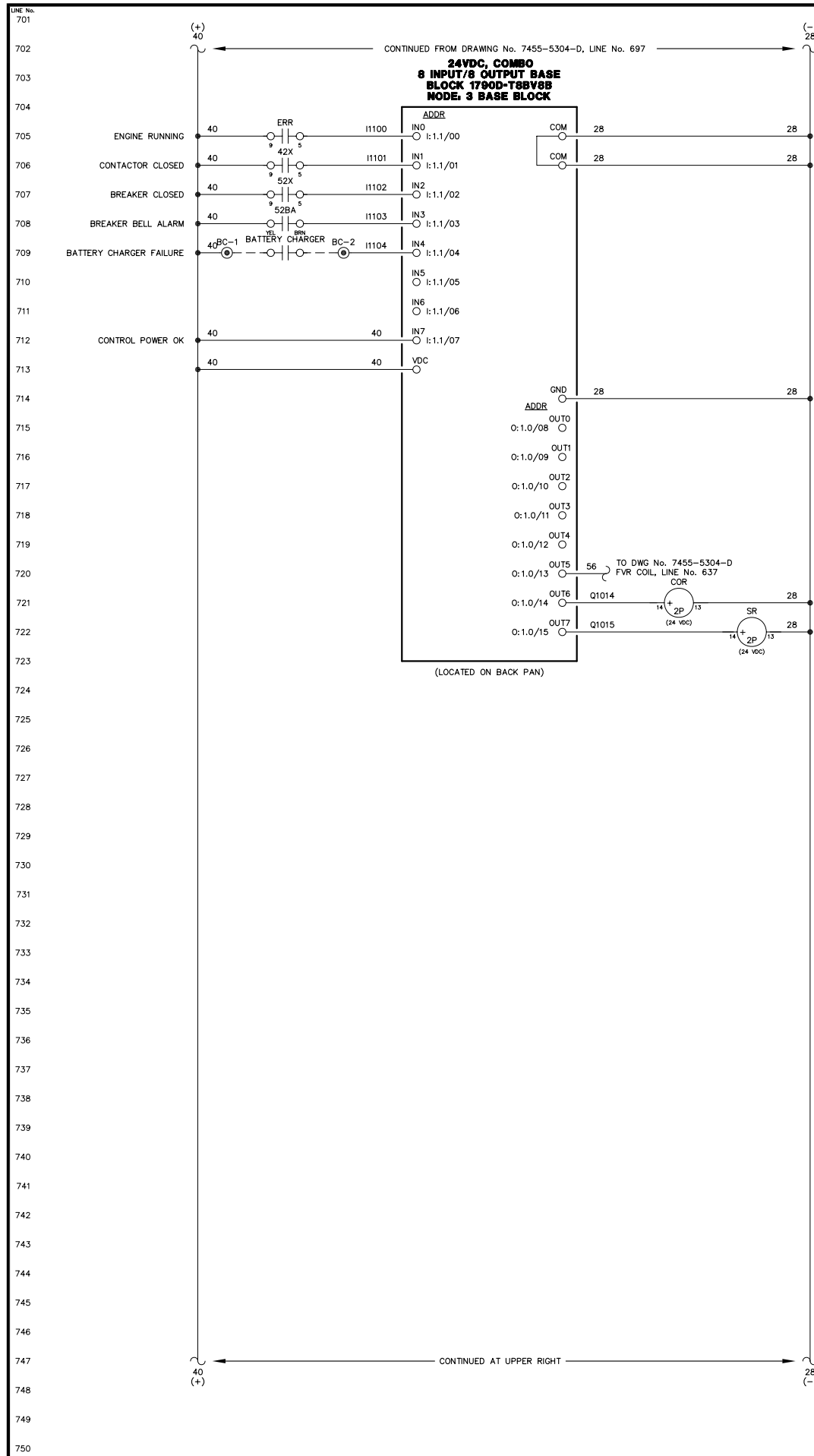
TITLE: GENERATOR 2 DC CONTROL, SCHEMATIC DIAGRAM

SCALE: NONE	DATE: 03-12-12	DWN. BY: GPN
DWG. No: 7455-5304-D	SHEET: 1 OF 1	CKD. BY: JMD
JOB: AKIAK GENERATOR SWITCHGEAR		

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Plot date: 2013/3/14 - 8:34



NOTE:
1. FOR GENERAL WIRING & CONSTRUCTION NOTES, SEE DRAWING No. 7455-3101-D.

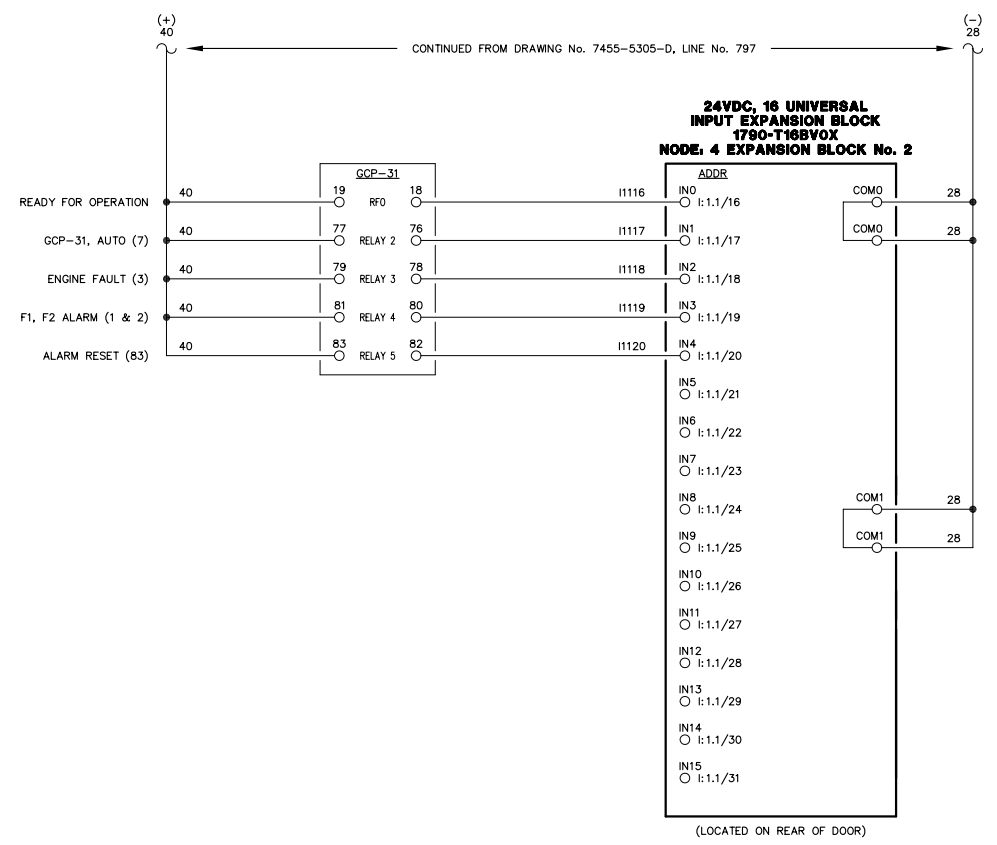
B	03-14-13	SHOP AS BUILT	GPN
A	04-10-12	REVISED PER ENGINEERING REVIEW	GPN
REV.	DATE	DESCRIPTION	BY
AEA PURCHASE ORDER No. REG=12-058		CONTROLLED POWER JOB No. 7455	
TITLE: GENERATOR 2 DC CONTROL, SCHEMATIC DIAGRAM			
SCALE: NONE	DATE: 03-12-12	DWN. BY: GPN	
DWG. No: 7455-5305-D	SHEET: 1 OF 1	CKD. BY: JMD	
JOB: AKIAK GENERA2OR SWITHGEAR			

NOTICE
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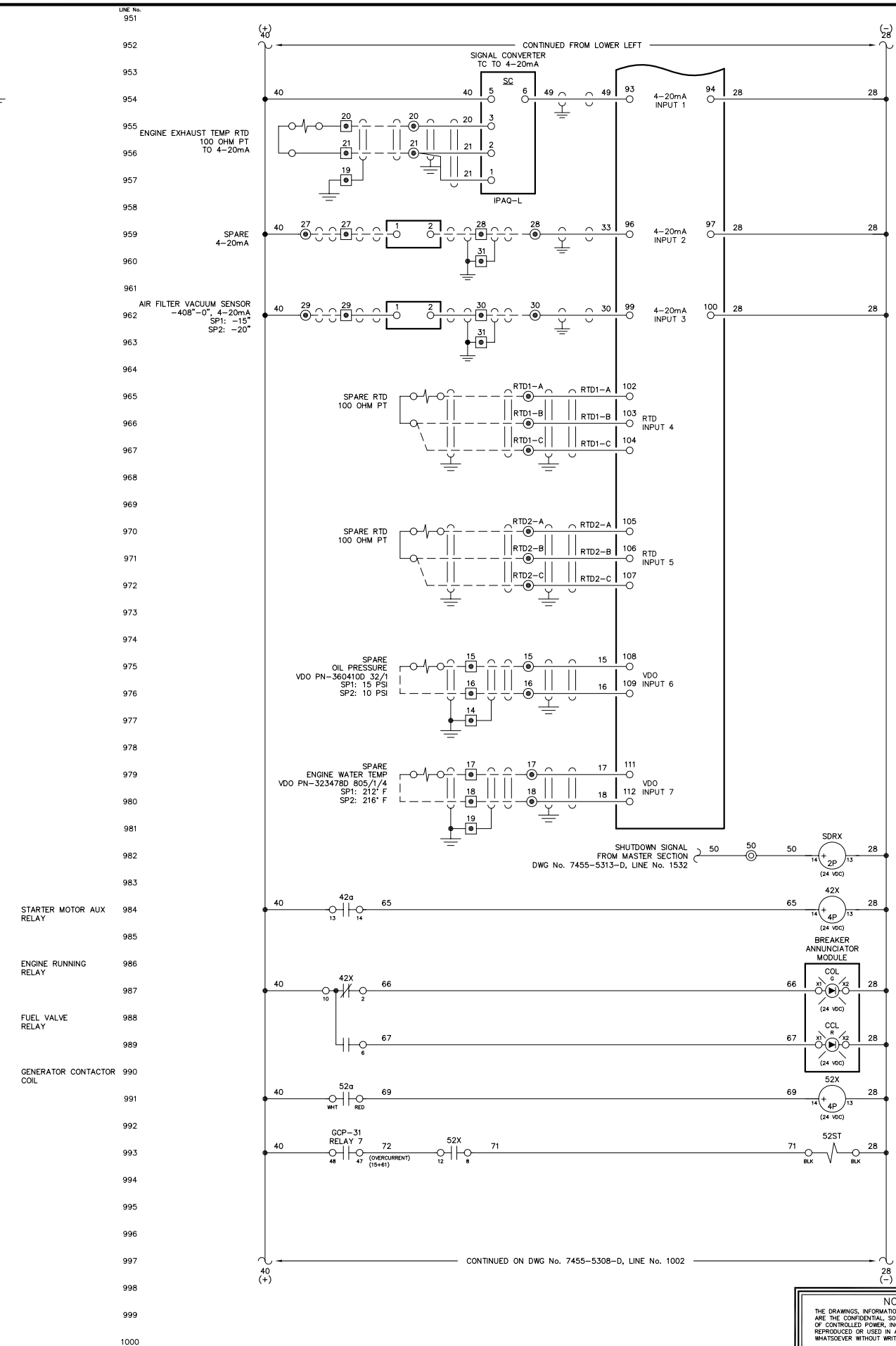
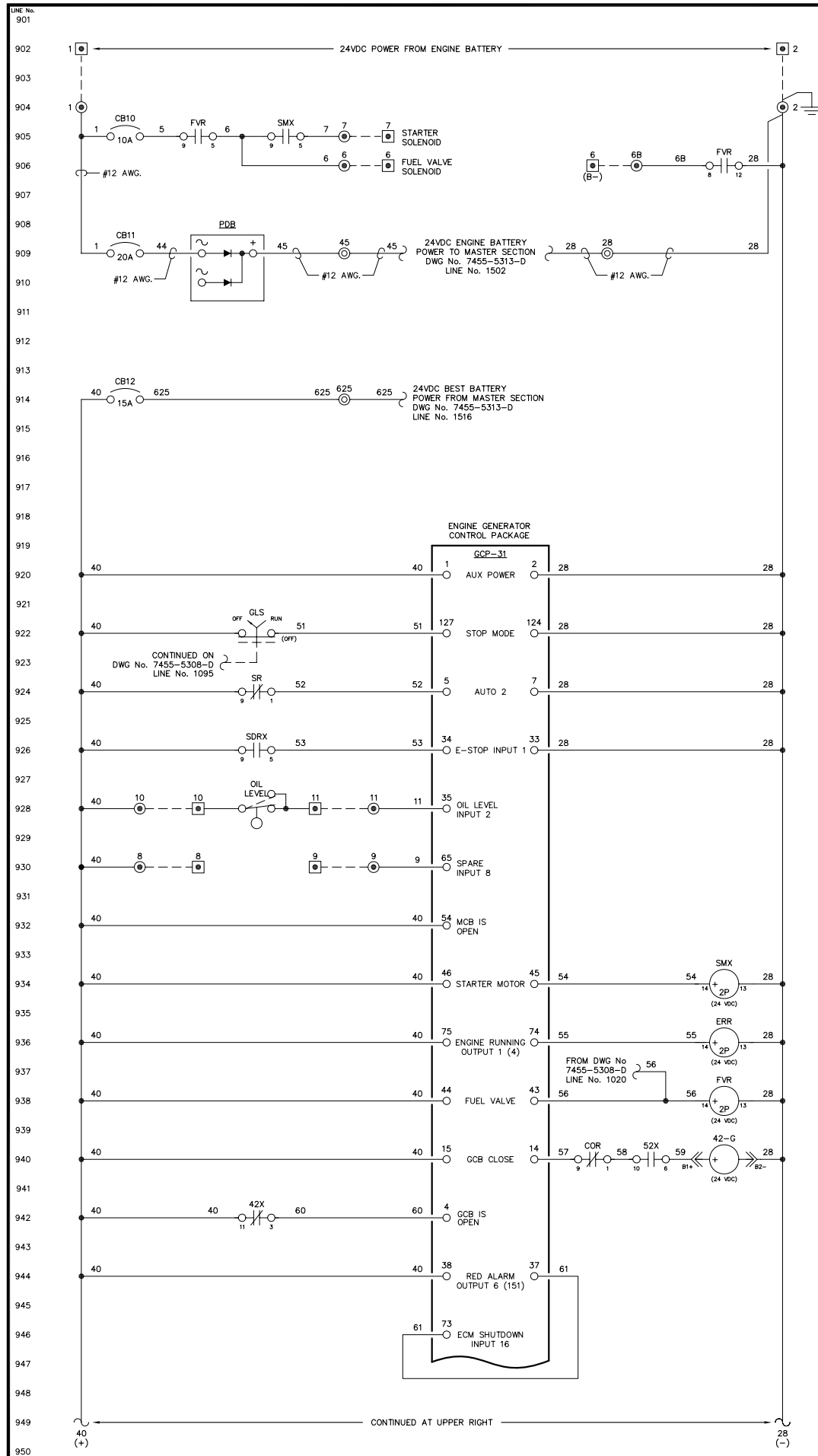


NOTE:
1. FOR GENERAL WIRING & CONSTRUCTION NOTES, SEE DRAWING No. 7455-3101-D.

B	03-14-13	SHOP AS BUILT	GPN
A	04-10-12	REVISED PER ENGINEERING REVIEW	GPN
REV.	DATE	DESCRIPTION	BY
AEA PURCHASE ORDER No. REG-12-058		CONTROLLED POWER JOB No. 7455	
TITLE: GENERATOR 2 DC CONTROL, SCHEMATIC DIAGRAM			
SCALE: NONE	DATE: 03-12-12	DWN. BY: GPN	
DWG. No: 7455-5306-D	SHEET: 1 OF 1	CKD. BY: JMD	
JOB: AKIAK GENERATOR SWITCHGEAR			

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SHUTDOWN AUX RELAY

CONTACTOR AUX RELAY

CONTACTOR OPEN LIGHT

CONTACTOR CLOSED LIGHT

BREAKER AUX RELAY

GENERATOR BREAKER SHUNT TRIP

NOTE:
1. FOR GENERAL WIRING & CONSTRUCTION NOTES, SEE DRAWING No. 7455-3101-D.

REV.	DATE	DESCRIPTION	BY
B	03-14-13	SHOP AS BUILT	GPN
A	04-10-12	REVISED PER ENGINEERING REVIEW	GPN

AEA PURCHASE ORDER No. REG-12-058 CONTROLLED POWER JOB No. 7455

TITLE: GENERATOR 3 DC CONTROL, SCHEMATIC DIAGRAM

SCALE: NONE DATE: 03-12-12 DWN. BY: GPN

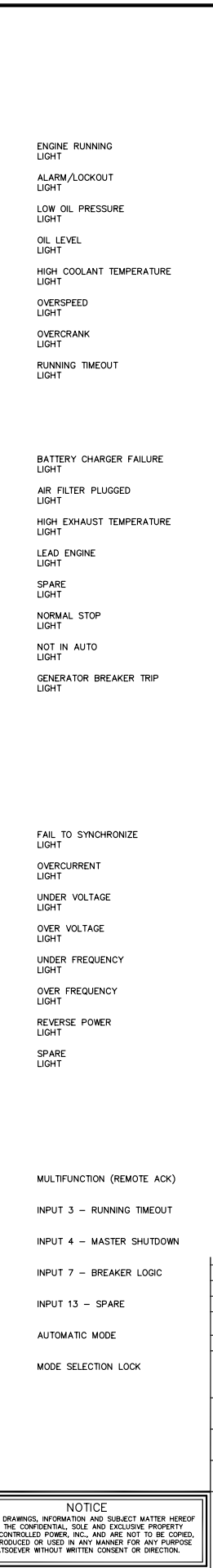
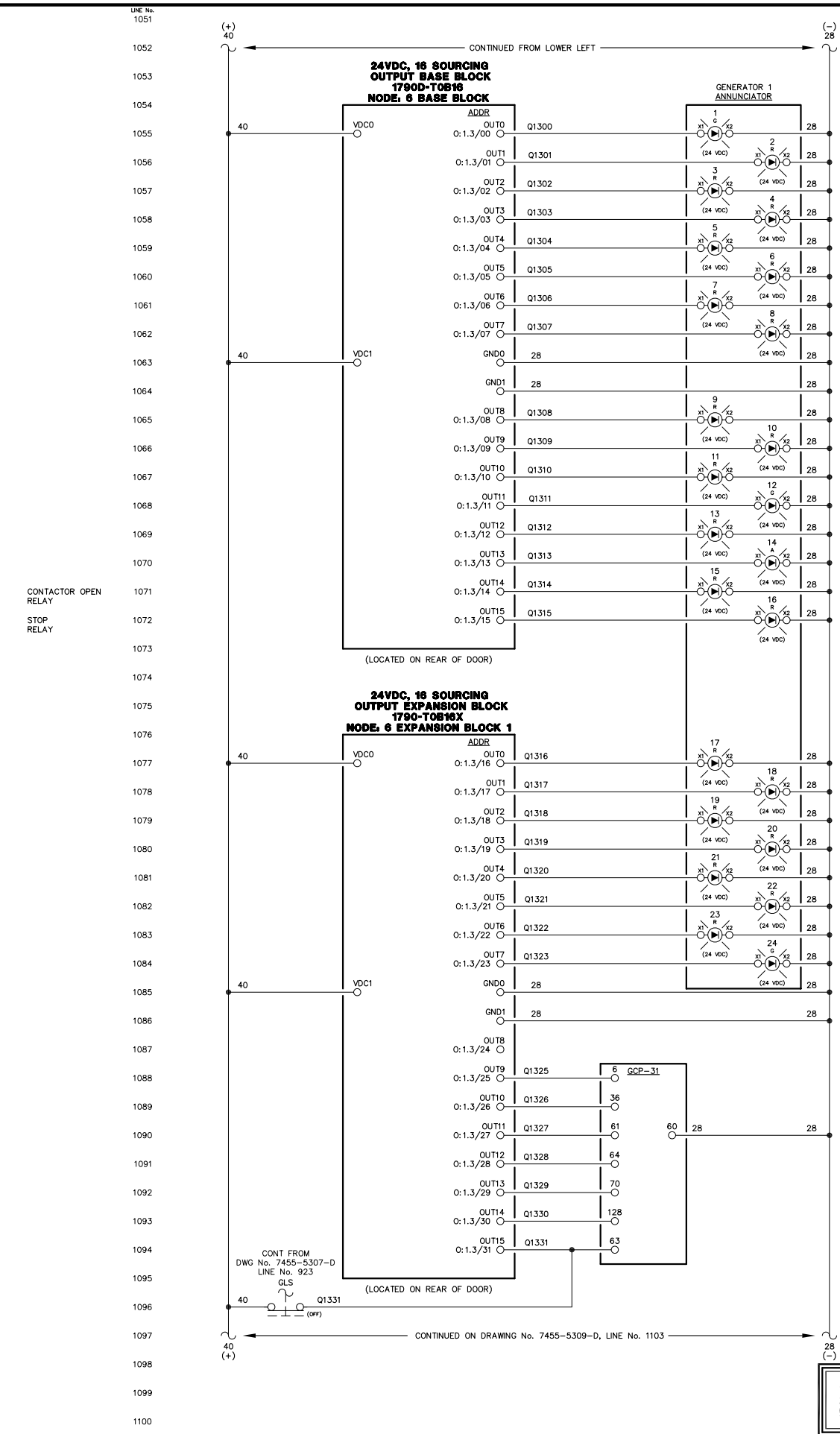
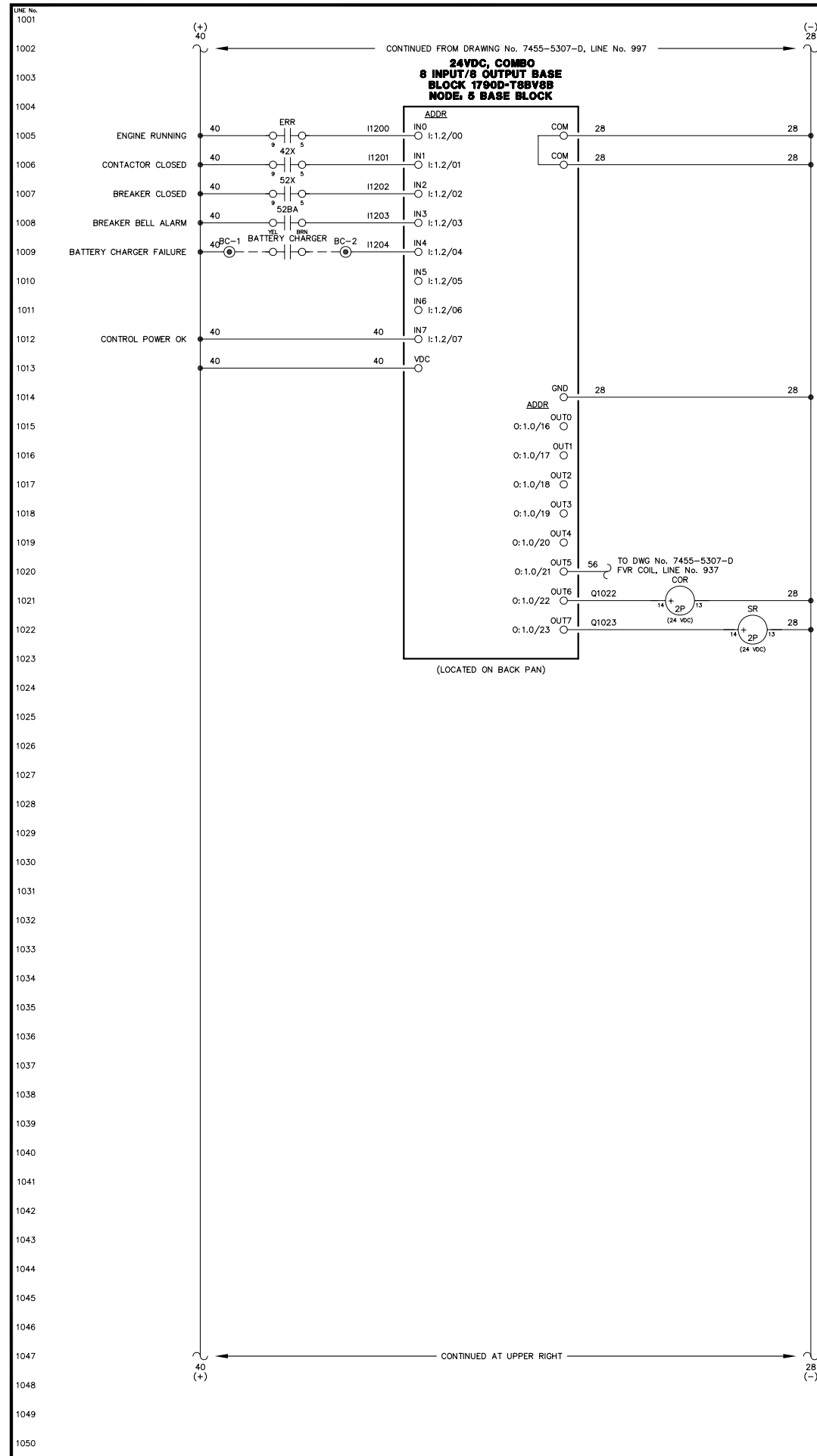
DWG. No: 7455-5307-D SHEET: 1 OF 1 CKD. BY: JMD

JOB: AKIAK GENERATOR SWITCHGEAR

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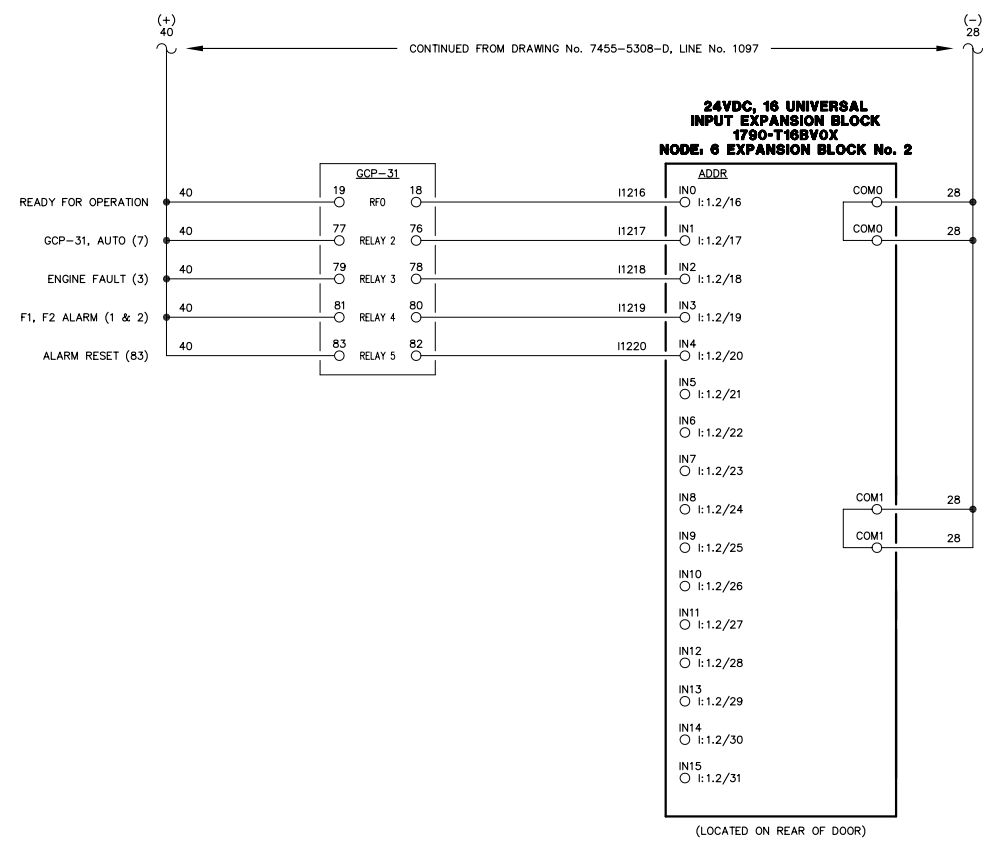
ALASKA ENERGY AUTHORITY RURAL ENERGY GROUP
813 W. NORTHERN LIGHTS BLVD.
ANCHORAGE, ALASKA 99503
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Plot date: 2013/3/14 - 8:32



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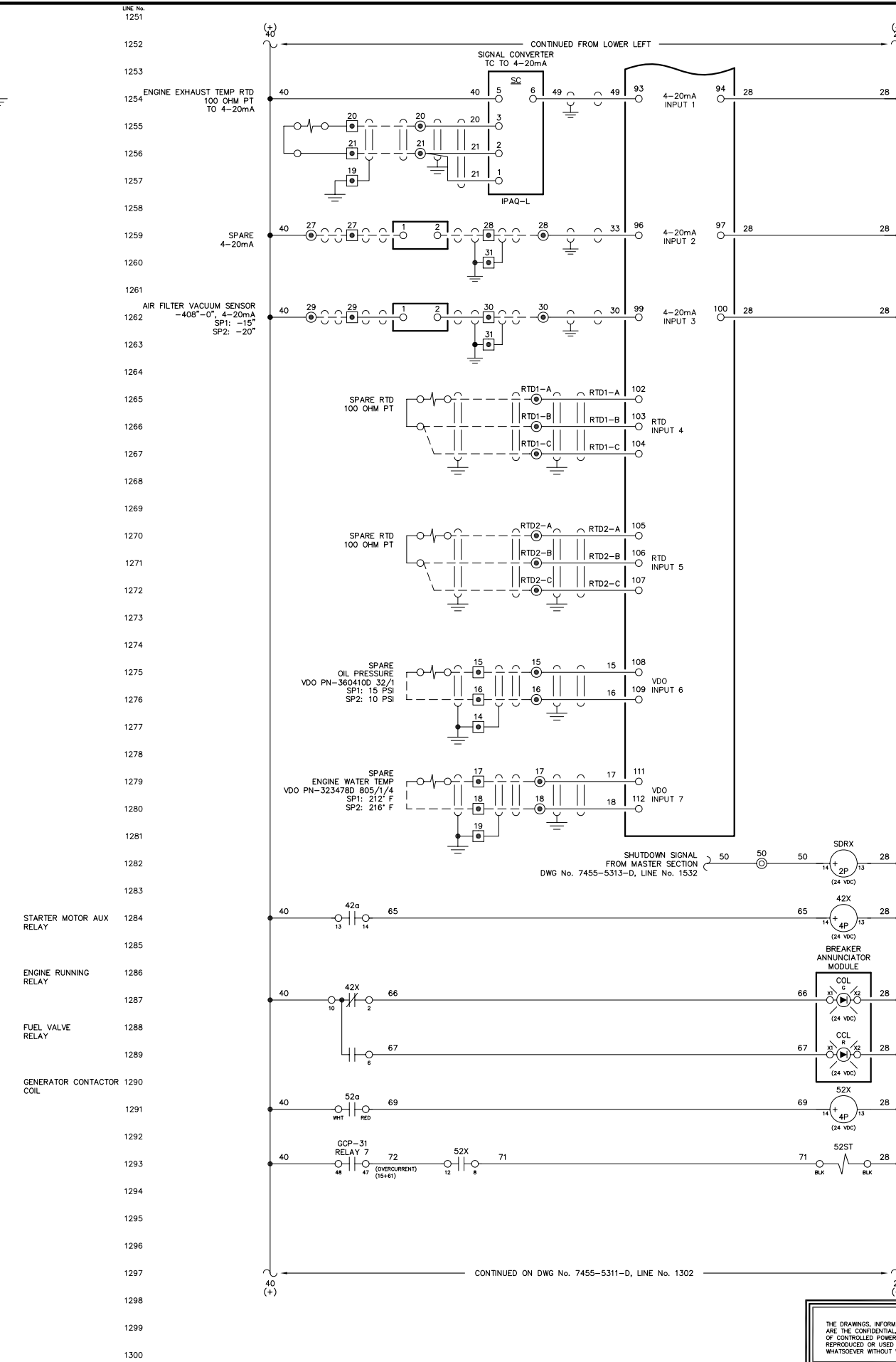
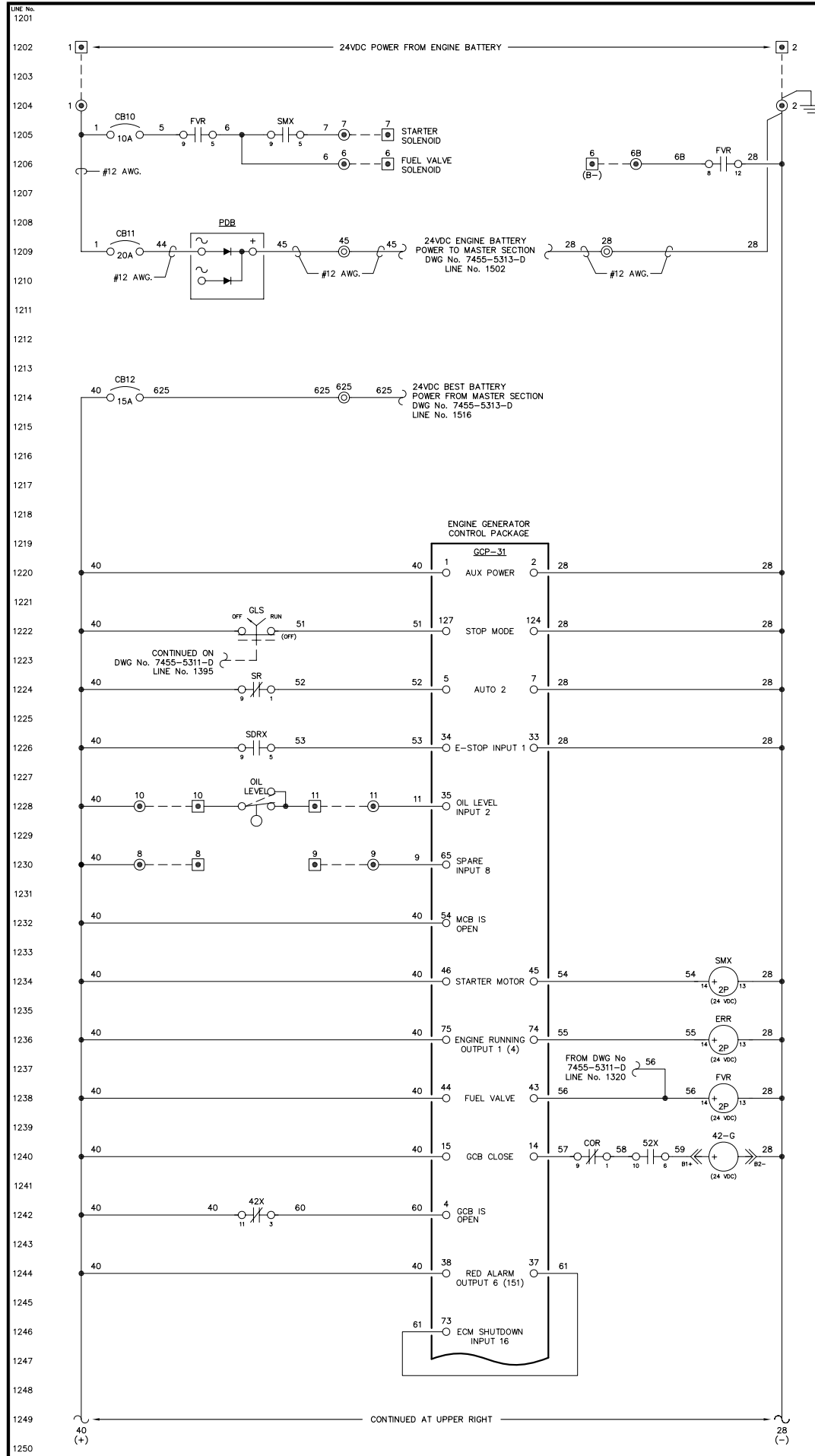


NOTE:
1. FOR GENERAL WIRING & CONSTRUCTION NOTES, SEE DRAWING No. 7455-3101-D.

B	03-14-13	SHOP AS BUILT	GPN
A	04-10-12	REVISED PER ENGINEERING REVIEW	GPN
REV.	DATE	DESCRIPTION	BY
AEA PURCHASE ORDER No. REG-12-058		CONTROLLED POWER JOB No. 7455	
TITLE: GENERATOR 3 DC CONTROL, SCHEMATIC DIAGRAM			
SCALE: NONE	DATE: 03-12-12	DWN. BY: GPN	
DWG. No: 7455-5309-D	SHEET: 1 OF 1	CKD. BY: JMD	
JOB: AKIAK GENERATOR SWITCHGEAR			

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SHUTDOWN AUX RELAY

CONTAINER AUX RELAY

CONTAINER OPEN LIGHT

CONTAINER CLOSED LIGHT

BREAKER AUX RELAY

GENERATOR BREAKER SHUNT TRIP

NOTE:
1. FOR GENERAL WIRING & CONSTRUCTION NOTES, SEE DRAWING No. 7455-3101-D.

REV.	DATE	DESCRIPTION	BY
B	03-14-13	SHOP AS BUILT	GPN
A	04-10-12	REVISED PER ENGINEERING REVIEW	GPN

AEA PURCHASE ORDER No. REG-12-058 CONTROLLED POWER JOB No. 7455

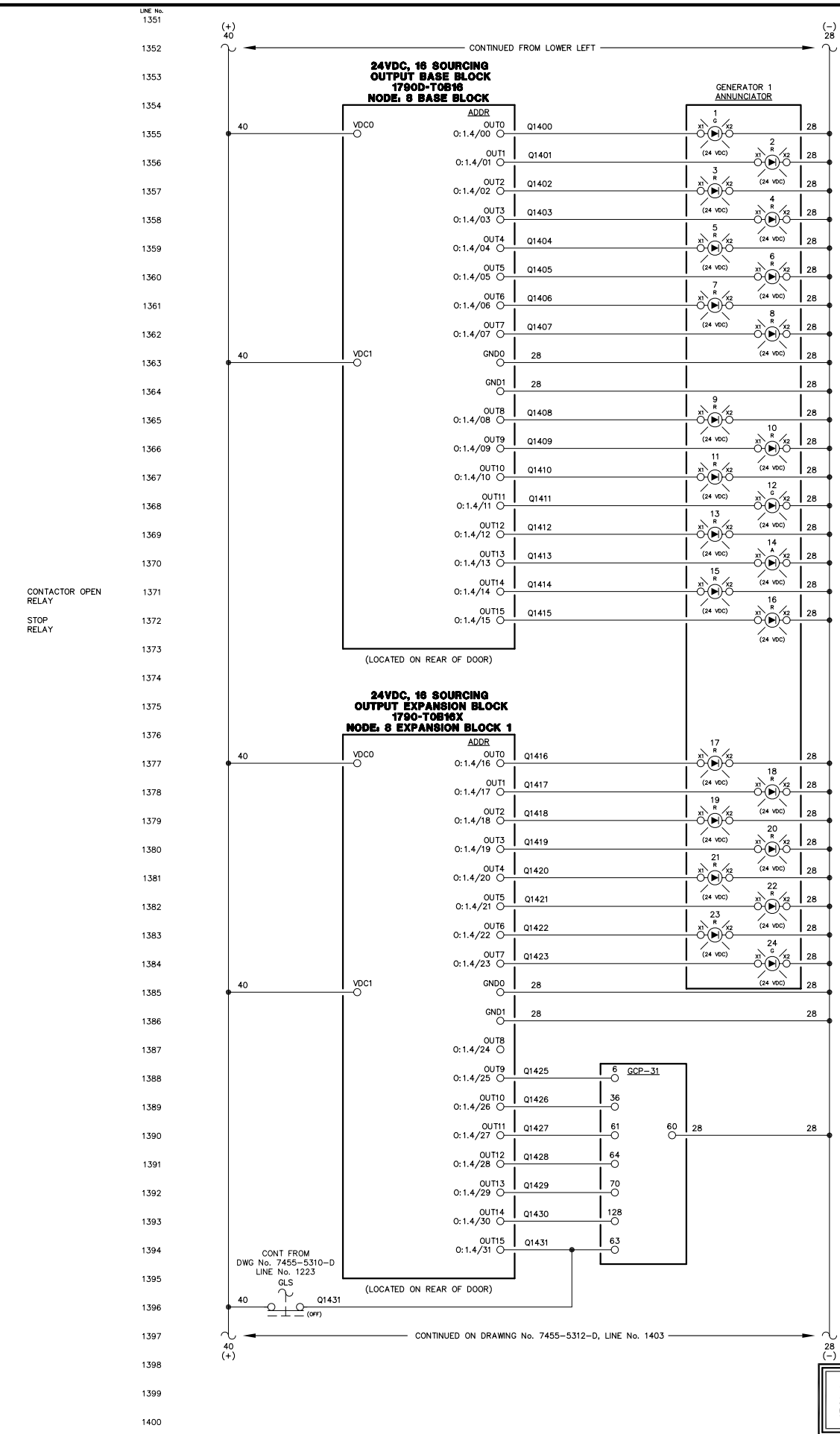
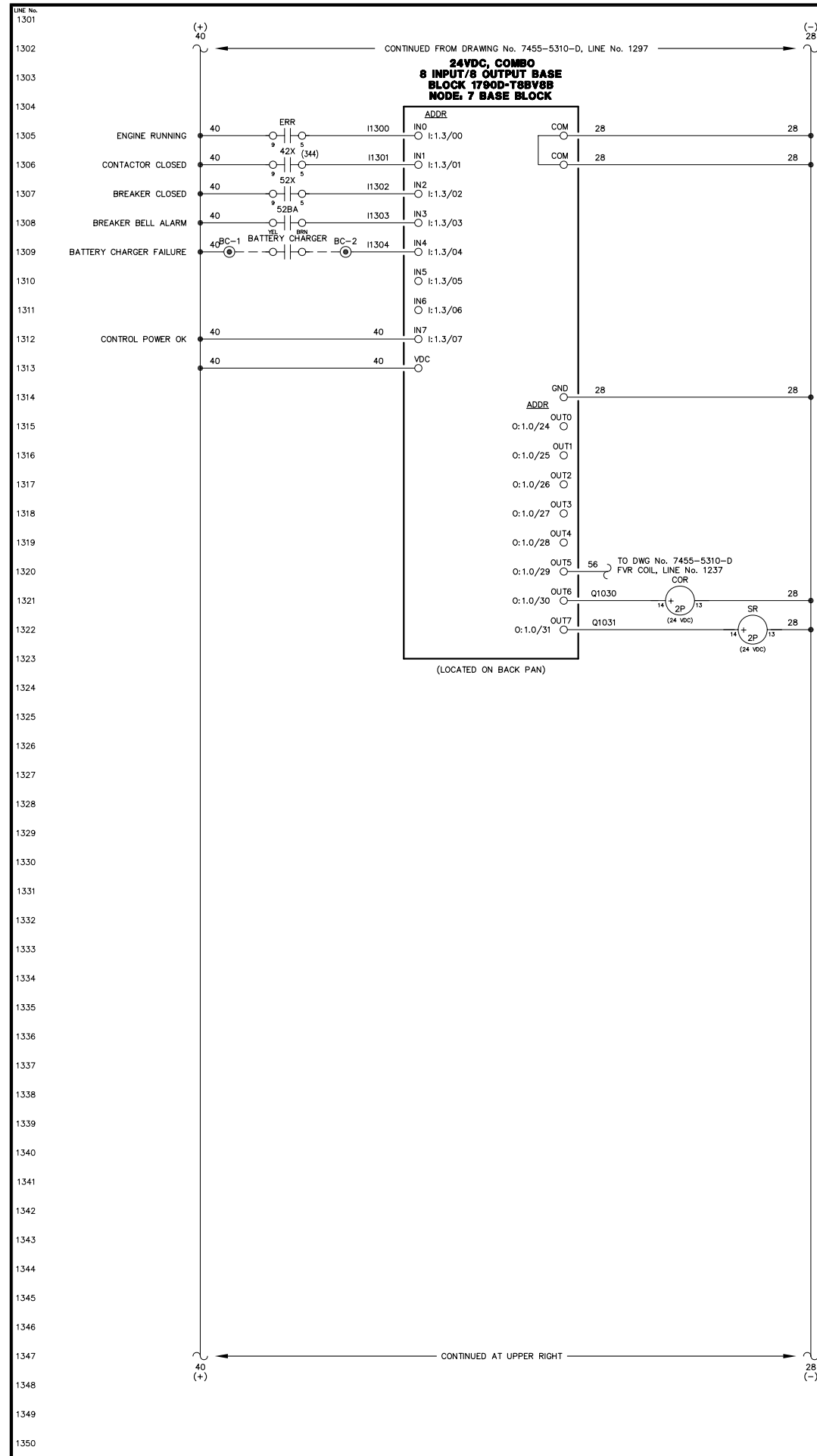
TITLE: GENERATOR 4 DC CONTROL, SCHEMATIC DIAGRAM

SCALE: NONE	DATE: 03-12-12	DWN. BY: GPN
DWG. No: 7455-5310-D	SHEET: 1 OF 1	CKD. BY: JMD
JOB: AKIAK GENERATOR SWITCHGEAR		

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- ENGINE RUNNING LIGHT
- ALARM/LOCKOUT LIGHT
- LOW OIL PRESSURE LIGHT
- OIL LEVEL LIGHT
- HIGH COOLANT TEMPERATURE LIGHT
- OVERSPEED LIGHT
- OVERCRANK LIGHT
- RUNNING TIMEOUT LIGHT
- BATTERY CHARGER FAILURE LIGHT
- AIR FILTER PLUGGED LIGHT
- HIGH EXHAUST TEMPERATURE LIGHT
- LEAD ENGINE LIGHT
- SPARE LIGHT
- NORMAL STOP LIGHT
- NOT IN AUTO LIGHT
- GENERATOR BREAKER TRIP LIGHT
- FAIL TO SYNCHRONIZE LIGHT
- OVERCURRENT LIGHT
- UNDER VOLTAGE LIGHT
- OVER VOLTAGE LIGHT
- UNDER FREQUENCY LIGHT
- OVER FREQUENCY LIGHT
- REVERSE POWER LIGHT
- SPARE LIGHT
- MULTIFUNCTION (REMOTE ACK)
- INPUT 3 - RUNNING TIMEOUT
- INPUT 4 - MASTER SHUTDOWN
- INPUT 7 - BREAKER LOGIC
- INPUT 13 - SPARE
- AUTOMATIC MODE
- MODE SELECTION LOCK

NOTE:
1. FOR GENERAL WIRING & CONSTRUCTION NOTES, SEE DRAWING No. 7455-3101-D.

B	03-14-13	SHOP AS BUILT	GPN
A	04-10-12	REVISED PER ENGINEERING REVIEW	GPN
REV.	DATE	DESCRIPTION	BY
AEA PURCHASE ORDER No. REG=12-058		CONTROLLED POWER JOB No. 7455	
TITLE: GENERATOR 4 DC CONTROL, SCHEMATIC DIAGRAM			

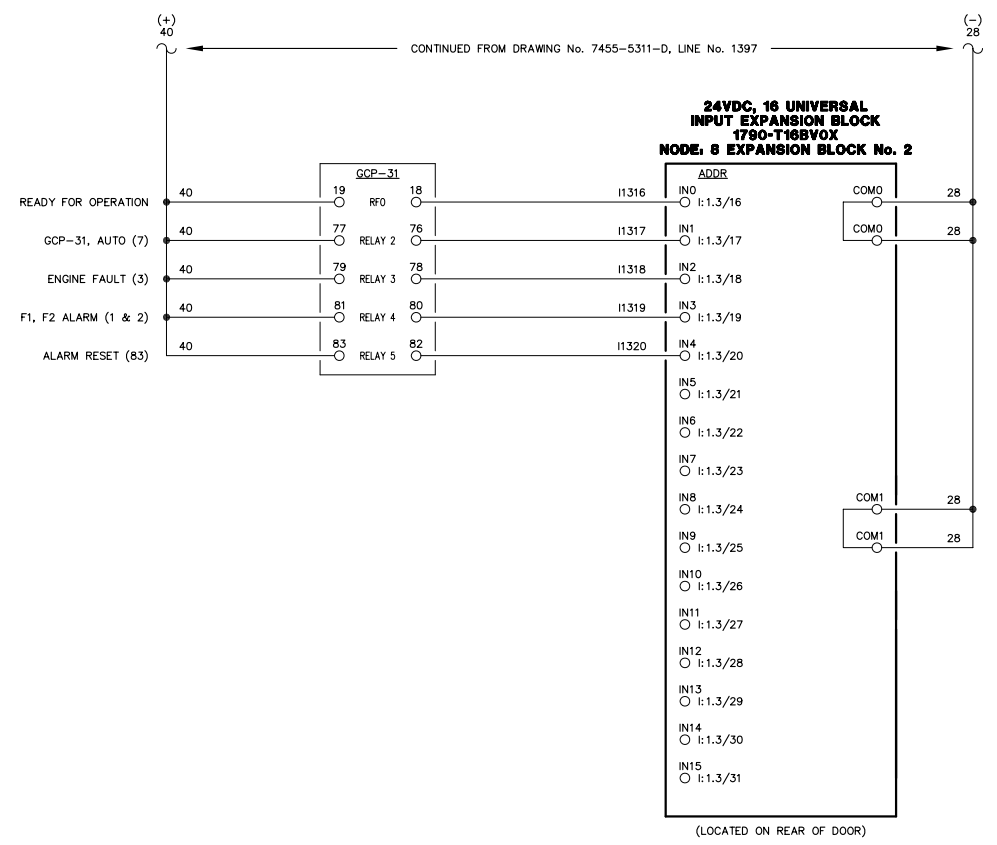
SCALE: NONE	DATE: 03-12-12	DWN. BY: GPN
DWG. No: 7455-5311-D	SHEET: 1 OF 1	CKD. BY: JMD
JOB: AKIAK GENERATOR SWITCHGEAR		

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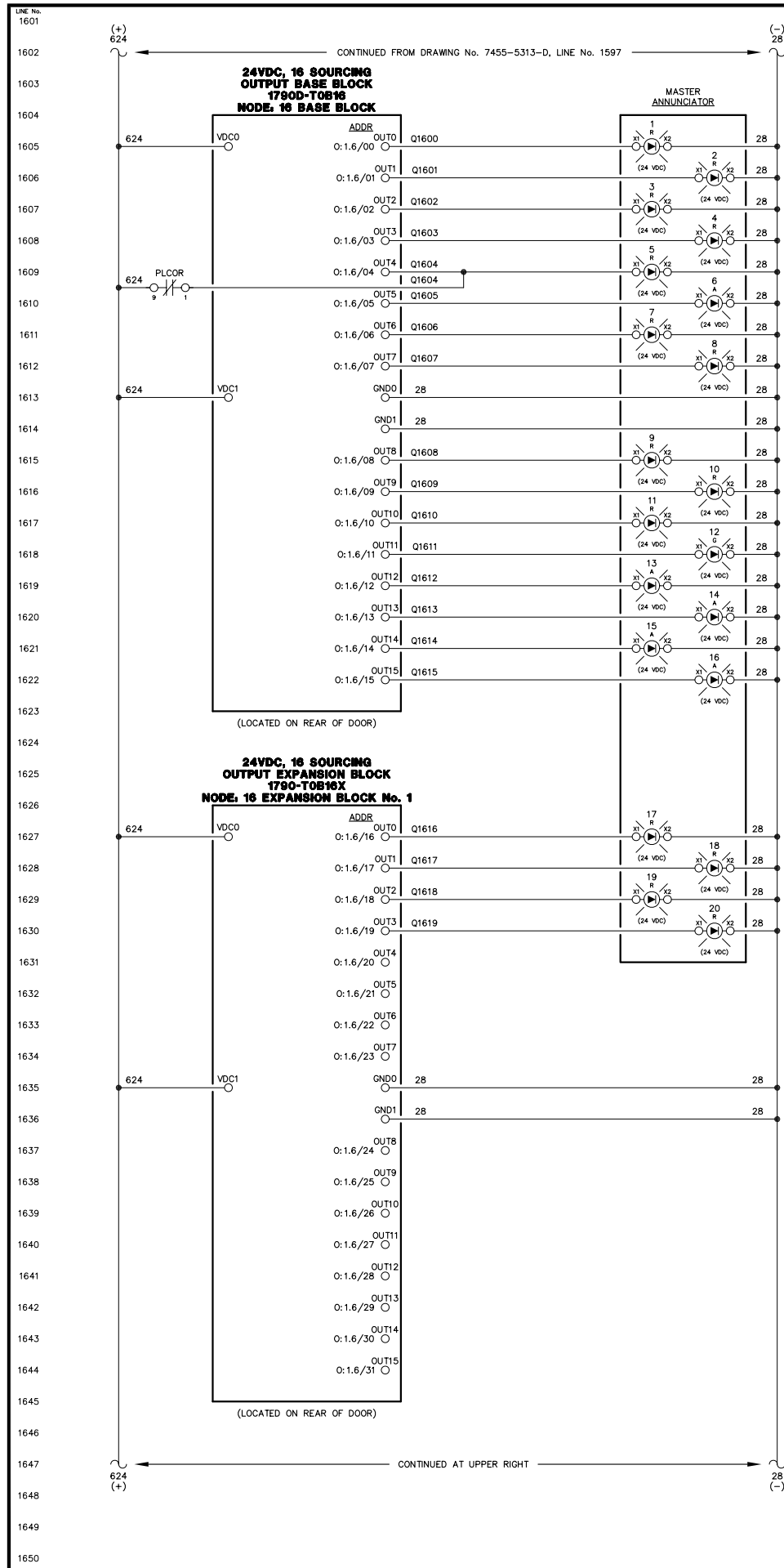


NOTE:
1. FOR GENERAL WIRING & CONSTRUCTION NOTES, SEE DRAWING No. 7455-3101-D.

B	03-14-13	SHOP AS BUILT	GPN
A	04-10-12	REVISED PER ENGINEERING REVIEW	GPN
REV.	DATE	DESCRIPTION	BY
AEA PURCHASE ORDER No. REG-12-058		CONTROLLED POWER JOB No. 7455	
TITLE: GENERATOR 4 DC CONTROL, SCHEMATIC DIAGRAM			
SCALE: NONE	DATE: 03-12-12	DWN. BY: GPN	
DWG. No: 7455-5312-D	SHEET: 1 OF 1	CKD. BY: JMD	
JOB: AKIAK GENERATOR SWITCHGEAR			

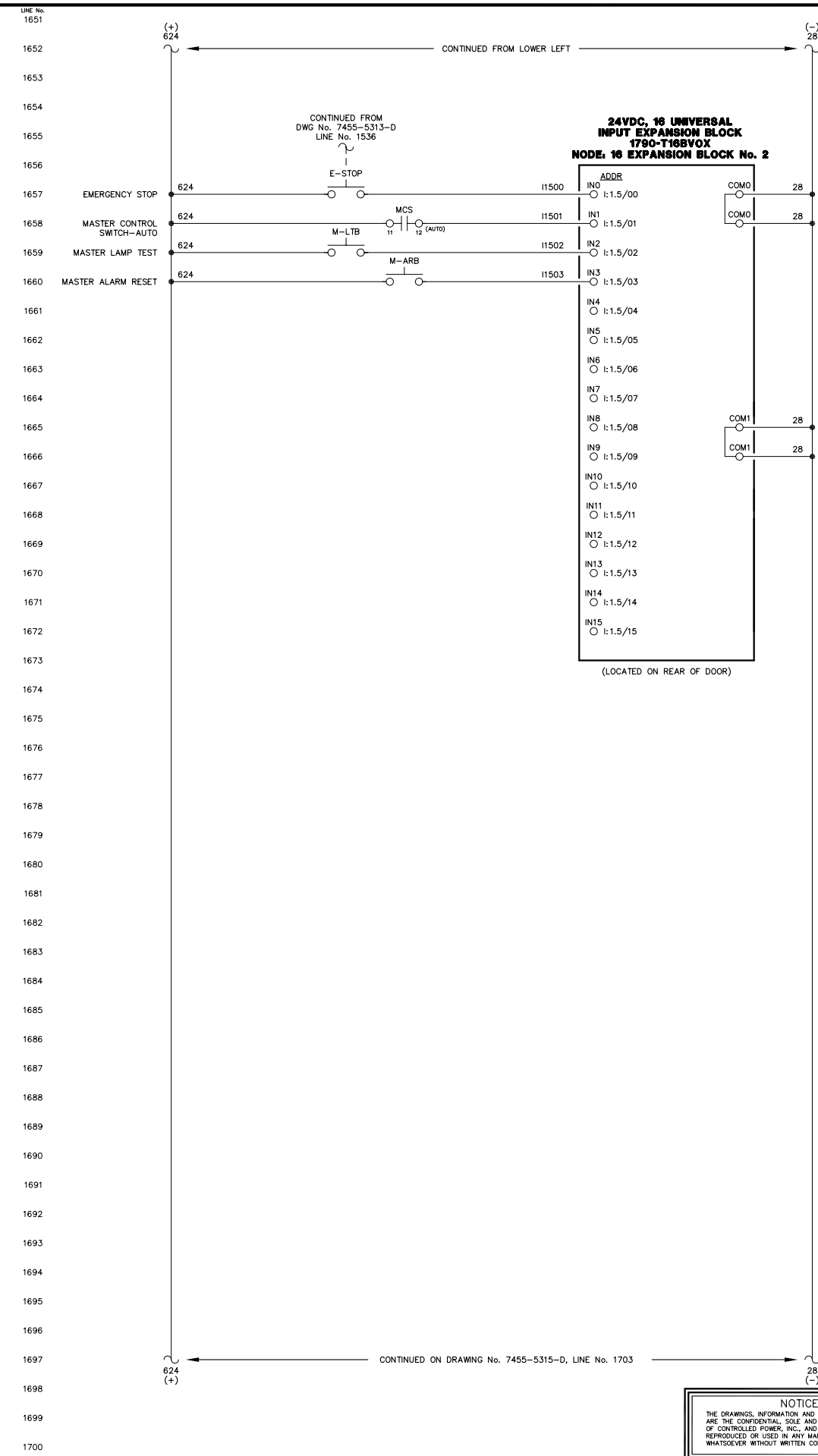
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- FIRE ALARM LIGHT
- EMERGENCY STOP LIGHT
- LOW COOLANT LEVEL LIGHT
- FUEL LEVEL LIGHT
- PLC FAILURE LIGHT
- SYSTEM NOT IN AUTO LIGHT
- STATION SERVICE BREAKER OPEN LIGHT
- (SPARE) LIGHT
- FEEDER BREAKER TRIP LIGHT
- FEEDER FAIL TO CLOSE LIGHT
- (SPARE) LIGHT
- (SPARE) LIGHT
- (SPARE) LIGHT
- NO LOAD ON HEAT RECOVERY LIGHT
- HEAT RECOVERY LOSS OF PRESSURE LIGHT
- HEAT RECOVERY LOSS OF FLOW LIGHT

- HIGH COOLANT RETURN TEMP LIGHT
- (SPARE) LIGHT
- (SPARE) LIGHT
- (SPARE) LIGHT



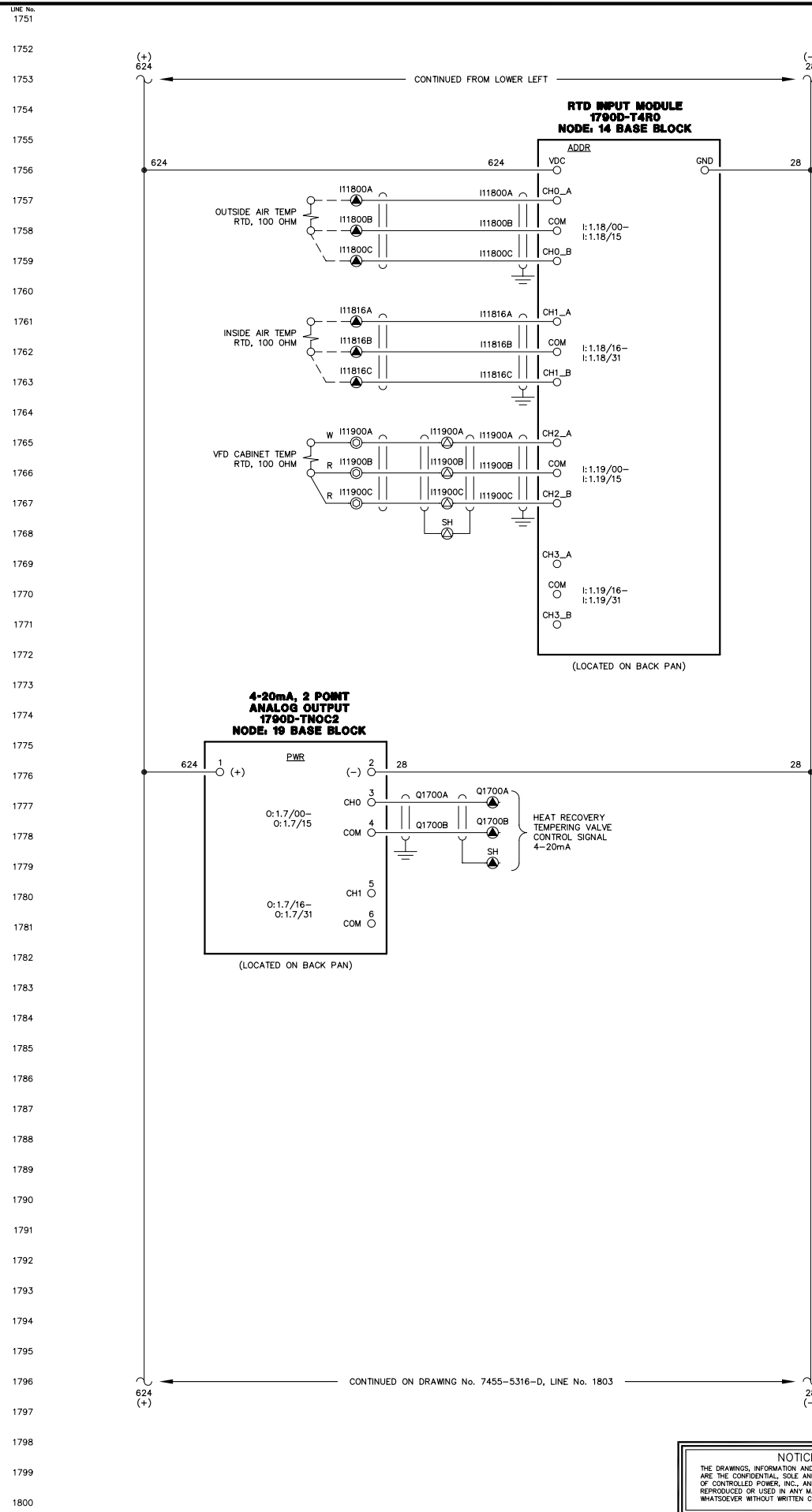
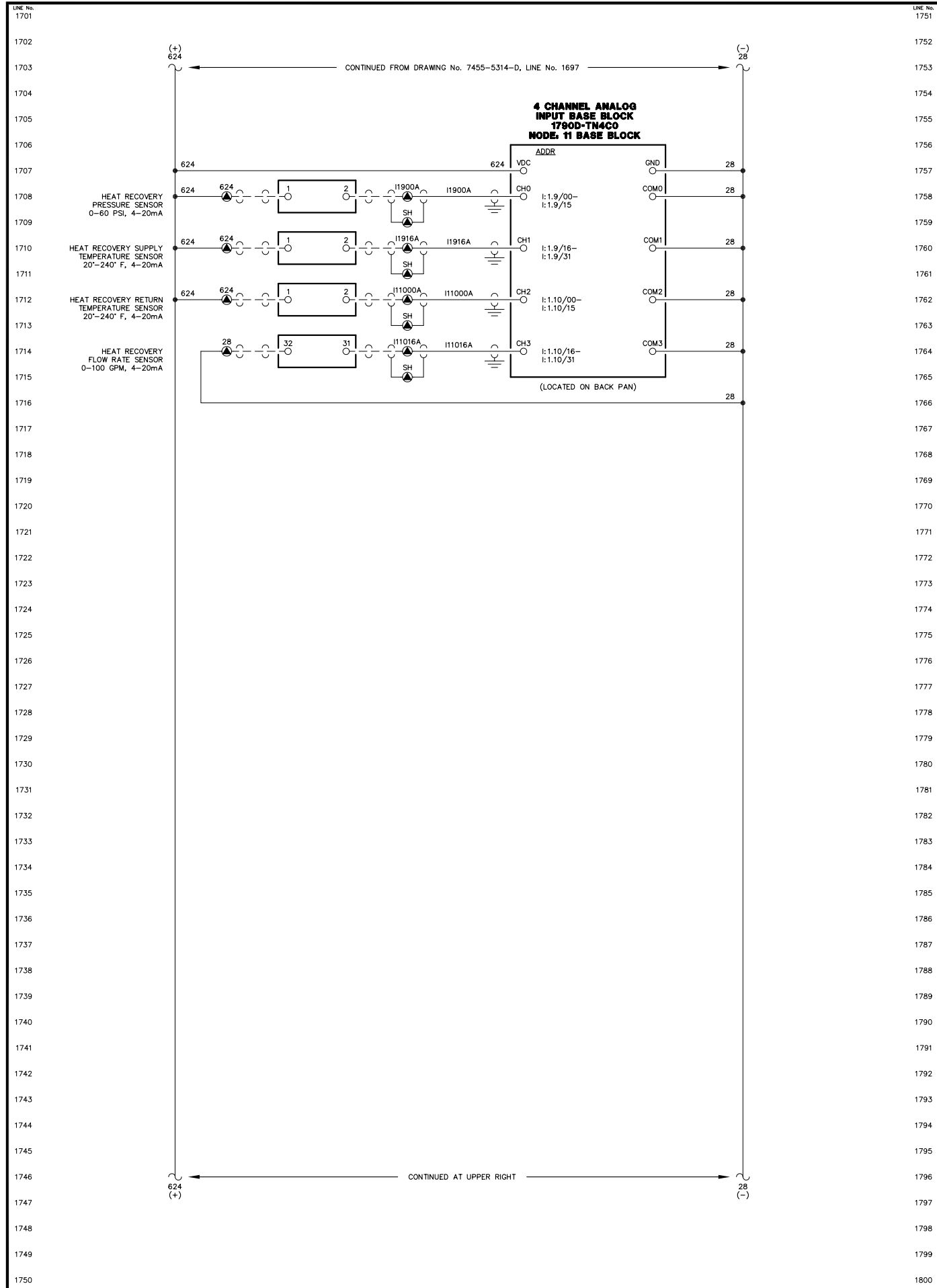
NOTE:
1. FOR GENERAL WIRING & CONSTRUCTION NOTES, SEE DRAWING No. 7455-3101-D.

B	03-14-13	SHOP AS BUILT	GPN
A	04-10-12	REVISED PER ENGINEERING REVIEW	GPN
REV.	DATE	DESCRIPTION	BY
AEA PURCHASE ORDER No. REG-12-058		CONTROLLED POWER JOB No. 7455	
TITLE: MASTER DC CONTROL, SCHEMATIC DIAGRAM			

SCALE: NONE	DATE: 03-12-12	DWN. BY: GPN
DWG. No: 7455-5314-D	SHEET: 1 OF 1	CKD. BY: JMD
JOB: AKIAK GENERATOR SWITCHGEAR		

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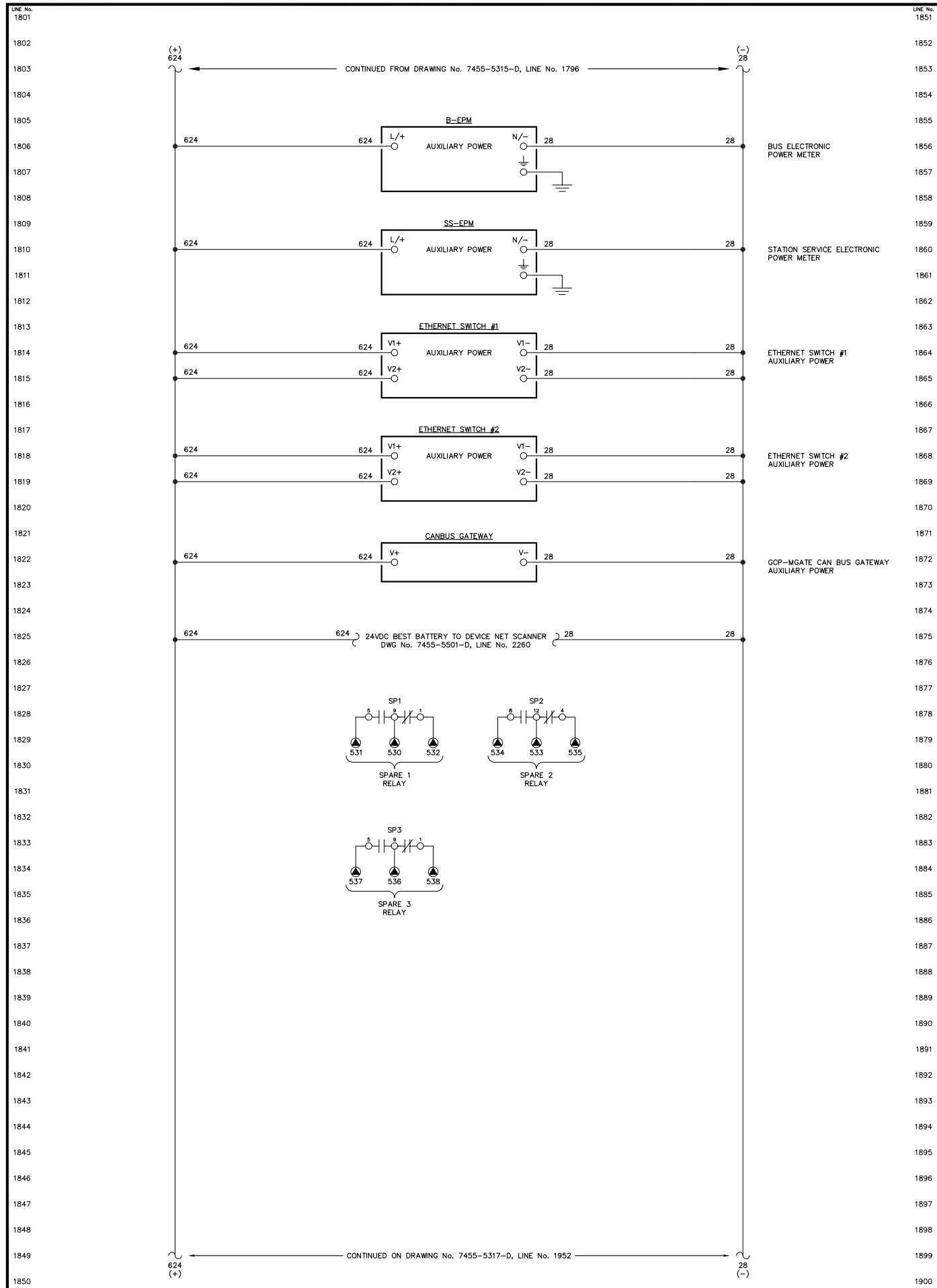


NOTE:
1. FOR GENERAL WIRING & CONSTRUCTION NOTES, SEE DRAWING No. 7455-3101-D.

C	03-14-13	SHOP AS BUILT	GPN
B	06-21-12	ADDED ANALOG OUTPUT MODULE	GPN
A	04-10-12	REVISED PER ENGINEERING REVIEW	GPN
REV.	DATE	DESCRIPTION	BY
AEA PURCHASE ORDER No. REG-12-058 CONTROLLED POWER JOB No. 7455			
TITLE: MASTER DC CONTROL, SCHEMATIC DIAGRAM			
SCALE: NONE	DATE: 03-12-12	DWN. BY: GPN	
DWG. No: 7455-5315-D	SHEET: 1 OF 1	CKD. BY: JMD	
JOB: AKIAK GENERATOR SWITCHGEAR			

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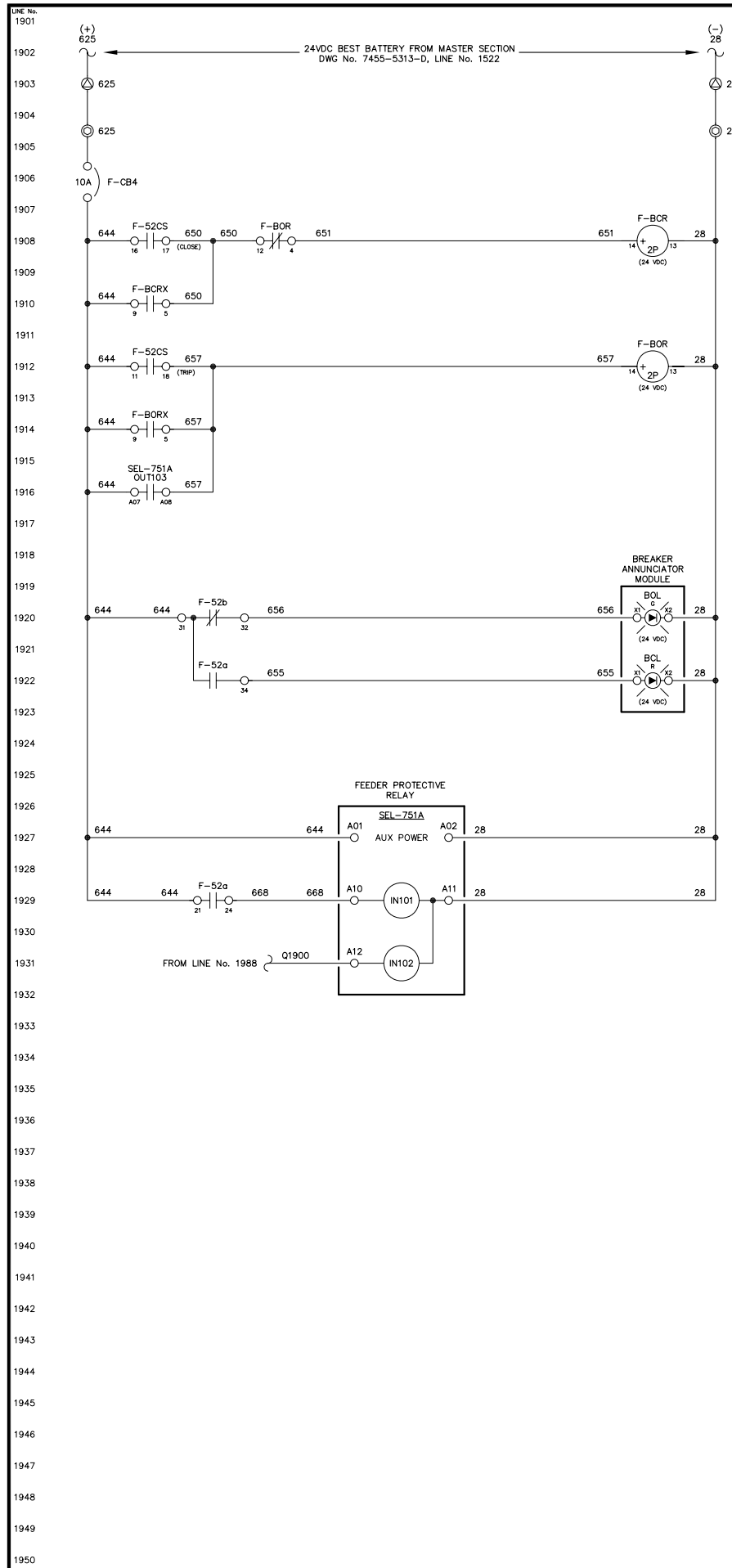
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NOTE:
1. FOR GENERAL WIRING & CONSTRUCTION NOTES, SEE DRAWING No. 7455-3101-D.

B	03-14-13	SHOP AS BUILT	GPN
A	04-10-12	REVISED PER ENGINEERING REVIEW	GPN
REV.	DATE	DESCRIPTION	BY
AEA PURCHASE ORDER No. REG-12-058		CONTROLLED POWER JOB No. 7455	
TITLE: MASTER DC CONTROL, SCHEMATIC DIAGRAM			
SCALE: NONE	DATE: 03-12-12	DWN. BY: GPN	
DWG. No: 7455-5316-D	SHEET: 1 OF 1	CKD. BY: JMD	
JOB: AKIAK GENERATOR SWITCHGEAR			

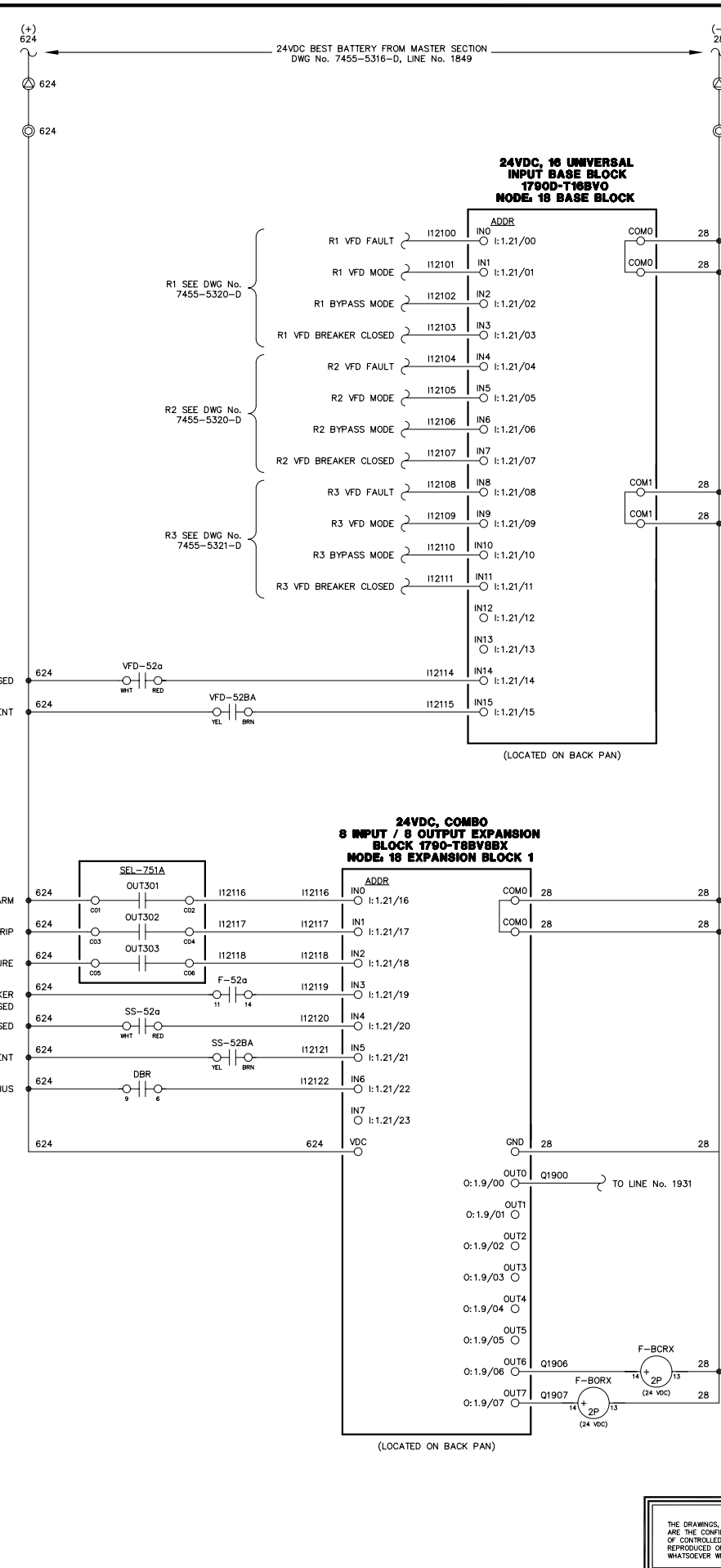
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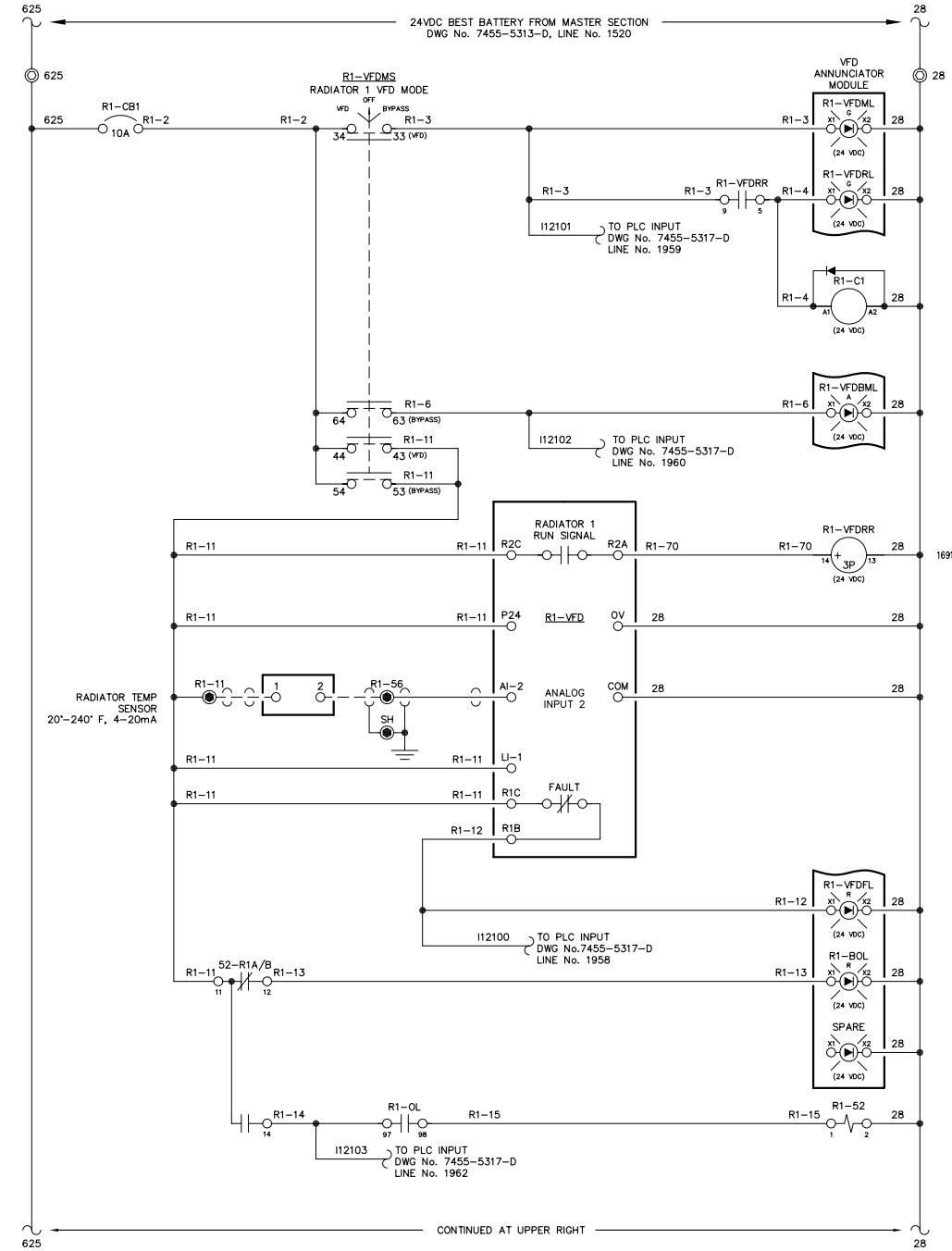
NOTE:
1. FOR GENERAL WIRING & CONSTRUCTION NOTES, SEE DRAWING No. 7455-3101-D.

B	03-14-13	SHOP AS BUILT	GPN
A	04-10-12	REVISED PER ENGINEERING REVIEW	GPN
REV.	DATE	DESCRIPTION	BY
AEA PURCHASE ORDER No. REG-12-058		CONTROLLED POWER JOB No. 7455	
TITLE: FEEDER DC CONTROL, SCHEMATIC DIAGRAM			
SCALE: NONE	DATE: 03-12-12	DWN. BY: GPN	
DWG. No: 7455-5317-D	SHEET: 1 OF 1	CKD. BY: JMD	
JOB: AKIAK GENERATOR SWITCHGEAR			

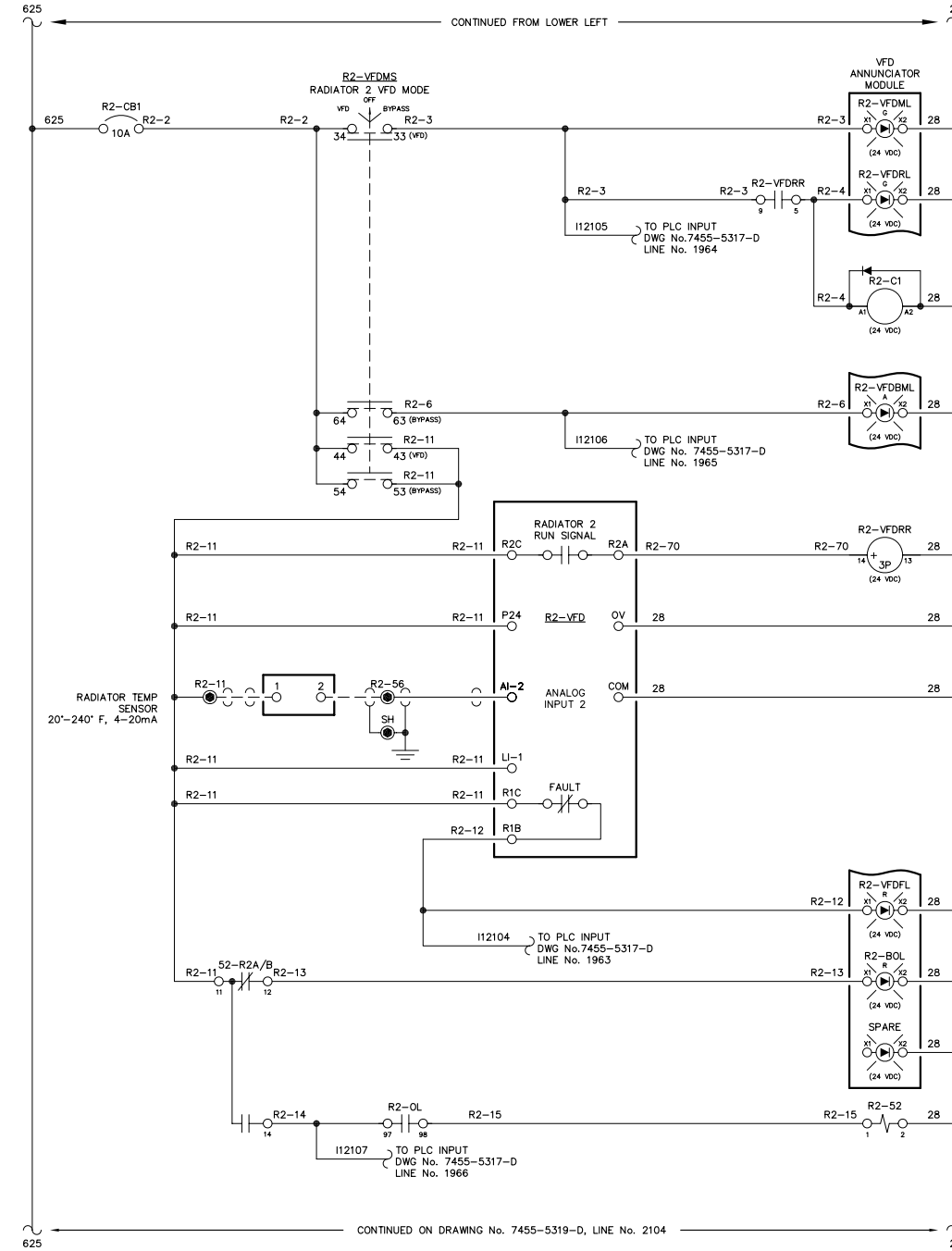
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RADIATOR 1 VFD
R1



RADIATOR 2 VFD
R2



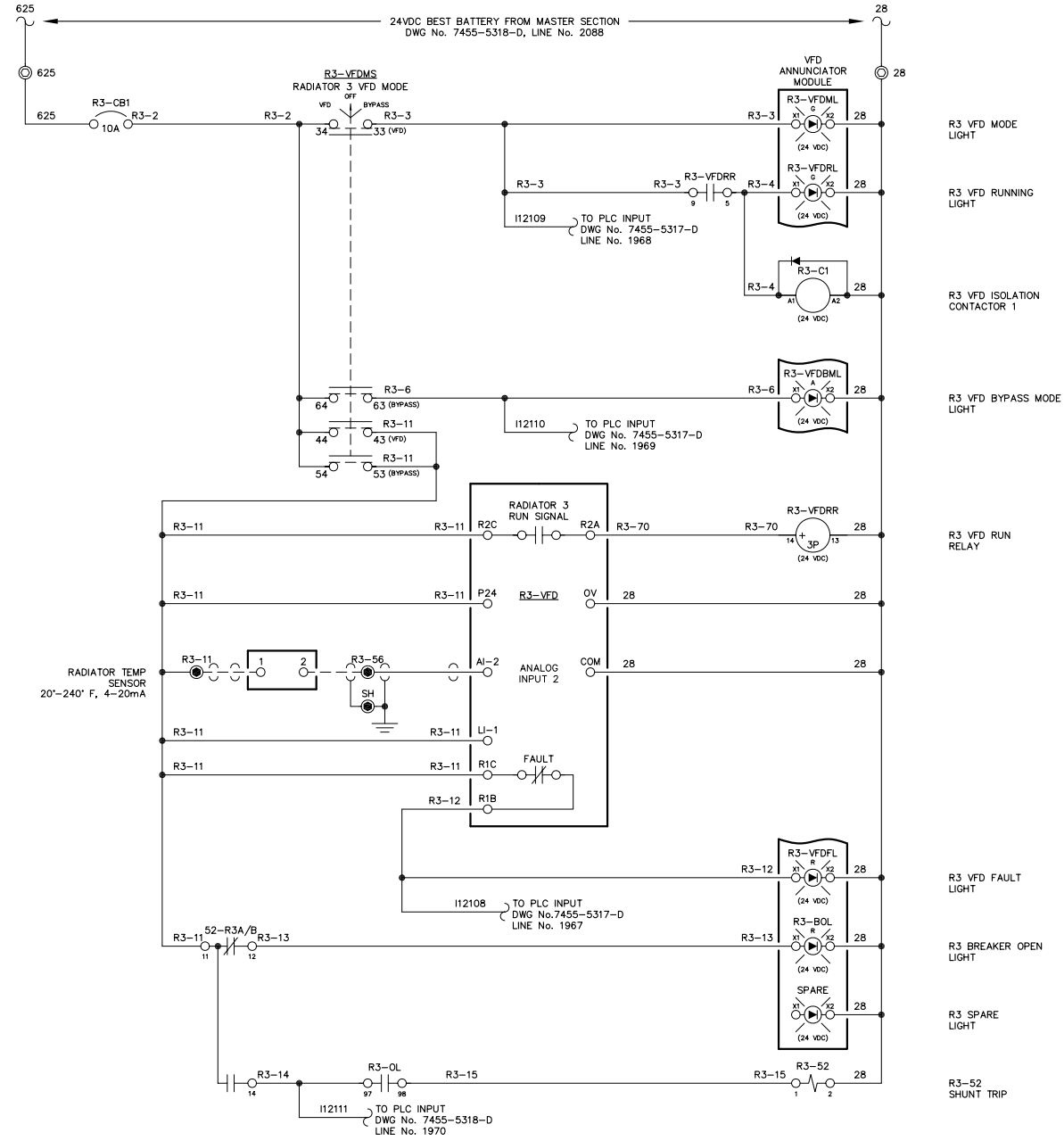
NOTE:
1. FOR GENERAL WIRING & CONSTRUCTION NOTES, SEE DRAWING No. 7455-3101-D.

B	03-14-13	SHOP AS BUILT	GPN
A	04-10-12	REVISED PER ENGINEERING REVIEW	GPN
REV.	DATE	DESCRIPTION	BY
AEA PURCHASE ORDER No. REG-12-058		CONTROLLED POWER JOB No. 7455	
TITLE: VFD DC CONTROL, SCHEMATIC DIAGRAM			
SCALE: NONE	DATE: 03-12-12	DWN. BY: GPN	
DWG. No: 7455-5318-D	SHEET: 1 OF 1	CKD. BY: JMD	
JOB: AKIAK GENERATOR SWITCHGEAR			

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RADIATOR 3 VFD
R3



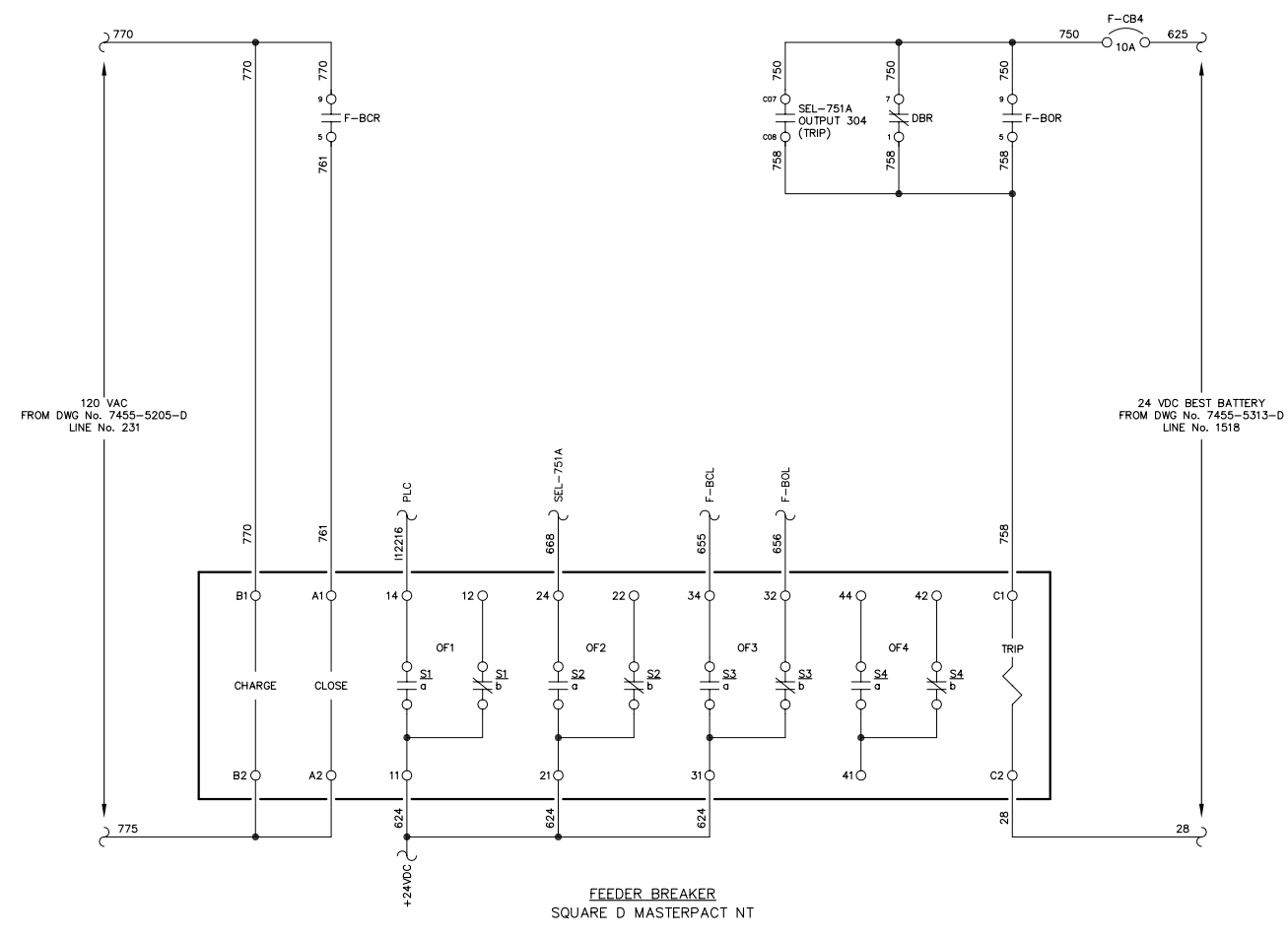
NOTE:
1. FOR GENERAL WIRING & CONSTRUCTION NOTES, SEE DRAWING No. 7455-3101-D.

B	03-14-13	SHOP AS BUILT	GPN
A	04-10-12	REVISED PER ENGINEERING REVIEW	GPN
REV.	DATE	DESCRIPTION	BY
AEA PURCHASE ORDER No. REG-12-058		CONTROLLED POWER JOB No. 7455	
TITLE: VFD DC CONTROL, SCHEMATIC DIAGRAM			
SCALE: NONE	DATE: 03-12-12	DWN. BY: GPN	
DWG. No: 7455-5319-D	SHEET: 1 OF 1	CKD. BY: JMD	
JOB: AKIAK GENERATOR SWITCHGEAR			

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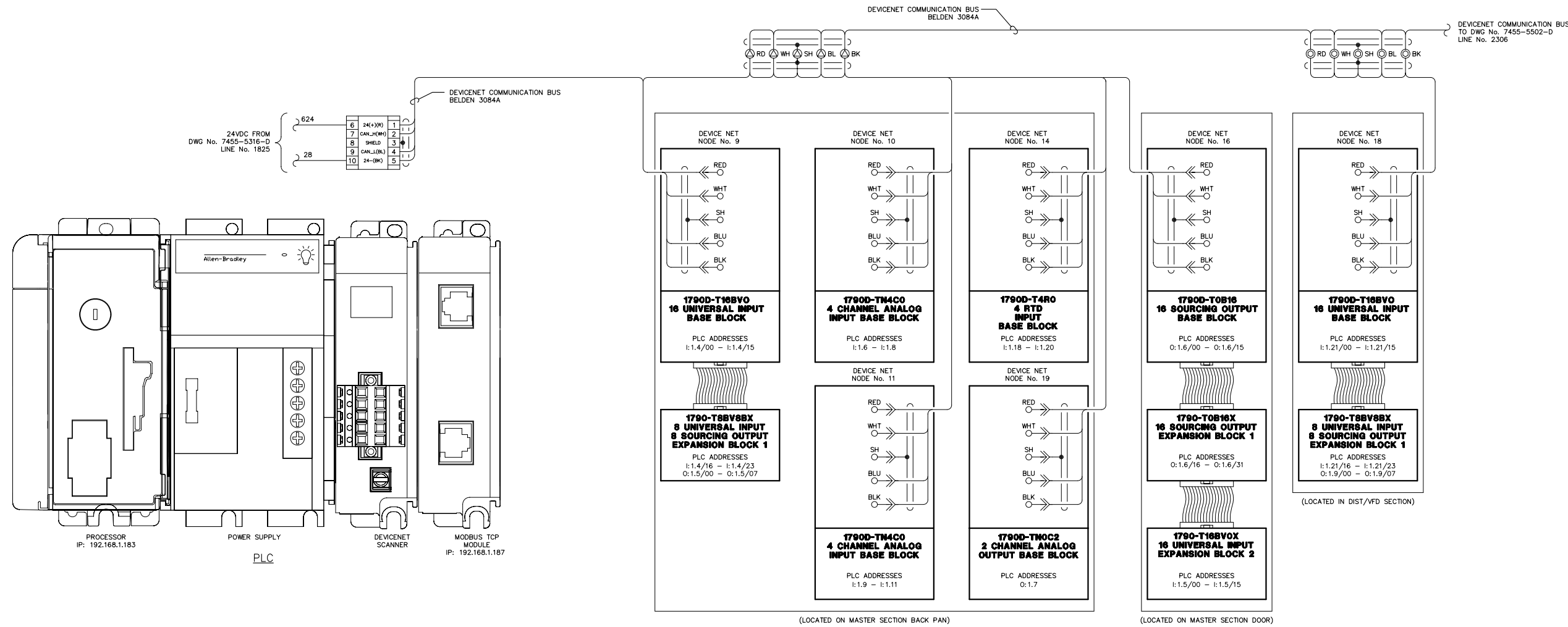
NOTE:
1. FOR GENERAL WIRING & CONSTRUCTION NOTES, SEE DRAWING No. 7455-3101-D.

C	03-14-13	SHOP AS BUILT	GPN
A	04-10-12	REVISED PER ENGINEERING REVIEW	GPN
REV.	DATE	DESCRIPTION	BY
AEA PURCHASE ORDER No. REG-12-058		CONTROLLED POWER JOB No. 7455	
TITLE: FEEDER BREAKER CONTROL, SCHEMATIC DIAGRAM			
SCALE: NONE	DATE: 03-12-12	DWN. BY: GPN	
DWG. No: 7455-5401-D	SHEET: 1 OF 1	CKD. BY: JMD	
JOB: AKIAK GENERATOR SWITCHGEAR			

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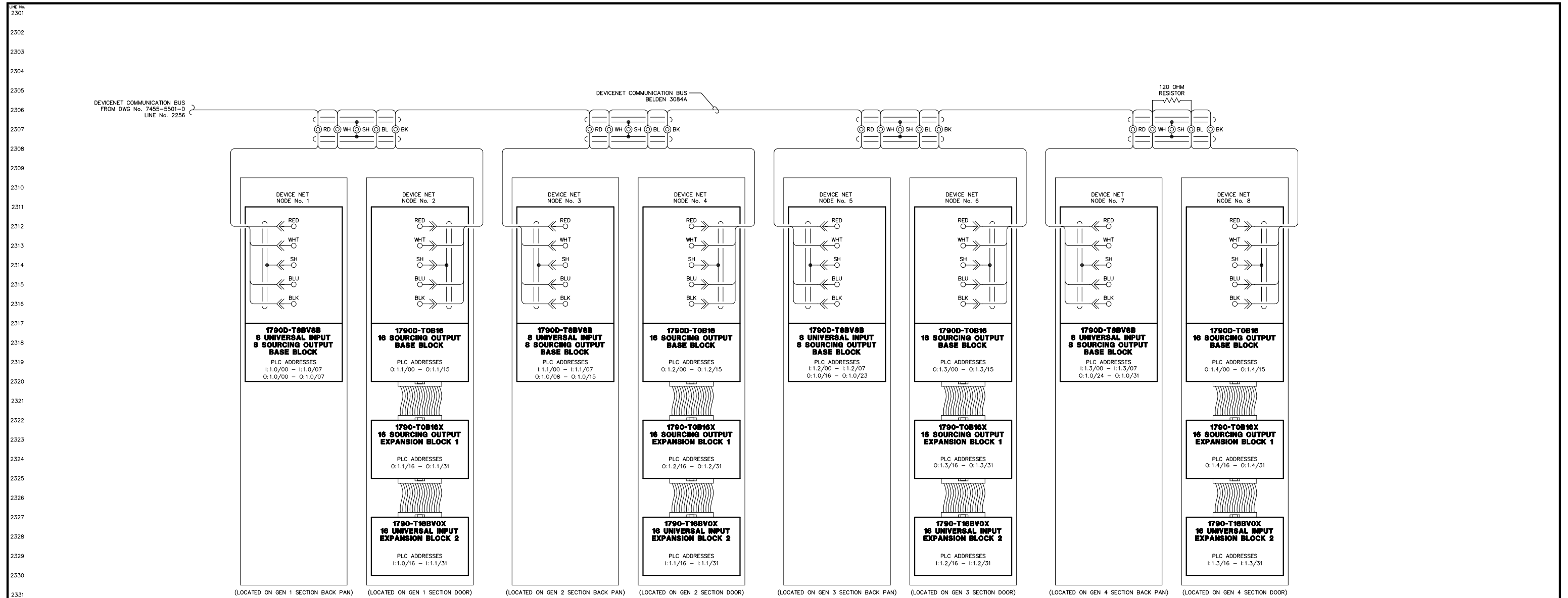


NOTE:
1. FOR GENERAL WIRING & CONSTRUCTION NOTES, SEE DRAWING No. 7455-3101-D.

C	03-14-13	SHOP AS BUILT	GPN
B	06-21-12	ADDED ANALOG OUTPUT MODULE	GPN
A	04-10-12	REVISED PER ENGINEERING REVIEW	GPN
REV.	DATE	DESCRIPTION	BY
AEA PURCHASE ORDER No. REG-12-058		CONTROLLED POWER JOB No. 7455	
TITLE: PLC COMMUNICATION, SCHEMATIC DIAGRAM			
SCALE: NONE	DATE: 03-12-12	DWN. BY: GPN	
DWG. No: 7455-5501-D	SHEET: 1 OF 1	CKD. BY: JMD	
JOB: AKIAK GENERATOR SWITCHGEAR			

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NOTE:
1. FOR GENERAL WIRING & CONSTRUCTION NOTES, SEE DRAWING No. 7455-3101-D.

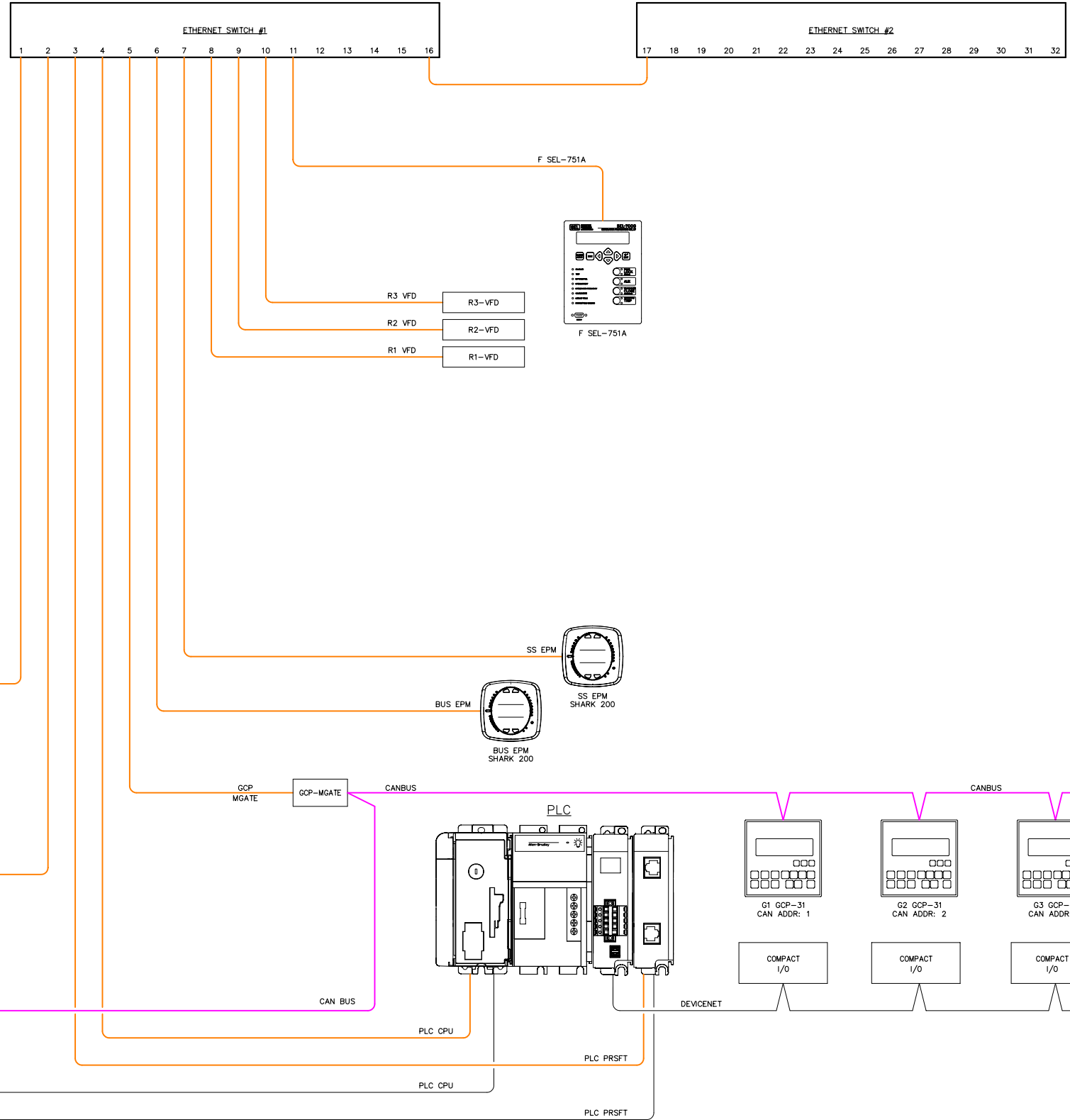
B	03-14-13	SHOP AS BUILT	GPN
A	04-10-12	REVISED PER ENGINEERING REVIEW	GPN
REV.	DATE	DESCRIPTION	BY
AEA PURCHASE ORDER No. REG-12-058		CONTROLLED POWER JOB No. 7455	
TITLE: PLC COMMUNICATION, SCHEMATIC DIAGRAM			
SCALE: NONE	DATE: 03-12-12	DWN. BY: GPN	
DWG. No: 7455-5502-D	SHEET: 1 OF 1	CKD. BY: JMD	
JOB: AKIAK GENERATOR SWITCHGEAR			

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DEVICE	IP ADDRESS
SERVER	192.168.1.142
F SEL-751A	192.168.1.155
R1 VFD	192.168.1.171
R2 VFD	192.168.1.172
R3 VFD	192.168.1.173
OIU	192.168.1.182
PLC CPU	192.168.1.183
GCP MGATE	192.168.1.186
PLC PROSOFT	192.168.1.187
BUS EPM	192.168.1.190
SS EPM	192.168.1.191



NOTE:
1. FOR GENERAL WIRING & CONSTRUCTION NOTES, SEE DRAWING No. 7455-3101-D.

REV.	DATE	DESCRIPTION	BY
B	03-14-13	SHOP AS BUILT	GPN
A	04-10-12	REVISED PER ENGINEERING REVIEW	GPN

AEA PURCHASE ORDER No. REG-12-058 CONTROLLED POWER JOB No. 7455

TITLE: COMMUNICATION NETWORK DIAGRAM

SCALE: NONE DATE: 03-12-12 DWN. BY: GPN

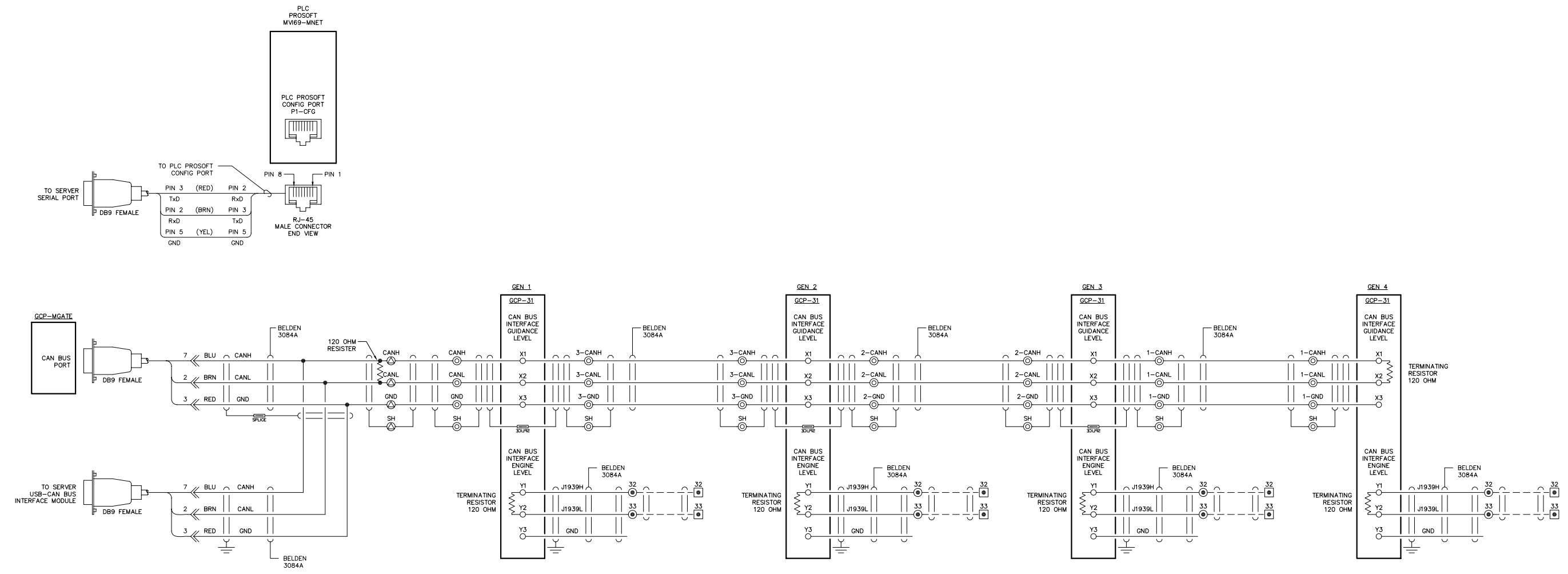
DWG. No: 7455-5601-D SHEET: 1 OF 1 CKD. BY: JMD

JOB: AKIAK GENERATOR SWITCHGEAR

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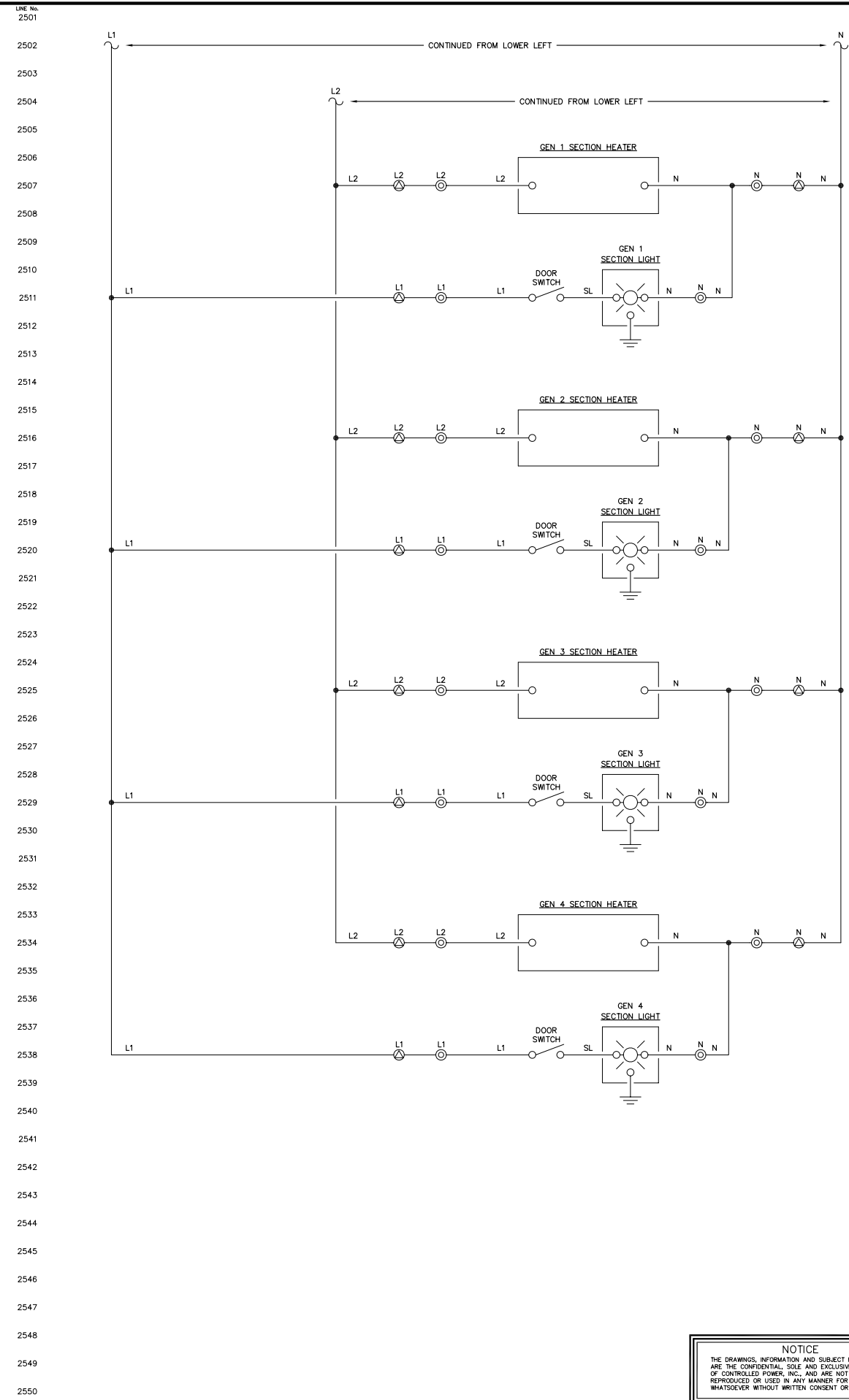
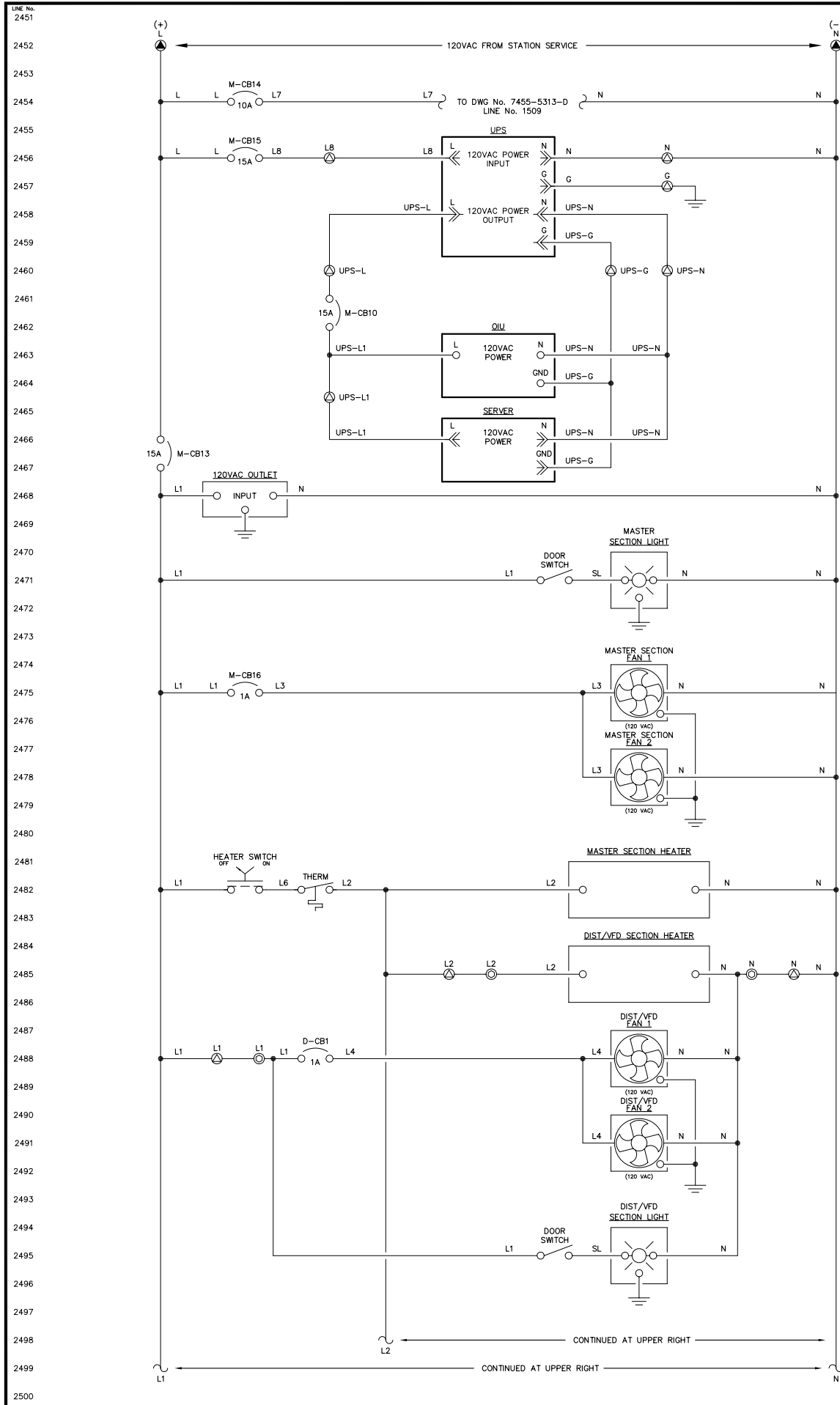


NOTE:
1. FOR GENERAL WIRING & CONSTRUCTION NOTES, SEE DRAWING No. 7455-3101-D.

B	03-14-13	SHOP AS BUILT	GPN
A	04-10-12	REVISED PER ENGINEERING REVIEW	GPN
REV.	DATE	DESCRIPTION	BY
AEA PURCHASE ORDER No. REG-12-058		CONTROLLED POWER JOB No. 7455	
TITLE: COMMUNICATION NETWORK DIAGRAM			
SCALE: NONE	DATE: 03-12-12	DWN. BY: GPN	
DWG. No: 7455-5602-D	SHEET: 1 OF 1	CKD. BY: JMD	
JOB: AKIAK GENERATOR SWITCHGEAR			

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NOTE:
1. FOR GENERAL WIRING & CONSTRUCTION NOTES, SEE DRAWING No. 7455-3101-D.

B	03-14-13	SHOP AS BUILT	GPN
A	04-10-12	REVISED PER ENGINEERING REVIEW	GPN
REV.	DATE	DESCRIPTION	BY

AEA PURCHASE ORDER No. REG-12-058 CONTROLLED POWER JOB No. 7455
TITLE: HEATER, LIGHTING & FAN CONTROL, SCHEMATIC DIAGRAM

SCALE: NONE DATE: 03-12-12 DWN. BY: GPN

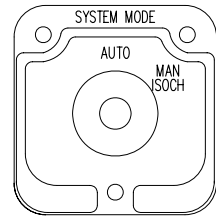
DWG. No: 7455-5701-D SHEET: 1 OF 1 CKD. BY: JMD

JOB: AKIAK GENERATOR SWITCHGEAR

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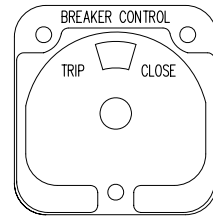
MASTER CONTROL SWITCH - MCS



(ELECTROSWITCH 24201C)
KNURLED HANDLE
QTY 1

DECK	CONTACTS		POS.
	AUTO	MAN ISOCH	
1	12	11	X
	13	15	X
1	16	17	X
	18	12	X
1	11	14	X
	15	16	X

BREAKER CONTROL SWITCH - 52CS



(ELECTROSWITCH 2438D)
PISTOL GRIP HANDLE
SPRING RETURN TO CENTER
QTY 1

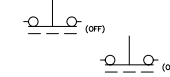
DECK	CONTACTS		TRIP	POS.
	TRIP	CLOSE		
1	11	18	X	
	16	17		X

GENERATOR LOCKOUT SWITCH - GLS



KEY OPERATED
2 POS MAINTAINED
QTY 4

POS	BY	RUN

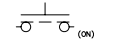


HEATER CONTROL SWITCH - HCS



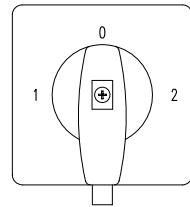
MAINTAINED
LOCATED ON MASTER
BACK PAN

POS	BY	ON



VARIABLE FREQUENCY DRIVE MODE SWITCH - VFDMS

VFD OFF BYPASS



3 POS MAINTAINED
QTY 3

71322		44	34	1L1	1L2	1L3	2L1	2L2	2L3	53	63
POSITION											POSITION
	43	33	1T1	1T2	1T3	2T1	2T2	2T3	54	64	
SMD	1	MD	71300						ME	2	

NOTE:

- FOR GENERAL WIRING & CONSTRUCTION NOTES, SEE DRAWING No. 7455-3101-D.

REV.	DATE	DESCRIPTION	BY
B	03-14-13	SHOP AS BUILT	GPN
A	04-10-12	REVISED PER ENGINEERING REVIEW	GPN

AEA PURCHASE ORDER No. REG-12-058 CONTROLLED POWER JOB No. 7455

TITLE: CONTROL SWITCH TARGET DIAGRAM

SCALE: NONE DATE: 03-12-12 DWN. BY: GPN

DWG. No: 7455-6101-D SHEET: 1 OF 1 CKD. BY: JMD


JOB: AKIAK GENERATOR SWITCHGEAR

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TEXT 1/4" QUANTITY 1 SCALE 1/1 SEE NOTE 4

MANUFACTURED BY:



CONTROLLED POWER, INC.

17909 BOTHELL EVERETT HWY. S.E. #102
 BOTHELL, WA. 98012
 (425)-485-1778
 SERIAL NUMBER: 7455

TEXT 1/2" QUANTITY 1 SCALE 1/1

MASTER CONTROL

TEXT 1/2" QUANTITY 1 SCALE 1/1

GENERATOR 1

TEXT 1/2" QUANTITY 1 SCALE 1/1

GENERATOR 2

TEXT 1/2" QUANTITY 1 SCALE 1/1

GENERATOR 3

TEXT 1/2" QUANTITY 1 SCALE 1/1

GENERATOR 4

TEXT 1/2" QUANTITY 1 SCALE 1/1

VFD/DISTRIBUTION

TEXT 1/2" QUANTITY 4 SCALE 1/1

210 KW

NP. TEXT 1/8" QUANTITY 1 SCALE 1/1

RADIATOR FAN 1

NP. TEXT 1/8" QUANTITY 1 SCALE 1/1

RADIATOR FAN 2

NP. TEXT 1/8" QUANTITY 1 SCALE 1/1

RADIATOR FAN 3

NP. TEXT 1/8" QUANTITY 4 SCALE 1/1

GENERATOR LOCKOUT FOR SERVICE
OFF RUN

NP. TEXT 1/8" QUANTITY 1 SCALE 1/1

GENERATOR 1

NP. TEXT 1/8" QUANTITY 1 SCALE 1/1

GENERATOR 2

NP. TEXT 1/8" QUANTITY 1 SCALE 1/1

GENERATOR 3

NP. TEXT 1/8" QUANTITY 1 SCALE 1/1

GENERATOR 4

NP. TEXT 1/8" QUANTITY 1 SCALE 1/1

BUS TOTALIZING

NP. TEXT 1/8" QUANTITY 1 SCALE 1/1

LAMP TEST EMERGENCY STOP ALARM RESET

NP. TEXT 1/8" QUANTITY 1 SCALE 1/1

FEEDER

NP. TEXT 1/8" QUANTITY 2 SCALE 1/1

STATION SERVICE

NP. TEXT 1/8" QUANTITY 1 SCALE 1/1

RADIATOR FAN 1
VFD OFF BYPASS

NP. TEXT 1/8" QUANTITY 1 SCALE 1/1

RADIATOR FAN 2
VFD OFF BYPASS

NP. TEXT 1/8" QUANTITY 1 SCALE 1/1

RADIATOR FAN 3
VFD OFF BYPASS

NP. TEXT 1/8" QUANTITY 1 SCALE 1/1

VFD MAIN

NP. TEXT 1/8" QUANTITY 1 SCALE 1/1

HEATER OFF ON

NO MOUNTING HOLES

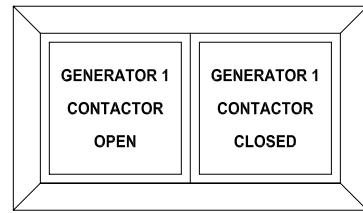
- NOTES:
1. ALL NAMEPLATES SHALL BE BLACK FACE WITH WHITE LETTERS EXCEPT AS NOTED.
 2. ALL NAMEPLATES SHALL HAVE PRESSURE SENSITIVE ADHESIVE ON BACK, 100 % COVERAGE.
 3. ALL NAMEPLATES SHALL HAVE MOUNTING HOLES DRILLED AS INDICATED.
- ▲ INDICATES THAT NAMEPLATE SHALL BE BRUSHED ALUMINUM WITH BLACK ENGRAVED LETTERS.

B	03-14-13	SHOP AS BUILT	GPN
A	04-10-12	REVISED PER ENGINEERING REVIEW	GPN
REV.	DATE	DESCRIPTION	BY
AEA PURCHASE ORDER No. REG-12-058		CONTROLLED POWER JOB No. 7455	
TITLE: NAMEPLATE ENGRAVING SCHEDULE, FABRICATION DIAGRAM			
SCALE: NONE	DATE: 03-12-12	DWN. BY: GPN	
DWG. No: 7455-6201-D	SHEET: 1 OF 1	CKD. BY: JMD	
JOB: AKIAK GENERATOR SWITCHGEAR			

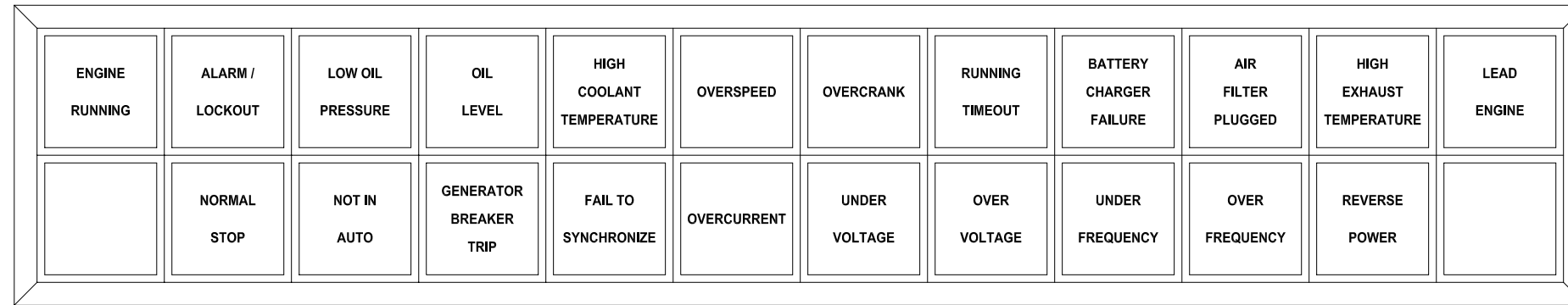
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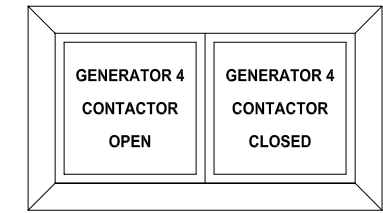
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 ANCHORAGE, ALASKA 99503
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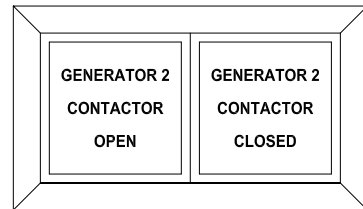
GEN 1 BREAKER ANNUNCIATOR
QTY 1



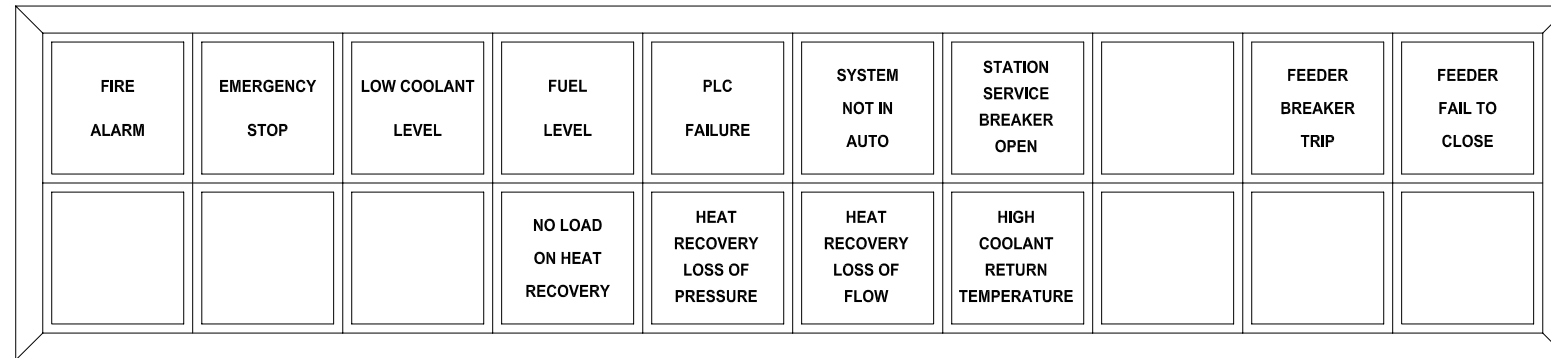
GENERATOR ANNUNCIATOR
QTY 4



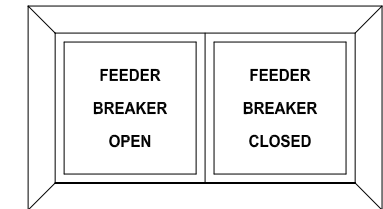
GEN 4 BREAKER ANNUNCIATOR
QTY 1



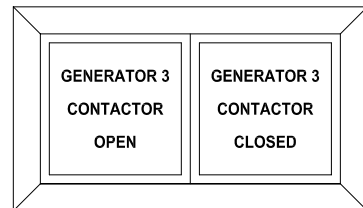
GEN 2 BREAKER ANNUNCIATOR
QTY 1



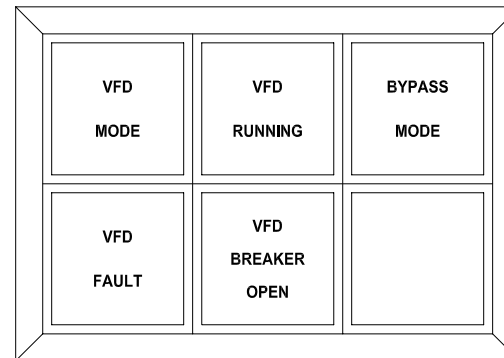
MASTER ANNUNCIATOR
QTY 1



FEEDER BREAKER ANNUNCIATOR
QTY 1



GEN 3 BREAKER ANNUNCIATOR
QTY 1



VFD ANNUNCIATOR
QTY 3

B	03-14-13	SHOP AS BUILT	GPN
A	04-10-12	REVISED PER ENGINEERING REVIEW	GPN
REV.	DATE	DESCRIPTION	BY

AEA PURCHASE ORDER No. REG-12-058 CONTROLLED POWER JOB No. 7455

TITLE: ANNUNCIATOR WINDOWS, FABRICATION DIAGRAM

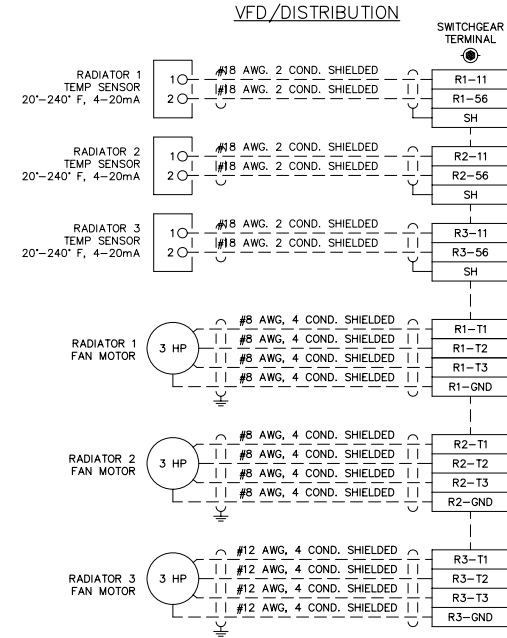
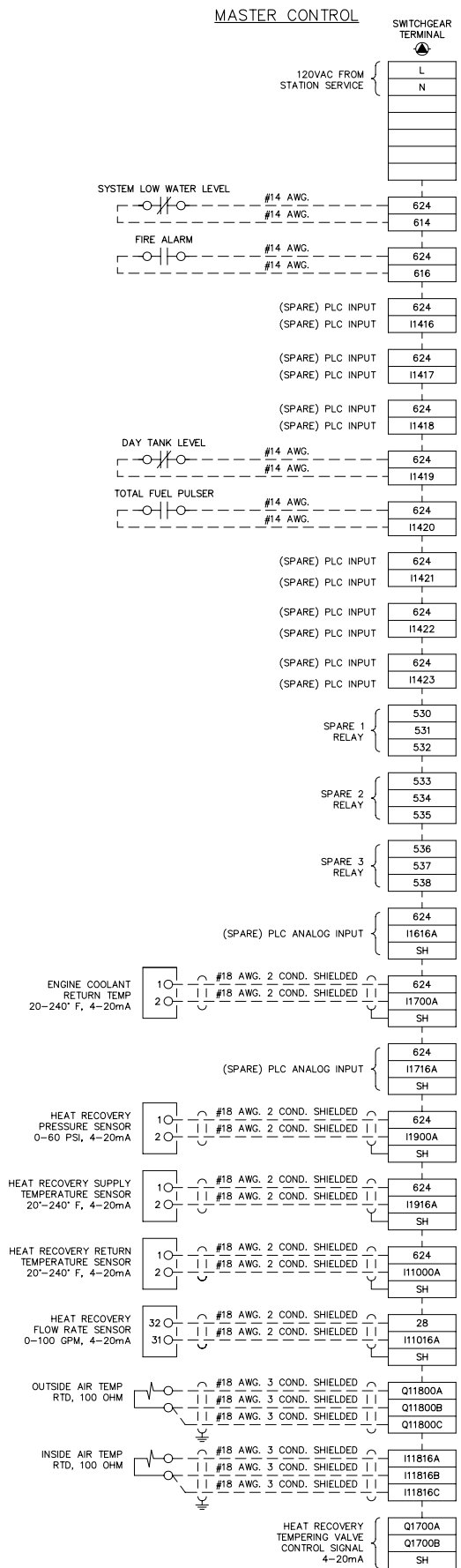
SCALE: NONE DATE: 03-12-12 DWN. BY: GPN

DWG. No: 7455-6202-D SHEET: 1 OF 1 CKD. BY: JMD

JOB: AKIAK GENERATOR SWITCHGEAR

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NOTE:

- FOR GENERAL WIRING & CONSTRUCTION NOTES, SEE DRAWING No. 7455-3101-D.

REV.	DATE	DESCRIPTION	BY
C	03-14-13	SHOP AS BUILT	GPN
B	06-21-12	ADDED TERMINALS FOR ANALOG OUTPUT MODULE	GPN
A	04-10-12	REVISED PER ENGINEERING REVIEW	GPN

AEA PURCHASE ORDER No. REG-11-044 CONTROLLED POWER JOB No. 7455

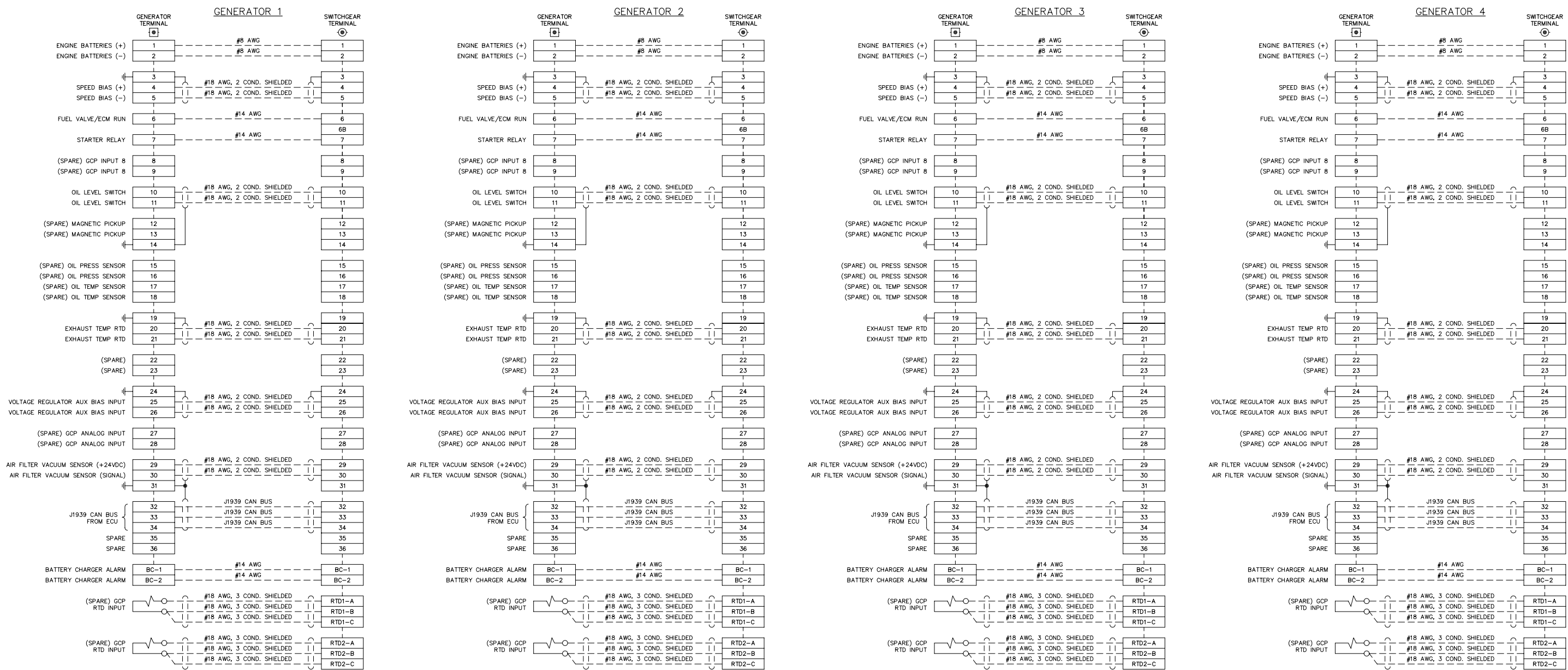
TITLE: INTERCONNECTION DIAGRAM

SCALE: NONE	DATE: 03-12-12	DWN. BY: GPN
DWG. No: 7455-7101-D	SHEET: 1 OF 1	CKD. BY: JMD
JOB: AKIAK GENERATOR SWITCHGEAR		

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NOTE:
1. FOR GENERAL WIRING & CONSTRUCTION NOTES, SEE DRAWING No. 7455-3101-D.

B	03-14-13	SHOP AS BUILT	GPN
A	04-10-12	REVISED PER ENGINEERING REVIEW	GPN
REV.	DATE	DESCRIPTION	BY

AEA PURCHASE ORDER No. REG-12-058 CONTROLLED POWER JOB No. 7455

TITLE: INTERCONNECTION DIAGRAM

SCALE: NONE DATE: 03-12-12 DWN. BY: GPN

DWG. No: 7455-7102-D SHEET: 1 OF 1 CKD. BY: JMD

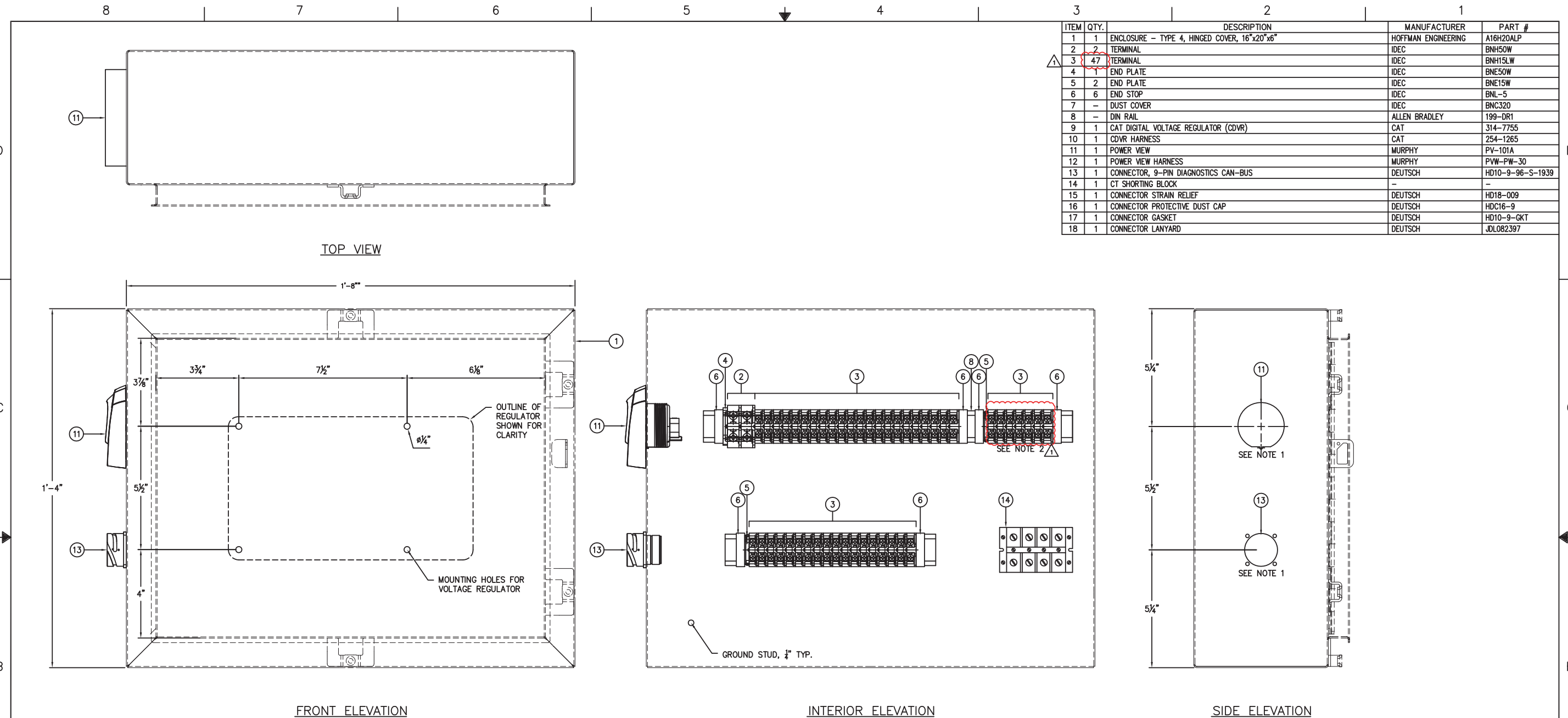
JOB: AKIAK GENERATOR SWITCHGEAR

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HTTP://WWW.AIDEA.ORG

By: Trina Hartman




- NOTES:**
- VERIFY DIMENSIONS FOR KNOCKOUTS PER MANUFACTURERS SPECIFICATIONS.
 - TERMINALS USED FOR AC VOLTAGE SENSING - INSTALL DUST COVER P/N: BNC320.
 - ENCLOSURE NAMEPLATE TO BE BLACK W/ WHITE CORE GRAVOPLY WITH 45° BEVELED EDGES.
 - ALL INTERNAL DEVICES SHALL BE LABELED USING ENGRAVED WHITE W/ BLACK CORE GRAVOPLY NAMEPLATES SIZED AT 1/4"H X 3/4"W MINIMUM.
 - ALL WIRE SHALL BE LABELED AT EACH END USING HEAT SHRINKABLE TUBE TYPE LABELS.
 - THIS CONTROL PANEL IS INTENDED FOR USE IN AN NON-HAZARDOUS OR ELECTRICALLY UNCLASSIFIED AREA PER THE 2008 NEC.

Approved
1/24/12
[Signature]

PLOTTED ON: 1/23/2012 3:58 PM

REFERENCE DRAWINGS	NO.	DATE	REVISION	BY	CHK	APPD	NO.	DATE	REVISION	BY	CHK	APPD
	0	01/12	ISSUED FOR APPROVAL	TMH	BH							
	1	01/12	RE-ISSUED FOR APPROVAL	TMH	BH							

ENGINEERING RECORD	DATE	 <p>MARSHCREEK ENERGY SYSTEMS A DIVISION OF MARSH CREEK, LLC 200 S. 9th Avenue, North, Alaska 99507 Phone: (907) 284-0010 Fax: (907) 284-0010</p>	TITLE OF DRAWING:		
DRN:	TMH		AEA		
DSGN:	BH		VOLTAGE REGULATOR & ENGINE CONTROL TERMINATION PANEL LAYOUT		
CHK:	BH				
APP:		WORK ORDER	DRAWING NUMBER	REV	SHEET
SCALE:	NONE	AE-0532-1112	ID-AEA-0001	1	001
		MODULE CODE :		OF 001	

BY: Trina Hartman

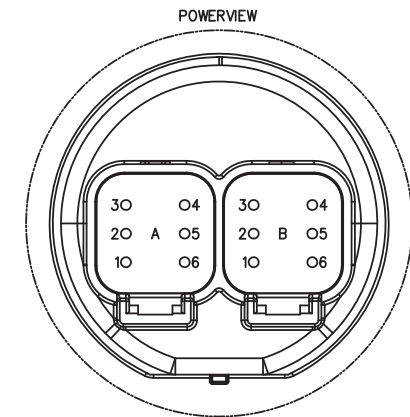
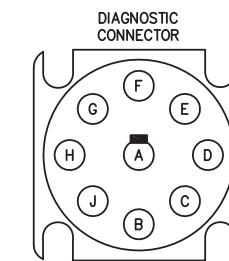
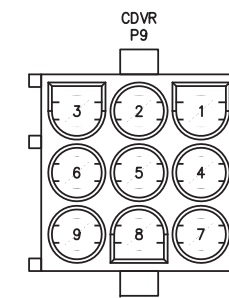
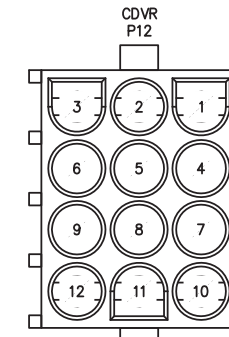
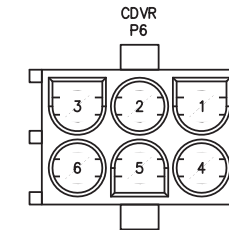
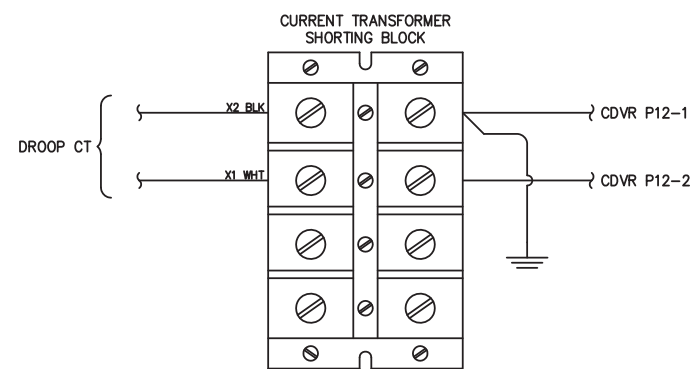
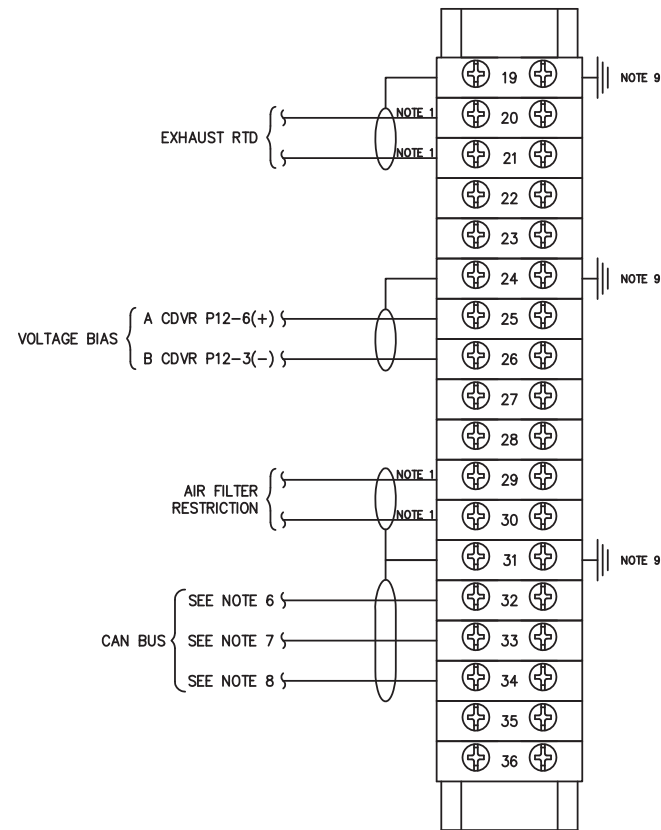
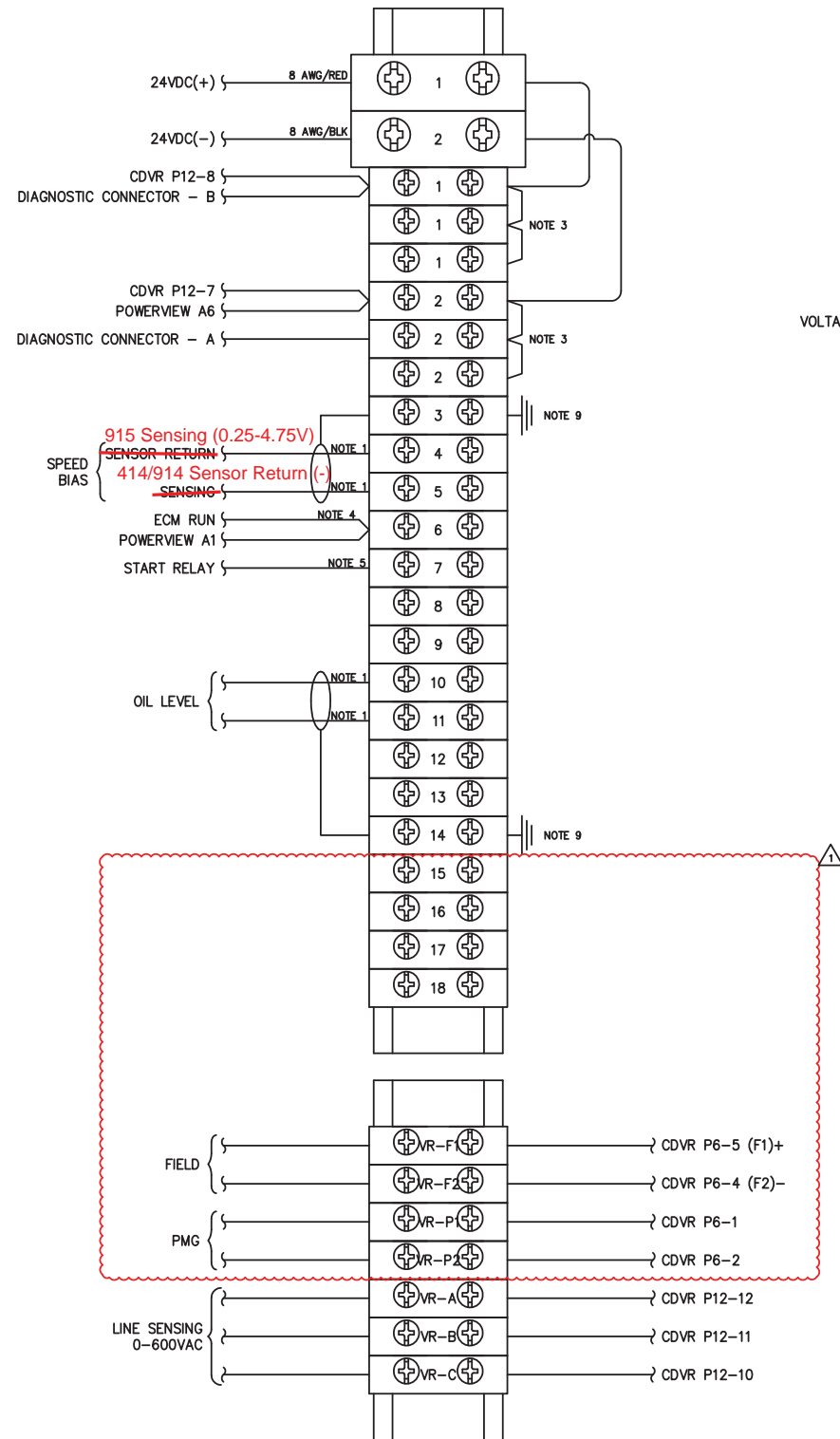
D

C

B

A

8 7 6 5 4 3 2 1



NOTES:

- 1) 18AWG SHIELDED/TWISTED PAIR, BELDEN #9840 OR EQUIV.
- 2) 22-24AWG SHIELDED/TRIAD, BELDEN #8618 OR EQUIV. (RAYCHEM J1939-11)
- 3) JUMPERS ARE #14, COLORS TO MATCH AEA SPECIFICATIONS
- 4) 14AWG, YELLOW WITH BLACK TRACER
- 5) 14AWG, ORANGE
- 6) TERMINAL 32
 - ENGINE CAN HIGH - JD#904 YELLOW
 - CDVR P9-1
 - DIAGNOSTIC CONNECTOR C
 - POWERVIEW A2
- 7) TERMINAL 33
 - ENGINE CAN LOW - JD#905 DARK GREEN
 - CDVR P9-2
 - DIAGNOSTIC CONNECTOR D
 - POWERVIEW A3
- 8) TERMINAL 34
 - ENGINE CAN SHIELD - JD#020 BLACK
 - CDVR P9-3
 - DIAGNOSTIC CONNECTOR E
 - POWERVIEW A4
- 9) TERMINATE DRAIN WIRES FOR ALL SHIELDS ON GROUND LUGS AT GENERATOR END ONLY.

Approved
1/24/12
[Signature]

DSGN/CNST

PLOTTED ON: 1/23/2012 4:29 PM

REFERENCE DRAWINGS	NO.	DATE	REVISION	BY	CHK	APPD	NO.	DATE	REVISION	BY	CHK	APPD
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	1	01/12	RE-ISSUED FOR APPROVAL	TMH	BH							

ENGINEERING RECORD	DATE
DRN: TMH	01/12
DSGN: BH	01/12
CHK: BH	01/12
APP:	
SCALE:	NONE

MARSHCREEK ENERGY SYSTEMS
A DIVISION OF MARSH CREEK, LLC
200 S. 9th Avenue, Anchorage, Alaska 99507
Phone: (907) 264-0310 Fax: (907) 264-0170

TITLE OF DRAWING:			
AEA VOLTAGE REGULATOR & ENGINE CONTROL TERMINATION WIRING DIAGRAM			
WORK ORDER	DRAWING NUMBER	REV	SHEET
AE-0532-1112	IC-AEA-0001	1	001
MODULE CODE :			OF 001

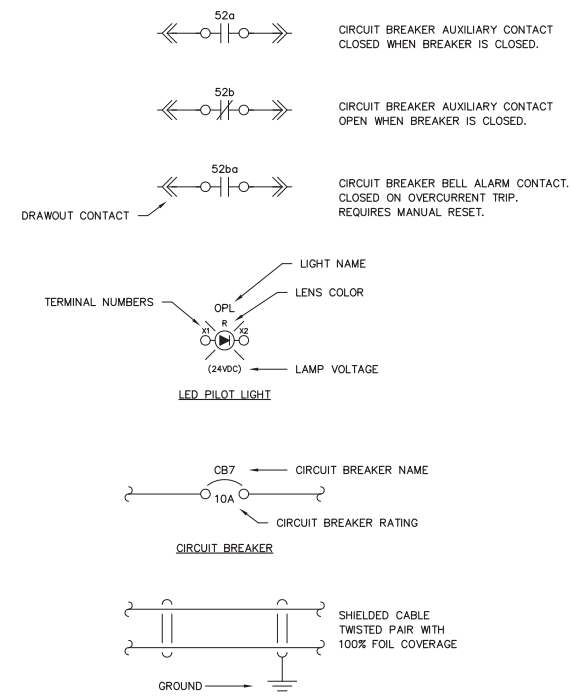
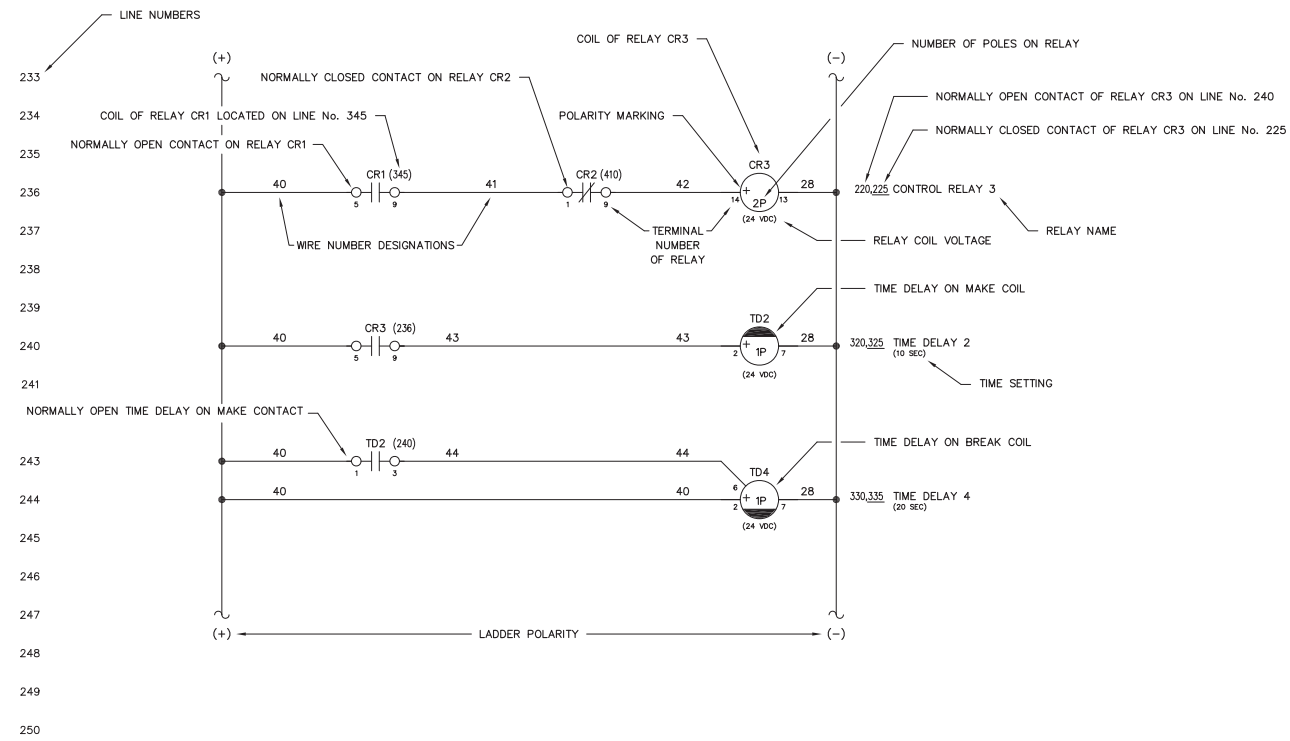
8 7 6 5 4 3 2 1



RURAL ENERGY GROUP
813 W. NORTHERN LIGHTS BLVD.
ANCHORAGE, ALASKA 99503
HTTP://WWW.AIDEA.ORG

ST GEORGE POWERHOUSE GENERATOR SWITCHGEAR ALASKA ENERGY AUTHORITY PURCHASE ORDER No. 007750 CONTROLLED POWER, INC. JOB No. 7760

<u>DRAWING No.</u>	<u>DRAWING TITLE</u>		
7760-2101-D	COVER SHEET	7760-5319-D	VFD DC CONTROL, SCHEMATIC DIAGRAM
7760-3101-D	SCHEMATIC LEGEND AND NOTES	7760-5320-D	VFD DC CONTROL, SCHEMATIC DIAGRAM
7760-4101-D	GENERATOR SWITCHGEAR ELEVATION VIEW, OUTLINE DIAGRAM	7760-5321-D	ELECTRIC BOILER SCR PANEL CONTROL, SCHEMATIC DIAGRAM
7760-4102-D	ELECTRIC BOILER SCR PANEL ELEVATION VIEW, OUTLINE DIAGRAM	7760-5401-D	FEEDER BREAKER CONTROL, SCHEMATIC DIAGRAM
7760-5101-D	SINGLE LINE, SCHEMATIC DIAGRAM	7760-5501-D	PLC COMMUNICATION, SCHEMATIC DIAGRAM
7760-5201-D	GENERATOR 1 AC THREE LINE, SCHEMATIC DIAGRAM	7760-5502-D	PLC COMMUNICATION, SCHEMATIC DIAGRAM
7760-5202-D	GENERATOR 2 AC THREE LINE, SCHEMATIC DIAGRAM	7760-5601-D	COMMUNICATION NETWORK DIAGRAM
7760-5203-D	GENERATOR 3 AC THREE LINE, SCHEMATIC DIAGRAM	7760-5602-D	COMMUNICATION NETWORK DIAGRAM
7760-5204-D	GENERATOR 4 AC THREE LINE, SCHEMATIC DIAGRAM	7760-5701-D	AC SERVICE, HEATER, LIGHTING & FAN CONTROL, SCHEMATIC DIAGRAM
7760-5205-D	MASTER AC THREE LINE, SCHEMATIC DIAGRAM	7760-5702-D	AC CONTROL POWER, SCHEMATIC DIAGRAM
7760-5206-D	MASTER AC THREE LINE, SCHEMATIC DIAGRAM	7760-6101-D	CONTROL SWITCH TARGET DIAGRAM
7760-5207-D	VFD AC THREE LINE, SCHEMATIC DIAGRAM	7760-6201-D	NAMEPLATE ENGRAVING SCHEDULE, FABRICATION DIAGRAM
7760-5208-D	ELECTRIC BOILER AC THREE LINE, SCHEMATIC DIAGRAM	7760-6202-D	ANNUNCIATOR WINDOWS, FABRICATION DIAGRAM
7760-5301-D	GENERATOR 1 DC CONTROL, SCHEMATIC DIAGRAM	7760-7101-D	INTERCONNECTION DIAGRAM
7760-5302-D	GENERATOR 1 DC CONTROL, SCHEMATIC DIAGRAM	7760-7102-D	INTERCONNECTION DIAGRAM
7760-5303-D	GENERATOR 1 DC CONTROL, SCHEMATIC DIAGRAM		
7760-5304-D	GENERATOR 2 DC CONTROL, SCHEMATIC DIAGRAM		
7760-5305-D	GENERATOR 2 DC CONTROL, SCHEMATIC DIAGRAM		
7760-5306-D	GENERATOR 2 DC CONTROL, SCHEMATIC DIAGRAM		
7760-5307-D	GENERATOR 3 DC CONTROL, SCHEMATIC DIAGRAM		
7760-5308-D	GENERATOR 3 DC CONTROL, SCHEMATIC DIAGRAM		
7760-5309-D	GENERATOR 3 DC CONTROL, SCHEMATIC DIAGRAM		
7760-5310-D	GENERATOR 4 DC CONTROL, SCHEMATIC DIAGRAM		
7760-5311-D	GENERATOR 4 DC CONTROL, SCHEMATIC DIAGRAM		
7760-5312-D	GENERATOR 4 DC CONTROL, SCHEMATIC DIAGRAM		
7760-5313-D	MASTER DC CONTROL, SCHEMATIC DIAGRAM		
7760-5314-D	MASTER DC CONTROL, SCHEMATIC DIAGRAM		
7760-5315-D	MASTER DC CONTROL, SCHEMATIC DIAGRAM		
7760-5316-D	MASTER DC CONTROL, SCHEMATIC DIAGRAM		
7760-5317-D	FEEDER 1 DC CONTROL, SCHEMATIC DIAGRAM		
7760-5318-D	FEEDER 2 DC CONTROL, SCHEMATIC DIAGRAM		



NOTES:

- SCHEMATIC IS SHOWN AS FOLLOWS:
 - ALL AC AND DC POWER REMOVED
 - ALL RELAY CONTACTS DE-ENERGIZED
 - ALL CIRCUIT BREAKERS IN THE OPEN/RESET POSITION
 - ALL MODE SWITCHES IN THE "OFF" POSITION
 - ALL EMERGENCY STOP SWITCHES IN THE "NORMAL" POSITION
 - ALL PRESSURE SWITCHES SHOWN WITHOUT PRESSURE PRESENT
 - ALL LEVEL SWITCHES SHOWN WITHOUT FLUID PRESENT
 - ALL TEMPERATURE SWITCHES SHOWN AT AMBIENT
- ⊙ INDICATES FIELD TERMINALS IN GENERATOR CONTROL SECTION.
- ⊠ INDICATES TERMINALS AT ENGINE/GENERATOR.
- ⊡ INDICATES INTERCONNECT TERMINALS IN MASTER SECTION.
- ⊣ INDICATES FIELD TERMINALS IN MASTER SECTION.
- ⊤ INDICATES INTERCONNECT TERMINALS IN GENERATOR CONTROL SECTION.
- ⊥ INDICATES INTERCONNECT TERMINALS IN VFD/DIST SECTION.
- ⊦ INDICATES FIELD TERMINALS IN VFD/DIST SECTION.
- ⊧ INDICATES FIELD TERMINALS IN ELECTRIC BOILER SCR PANEL.
- ⊨ INDICATES FIELD WIRING BY OTHERS
- ALL CONTROL WIRING TO BE No. 14 AWG, 600 VOLT, TYPE SIS EXCEPT AS NOTED
- SHIELDED WIRING TO BE No. 18 AWG, 300 VOLT, TWISTED LINE WITH 100% FOIL COVERAGE
- ALL DIODES ARE 1N4007 EXCEPT AS NOTED

C	05-15-13	SHOP AS BUILT	GPN
B	04-03-13	REVISED PER REVIEW	GPN
A	03-25-13	SUBMITTAL	GPN
REV.	DATE	DESCRIPTION	BY

AEA PURCHASE ORDER No. 007750 CONTROLLED POWER JOB No. 7760

TITLE: SCHEMATIC LEGEND & NOTES

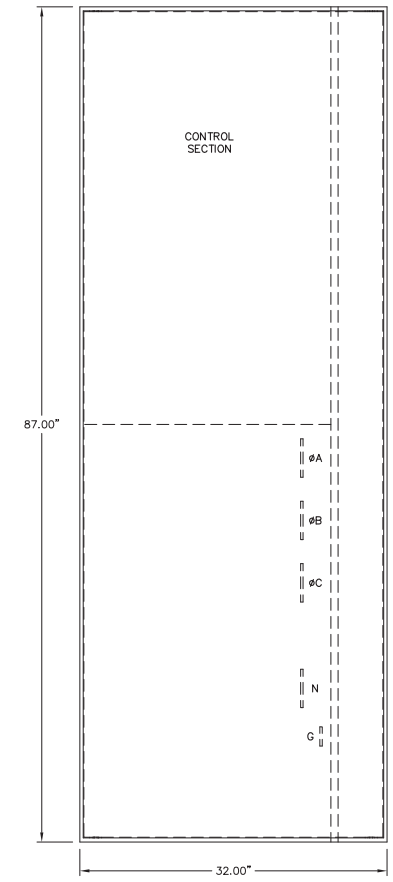
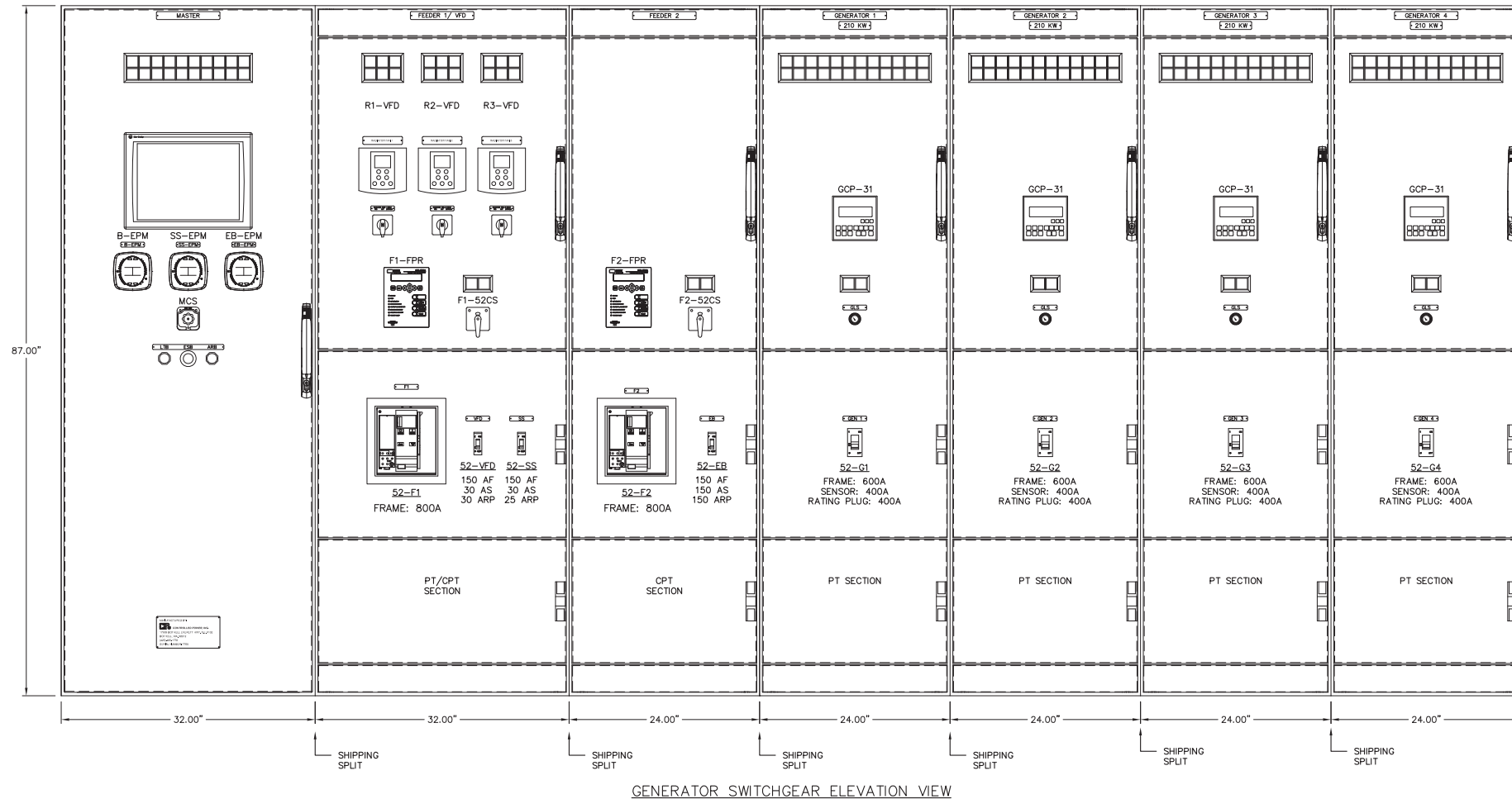
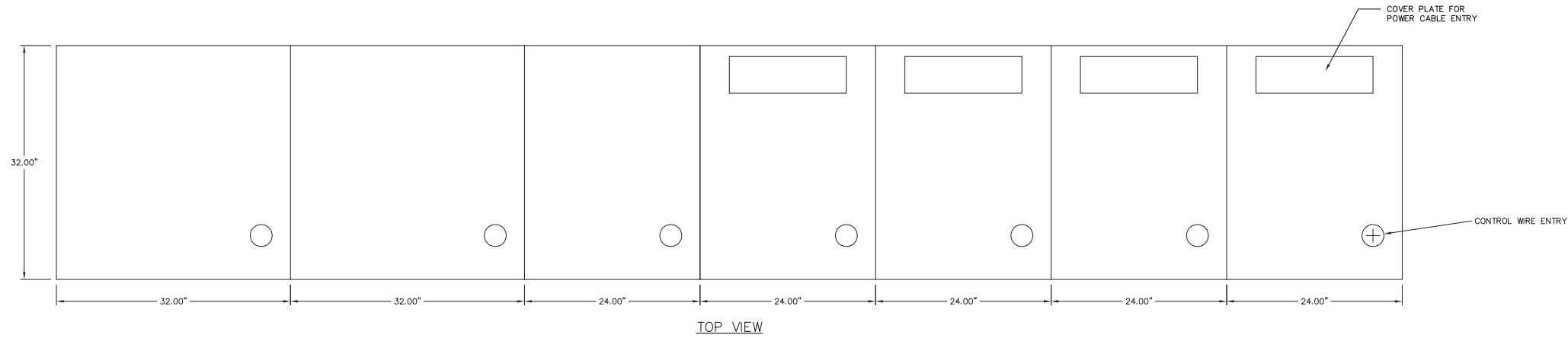
SCALE: NONE DATE: 03-19-13 DWN. BY: GPN

DWG. No: 7760-3101-D SHEET: 1 OF 1 CKD. BY: JMD

JOB: ST GEORGE POWERHOUSE GENERATOR SWITCHGEAR

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B	04-03-13	REVISED PER REVIEW	GPN
A	03-25-13	SUBMITTAL	GPN

AEA PURCHASE ORDER No. 007750 CONTROLLED POWER JOB No. 7760

TITLE: GENERATOR SWITCHGEAR ELEVATION VIEW, OUTLINE DIAGRAM

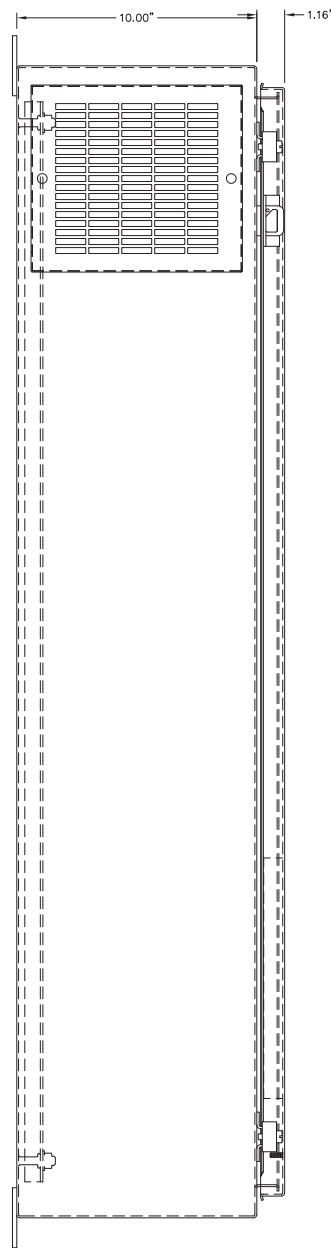
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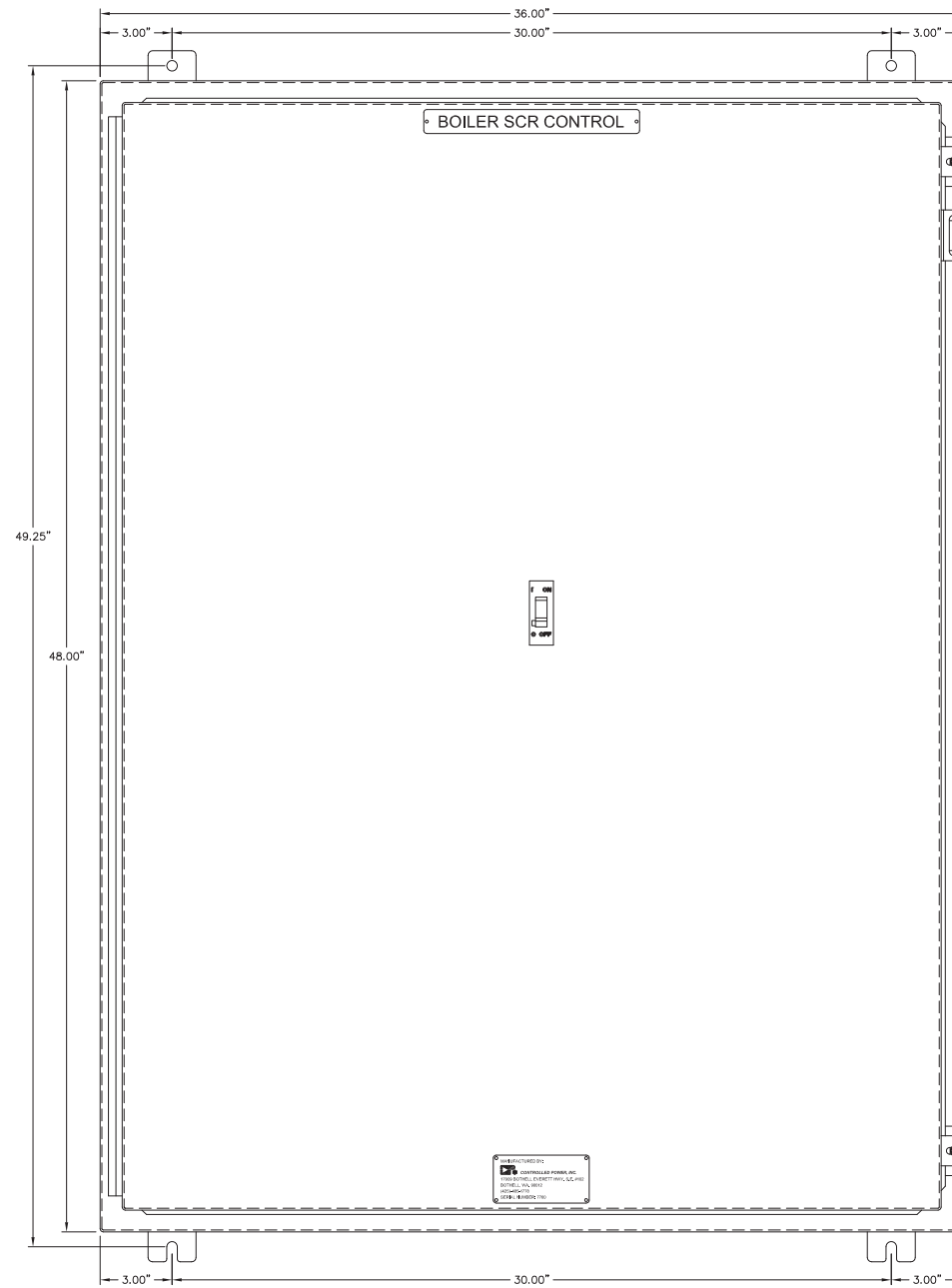
JOB: ST GEORGE POWERHOUSE GENERATOR SWITCHGEAR

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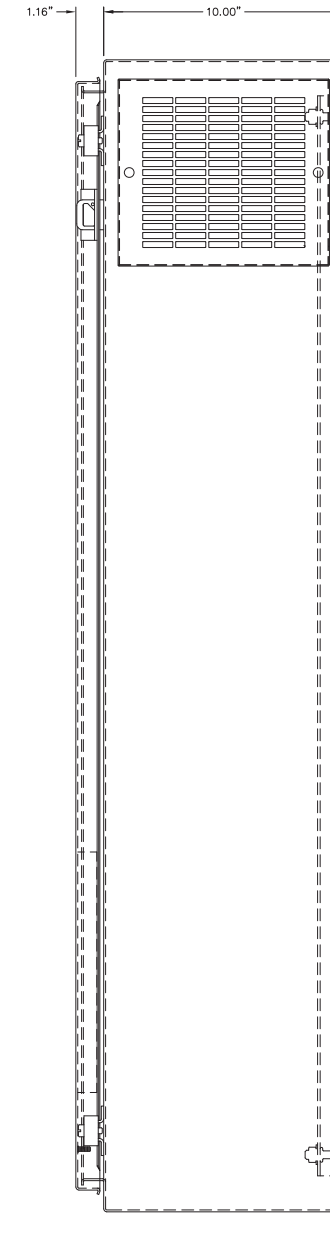
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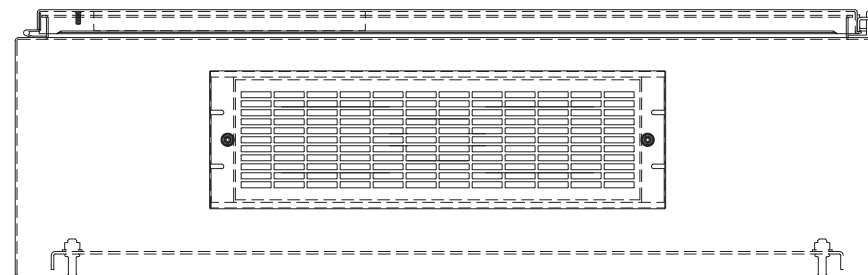
LEFT SIDE VIEW



SCR PANEL - TYPICAL FRONT VIEW



RIGHT SIDE VIEW



TYPICAL BOTTOM VIEW

REV.	DATE	DESCRIPTION	BY
C	05-15-13	SHOP AS BUILT	GPN
B	04-03-13	REVISED PER REVIEW	GPN
A	03-25-13	SUBMITTAL	GPN

AEA PURCHASE ORDER No. 007750 CONTROLLED POWER JOB No. 7760
 TITLE: ELECTRIC BOILER SCR PANEL ELEVATION VIEW, OUTLINE DIAGRAM

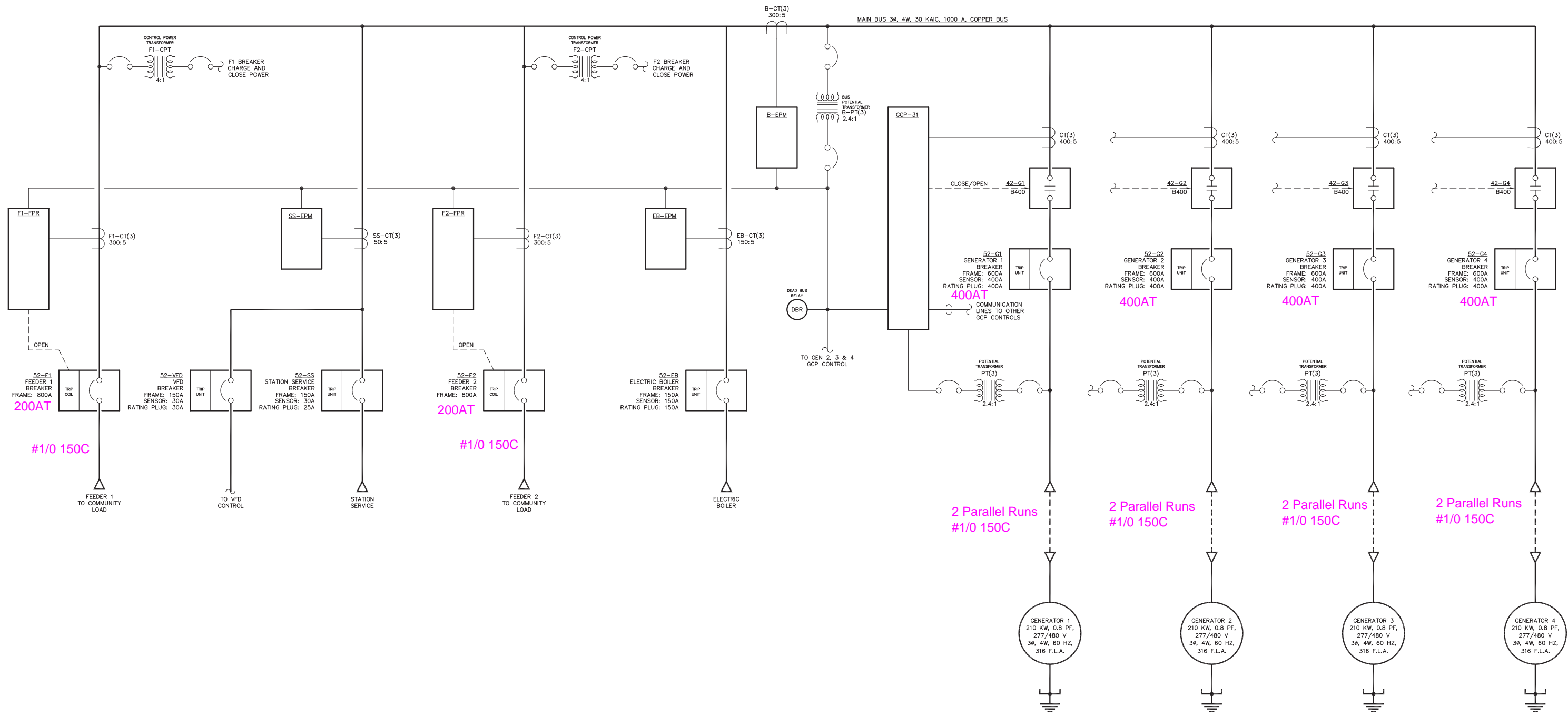
SCALE: 1/4 DATE: 03-19-13 DWN. BY: GPN

DWG. No: 7760-4102-D SHEET: 1 OF 1 CKD. BY: JMD

JOB: ST GEORGE POWERHOUSE GENERATOR SWITCHGEAR

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#1/0 150C

#1/0 150C

2 Parallel Runs
#1/0 150C

2 Parallel Runs
#1/0 150C

2 Parallel Runs
#1/0 150C

2 Parallel Runs
#1/0 150C

Notes:
 1) Conductor sizes and temperature ratings shown based on original design and have not been confirmed. Field verify.
 2) Breaker trip setpoints shown based on original commissioning and may not match present operating conditions. Field verify.

NOTES:
 1. GENERATORS 2, 3 & 4 SIMILAR TO GENERATOR 1.

NOTE:
 1. FOR GENERAL WIRING & CONSTRUCTION NOTES, SEE DRAWING No. 7760-3101-D.

C	05-15-13	SHOP AS BUILT	GPN
B	04-03-13	REVISED PER REVIEW	GPN
A	03-25-13	SUBMITTAL	GPN
REV.	DATE	DESCRIPTION	BY

AEA PURCHASE ORDER No. 007750 CONTROLLED POWER JOB No. 7760

TITLE: GENERATOR SWITCHGEAR SINGLE LINE, SCHEMATIC DIAGRAM

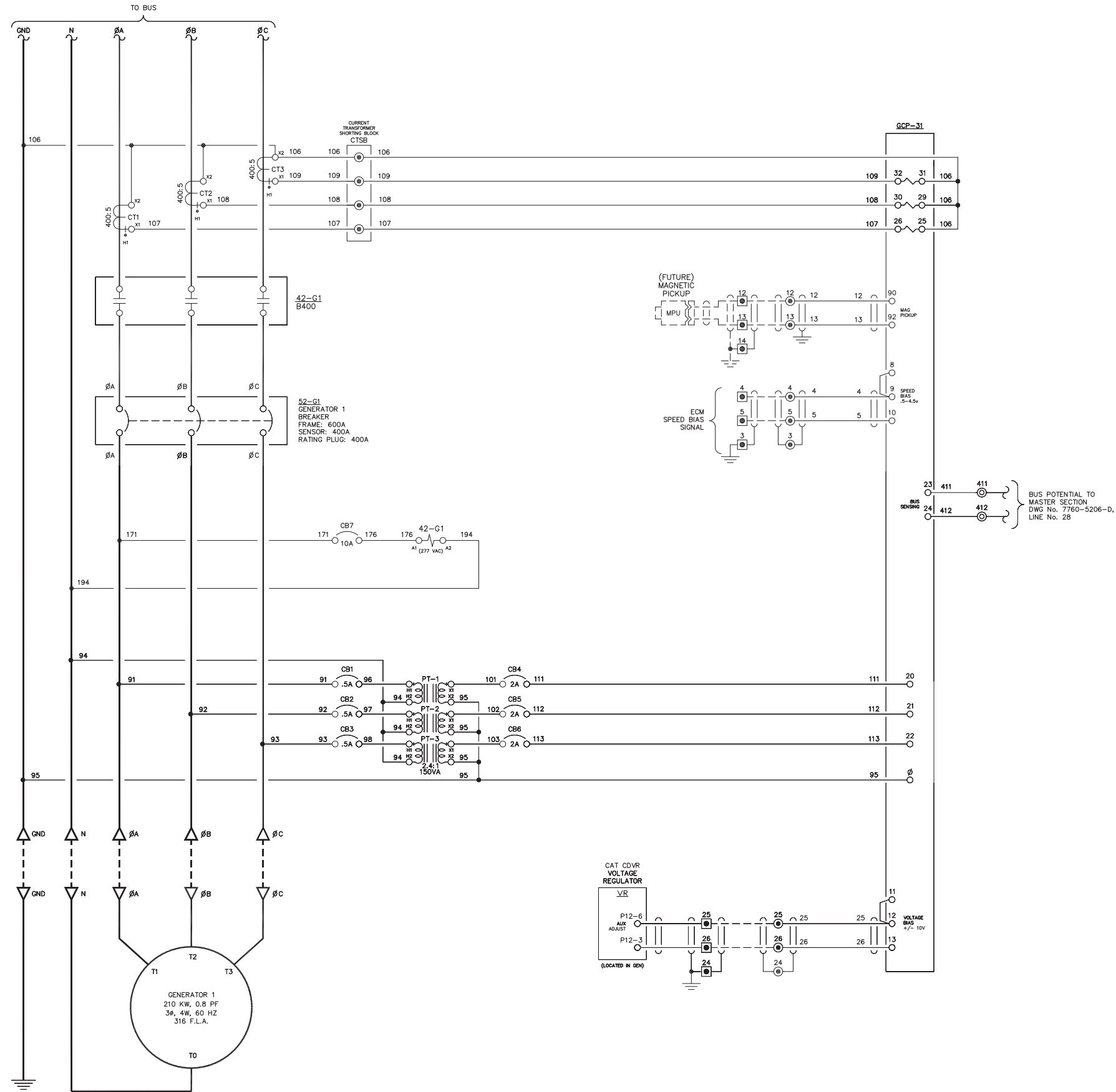
SCALE: NONE DATE: 03-19-13 DWN. BY: GPN

DWG. No: 7760-5101-D SHEET: 1 OF 1 CKD. BY: JMD

JOB: ST GEORGE POWERHOUSE GENERATOR SWITCHGEAR

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NOTE:
1. FOR GENERAL WIRING & CONSTRUCTION NOTES, SEE DRAWING No. 7760-3101-D.

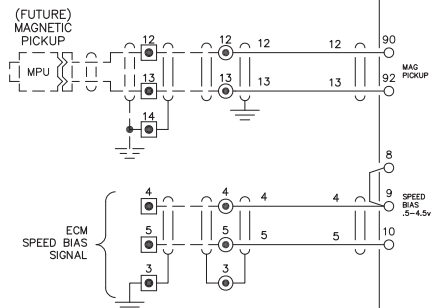
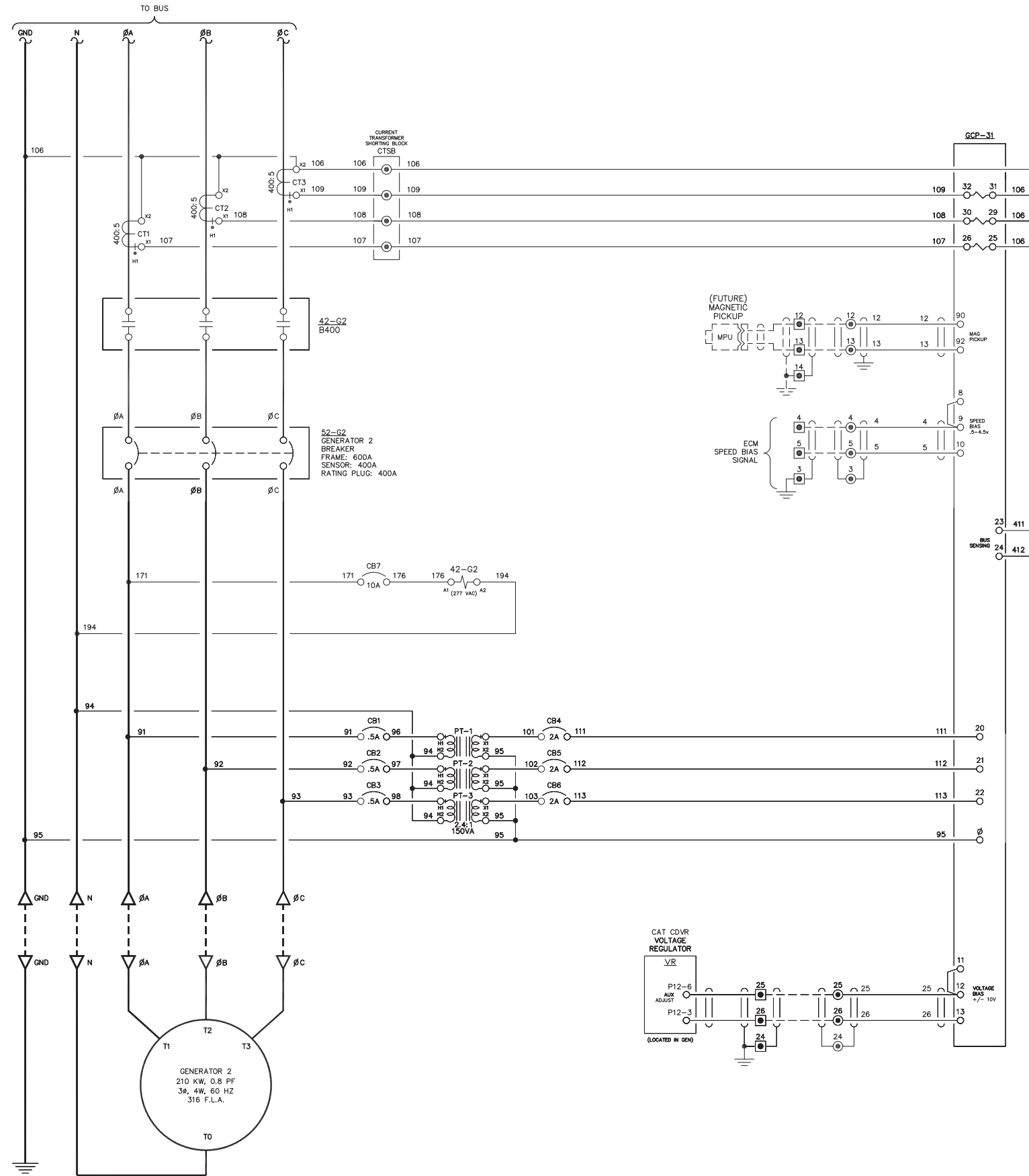
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B	04-03-13	REVISED PER REVIEW	GPN
A	03-25-13	SUBMITTAL	GPN
REV.	DATE	DESCRIPTION	BY

AEA PURCHASE ORDER No. 007750 CONTROLLED POWER JOB No. 7760
TITLE: GENERATOR 1 AC THREE LINE, SCHEMATIC DIAGRAM

SCALE: NONE	DATE: 03-19-13	DWN. BY: GPN
DWG. No: 7760-5201-D	SHEET: 1 OF 1	CKD. BY: JMD
JOB: ST GEORGE POWERHOUSE GENERATOR SWITCHGEAR		

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23 411 411 } BUS POTENTIAL TO
 24 412 412 } MASTER SECTION
 DWG No. 7760-5206-D,
 LINE No. 28

NOTE:
 1. FOR GENERAL WIRING & CONSTRUCTION NOTES, SEE DRAWING No. 7760-3101-D.

C	05-15-13	SHOP AS BUILT	GPN
B	04-03-13	REVISED PER REVIEW	GPN
A	03-25-13	SUBMITTAL	GPN
REV.	DATE	DESCRIPTION	BY

AEA PURCHASE ORDER No. 007750 CONTROLLED POWER JOB No. 7760

TITLE: GENERATOR 2 AC THREE LINE, SCHEMATIC DIAGRAM

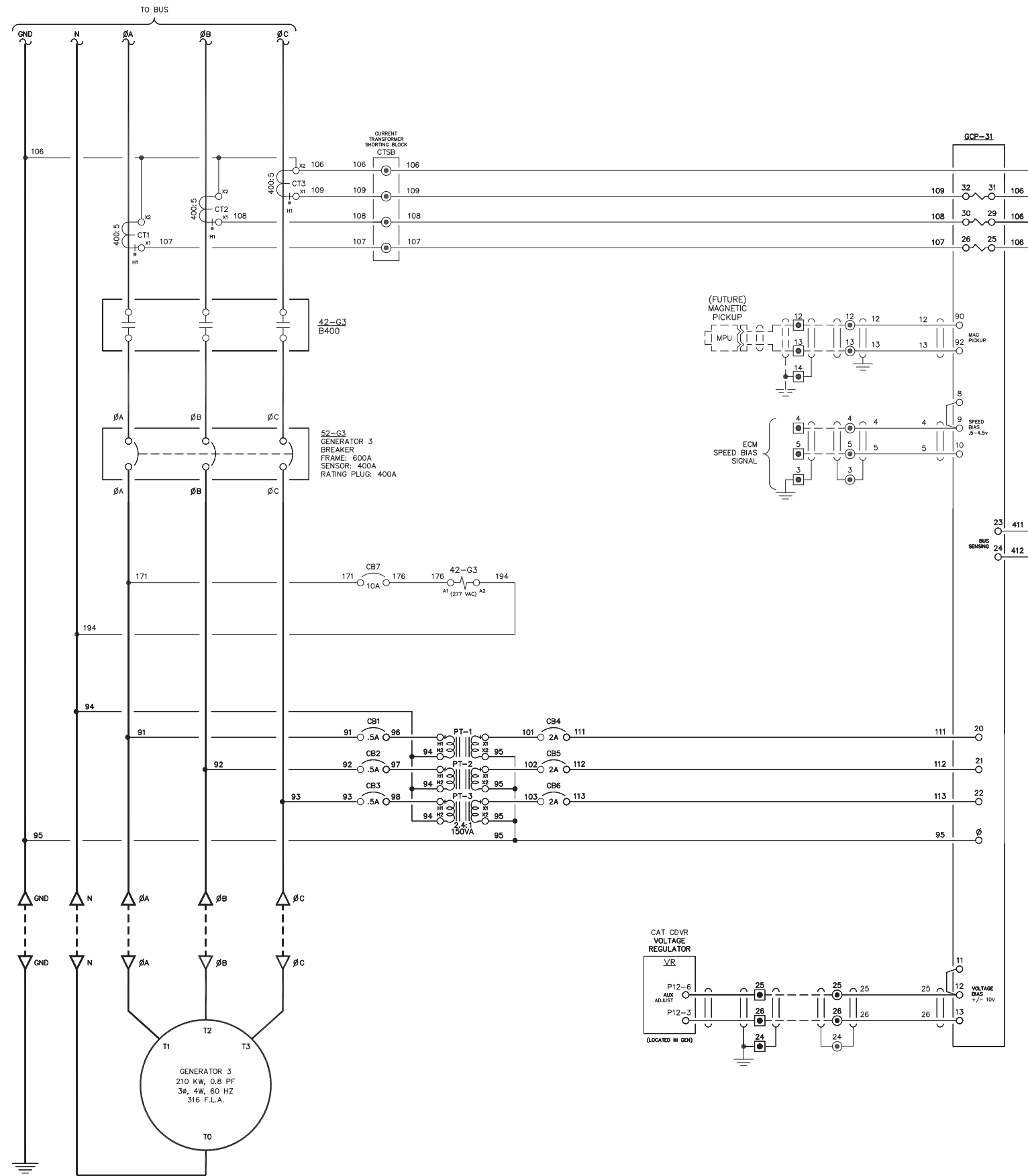
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DWG. No: 7760-5202-D SHEET: 1 OF 1 CKD. BY: JMD

JOB: ST GEORGE POWERHOUSE GENERATOR SWITCHGEAR

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NOTE:
1. FOR GENERAL WIRING & CONSTRUCTION NOTES, SEE DRAWING No. 7760-3101-D.

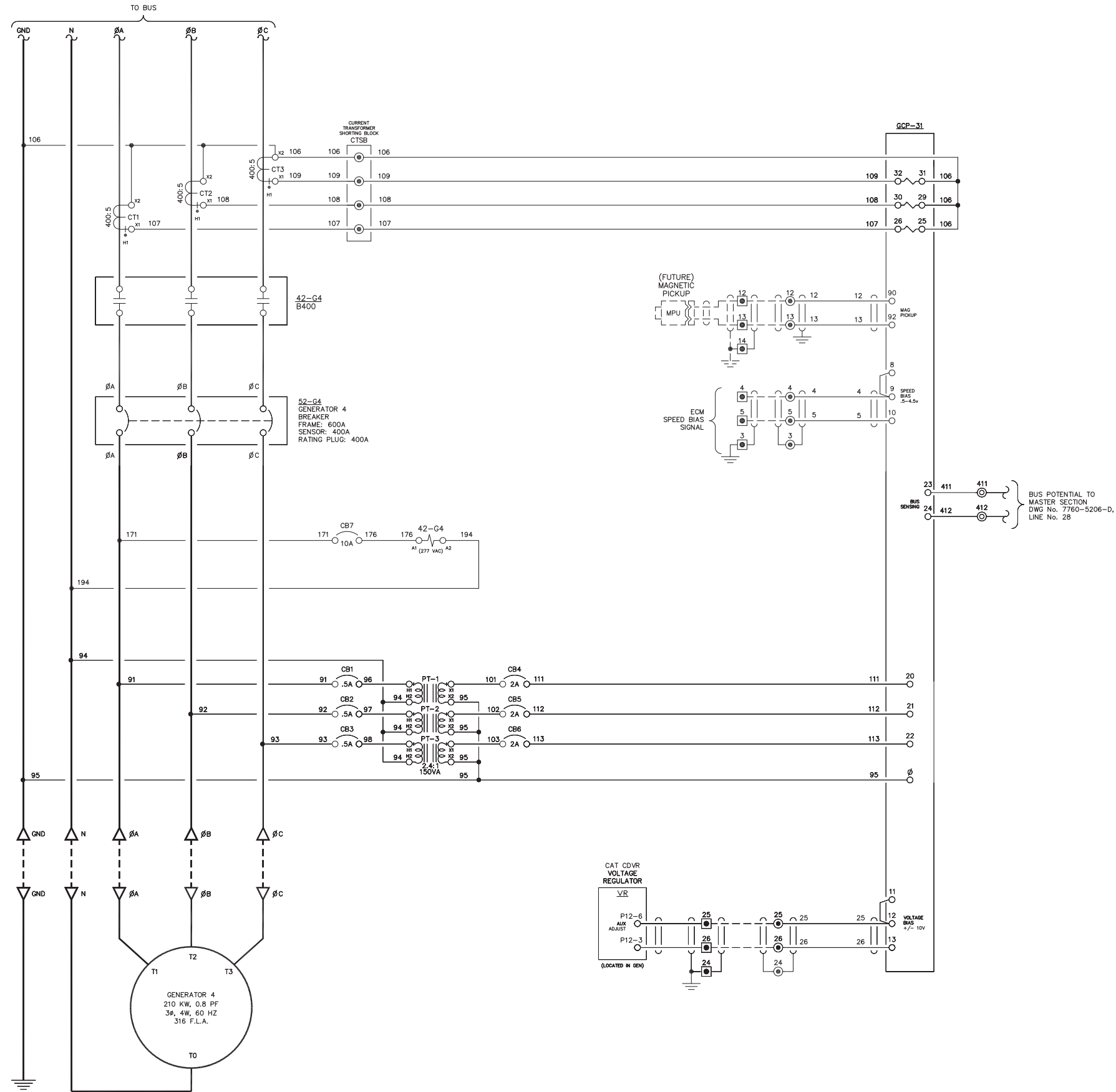
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B	04-03-13	REVISED PER REVIEW	GPN
A	03-25-13	SUBMITTAL	GPN
REV.	DATE	DESCRIPTION	BY

AEA PURCHASE ORDER No. 007750 CONTROLLED POWER JOB No. 7760
TITLE: GENERATOR 3 AC THREE LINE, SCHEMATIC DIAGRAM

SCALE: NONE	DATE: 03-19-13	DWN. BY: GPN
DWG. No: 7760-5203-D	SHEET: 1 OF 1	CKD. BY: JMD
JOB: ST GEORGE POWERHOUSE GENERATOR SWITCHGEAR		

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NOTE:
1. FOR GENERAL WIRING & CONSTRUCTION NOTES, SEE DRAWING No. 7760-3101-D.

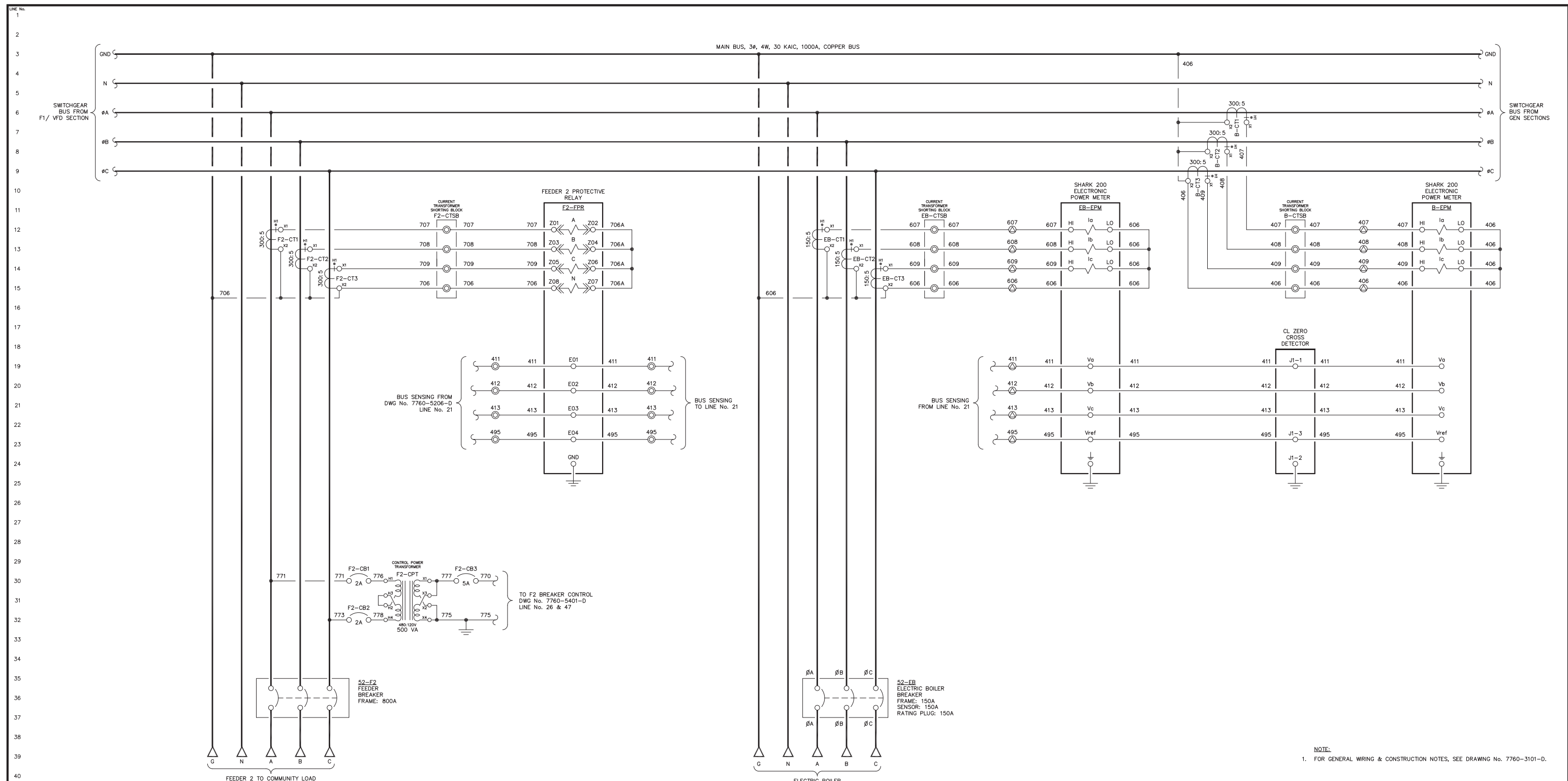
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B	04-03-13	REVISED PER REVIEW	GPN
A	03-25-13	SUBMITTAL	GPN
REV.	DATE	DESCRIPTION	BY

AEA PURCHASE ORDER No. 007750 CONTROLLED POWER JOB No. 7760
TITLE: GENERATOR 4 AC THREE LINE, SCHEMATIC DIAGRAM

SCALE: NONE	DATE: 03-19-13	DWN. BY: GPN
DWG. No: 7760-5204-D	SHEET: 1 OF 1	CKD. BY: JMD
JOB: ST GEORGE POWERHOUSE GENERATOR SWITCHGEAR		

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NOTE:
1. FOR GENERAL WIRING & CONSTRUCTION NOTES, SEE DRAWING No. 7760-3101-D.

C	05-15-13	SHOP AS BUILT	GPN
B	04-03-13	REVISED PER REVIEW	GPN
A	03-25-13	SUBMITTAL	GPN
REV.	DATE	DESCRIPTION	BY

AEA PURCHASE ORDER No. 007750 CONTROLLED POWER JOB No. 7760

TITLE: MASTER AC THREE LINE, SCHEMATIC DIAGRAM

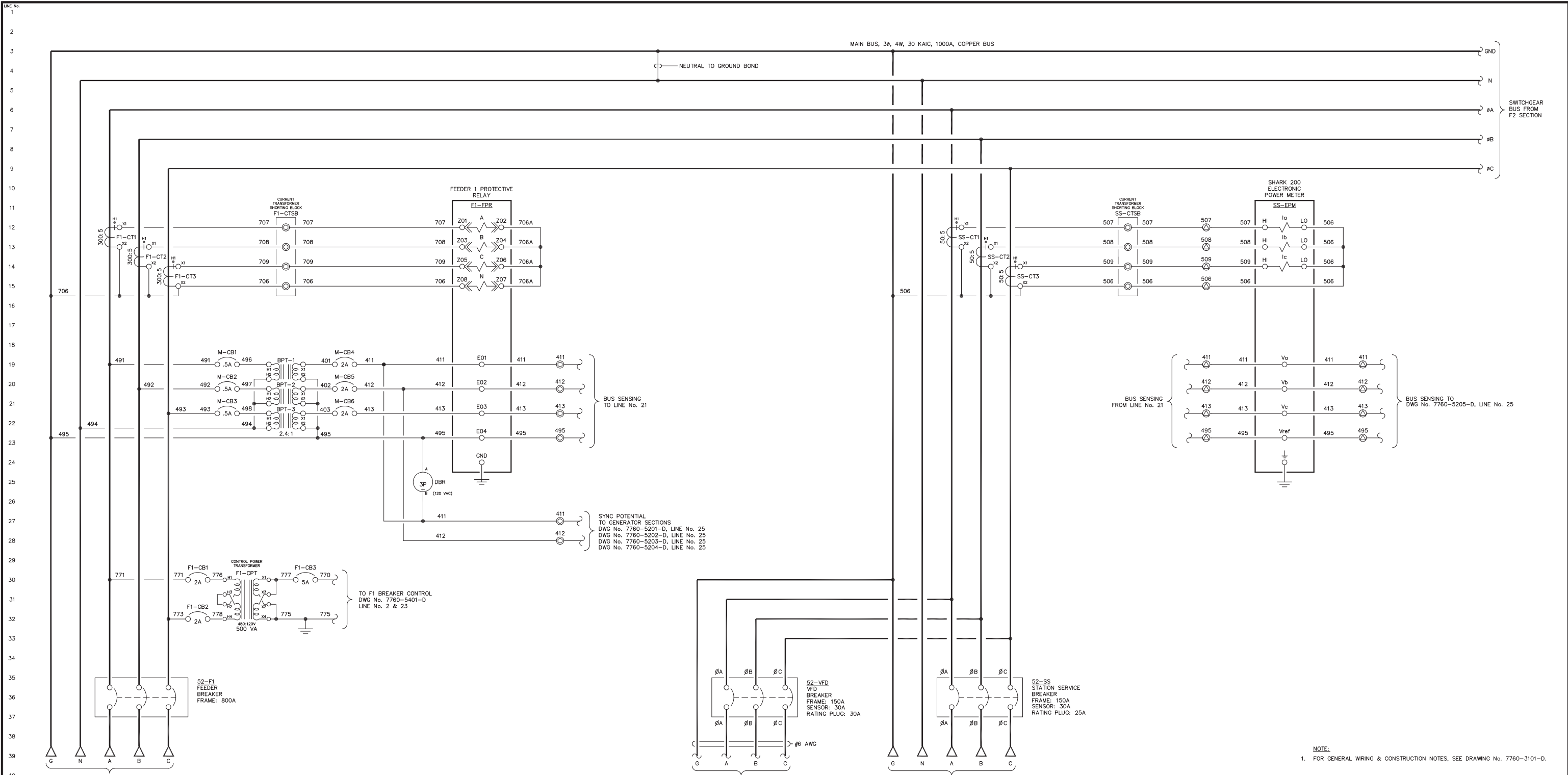
SCALE: NONE DATE: 03-19-13 DWN. BY: GPN

DWG. No: 7760-5205-D SHEET: 1 OF 1 CKD. BY: JMD

JOB: ST GEORGE POWERHOUSE GENERATOR SWITCHGEAR

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C	05-15-13	SHOP AS BUILT	GPN
B	04-03-13	REVISED PER REVIEW	GPN
A	03-25-13	SUBMITTAL	GPN
REV.	DATE	DESCRIPTION	BY

AEA PURCHASE ORDER No. 007750 CONTROLLED POWER JOB No. 7760

TITLE: MASTER AC THREE LINE, SCHEMATIC DIAGRAM

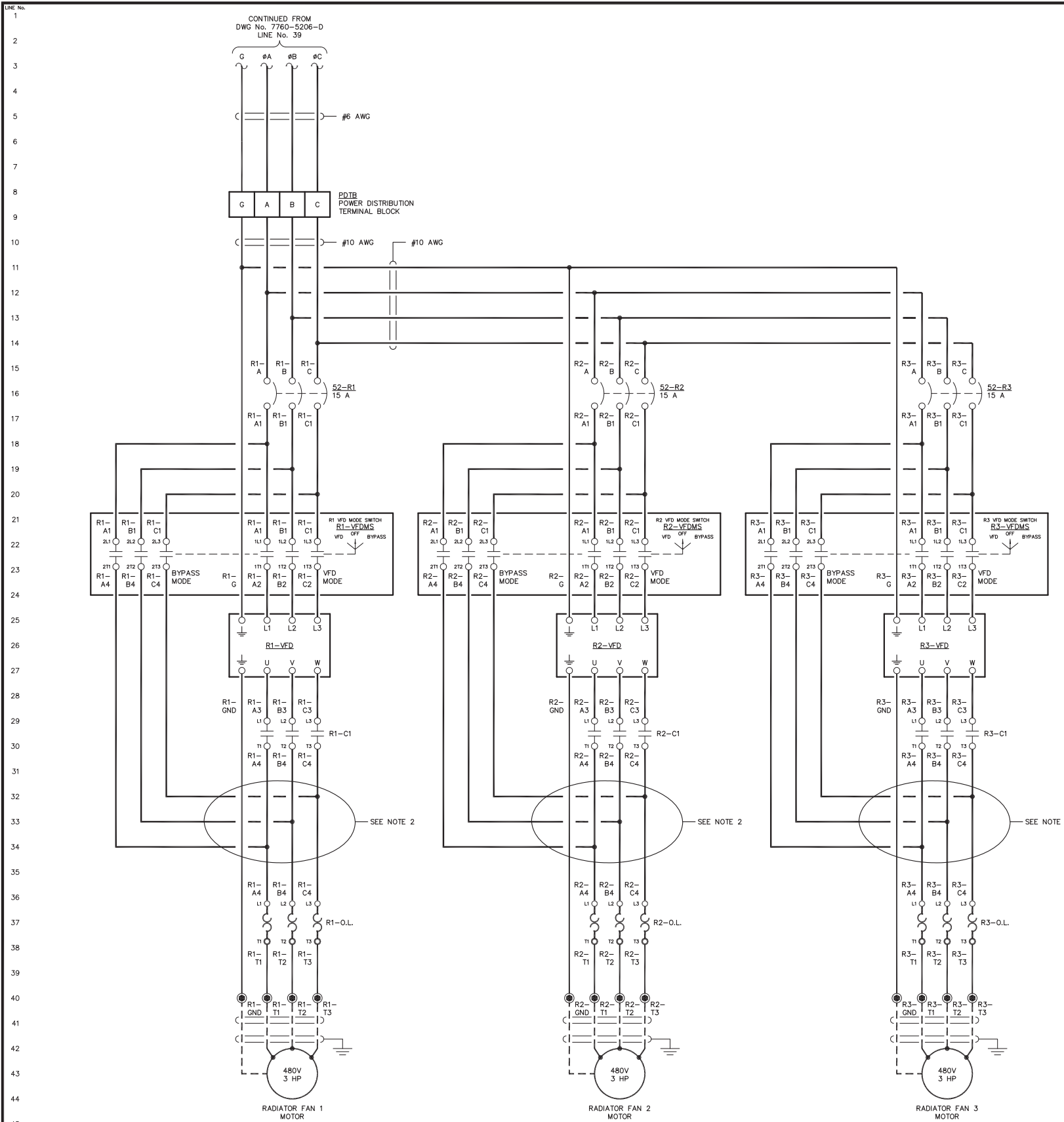
SCALE: NONE DATE: 03-19-13 DWN. BY: GPN

DWG. No: 7760-5206-D SHEET: 1 OF 1 CKD. BY: JMD

JOB: ST GEORGE POWERHOUSE GENERATOR SWITCHGEAR

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- NOTE:
- FOR GENERAL WIRING & CONSTRUCTION NOTES, SEE DRAWING No. 7760-3101-D.
 - VFD LOAD WIRES SHALL BE ROUTED SEPARATE FROM ALL OTHER WIRING OR SHIELDED TO AVOID RF INTERFERENCE.

C	05-15-13	SHOP AS BUILT	GPN
B	04-03-13	REVISED PER REVIEW	GPN
A	03-25-13	SUBMITTAL	GPN
REV.	DATE	DESCRIPTION	BY

AEA PURCHASE ORDER No. 007750 CONTROLLED POWER JOB No. 7760

TITLE: VFD THREE LINE, SCHEMATIC DIAGRAM

SCALE: NONE DATE: 03-19-13 DWN. BY: GPN

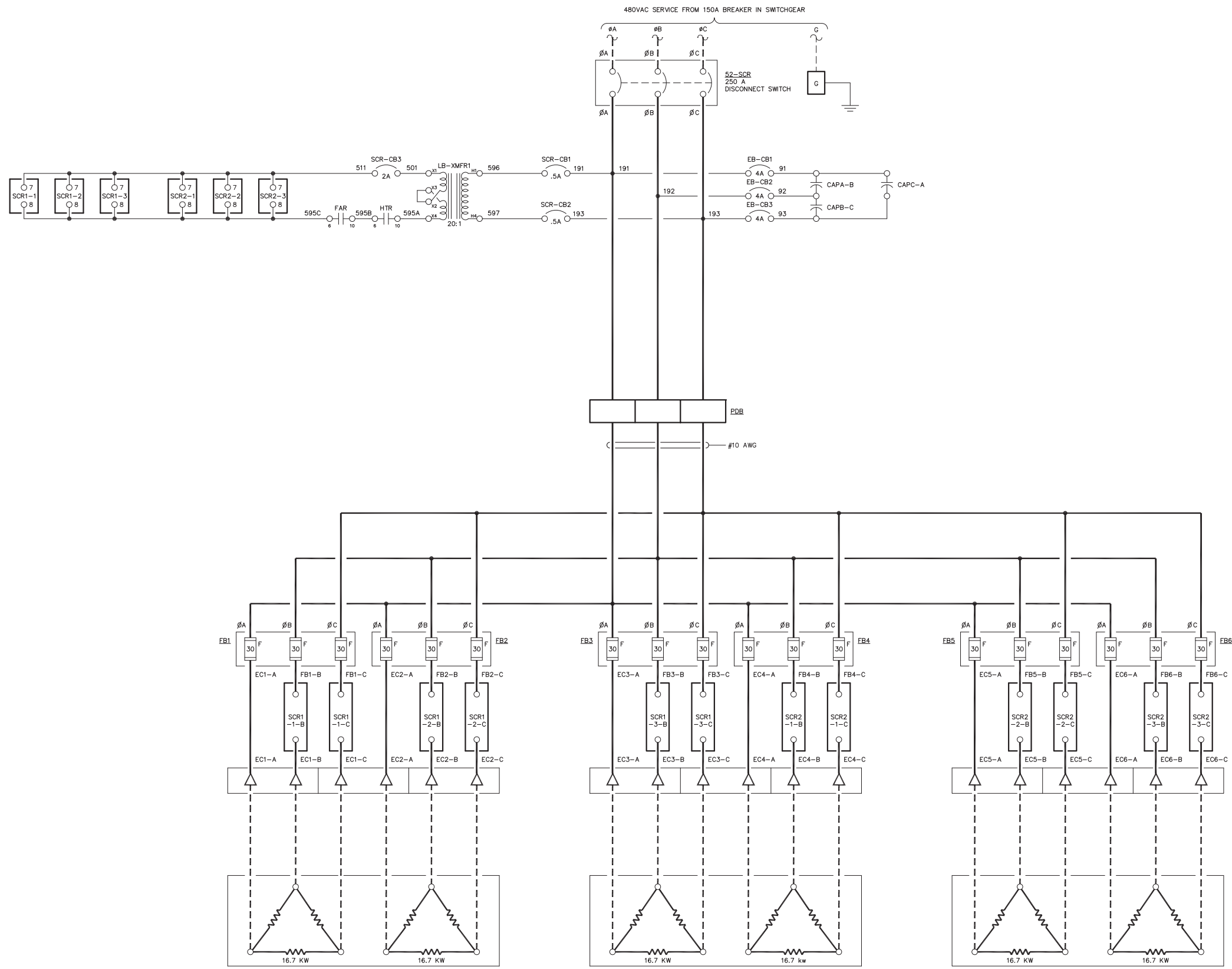
DWG. No: 7760-5207-D SHEET: 1 OF 1 CKD. BY: JMD

JOB: ST GEORGE POWERHOUSE GENERATOR SWITCHGEAR

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LINE No.
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NOTE:
1. FOR GENERAL WIRING & CONSTRUCTION NOTES, SEE DRAWING No. 7569-3101-D.

C	05-15-13	SHOP AS BUILT	GPN
B	04-03-13	REVISED PER REVIEW	GPN
A	03-25-13	SUBMITTAL	GPN
REV.	DATE	DESCRIPTION	BY

AEA PURCHASE ORDER No. 007750 CONTROLLED POWER JOB No. 7760

TITLE: ELECTRIC BOILER AC THREE LINE, SCHEMATIC DIAGRAM

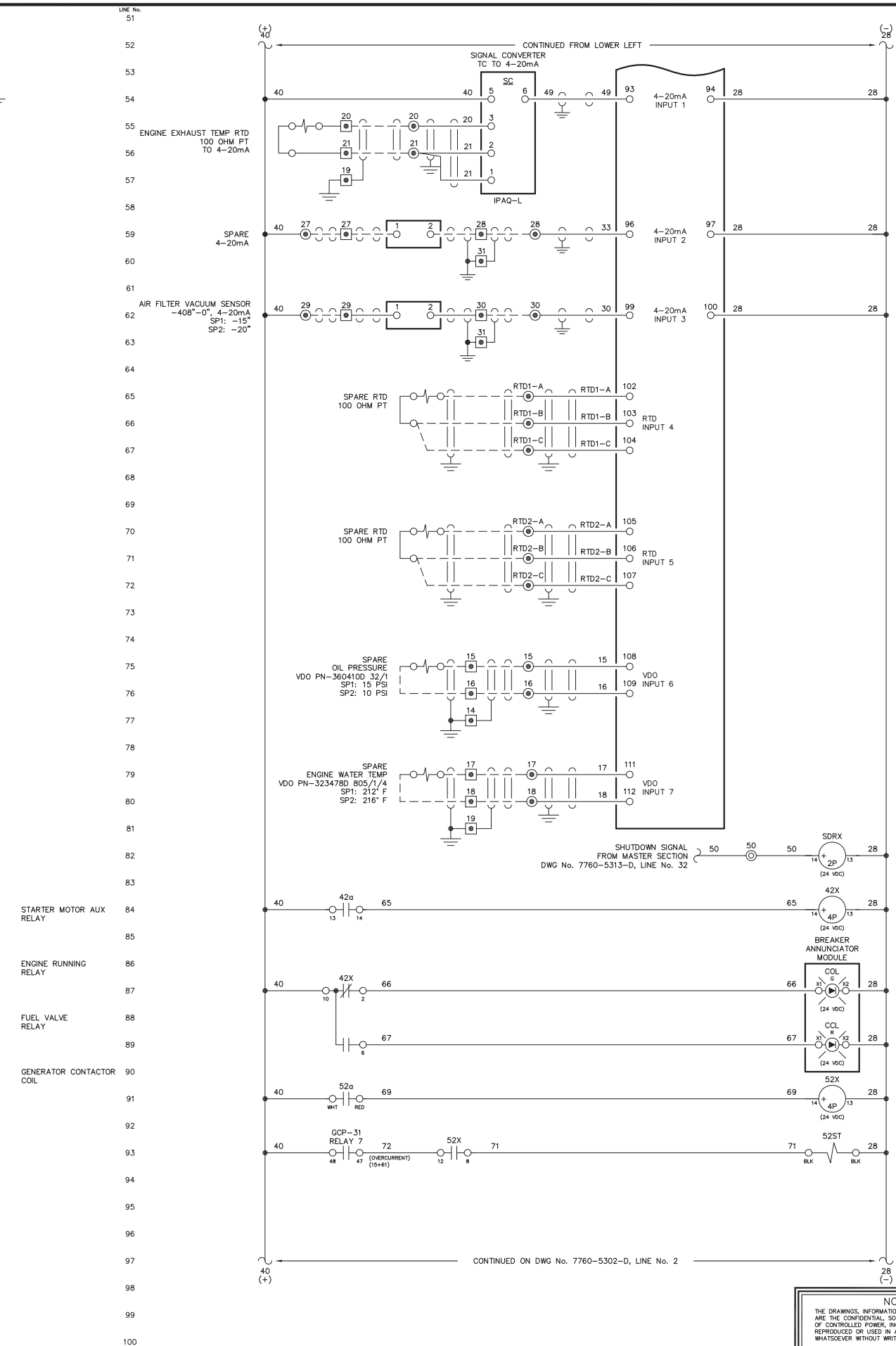
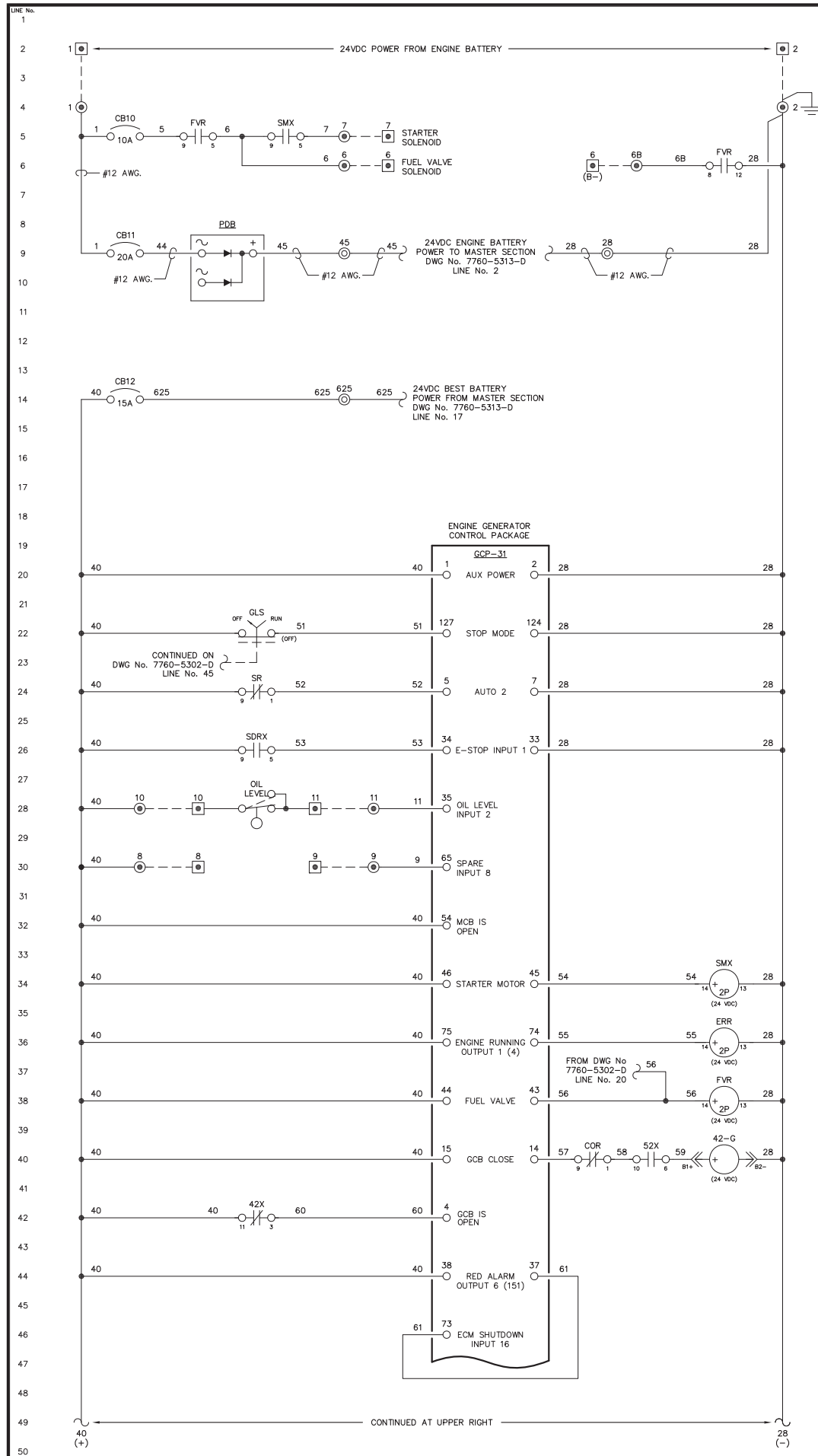
SCALE: NONE DATE: 03-19-13 DWN. BY: GPN

DWG. No: 7760-5208-D SHEET: 1 OF 1 CKD. BY: JMD

JOB: ST GEORGE POWERHOUSE GENERATOR SWITCHGEAR

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SHUTDOWN AUX RELAY

CONTACTOR AUX RELAY

CONTACTOR OPEN LIGHT

CONTACTOR CLOSED LIGHT

BREAKER AUX RELAY

GENERATOR BREAKER SHUNT TRIP

NOTE:
1. FOR GENERAL WIRING & CONSTRUCTION NOTES, SEE DRAWING No. 7760-3101-D.

REV.	DATE	DESCRIPTION	BY
C	05-15-13	SHOP AS BUILT	GPN
B	04-03-13	REVISED PER REVIEW	GPN
A	03-25-13	SUBMITTAL	GPN

AEA PURCHASE ORDER No. 007750 CONTROLLED POWER JOB No. 7760

TITLE: GENERATOR 1 DC CONTROL, SCHEMATIC DIAGRAM

SCALE: NONE DATE: 03-19-13 DWN. BY: GPN

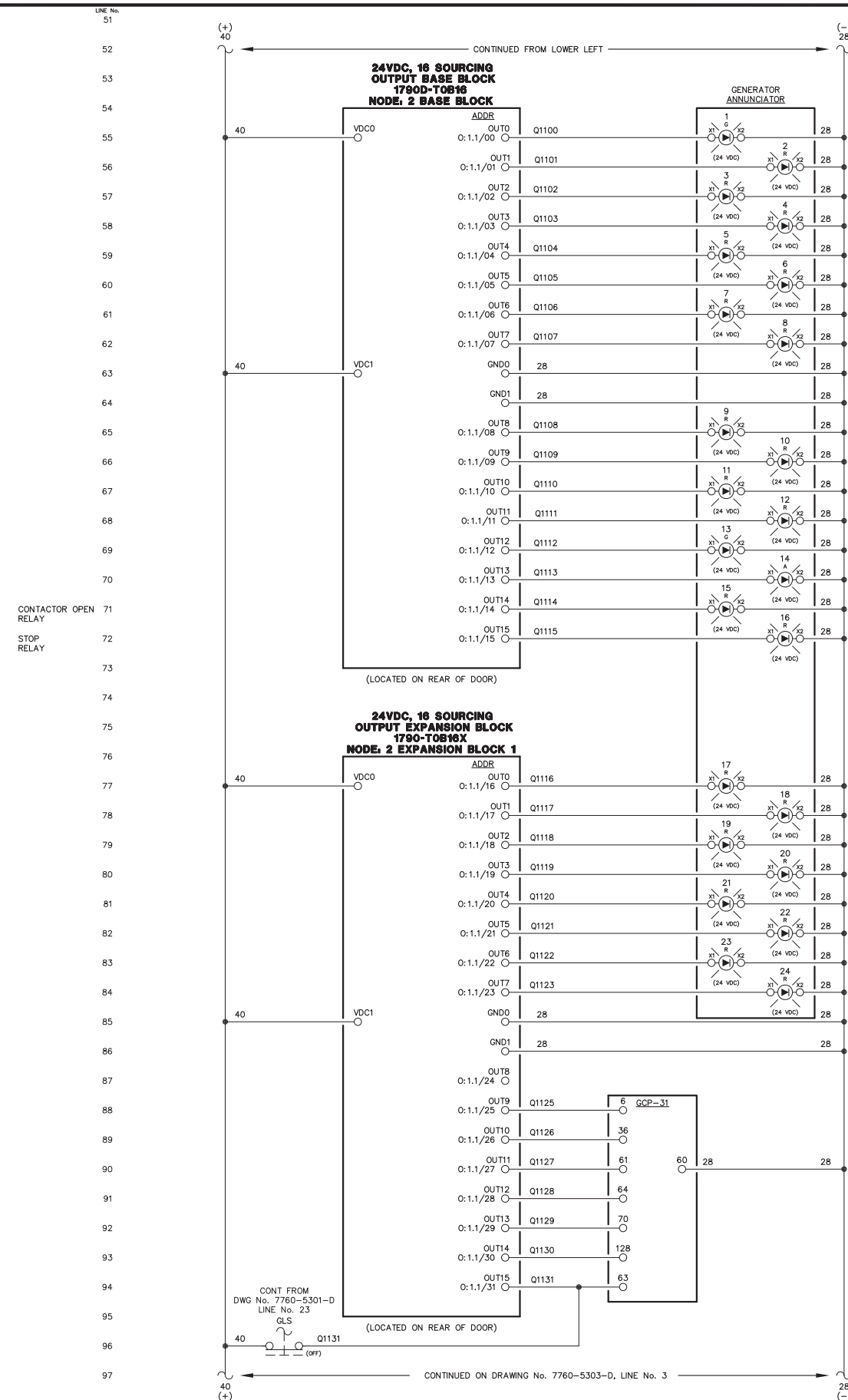
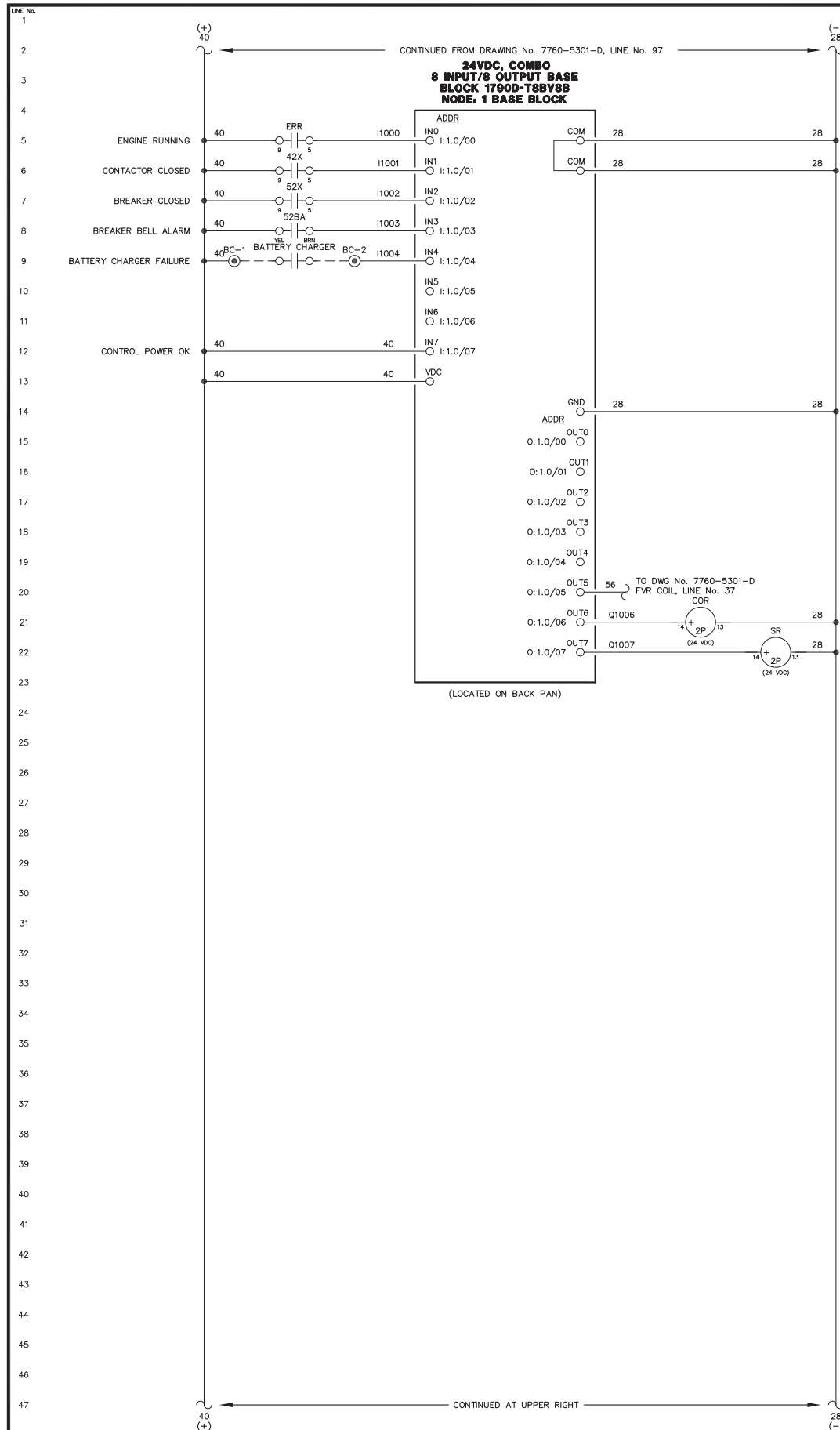
DWG. No: 7760-5301-D SHEET: 1 OF 1 CKD. BY: JMD

JOB: ST GEORGE POWERHOUSE GENERATOR SWITCHGEAR

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Plot date: 2013/9/16 - 12:48



- ENGINE RUNNING LIGHT
- ALARM/LOCKOUT LIGHT
- LOW OIL PRESSURE LIGHT
- OIL LEVEL LIGHT
- HIGH COOLANT TEMPERATURE LIGHT
- OVERSPEED LIGHT
- OVERCRANK LIGHT
- RUNNING TIMEOUT LIGHT
- BATTERY CHARGER FAILURE LIGHT
- AIR FILTER PLUGGED LIGHT
- HIGH EXHAUST TEMPERATURE LIGHT
- SPARE LIGHT
- LEAD ENGINE LIGHT
- NORMAL STOP LIGHT
- NOT IN AUTO LIGHT
- GENERATOR BREAKER TRIP LIGHT
- FAIL TO SYNCHRONIZE LIGHT
- OVERCURRENT LIGHT
- UNDER VOLTAGE LIGHT
- OVER VOLTAGE LIGHT
- UNDER FREQUENCY LIGHT
- OVER FREQUENCY LIGHT
- REVERSE POWER LIGHT
- SPARE LIGHT
- MULTIFUNCTION (REMOTE ACK)
- INPUT 3 - RUNNING TIMEOUT
- INPUT 4 - MASTER SHUTDOWN
- INPUT 7 - BREAKER LOGIC
- INPUT 13 - SPARE
- AUTOMATIC MODE
- MODE SELECTION LOCK

NOTE:
1. FOR GENERAL WIRING & CONSTRUCTION NOTES, SEE DRAWING No. 7760-3101-D.

C	05-15-13	SHOP AS BUILT	GPN
B	04-03-13	REVISED PER REVIEW	GPN
A	03-25-13	SUBMITTAL	GPN
REV.	DATE	DESCRIPTION	BY

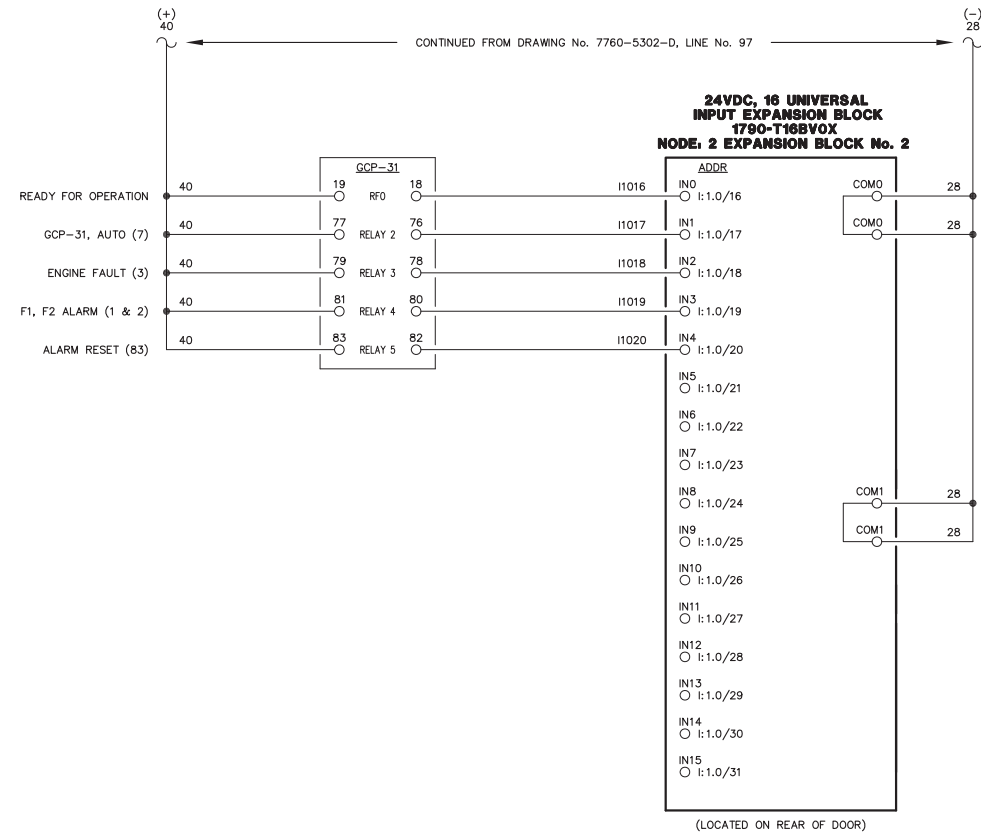
AEA PURCHASE ORDER No. 007750 CONTROLLED POWER JOB No. 7760
TITLE: GENERATOR 1 DC CONTROL, SCHEMATIC DIAGRAM

SCALE: NONE DATE: 03-19-13 DWN. BY: GPN
DWG. No: 7760-5302-D SHEET: 1 OF 1 CKD. BY: JMD

JOB: ST GEORGE POWERHOUSE GENERATOR SWITCHGEAR

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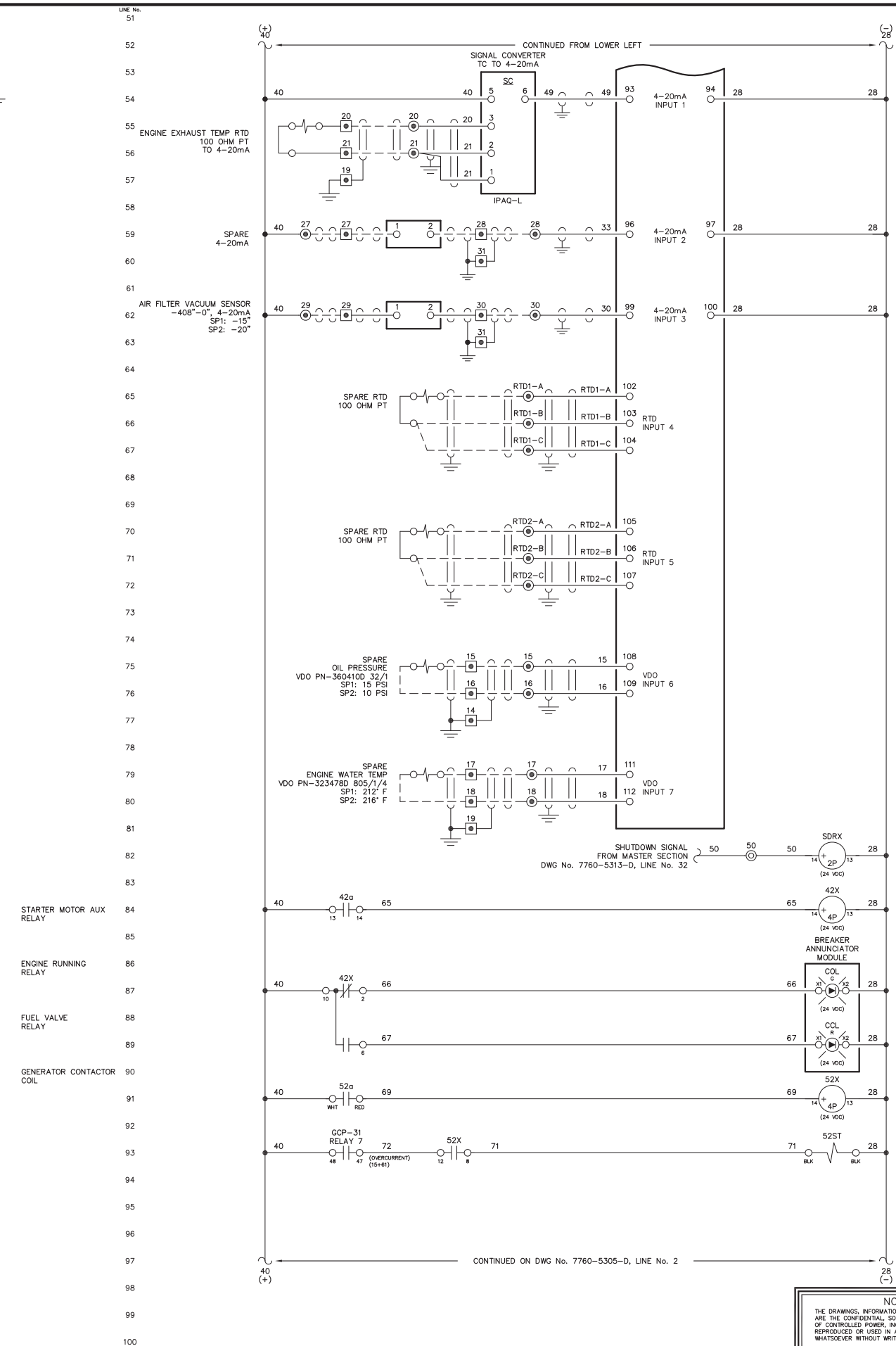
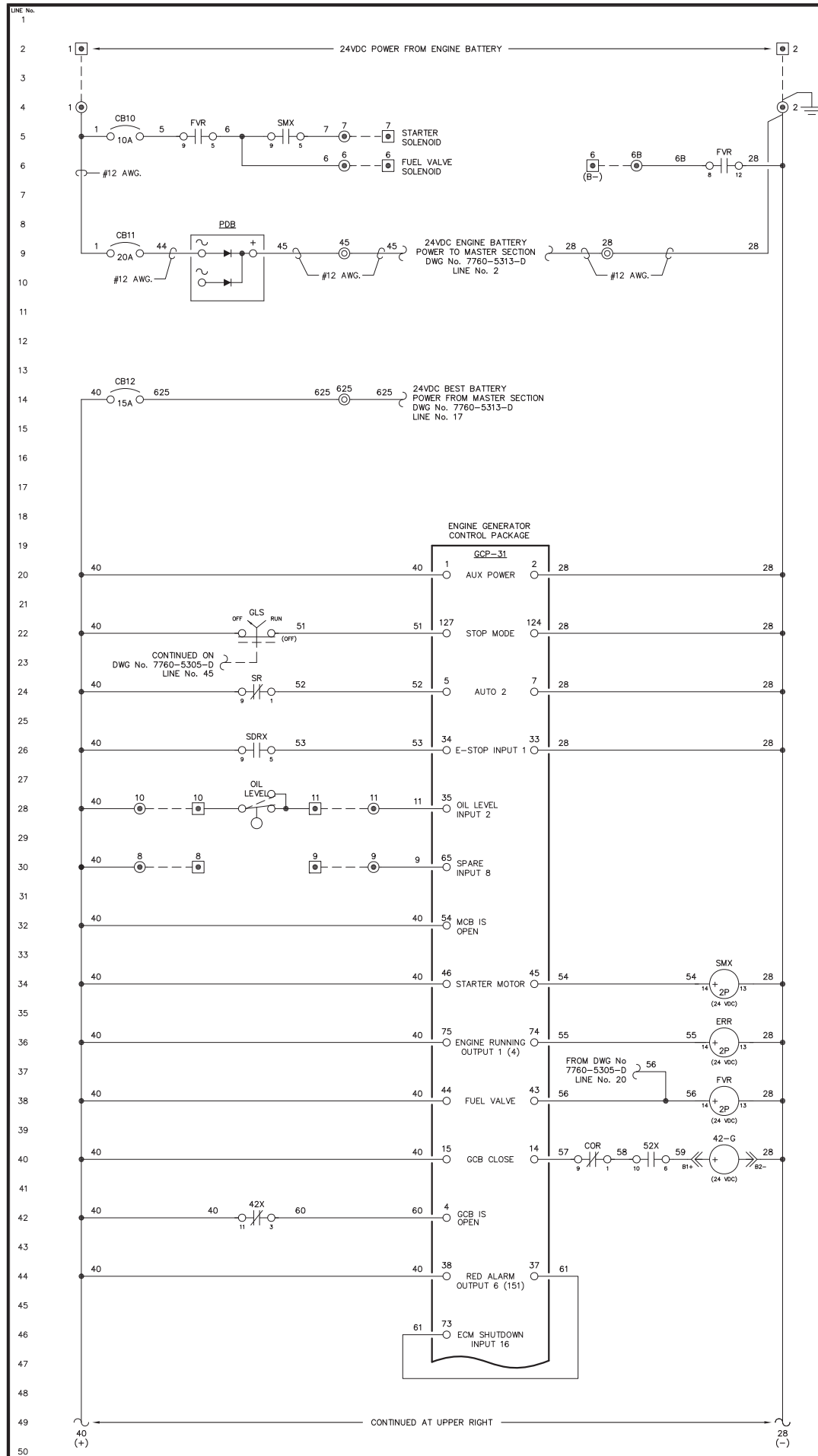


NOTE:
1. FOR GENERAL WIRING & CONSTRUCTION NOTES, SEE DRAWING No. 7760-3101-D.

C	05-15-13	SHOP AS BUILT	GPN
B	04-03-13	REVISED PER REVIEW	GPN
A	03-25-13	SUBMITTAL	GPN
REV.	DATE	DESCRIPTION	BY
AEA PURCHASE ORDER No. 007750 CONTROLLED POWER JOB No. 7760			
TITLE: GENERATOR 1 DC CONTROL, SCHEMATIC DIAGRAM			
SCALE: NONE	DATE: 03-19-13	DWN. BY: GPN	
DWG. No: 7760-5303-D	SHEET: 1 OF 1	CKD. BY: JMD	
JOB: ST GEORGE POWERHOUSE GENERATOR SWITCHGEAR			

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NOTE:
1. FOR GENERAL WIRING & CONSTRUCTION NOTES, SEE DRAWING No. 7760-3101-D.

REV.	DATE	DESCRIPTION	BY
C	05-15-13	SHOP AS BUILT	GPN
B	04-03-13	REVISED PER REVIEW	GPN
A	03-25-13	SUBMITTAL	GPN

AEA PURCHASE ORDER No. 007750 CONTROLLED POWER JOB No. 7760

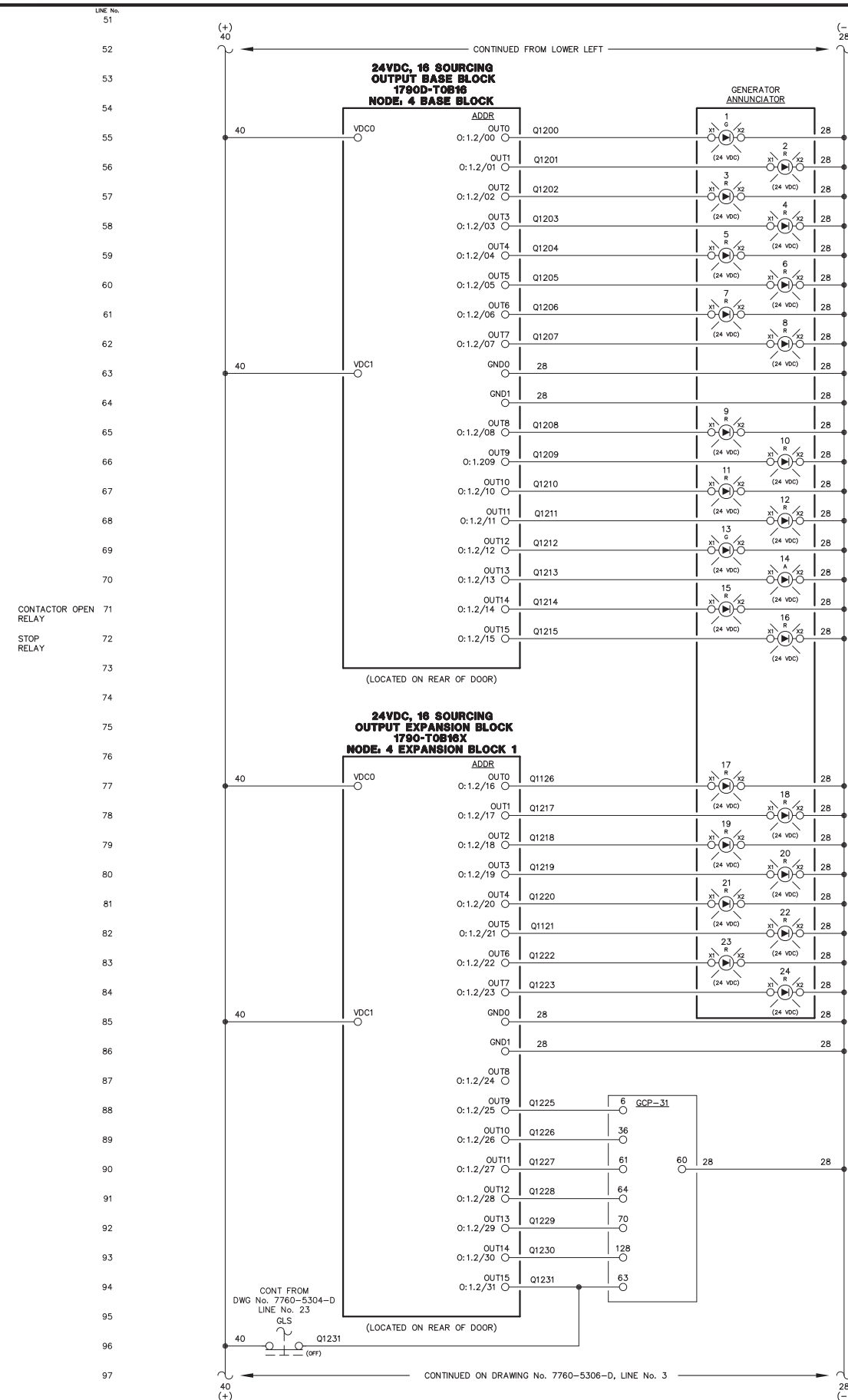
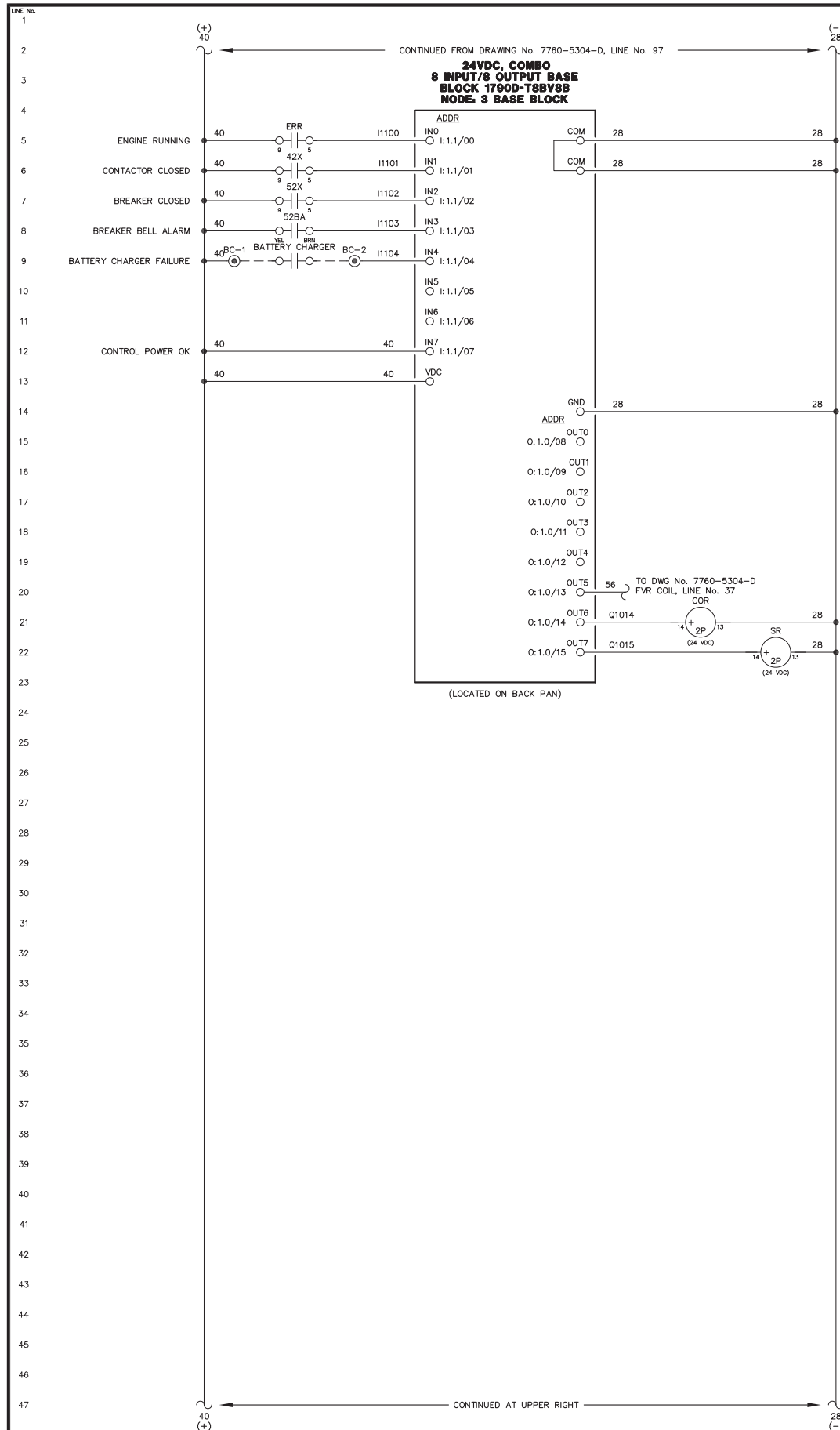
TITLE: GENERATOR 2 DC CONTROL, SCHEMATIC DIAGRAM

SCALE: NONE	DATE: 03-19-13	DWN. BY: GPN
DWG. No: 7760-5304-D	SHEET: 1 OF 1	CKD. BY: JMD
JOB: ST GEORGE POWERHOUSE GENERATOR SWITCHGEAR		

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Plot date: 2013/9/16 - 12:47



- ENGINE RUNNING LIGHT
- ALARM/LOCKOUT LIGHT
- LOW OIL PRESSURE LIGHT
- OIL LEVEL LIGHT
- HIGH COOLANT TEMPERATURE LIGHT
- OVERSPEED LIGHT
- OVERCRANK LIGHT
- RUNNING TIMEOUT LIGHT
- BATTERY CHARGER FAILURE LIGHT
- AIR FILTER PLUGGED LIGHT
- HIGH EXHAUST TEMPERATURE LIGHT
- SPARE LIGHT
- LEAD ENGINE LIGHT
- NORMAL STOP LIGHT
- NOT IN AUTO LIGHT
- GENERATOR BREAKER TRIP LIGHT
- FAIL TO SYNCHRONIZE LIGHT
- OVERCURRENT LIGHT
- UNDER VOLTAGE LIGHT
- OVER VOLTAGE LIGHT
- UNDER FREQUENCY LIGHT
- OVER FREQUENCY LIGHT
- REVERSE POWER LIGHT
- SPARE LIGHT
- MULTIFUNCTION (REMOTE ACK)
- INPUT 3 - RUNNING TIMEOUT
- INPUT 4 - MASTER SHUTDOWN
- INPUT 7 - BREAKER LOGIC
- INPUT 13 - SPARE
- AUTOMATIC MODE
- MODE SELECTION LOCK

NOTE:
1. FOR GENERAL WIRING & CONSTRUCTION NOTES, SEE DRAWING No. 7760-3101-D.

C	05-15-13	SHOP AS BUILT	GPN
B	04-03-13	REVISED PER REVIEW	GPN
A	03-25-13	SUBMITTAL	GPN

REV. DATE DESCRIPTION BY
AEA PURCHASE ORDER No. 007750 CONTROLLED POWER JOB No. 7760

TITLE: GENERATOR 2 DC CONTROL, SCHEMATIC DIAGRAM

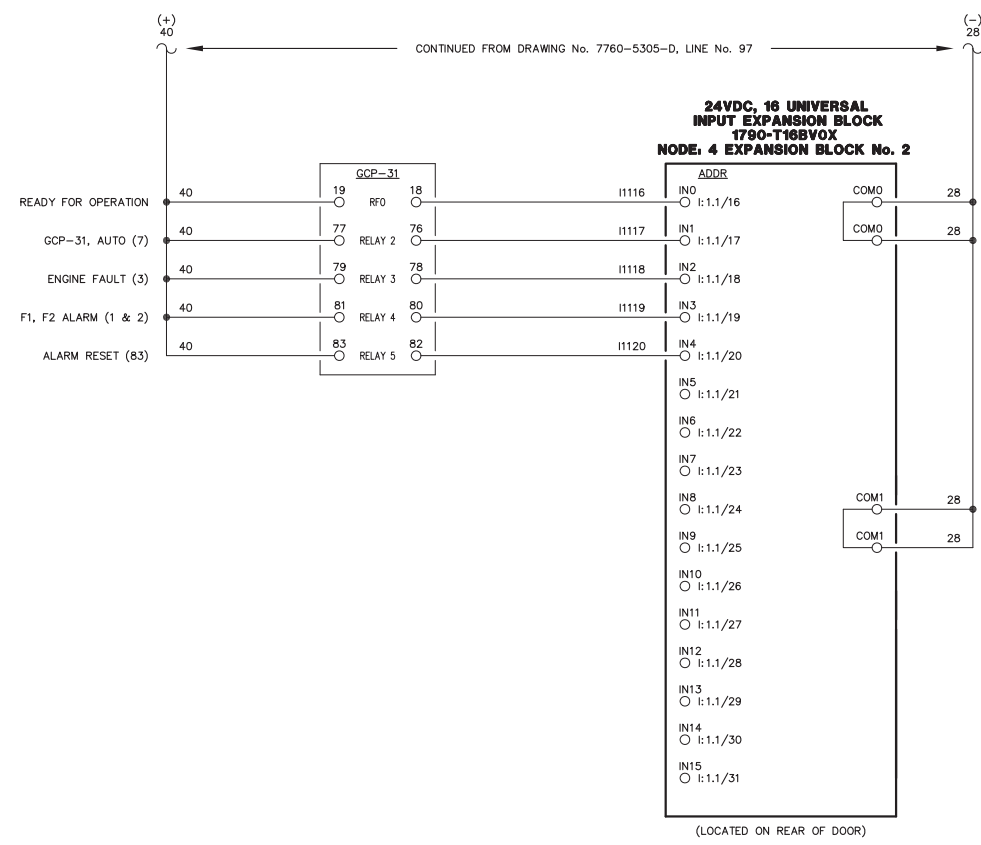
SCALE: NONE DATE: 03-19-13 DWN. BY: GPN

DWG. No: 7760-5305-D SHEET: 1 OF 1 CKD. BY: JMD

JOB: ST GEORGE POWERHOUSE GENERATOR SWITCHGEAR

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NOTE:
1. FOR GENERAL WIRING & CONSTRUCTION NOTES, SEE DRAWING No. 7760-3101-D.

C	05-15-13	SHOP AS BUILT	GPN
B	04-03-13	REVISED PER REVIEW	GPN
A	03-25-13	SUBMITTAL	GPN
REV.	DATE	DESCRIPTION	BY

AEA PURCHASE ORDER No. 007750 CONTROLLED POWER JOB No. 7760

TITLE: GENERATOR 2 DC CONTROL, SCHEMATIC DIAGRAM

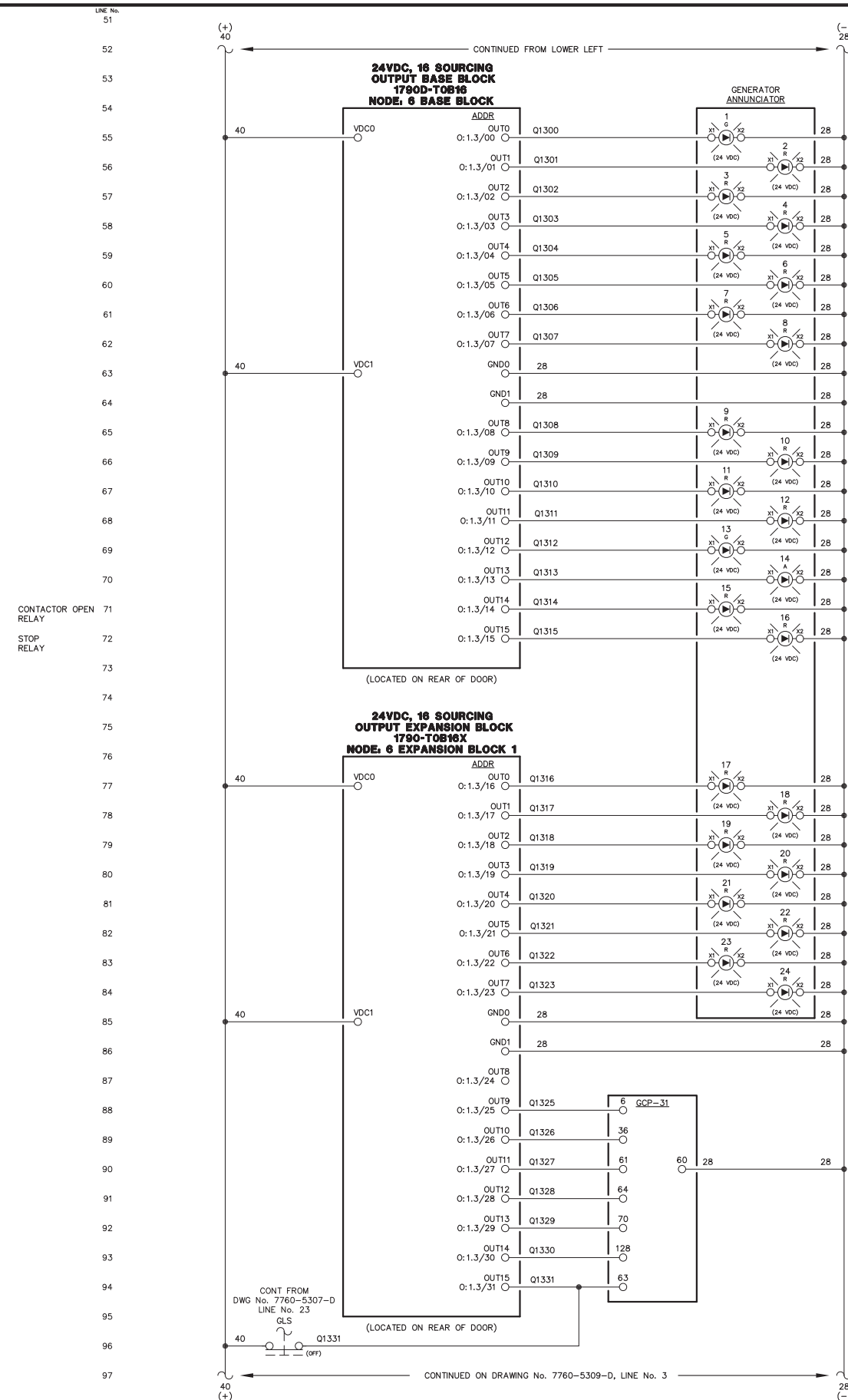
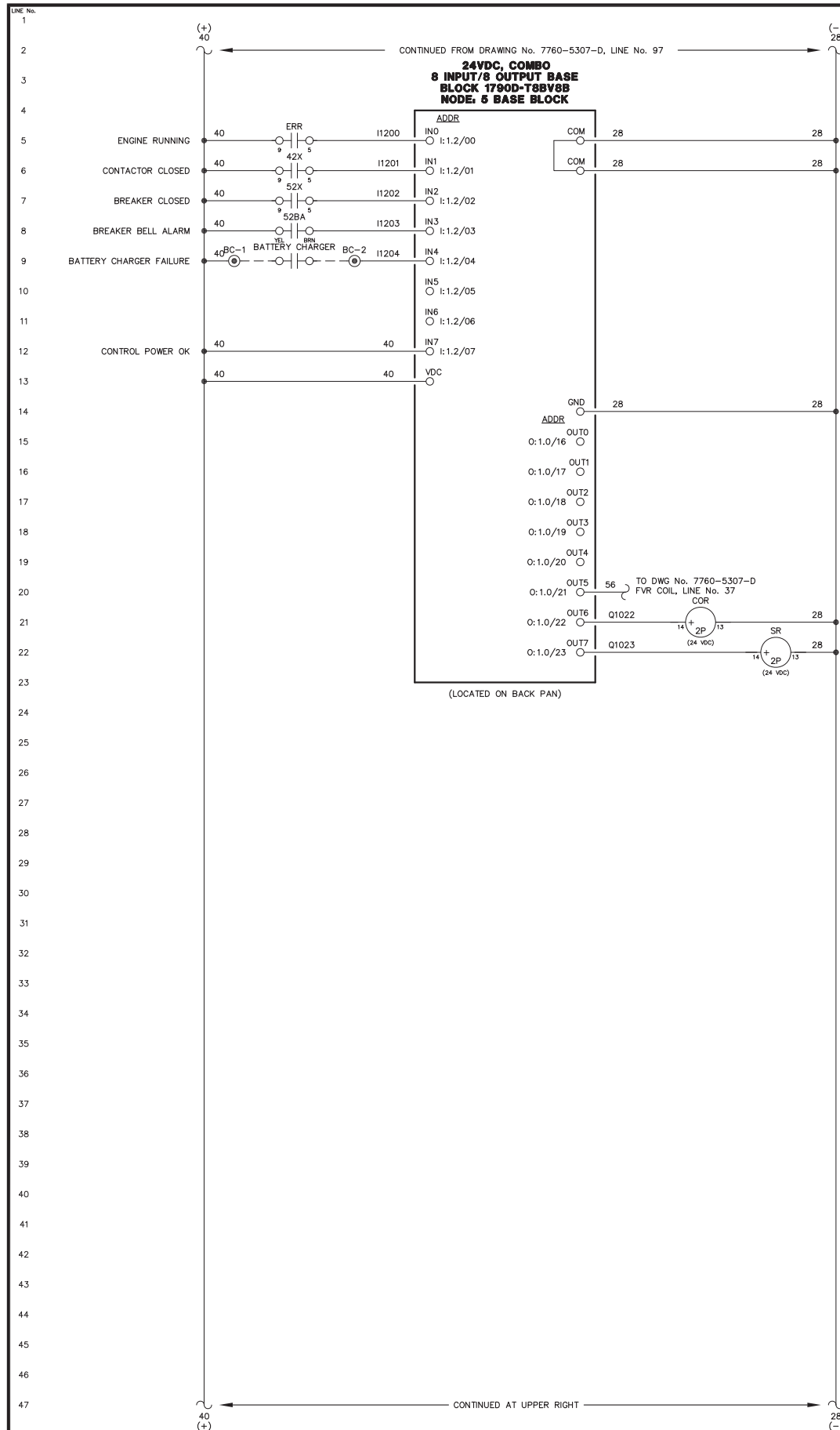
SCALE: NONE DATE: 03-19-13 DWN. BY: GPN

DWG. No: 7760-5306-D SHEET: 1 OF 1 CKD. BY: JMD

JOB: ST GEORGE POWERHOUSE GENERATOR SWITCHGEAR

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- ENGINE RUNNING LIGHT
- ALARM/LOCKOUT LIGHT
- LOW OIL PRESSURE LIGHT
- OIL LEVEL LIGHT
- HIGH COOLANT TEMPERATURE LIGHT
- OVERSPEED LIGHT
- OVERCRANK LIGHT
- RUNNING TIMEOUT LIGHT
- BATTERY CHARGER FAILURE LIGHT
- AIR FILTER PLUGGED LIGHT
- HIGH EXHAUST TEMPERATURE LIGHT
- SPARE LIGHT
- LEAD ENGINE LIGHT
- NORMAL STOP LIGHT
- NOT IN AUTO LIGHT
- GENERATOR BREAKER TRIP LIGHT
- FAIL TO SYNCHRONIZE LIGHT
- OVERCURRENT LIGHT
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- OVER VOLTAGE LIGHT
- UNDER FREQUENCY LIGHT
- OVER FREQUENCY LIGHT
- REVERSE POWER LIGHT
- SPARE LIGHT
- MULTIFUNCTION (REMOTE ACK)
- INPUT 3 - RUNNING TIMEOUT
- INPUT 4 - MASTER SHUTDOWN
- INPUT 7 - BREAKER LOGIC
- INPUT 13 - SPARE
- AUTOMATIC MODE
- MODE SELECTION LOCK

NOTE:
1. FOR GENERAL WIRING & CONSTRUCTION NOTES, SEE DRAWING No. 7760-3101-D.

REV.	DATE	DESCRIPTION	BY
C	05-15-13	SHOP AS BUILT	GPN
B	04-03-13	REVISED PER REVIEW	GPN
A	03-25-13	SUBMITTAL	GPN

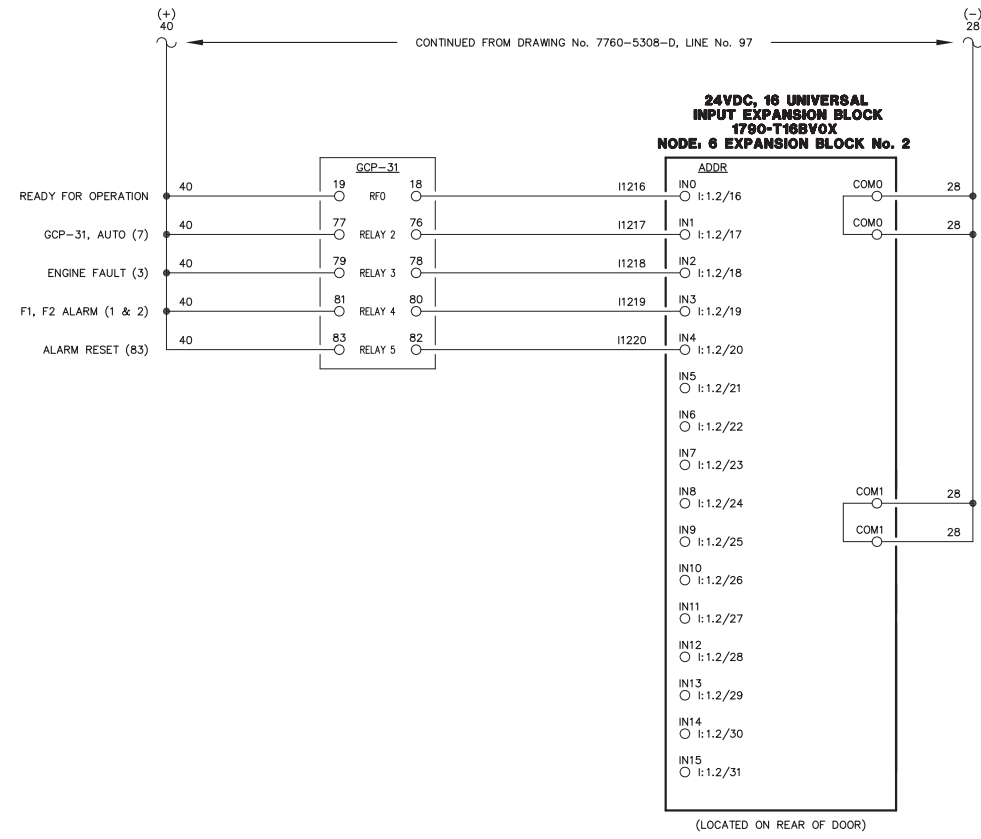
AEA PURCHASE ORDER No. 007750 CONTROLLED POWER JOB No. 7760
TITLE: GENERATOR 3 DC CONTROL, SCHEMATIC DIAGRAM

SCALE: NONE DATE: 03-19-13 DWN. BY: GPN
DWG. No: 7760-5308-D SHEET: 1 OF 1 CKD. BY: JMD

JOB: ST GEORGE POWERHOUSE GENERATOR SWITCHGEAR

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NOTE:
1. FOR GENERAL WIRING & CONSTRUCTION NOTES, SEE DRAWING No. 7760-3101-D.

C	05-15-13	SHOP AS BUILT	GPN
B	04-03-13	REVISED PER REVIEW	GPN
A	03-25-13	SUBMITTAL	GPN
REV.	DATE	DESCRIPTION	BY

AEA PURCHASE ORDER No. 007750 CONTROLLED POWER JOB No. 7760

TITLE: GENERATOR 3 DC CONTROL, SCHEMATIC DIAGRAM

SCALE: NONE DATE: 03-19-13 DWN. BY: GPN

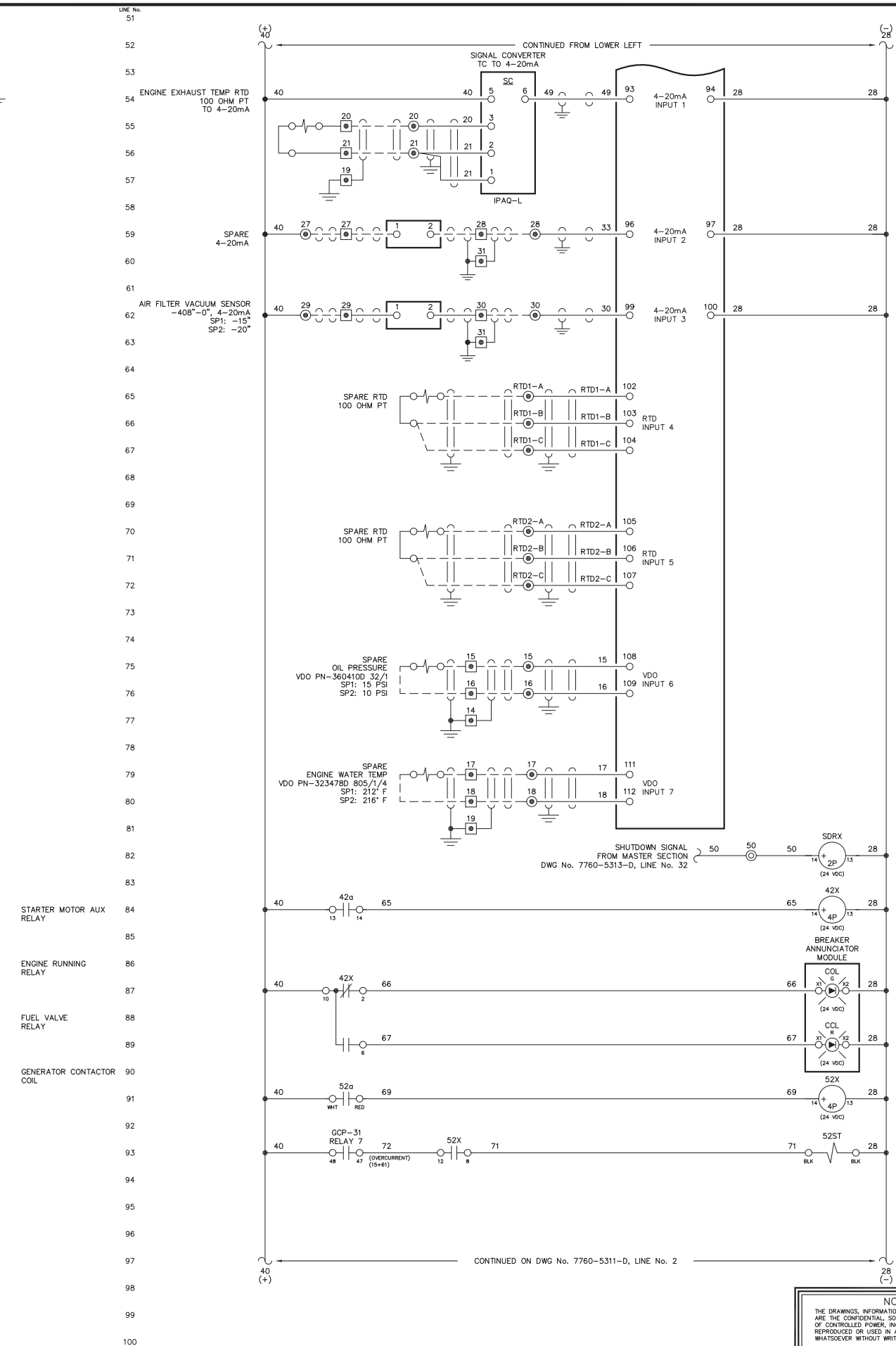
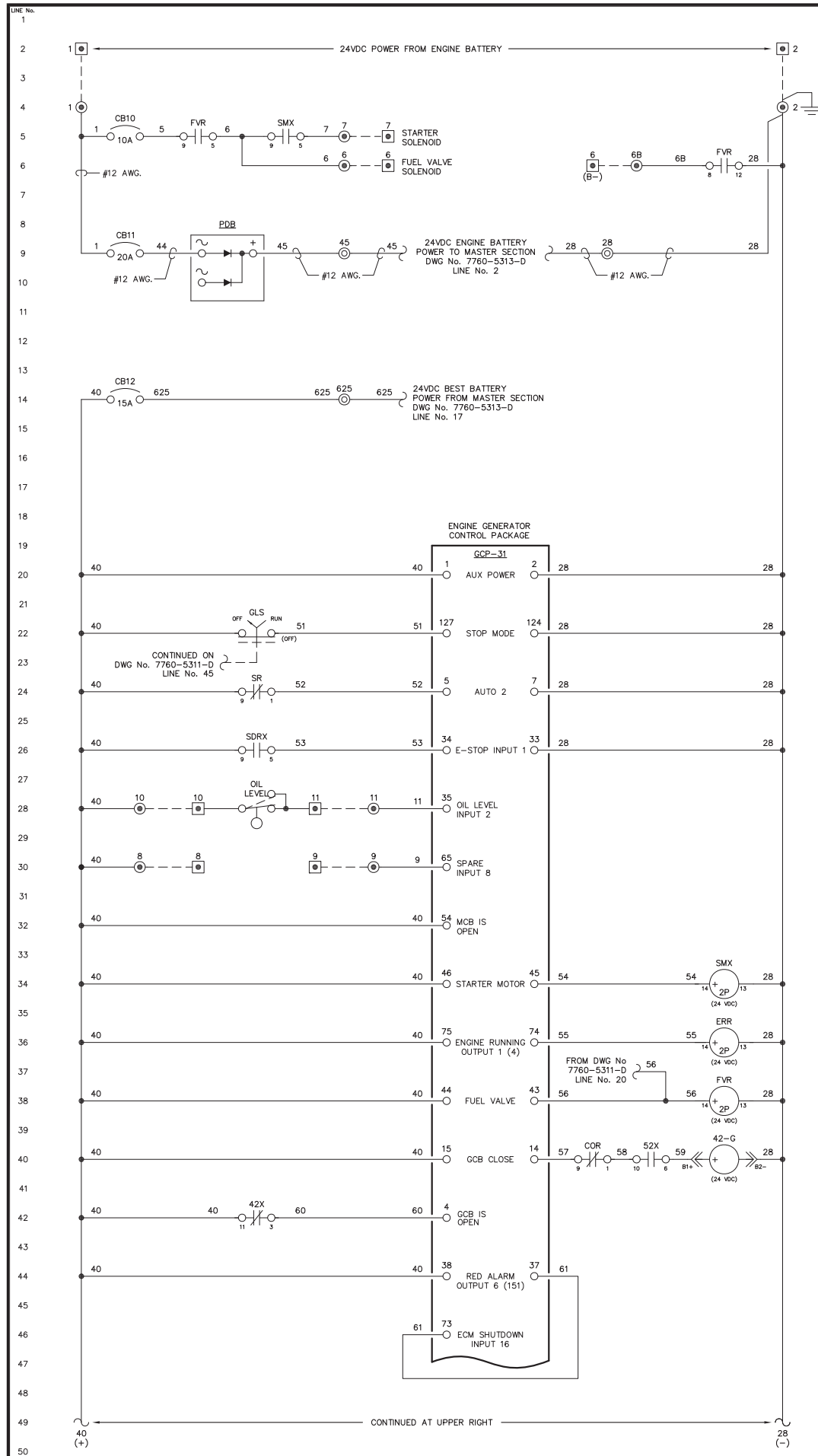
DWG. No: 7760-5309-D SHEET: 1 OF 1 CKD. BY: JMD

JOB: ST GEORGE POWERHOUSE GENERATOR SWITCHGEAR

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SHUTDOWN AUX RELAY

CONTACTOR AUX RELAY

CONTACTOR OPEN LIGHT

CONTACTOR CLOSED LIGHT

BREAKER AUX RELAY

GENERATOR BREAKER SHUNT TRIP

NOTE:
1. FOR GENERAL WIRING & CONSTRUCTION NOTES, SEE DRAWING No. 7760-3101-D.

REV.	DATE	DESCRIPTION	BY
C	05-15-13	SHOP AS BUILT	GPN
B	04-03-13	REVISED PER REVIEW	GPN
A	03-25-13	SUBMITTAL	GPN

AEA PURCHASE ORDER No. 007750 CONTROLLED POWER JOB No. 7760

TITLE: GENERATOR 4 DC CONTROL, SCHEMATIC DIAGRAM

SCALE: NONE DATE: 03-19-13 DWN. BY: GPN

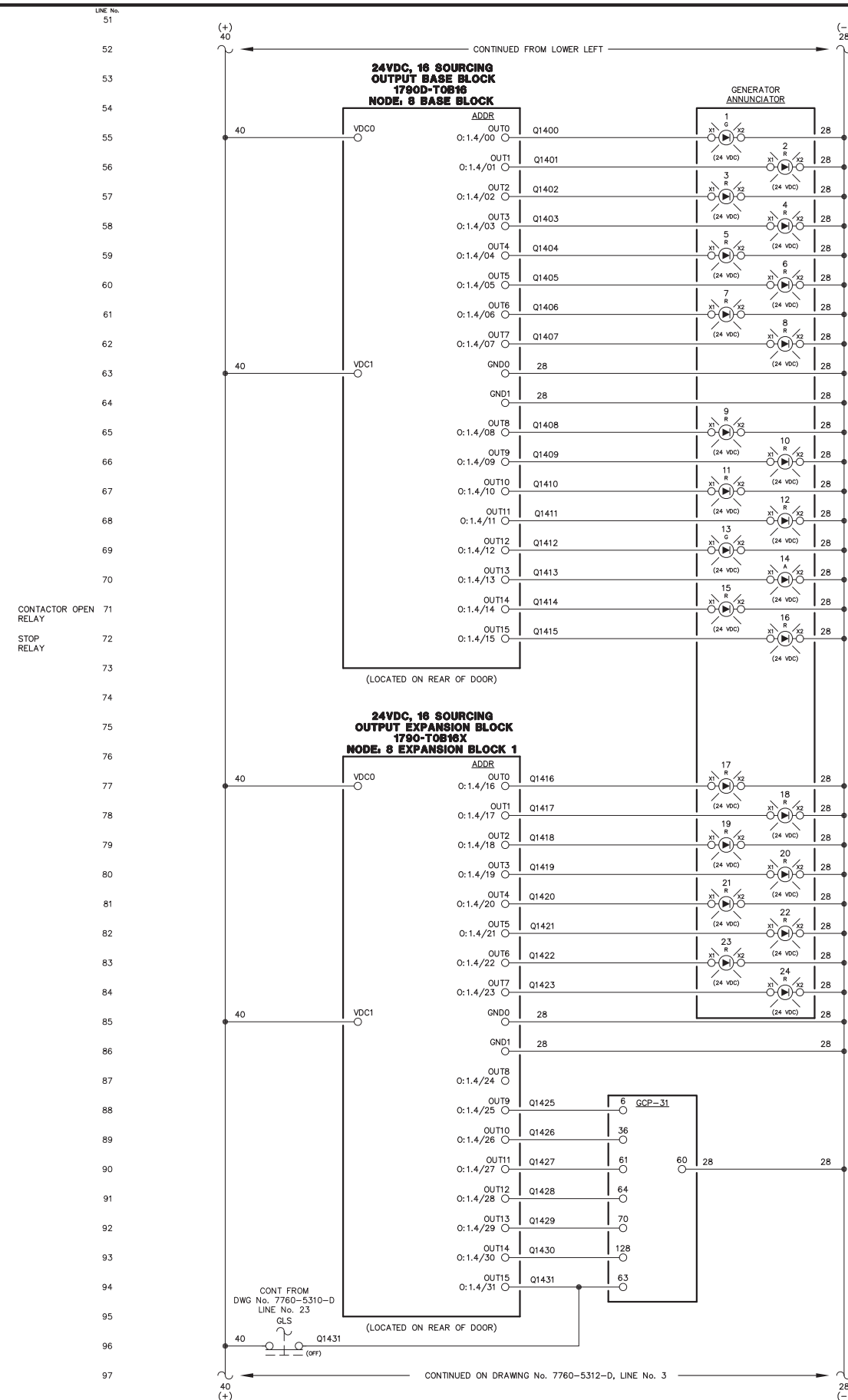
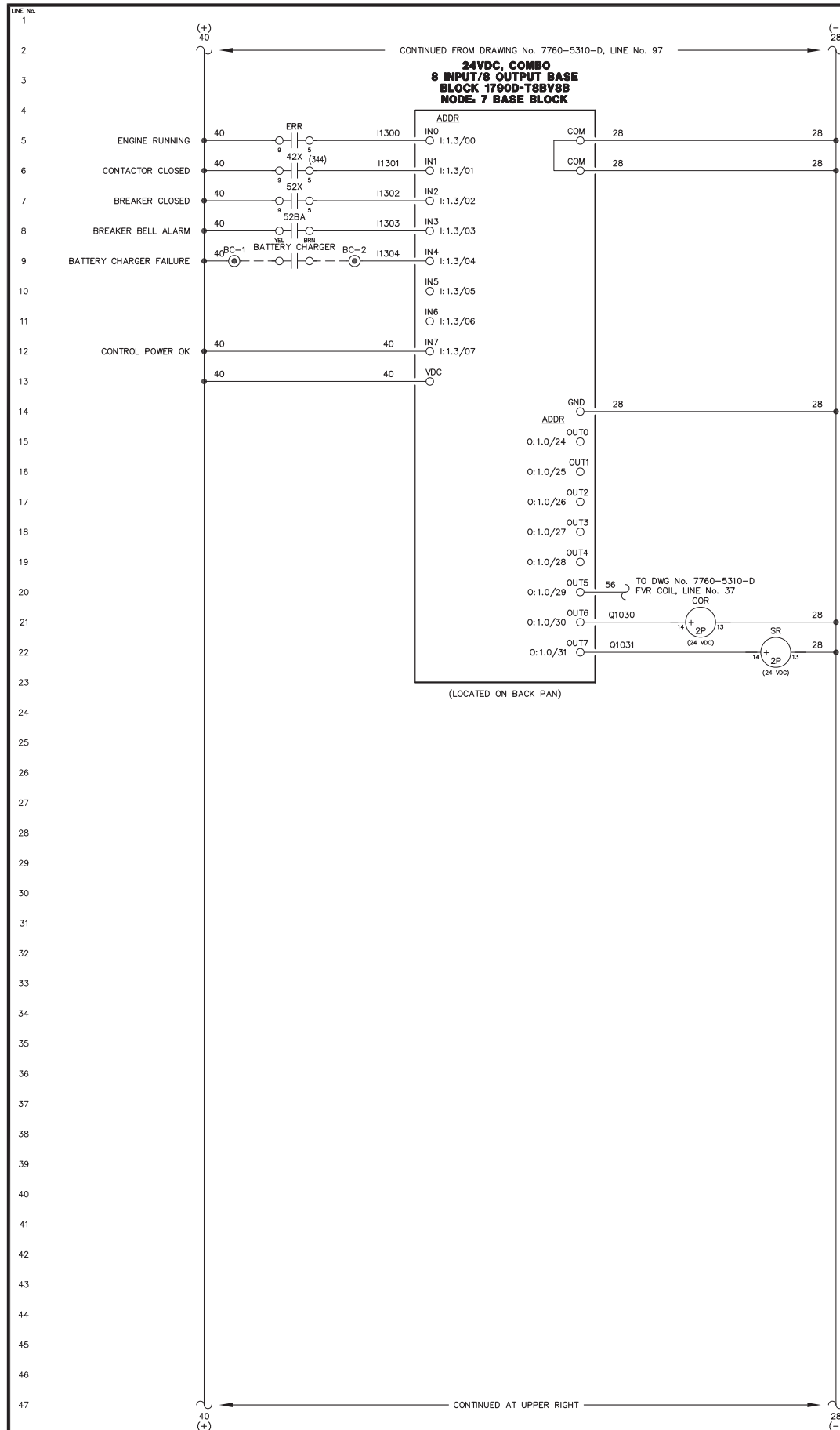
DWG. No: 7760-5310-D SHEET: 1 OF 1 CKD. BY: JMD

JOB: ST GEORGE POWERHOUSE GENERATOR SWITCHGEAR

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Plot date: 2013/9/16 - 12:45



- ENGINE RUNNING LIGHT
- ALARM/LOCKOUT LIGHT
- LOW OIL PRESSURE LIGHT
- OIL LEVEL LIGHT
- HIGH COOLANT TEMPERATURE LIGHT
- OVERSPEED LIGHT
- OVERCRANK LIGHT
- RUNNING TIMEOUT LIGHT
- BATTERY CHARGER FAILURE LIGHT
- AIR FILTER PLUGGED LIGHT
- HIGH EXHAUST TEMPERATURE LIGHT
- SPARE LIGHT
- LEAD ENGINE LIGHT
- NORMAL STOP LIGHT
- NOT IN AUTO LIGHT
- GENERATOR BREAKER TRIP LIGHT
- FAIL TO SYNCHRONIZE LIGHT
- OVERCURRENT LIGHT
- UNDER VOLTAGE LIGHT
- OVER VOLTAGE LIGHT
- UNDER FREQUENCY LIGHT
- OVER FREQUENCY LIGHT
- REVERSE POWER LIGHT
- SPARE LIGHT
- MULTIFUNCTION (REMOTE ACK)
- INPUT 3 - RUNNING TIMEOUT
- INPUT 4 - MASTER SHUTDOWN
- INPUT 7 - BREAKER LOGIC
- INPUT 13 - SPARE
- AUTOMATIC MODE
- MODE SELECTION LOCK

NOTE:
1. FOR GENERAL WIRING & CONSTRUCTION NOTES, SEE DRAWING No. 7760-3101-D.

REV.	DATE	DESCRIPTION	BY
C	05-15-13	SHOP AS BUILT	GPN
B	04-03-13	REVISED PER REVIEW	GPN
A	03-25-13	SUBMITTAL	GPN

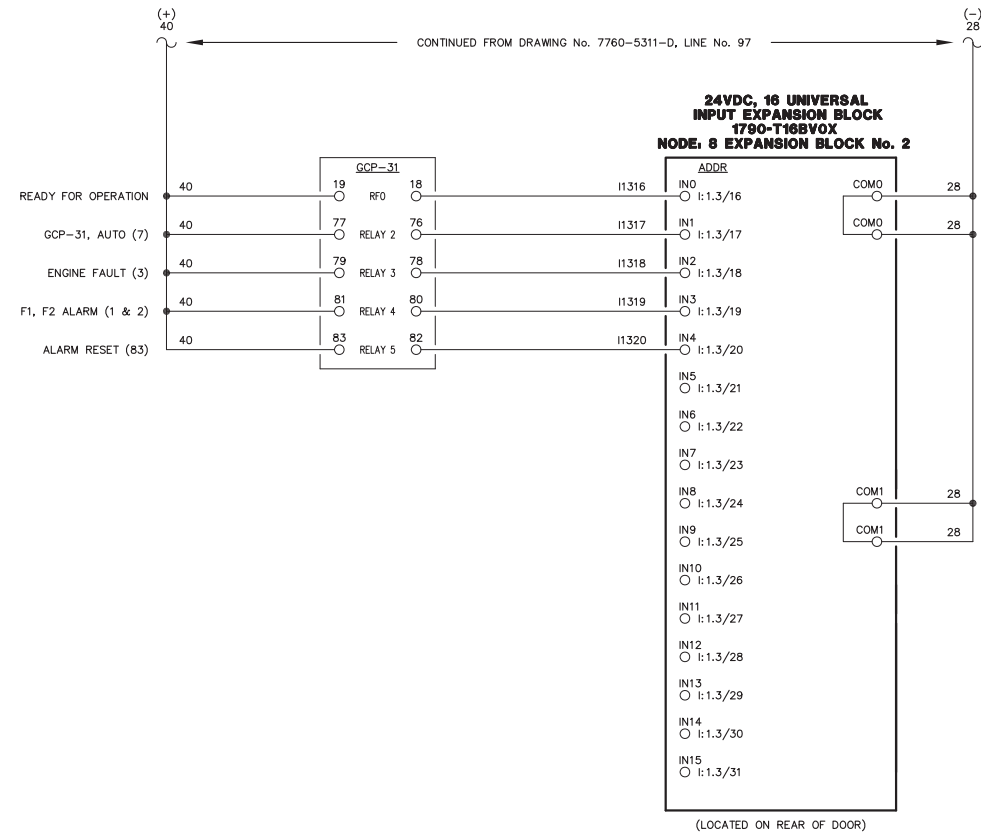
AEA PURCHASE ORDER No. 007750 CONTROLLED POWER JOB No. 7760
TITLE: GENERATOR 4 DC CONTROL, SCHEMATIC DIAGRAM

SCALE: NONE DATE: 03-19-13 DWN. BY: GPN
DWG. No: 7760-5311-D SHEET: 1 OF 1 CKD. BY: JMD

JOB: ST GEORGE POWERHOUSE GENERATOR SWITCHGEAR

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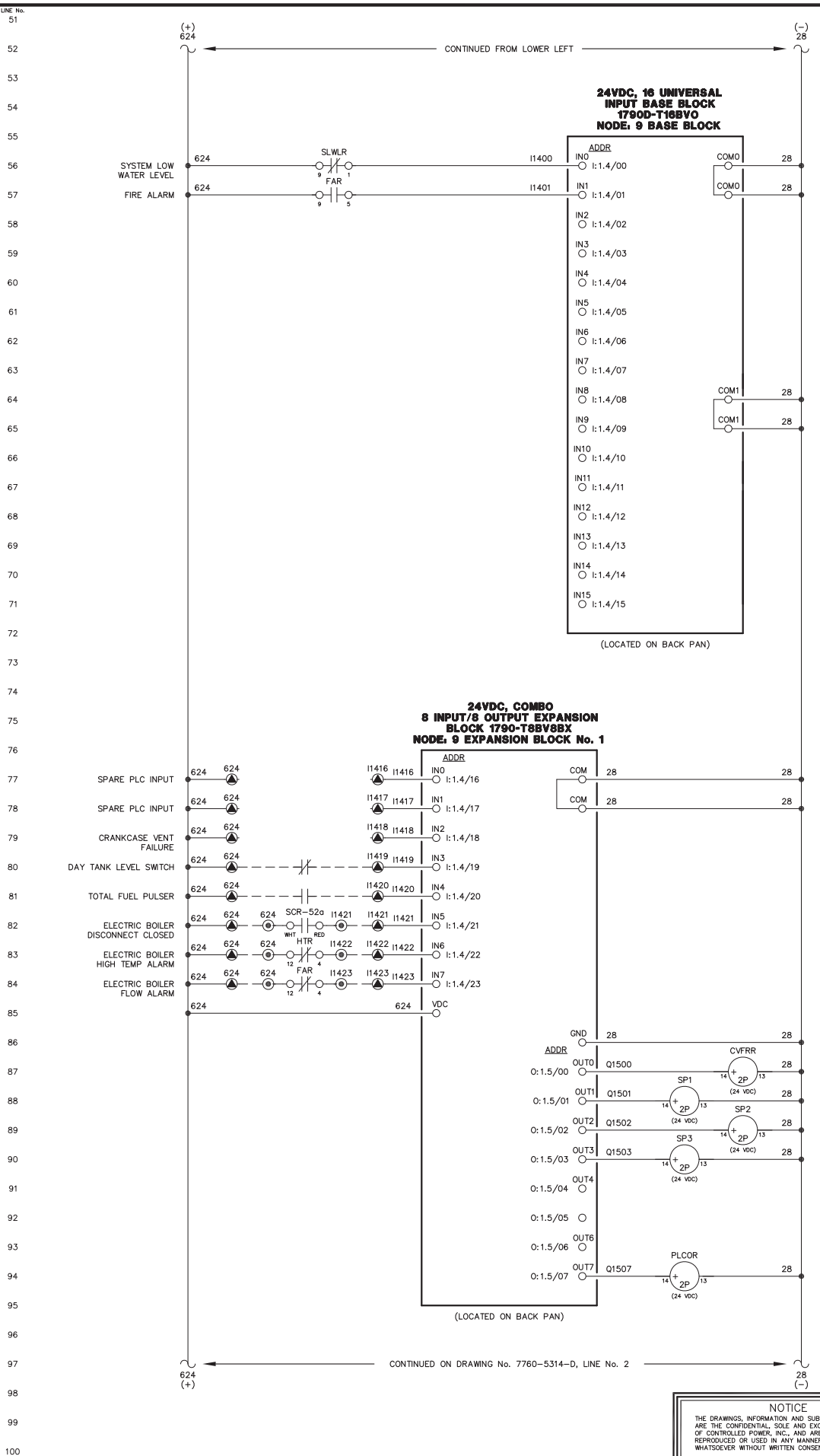
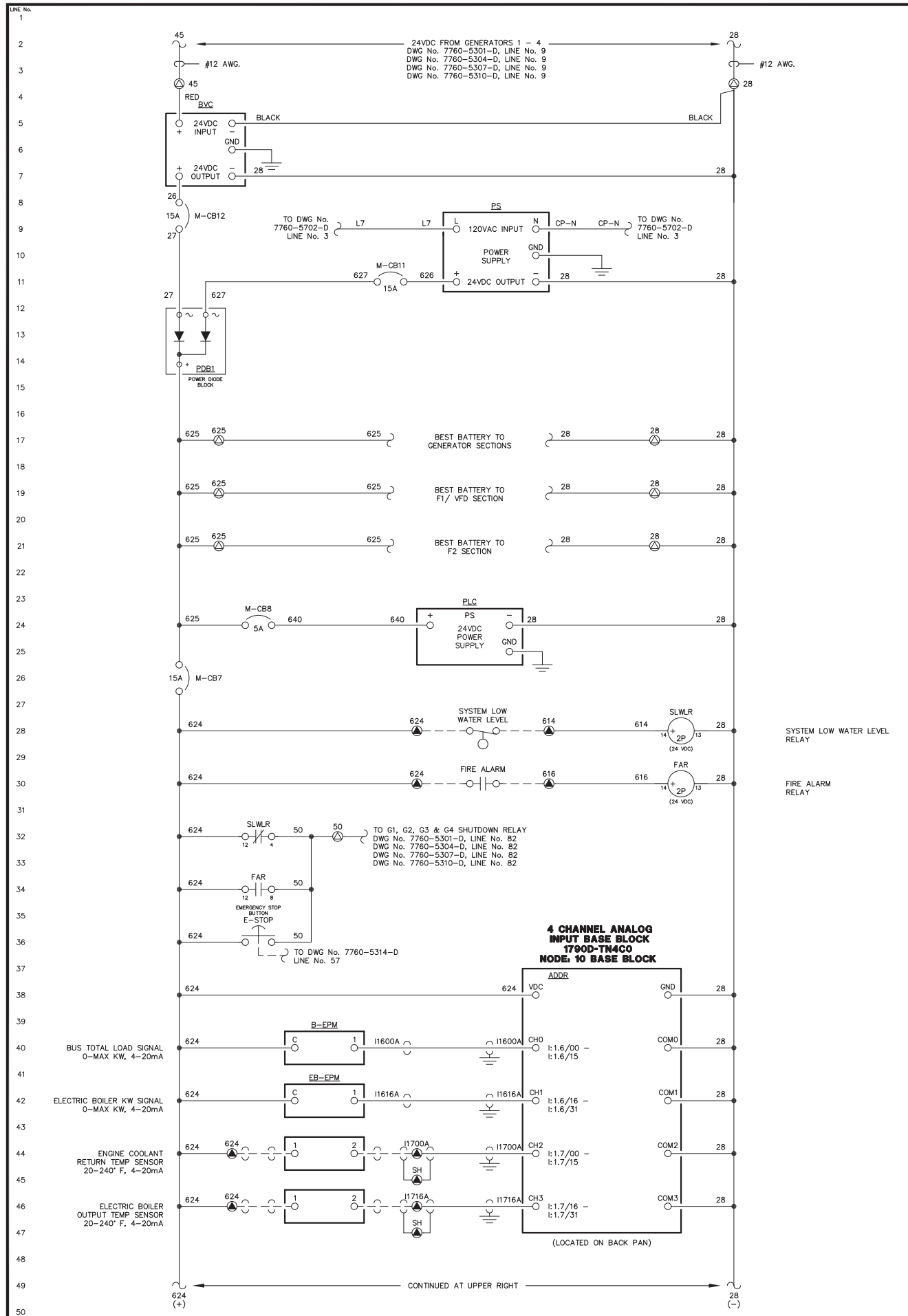


NOTE:
1. FOR GENERAL WIRING & CONSTRUCTION NOTES, SEE DRAWING No. 7760-3101-D.

C	05-15-13	SHOP AS BUILT	GPN
B	04-03-13	REVISED PER REVIEW	GPN
A	03-25-13	SUBMITTAL	GPN
REV.	DATE	DESCRIPTION	BY
AEA PURCHASE ORDER No. 007750 CONTROLLED POWER JOB No. 7760			
TITLE: GENERATOR 4 DC CONTROL, SCHEMATIC DIAGRAM			
SCALE: NONE	DATE: 03-19-13	DWN. BY: GPN	
DWG. No: 7760-5312-D	SHEET: 1 OF 1	CKD. BY: JMD	
JOB: ST GEORGE POWERHOUSE GENERATOR SWITCHGEAR			

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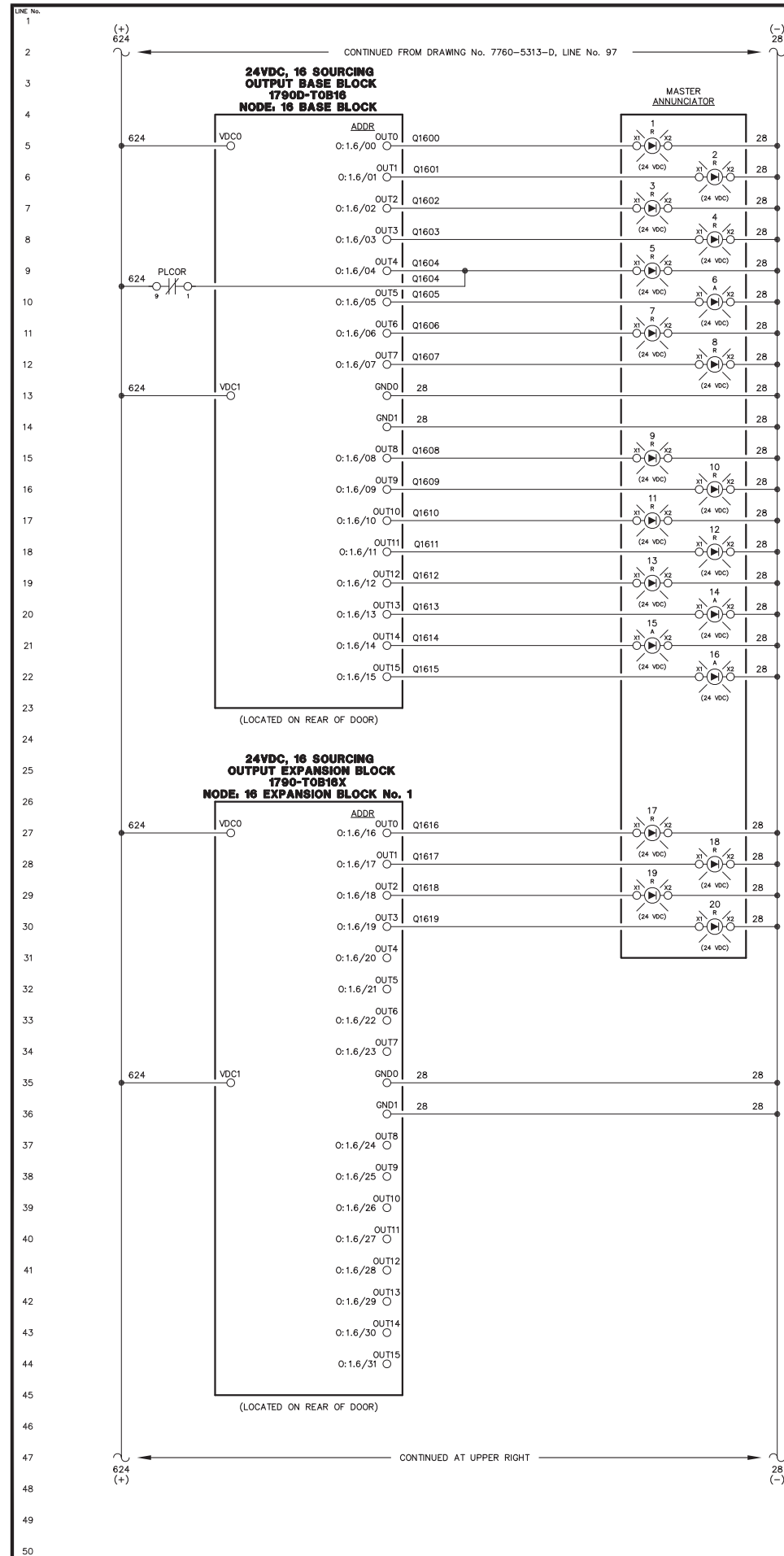


NOTE:
 1. FOR GENERAL WIRING & CONSTRUCTION NOTES, SEE DRAWING No. 7760-3101-D.

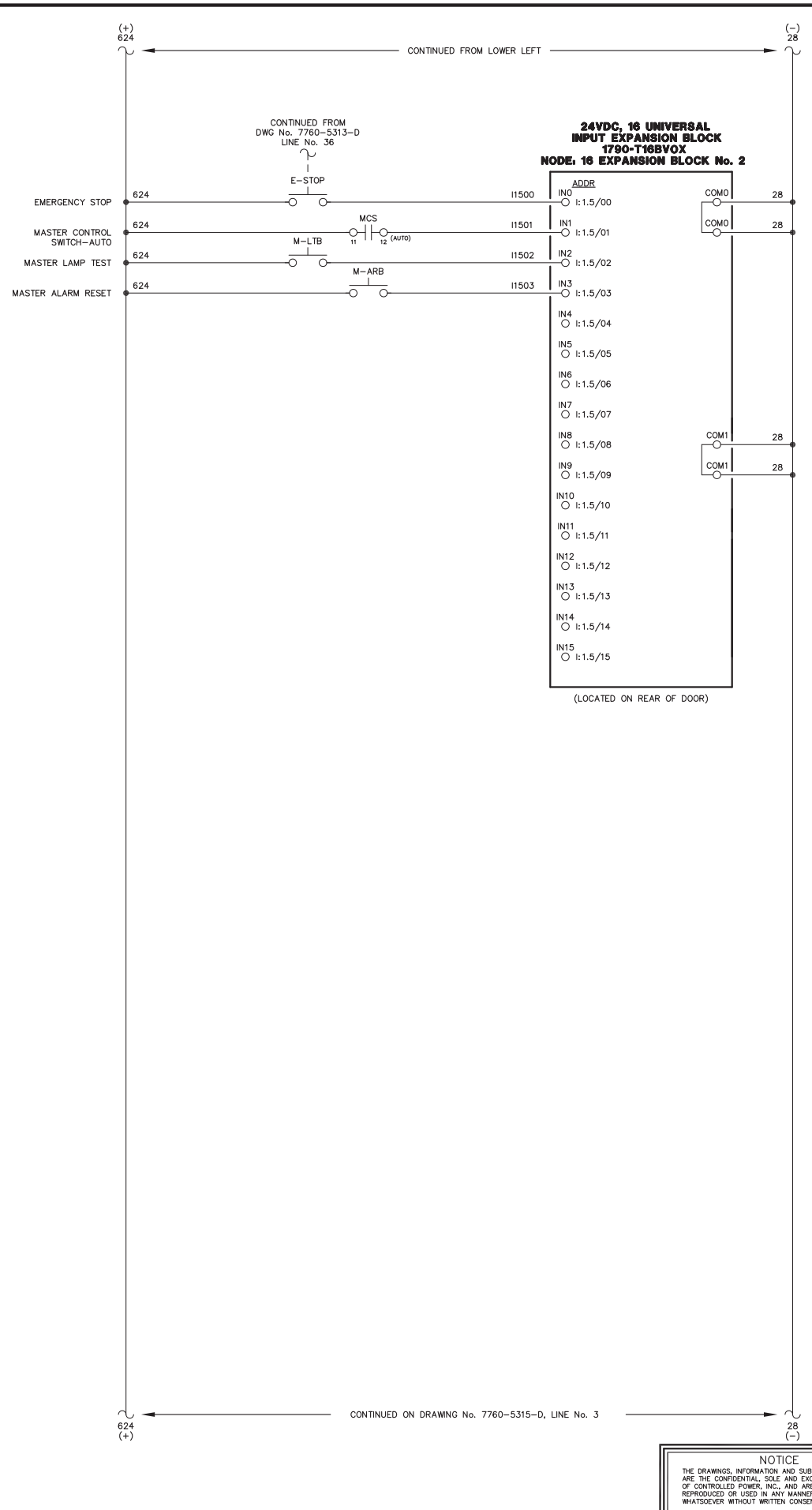
C	05-15-13	SHOP AS BUILT	GPN
B	04-03-13	REVISED PER REVIEW	GPN
A	03-25-13	SUBMITTAL	GPN
REV.	DATE	DESCRIPTION	BY
AEA PURCHASE ORDER No. 007750		CONTROLLED POWER JOB No. 7760	
TITLE: MASTER DC CONTROL, SCHEMATIC DIAGRAM			
SCALE: NONE	DATE: 03-19-13	DWN. BY: GPN	
DWG. No: 7760-5313-D	SHEET: 1 OF 1	CKD. BY: JMD	
JOB: ST GEORGE POWERHOUSE GENERATOR SWITCHGEAR			

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- 55 FIRE ALARM LIGHT
- 56 EMERGENCY STOP LIGHT
- 57 LOW COOLANT LEVEL LIGHT
- 58 FUEL LEVEL LIGHT
- 59 PLC FAILURE LIGHT
- 60 SYSTEM NOT IN AUTO LIGHT
- 61 STATION SERVICE BREAKER OPEN LIGHT
- 62 ELECTRIC BOILER BREAKER OPEN LIGHT
- 63
- 64
- 65 FEEDER 1 BREAKER TRIP LIGHT
- 66 FEEDER 1 FAIL TO CLOSE LIGHT
- 67 SPARE LIGHT
- 68 ELECTRIC BOILER HIGH TEMP LIGHT
- 69 ELECTRIC BOILER LOSS OF FLOW LIGHT
- 70 NO LOAD ON HEAT RECOVERY LIGHT
- 71 HEAT RECOVERY LOSS OF PRESSURE LIGHT
- 72 HEAT RECOVERY LOSS OF FLOW LIGHT
- 73
- 74
- 75
- 76
- 77 HIGH COOLANT RETURN TEMP LIGHT
- 78 SCR PANEL DISCONNECT OPEN LIGHT
- 79 FEEDER 2 BREAKER TRIP LIGHT
- 80 FEEDER 2 FAIL TO CLOSE LIGHT
- 81
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NOTE:
1. FOR GENERAL WIRING & CONSTRUCTION NOTES, SEE DRAWING No. 7760-3101-D.

C	05-15-13	SHOP AS BUILT	GPN
B	04-03-13	REVISED PER REVIEW	GPN
A	03-25-13	SUBMITTAL	GPN
REV.	DATE	DESCRIPTION	BY

AEA PURCHASE ORDER No. 007750 CONTROLLED POWER JOB No. 7760
TITLE: MASTER DC CONTROL, SCHEMATIC DIAGRAM

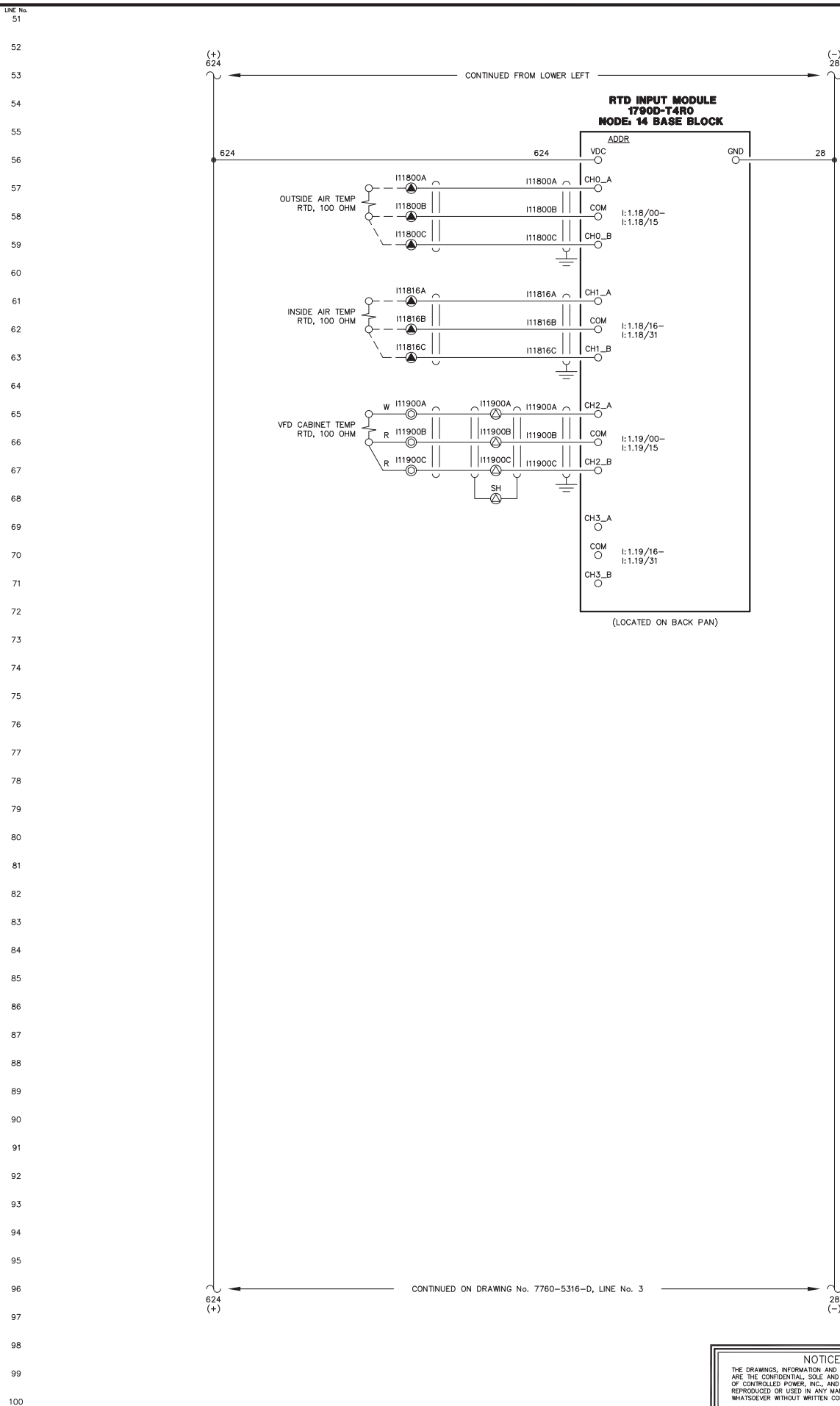
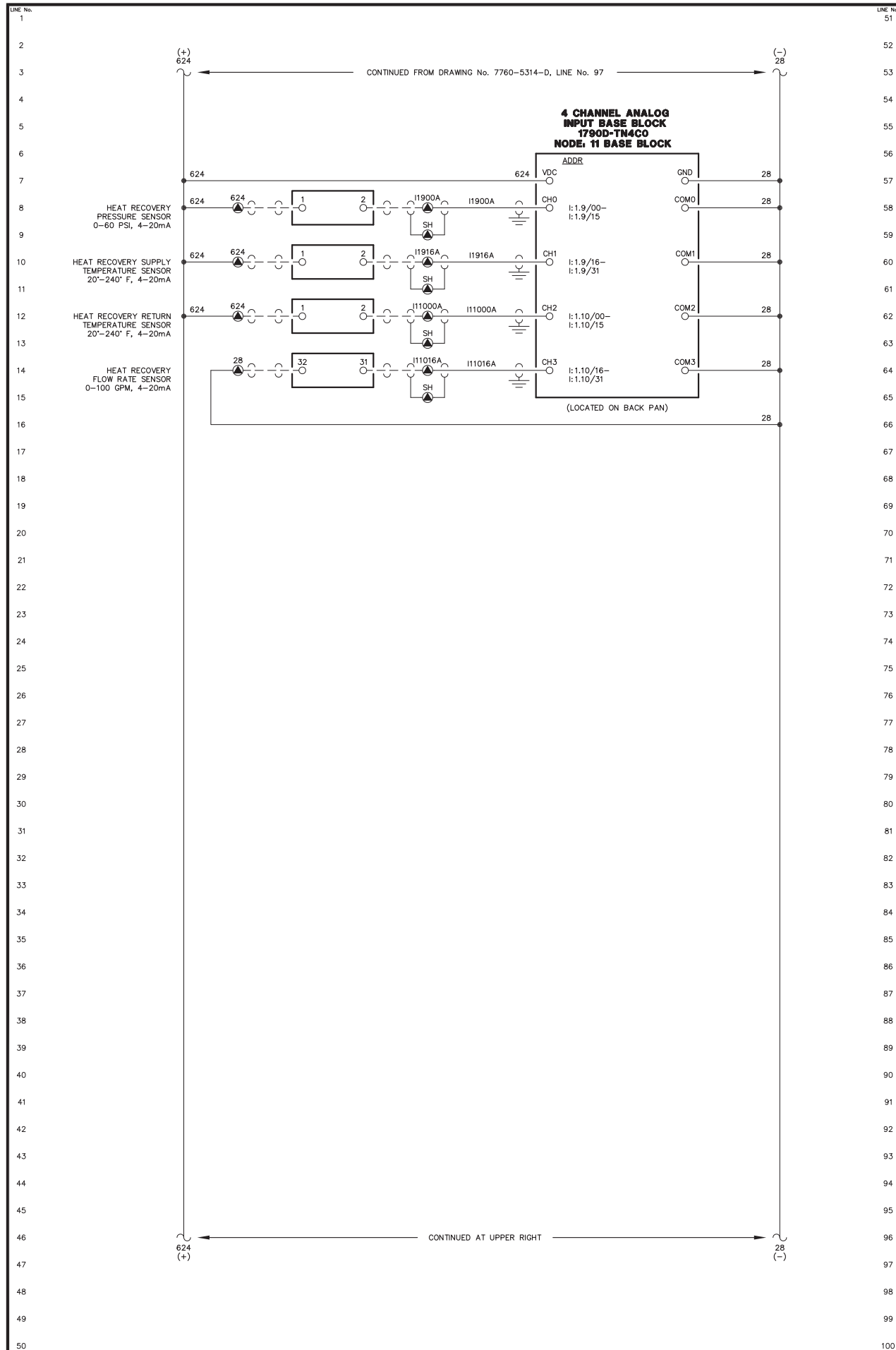
SCALE: NONE DATE: 03-19-13 DWN. BY: GPN

DWG. No: 7760-5314-D SHEET: 1 OF 1 CKD. BY: JMD

JOB: ST GEORGE POWERHOUSE GENERATOR SWITCHGEAR

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NOTE:
1. FOR GENERAL WIRING & CONSTRUCTION NOTES, SEE DRAWING No. 7760-3101-D.

C	05-15-13	SHOP AS BUILT	GPN
B	04-03-13	REVISED PER REVIEW	GPN
A	03-25-13	SUBMITTAL	GPN
REV.	DATE	DESCRIPTION	BY

AEA PURCHASE ORDER No. 007750 CONTROLLED POWER JOB No. 7760

TITLE: MASTER DC CONTROL, SCHEMATIC DIAGRAM

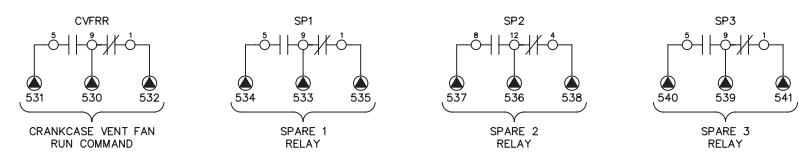
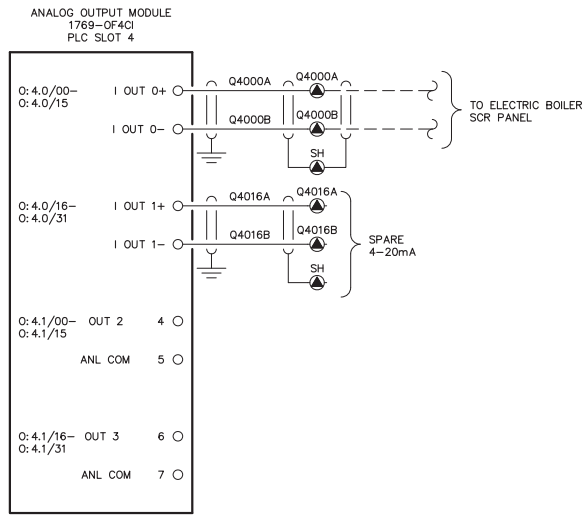
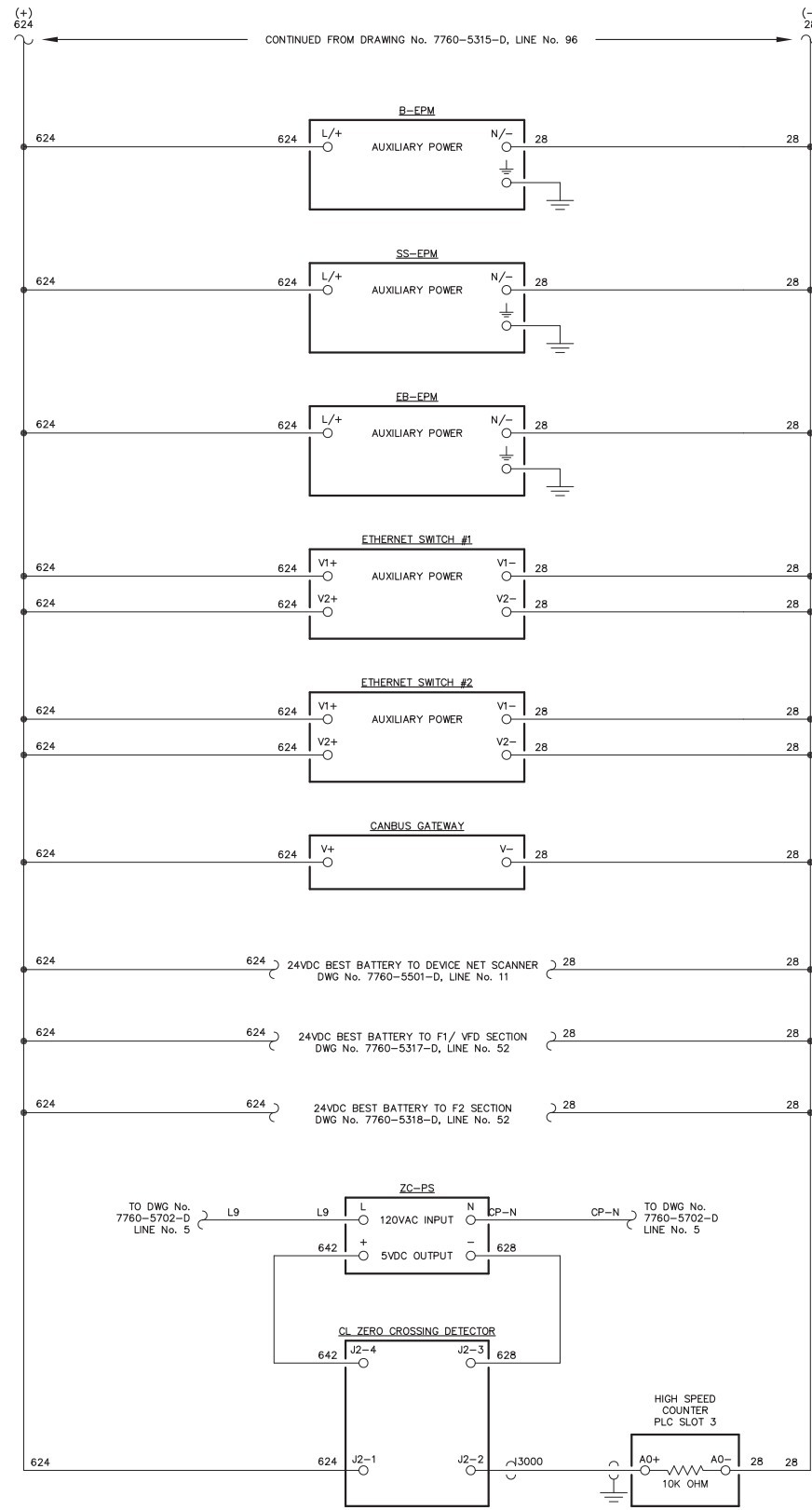
SCALE: NONE DATE: 03-19-13 DWN. BY: GPN

DWG. No: 7760-5315-D SHEET: 1 OF 1 CKD. BY: JMD

JOB: ST GEORGE POWERHOUSE GENERATOR SWITCHGEAR

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NOTE:
1. FOR GENERAL WIRING & CONSTRUCTION NOTES, SEE DRAWING No. 7760-3101-D.

REV.	DATE	DESCRIPTION	BY
C	05-15-13	SHOP AS BUILT	GPN
B	04-03-13	REVISED PER REVIEW	GPN
A	03-25-13	SUBMITTAL	GPN

AEA PURCHASE ORDER No. 007750 CONTROLLED POWER JOB No. 7760

TITLE: MASTER DC CONTROL, SCHEMATIC DIAGRAM

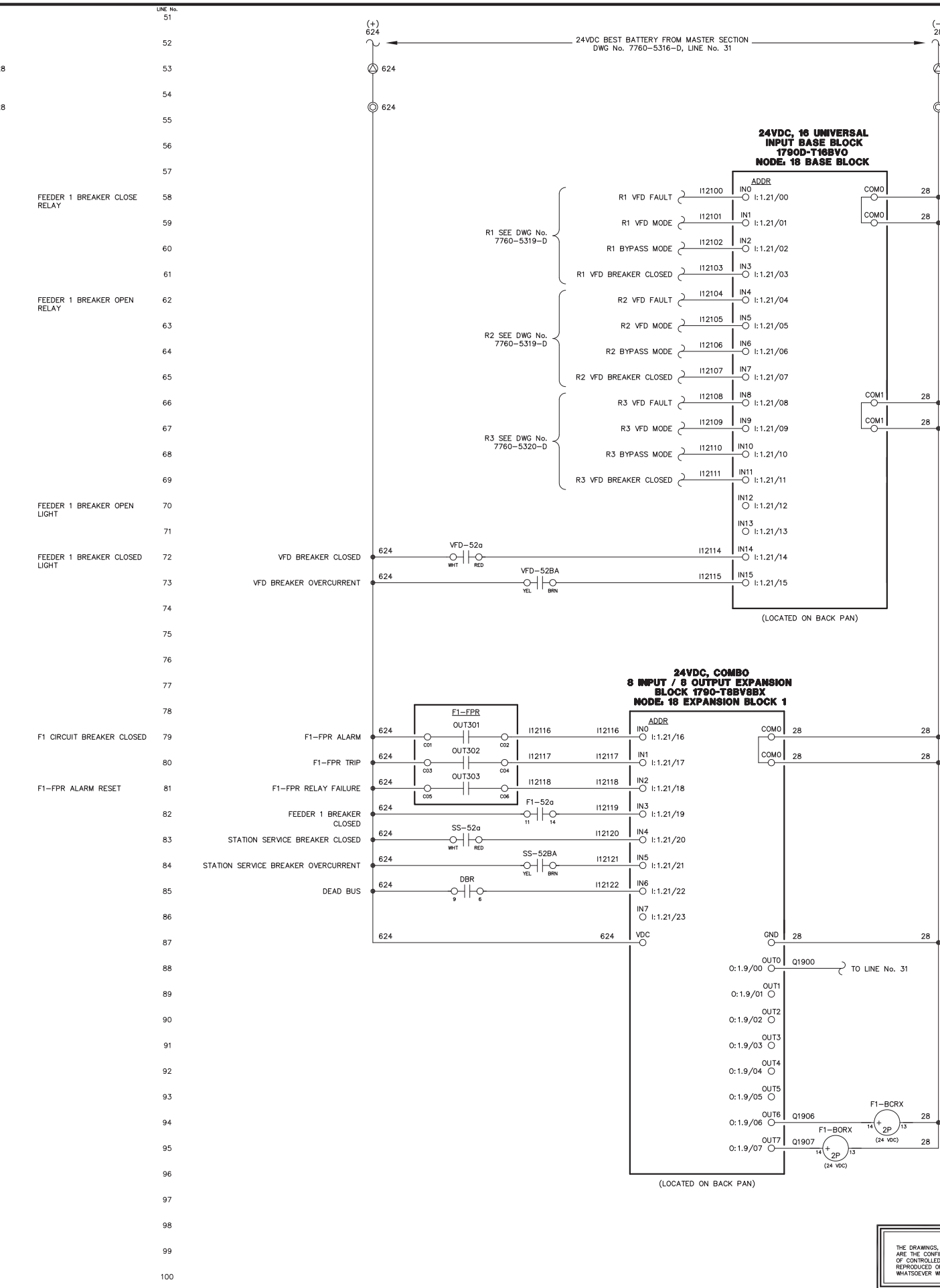
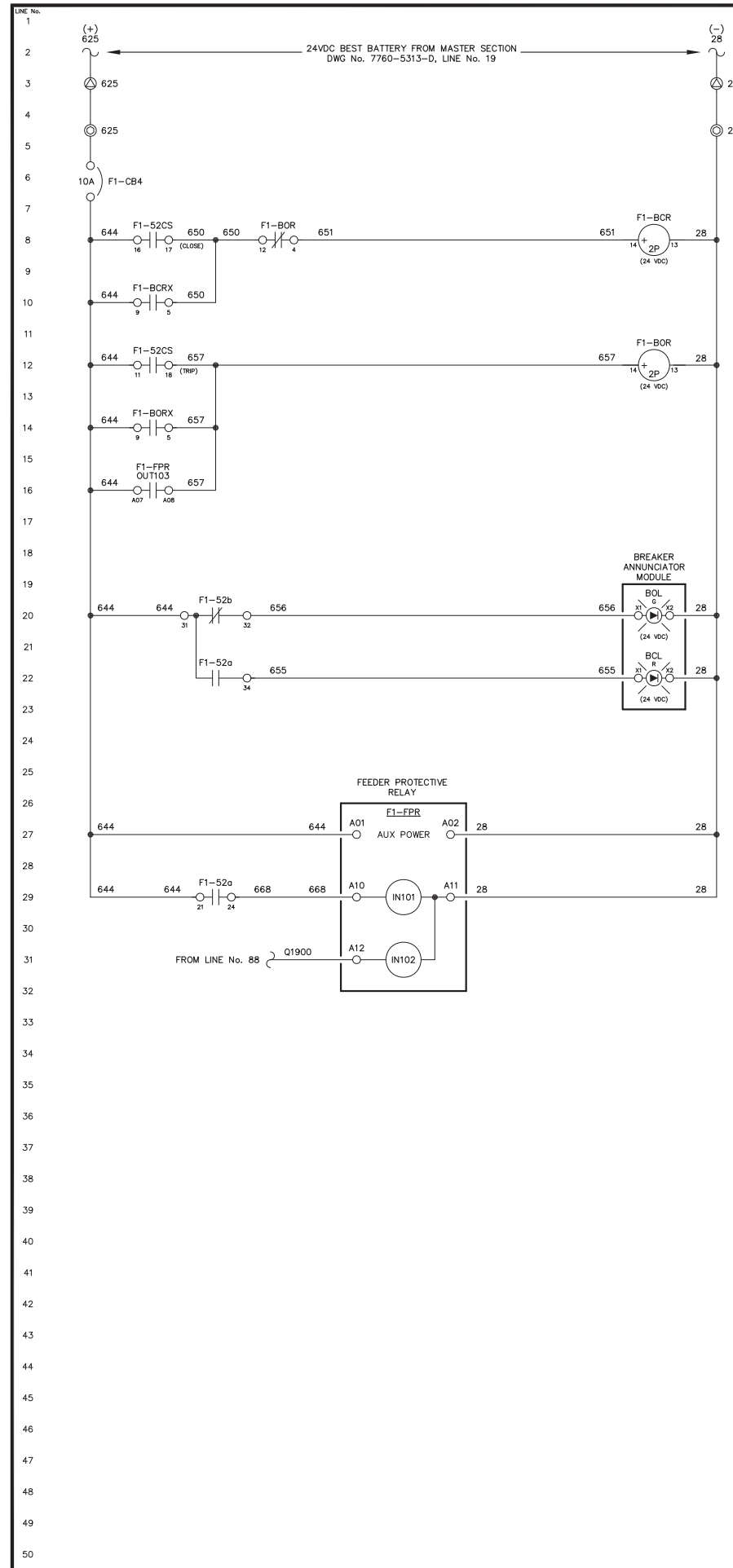
SCALE: NONE DATE: 03-19-13 DWN. BY: GPN

DWG. No: 7760-5316-D SHEET: 1 OF 1 CKD. BY: JMD

JOB: ST GEORGE POWERHOUSE GENERATOR SWITCHGEAR

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NOTE:
1. FOR GENERAL WIRING & CONSTRUCTION NOTES, SEE DRAWING No. 7760-3101-D.

REV.	DATE	DESCRIPTION	BY
C	05-15-13	SHOP AS BUILT	GPN
B	04-03-13	REVISED PER REVIEW	GPN
A	03-25-13	SUBMITTAL	GPN

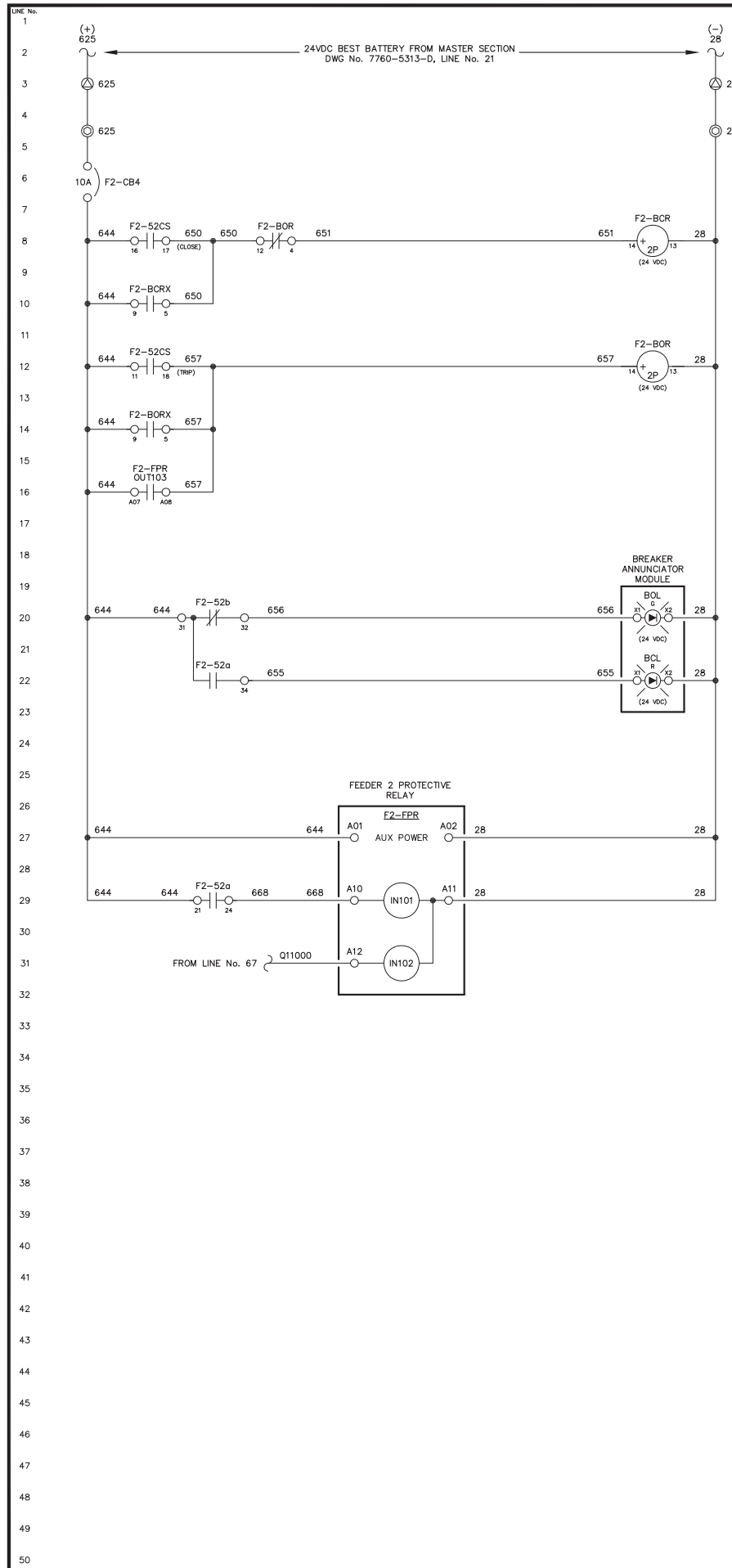
AEA PURCHASE ORDER No. 007750 CONTROLLED POWER JOB No. 7760

TITLE: FEEDER 1 DC CONTROL, SCHEMATIC DIAGRAM

SCALE: NONE	DATE: 03-19-13	DWN. BY: GPN
DWG. No: 7760-5317-D	SHEET: 1 OF 1	CKD. BY: JMD
JOB: ST GEORGE POWERHOUSE GENERATOR SWITCHGEAR		

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FEEDER 2 BREAKER CLOSE RELAY

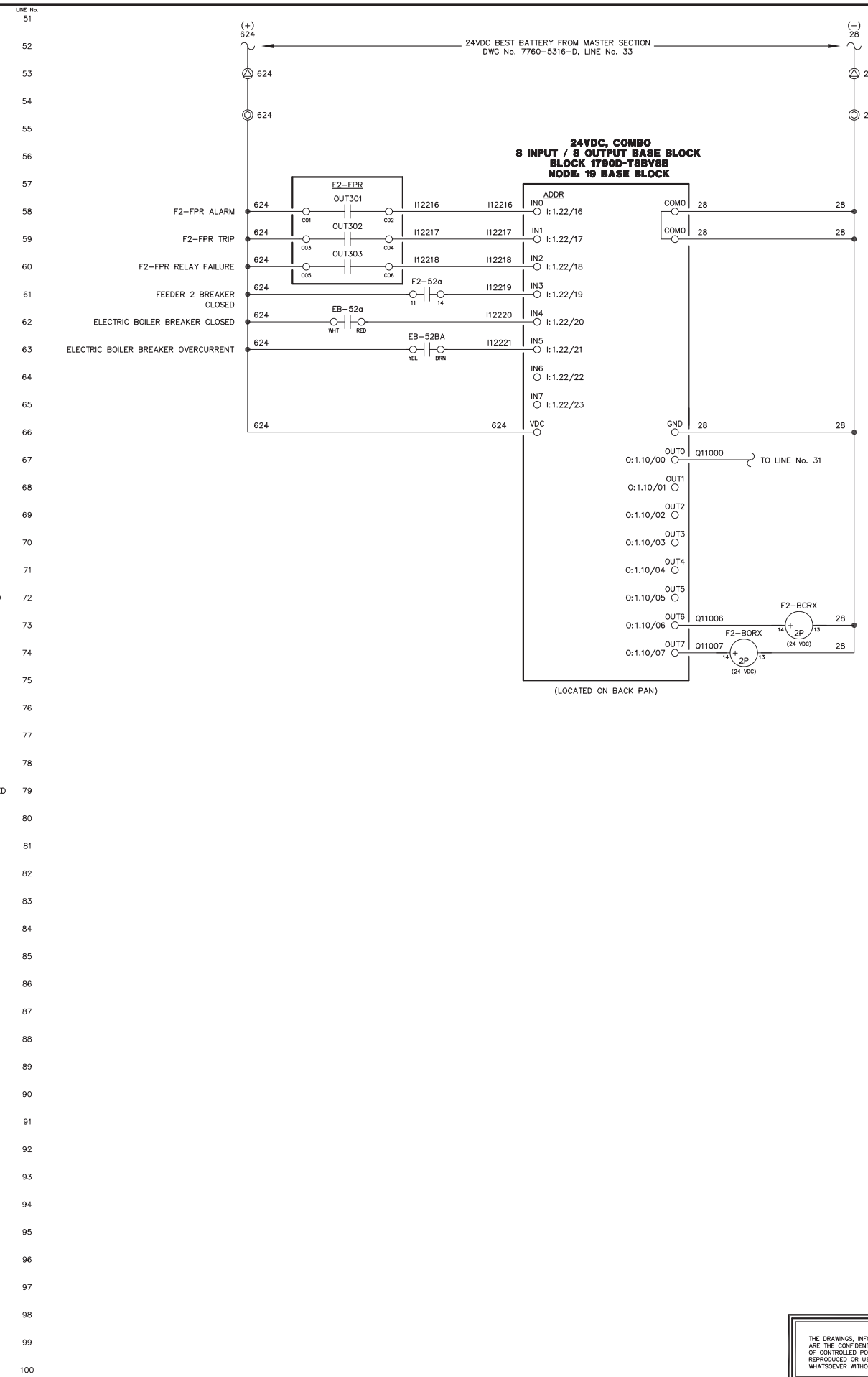
FEEDER 2 BREAKER OPEN RELAY

FEEDER 2 BREAKER OPEN LIGHT

FEEDER 2 BREAKER CLOSED LIGHT

F2 CIRCUIT BREAKER CLOSED

F2-FPR ALARM RESET



NOTE:
1. FOR GENERAL WIRING & CONSTRUCTION NOTES, SEE DRAWING No. 7760-3101-D.

C	05-15-13	SHOP AS BUILT	GPN
B	04-03-13	REVISED PER REVIEW	GPN
A	03-25-13	SUBMITTAL	GPN
REV.	DATE	DESCRIPTION	BY

AEA PURCHASE ORDER No. 007750 CONTROLLED POWER JOB No. 7760

TITLE: FEEDER 2 DC CONTROL, SCHEMATIC DIAGRAM

SCALE: NONE DATE: 03-19-13 DWN. BY: GPN

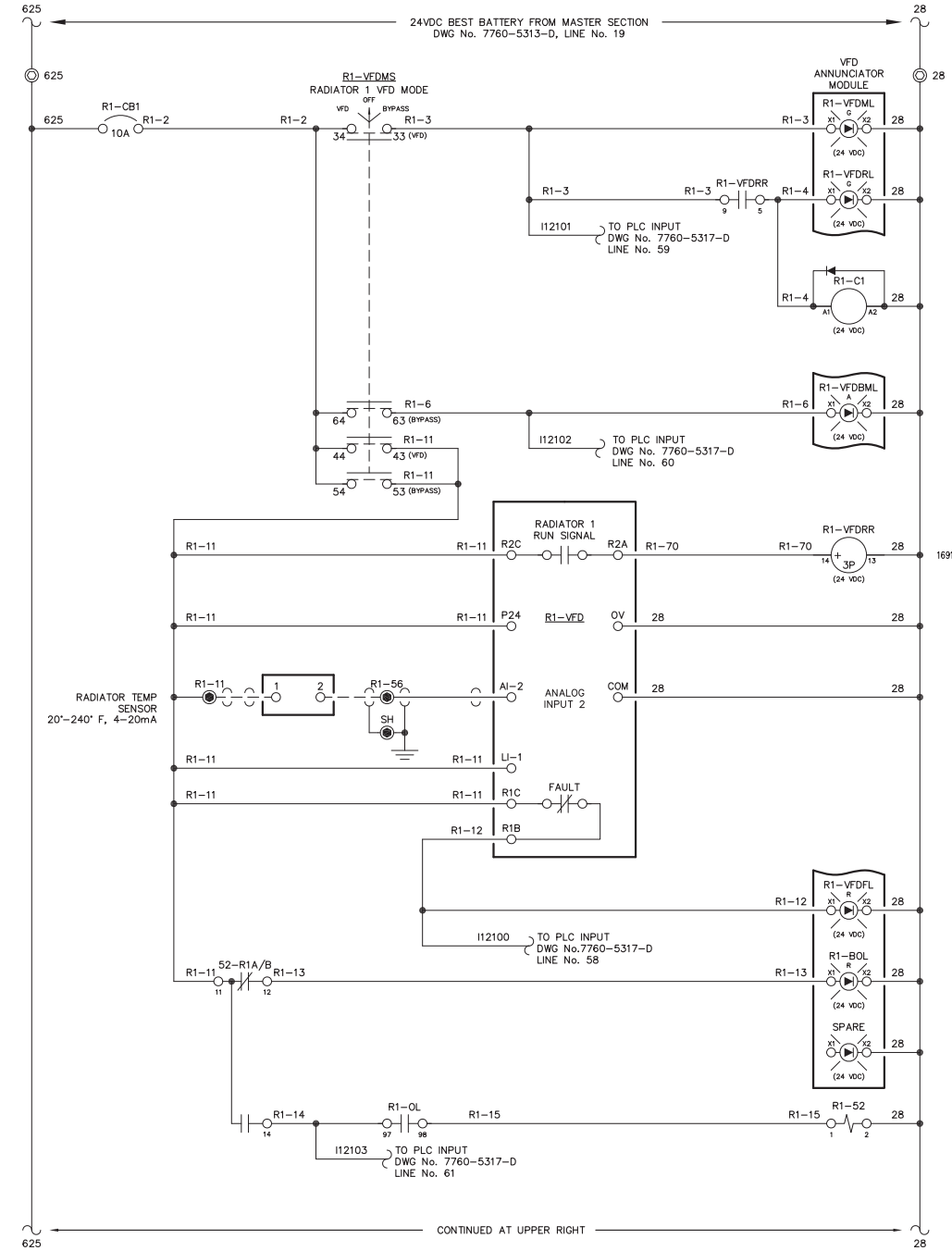
DWG. No: 7760-5318-D SHEET: 1 OF 1 CKD. BY: JMD

JOB: ST GEORGE POWERHOUSE GENERATOR SWITCHGEAR

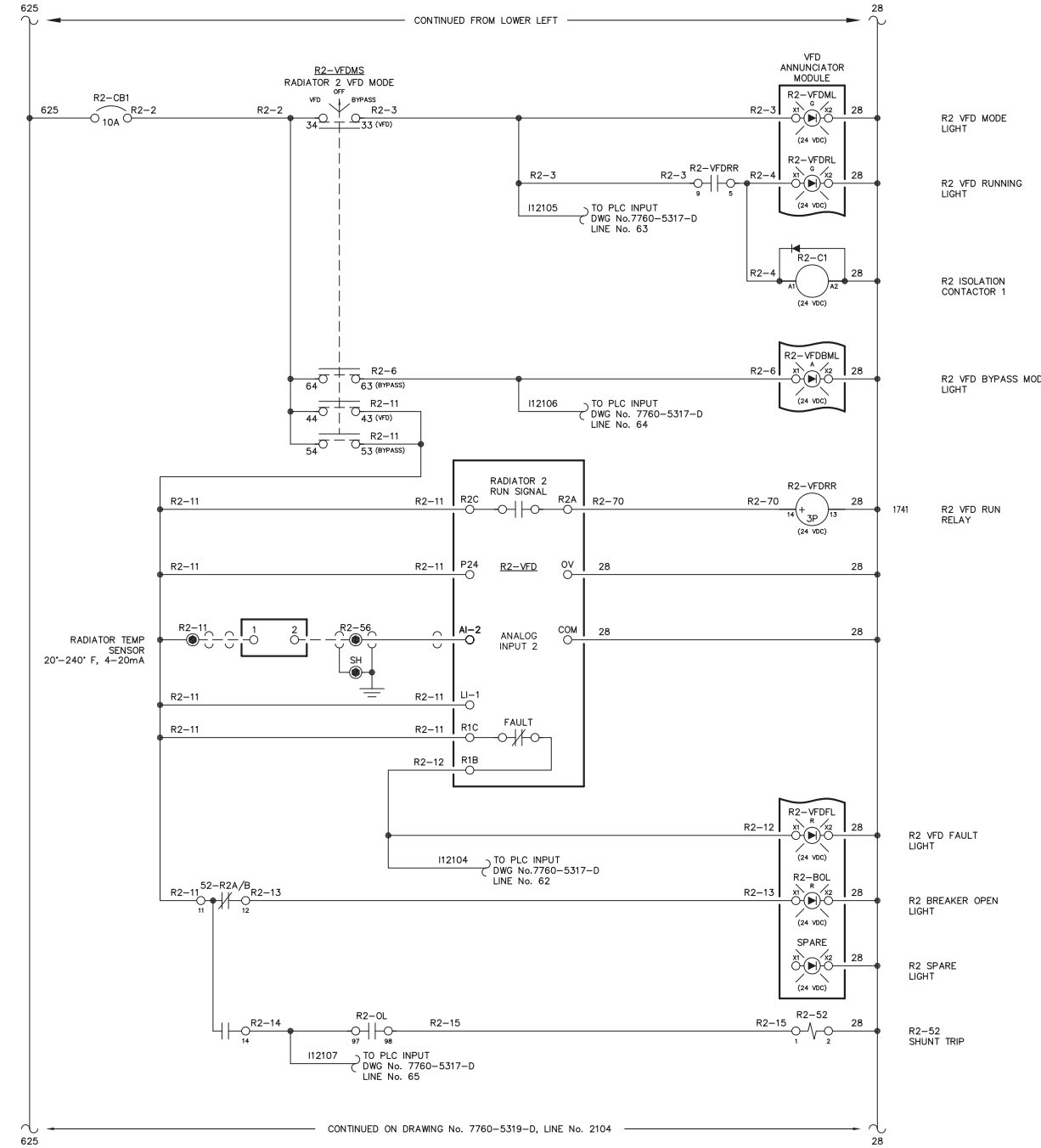
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RADIATOR 1 VFD
R1



RADIATOR 2 VFD
R2



NOTE:
1. FOR GENERAL WIRING & CONSTRUCTION NOTES, SEE DRAWING No. 7760-3101-D.

C	05-15-13	SHOP AS BUILT	GPN
B	04-03-13	REVISED PER REVIEW	GPN
A	03-25-13	SUBMITTAL	GPN
REV.	DATE	DESCRIPTION	BY

AEA PURCHASE ORDER No. 007750 CONTROLLED POWER JOB No. 7760

TITLE: VFD DC CONTROL, SCHEMATIC DIAGRAM

SCALE: NONE DATE: 03-19-13 DWN. BY: GPN

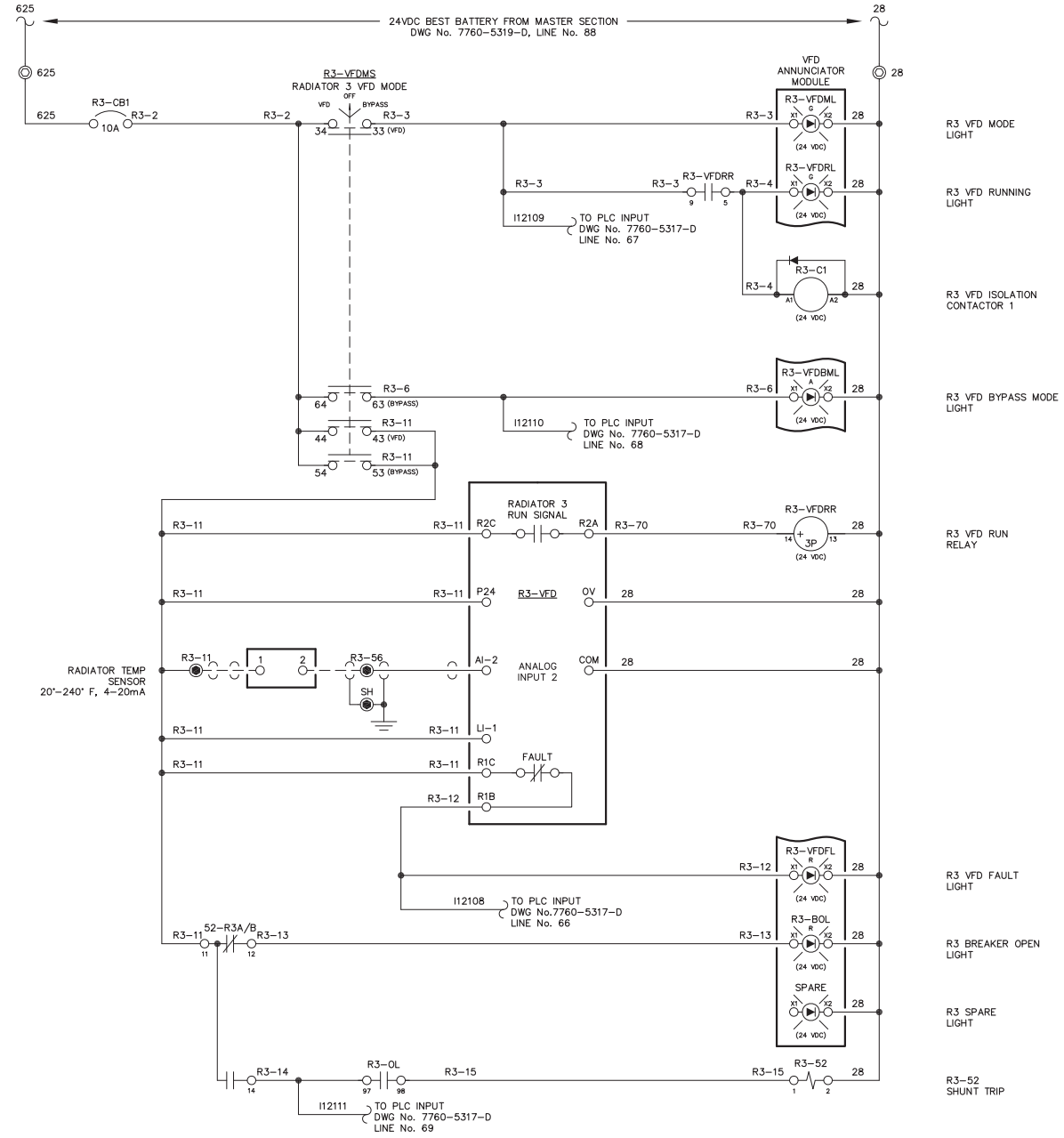
DWG. No: 7760-5319-D SHEET: 1 OF 1 CKD. BY: JMD

JOB: ST GEORGE POWERHOUSE GENERATOR SWITCHGEAR

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RADIATOR 3 VFD
R3



- 57 R3 VFD MODE LIGHT
- 58 R3 VFD RUNNING LIGHT
- 61 R3 VFD ISOLATION CONTACTOR 1
- 64 R3 VFD BYPASS MODE LIGHT
- 68 R3 VFD RUN RELAY
- 71 R3 VFD FAULT LIGHT
- 79 R3 BREAKER OPEN LIGHT
- 81 R3 SPARE LIGHT
- 85 R3-52 SHUNT TRIP

NOTE:
1. FOR GENERAL WIRING & CONSTRUCTION NOTES, SEE DRAWING No. 7760-3101-D.

C	05-15-13	SHOP AS BUILT	GPN
B	04-03-13	REVISED PER REVIEW	GPN
A	03-25-13	SUBMITTAL	GPN
REV.	DATE	DESCRIPTION	BY

AEA PURCHASE ORDER No. 007750 CONTROLLED POWER JOB No. 7760

TITLE: VFD DC CONTROL, SCHEMATIC DIAGRAM

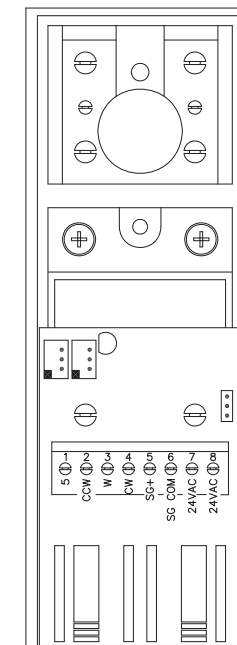
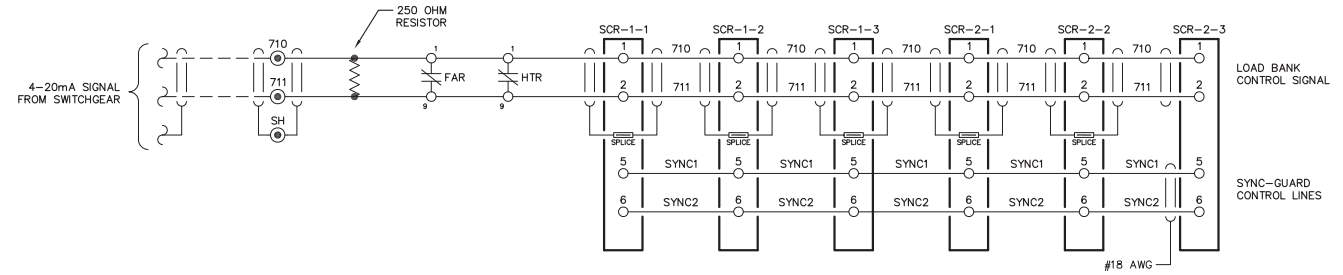
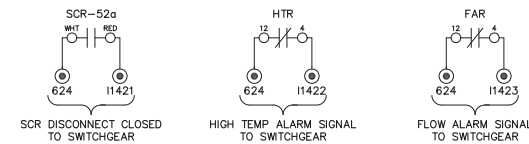
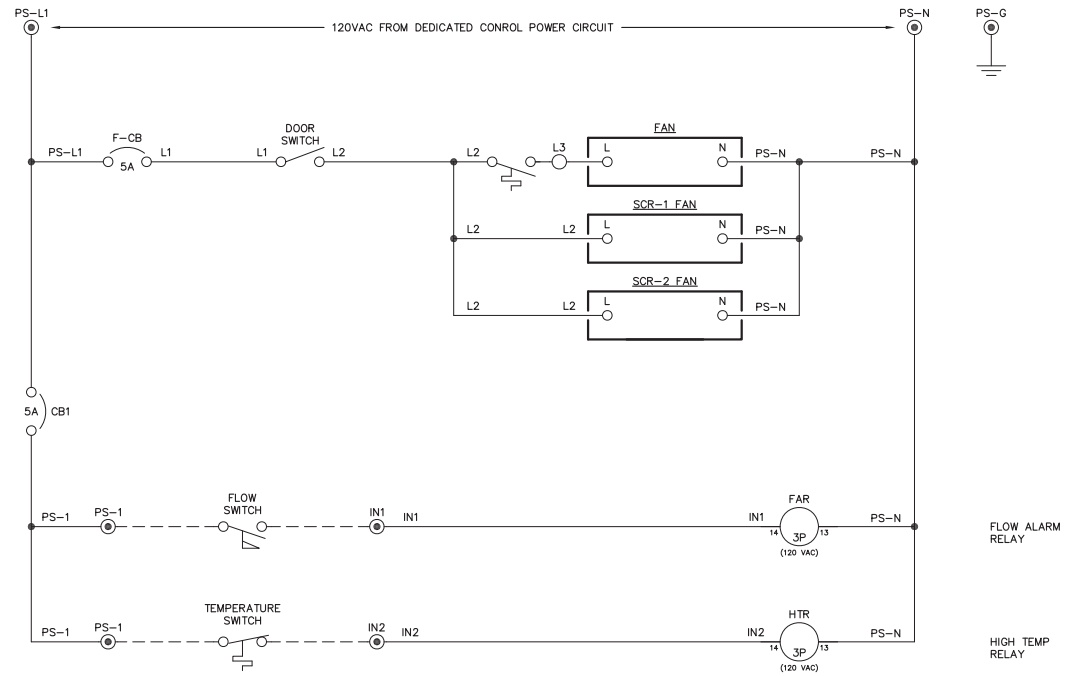
SCALE: NONE DATE: 03-19-13 DWN. BY: GPN

DWG. No: 7760-5320-D SHEET: 1 OF 1 CKD. BY: JMD

JOB: ST GEORGE POWERHOUSE GENERATOR SWITCHGEAR

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SCR DETAIL

NOTE:
1. FOR GENERAL WIRING & CONSTRUCTION NOTES, SEE DRAWING No. 7569-3101-D.

C	05-15-13	SHOP AS BUILT	GPN
B	04-03-13	REVISED PER REVIEW	GPN
A	03-25-13	SUBMITTAL	GPN
REV.	DATE	DESCRIPTION	BY

AEA PURCHASE ORDER No. 007750 CONTROLLED POWER JOB No. 7760

TITLE: ELECTRIC BOILER PANEL DC CONTROL, SCHEMATIC DIAGRAM

SCALE: NONE DATE: 03-19-13 DWN. BY: GPN

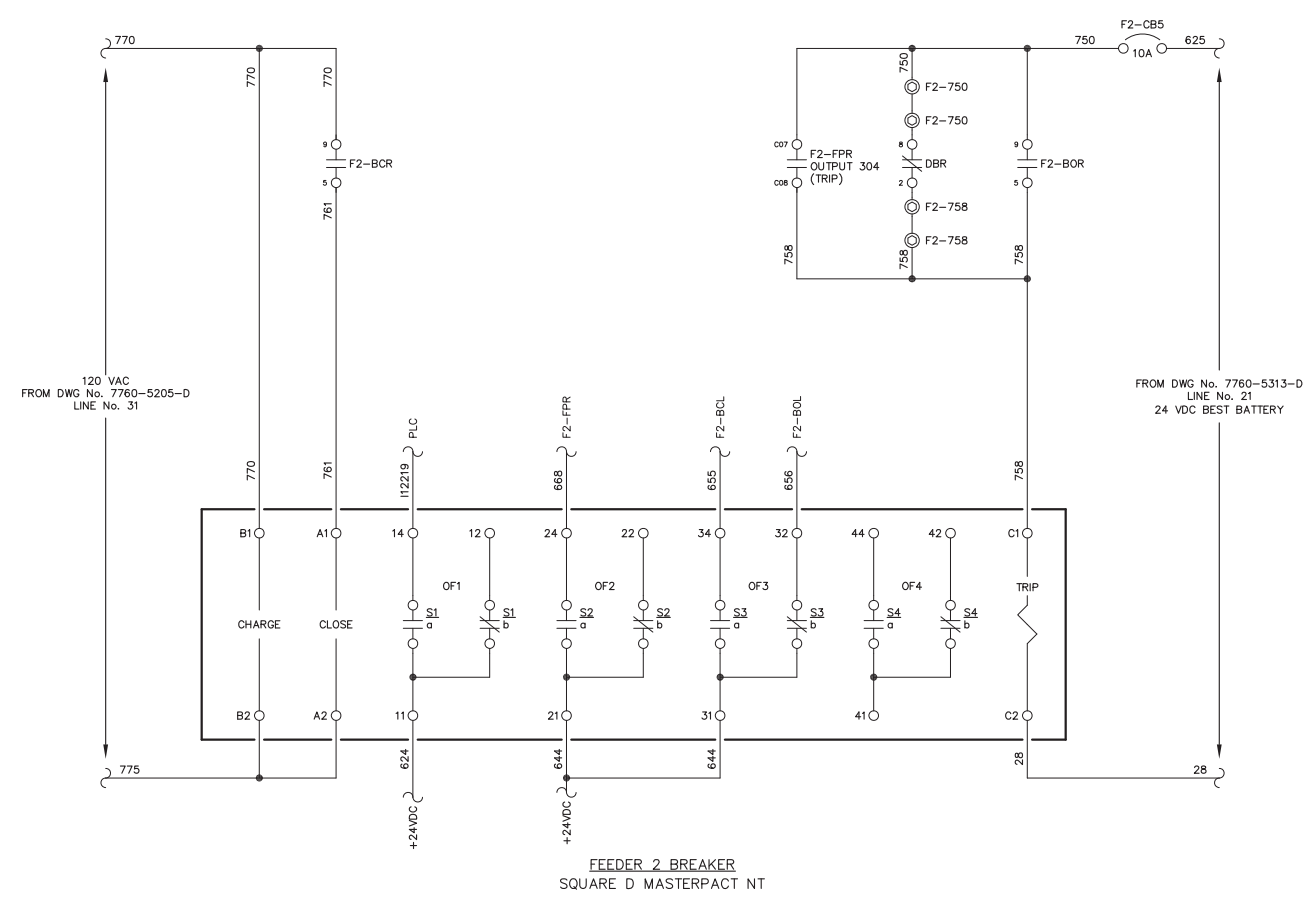
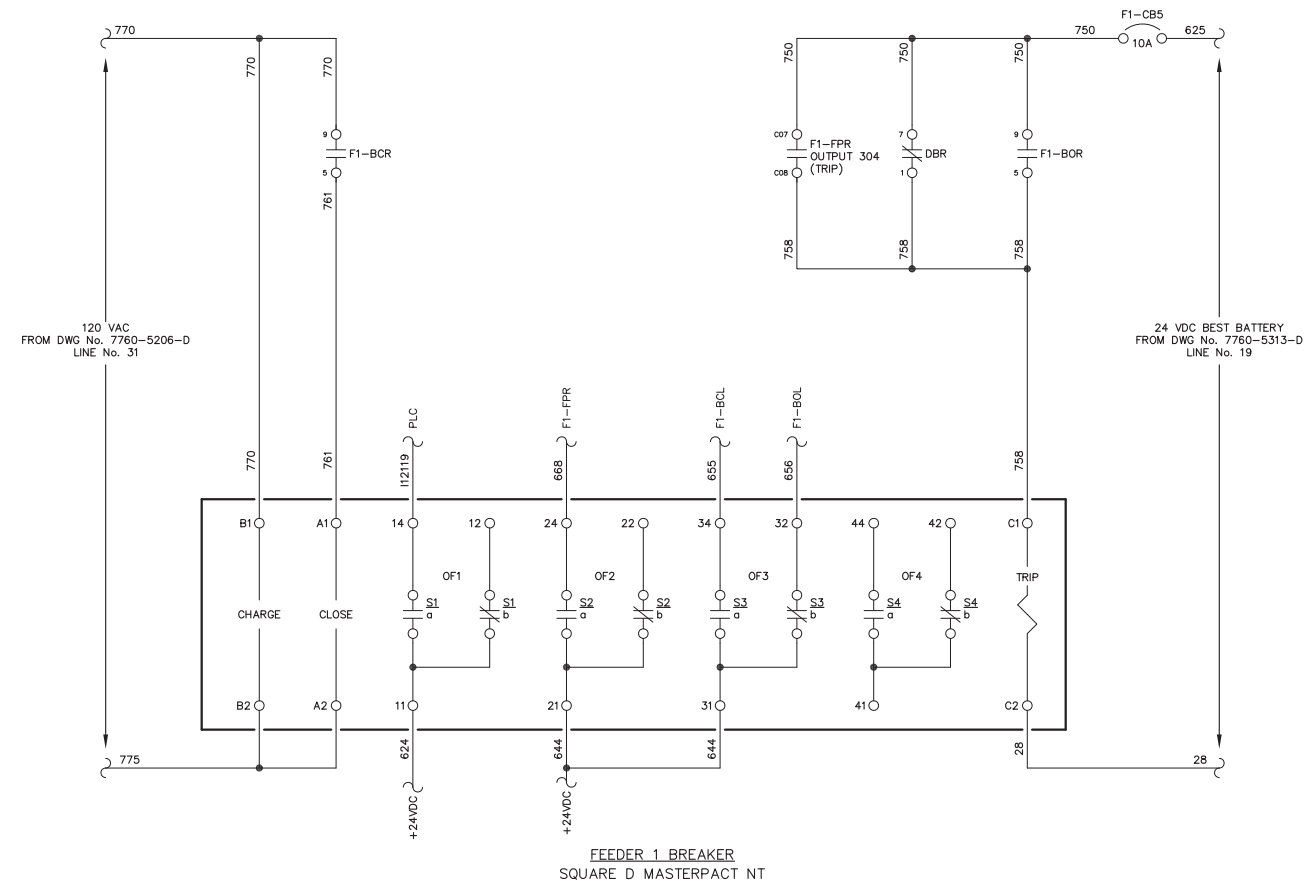
DWG. No: 7760-5321-D SHEET: 1 OF 1 CKD. BY: JMD

JOB: ST GEORGE POWERHOUSE GENERATOR SWITCHGEAR

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NOTE:
1. FOR GENERAL WIRING & CONSTRUCTION NOTES, SEE DRAWING No. 7760-3101-D.

C	05-15-13	SHOP AS BUILT	GPN
B	04-03-13	REVISED PER REVIEW	GPN
A	03-25-13	SUBMITTAL	GPN
REV.	DATE	DESCRIPTION	BY

AEA PURCHASE ORDER No. 007750 CONTROLLED POWER JOB No. 7760

TITLE: FEEDER BREAKER CONTROL, SCHEMATIC DIAGRAM

SCALE: NONE DATE: 03-19-13 DWN. BY: GPN

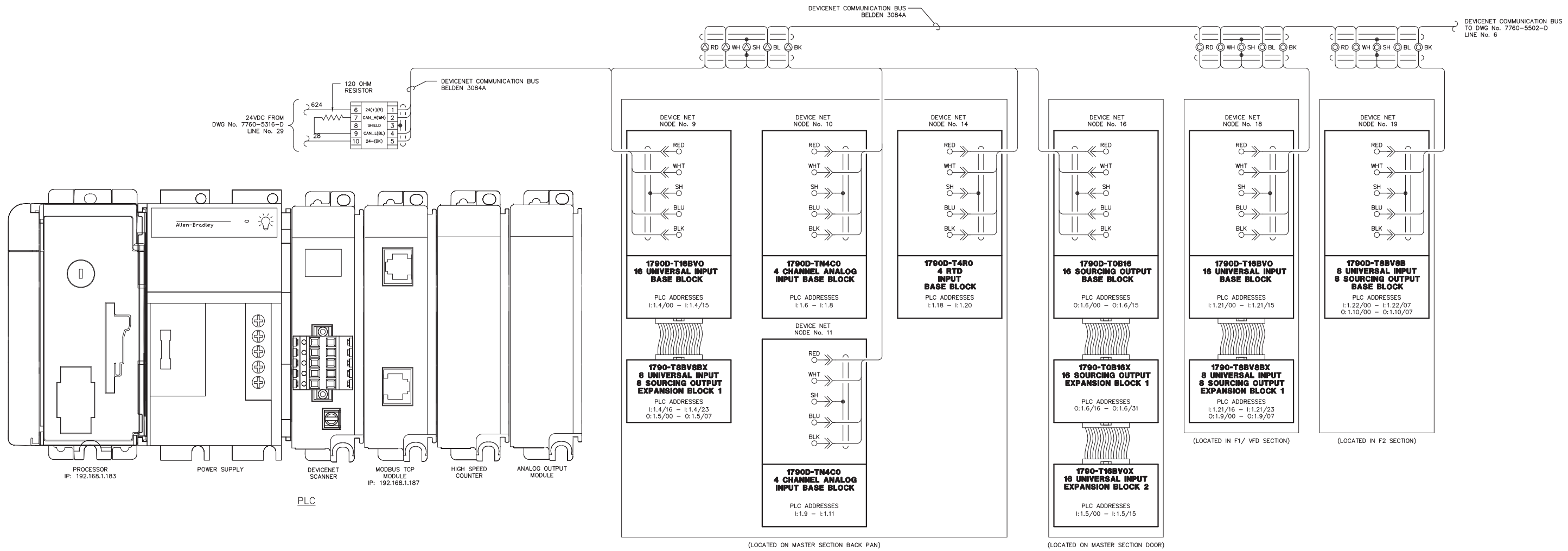
DWG. No: 7760-5401-D SHEET: 1 OF 1 CKD. BY: JMD

JOB: ST GEORGE POWERHOUSE GENERATOR SWITCHGEAR

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NOTE:
1. FOR GENERAL WIRING & CONSTRUCTION NOTES, SEE DRAWING No. 7760-3101-D.

C	05-15-13	SHOP AS BUILT	GPN
B	04-03-13	REVISED PER REVIEW	GPN
A	03-25-13	SUBMITTAL	GPN
REV.	DATE	DESCRIPTION	BY

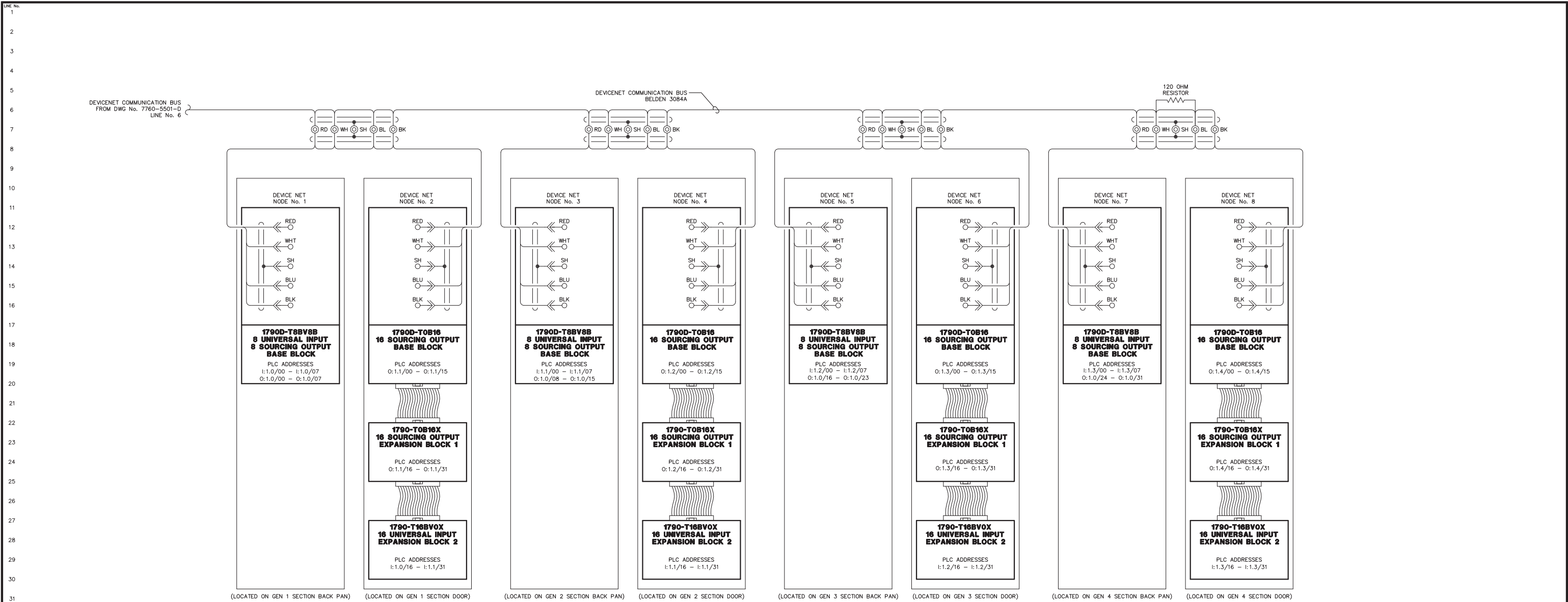
AEA PURCHASE ORDER No. 007750 CONTROLLED POWER JOB No. 7760
TITLE: PLC COMMUNICATION, SCHEMATIC DIAGRAM

SCALE: NONE DATE: 03-19-13 DWN. BY: GPN
DWG. No: 7760-5501-D SHEET: 1 OF 1 CKD. BY: JMD

JOB: ST GEORGE POWERHOUSE GENERATOR SWITCHGEAR

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NOTE:
1. FOR GENERAL WIRING & CONSTRUCTION NOTES, SEE DRAWING No. 7760-3101-D.

C	05-15-13	SHOP AS BUILT	GPN
B	04-03-13	REVISED PER REVIEW	GPN
A	03-25-13	SUBMITTAL	GPN
REV.	DATE	DESCRIPTION	BY

AEA PURCHASE ORDER No. 007750 CONTROLLED POWER JOB No. 7760
TITLE: PLC COMMUNICATION, SCHEMATIC DIAGRAM

SCALE: NONE DATE: 03-19-13 DWN. BY: GPN

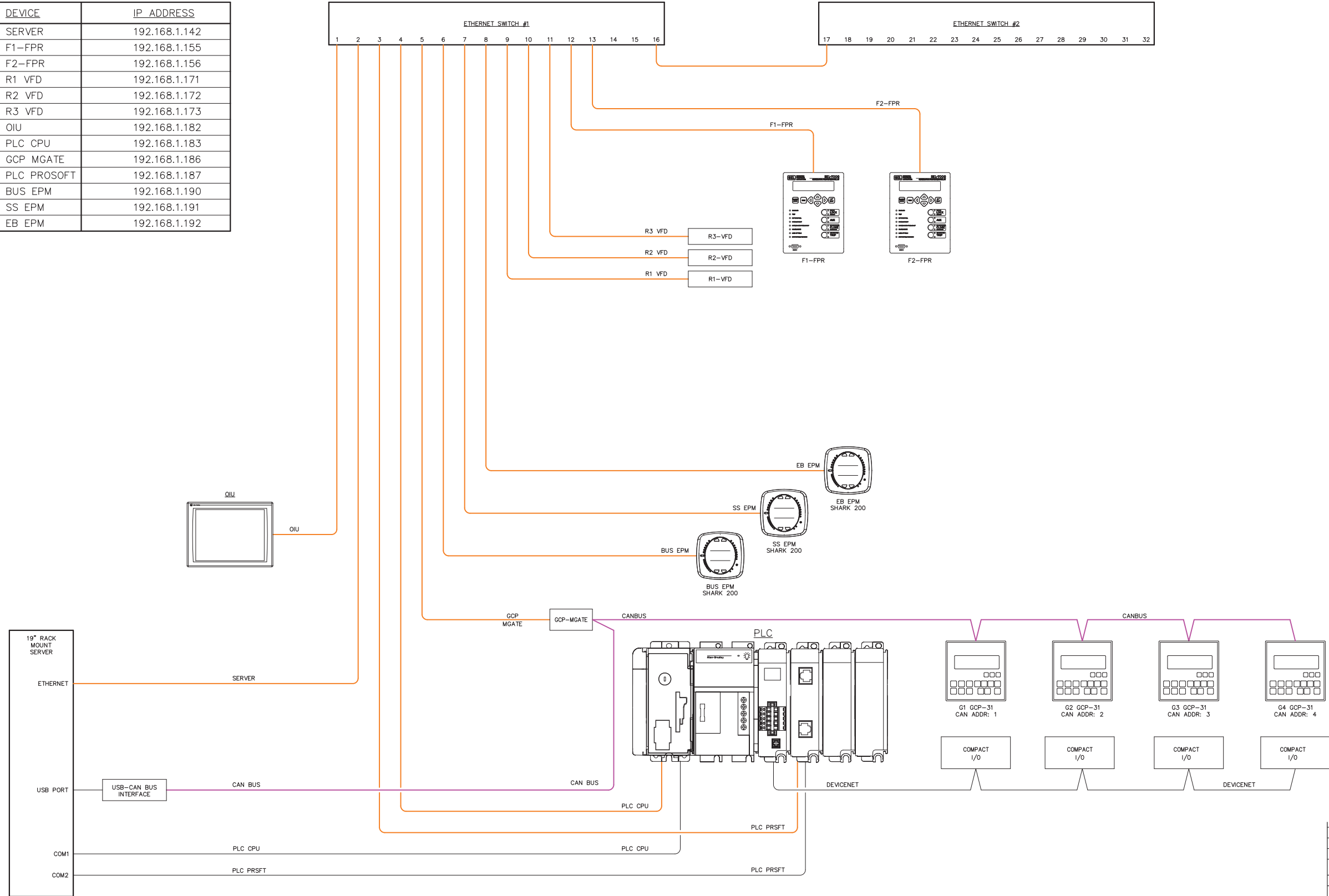
DWG. No: 7760-5502-D SHEET: 1 OF 1 CKD. BY: JMD

JOB: ST GEORGE POWERHOUSE GENERATOR SWITCHGEAR

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DEVICE	IP ADDRESS
SERVER	192.168.1.142
F1-FPR	192.168.1.155
F2-FPR	192.168.1.156
R1 VFD	192.168.1.171
R2 VFD	192.168.1.172
R3 VFD	192.168.1.173
OIU	192.168.1.182
PLC CPU	192.168.1.183
GCP MGATE	192.168.1.186
PLC PROSOFT	192.168.1.187
BUS EPM	192.168.1.190
SS EPM	192.168.1.191
EB EPM	192.168.1.192



NOTE:
1. FOR GENERAL WIRING & CONSTRUCTION NOTES, SEE DRAWING No. 7760-3101-D.

REV.	DATE	DESCRIPTION	BY
C	05-15-13	SHOP AS BUILT	GPN
B	04-03-13	REVISED PER REVIEW	GPN
A	03-25-13	SUBMITTAL	GPN

AEA PURCHASE ORDER No. 007750 CONTROLLED POWER JOB No. 7760

TITLE: COMMUNICATION NETWORK DIAGRAM

SCALE: NONE DATE: 03-19-13 DWN. BY: GPN

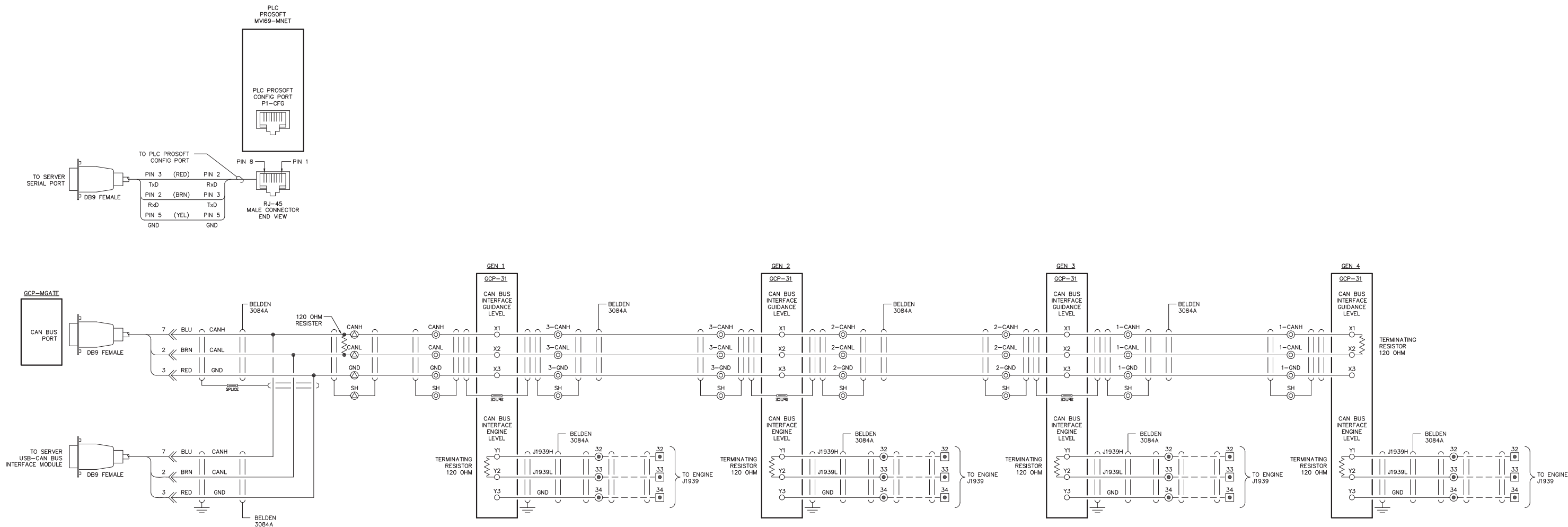
DWG. No: 7760-5601-D SHEET: 1 OF 1 CKD. BY: JMD

JOB: ST GEORGE POWERHOUSE GENERATOR SWITCHGEAR

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NOTE:
1. FOR GENERAL WIRING & CONSTRUCTION NOTES, SEE DRAWING No. 7760-3101-D.

C	05-15-13	SHOP AS BUILT	GPN
B	04-03-13	REVISED PER REVIEW	GPN
A	03-25-13	SUBMITTAL	GPN
REV.	DATE	DESCRIPTION	BY

AEA PURCHASE ORDER No. 007750 CONTROLLED POWER JOB No. 7760

TITLE: COMMUNICATION NETWORK DIAGRAM

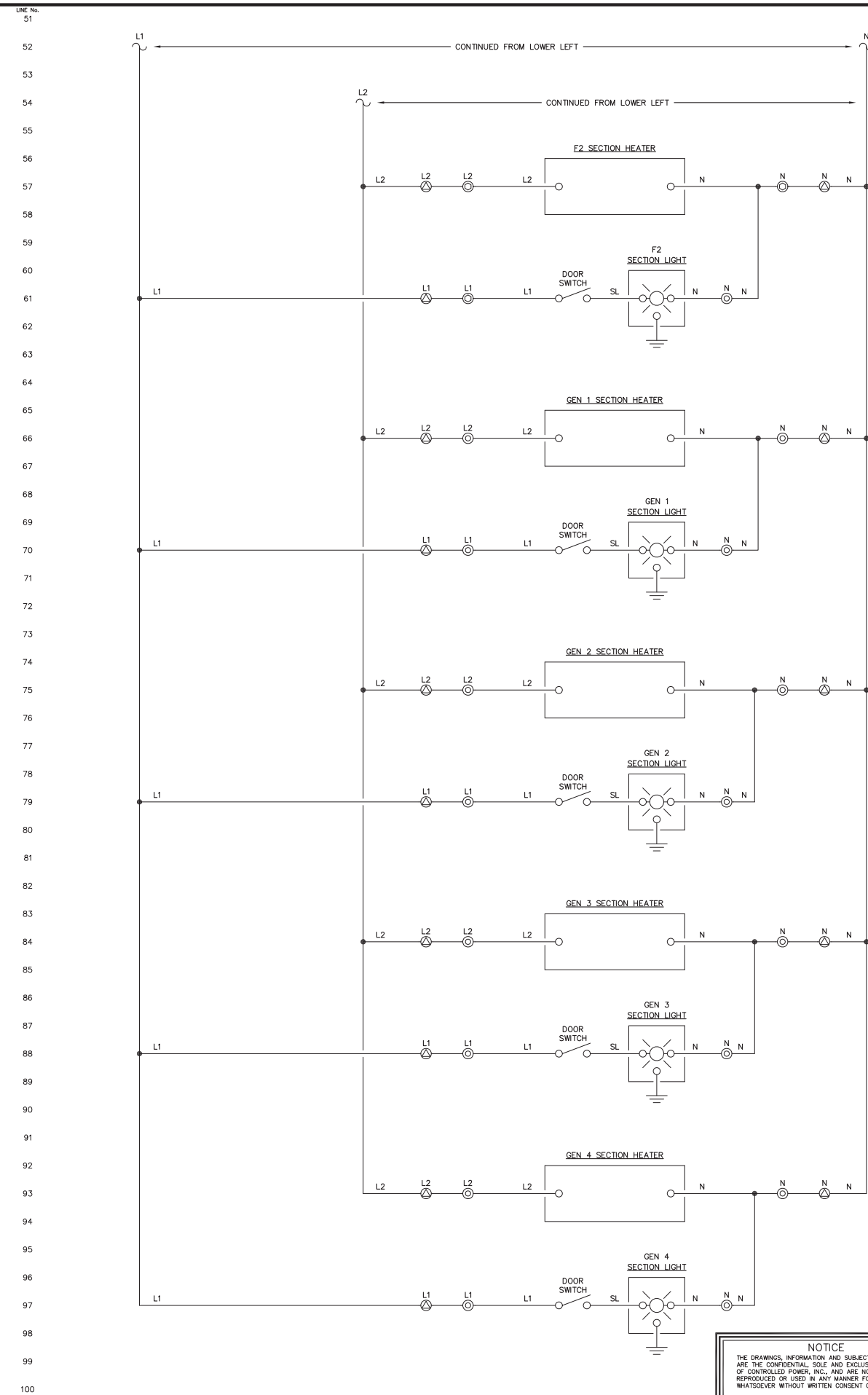
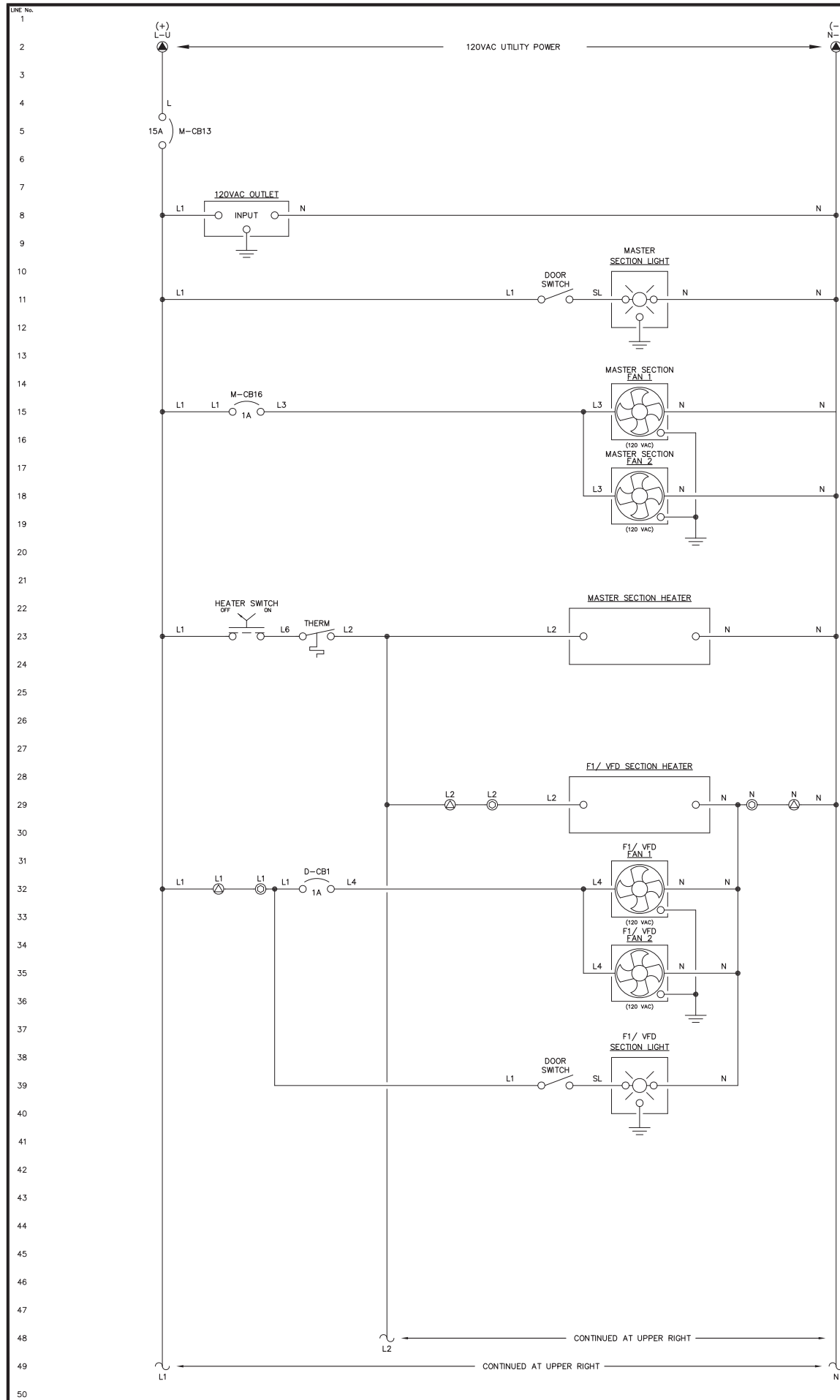
SCALE: NONE DATE: 03-19-13 DWN. BY: GPN

DWG. No: 7760-5602-D SHEET: 1 OF 1 CKD. BY: JMD

JOB: ST GEORGE POWERHOUSE GENERATOR SWITCHGEAR

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NOTE:
 1. FOR GENERAL WIRING & CONSTRUCTION NOTES, SEE DRAWING No. 7760-3101-D.

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REV.	DATE	DESCRIPTION	BY

AEA PURCHASE ORDER No. 007750 CONTROLLED POWER JOB No. 7760

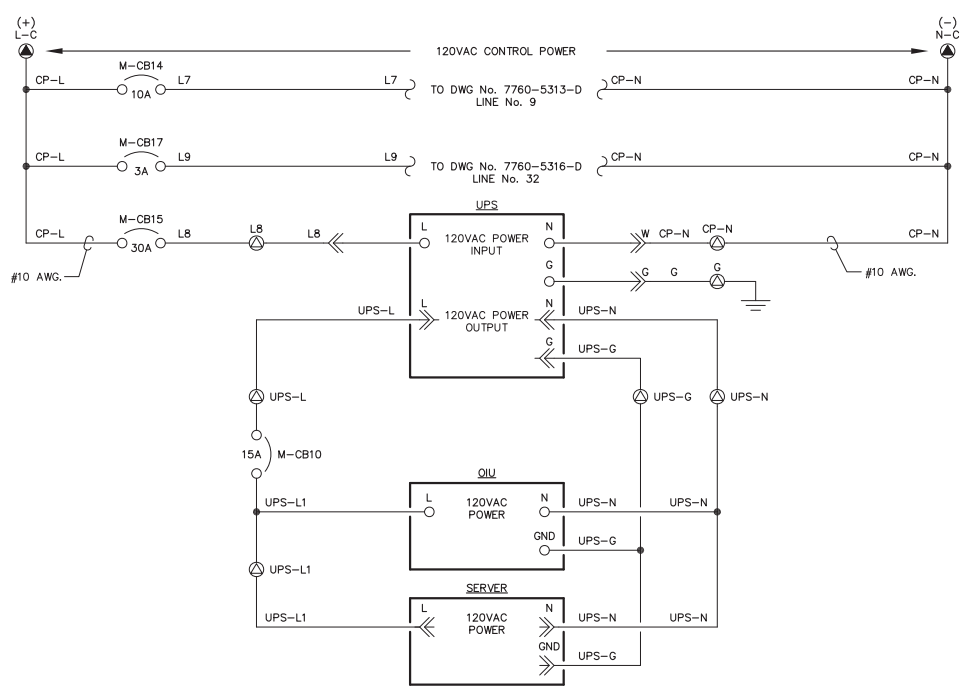
TITLE: AC SERVICE, HEATER, LIGHTING & FAN CONTROL, SCHEMATIC DIAGRAM

SCALE: NONE DATE: 03-19-13 DWN. BY: GPN

DWG. No: 7760-5701-D SHEET: 1 OF 1 CKD. BY: JMD

JOB: ST GEORGE POWERHOUSE GENERATOR SWITCHGEAR

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NOTE:
 1. FOR GENERAL WIRING & CONSTRUCTION NOTES, SEE DRAWING No. 7760-3101-D.

C	05-15-13	SHOP AS BUILT	GPN
B	04-03-13	REVISED PER REVIEW	GPN
A	03-25-13	SUBMITTAL	GPN
REV.	DATE	DESCRIPTION	BY

AEA PURCHASE ORDER No. 007750 CONTROLLED POWER JOB No. 7760

TITLE: AC CONTROL POWER, SCHEMATIC DIAGRAM

SCALE: NONE DATE: 03-19-13 DWN. BY: GPN

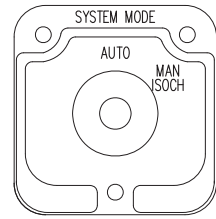
DWG. No: 7760-5702-D SHEET: 1 OF 1 CKD. BY: JMD

JOB: ST GEORGE POWERHOUSE GENERATOR SWITCHGEAR

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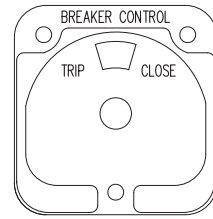
MASTER CONTROL SWITCH - MCS



(ELECTROSWITCH 24201C)
KNURLED HANDLE
QTY 1

DECK	CONTACTS		POS.
	AUTO	MAN ISOCH	
1	12	13	X
	16	17	X
1	11	18	X
	15	12	X
1	15	14	X
	15	16	X

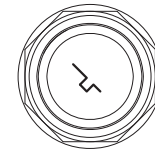
BREAKER CONTROL SWITCH - 52CS



(ELECTROSWITCH 2438D)
PISTOL GRIP HANDLE
SPRING RETURN TO CENTER
QTY 2

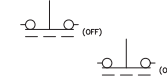
DECK	CONTACTS		TRIP	POS.
	TRIP	CLOSE		
1	11	18	X	
	16	17		X

GENERATOR LOCKOUT SWITCH - GLS

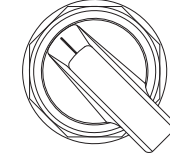


KEY OPERATED
2 POS MAINTAINED
QTY 4

POS	OFF	RUN

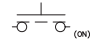


HEATER CONTROL SWITCH - HCS



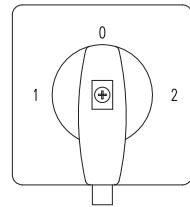
MAINTAINED
LOCATED ON MASTER
BACK PAN

POS	OFF	ON



VARIABLE FREQUENCY DRIVE MODE SWITCH - VFDMS

VFD OFF BYPASS



3 POS MAINTAINED
QTY 3

71322		44	34	1L1	1L2	1L3	2L1	2L2	2L3	53	63		
POSITION											POSITION		
SMD	1	MD		1T1	1T2	1T3	2T1	2T2	2T3	54	64	ME	
				71300									2

NOTE:

- FOR GENERAL WIRING & CONSTRUCTION NOTES, SEE DRAWING No. 7760-3101-D.

REV.	DATE	DESCRIPTION	BY
C	05-15-13	SHOP AS BUILT	GPN
B	04-03-13	REVISED PER REVIEW	GPN
A	03-25-13	SUBMITTAL	GPN

AEA PURCHASE ORDER No. 007750 CONTROLLED POWER JOB No. 7760

TITLE: CONTROL SWITCH TARGET DIAGRAM

SCALE: NONE DATE: 03-19-13 DWN. BY: GPN

DWG. No: 7760-6101-D SHEET: 1 OF 1 CKD. BY: JMD

JOB: ST GEORGE POWERHOUSE GENERATOR SWITCHGEAR

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813 W. NORTHERN LIGHTS BLVD.
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MANUFACTURED BY:
 **CONTROLLED POWER, INC.**
 17909 BOTHELL EVERETT HWY. S.E. #102
 BOTHELL, WA. 98012
 (425)-485-1778
 SERIAL NUMBER: 7760

MASTER CONTROL

GENERATOR 1

GENERATOR 2

GENERATOR 3

GENERATOR 4

FEEDER 1/ VFD

FEEDER 2

210 KW

BOILER SCR CONTROL

RADIATOR FAN 1

RADIATOR FAN 2

RADIATOR FAN 3

GENERATOR LOCKOUT FOR SERVICE
OFF RUN

GENERATOR 1

GENERATOR 2

GENERATOR 3

GENERATOR 4

FEEDER 1

FEEDER 2

STATION SERVICE

ELECTRIC BOILER

VFD MAIN

LAMP TEST EMERGENCY STOP ALARM RESET

BUS TOTALIZING

STATION SERVICE

ELECTRIC BOILER


RADIATOR FAN 1
VFD OFF BYPASS

RADIATOR FAN 2
VFD OFF BYPASS

RADIATOR FAN 3
VFD OFF BYPASS

HEATER
OFF ON

NO MOUNTING HOLES

MANUFACTURED BY:
 **CONTROLLED POWER, INC.**
 17909 BOTHELL EVERETT HWY. S.E. #102
 BOTHELL, WA. 98012
 (425)-485-1778
 SERIAL NUMBER: 7760

- NOTES:
1. ALL NAMEPLATES SHALL BE BLACK FACE WITH WHITE LETTERS EXCEPT AS NOTED.
 2. ALL NAMEPLATES SHALL HAVE PRESSURE SENSITIVE ADHESIVE ON BACK, 100 % COVERAGE.
 3. ALL NAMEPLATES SHALL HAVE MOUNTING HOLES DRILLED AS INDICATED.
- ▲ INDICATES THAT NAMEPLATE SHALL BE BRUSHED ALUMINUM WITH BLACK ENGRAVED LETTERS.

C	05-15-13	SHOP AS BUILT	GPN
B	04-03-13	REVISED PER REVIEW	GPN
A	03-25-13	SUBMITTAL	GPN
REV.	DATE	DESCRIPTION	BY

AEA PURCHASE ORDER No. 007750 CONTROLLED POWER JOB No. 7760

TITLE: NAMEPLATE ENGRAVING SCHEDULE, FABRICATION DIAGRAM

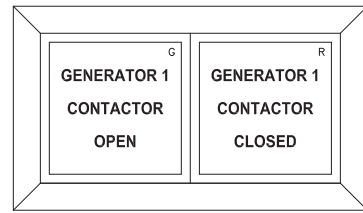
SCALE: NONE DATE: 03-19-13 DWN. BY: GPN

DWG. No: 7760-6201-D SHEET: 1 OF 1 CKD. BY: JMD

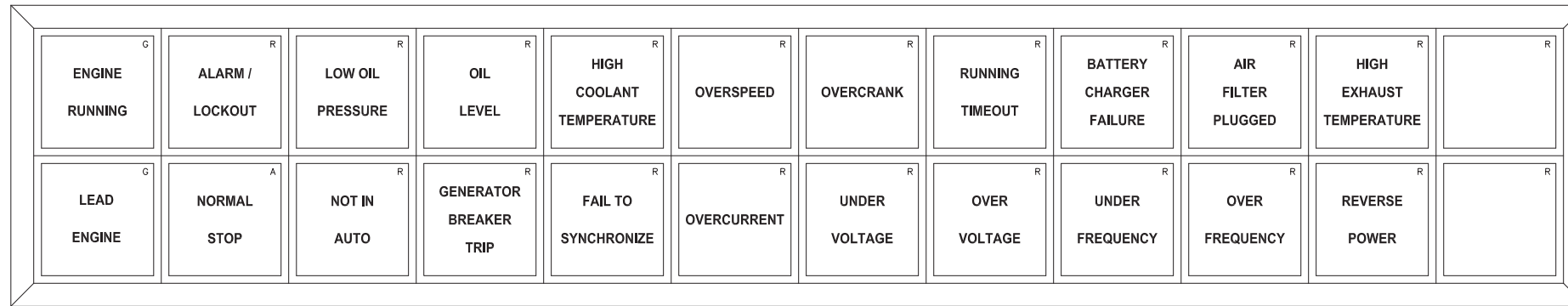
JOB: ST GEORGE POWERHOUSE GENERATOR SWITCHGEAR

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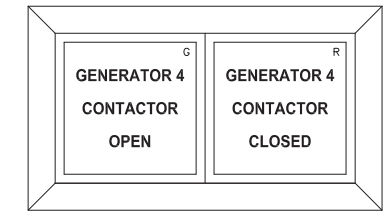
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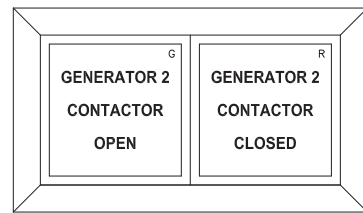
GEN 1 BREAKER ANNUNCIATOR
QTY 1



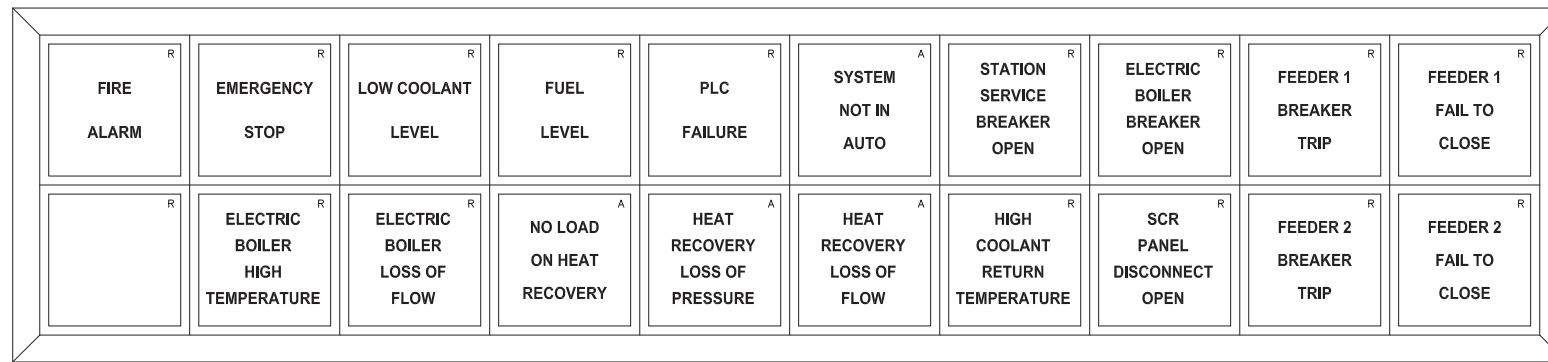
GENERATOR ANNUNCIATOR
QTY 4



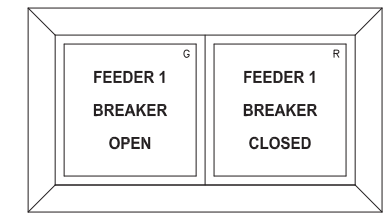
GEN 4 BREAKER ANNUNCIATOR
QTY 1



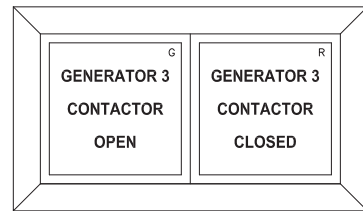
GEN 2 BREAKER ANNUNCIATOR
QTY 1



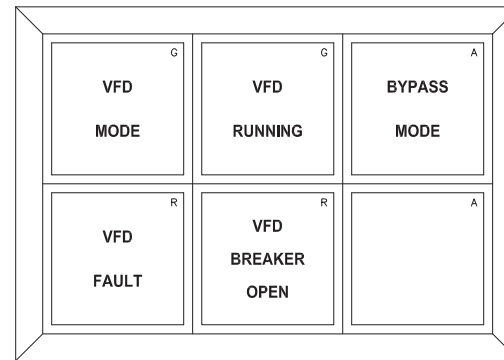
MASTER ANNUNCIATOR
QTY 1



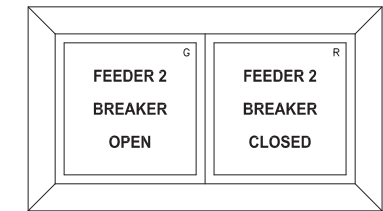
FEEDER 1 BREAKER ANNUNCIATOR
QTY 1



GEN 3 BREAKER ANNUNCIATOR
QTY 1



VFD ANNUNCIATOR
QTY 3



FEEDER 2 BREAKER ANNUNCIATOR
QTY 1

C	05-15-13	SHOP AS BUILT	GPN
B	04-03-13	REVISED PER REVIEW	GPN
A	03-25-13	SUBMITTAL	GPN
REV.	DATE	DESCRIPTION	BY

AEA PURCHASE ORDER No. 007750 CONTROLLED POWER JOB No. 7760

TITLE: ANNUNCIATOR WINDOWS, FABRICATION DIAGRAM

SCALE: NONE DATE: 03-19-13 DWN. BY: GPN

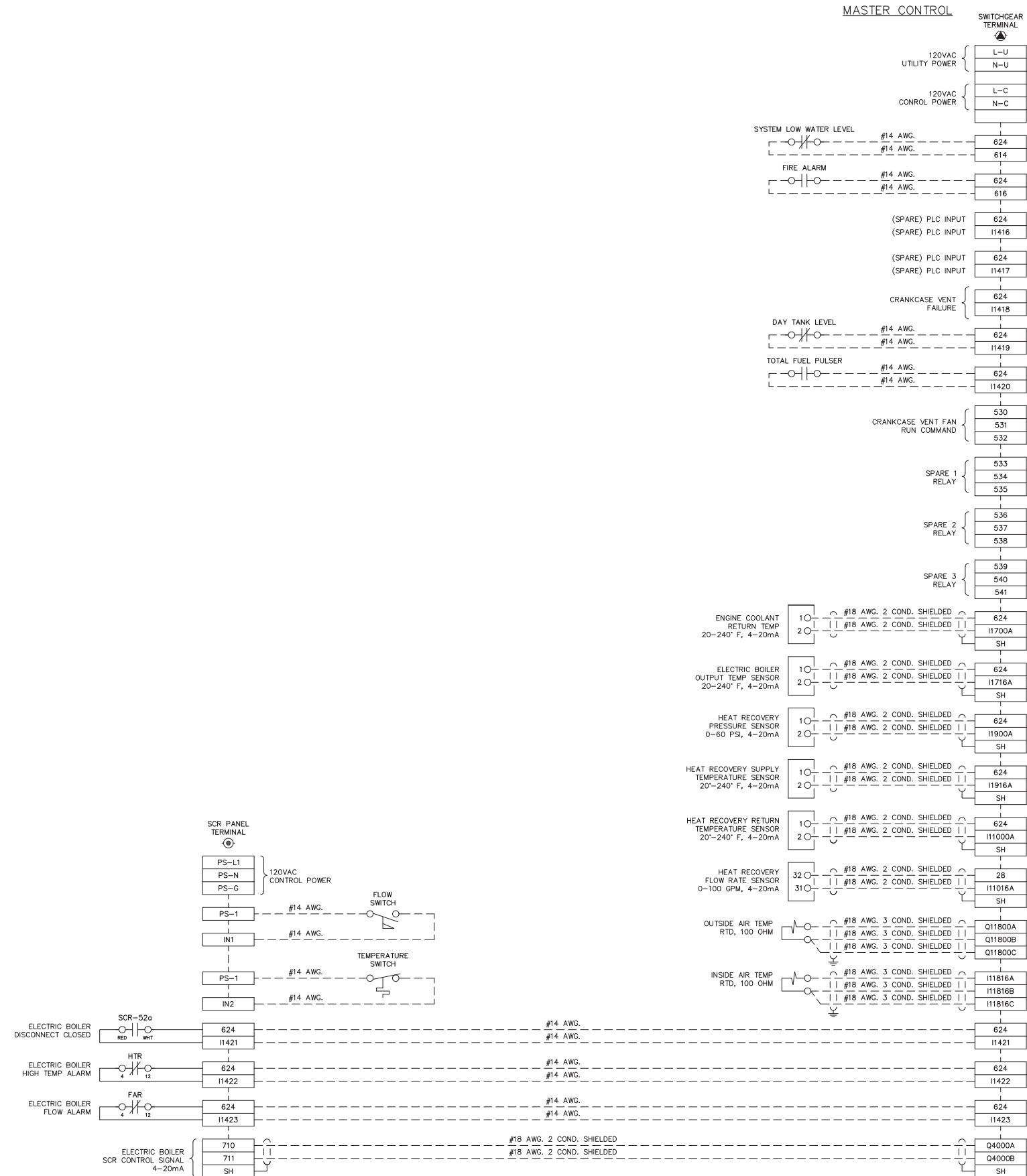
DWG. No: 7760-6202-D SHEET: 1 OF 1 CKD. BY: JMD

JOB: ST GEORGE POWERHOUSE GENERATOR SWITCHGEAR

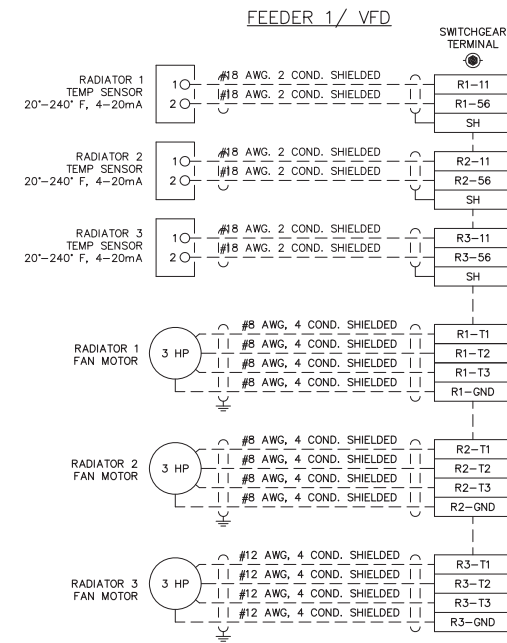
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MASTER CONTROL



FEEDER 1/ VFD



NOTE:
1. FOR GENERAL WIRING & CONSTRUCTION NOTES, SEE DRAWING No. 7760-3101-D.

C	05-15-13	SHOP AS BUILT	GPN
B	04-03-13	REVISED PER REVIEW	GPN
A	03-25-13	SUBMITTAL	GPN
REV.	DATE	DESCRIPTION	BY

AEA PURCHASE ORDER No. 007750 CONTROLLED POWER JOB No. 7760

TITLE: INTERCONNECTION DIAGRAM

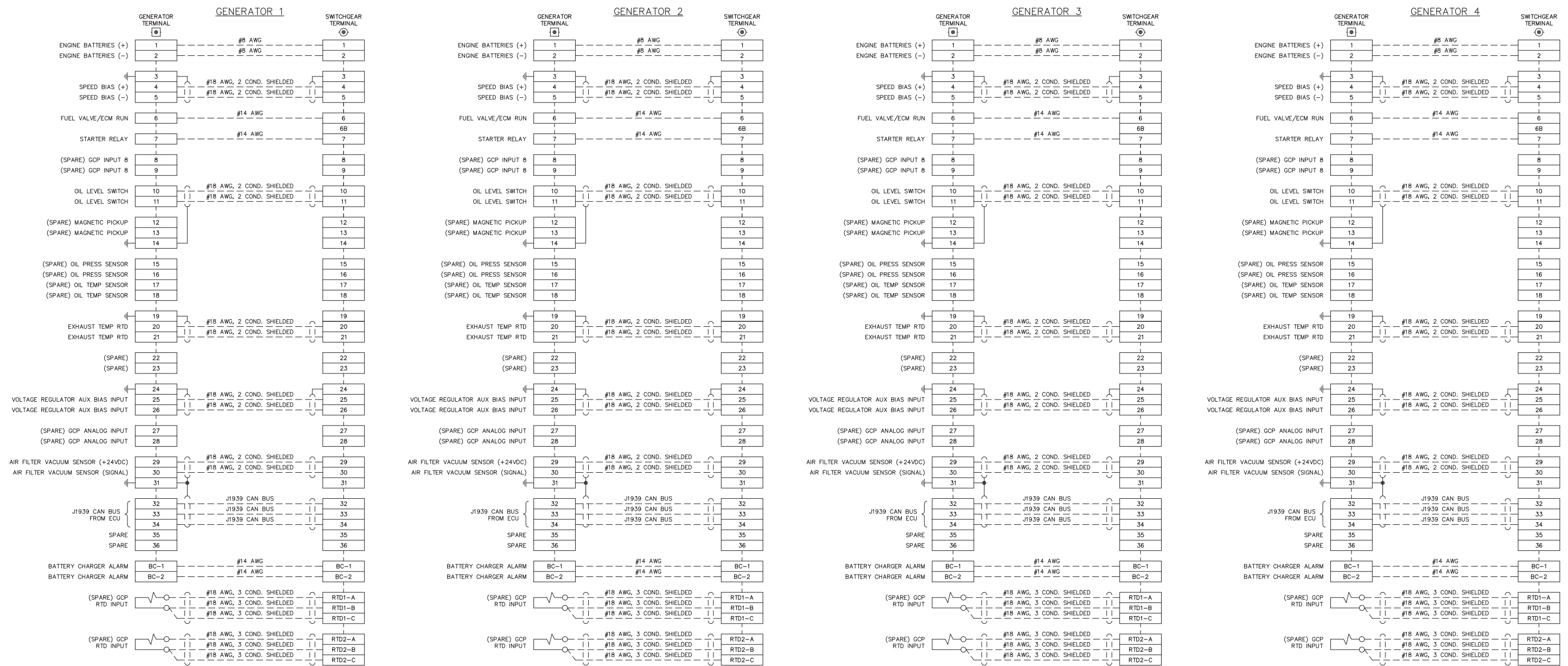
SCALE: NONE DATE: 03-19-13 DWN. BY: GPN

DWG. No: 7760-7101-D SHEET: 1 OF 1 CKD. BY: JMD

JOB: ST GEORGE POWERHOUSE GENERATOR SWITCHGEAR

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NOTE:
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C	05-15-13	SHOP AS BUILT	GPN
B	04-03-13	REVISED PER REVIEW	GPN
A	03-25-13	SUBMITTAL	GPN
REV.	DATE	DESCRIPTION	BY

AEA PURCHASE ORDER No. 007750 CONTROLLED POWER JOB No. 7760

TITLE: INTERCONNECTION DIAGRAM

SCALE: NONE DATE: 03-19-13 DWN. BY: GPN

DWG. No: 7760-7102-D SHEET: 1 OF 1 CKD. BY: JMD

JOB: ST GEORGE POWERHOUSE GENERATOR SWITCHGEAR

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