STRATEGIC PETROLEUM RESERVE

ENGINEERING CHANGE PROPOSAL

SUMMARY SHEET

CLASS I CHANGE

ECP NUMBER	TITLE
SJ-M/O-4641	**Purchase and Install Battery Inverter System**

BUDGET SOURCE

- [ ] SPR BLI _____
- [ ] CONTRACTOR BASELINE
- [ ] AUD
- [ ] OTHER: Lease Contractor

AUTHORITY

- [x] PCCB
- [ ] ECC

SCHEDULE

- [ ] YES
  MILESTONE NUMBER _____
  CMCR NUMBER
- [x] NO

TOTAL ESTIMATED COST OF CHANGE

	FY 99	FY 00
DESIGN	**$ 1,000**	
CONSTRUCTION	**$12,322**	
TOTAL	**$13.322**	

PCCB/ECC SIGNATURES	DISPOSITION: CONCUR	DISPOSITION: NON CONCUR	DISPOSITION: DATE	COMMENTS CONDITIONS/LIMITATIONS
~~APM Integrity and Admin. DOE SENIOR SITE OFFICIAL~~				Need Dwgs marked up
E. D. Kelly APM TECHNICAL ASSURANCE	✓		3/16/04	Enter Vendor Data into
Warren Lowe APM SYSTEMS AND PROJECTS	✓		16 MAR 2004	Centra
APM MAINTENANCE AND OPERATIONS	✓		3/15/04	
~~DEPUTY PROJECT MANAGER~~ APM MGR	✓		3/17/04	
DOE CMO				
PROJECT MANAGER				
DEPUTY ASSISTANT SECRETARY - SPR				

PCCB/ECC ACTION

- [x] FULL APPROVAL
- [ ] CONDITIONAL/LIMITED APPROVAL
- [ ] DISAPPROVAL

ECPFM (4)

completed 1999

STRATEGIC PETROLEUM RESERVE

ENGINEERING CHANGE PROPOSAL

ECP NUMBER	ECP TITLE	PAGE 1 OF 4
SJ-M/O-4641	**Purchase and Install Battery Inverter System**	

CONTRACTOR CHANGE NO. / REV.	INITIATED BY	DATE	SUBMITTED BY	DATE
	Robert Smith	**1/22/03**	**Jill Derise**	**1/22/03**
PRIORITY	ORG / CONTRACTOR	PHONE NO.	ORG/CONTRACTOR	PHONE NO.
☐ EMERGENCY	**Shell Pipeline Company LP**	**(504) 728-7157**	**Shell Pipeline Company LP**	**(504) 728-7366**
☐ URGENT				
☒ ROUTINE				

VALUE ENGINEERING	DRAWDOWN CRITICAL	ROM ESTIMATE
☐ VEP (MANDATORY)	☐ YES	
☐ VECP (VOLUNTARY)	☒ NO	$ 13,322.

DESCRIPTION:

PROBLEM / EXISTING CONFIGURATION

This ECP is being submitted as documentation of work that was done at Sugarland in 1999. In an effort to provide Sugarland Terminal with a modernized and reliable power backup system, a PECO-2 power inverter was installed on the 24 volt dc power system at Sugarland Terminal. The PECO-2 inverter provides Sugarland with backup power in the event of power dips and outages, and allows for a "bump-less" transfer of power during power interruptions.

PROPOSED SOLUTION / ENHANCEMENT

Installed (1) PECO-2 Model # J-438126NP-D1 power inverter capable of providing up to 4000 Va. of power during power interruptions. The PECO-2 inverter allows Sugarland Terminal to continuously monitor critical equipment, and communicate data to the Houston Control Center during short-term power outages at the facility. The inverter is set-up to provide back-up power to all valve statuses, PLC's, and RTU equipment.

[Reference Shell AFE 149072]

REASON/JUSTIFICATION

Prior to the installation of the PECO-2, the Houston Control Center and local operations had no means to monitor critical equipment during power outages. During power interruptions, usually proceeded by inclement weather, local personnel were instructed to physically monitor valve statues and RTU functionality. Since the installation of the power inverter, Sugarland Terminal now has the system integrity tools necessary to safely operate the terminal during power interruptions. The battery inverter system installed in 1999 should be considered "unfunded liability" due to the permanent improvement to the facility.

CI'S AFFECTED

TECHNICAL ANALYSIS/RECOMMENDATION	IMPLEMENTATION METHOD
	☐ SUBCONTRACT
	☐ M&O LABOR (LOE)
	☐ COMBINATION

ENGINEERING	DATE	DOE SSR	DATE
			☐ CONCUR
			☐ NONCONCUR

STRATEGIC PETROLEUM RESERVE

ENGINEERING CHANGE PROPOSAL
SOFTWARE, HARDWARE, FIRMWARE CHANGE

CONTRACTOR CHANGE NUMBER	REVISION NUMBER	ECP NUMBER	
		SJ-MO-4641	Page 3 of 4

SOFTWARE CHANGE ANALYSIS	HARDWARE/SOFTWARE AFFECTED
	(NOTE: REDLINE CI BOM)

DISPOSITION OF PARTS

☐ REWORK SITE COMPONENTS ONLY ☐ REWORK ALL SITE COMPONENTS ☐ COMPONENTS NOT AFFECTED

☐ OTHER (DESCRIBE)_____

COMPONENT COMPATIBILITY (LIST COMPONENTS SEPARATELY IF COMPATIBILITIES ARE DIFFERENT)

☐ INTERCHANGABLE ☐ DRAWDOWN COMPATIBLE ☐ NONCOMPATIBLE

OPCS SUPPORT ENGINEER	DATE	FUNCTIONAL MANAGER	DATE

IMPLEMENTATION/TEST COMMENTS

WITNESSED BY			DATE

TEST APPROVED BY	DATE	CHANGE RELEASE AUTHORITY	DATE

STRATEGIC PETROLEUM RESERVE
ENGINEERING CHANGE PROPOSAL
CONFIGURATION CHANGE AFFECTED REPORT

"TO BE COMPLETED BY TECHNICAL REVIEW PROCESS, ENGINEERING AND CONFIGURATION MANAGEMENT ORGANIZATION DEFINED PROCESS"

ECP NO.	CONTRACTOR CHANGE NO	REV.	CHANGE CLASSIFICATION ☑ CLASS I ☐ CLASS II	PAGE 4 OF 4
SJ-M/0-464				

FUNCTIONS AFFECTED			DOCUMENTS AFFECTED		
Y	N	ITEM	Y	N	ITEM
		LEVEL 1 ☐ II ☒ III ☐ CRITERIA			ELECTRICAL
		PERFORMANCE CRITERIA			315 - CATHODIC PROTECTION
		RAM			350 - STANDARDS
		INTERFACE CHARACTERISTICS			INSTRUMENTATION
		I/O POINTS			401 - BLOCK DIAGRAM
		DOE LEVEL I, II, III SCHEDULES			402 - LOOP DIAGRAMS
		GUARANTEES/DELIVERABLES			403 - INSTRUMENT PLANS AND DETAILS
		SAFETY/ENV/FP (CIRCLE ONE)			404 - INSTRUMENT WIRING DIAGRAM
		SECURITY REQUIREMENTS			409 - INSTRUMENT INDEX
		OPCS SOFTWARE			450 - STANDARDS
		OPCS HARDWARE			MAPPING
		OPCS FIRMWARE			501 - ALIGNMENT SHEETS
		RANGES/ I/O POINTS			509 - PIPELINE DWGS (MAINLINE VALVES, DRIPS, SCRAPER, TRAPS
		DIP SWITCH SETTINGS/JUMPERS			550 - STANDARDS
		MASTER CI LIST			ARCHITECTURAL
		WELLHEAD CONFIGURATION			720 - ELEVATIONS AND FLOOR PLANS
		SPARES/PROVISIONING REQUIREMENTS			750 - STANDARDS
		OPERATIONS MANUALS			DOCUMENTATION
		MAINTENANCE MANUALS			900 - RESERVED
		GOVERNMENT FURNISHED EQUIPMENT			901 - TECHNICAL/PERFORMANCE/DESIGN CRITERIA
		ENERGY USAGE			910 - DESIGN DESCRIPTION/BASIS
		VALUE ENG. (COST SAVINGS)			911 - PROCESS SET POINT DOCUMENTS
		OPERATIONS MODELS			912 - EQUIPMENT LIST
		OTHER			913 - MOV LIST
DOCUMENTS AFFECTED					915 - ELECTRICAL SAFETY
Y	N	ITEMS			920 - I/O DOCUMENT
		PIPING			930 - OPERATION AND MAINTENANCE MANUALS
		101 - PROCESS FLOW DIAGRAMS			950 - STANDARD SPECIFICATIONS
		102 - MECHANICAL FLOW DIAGRAMS			970 - TASK SPECIFICATIONS
		103 - PIPING AND INSTRUMENTATION DIAGRAMS (P&ID'S)			990 - CONFIGURATION MANAGEMENT REPORTS 1.B.0.M
		104 - UTILITY FLOW DIAGRAMS			999 - RESERVED
		105 - GENERAL PIPING PLANS	COMMENTS:xn		
		106 - AREA PLANS (MECHANICAL EQUIPMENT LOCATION)			
		122 - WELLLHEAD DRAWINGS			
		130 - VALVE LIST			
		135 - LINE LIST			
		140 - PSV LIST			
		150 – STANDARDS			
		CIVIL/STRUCTURAL			
		201 - PLOT PLANS			
		202 - SITE WORK, GRADING (ROUGH & FINISH DRAINAGE FENCING			
		210 - FOUNDATIONS: LOCATION PLANS			
		216 - MINES (WEEKS ISLAND ONLY)			
		250 – STANDARDS			
		ELECTRICAL			
		301 - AREA CLASSIFICATION			
		302 - ONE LINE DIAGRAMS			
		303 - SCHEMATIC DIAGRAMS			
		304 - POWER PLANS AND DETAILS			
		305 - LIGHTING PLANS AND DETAILS			
		307 - SUBSTATION PLANS AND DETAILS			
		308 - WIRING DIAGRAMS			
		310 – GROUNDING			
		311 - CONDUIT & CABLE SCHEDULES (INCLUDING INSTRUMENTS)			
		313 - MCC/SWITCH GEAR EVALUATION & SCHEDULE			

Engineering	DATE	CONFIGURATION MANAGEMENT	DATE

ENGINEERING CHANGE PROPOSAL
LIFE CYCLE COST FORM

ECP NUMBER: SJ-M/o-4641	ECP TITLE: Purchase and Install Battery Inverter System

EXECUTIVE SUMMARY:
This ECP is being submitted as documentation of work that was done at Sugarland in 1999. Prior to the installation of the PECO-2, the Houston Control Center and local operations had no means to monitor critical equipment during power outages. During power interruptions, usually proceeded by inclement weather, local personnel were instructed to physically monitor valve statues and RTU functionality. Since the installation of the power inverter, Sugarland Terminal now has the system integrity tools necessary to safely operate the terminal during power interruptions.

IMPLEMENTATION PLAN:
Installed (1) PECO-2 power inverter capable of providing up to 4000 Va. of power during power interruptions. The PECO-2 inverter allows Sugarland Terminal to continuously monitor critical equipment, and communicate data to the Houston Control Center during short-term power outages at the facility. The inverter is set-up to provide back-up power to all valve statuses, PLC's, and RTU equipment.

IMPLEMENTATION COST:

DESIGN:	$1,000
CONSTRUCTION:	$12,322
TOTAL:	$13,322

LIFE CYCLE COST:
Not applicable. No foreseeable maintenance costs or upgrades to the battery inverter system.

IMPACT SUMMARY:

LEVEL I, II, and III CRITERIA:	CONTRACT COMPLETION DATES:
CODES, REGULATIONS, PERMITS, ETC.:	GOVERNMENT-FURNISHED EQUIPMENT:
SAFETY, ENVIRONMENTAL, FIRE PROTECTION SYSTEMS, SECURITY:	SCHEDULE: Installed in 1999

PECO II, Inc.

Rectifier $715
Inverter $1,715
Control $604
missing

126N-D1 POWER SYSTEM

+24 VDC @ 20-120 AMPS
J-438126NP-D1

{RMA}
Rec

INSTRUCTION MANUAL

PECO II, Inc.
P.O. Box 910
Galion, Ohio 44833 (419) 468-7600

INSTRUCTIONS
for

126N-D1 POWER SYSTEM

+24 VDC @ 20-120 AMPS

J-438126NP-D1

SECTIONS

1.0 INSTALLATION

2.0 INITIAL TURN-ON

3.0 TEST & ACCEPTANCE PROCEDURES

PECO II, Inc
Galion, Ohio

Printed in U.S.A.

1.0 INSTALLATION

```
*********************************************************
* CAUTION:  It is essential to read and understand all  *
*           Warnings, Cautions, and Notes before any    *
*           connections are made to the Unit or System. *
*           If further assistance is needed call        *
*           419 / 468-7600 and ask for Field Service.   *
*********************************************************
```

NOTE: Before any connections are made to the Unit or System, be sure all Circuit Breakers and Power Switches are in the "OFF" position, and remove all Fuses until the Installation is complete. All connections are to be made in accordance with the Power Data Sheets, Section 3.0 Installer Connections (Electrical) and Section 4.0 Installers Notes.

1.1 INPUT CONNECTIONS (AC)

The AC Input cabling to the 126N-D1 Power Plant comes from the AC Power Service Cabinet to the Rectifiers AC Input termination points as required.

1.2 OUTPUT CONNECTIONS (DC)

```
*********************************************************
* CAUTION:  Polarity of leads is critical to avoid damage *
*           to the unit or system.  Check batteries and   *
*           battery cables for correct polarity.          *
*********************************************************
```

A. DISTRIBUTION LOAD CABLES:

NOTE: Terminate all distribution cables prior to connecting the battery cables.

1. The +24 VDC Load cables connect to the Fuse Distribution Module (TB1 & TB2) or Circuit Breaker Distribution Module (CB1-CB4). Single hole lugs can be accommodated for these connections.

2. The Load Return cables connect to the Bus Bar (- BAT), located at the rear of the unit.

B. BATTERY CABLES: Terminate the battery cables as follows: (Make certain the polarity is correct)

1. BAT (+) to Battery Bus Bar (+ BAT).
   (Two hole lugs, ¼"-5/8" centers)
   or
   to Battery Disconnect Module (if equipped), terminal BAT (Single hole lugs, ¼")

2. BAT (-) to (-) BAT Bus Bar (Battery Return).
   (Two hole lugs, ¼"-5/8" centers)

1.3 UNIT CONNECTIONS

A. ALARM LEADS: Terminate alarm leads from the 126N-D1 Power System, alarm terminal blocks (TB2, TB3, TB4), to the Office Alarm system as required.

B. SYSTEM GROUND CABLE: Terminate the cable from the Master Ground Bar to the Distribution Ground Bar in the 126N-D1 Power System.

1.4 INSTALLATION CHECKS

Check the 126N-D1 Power System to ensure the following:

A. All leads are terminated with the correct polarity.

B. No loose connection.

C. No shorted leads.

D. Unrestricted AIR FLOW into and out of the 126N Power System.

2.0 INITIAL TURN-ON

After installation and the installation checks of the Power System have been completed, the Power System is ready for Initial Turn-on, as follows:

NOTE: Recheck that all AC Input is "OFF" and the DC Distribution Fuses are removed or Distribution Circuit Breakers are in the "OFF" position.

A. Verify that the Battery polarity on the System is correct.

B. Operate the AC Circuit Breaker in the AC Power Service Cabinet to the "ON" position. The following should happen:

1. Rectifier voltage, as indicated on the Rectifier Test Points with a Digital Voltmeter, will begin to rise to the factory preset float voltage of 27.24 VDC.

   NOTE: Adjust each Rectifiers output voltage as required.

2. All Alarm LED's should be "OFF" at this time.

3. Close Battery Disconnect circuit Breaker.

3.0 TEST & ACCEPTANCE PROCEDURES

3.1 GENERAL

The Test and Acceptance Procedures are to be performed after the Power Plant is in operation. The purpose of this procedure is to further determine if the Plant is operating properly.

```
*************************************************************
* CAUTION:  When performing tests, care should be exercised  *
*           to prevent false alarms from being extended to   *
*           the remote alarm circuits.  Notify Alarm         *
*           Surveillance personnel that tests are under way. *
*************************************************************
```

3.2 VISUAL OBSERVATIONS

Normal operation of the Power System should present the following visual indications: (if equipped)

A. ALARM MODULE

1. RFA LED (Red) should be "OFF".
2. FA LED (Red) should be "OFF" (If equipped).
3. AC LED (Yellow) should be "OFF" (If equipped).
4. EQ LED (Yellow) should be "OFF" (If equipped and if Equalize switch is not activated).

B. RECTIFIER MODULES

1. PWR or V OUT LED's (Green) on the Rectifiers should be "ON".

C. METER MODULE

1. Voltmeter reading: 27.24 VDC.
2. Ammeter reading: Distribution load

D. LOW VOLTAGE DISCONNECT MODULE

1. LVD LED (Red) should be "OFF".
2. TEST LED (Yellow) should be "OFF".
3. TEST (Toggle switch) should be "OFF".

3.3 UNIT FAIL ALARM TEST

In order to test the Power System for the Unit Fail Alarm, proceed as follows:

A. Remove Rectifier 1 from its connector. The following should happen:

1. PWR or V OUT LED (Green), on Rectifier 1, should be "OFF".

2. RFA LED (Red), on the Alarm Module, should be "ON".

3. UNIT FAIL (Lists 45-48, 57-60) "Form C" loop closure alarms on terminal block TB4-1, 2, 3, 4, 5, & 6 will change state;
   or
   UNIT FAIL (Lists 41-44, 53-56) "ground" alarms will appear on terminal block TB4-1.

4. Replace Rectifier 1 back into its connector and Steps 1, 2 & 3 above will return to their previous indication.

B. Remove Rectifier 2 from its connector. The following should happen:

1. PWR or V OUT LED (Green), on Rectifier 2, should be "OFF".

2. RFA LED (Red), on the Alarm Module, should be "ON".

3. UNIT FAIL (Lists 45-48, 57-60) "Form C" loop closure alarms on terminal block TB4-1, 2, 3, 4, 5, & 6 will change state;
   or
   UNIT FAIL (Lists 41-44, 53-56) "ground" alarms will appear on terminal block TB4-2.

4. Replace Rectifier 2 back into its connector and Steps 1, 2, & 3 above will return to their previous indication.

C. If equipped, remove Rectifier 3, 4, etc from its connector. The following should happen:

1. PWR or V OUT LED (Green), on Rectifier 3, 4, etc, should be "OFF".

2. RFA LED (Red), on the Alarm Module, should be "ON".

3. UNIT FAIL (Lists 45-48, 57-60) "Form C" loop closure alarms on terminal block TB4-1, 2, 3, 4, 5, & 6 will change state;
   or
   UNIT FAIL (Lists 41-44, 53-56) "ground" alarms will appear on terminal block TB4-3, 4, etc., on the position that the Rectifier is equipped.

4. Replace Rectifier 3, 4, etc back into its connector and Steps 1, 2, & 3 above will return to their previous indication.

3.4 LOW VOLTAGE DISCONNECT TEST (If equipped)

In order to test the Power System for Low Voltage Disconnect, proceed as follows:

A. Insert test probes of DMM into test points +V and -V. These test points are used to monitor the test voltage during disconnect setup.

B. While monitoring the voltage at +V and -V, turn TEST switch "ON", lower test voltage by adjusting the SIM VOLT pot counterclockwise (CCW), until the Low Voltage Drop-Out set point is reached. Observe the following:

   1. 24V Plants - Drop-out set point is 21.0 VDC.

   2. TEST LED (Yellow) will light.

C. As required, slowly adjust LVD pot clockwise (CW), until the LVD LED (Red) lights. Observe the following:

   1. Contactor (K1) will remain energized.

D. Raise the voltage by adjusting the SIM VOLT pot clockwise (CW), until the pick-up set point is reached.

   1. +24V Plants - Pick-up set point is 25.0 VDC.

E. As required, slowly adjust LVPU pot counterclockwise (CCW), until the LVD LED (Red) extinguishes. Observe the following:

   1. Contactor (K1) will remain energized.

F. Adjust the SIM VOLT pot counterclockwise (CCW) and clockwise (CW) to confirm the set points of the low voltage drop-out and pick-up settings.

G. Turn TEST switch "OFF". Observe the following:

   1. TEST LED (Yellow) will go "OUT".

In order to test the CBS Fuse Alarm, place a blown GMT type fuse in fuse holder position CBS and the following should happen:

A. The FUSE FAIL "Form C" loop closure on terminal block TB2-1, 2, 3, 4, 5, & 6 will change state.

B. Remove the blown fuse and the indication of Step A above will return to "normal".

DOCUMENT LIST

DESCRIPTION	PART NO
Manual 126N-D1 Power System	642126NP-D1
Power Data Sheets 126N-D1 Power System	438126NP-D1PD
Instructions for 126N-D1 Power System	429126NP-D1
J-Drawing 126N-D1 Power System	438126NP-D1
Schematic & Wiring 126N-D1 Power System	4390088P
Schematic Distribution Fuse Mod	4390112P
Schematic Low Voltage Disconnect Control	4390119P
Schematic Low Voltage Disconnect	4390121P
Schematic Meter Module +24V	4390125P
Schematic Distribution Circuit Breaker Module	4390127P
Schematic Battery Disconnect	4390128P

817-265-7933

SERVICE - If for any reason further assistance is needed on any power equipment, complete engineering and field service groups are available in Galion, Ohio, to assist you in any way possible.

CALL: 419/468-7700 Field Service
or
419/468-7600 and ask for Field Service.

PARTS ORDERING - Replacement parts for power equipment may be obtained by forwarding a Purchase Order to:

PECO II, Inc
P. O. Box 910
Galion, Ohio 44833

Include the following information:

A. Give PECO II part number and engineering level of equipment.

B. If part is electrical, give circuit reference numbers and PECO II part numbers.

C. If part is mechanical in nature, give description as to where used.

RETURN & REPAIR - Equipment may be returned to the Factory for repair. In order to do this the procedure must be as follows:

A. Call: 419/468-7700 Field Service
or
419/468-7600 and ask for Field Service.

B. Request a (RMA) Returned Material Authorization number for the defective equipment.

C. Return material prepaid to:

PECO II, Inc
1376 State Route 598
Galion, Ohio 44833

Attn: Field Service Dept

POWER DATA
for

126N-D1 POWER SYSTEM

+24 VDC @ 20-120 AMPS

J-438126NP-D1

SECTIONS

1.0 SPECIFICATIONS
1.1 General
1.2 Output Ratings
1.3 Input Ratings
1.4 Rectifiers
1.5 Optional Features
1.6 Environmental Ratings

2.0 DIMENSIONS

3.0 INSTALLERS CONNECTIONS

4.0 INSTALLERS NOTES

PECO II, Inc
Galion, Ohio

Printed in U.S.A.

1.0 SPECIFICATION

1.1 GENERAL

The 126N-D1 Power System is designed to provide distribution and monitoring of the +24 VDC output. The system has a maximum current capacity of 20-120 Amps (500-3000 Watts). The main source of power for the system is the commercial AC power which is converted to DC by the Rectifiers. It is a fully automatic system which provides Float and Recharge capacity.

The following alarms are available and based on system configurations:

A. Alarms are given whenever any Distribution protection device operates.

B. AC Input is not present.

C. Rectifier fails, or the CBS fuse operates.

The 126N-D1 Power System is housed in a cage 7.0" high x 15.0" deep x 23.0" or 19.0" wide. Many variable combinations can be made from the following optional modules:

A. Rectifier Modules (List 11-12).

B. Meter Module, Analog (List 81-85).

C. Low Voltage Disconnect Module +24V (List 121).

D. Battery Disconnect Module (List 111-115).

E. Alarm Module (List 41-64).

F. Output Distribution

1. Fuse Distribution Module (List 91).
   or
2. Circuit Breaker Distribution Module (List 101).

1.2 OUTPUT RATINGS

1.2.1 VOLTAGE: Float voltage is adjustable from 23.0 to 30.0 VDC for floating a 12 cell battery. Unless otherwise specified, the factory float settings are as shown in Table 1.

TABLE 1

ADJUSTMENT	S E T T I N G S	
	LIMITED MAINTENANCE BATTERY	CONVENTIONAL FLOODED CELL
Float Voltage	27.24 VDC	26.04 VDC

1.2.2 CURRENT: The system can distribute a maximum of 3000 Watts of +24 VDC power, determined by the number of Rectifiers equipped.

1.2.3 REGULATION:

A. Line Regulation: Steady state output voltage remains within +/-0.5% of any voltage within the range of 23.0 VDC to 30.0 VDC for any line change of +/- 15%.

B. Load Regulation: Steady state output voltage remains within +/-1.0% of any voltage within the range of 23.0 VDC to 30.0 VDC from 10% load to full load.

1.2.4 FILTERING: When this system is connected to a battery with an ampere-hour rating of four times the full load current rating, the following specifications apply:

A. Voice band noise is less than 32 dBrn with C-message weighing.

B. Wide band noise does not exceed 300 millivolts peak to peak over the frequency range of 10Hz to 14MHz.

1.2.5 POWER:

NUMBER of MODULES	WATTS (per shelf assembly)
1	500
2	1000
3	1500
4	2000
5	2500
6	3000

1.3 INPUT RATINGS

1.3.1 115 VAC (Standard)

Voltage: The Rectifier has an AC input voltage range of 98 thru 132 VAC, 50/60 HZ single phase.

Current: The Rectifier AC Input current is 7.25 amperes maximum for 98 - 132 VAC at 500 Watts output load per Rectifier.

1.3.2 230 VAC (Optional) [For 230 VAC Input consult factory]

Voltage: The Rectifier has an AC input voltage range of 195 thru 264 VAC, 50/60 HZ single phase.

Current: The Rectifier AC Input current is 3.70 amperes maximum for 195 - 264 VAC at 500 Watts output load per Rectifier.

1.4 RECTIFIERS

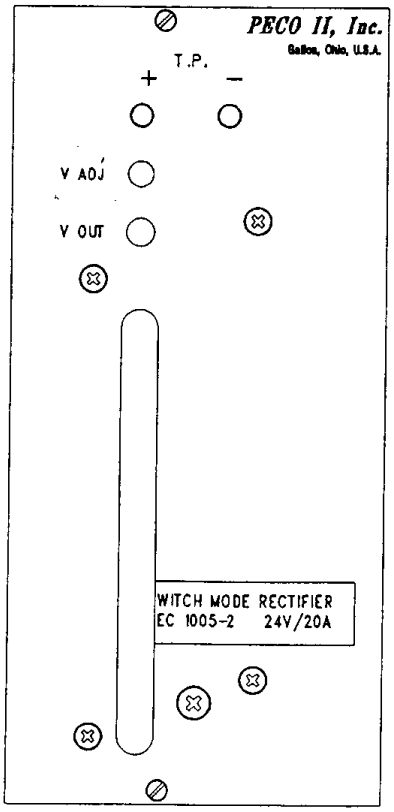
1.4.1 RECTIFIER MODULE (SM20H24-2PM) LIST 11

Rectifier Module (SM20H24-2PM) is a +24 VDC @ 20 Amp self contained unit. It requires an AC Input to provide a DC Output. The Rectifier is equipped with High Voltage Shut-down feature and High/Low Voltage Alarming. The Rectifier features, located on the front panel of each Rectifier, are as follows:

A. One (1) set of Test Points (+,-) are available to monitor the Rectifier voltage. These test points are connected ahead of the output diode, which means that the actual output voltage is one diode drop lower (approximately one [1] volt).

B. V ADJ pot is used to adjust the voltage output of the Rectifier.

C. V OUT LED (Green) will light when the AC Input is present and the unit is working properly.



FRONT VIEW

1.4.1 RECTIFIER MODULE (SM20H24-2PM) LIST 11 [Cont]

D. SPECIFICATIONS (Electrical)

1. Input Current (Full Load)

INPUT	115 VAC			230 VAC		
Minimum (VAC)	98			195		
Nominal (VAC)		115			230	
Maximum (VAC)			132			264
Current (AAC)	8.1	7.3	6.7	3.6	3.3	3.1
Supply Fuse (Slow Blow)	20 Amp			10 Amp		

2. Output Voltage: 27.24 VDC (Factory)
   23.00 VDC (Minimum)
   30.00 VDC (Maximum)

3. Power: 500 Watt (Per Rectifier Module)

4. Current: 25 VDC @ 20 ADC

5. Regulation: Line +/-0.5%
   Load +/-0.1%, 10-100%.

6. Factory Settings:

Low Voltage	23.50 VDC
High Voltage	28.00 VDC
Float Voltage	27.24 VDC

7. Efficiency: 87% (Full Load)

8. Heat Loss: 280 BTU/HR

9. Input Protection: Thermal Fuse (Internal)

10. Output Noise: Noise measurements on Battery with ampere-hour rating of four (4) times Rectifier current rating.

    Voice Band: 32 dBrnC
    Wide Band: 300MV (Peak to Peak)
    10Hz to 14MHz
    Acoustic: Less than 55 dB

1.4.1 RECTIFIER MODULE (SM20H24-2PM) LIST 11 [Cont]

11. Switches / Features

115 / 230 VAC (Input)

Input Protection: Low Input Voltage Shut Down

Thermal Protection: Thermal Shut Down with Automatic Reset

Output Protection: Rectangular Current Limiting (Factory Set)

Cooling: Natural Convection

Alarms: Rectifier Fail Alarm (Logic Signal)

High Voltage Shutdown & Alarm: 28.0 VDC

Low Voltage Alarm: 23.5 VDC

Controls: Float Voltage Adjust 23 to 30 VDC

12. Environmental Temperature

Storage Ambient Temperature Range:
-40°C to +85°C (-40°F to +185°F)

Operating Ambient Temperature:
Sea Level to 4800 ft: 0°C/+50°C (+32°F/+122°F)
4800 ft to 7000 ft: 0°C/+45°C (+32°F/+113°F)
7000 ft to 10000 ft: 0°C/+40°C (+32°F/+104°F)

Humidity: 95% Non-condensing (Maximum)

1.4.3 RECTIFIER MODULE (SM20H24-3PM) LIST 12

Rectifier Module (SM20H24-3PM) is a +24 VDC @ 20 Amp self contained unit. It requires an AC Input to provide a DC Output. The Rectifier is equipped with High Voltage Shut-down feature and High/Low Voltage Alarming. The Rectifier features, located on the front panel of each Rectifier, are as follows:

A. FLOAT ADJ pot is used to adjust the float voltage output of the Rectifier.

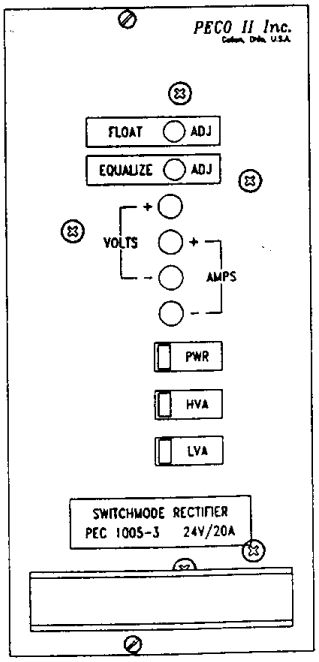
B. EQUALIZE ADJ pot is used to adjust the equalize voltage output of the Rectifier.

C. Two (2) sets of Test Points, Volts (+,-) & Amps (+,-) are available to monitor the Rectifiers Voltage and Current. The voltage test points are connected ahead of the output diode, which means that the actual output voltage is one diode drop lower (approximately one [1] volt).

D. PWR LED (Green) will light when the AC Input is present.

E. HVA LED (Red) will light when a High Voltage Alarm is present.

F. LVA LED (Amber) will light when a Low Voltage Alarm is present.



FRONT VIEW

1.4.3 RECTIFIER MODULE (SM20H24-3PM) LIST 12 [Cont]

G. SPECIFICATIONS (Electrical)

1. Input Current (Full Load)

INPUT	115 VAC			230 VAC		
Minimum (VAC)	98			195		
Nominal (VAC)		115			230	
Maximum (VAC)			132			264
Current (AAC)	8.1	7.3	6.7	3.6	3.3	3.1
Supply Fuse (Slow Blow)	20 Amp			10 Amp		

2. Output Voltage: 27.24 VDC (Factory)
   23.00 VDC (Minimum)
   30.00 VDC (Maximum)

3. Power: 500 Watt (Per Rectifier Module)

4. Current: 25 VDC @ 20 ADC

5. Regulation: Line +/-0.5%
   Load +/-0.1%, 10-100%.

6. Factory Settings:

Low Voltage	23.50 VDC
High Voltage	28.00 VDC
Float Voltage	27.24 VDC
Equalize Voltage	27.85 VDC

7. Efficiency: 87% (Full Load)

8. Heat Loss: 280 BTU/HR

9. Input Protection: Thermal Fuse (Internal)

10. Output Noise: Noise measurements on Battery with ampere-hour rating of four (4) times Rectifier current rating.

    Voice Band: 32 BrnC
    Wide Band: 300MV (Peak to Peak)
    10Hz to 14MHz
    Acoustic: Less than 55 dB

1.4.3 RECTIFIER MODULE (SM20H24-3PM) LIST 12 [Cont]

11. Switches / Features

115 / 230 VAC (Input)

Input Protection: Low Input Voltage Shut Down

Thermal Protection: Thermal Shut Down with Automatic Reset

Output Protection: Rectangular Current Limiting (Factory Set)

Cooling: Natural Convection

Alarms: Rectifier Fail Alarm (Logic Signal)

High Voltage Shutdown & Alarm: 28.0 VDC

Low Voltage Alarm: 23.5 VDC

Controls: Float Voltage Adjust 23 to 30 VDC

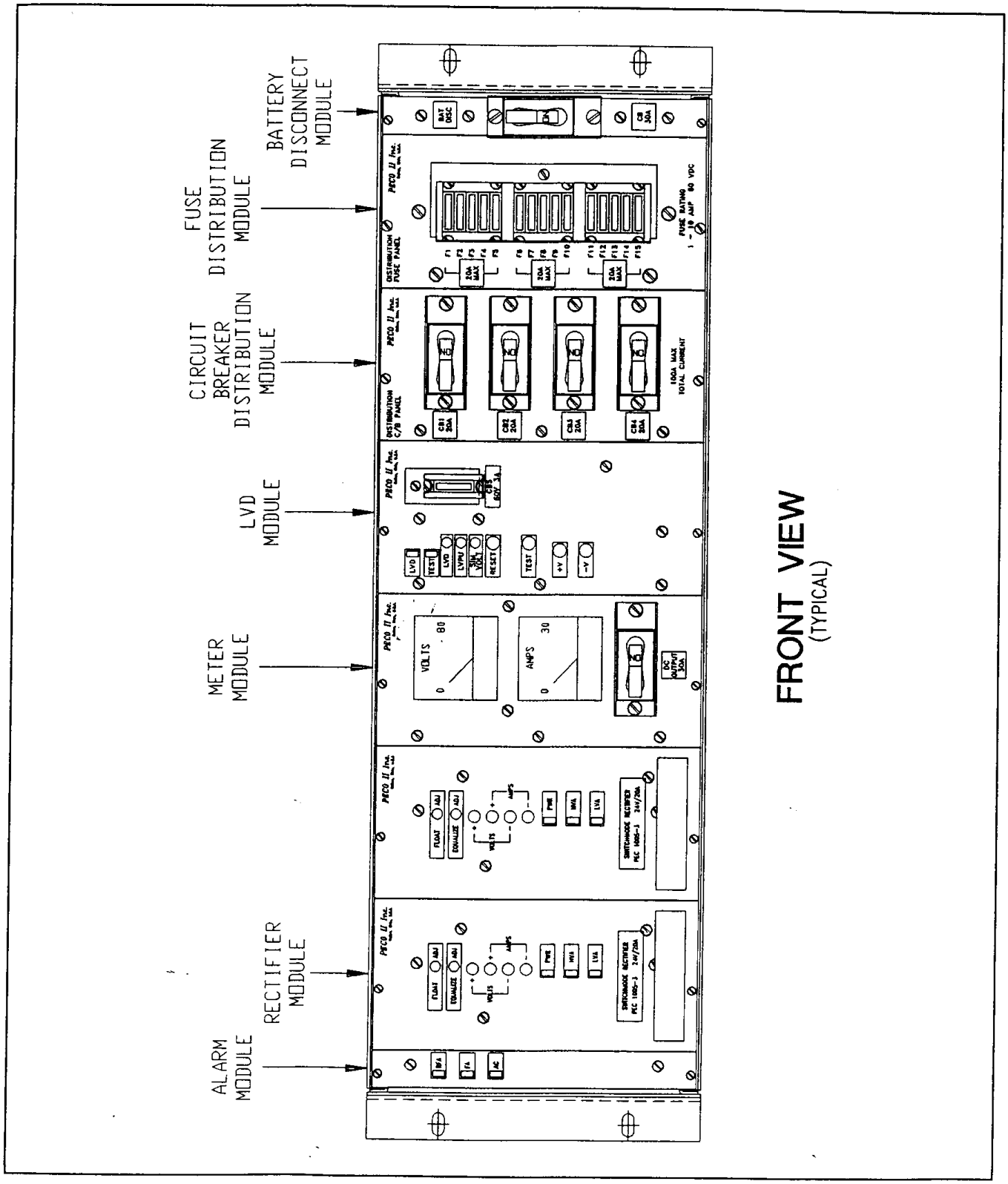
12. Environmental Temperature

Storage Ambient Temperature Range:
-40°C to +85°C (-40°F to +185°F)

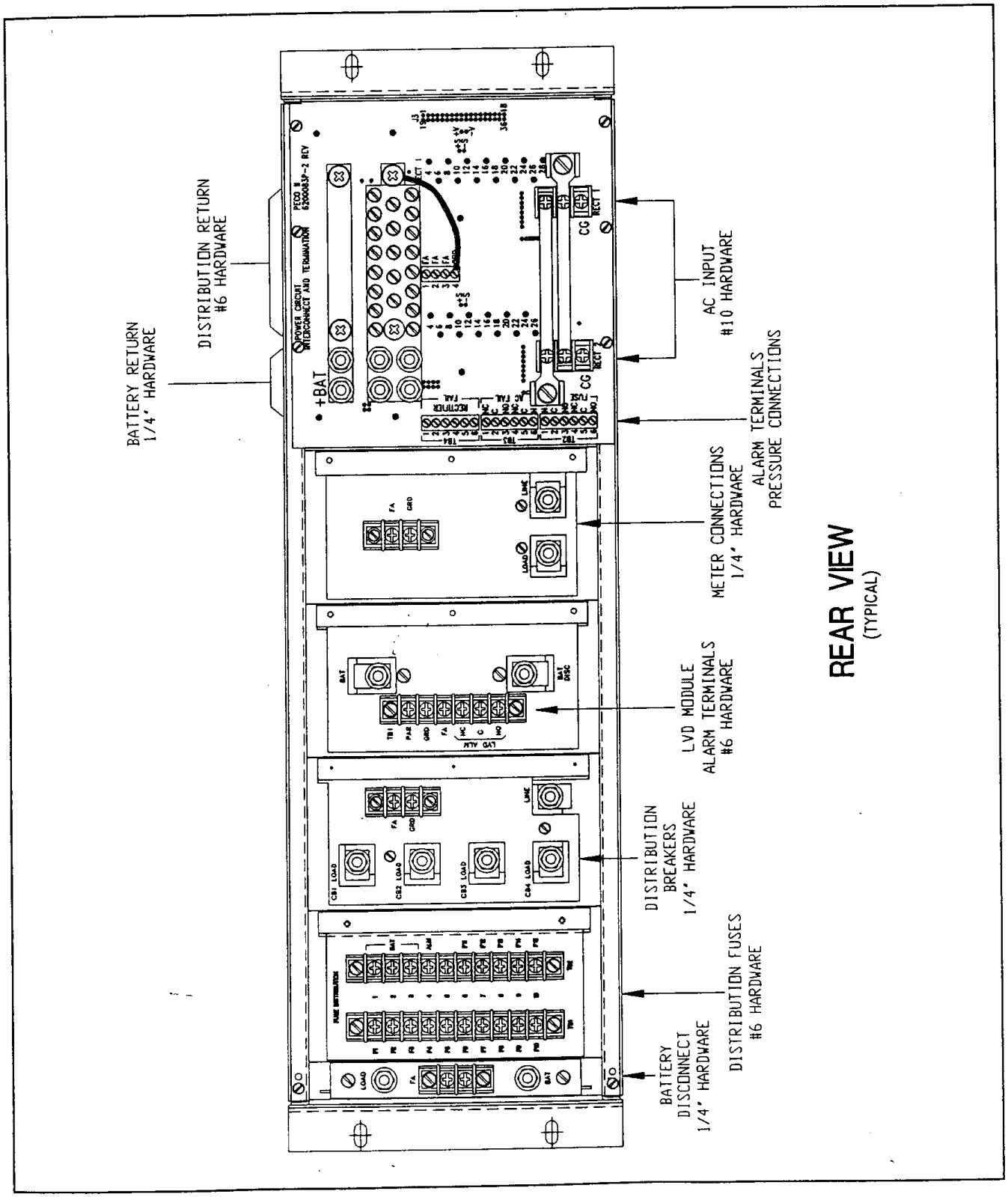
Operating Ambient Temperature:
Sea Level to 4800 ft: 0°C/+50°C (+32°F/+122°F)
4800 ft to 7000 ft: 0°C/+45°C (+32°F/+113°F)
7000 ft to 10000 ft: 0°C/+40°C (+32°F/+104°F)

Humidity: 95% Non-condensing (Maximum)

2.0 DIMENSIONS



3.0 INSTALLERS CONNECTIONS



3.5 AC FAIL TEST (If equipped)

In order to test the Power System for AC Fail, remove the AC Input power at the Main AC Fuse or Circuit Breaker Panel, and the following should happen:

A. RFA LED (Red), located on Alarm Module, should be "ON" and the RFA loop closure on TB4-1, 2, 3, 4, 5, & 6 will change state.

B. AC LED (Yellow), located on the Alarm Module, should be "ON" and the AC "Form C" loop closure on terminal block TB3-1, 2, 3, 4, 5, & 6 will change state.

C. Rectifier LED's will be "OFF" as follows:

Rectifier List 11, VOUT LED (Green).
Rectifier List 12, PWR LED (Green).

D. Restore the AC Input Power and Steps A, B, C, & D above will return to their previous indication.

3.6 FUSE ALARM TEST (If equipped)

In order to test the Power System for the Fuse Alarm Test, remove a good fuse from the Distribution Fuse Module (if equipped), and replace with a <u>blown</u> fuse, and the following should happen:

A. FA LED (Red), located on the Alarm Module, should come "ON", and the FA "Form C" loop closure on terminal block TB2-1, 2, 3, 4, 5, & 6 will change state.

TABLE A

A LIST NO.	B EQUIPMENT	FIG NO.	NOTES	PECO II PART NO.	C PANEL SIZE	D QTY.	E CIRCUIT & FIGURES EQUIPPED CKT.	F FIG.	G WRG	H APP
1	23" CAGE ASSEMBLY	1	52	6180230P	4 POS					
	TYP PLANT CONFIGURATION, FRONT VIEW	1-2								
	TYP PLANT CONFIGURATION, REAR VIEW	1-3								
2	19" CAGE ASSEMBLY	1	53	6180231P						
	TYP PLANT CONFIGURATION, FRONT VIEW	1-4								
	TYP PLANT CONFIGURATION, REAR VIEW	1-5								
11	RECTIFIER MODULE 500W, +24VDC @ 20A	6-1		SM20H24-2PM						
12	RECTIFIER MODULE 500W, +24VDC @ 20A	6-2		SM20H24-3PM						
22	BACKPLANE, PWR 2 RECTIFIERS	7		6200083P-2						
23	BACKPLANE, PWR 3 RECTIFIERS	8		6200083P-3						
24	BACKPLANE, PWR 4 RECTIFIERS	9		6200083P-4			P/O 4390088P			
25	BACKPLANE, PWR 5 RECTIFIERS	10		6200083P-5						
26	BACKPLANE, PWR 6 RECTIFIERS	11		6200083P-6						
32	PWB ASS'Y CONT INTER. & TERM., 2RECT.	7	54	6200082P-2						
33	PWB ASS'Y CONT INTER. & TERM., 3RECT.	8	54	6200082P-3						
34	PWB ASS'Y CONT INTER. & TERM., 4RECT.	9	54	6200082P-4			P/O 4390088P			
35	PWB ASS'Y CONT INTER. & TERM., 5RECT.	10	54	6200082P-5						
36	PWB ASS'Y CONT INTER. & TERM., 6RECT.	11	54	6200082P-6						
41	ALARM MODULE GROUND ALARM, RFA	12	54	6200088P-17						
42	ALARM MODULE GROUND ALARM, RFA AC		54	6200088P-18						
43	ALARM MODULE GROUND ALARM, RFA FA		54	6200088P-19						
44	ALARM MODULE GROUND ALARM, RFA AC FA		54	6200088P-20						
45	ALARM MODULE CCL- ALARM, RFA		54	6200088P-21						
46	ALARM MODULE CCL- ALARM, RFA AC		54	6200088P-22						
47	ALARM MODULE CCL- ALARM, RFA FA		54	6200088P-23						
48	ALARM MODULE CCL- ALARM, RFA AC FA		54	6200088P-24						
49	ALARM MODULE BATTERY ALARM, RFA		54	6200088P-25						
50	ALARM MODULE BATTERY ALARM, RFA AC		54	6200088P-26						
51	ALARM MODULE BATTERY ALARM, RFA FA		54	6200088P-27						
52	ALARM MODULE BATTERY ALARM, RFA AC FA		54	6200088P-28			P/O 4390088P			
53	ALARM MODULE GROUND ALARM, RFA		55	6200088P-29						
54	ALARM MODULE GROUND ALARM, RFA AC		55	6200088P-30						
55	ALARM MODULE GROUND ALARM, RFA FA		55	6200088P-31						
56	ALARM MODULE GROUND ALARM, RFA AC FA		55	6200088P-32						
57	ALARM MODULE CCL- ALARM, RFA		55	6200088P-33						
58	ALARM MODULE CCL- ALARM, RFA AC		55	6200088P-34						
59	ALARM MODULE CCL- ALARM, RFA FA		55	6200088P-35						
60	ALARM MODULE CCL- ALARM, RFA AC FA		55	6200088P-36						
61	ALARM MODULE BATTERY ALARM, RFA		55	6200088P-37						
62	ALARM MODULE BATTERY ALARM, RFA AC		55	6200088P-38						
63	ALARM MODULE BATTERY ALARM, RFA FA		55	6200088P-39						
64	ALARM MODULE BATTERY ALARM, RFA AC FA		55	6200088P-40						

J-438126NP-D1

ISSUES & REVS

DRAWN	ENG. APPR.	REVISED	REV. APP.
TR	BG	KDB	TLR

ISSUE NO.	CHG. NO. DATE BY DESCRIPTION
1	8500050P 4-12-95 VLD
2	8510617P CHG C.B.'S 7-23-96 LLL
3	8600932P ADD MANUFACTURING NOTES 5-10 7-23-96 LLL

SHEET INDEX NOTES:

1. WHEN CHANGES ARE MADE IN THIS DRAWING, ONLY THOSE SHEETS AFFECTED WILL BE REISSUED.
2. THIS SHEET INDEX WILL BE REISSUED AND BROUGHT UP TO DATE EACH TIME ANY SHEET OF THE DRAWING IS REISSUED, OR A NEW SHEET IS ADDED.
3. THE ISSUE NUMBER ASSIGNED TO A CHANGED OR NEW SHEET WILL BE THE SAME ISSUE NUMBER AS THAT OF THE SHEET INDEX.
4. SHEETS THAT ARE NOT CHANGED WILL RETAIN THEIR EXISTING ISSUE NUMBER.
5. THE LAST ISSUE NUMBER OF THE SHEET INDEX IS RECOGNIZED AS THE LATEST ISSUE NUMBER OF THE DRAWINGS AS A WHOLE.

642126NP-D1 MANUAL

SUPPORTING INFORMATION

ISSUE	SHEET NO
1 1 1	22
1 1 1	21
1 1 1	20
1 1 1	19
1 1 1	18
2 2 1	17
1 1 1	16
1 1 1	15
1 1 1	14
1 1 1	13
1 1 1	12
1 1 1	11
1 1 1	10
1 1 1	9
1 1 1	8
1 1 1	7
1 1 1	6
1 1 1	5
1 1 1	4
1 1 1	3
2 1 1	2
3 2 1	1

SHEET INDEX — ISSUE 3

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FILENAME: 438126D1

SPECIFICATION FOR
126N-D1 POWER SYSTEM
+24VDC @ 20-120 AMPS

PECO II Inc.
Galion, Ohio U.S.A.

A

J-438126NP-D1

TABLE A

A LIST NO.	B EQUIPMENT	FIG NO.	NOTES	PECO II PART NO.	C PANEL SIZE	D QTY.	E CIRCUIT & FIGURES EQUIPPED CKT.	F FIG.	G WRG	H APP
71	AC INPUT MONITOR, 115VAC	7-11	56	6200093P			P/O 4390088P			
72	AC INPUT MONITOR, 230VAC		56	6200093P-1						
81	METER MODULE, 20A	13	5	6180226P24-1	4 POS		4390125P			
82	METER MODULE, 30A		5	6180226P24-2						
83	METER MODULE, 50A		5	6180226P24-3						
84	METER MODULE, 75A		5	6180226P24-4						
85	METER MODULE, 100A		5	6180226P24-5						
91	DISTRIBUTION MODULE, 15 FUSE	14	6	6180200P			4390122P			
101	DISTRIBUTION MODULE, 4 CKT. BRKR.	15	8	6180227P			4390127P			
111	BATTERY DISCONNECT MODULE, 20A	16	7,57	6180236P			4390128P			
112	BATTERY DISCONNECT MODULE, 30A		7,57	6180236P-1						
113	BATTERY DISCONNECT MODULE, 50A		7,57	6180236P-2						
114	BATTERY DISCONNECT MODULE, 75A		9,57	6180236P-3						
115	BATTERY DISCONNECT MODULE, 100A		9,57	6180236P-4						
121	LOW VOLTAGE DISCONNECT MODULE, +24V	17	10	6180233P-1			4390121P			
131	PANEL, FILLER	18		4360056P-1						
132	PANEL, BLANK			4360183P						
133	PANEL, BLANK			4360053P-2						
141	CORD 115VAC TWIST 12GA	19		6240001P-1						
142	CORD 230VAC TWIST 12GA			6240001P-2						
143	CORD 115VAC BLADE 12GA			6240001P-3						
144	CORD 115VAC BLADE 16GA			6240001P-4						
151	BUS BAR, POWER 2-RECTIFIERS	20		6190086P-2						
152	BUS BAR, POWER 3-RECTIFIERS			6190086P-3						
153	BUS BAR, POWER 4-RECTIFIERS			6190086P-4						
154	BUS BAR, POWER 5-RECTIFIERS			6190086P-5						
155	BUS BAR, POWER 6-RECTIFIERS			6190086P-6						
156	BUS BAR, DISTRIBUTION 2-RECTIFIERS			6190084P-2						
157	BUS BAR, DISTRIBUTION 3-RECTIFIERS			6190084P-3						
158	BUS BAR, DISTRIBUTION 4-RECTIFIERS			6190084P-4						
159	BUS BAR, DISTRIBUTION 5-RECTIFIERS			6190084P-5						
160	BUS BAR, DISTRIBUTION 6-RECTIFIERS			6190084P-6						
162	BUS BAR, DISTRIBUTION			6190085P-2						

MANUFACTURING NOTES:

SHOP	INST	
X		1. NUMBER INSIDE OF ( ) INDICATES QUANITY OF THE ITEM IT IS PLACED IN FRONT OF.
X		2. [ ] INDICATES DESIGNATIONS WHICH ARE SHOWN FOR REFERFENCE ONLY AND ARE NOT TO BE STAMPED.
	X	3. INSTALLER TO CUT WIRE AND OR CABLE AS REQUIRED.
X		4. WIRE PER T4390088P
X		5. WHEN MODULE SHIPS LOOSE, CONNECT 6400834P WIRING LIST AND SEND 4390088P WIRING DIAGRAM WITH UNIT.
X		6. WHEN MODULE SHIPS LOOSE, CONNECT 6400833P WIRING LIST AND SEND 4390086P & 4390088P WIRING DIAGRAMS WITH UNIT.
X		7. WHEN MODULE SHIPS LOOSE, CONNECT 6400838P WIRING LIST AND SEND 4390086P & 4390088P WIRING DIAGRAMS WITH UNIT.
X		8. WHEN MODULE SHIPS LOOSE, CONNECT 6400836P WIRING LIST AND SEND 4390086P & 4390088P WIRING DIAGRAMS WITH UNIT.
X		9. WHEN MODULE SHIPS LOOSE, CONNECT 6400839P WIRING LIST AND SEND 4390086P & 4390088P WIRING DIAGRAMS WITH UNIT.
X		10. WHEN MODULE SHIPS LOOSE, CONNECT 6400837P WIRING LIST AND SEND 4390088P WIRING DIAGRAM WITH UNIT.

ENGINEERING NOTES:

51. DIMENSIONS SHOWN FOR REFERENCE ONLY.
52. L1 CONTAINS 6 FULL SIZE AND 2 NARROW SLOTS FOR HOUSING CUSTOM COMBINATIONS OF RECTIFIERS, METER, ALARM, DISTRIBUTION AND DISCONNECT MODULES.
53. L2 CONTAINS 5 FULL SIZE AND 1 NARROW SLOT FOR HOUSING CUSTOM COMBINATIONS OF RECTIFIER, METER, ALARM, DISTRIBUTION AND DISCONNECT MODULES.
54. SPECIFY EQUIPMENT ONLY WHEN POWER SYSTEM IS EQUIPPED WITH L12 RECTIFIERS.
55. SPECIFY EQUIPMENT ONLY WHEN POWER SYSTEM IS EQUIPPED WITH L11 RECTIFIERS.
56. SPECIFY MODULE, (1) EACH PER AC INPUT, ONLY WHEN POWER SYSTEM IS EQUIPPED WITH AC ALARM'S. STANDARD AC HOOKUP IS (2) RECTIFIERS PER INPUT.
57. MODULE FOR USE IN L1 CAGES ONLY. IT CAN NOT BE EQUIPPED IN L2 CAGES.

ISSUE 2

SPECIFICATION FOR
126N-D1 POWER SYSTEM
+24VDC @ 20-120 AMPS

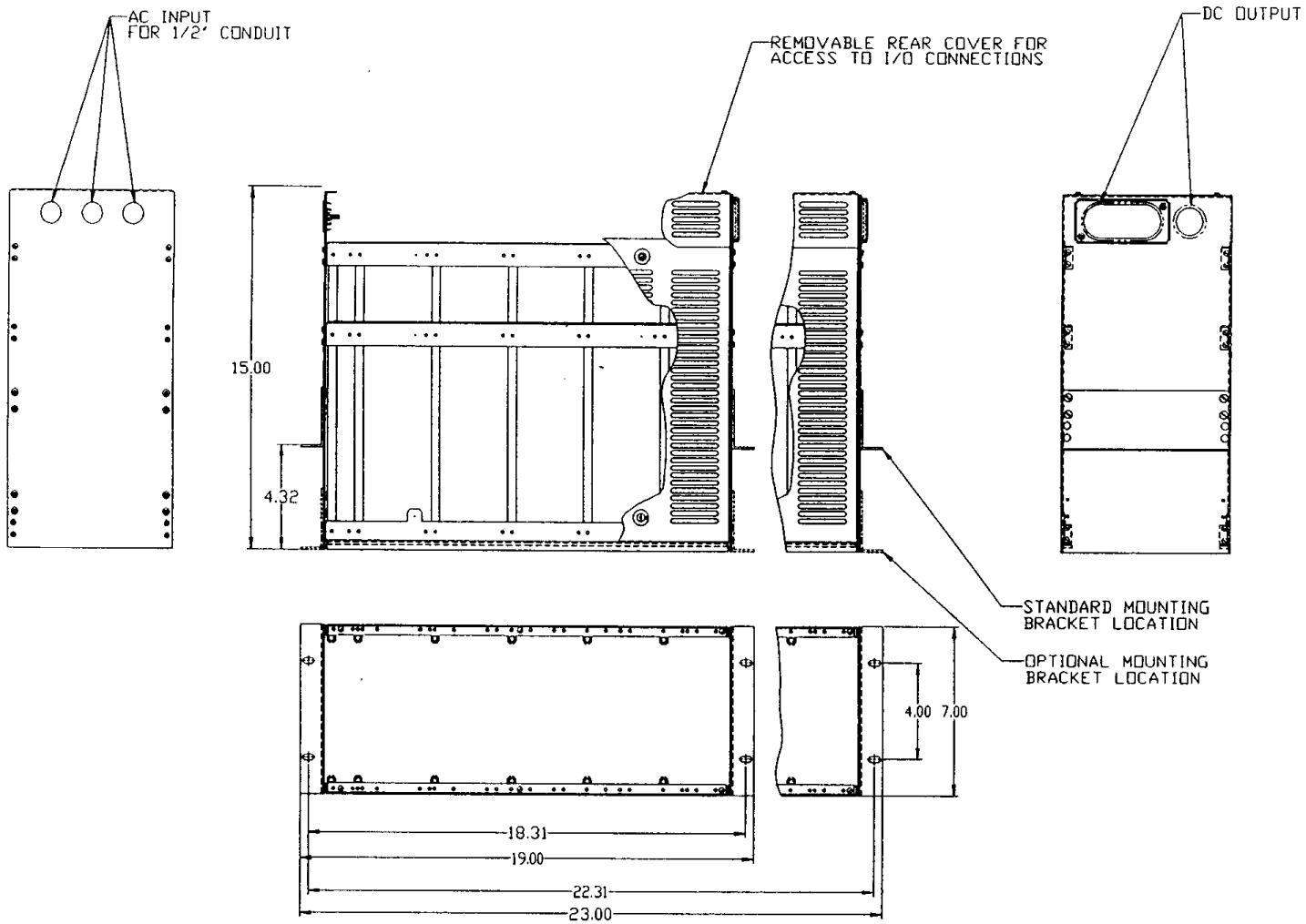
PECO II Inc.
Galion, Ohio, U.S.A.

A

J-438126NP-D1

SHEET 2

FIG. 1



L1 23" CAGE ASSEMBLY
L2 19" CAGE ASSEMBLY

SPECIFICATION FOR 126N-D1 POWER SYSTEM +24VDC @ 20-120 AMPS		J-438126NP-D1
PECO II Inc. Galion, Ohio, U.S.A.	A	SHEET 3

ISSUE 1

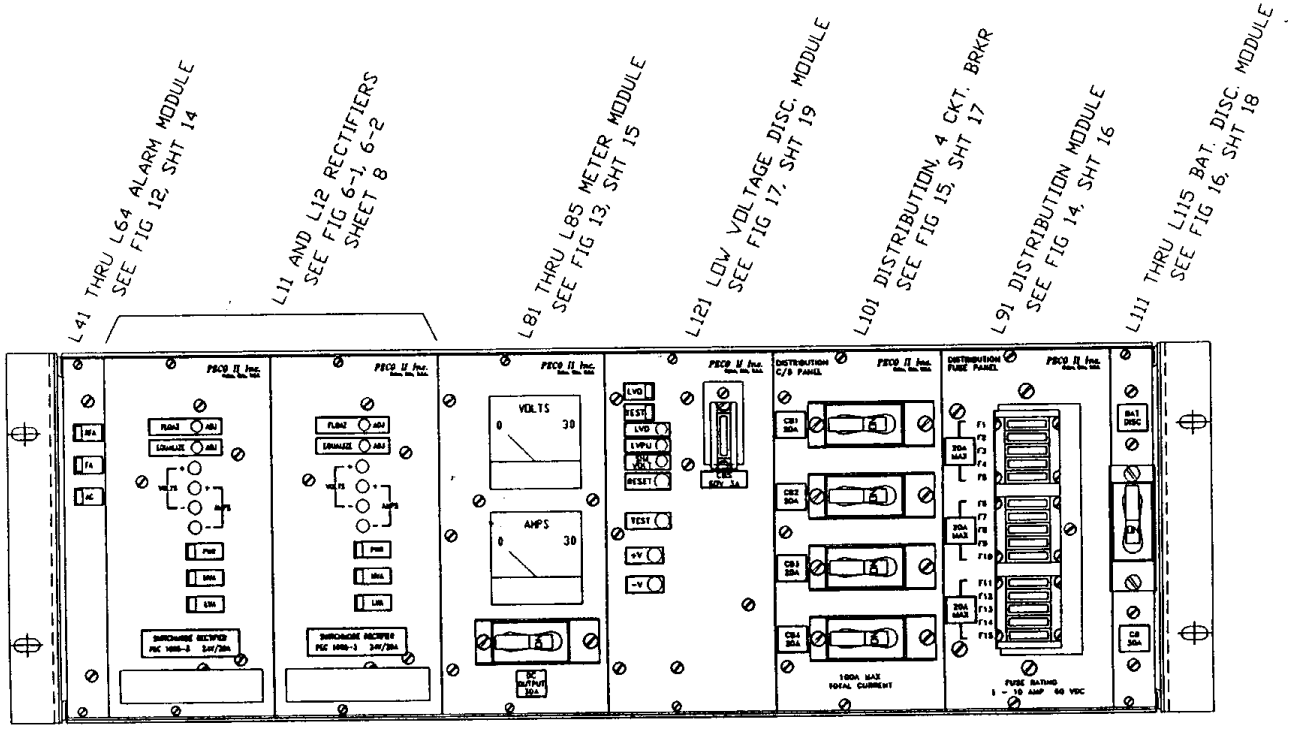


FIG. 1-2

FRONT VIEW

L1 23' CAGE ASSEMBLY
SHOWING TYPICAL PLANT CONFIGURATION

NOTE:
1. RECTIFIERS ARE POPULATED IN CAGE FROM LEFT TO RIGHT
2. THE OTHER MODULES ARE POPULATED FROM THE END OF THE RECTIFIER BACKPLANE FROM LEFT TO RIGHT WITH THE FIG. SHOWING THE RECOMMENDED ORDER.

SPECIFICATION FOR 126N-D1 POWER SYSTEM +24VDC @ 20-120 AMPS		J-438126NP-D1
PECO II Inc. Galion, Ohio, U.S.A.	A	SHEET 4

ISSUE 1

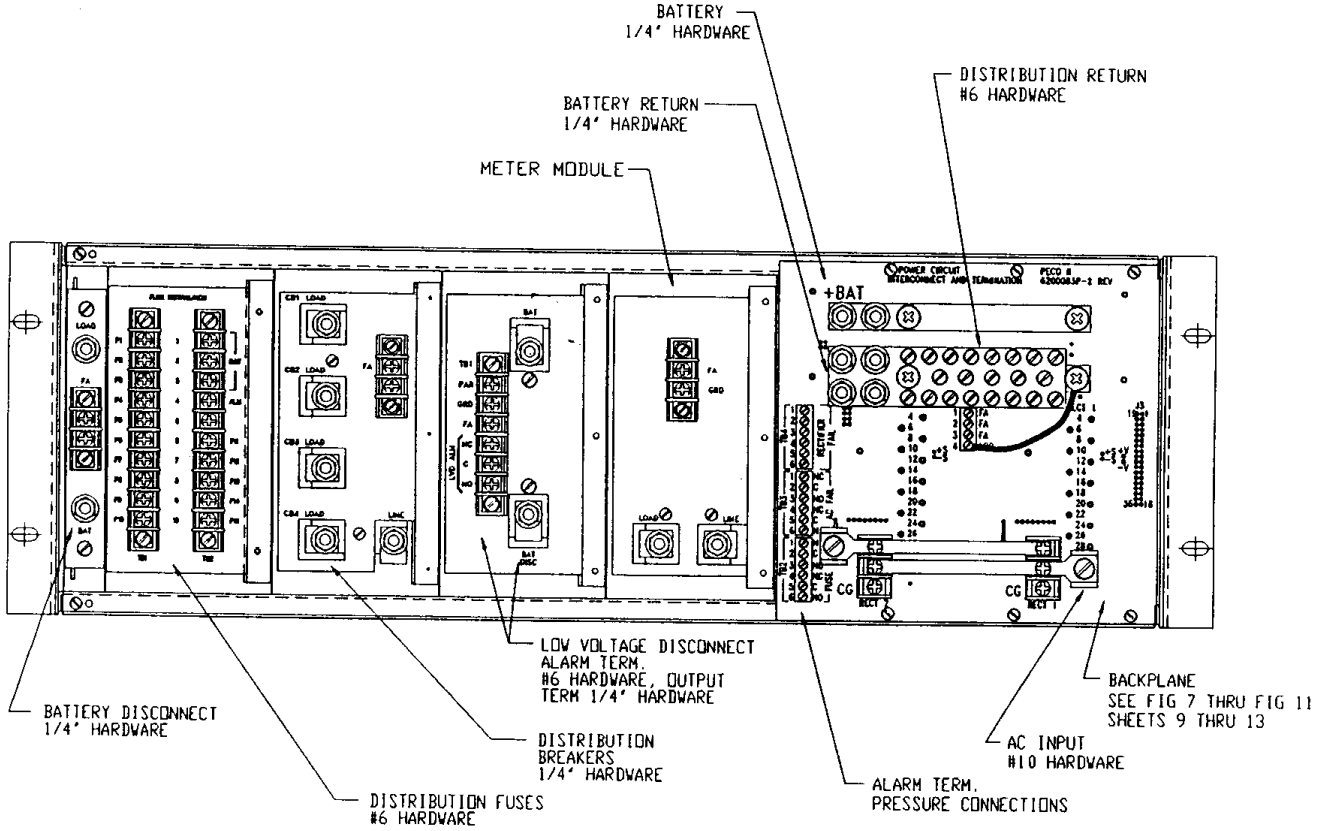


FIG. 1-3

REAR VIEW

(WITH COVER REMOVED)

SPECIFICATION FOR 126N-D1 POWER SYSTEM +24VDC @ 20-120 AMPS		J-438126NP-D1
PECO II Inc. Galion, Ohio, U.S.A.	A	SHEET 5

ISSUE 1

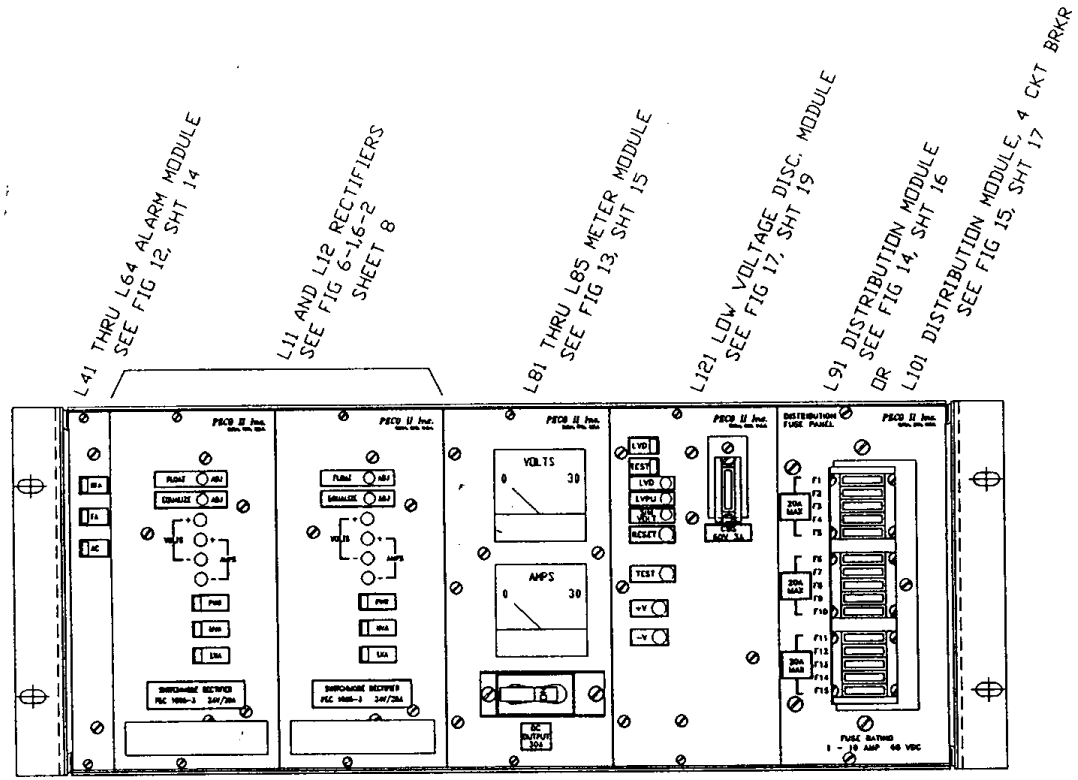


FIG. 1-4
FRONT VIEW

L2 19" CAGE ASSEMBLY
SHOWING TYPICAL PLANT CONFIGURATION

NOTE:

1. RECTIFIERS ARE POPULATED IN CAGE FROM LEFT TO RIGHT
2. THE OTHER MODULES ARE POPULATED FROM THE END OF THE RECTIFIER BACKPLANE FROM LEFT TO RIGHT WITH THE FIG. SHOWING THE RECOMMENDED ORDER.
3. THE BATTERY DISCONNECT MODULE CAN NOT BE EQUIPED IN THE 19" CAGE ASSEMBLIES.

SPECIFICATION FOR 126N-D1 POWER SYSTEM +24VDC @ 20-120 AMPS		J-438126NP-D1
PECO II Inc. Galion, Ohio, U.S.A.	A	SHEET 6

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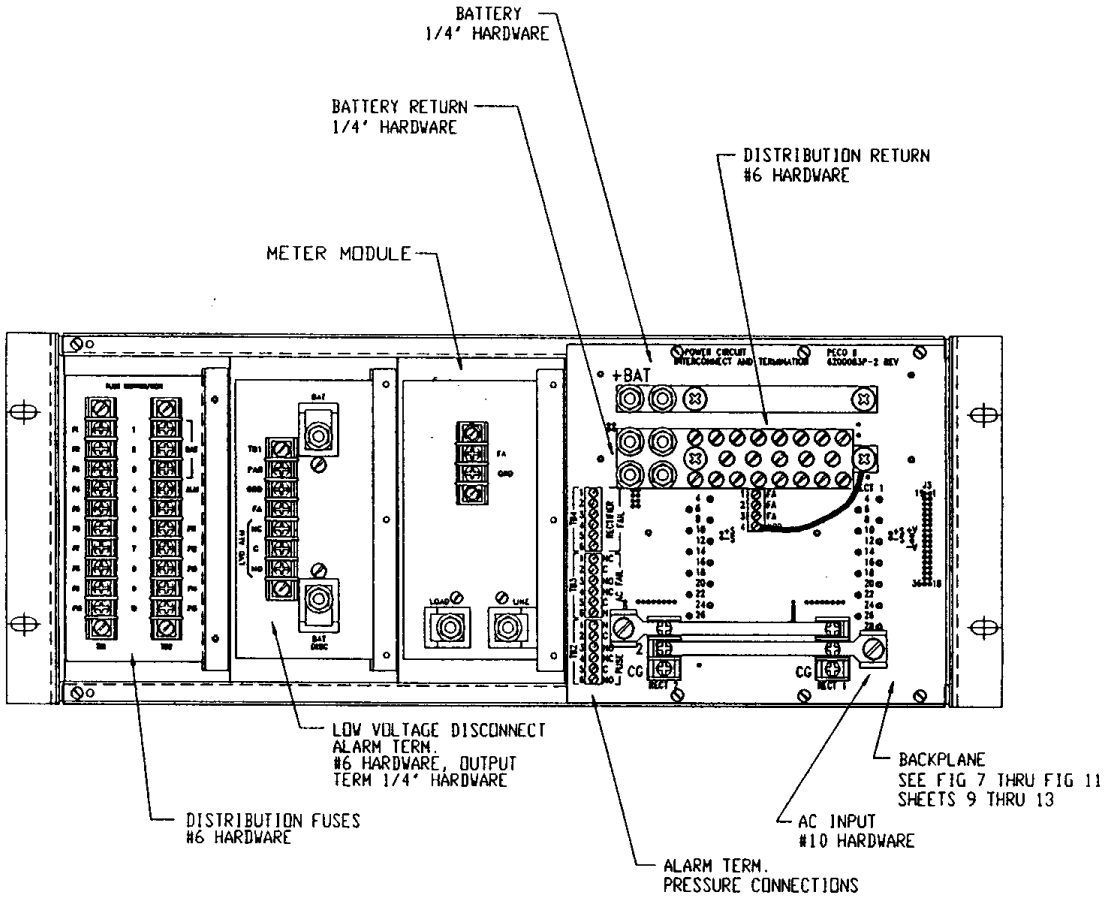


FIG. 1-5

REAR VIEW

(WITH COVER REMOVED)

SPECIFICATION FOR 126N-D1 POWER SYSTEM +24VDC @ 20-120 AMPS		J-438126NP-D1
PECO II Inc. Galion, Ohio, U.S.A.	A	SHEET 7

ISSUE 1

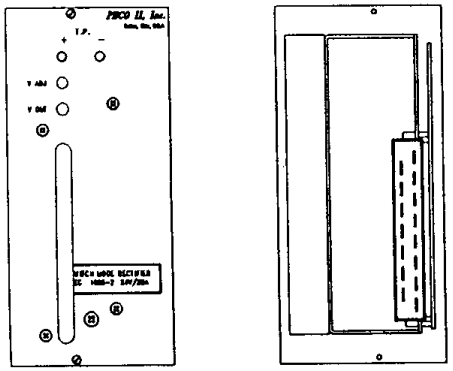


FIG 6-1

L11
SM20H24-2PM
500W SMR/24V @ 20 AMP
0°C TO 50°C
FLOAT ADJUSTMENT
VOLTS MONITORING
HIGH/LOW VOLTAGE ALARM
POWER INDICATOR

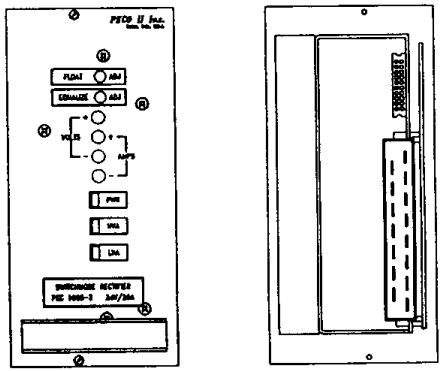


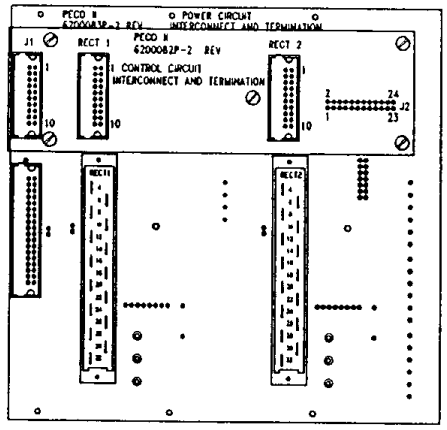
FIG 6-2

L12
SM20H24-3PM
500W SMR/24V @ 20 AMP
0°C TO 50°C
E/W FLOAT/EQUALIZE ADJUSTMENT
VOLTS/AMPS MONITORING
POWER/HIGH/LOW VOLTAGE INDICATORS/ALARM
HIGH VOLTAGE RESET

SPECIFICATION FOR 126N-D1 POWER SYSTEM +24VDC @ 20-120 AMPS		J-438126NP-D1
PECO II Inc. Galion, Ohio, U.S.A.	A	SHEET 8

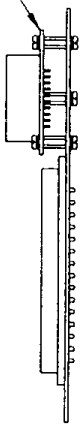
ISSUE 1

FIG. 7



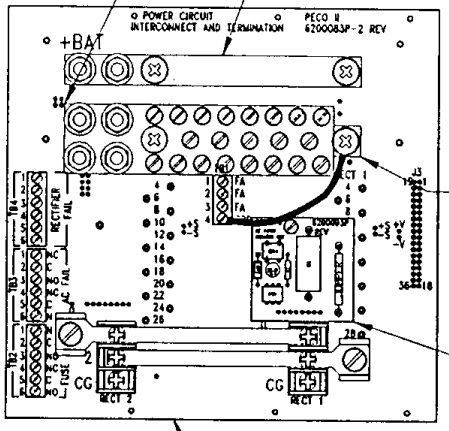
FRONT VIEW

L32 FOR USE WITH
SM20H24-3PM RECTIFIERS



L162 BUS BAR
NOTE-1

L151 BUS BAR
NOTE-1



NOTE-1
L156 BUS BAR

L71 AC INPUT MONITOR 115VAC
L72 AC INPUT MONITOR 230VAC
NOTE-2

REAR VIEW

L22 BACKPLANE, 2 RECTIFIERS

NOTES:

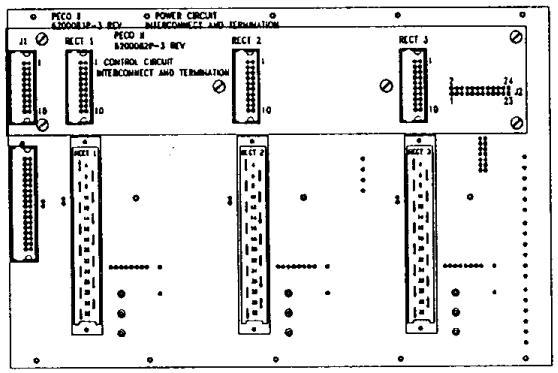
1. RECOMMENDED BUS BARS FOR 2 RECTIFIER BACKPLANE. SEE FIG 20, SHEET 22.

2. AC INPUT MONITOR MAY BE USED FOR EACH RECTIFIER. WHEN INDIVIDUAL AC INPUT IS REQUIRED.

SPECIFICATION FOR 126N-DI POWER SYSTEM +24VDC @ 20-120 AMPS		J-438126NP-DI
PECO II Inc. Galion, Ohio, U.S.A.	A	SHEET 9

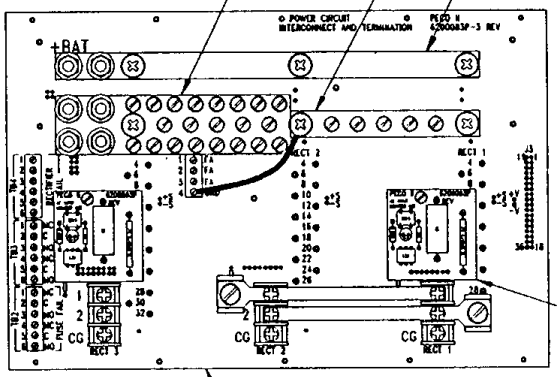
ISSUE 1

FIG. 8



FRONT VIEW

L33 FOR USE WITH SM20H24-3PM RECTIFIERS



REAR VIEW

L162 BUS BAR NOTE-1

L157 BUS BAR NOTE-1

L152 BUS BAR NOTE-1

L71 AC INPUT MONITOR 115VAC
L72 AC INPUT MONITOR 230VAC
NOTE-2

L23 BACKPLANE, 3 RECTIFIERS

NOTES:

1. RECOMMENDED BUS BARS FOR 3 RECTIFIER BACKPLANE. SEE FIG 20, SHEET 22.
2. AC INPUT MONITOR MAY BE USED FOR EACH RECTIFIER, WHEN INDIVIDUAL AC INPUT IS REQUIRED.

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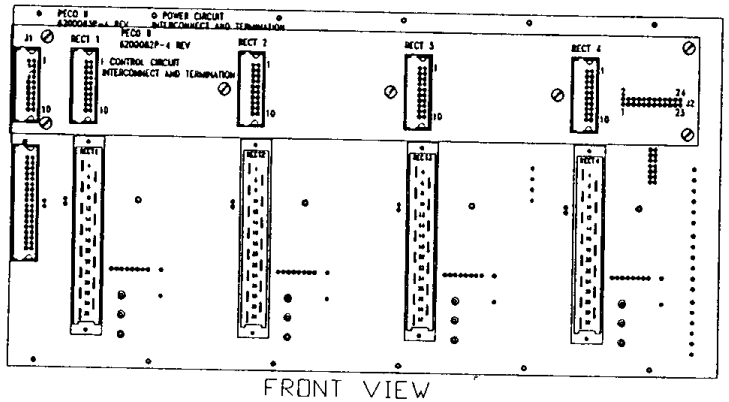
PECO II Inc. Galion, Ohio, U.S.A.	A	SHEET 10

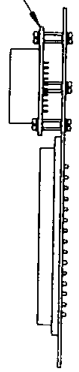
ISSUE 1

FIG. 9



FRONT VIEW

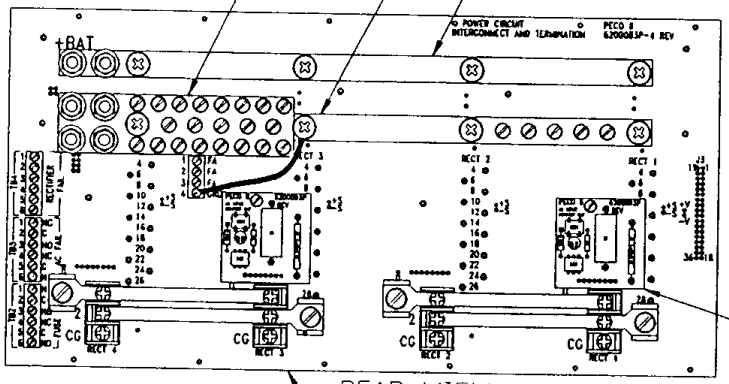
L34 FOR USE WITH
SM20H24-3PM RECTIFIERS



L162 BUS BAR
NOTE-1

L158 BUS BAR
NOTE-1

L153 BUS BAR
NOTE-1



REAR VIEW

L71 AC INPUT MONITOR 115VAC
L72 AC INPUT MONITOR 230VAC
NOTE-2

L24 BACKPLANE, 4 RECTIFIERS

NOTES:

1. RECOMMENDED BUS BARS FOR 4 RECTIFIER BACKPLANE. SEE FIG 20, SHEET 22.

2. AC INPUT MONITOR MAY BE USED FOR EACH RECTIFIER. WHEN INDIVIDUAL AC INPUT IS REQUIRED.

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PECO II Inc. Galion, Ohio, U.S.A.	A	SHEET 11

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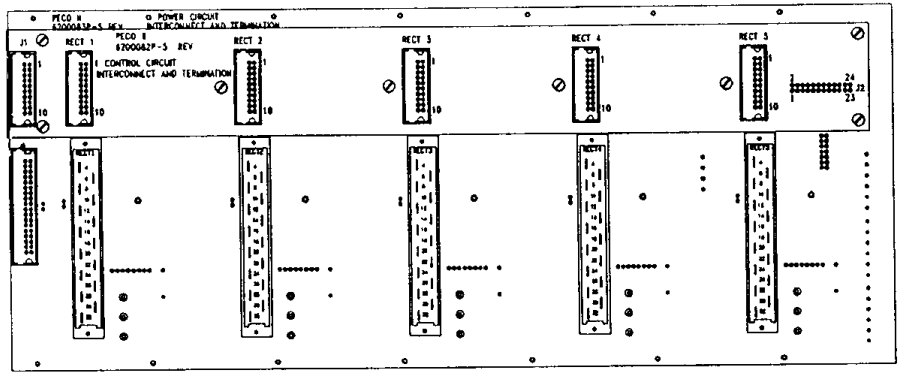
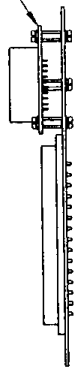
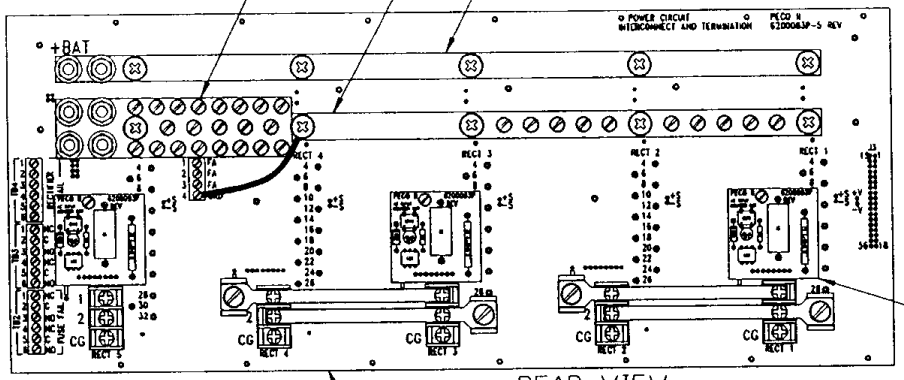
FIG. 10



FRONT VIEW



L35 FOR USE WITH SM20H24-3PM RECTIFIERS



REAR VIEW

L162 BUS BAR NOTE-1

L159 BUS BAR NOTE-1

L154 BUS BAR NOTE-1

L71 AC INPUT MONITOR 115VAC
L72 AC INPUT MONITOR 230VAC
NOTE-2

L25 BACKPLANE, 5 RECTIFIERS

NOTES:

1. RECOMMENDED BUS BARS FOR 5 RECTIFIER BACKPLANE. SEE FIG 20, SHEET 22.
2. AC INPUT MONITOR MAY BE USED FOR EACH RECTIFIER. WHEN INDIVIDUAL AC INPUT IS REQUIRED.

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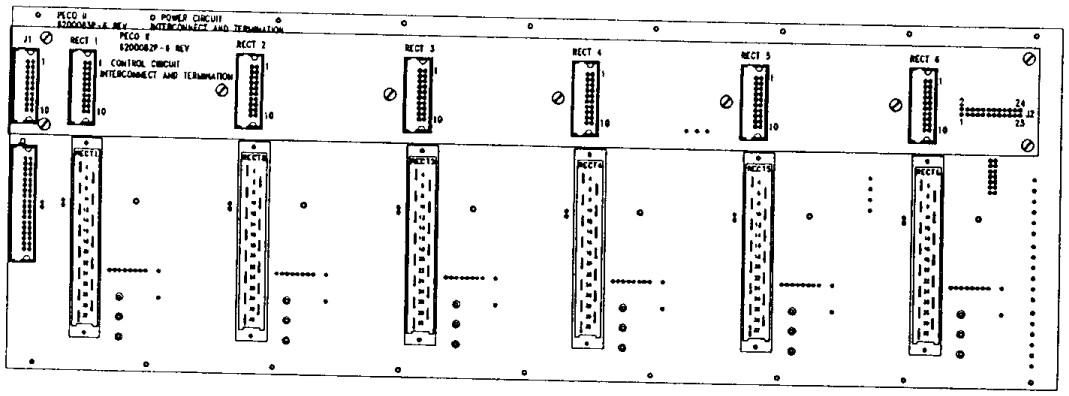
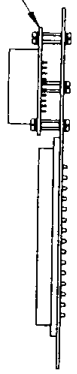


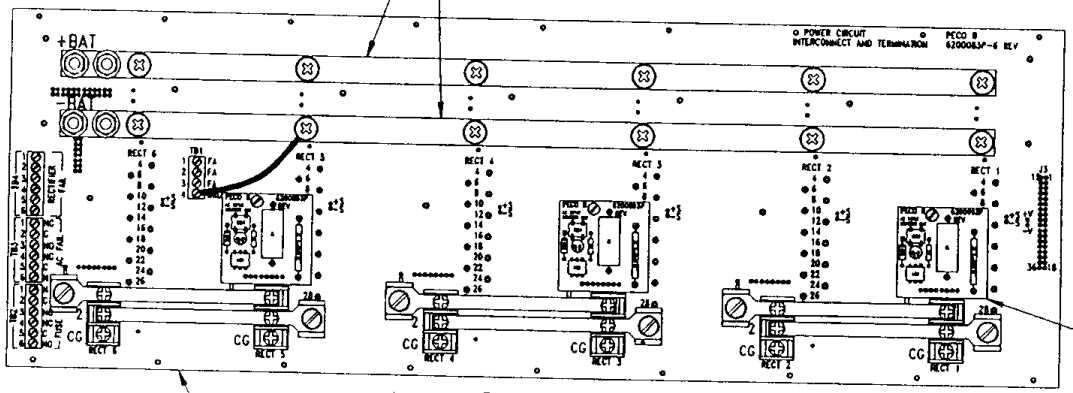
FRONT VIEW



L36 FOR USE WITH
SM20H24-3PM RECTIFIERS

FIG. 11

L155 BUS BAR
NOTE-1



REAR VIEW

L71 AC INPUT MONITOR 115VAC
L72 AC INPUT MONITOR 230VAC
NOTE-2

L26 BACKPLANE, 6 RECTIFIERS

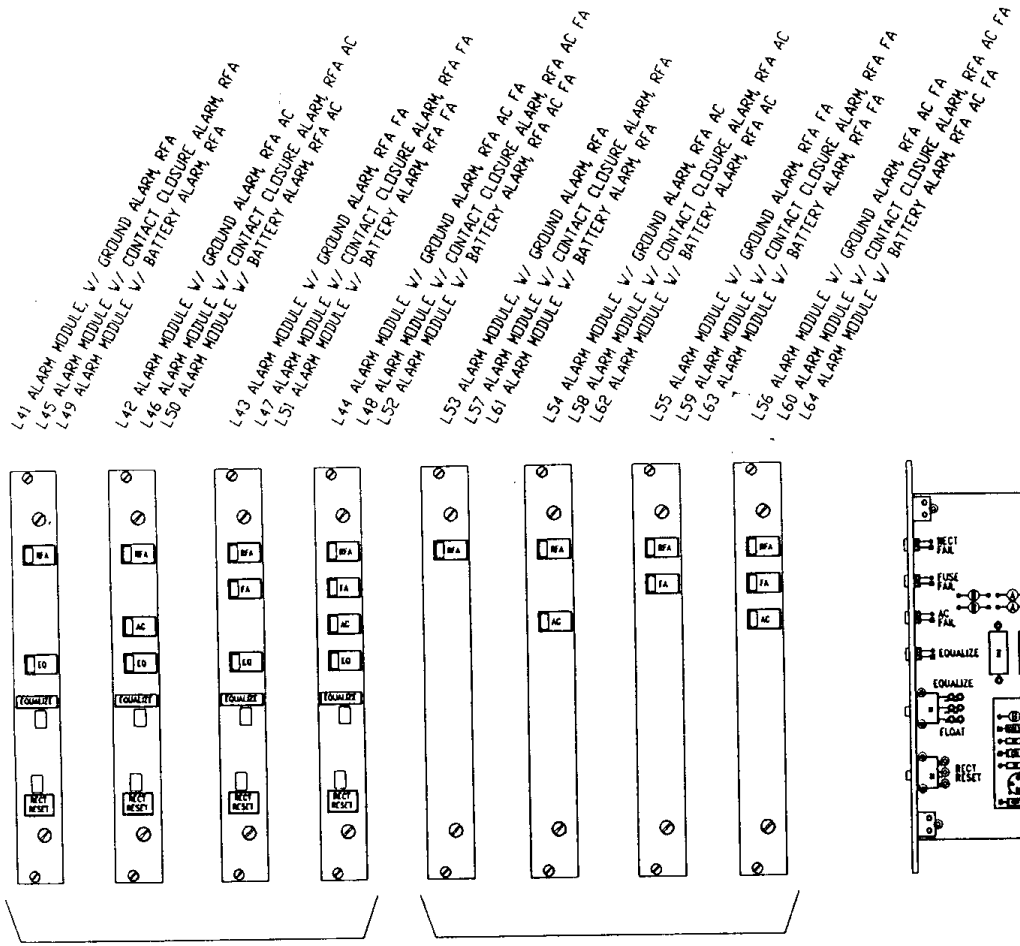
NOTES:

1. RECOMMENDED BUS BARS FOR 6 RECTIFIER BACKPLANE. SEE FIG 20, SHEET 22.

2. AC INPUT MONITOR MAY BE USED FOR EACH RECTIFIER. WHEN INDIVIDUAL AC INPUT IS REQUIRED.

SPECIFICATION FOR 126N-D1 POWER SYSTEM +24VDC @ 20-120 AMPS		J-438126NP-D1
PECO II Inc. Galion, Ohio, U.S.A.	A	SHEET 13

ISSUE 1



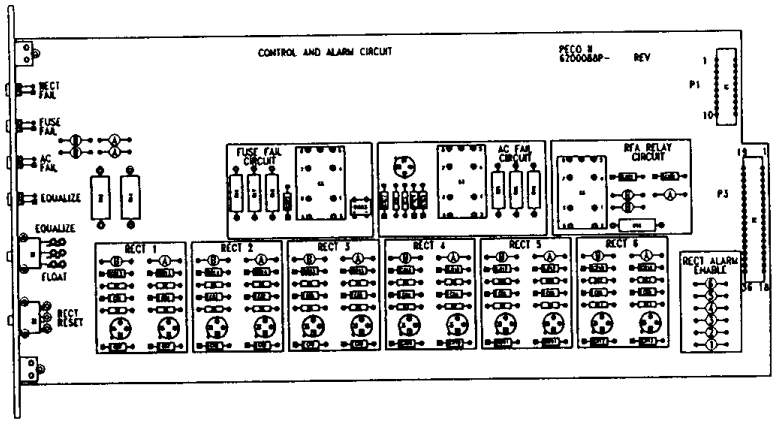
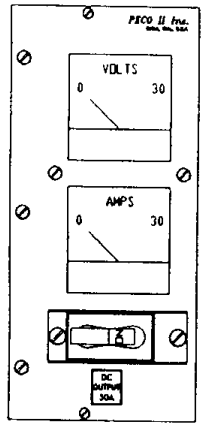


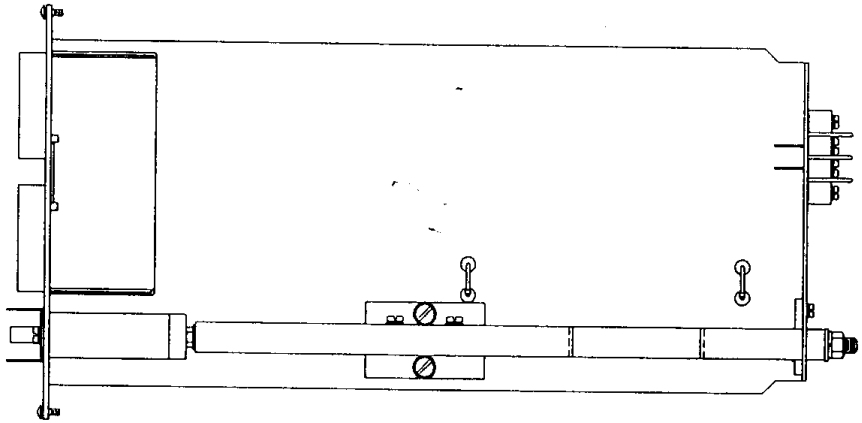
FIG. 12

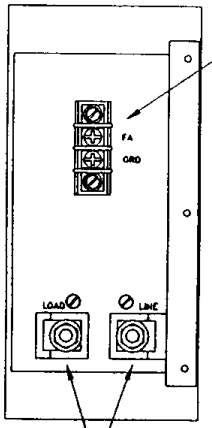
SPECIFICATION FOR 126N-D1 POWER SYSTEM +24VDC @ 20-120 AMPS		J-438126NP-D1
PECO II Inc. Galion, Ohio, U.S.A.	A	SHEET 14

ISSUE 1

FIG 13







#6 HARDWARE

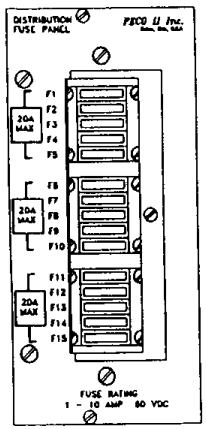
1/4" HARDWARE

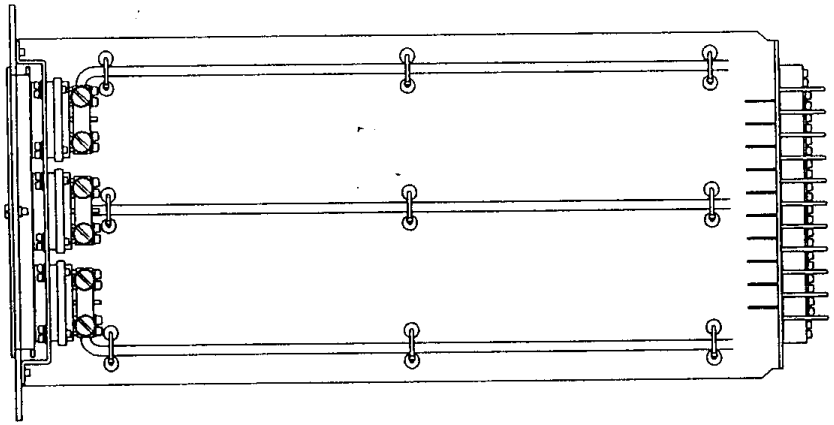
METER MODULE

CKT. BRKR. SIZE	LIST NO.
20A	L81
30A	L82
50A	L83
75A	L84
100A	L85

SPECIFICATION FOR 126N-D1 POWER SYSTEM +24VDC @ 20-120 AMPS		J-438126NP-D1
PECO II Inc. Galion, Ohio, U.S.A.	A	SHEET 15

ISSUE 1





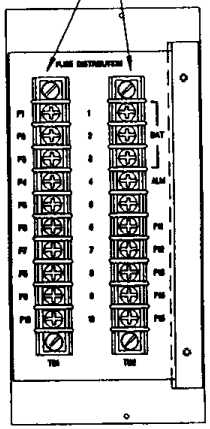


FIG 14
FUSE DISTRIBUTION
MODULE
L91

GMT TYPE (SEMIPHORE)		
AMP	PECO II P/N	COLOR
18/100	3150437	YEL
1/4	3150438	VI
1/2	3150439	RD
3/4	3150441	BR
1	3150442	GR
1-1/3	3150443	WH
2	3150444	OR
3	3150445	BU
5	3150446	GN
7-1/2	3150447	BK,WH
10	3150448	RD,WH

NOTE:
1. SELECT FUSES FOR THIS MODULE FROM CHART.

ISSUE 1

SPECIFICATION FOR
126N-D1 POWER SYSTEM
+24VDC @ 20-120 AMPS

PECO II Inc.
Galion, Ohio, U.S.A.

A

J-438126NP-D1

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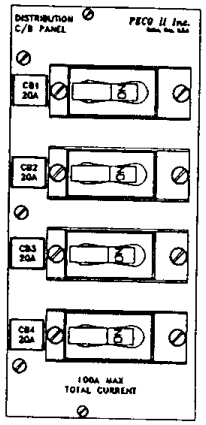
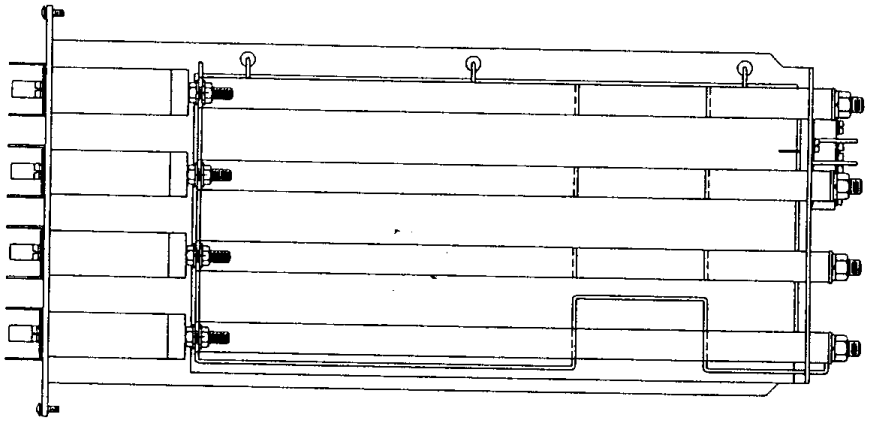




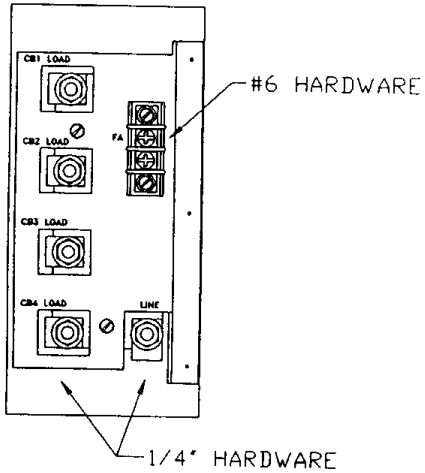


FIG 15
CIRCUIT BREAKER
DISTRIBUTION MODULE
L101

CIRCUIT BREAKERS	
AMP	PECO II P/N
5A	3050073P-5
10A	3050073P-10
15A	3050073P-15
20A	3050073P-20
30A	3050073P-30
40A	3050073P-40
50A	3050073P-50

NOTES:

1. SELECT CIRCUIT BREAKERS FOR THIS MODULE FROM CHART.

2. CIRCUIT BREAKER MODULE MUST BE EQUIPPED WITH (4) BREAKERS.

ISSUE 2

SPECIFICATION FOR
126N-D1 POWER SYSTEM
+24VDC @ 20-120 AMPS

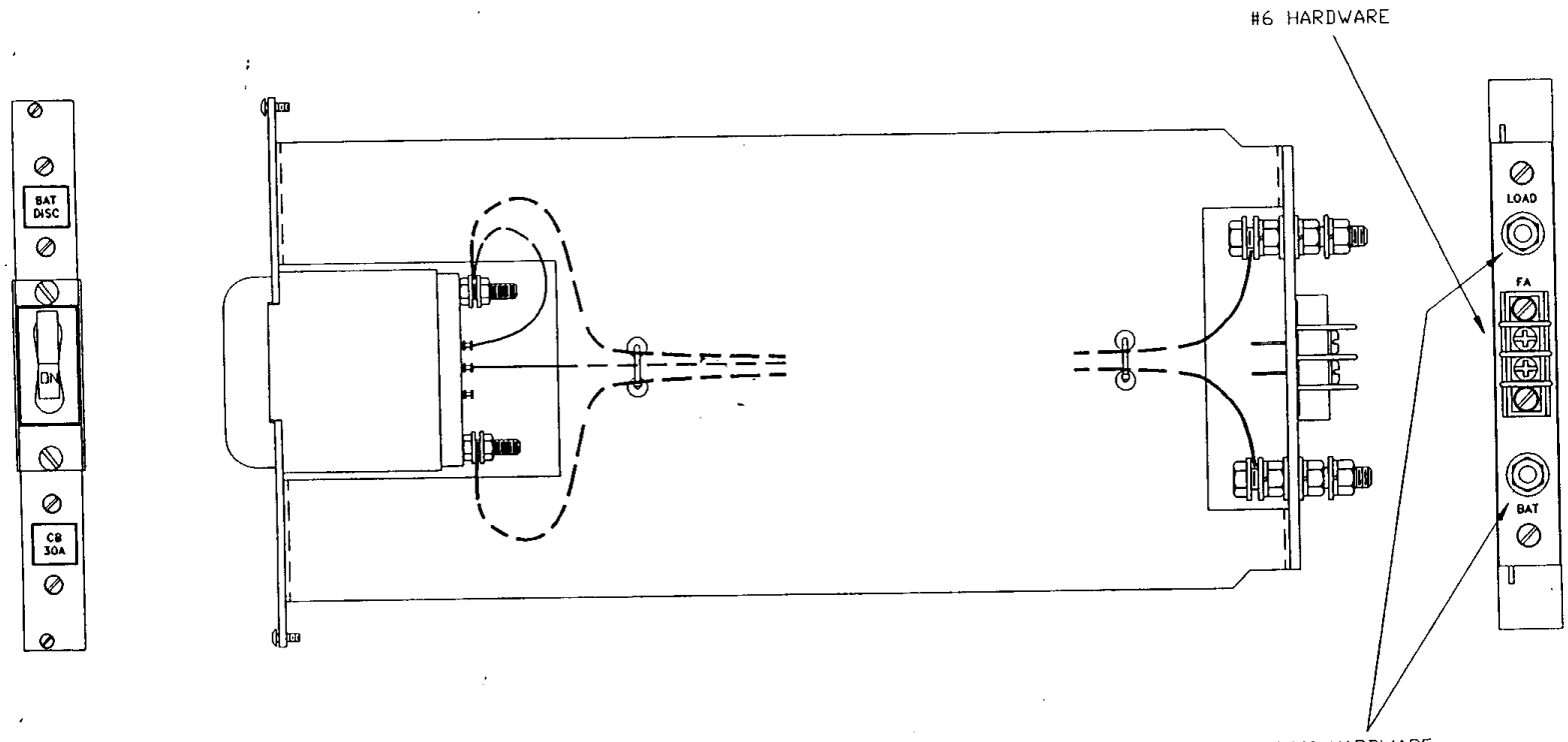
PECO II Inc.
Colon, Ohio, U.S.A.

A

J-438126NP-D1

SHEET 17

FIG 16



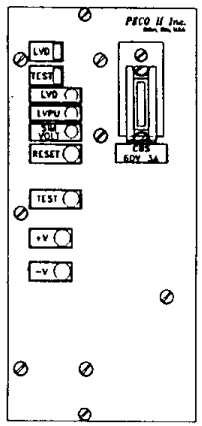
BATTERY
DISCONNECT
MODULE

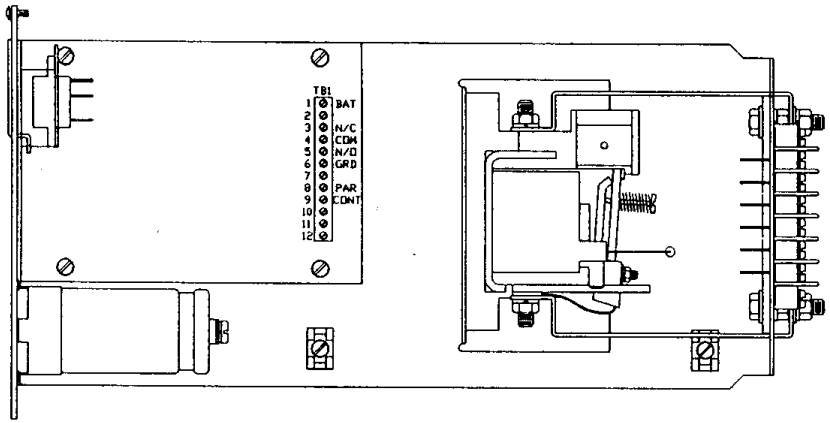
CKT. BRKR. SIZE	LIST NO.
20A	L111
30A	L112
50A	L113
70A	L114
100A	L115

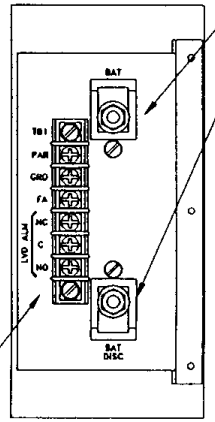
SPECIFICATION FOR 126N-D1 POWER SYSTEM +24VDC @ 20-120 AMPS		J-438126NP-D1
PECO II Inc. Galion, Ohio, U.S.A.	A	SHEET 18

ISSUE 1

FIG 17







1/4" HARDWARE

#6 HARDWARE

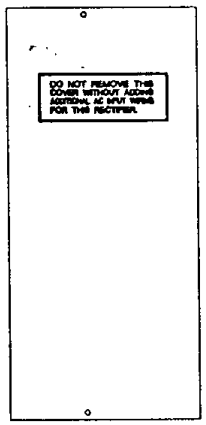
L121
LOW VOLTAGE
DISCONNECT MODULE

SPECIFICATION FOR 126N-D1 POWER SYSTEM +24VDC @ 20-120 AMPS		J-438126NP-D1
PECO II Inc. Galion, Ohio, U.S.A.	A	SHEET 19

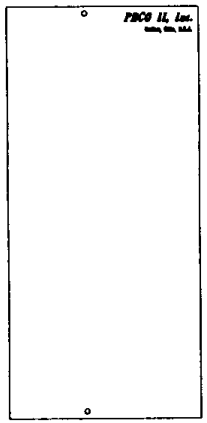
ISSUE 1

FIG. 18

L131
FILLER PANEL
USED ON 23" CAGES WITHOUT
L111-L115 BATTERY DISCONNECT MODULE



L132
BLANK PANEL
USED TO COVER SPARE
RECTIFIER POSITION

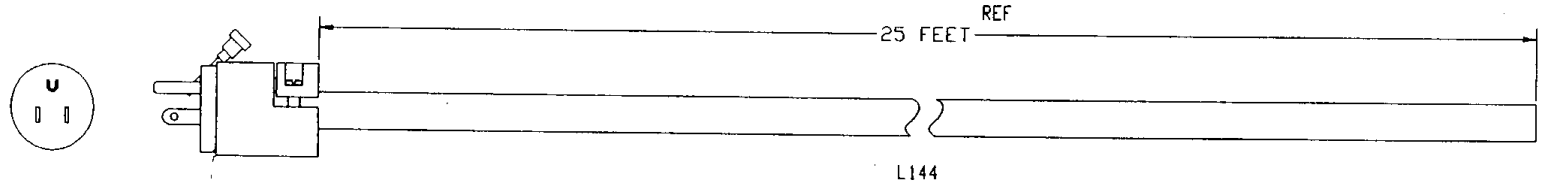


L133
BLANK PANEL
USED TO COVER SPARE
RECTIFIER/MODULE POSITION

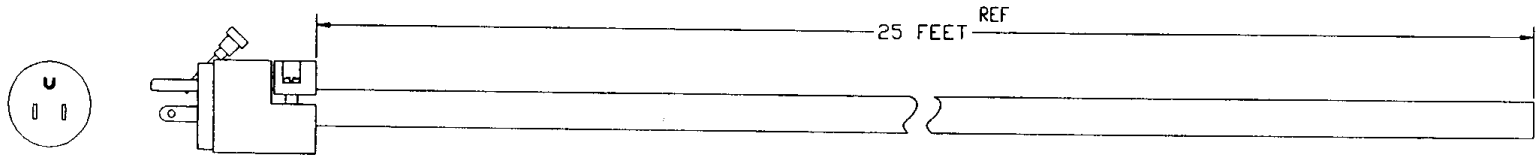
SPECIFICATION FOR 126N-D1 POWER SYSTEM +24VDC @ 20-120 AMPS		J-438126NP-D1
PECO II Inc. Galion, Ohio, U.S.A.	A	SHEET 20

ISSUE 1

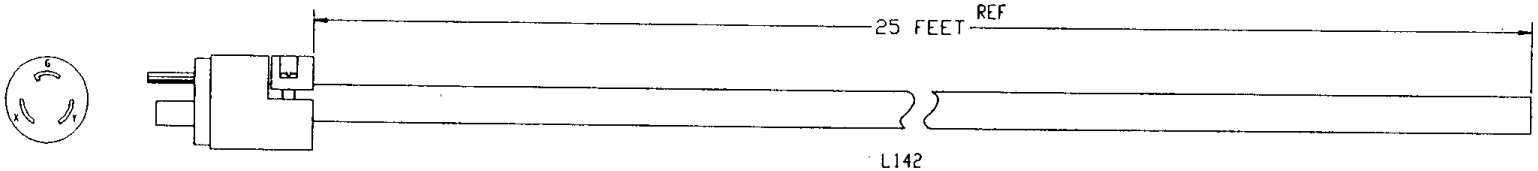
FIG. 19



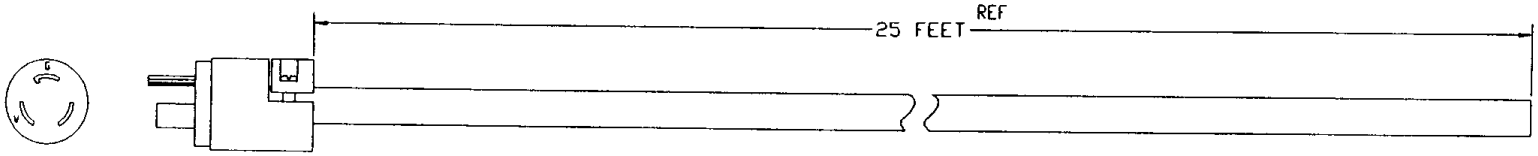
L144
AC CORD (115VAC) BLADE W/LOCK 16GA.



L143
AC CORD (115VAC) BLADE W/LOCK 12GA.



L142
AC CORD (230VAC) TWIST LOCK 12GA.

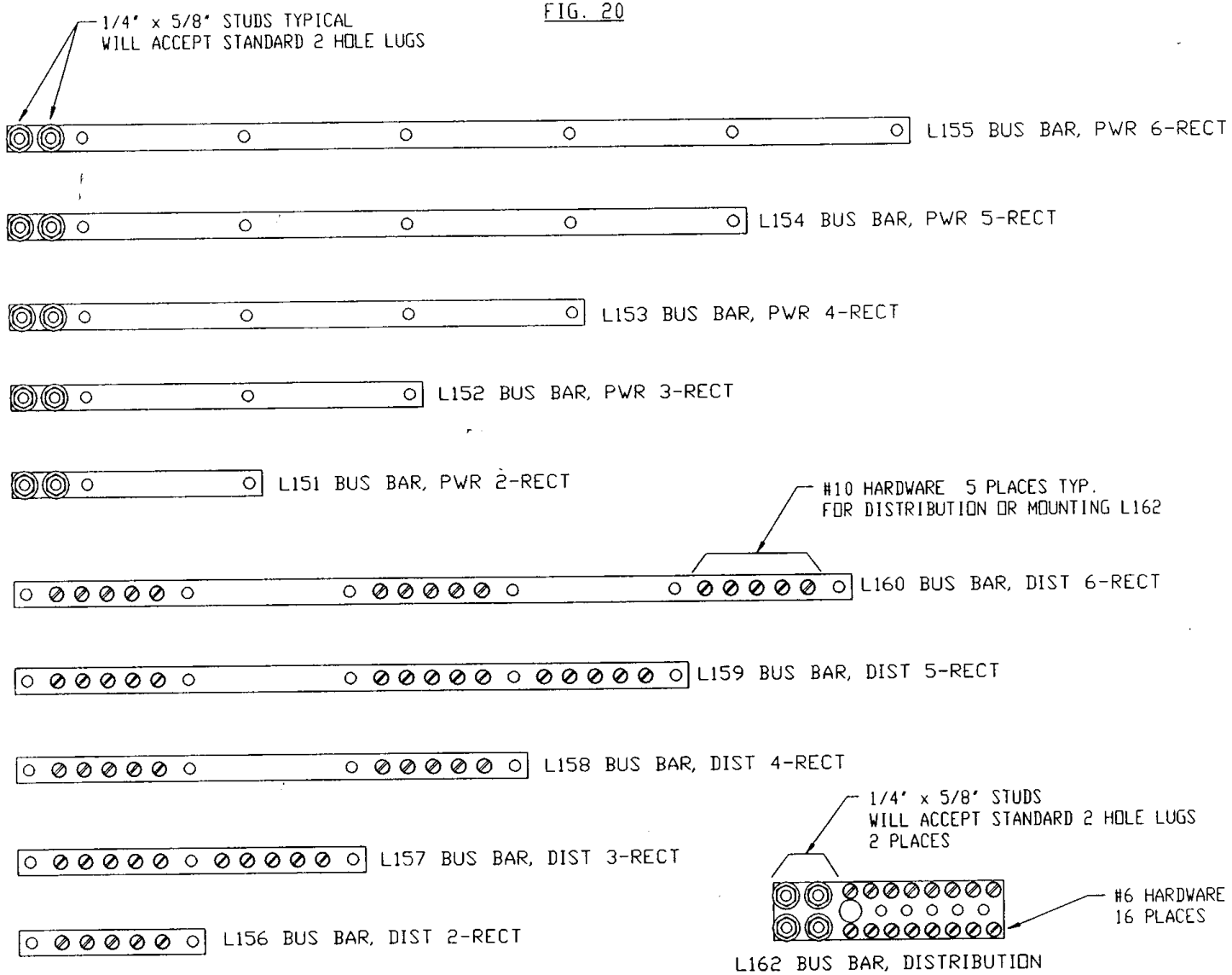


L141
AC CORD (115VAC) TWIST LOCK 12GA.

SPECIFICATION FOR 126N-D1 POWER SYSTEM +24VDC @ 20-120 AMPS		J-438126NP-D1
PECO II Inc. Galion, Ohio, U.S.A.	A	SHEET 21

ISSUE 1

FIG. 20



SPECIFICATION FOR 126N-D1 POWER SYSTEM +24VDC @ 20-120 AMPS		J-438126NP-D1
PECO II Inc. Galion, Ohio, U.S.A.	A	SHEET 22

ISSUE 1

4.0 INSTALLERS NOTES

```
*********************************************************
* CAUTION:  It is essential to read and understand all   *
*           Warnings, Cautions, and Notes before any     *
*           connections are made to the Unit or System.  *
*           If further assistance is needed call         *
*           419 / 468-7600 and ask for Field Service.    *
*********************************************************
```

4.1 INSTALLERS INFORMATION NOTES

4.1.1

INPUT (115 VAC, 50/60 HZ) [Standard]			
Terminal Capacity	Terminal Type	Wire Size	Fuse Size
10 Ga	#10 Screw	10 Ga	20 Amp

NOTE: Input Wire Temperature Rating is 90°C minimum.

INPUT (230 VAC, 50/60 HZ) [Optional]			
Terminal Capacity	Terminal Type	Wire Size	Fuse Size
10 Ga	#10 Screw	10 Ga	20 Amp

NOTE: Input Wire Temperature Rating is 90°C minimum.

4.1.2

OUTPUT (-24 VDC) [Circuit Breakers]		
Breaker Size	Terminal Type	Wire Size
5 Amp	# ¼ Hdwe	14 Ga
10 Amp	# ¼ Hdwe	14 Ga
15 Amp	# ¼ Hdwe	12 Ga
20 Amp	# ¼ Hdwe	10 Ga
30 Amp	# ¼ Hdwe	8 Ga
40 Amp	# ¼ Hdwe	6 Ga
50 Amp	# ¼ Hdwe	4 Ga

4.1 INSTALLERS INFORMATION NOTES (Cont)

4.1.2

OUTPUT (+24 VDC) [Fuse Distribution]		
Fuse Size	Terminal Type	Wire Size
18/100 Amp 1/4 Amp 1/2 Amp 3/4 Amp 1.0 Amp 1-1/3 Amp 2.0 Amp	# 6 Hdwe	14 Ga
3.0 Amp 5.0 Amp 7-1/2 Amp 10.0 Amp	# 6 Hdwe	12 Ga

4.1.3

ALARMS		
Terminal Capacity	Terminal Type	Wire Size
20 Ga	Pressure	20 Ga

4.1.4

CHASSIS GROUND		
Terminal Capacity	Terminal Type	Wire Size
10 Ga	# 10 Stud	10 Ga

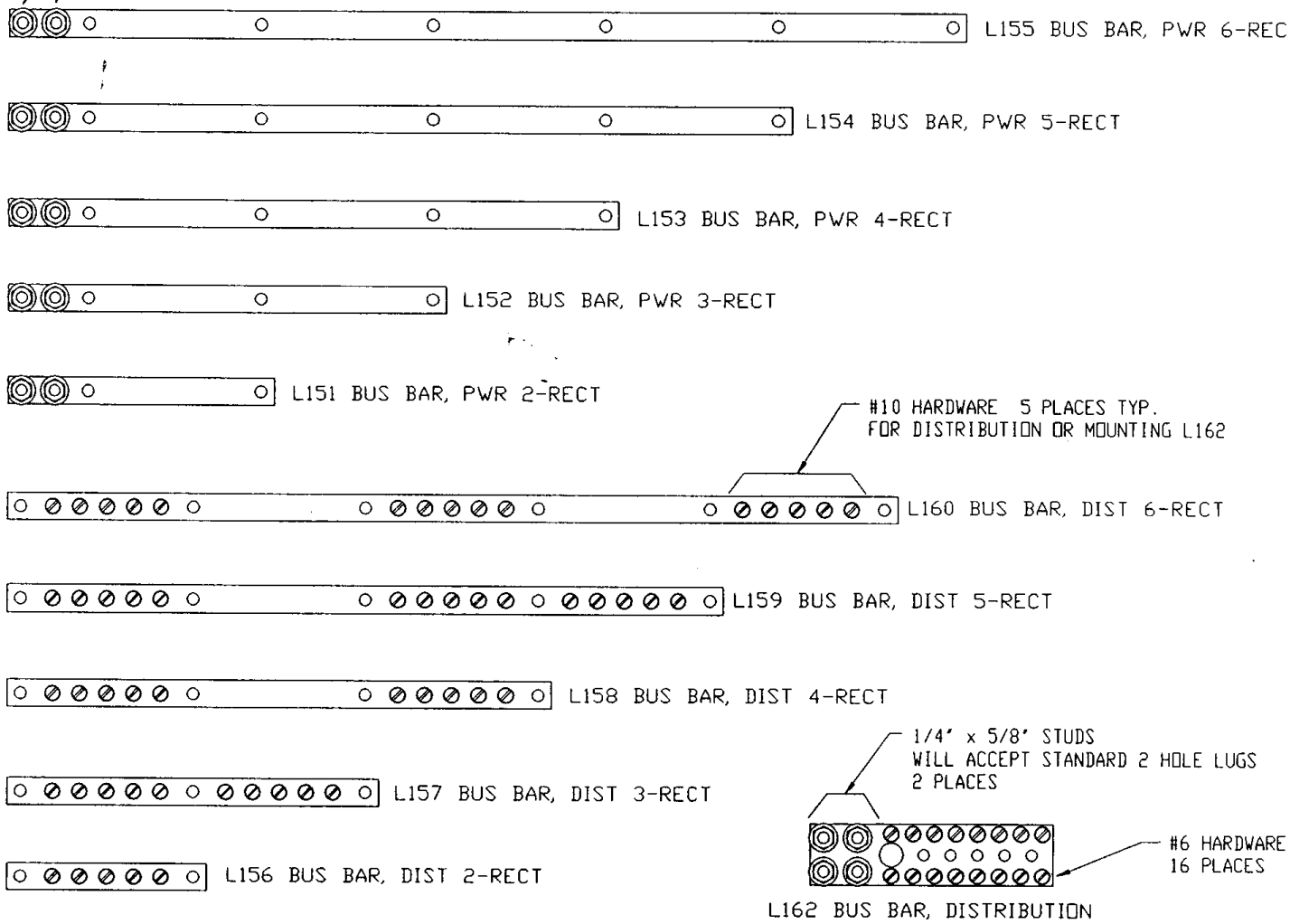
4.1.5 The symbol ϕ indicates Installer wiring.

4.1.6 Wire sizes are based on the National Electric Code Table 310-16 for copper wire.

4.1.7 Frame or Chassis Ground WIRE size based on recommendations of National Electric code Table 250-95.

4.1.8 DC OUTPUT: Terminals are provided for Battery Load and Grd Return leads that require single hole lug terminations.

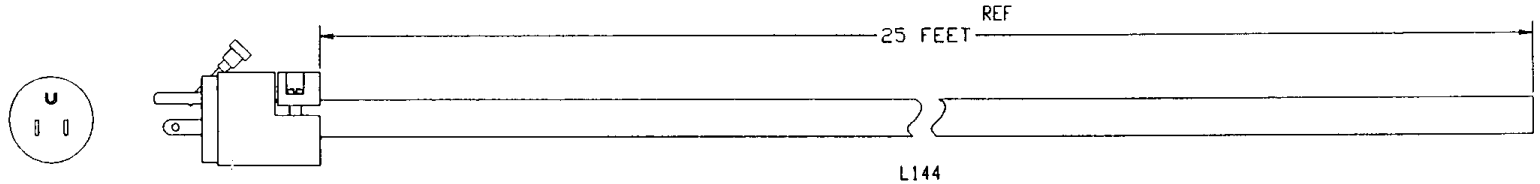
FIG. 20



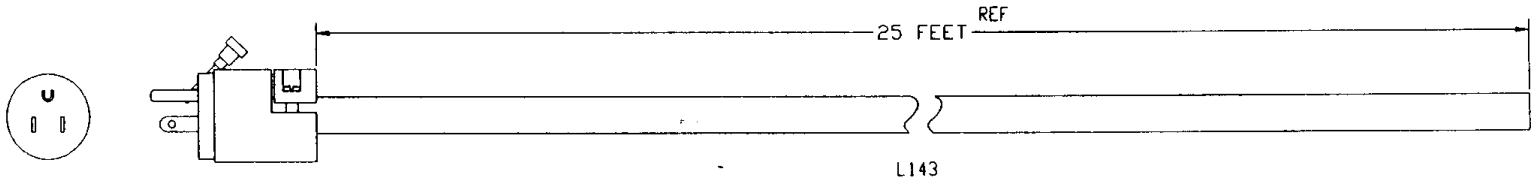
SPECIFICATION FOR 126N-D1 POWER SYSTEM +24VDC @ 20-120 AMPS		J-438126NP-D1
PECO II Inc. Galion, Ohio, USA	A	SHEET 22

ISSUE 1

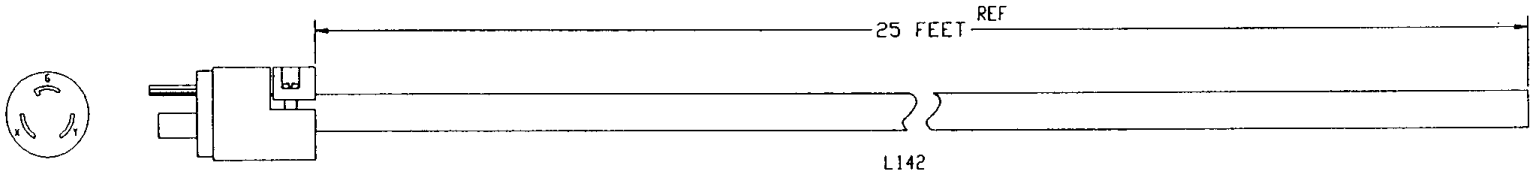
FIG. 19



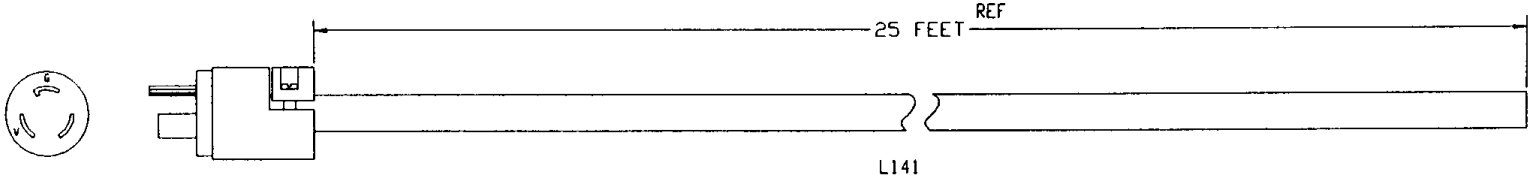
L144
AC CORD (115VAC) BLADE W/LOCK 16GA.



L143
AC CORD (115VAC) BLADE W/LOCK 12GA.



L142
AC CORD (230VAC) TWIST LOCK 12GA.



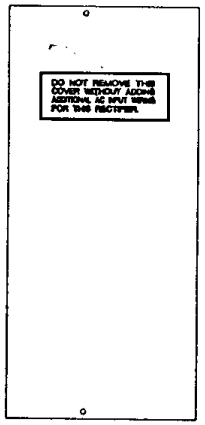
L141
AC CORD (115VAC) TWIST LOCK 12GA.

SPECIFICATION FOR 126N-D1 POWER SYSTEM +24VDC @ 20-120 AMPS		J-438126NP-D1
PECO II Inc. Galion, Ohio, U.S.A.	A	SHEET 21

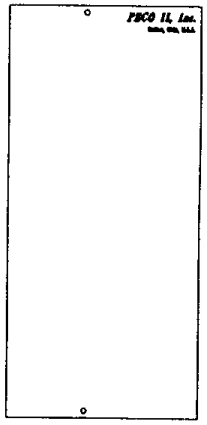
ISSUE 1

FIG. 18

L131
FILLER PANEL
USED ON 23" CAGES WITHOUT
L111-L115 BATTERY DISCONNECT MODULE



L132
BLANK PANEL
USED TO COVER SPARE
RECTIFIER POSITION



L133
BLANK PANEL
USED TO COVER SPARE
RECTIFIER/MODULE POSITION

SPECIFICATION FOR 126N-D1 POWER SYSTEM +24VDC @ 20-120 AMPS		J-438126NP-D1
PECO II Inc. Galion, Ohio U.S.A.	A	

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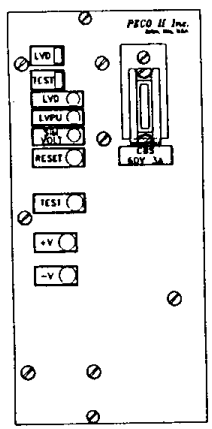
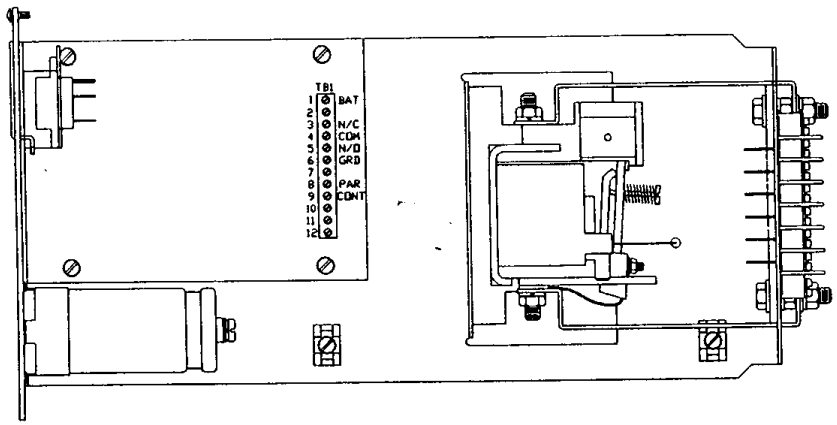
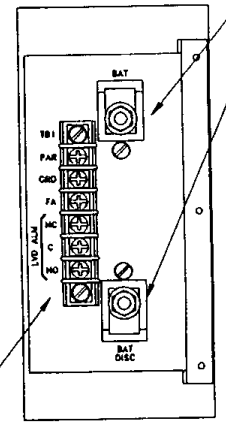
FIG 17







1/4" HARDWARE

#6 HARDWARE

L121
LOW VOLTAGE
DISCONNECT MODULE

SPECIFICATION FOR 126N-D1 POWER SYSTEM +24VDC @ 20-120 AMPS		J-438126NP-D1
PECO II Inc. Galion, Ohio, U.S.A.	A	SHEET 19

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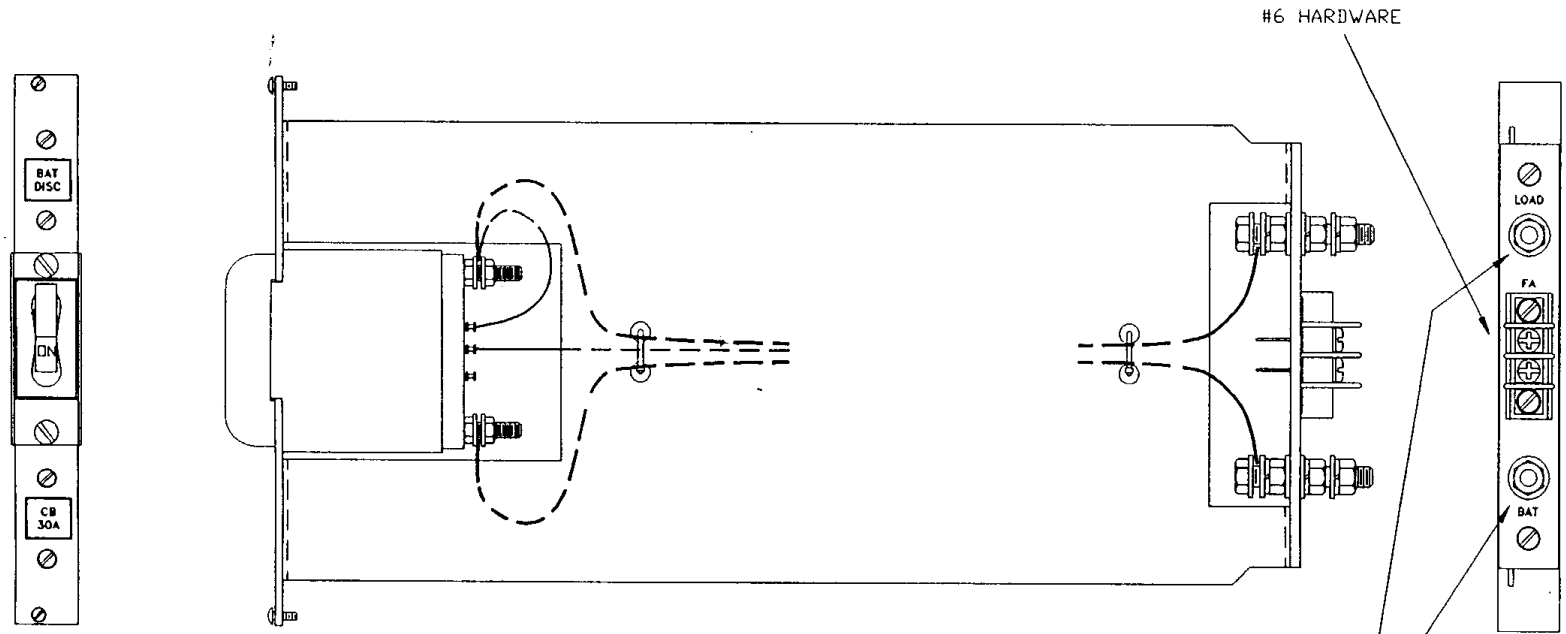
FIG 16



BATTERY
DISCONNECT
MODULE

CKT. BRKR. SIZE	LIST NO.
20A	L111
30A	L112
50A	L113
70A	L114
100A	L115

SPECIFICATION FOR 126N-D1 POWER SYSTEM +24VDC @ 20-120 AMPS		J-438126NP-D1
PECO II Inc. Galion, Ohio, U.S.A.	A	SHEET 18

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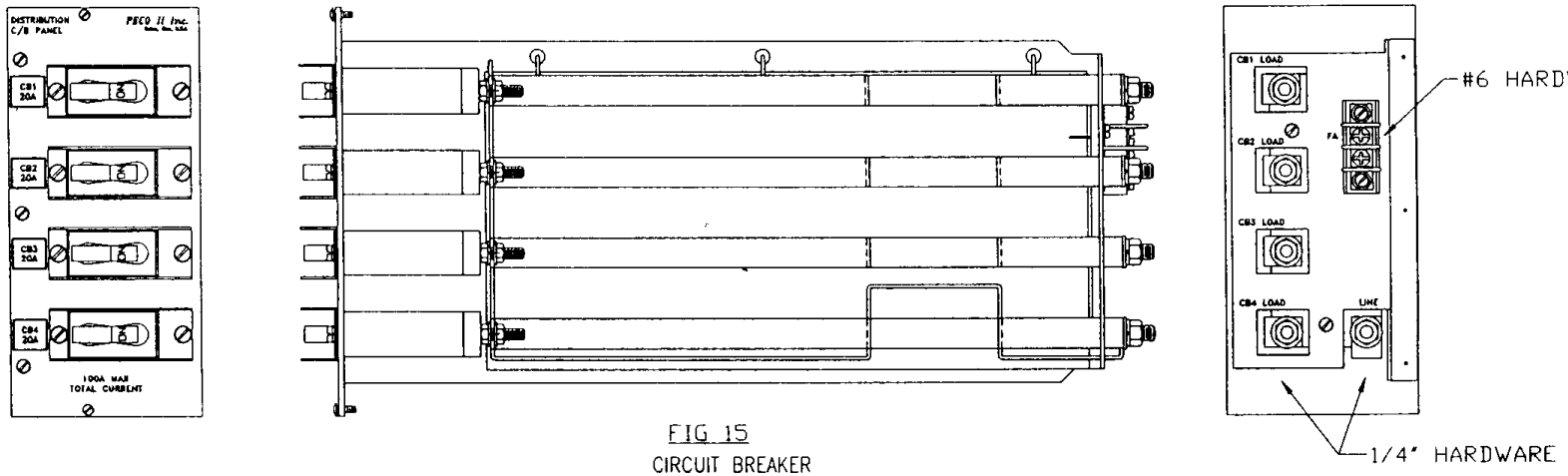


FIG 15
CIRCUIT BREAKER
DISTRIBUTION MODULE
L101

CIRCUIT BREAKERS	
AMP	PECO II P/N
5A	3050073P-5
10A	3050073P-10
15A	3050073P-15
20A	3050073P-20
30A	3050073P-30
40A	3050073P-40
50A	3050073P-50

NOTES:

1. SELECT CIRCUIT BREAKERS FOR THIS MODULE FROM CHART.

2. CIRCUIT BREAKER MODULE MUST BE EQUIPPED WITH (4) BREAKERS.

ISSUE 2

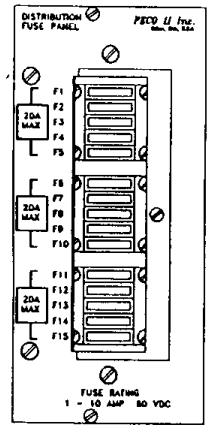
SPECIFICATION FOR
126N-D1 POWER SYSTEM
+24VDC @ 20-120 AMPS

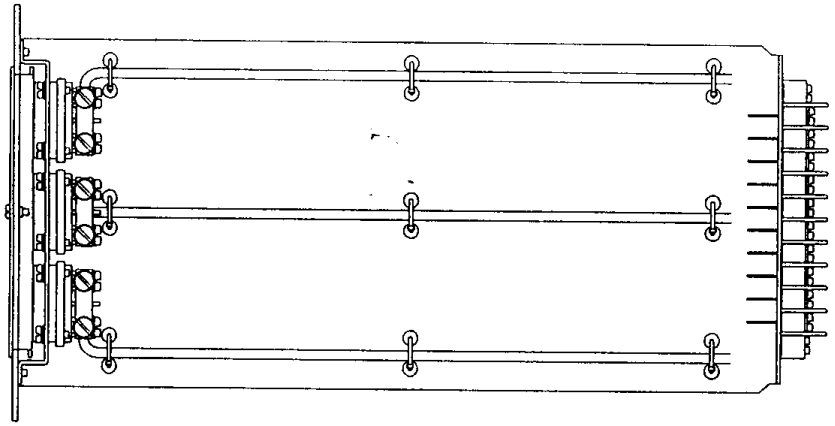
PECO II Inc.
Galion, Ohio, U.S.A.

A

J-438126NP-D1

SHEET 17





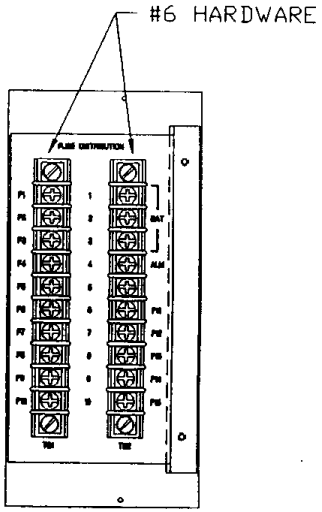


FIG 14
FUSE DISTRIBUTION
MODULE
L91

GMT TYPE (SEMIPHORE)		
AMP	PECO II P/N	COLOR
18/100	3150437	YEL
1/4	3150438	VI
1/2	3150439	RD
3/4	3150441	BR
1	3150442	GR
1-1/3	3150443	WH
2	3150444	OR
3	3150445	BU
5	3150446	GN
7-1/2	3150447	BK,WH
10	3150448	RD,WH

NOTE:
1. SELECT FUSES FOR THIS MODULE FROM CHART.

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SPECIFICATION FOR
126N-DI POWER SYSTEM
+24VDC @ 20-120 AMPS

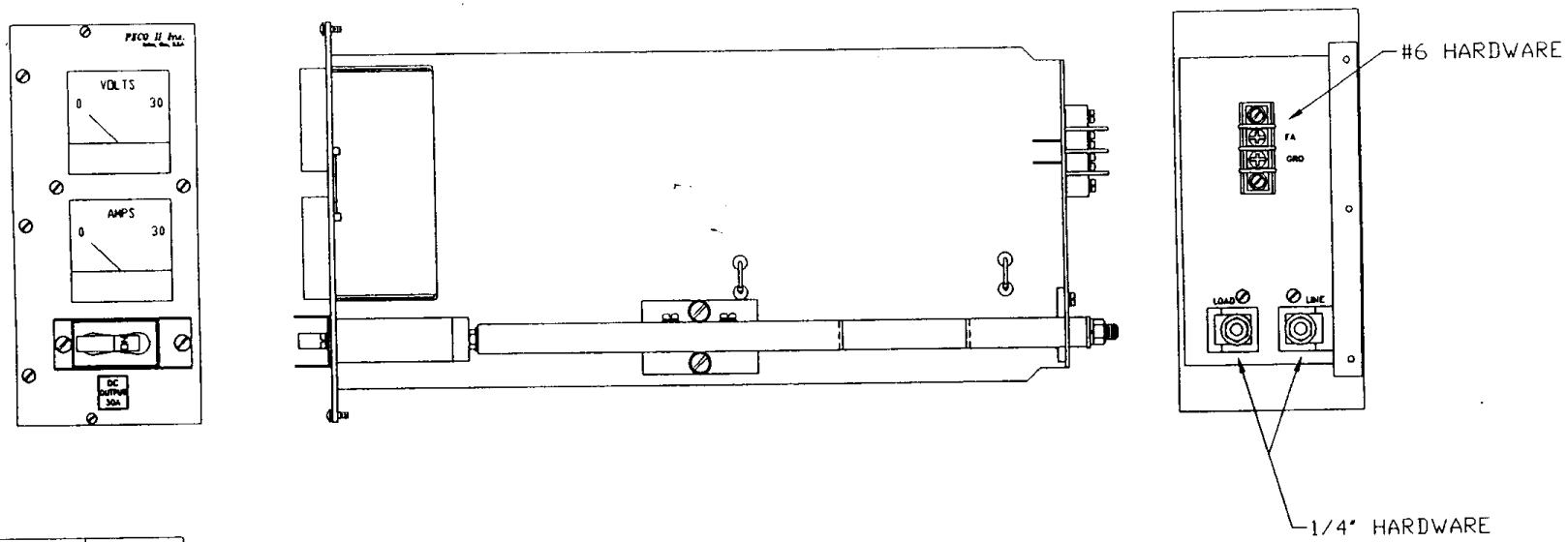
PECO II Inc.
Galion, Ohio, U.S.A

A

J-438126NP-DI

SHEET 16

FIG 13



METER MODULE

CKT. BRKR. SIZE	LIST NO.
20A	L81
30A	L82
50A	L83
75A	L84
100A	L85

SPECIFICATION FOR 126N-D1 POWER SYSTEM +24VDC @ 20-120 AMPS		J-438126NP-D1
PECO II Inc. Galion, Ohio, U.S.A.	A	SHEET 15

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L41 ALARM MODULE, W/ GROUND ALARM, RFA
L45 ALARM MODULE W/ CONTACT CLOSURE ALARM, RFA
L49 ALARM MODULE W/ BATTERY ALARM, RFA

L42 ALARM MODULE W/ GROUND ALARM, RFA AC
L46 ALARM MODULE W/ CONTACT CLOSURE ALARM, RFA AC
L50 ALARM MODULE W/ BATTERY ALARM, RFA AC

L43 ALARM MODULE W/ GROUND ALARM, RFA FA
L47 ALARM MODULE W/ CONTACT CLOSURE ALARM, RFA FA
L51 ALARM MODULE W/ BATTERY ALARM, RFA FA

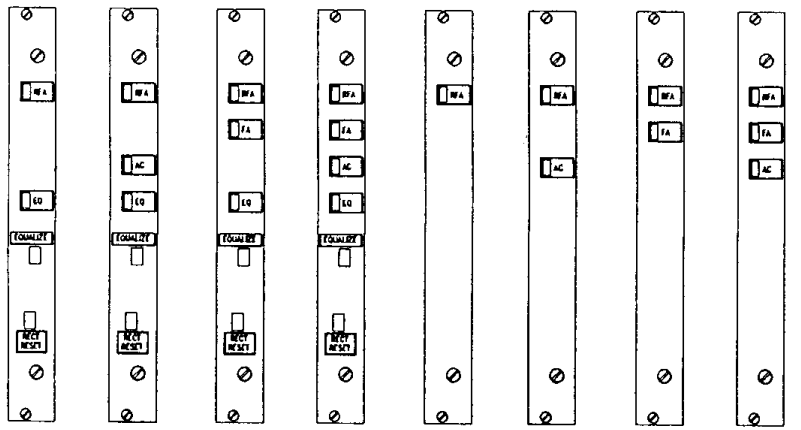
L44 ALARM MODULE W/ GROUND ALARM, RFA AC FA
L48 ALARM MODULE W/ CONTACT CLOSURE ALARM, RFA AC FA
L52 ALARM MODULE W/ BATTERY ALARM, RFA AC FA

L53 ALARM MODULE, W/ GROUND ALARM, RFA
L57 ALARM MODULE W/ CONTACT CLOSURE ALARM, RFA
L61 ALARM MODULE W/ BATTERY ALARM, RFA

L54 ALARM MODULE W/ GROUND ALARM, RFA AC
L58 ALARM MODULE W/ CONTACT CLOSURE ALARM, RFA AC
L62 ALARM MODULE W/ BATTERY ALARM, RFA AC

L55 ALARM MODULE W/ GROUND ALARM, RFA FA
L59 ALARM MODULE W/ CONTACT CLOSURE ALARM, RFA FA
L63 ALARM MODULE W/ BATTERY ALARM, RFA FA

L56 ALARM MODULE W/ GROUND ALARM, RFA AC FA
L60 ALARM MODULE W/ CONTACT CLOSURE ALARM, RFA AC FA
L64 ALARM MODULE W/ BATTERY ALARM, RFA AC FA



THESE ALARM MODULES FOR USE WITH L12 RECTIFIER ONLY.

THESE ALARM MODULES FOR USE WITH L11 RECTIFIER ONLY.

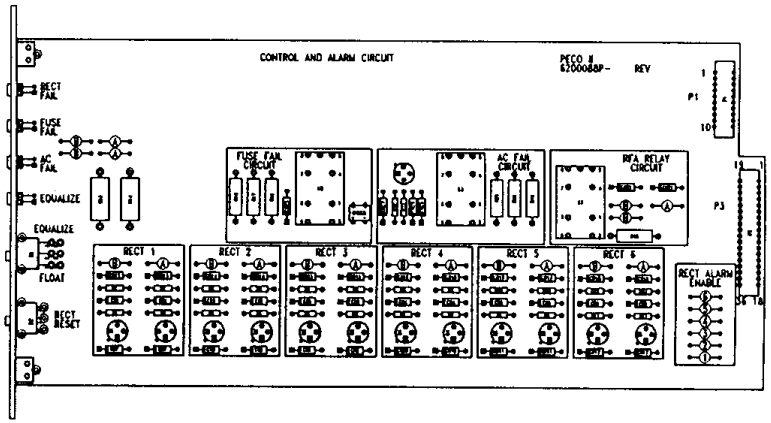
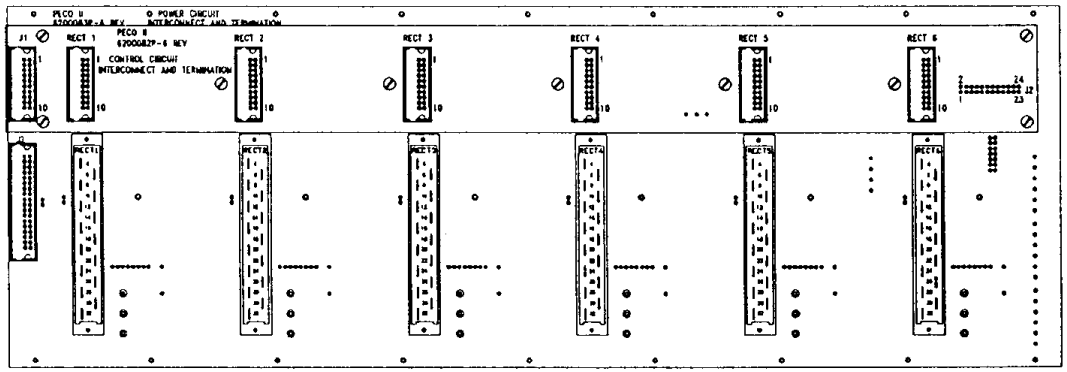
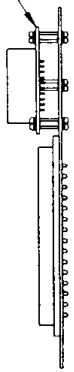


FIG. 12

SPECIFICATION FOR 126N-D1 POWER SYSTEM +24VDC @ 20-120 AMPS	J-438126NP-D1
PECO II Inc. Galion, Ohio, U.S.A. A	ISSUE 1 SHEET 14

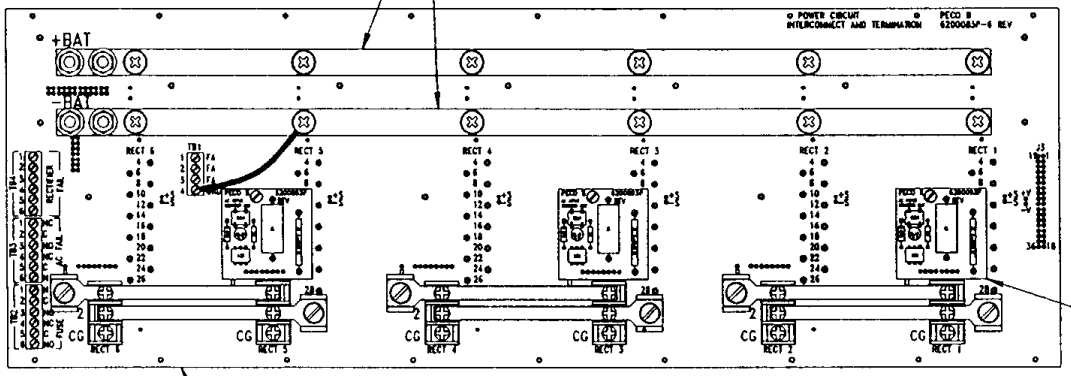


FRONT VIEW



L36 FOR USE WITH
SM20H24-3PM RECTIFIERS

FIG. 11



REAR VIEW

L155 BUS BAR
NOTE-1

L71 AC INPUT MONITOR 115VAC
L72 AC INPUT MONITOR 230VAC
NOTE-2

L26 BACKPLANE, 6 RECTIFIERS

NOTES:

1. RECOMMENDED BUS BARS FOR 6 RECTIFIER BACKPLANE. SEE FIG 20, SHEET 22.

2. AC INPUT MONITOR MAY BE USED FOR EACH RECTIFIER. WHEN INDIVIDUAL AC INPUT IS REQUIRED.

SPECIFICATION FOR 126N-D1 POWER SYSTEM +24VDC @ 20-120 AMPS		J-438126NP-D1
PECO II Inc. Galion, Ohio, U.S.A.	A	SHEET 13

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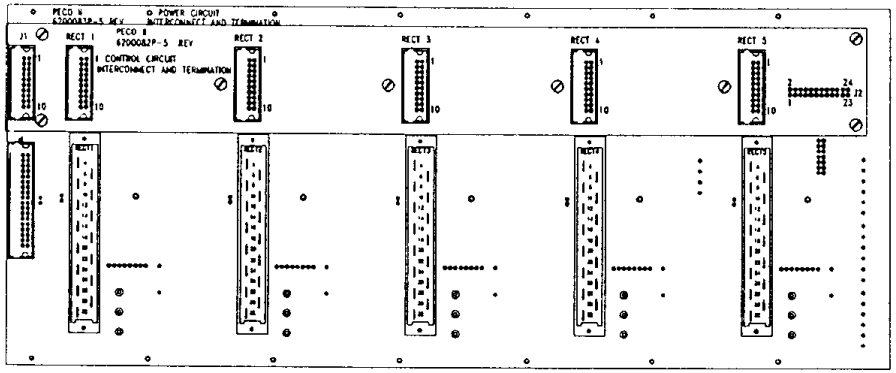
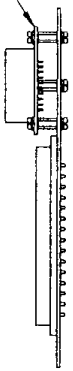
FIG. 10



FRONT VIEW

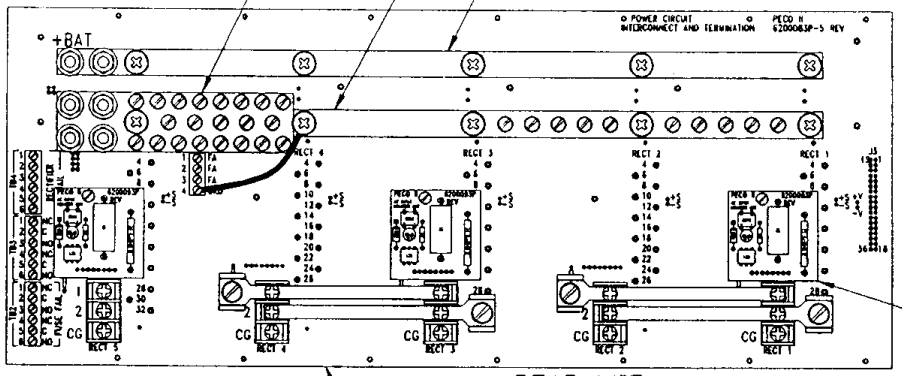


L35 FOR USE WITH SM20H24-3PM RECTIFIERS

L162 BUS BAR NOTE-1

L159 BUS BAR NOTE-1

L154 BUS BAR NOTE-1



REAR VIEW

L71 AC INPUT MONITOR 115VAC
L72 AC INPUT MONITOR 230VAC
NOTE-2

L25 BACKPLANE, 5 RECTIFIERS

NOTES:

1. RECOMMENDED BUS BARS FOR 5 RECTIFIER BACKPLANE. SEE FIG 20, SHEET 22.
2. AC INPUT MONITOR MAY BE USED FOR EACH RECTIFIER. WHEN INDIVIDUAL AC INPUT IS REQUIRED.

SPECIFICATION FOR 126N-D1 POWER SYSTEM +24VDC @ 20-120 AMPS		J-438126NP-D1
PECO II Inc. Galion, Ohio, U.S.A.	A	SHEET 12

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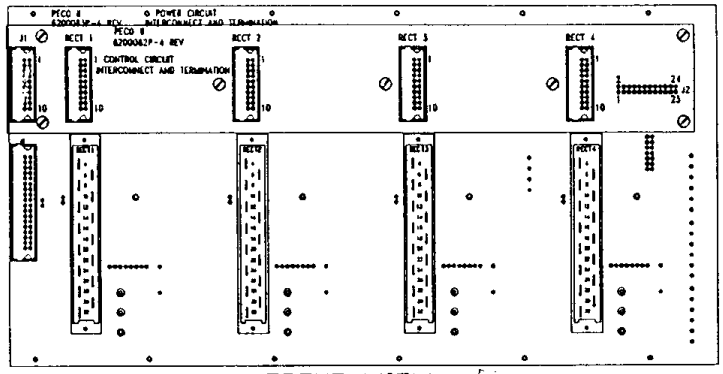
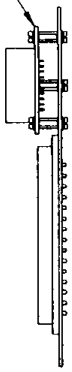
FIG. 9



FRONT VIEW

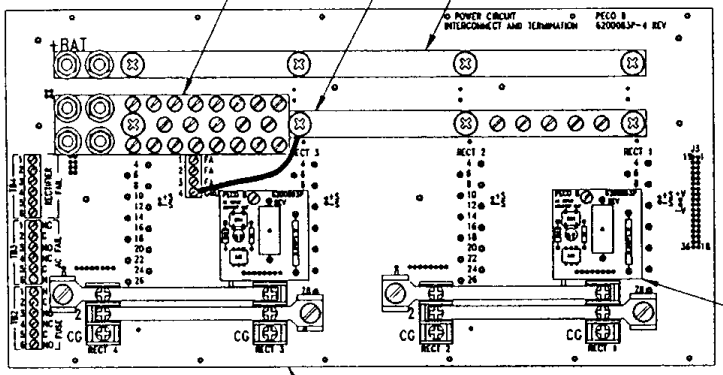
L34 FOR USE WITH
SM20H24-3PM RECTIFIERS



L162 BUS BAR
NOTE-1

L158 BUS BAR
NOTE-1

L153 BUS BAR
NOTE-1



REAR VIEW

L71 AC INPUT MONITOR 115VAC
L72 AC INPUT MONITOR 230VAC
NOTE-2

L24 BACKPLANE, 4 RECTIFIERS

NOTES:

1. RECOMMENDED BUS BARS FOR 4 RECTIFIER BACKPLANE. SEE FIG 20, SHEET 22.

2. AC INPUT MONITOR MAY BE USED FOR EACH RECTIFIER. WHEN INDIVIDUAL AC INPUT IS REQUIRED.

SPECIFICATION FOR 126N-D1 POWER SYSTEM +24VDC @ 20-120 AMPS		J-438126NP-D1
PECO II Inc. Galion, Ohio, U.S.A.	A	SHEET 11

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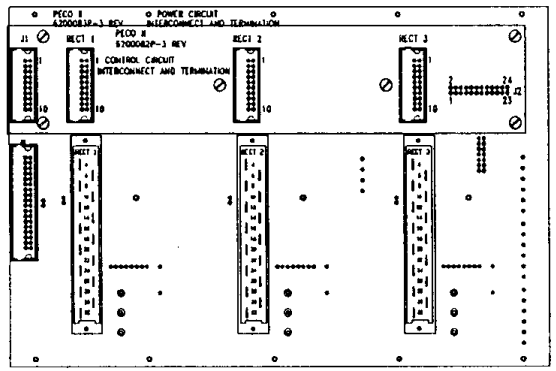
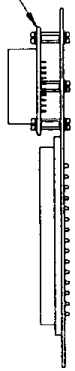
FIG. 8



FRONT VIEW

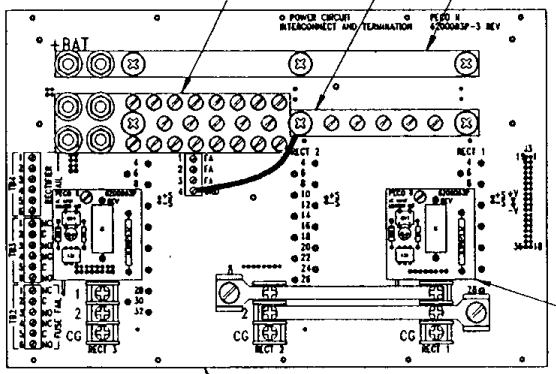
L33 FOR USE WITH
SM20H24-3PM RECTIFIERS



L162 BUS BAR
NOTE-1

L157 BUS BAR
NOTE-1

L152 BUS BAR
NOTE-1



REAR VIEW

L71 AC INPUT MONITOR 115VAC
L72 AC INPUT MONITOR 230VAC
NOTE-2

L23 BACKPLANE, 3 RECTIFIERS

NOTES:

1. RECOMMENDED BUS BARS FOR 3 RECTIFIER BACKPLANE. SEE FIG 20, SHEET 22.

2. AC INPUT MONITOR MAY BE USED FOR EACH RECTIFIER. WHEN INDIVIDUAL AC INPUT IS REQUIRED.

SPECIFICATION FOR 126N-D1 POWER SYSTEM +24VDC @ 20-120 AMPS		J-438126NP-D1
PECO II Inc. Galion, Ohio, U.S.A.	A	SHEET 10

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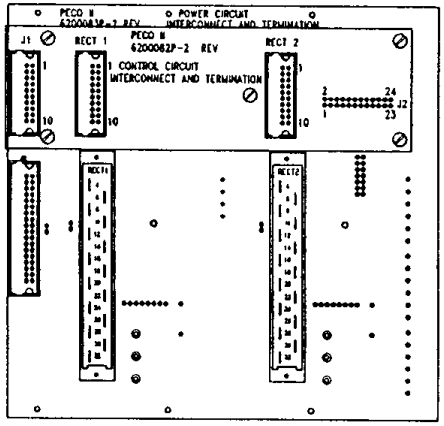
FIG. 7

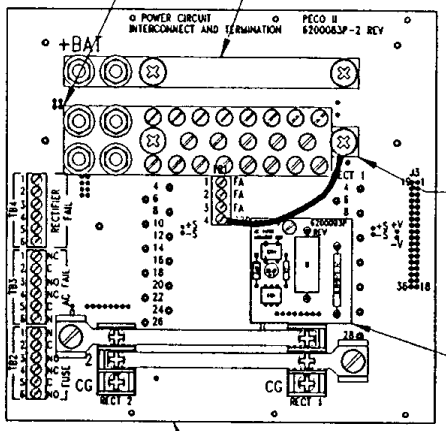


FRONT VIEW

L32 FOR USE WITH
SM20H24-3PM RECTIFIERS

L162 BUS BAR
NOTE-1

L151 BUS BAR
NOTE-1



NOTE-1
L156 BUS BAR

L71 AC INPUT MONITOR 115VAC
L72 AC INPUT MONITOR 230VAC
NOTE-2

REAR VIEW

L22 BACKPLANE, 2 RECTIFIERS

NOTES:

1. RECOMMENDED BUS BARS FOR 2 RECTIFIER BACKPLANE. SEE FIG 20, SHEET 22.
2. AC INPUT MONITOR MAY BE USED FOR EACH RECTIFIER. WHEN INDIVIDUAL AC INPUT IS REQUIRED.

SPECIFICATION FOR 126N-DI POWER SYSTEM +24VDC @ 20-120 AMPS		J-438126NP-DI
PECO II Inc. Euclid, Ohio, USA	A	SHEET 9

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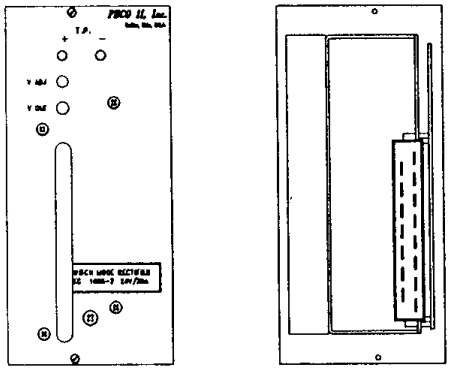

FIG 6-1

L11

SM20H24-2PM

500W SMR/24V @ 20 AMP

0°C TO 50°C

FLOAT ADJUSTMENT

VOLTS MONITORING

HIGH/LOW VOLTAGE ALARM

POWER INDICATOR

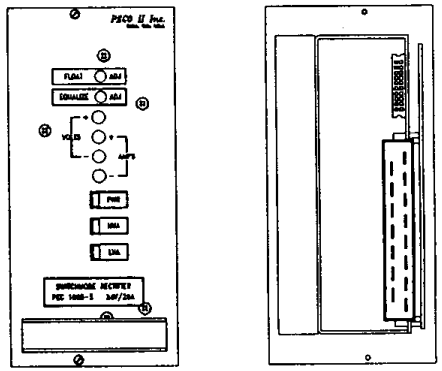

FIG 6-2

L12

SM20H24-3PM

500W SMR/24V @ 20 AMP

0°C TO 50°C

E/W FLOAT/EQUALIZE ADJUSTMENT

VOLTS/AMPS MONITORING

POWER/HIGH/LOW VOLTAGE INDICATORS/ALARM

HIGH VOLTAGE RESET

SPECIFICATION FOR 126N-D1 POWER SYSTEM +24VDC @ 20-120 AMPS		J-438126NP-D1
PECO II Inc. Galion, Ohio, U.S.A.	A	SHEET 8

ISSUE 1

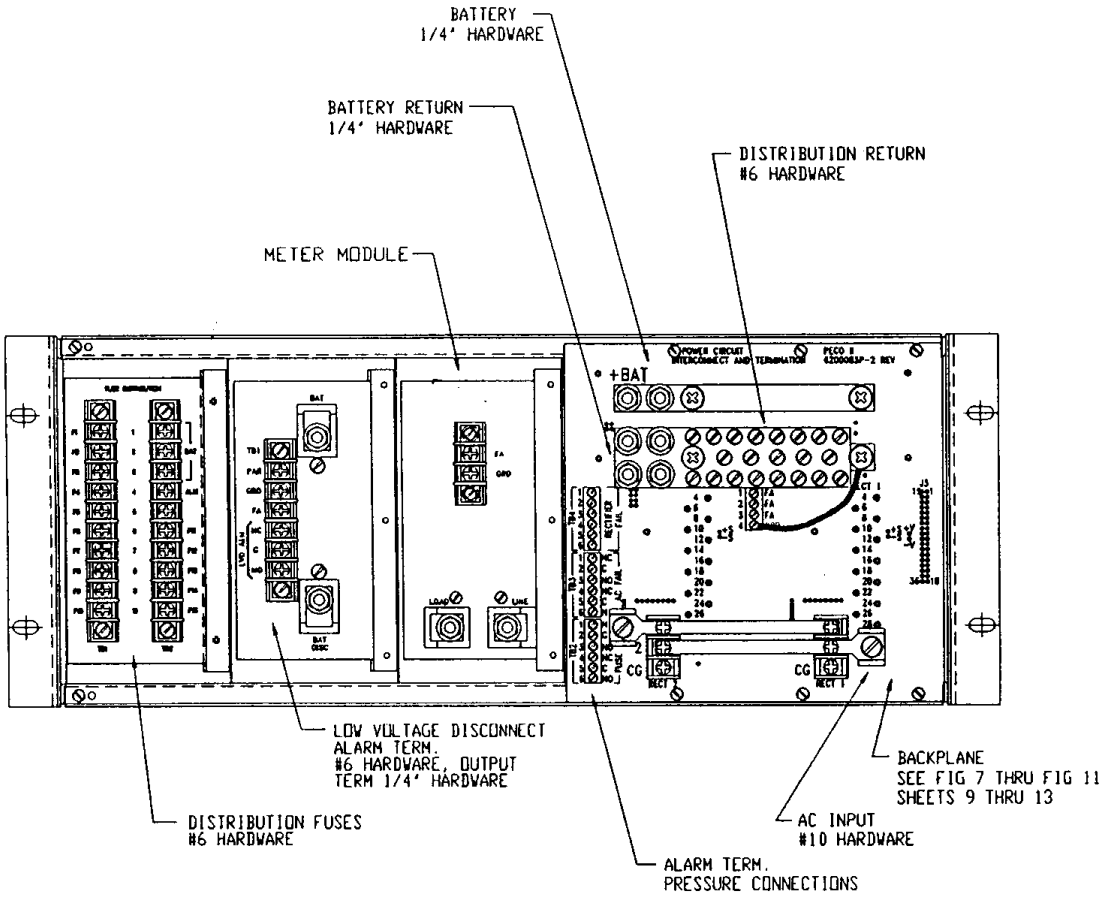

FIG. 1-5

REAR VIEW

(WITH COVER REMOVED)

SPECIFICATION FOR 126N-D1 POWER SYSTEM +24VDC @ 20-120 AMPS		J-438126NP-D1
PECO II Inc. Galion, Ohio, U.S.A.	A	SHEET 7

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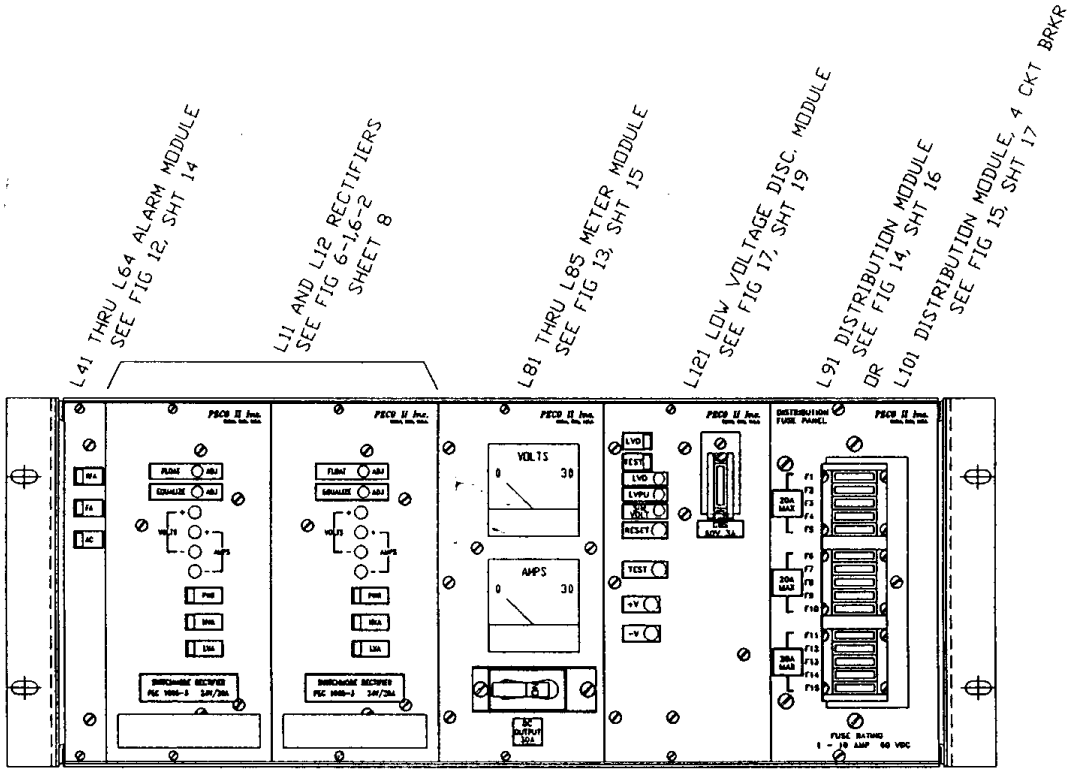

FIG. 1-4
FRONT VIEW

L2 19" CAGE ASSEMBLY
SHOWING TYPICAL PLANT CONFIGURATION

NOTE:
1. RECTIFIERS ARE POPULATED IN CAGE FROM LEFT TO RIGHT
2. THE OTHER MODULES ARE POPULATED FROM THE END OF THE RECTIFIER BACKPLANE FROM LEFT TO RIGHT WITH THE FIG. SHOWING THE RECOMMENDED ORDER.
3. THE BATTERY DISCONNECT MODULE CAN NOT BE EQUIPED IN THE 19" CAGE ASSEMBLIES.

SPECIFICATION FOR 126N-D1 POWER SYSTEM +24VDC @ 20-120 AMPS		J-438126NP-D1
PECO II Inc. Galion, Ohio, U.S.A.	A	SHEET 6

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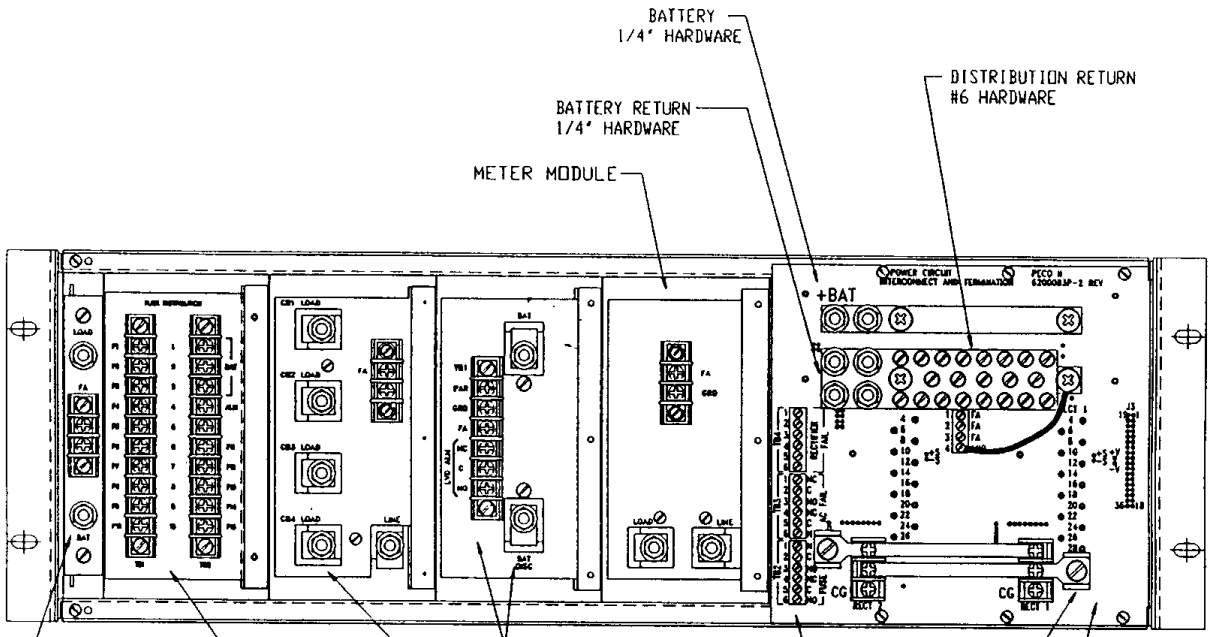

FIG. 1-3

REAR VIEW

(WITH COVER REMOVED)

SPECIFICATION FOR 126N-DI POWER SYSTEM +24VDC @ 20-120 AMPS		J-438126NP-DI
PECO II Inc. Galion, Ohio, U.S.A.	A	SHEET 5

ISSUE 1

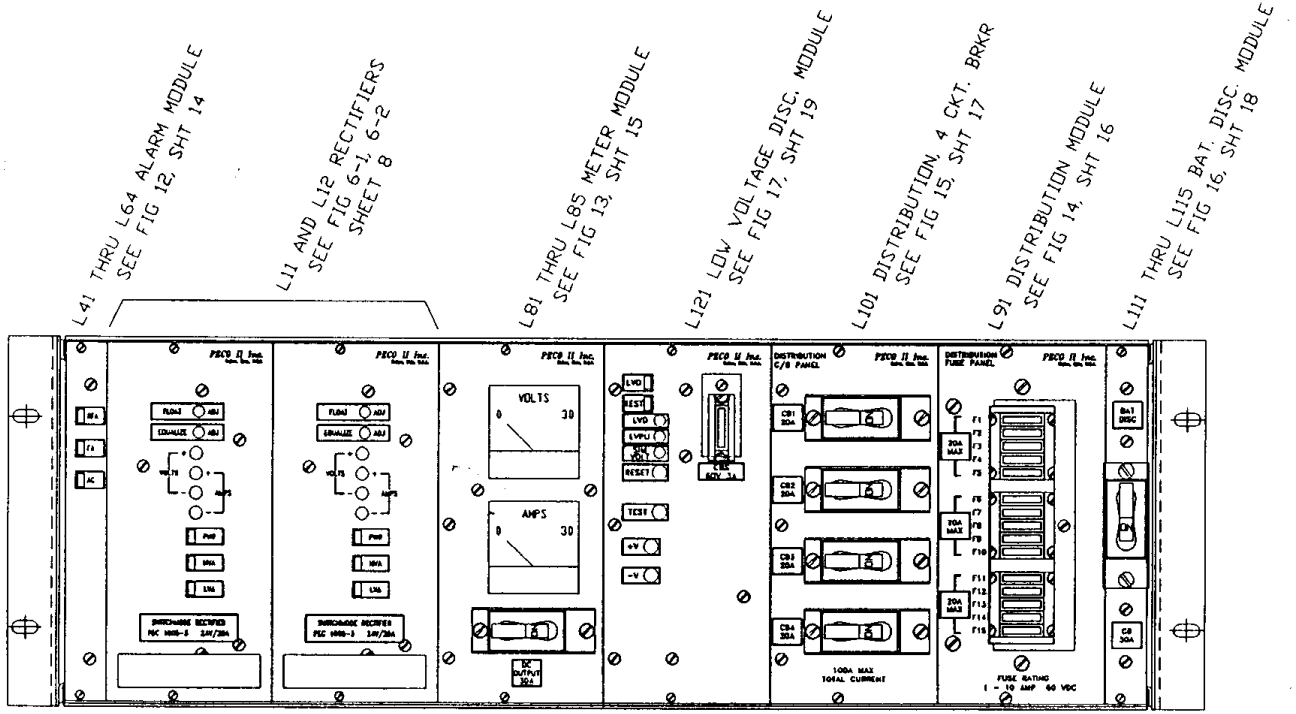

FIG. 1-2

FRONT VIEW

L1 23' CAGE ASSEMBLY
SHOWING TYPICAL PLANT CONFIGURATION

NOTE:

1. RECTIFIERS ARE POPULATED IN CAGE FROM LEFT TO RIGHT

2. THE OTHER MODULES ARE POPULATED FROM THE END OF THE RECTIFIER BACKPLANE FROM LEFT TO RIGHT WITH THE FIG. SHOWING THE RECOMMENDED ORDER.

SPECIFICATION FOR 126N-D1 POWER SYSTEM +24VDC @ 20-120 AMPS		J-438126NP-D1
PECO II Inc. Galion, Ohio, U.S.A.	A	SHEET 4

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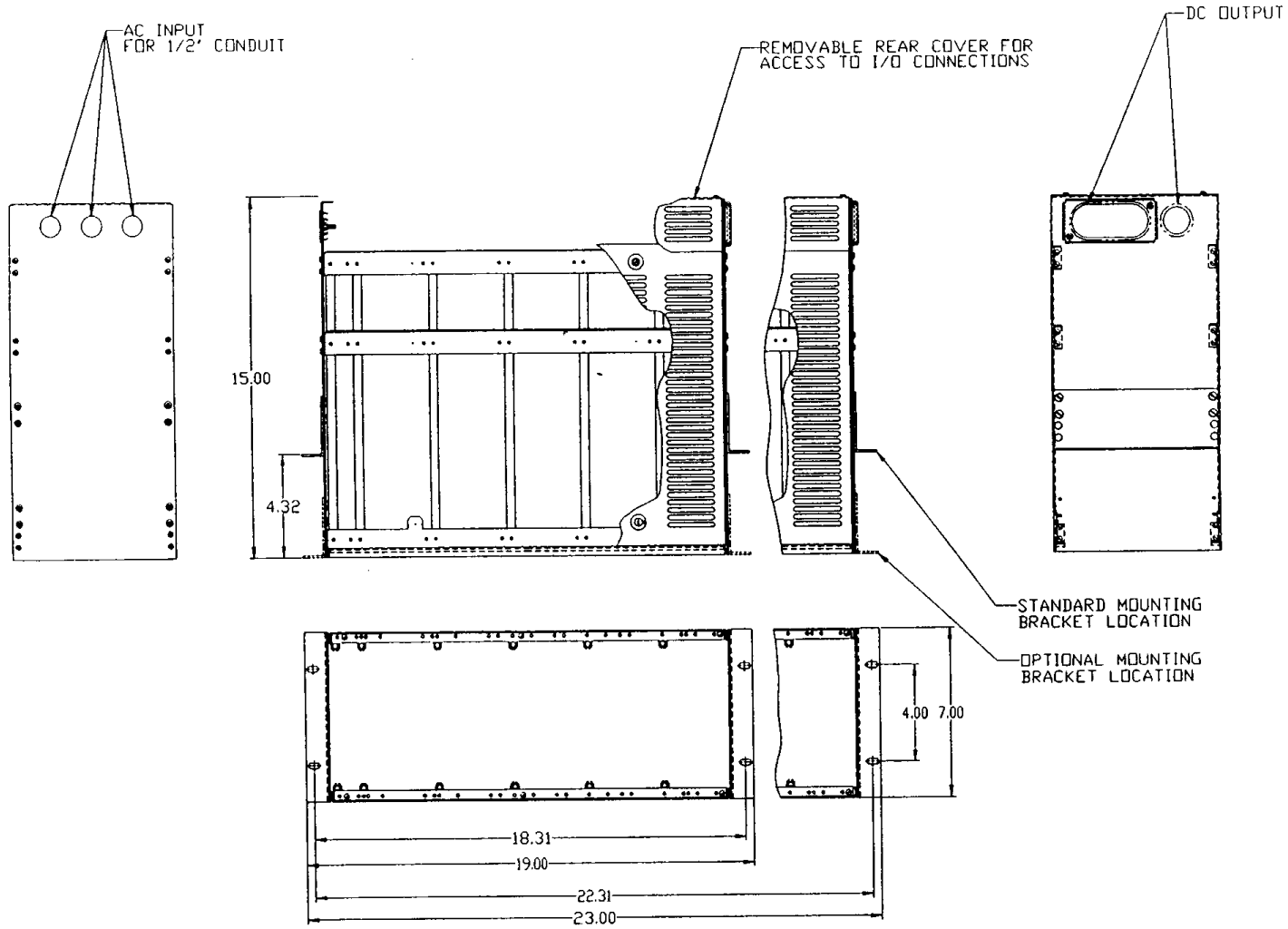
FIG. 1



L1 23" CAGE ASSEMBLY
L2 19" CAGE ASSEMBLY

SPECIFICATION FOR 126N-D1 POWER SYSTEM +24VDC @ 20-120 AMPS		J-438126NP-D1
PECO II Inc. Galion, Ohio, U.S.A.	A	SHEET 3

ISSUE 1

TABLE A

A LIST NO.	B EQUIPMENT	FIG NO.	NOTES	PECO II PART NO.	C PANEL SIZE	D QTY.	E CIRCUIT & FIGURES EQUIPPED CKT.	F FIG.	G WRG	H APP
71	AC INPUT MONITOR, 115VAC	7-11	56	6200093P			P/O 4390088P			
72	AC INPUT MONITOR, 230VAC		56	6200093P-1						
81	METER MODULE, 20A	13	5	6180226P24-1	4 POS		4390125P			
82	METER MODULE, 30A		5	6180226P24-2						
83	METER MODULE, 50A		5	6180226P24-3						
84	METER MODULE, 75A		5	6180226P24-4						
85	METER MODULE, 100A		5	6180226P24-5						
91	DISTRIBUTION MODULE, 15 FUSE	14	6	6180200P			4390122P			
101	DISTRIBUTION MODULE, 4 CKT. BRKR.	15	8	6180227P			4390127P			
111	BATTERY DISCONNECT MODULE, 20A	16	7,57	6180236P			4390128P			
112	BATTERY DISCONNECT MODULE, 30A		7,57	6180236P-1						
113	BATTERY DISCONNECT MODULE, 50A		7,57	6180236P-2						
114	BATTERY DISCONNECT MODULE, 75A		9,57	6180236P-3						
115	BATTERY DISCONNECT MODULE, 100A		9,57	6180236P-4						
121	LOW VOLTAGE DISCONNECT MODULE, +24V	17	10	6180233P-1			4390121P			
131	PANEL, FILLER	18		4360056P-1						
132	PANEL, BLANK			4360183P						
133	PANEL, BLANK			4360053P-2						
141	CORD 115VAC TWIST 12GA	19		6240001P-1						
142	CORD 230VAC TWIST 12GA			6240001P-2						
143	CORD 115VAC BLADE 12GA			6240001P-3						
144	CORD 115VAC BLADE 16GA			6240001P-4						
151	BUS BAR, POWER 2-RECTIFIERS	20		6190086P-2						
152	BUS BAR, POWER 3-RECTIFIERS			6190086P-3						
153	BUS BAR, POWER 4-RECTIFIERS			6190086P-4						
154	BUS BAR, POWER 5-RECTIFIERS			6190086P-5						
155	BUS BAR, POWER 6-RECTIFIERS			6190086P-6						
156	BUS BAR, DISTRIBUTION 2-RECTIFIERS			6190084P-2						
157	BUS BAR, DISTRIBUTION 3-RECTIFIERS			6190084P-3						
158	BUS BAR, DISTRIBUTION 4-RECTIFIERS			6190084P-4						
159	BUS BAR, DISTRIBUTION 5-RECTIFIERS			6190084P-5						
160	BUS BAR, DISTRIBUTION 6-RECTIFIERS			6190084P-6						
162	BUS BAR, DISTRIBUTION			6190085P-2						

MANUFACTURING NOTES:

SHOP	INST		
X		1.	NUMBER INSIDE OF ( ) INDICATES QUANITY OF THE ITEM IT IS PLACED IN FRONT OF.
X		2.	( ) INDICATES DESIGNATIONS WHICH ARE SHOWN FOR REFERFENCE ONLY AND ARE NOT TO BE STAMPED.
	X	3.	INSTALLER TO CUT WIRE AND OR CABLE AS REQUIRED.
X		4.	WIRE PER T4390088P
X		5.	WHEN MODULE SHIPS LOOSE, CONNECT 6400834P WIRING LIST AND SEND 4390088P WIRING DIAGRAM WITH UNIT.
X		6.	WHEN MODULE SHIPS LOOSE, CONNECT 6400833P WIRING LIST AND SEND 4390086P & 4390088P WIRING DIAGRAMS WITH UNIT.
X		7.	WHEN MODULE SHIPS LOOSE, CONNECT 6400838P WIRING LIST AND SEND 4390086P & 4390088P WIRING DIAGRAMS WITH UNIT.
X		8.	WHEN MODULE SHIPS LOOSE, CONNECT 6400836P WIRING LIST AND SEND 4390086P & 4390088P WIRING DIAGRAMS WITH UNIT.
X		9.	WHEN MODULE SHIPS LOOSE, CONNECT 6400839P WIRING LIST AND SEND 4390086P & 4390088P WIRING DIAGRAMS WITH UNIT.
X		10.	WHEN MODULE SHIPS LOOSE, CONNECT 6400837P WIRING LIST AND SEND 4390088P WIRING DIAGRAM WITH UNIT.

ENGINEERING NOTES:

51. DIMENSIONS SHOWN FOR REFERENCE ONLY.
52. L1 CONTAINS 6 FULL SIZE AND 2 NARROW SLOTS FOR HOUSING CUSTOM COMBINATIONS OF RECTIFIERS, METER, ALARM, DISTRIBUTION AND DISCONNECT MODULES.
53. L2 CONTAINS 5 FULL SIZE AND 1 NARROW SLOT FOR HOUSING CUSTOM COMBINATIONS OF RECTIFIER, METER, ALARM, DISTRIBUTION AND DISCONNECT MODULES.
54. SPECIFY EQUIPMENT ONLY WHEN POWER SYSTEM IS EQUIPPED WITH L12 RECTIFIERS.
55. SPECIFY EQUIPMENT ONLY WHEN POWER SYSTEM IS EQUIPPED WITH L11 RECTIFIERS.
56. SPECIFY MODULE, (1) EACH PER AC INPUT, ONLY WHEN POWER SYSTEM IS EQUIPPED WITH AC ALARM'S. STANDARD AC HOOKUP IS (2) RECTIFIERS PER INPUT.
57. MODULE FOR USE IN L1 CAGES ONLY. IT CAN NOT BE EQUIPPED IN L2 CAGES.

ISSUE 2

SPECIFICATION FOR
126N-D1 POWER SYSTEM
+24VDC @ 20-120 AMPS

PECO II Inc.
Galion, Ohio, U.S.A.

A

J-438126NP-D1

SHEET 2

TABLE A

A LIST NO.	B EQUIPMENT	FIG NO.	NOTES	PECO II PART NO.	C PANEL SIZE	D QTY.	E CIRCUIT & FIGURES EQUIPPED CKT.	F FIG.	G WRG	H APP
1	23" CAGE ASSEMBLY	1	52	6180230P	4 POS					
	TYP PLANT CONFIGURATION, FRONT VIEW	1-2								
	TYP PLANT CONFIGURATION, REAR VIEW	1-3								
2	19" CAGE ASSEMBLY	1	53	6180231P						
	TYP PLANT CONFIGURATION, FRONT VIEW	1-4								
	TYP PLANT CONFIGURATION, REAR VIEW	1-5								
11	RECTIFIER MODULE 500W, +24VDC @ 20A	6-1		SM20H24-2PM						
12	RECTIFIER MODULE 500W, +24VDC @ 20A	6-2		SM20H24-3PM						
22	BACKPLANE, PWR 2 RECTIFIERS	7		6200083P-2						
23	BACKPLANE, PWR 3 RECTIFIERS	8		6200083P-3						
24	BACKPLANE, PWR 4 RECTIFIERS	9		6200083P-4			P/O 4390088P			
25	BACKPLANE, PWR 5 RECTIFIERS	10		6200083P-5						
26	BACKPLANE, PWR 6 RECTIFIERS	11		6200083P-6						
32	PWB ASS'Y CONT INTER. & TERM., 2RECT.	7	54	6200082P-2						
33	PWB ASS'Y CONT INTER. & TERM., 3RECT.	8	54	6200082P-3						
34	PWB ASS'Y CONT INTER. & TERM., 4RECT.	9	54	6200082P-4			P/O 4390088P			
35	PWB ASS'Y CONT INTER. & TERM., 5RECT.	10	54	6200082P-5						
36	PWB ASS'Y CONT INTER. & TERM., 6RECT.	11	54	6200082P-6						
41	ALARM MODULE GROUND ALARM, RFA	12	54	6200088P-17						
42	ALARM MODULE GROUND ALARM, RFA AC		54	6200088P-18						
43	ALARM MODULE GROUND ALARM, RFA FA		54	6200088P-19						
44	ALARM MODULE GROUND ALARM, RFA AC FA		54	6200088P-20						
45	ALARM MODULE CCL- ALARM, RFA		54	6200088P-21						
46	ALARM MODULE CCL- ALARM, RFA AC		54	6200088P-22						
47	ALARM MODULE CCL- ALARM, RFA FA		54	6200088P-23						
48	ALARM MODULE CCL- ALARM, RFA AC FA		54	6200088P-24						
49	ALARM MODULE BATTERY ALARM, RFA		54	6200088P-25						
50	ALARM MODULE BATTERY ALARM, RFA AC		54	6200088P-26						
51	ALARM MODULE BATTERY ALARM, RFA FA		54	6200088P-27						
52	ALARM MODULE BATTERY ALARM, RFA AC FA		54	6200088P-28			P/O 4390088P			
53	ALARM MODULE GROUND ALARM, RFA		55	6200088P-29						
54	ALARM MODULE GROUND ALARM, RFA AC		55	6200088P-30						
55	ALARM MODULE GROUND ALARM, RFA FA		55	6200088P-31						
56	ALARM MODULE GROUND ALARM, RFA AC FA		55	6200088P-32						
57	ALARM MODULE CCL- ALARM, RFA		55	6200088P-33						
58	ALARM MODULE CCL- ALARM, RFA AC		55	6200088P-34						
59	ALARM MODULE CCL- ALARM, RFA FA		55	6200088P-35						
60	ALARM MODULE CCL- ALARM, RFA AC FA		55	6200088P-36						
61	ALARM MODULE BATTERY ALARM, RFA		55	6200088P-37						
62	ALARM MODULE BATTERY ALARM, RFA AC		55	6200088P-38						
63	ALARM MODULE BATTERY ALARM, RFA FA		55	6200088P-39						
64	ALARM MODULE BATTERY ALARM, RFA AC FA		55	6200088P-40						

J-438126NP-D1

ISSUES & REVS

DRAWN	ENG. APPR.	REVISED	REV. APP.
TR	BG	KDB	TLR

ISSUE NO.	CHG. NO. DATE BY DESCRIPTION
1	8500050P 4-12-95 VLD
2	8510617P CHG C. B.'S 7-23-96 LLL
3	8600932P ADD MANUFACTURING NOTES 5-10 7-23-96 LLL

SHEET INDEX NOTES:

1. WHEN CHANGES ARE MADE IN THIS DRAWING, ONLY THOSE SHEETS AFFECTED WILL BE REISSUED.
2. THIS SHEET INDEX WILL BE REISSUED AND BROUGHT UP TO DATE EACH TIME ANY SHEET OF THE DRAWING IS REISSUED, OR A NEW SHEET IS ADDED.
3. THE ISSUE NUMBER ASSIGNED TO A CHANGED OR NEW SHEET WILL BE THE SAME ISSUE NUMBER AS THAT OF THE SHEET INDEX.
4. SHEETS THAT ARE NOT CHANGED WILL RETAIN THEIR EXISTING ISSUE NUMBER.
5. THE LAST ISSUE NUMBER OF THE SHEET INDEX IS RECOGNIZED AS THE LATEST ISSUE NUMBER OF THE DRAWINGS AS A WHOLE.

642126NP-D1 MANUAL

SUPPORTING INFORMATION

ISSUE	SHEET NO.
1 1 1	22
1 1 1	21
1 1 1	20
1 1 1	19
1 1 1	18
2 2 1	17
1 1 1	16
1 1 1	15
1 1 1	14
1 1 1	13
1 1 1	12
1 1 1	11
1 1 1	10
1 1 1	9
1 1 1	8
1 1 1	7
1 1 1	6
1 1 1	5
1 1 1	4
1 1 1	3
2 1 1	2
3 2 1	1

SHEET INDEX — ISSUE 3

FILENAME: 438126D1

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SPECIFICATION FOR 126N-D1 POWER SYSTEM +24VDC @ 20-120 AMPS

PECO II Inc. Galion, Ohio, U.S.A.

A

J-438126NP-D1

FIG. 5
FUSE DISTRIBUTION MODULE

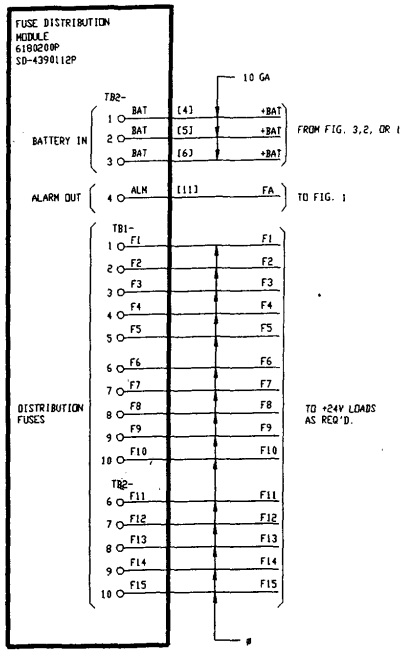
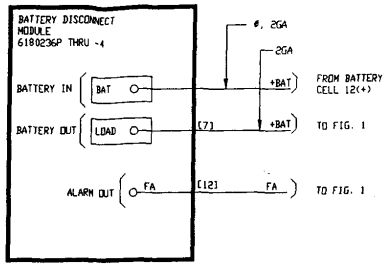


FIG. 6
BATTERY DISCONNECT MODULE



POWER SYSTEM +24VDC @ 20/120ADC RECTIFIER SYSTEM	T-4390088P
PECO II Inc. Galion, Ohio, U.S.A. B	SHEET B3

ISSUE 1

FIG. 2
METER MODULE

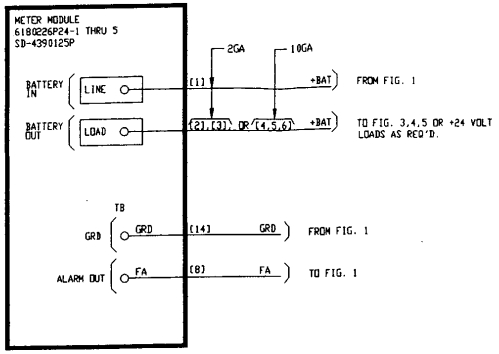


FIG. 3
LOW VOLTAGE DISCONNECT MODULE

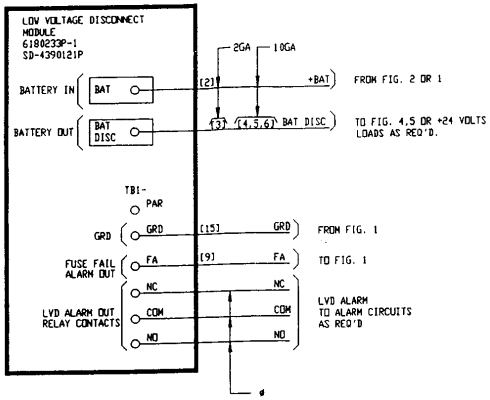
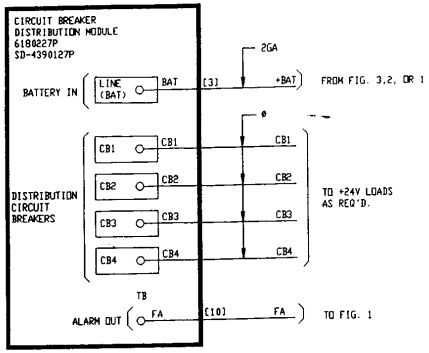
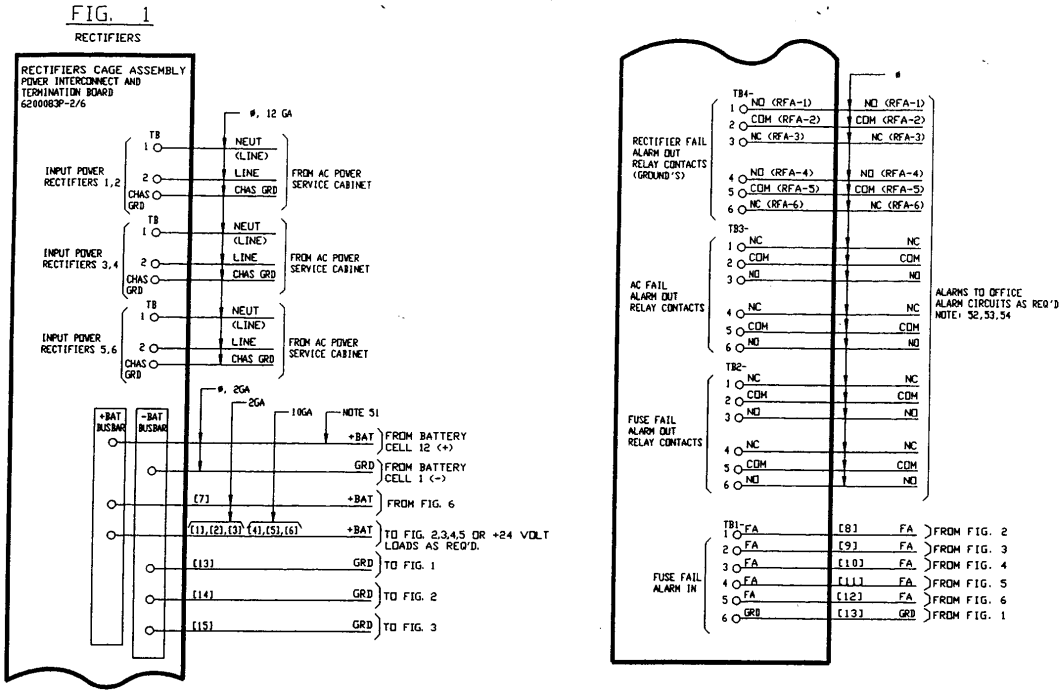


FIG. 4
CIRCUIT BREAKER DISTRIBUTION MODULE



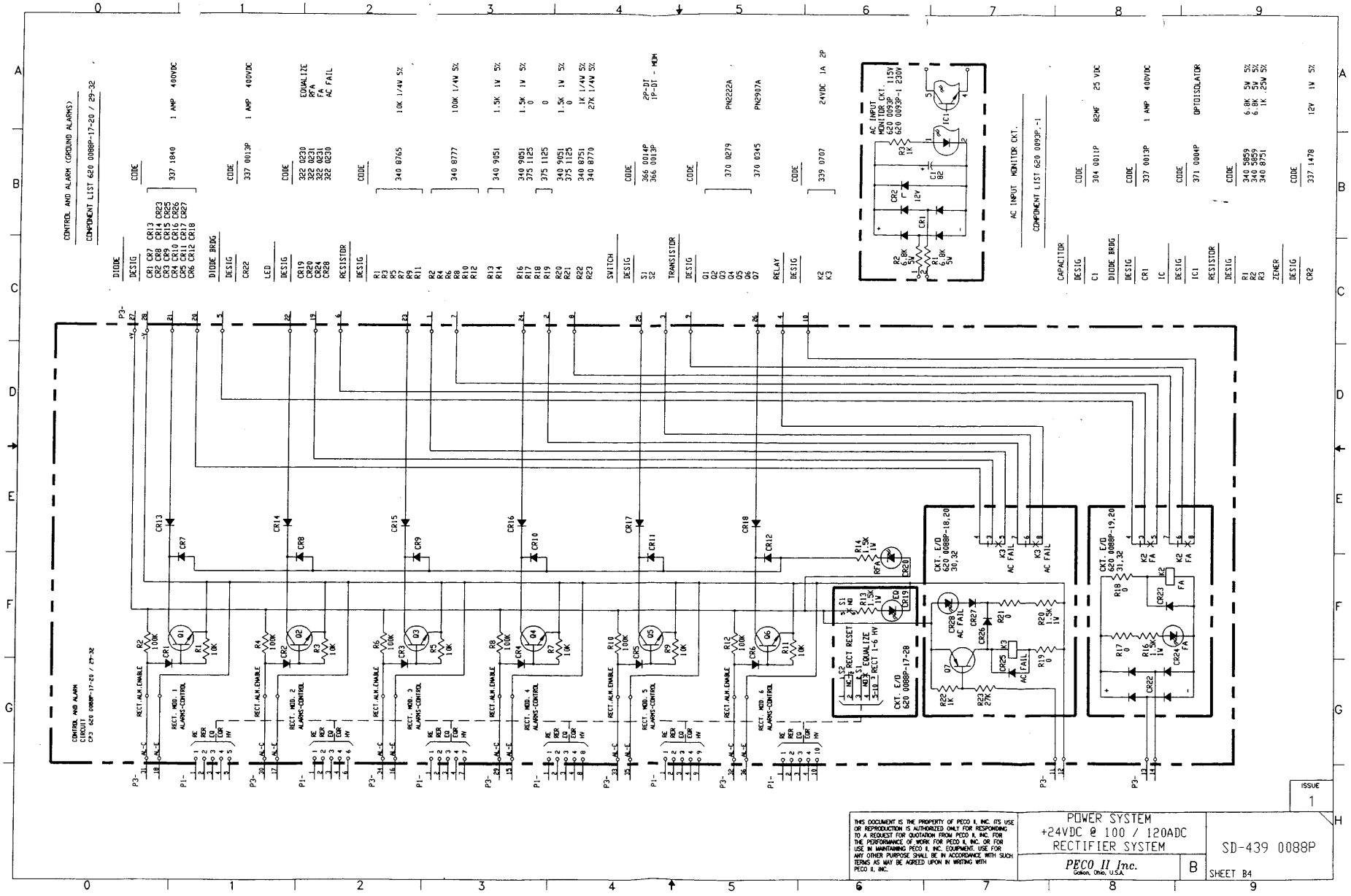
POWER SYSTEM +24VDC @ 20/120ADC RECTIFIER SYSTEM		T-4390088P
PECO II Inc. Galion, Ohio, U.S.A.	B	SHEET B2

ISSUE 1



POWER SYSTEM +24VDC @ 20/120ADC RECTIFIER SYSTEM		T-4390088P
PECO II Inc. Galion, Ohio, U.S.A.	B	SHEET B1

ISSUE 2



ISSUE 1

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POWER SYSTEM
+24VDC @ 100 / 120ADC
RECTIFIER SYSTEM

PECO II Inc.
Galion, Ohio, U.S.A.

B

SD-439 0088P

SHEET B4

TABLE A					
	ISSUE				
	1	2	3	4	
SHEET NO T-4390086P					
A1	1	2	3	4	
B1	1	2	2	2	
B2	1	1	1	1	
B3	1	1	1	1	

TABLE E FEATURE TABLE							
ITEM	ISSUE	DESCRIPTION	SPECIFY				REMARKS
			FIG	VRG	APP	EQUIPPED	
COL	A	B	C	D	E	F	G
1	1	RECTIFIERS	1			AS REQ'D	
2	1	METER MODULE	2				
3	1	LOW VOLTAGE DISCONNECT MODULE	3				
4	1	CIRCUIT BREAKER DISTRIBUTION MODULE	4				
5	1	FUSE DISTRIBUTION MODULE	5				
6	1	BATTERY DISCONNECT MODULE	6				

TABLE D SHEET LOC OF FIGS. & OPT.		
FIG.	OPT.	B SHEET
1		1
2		2
3		
4		
5		3
6		

TABLE F ALARM BATTERY FUSE REQUIREMENTS							
ITEM	B SHEET NO.	FIG	FUSE			POTENTIAL	REMARKS
			AMP	CODE	DESIG		
COL.	A	B	C	D	E	F	G

TABLE G		

SHO	INST	
X		1. ALL WIRES SHALL BE 20GA. BLACK, UNLESS OTHERWISE SPECIFIED.
X		2. D3 DENOTES WIRING NOT IN A CABLE, AND ROUTED IN THE MOST CONVENIENT MANNER, USING 20GA. BLACK UNLESS OTHERWISE SPECIFIED.
X		3. ● DENOTES LEADS TO BE RUN BY THE INSTALLER.
X		4. △ DENOTES LEADS RUN BY SHOP WHEN ASSOCIATED EQUIPMENT IS SHOP MOUNTED IN THE SAME BAY, OTHERWISE, LEADS ARE RUN BY THE INSTALLER.
X		5. WHEN FIGURE, ZONE, OR TERMINALS ARE NOT PROVIDED, UNUSED LEADS, WHEN IN A CABLE, SHALL BE INSULATED AND TIED BACK.
X		6. MULTIPLE CONNECTION, WHEN EQUIPMENT IS NOT PROVIDED, LEADS SHALL BE SPLICED, SOLDERED, INSULATED, AND TIED BACK.
X		7. ARRANGEMENT OF TERMINALS DOES NOT NECESSARILY REFLECT ARRANGEMENT ON THE EQUIPMENT.
X		8. FOR THE SAKE OF CLARITY, NOT ALL TERMINALS HAVE BEEN SHOWN.
X		9. ALL WIRING IN THIS POWER SYSTEM IS D3 WIRING UNLESS OTHERWISE SPECIFIED.
X		10. LEAD NUMBERS IN ( ) BRACKETS ARE IN REFERENCE TO LEADS ON 4380037P WIRING DIAGRAM.

ENGINEERING NOTES

51. LEAD NOT REQUIRED IF FIG. 6 (BATTERY DISCONNECT MODULE) IS EQUIPPED.

52. ALARMS IN PARENTHESIS ( ) ARE INDIVIDUAL RECTIFIER ALARMS. REFERENCE J-438126N-D1 FOR PROPER ALARM SELECTION.

53. RECTIFIER FAIL AND FUSE FAIL RELAY ALARM CONTACTS ARE SHOWN IN THEIR NORMAL NO ALARM CONDITION (DEENERGIZED) (RELAYS OPERATE ON ALARM CONDITIONS, ALARM CIRCUITS ARE DEENERGIZED IN THEIR NORMAL NO ALARM CONDITION).

54. AC FAIL RELAY ALARM CONTACTS ARE SHOWN IN THEIR ALARM STATE (DEENERGIZED) (RELAYS RELEASE ON ALARM CONDITIONS, ALARM CIRCUITS ARE ENERGIZED IN THEIR NORMAL NO ALARM CONDITION).

WIRING DIAGRAM SYSTEM MANUAL MECHANICAL CONFIGURATION	4380037P 642126NP-D1 J-438126N-D1
CATEGORY	NO.

SUPPORTING INFORMATION

T-4390088P

ISSUES & REVS

DRAWN	ENG.APP.	REVISED	REV.APP.
DD	BC	KDB	DJS

ISSUE NO.	CHG. NO. DATE BY DESCRIPTION
1	8500050P 4-12-95 VLD
2	8510625P CHG ALARM CKT 2-5-96 LLL
3	8510684P NO CHANGE ADD ISS-3 TO AGREE WITH ISS-3 OF SD 9-10-96 LLL
4	8600527P CHANGE NOTE 10 10-30-97 KDB

NOTE: T-DWG MUST AGREE WITH SD EC ISSUE.

FILE NAME: T-0088P 4

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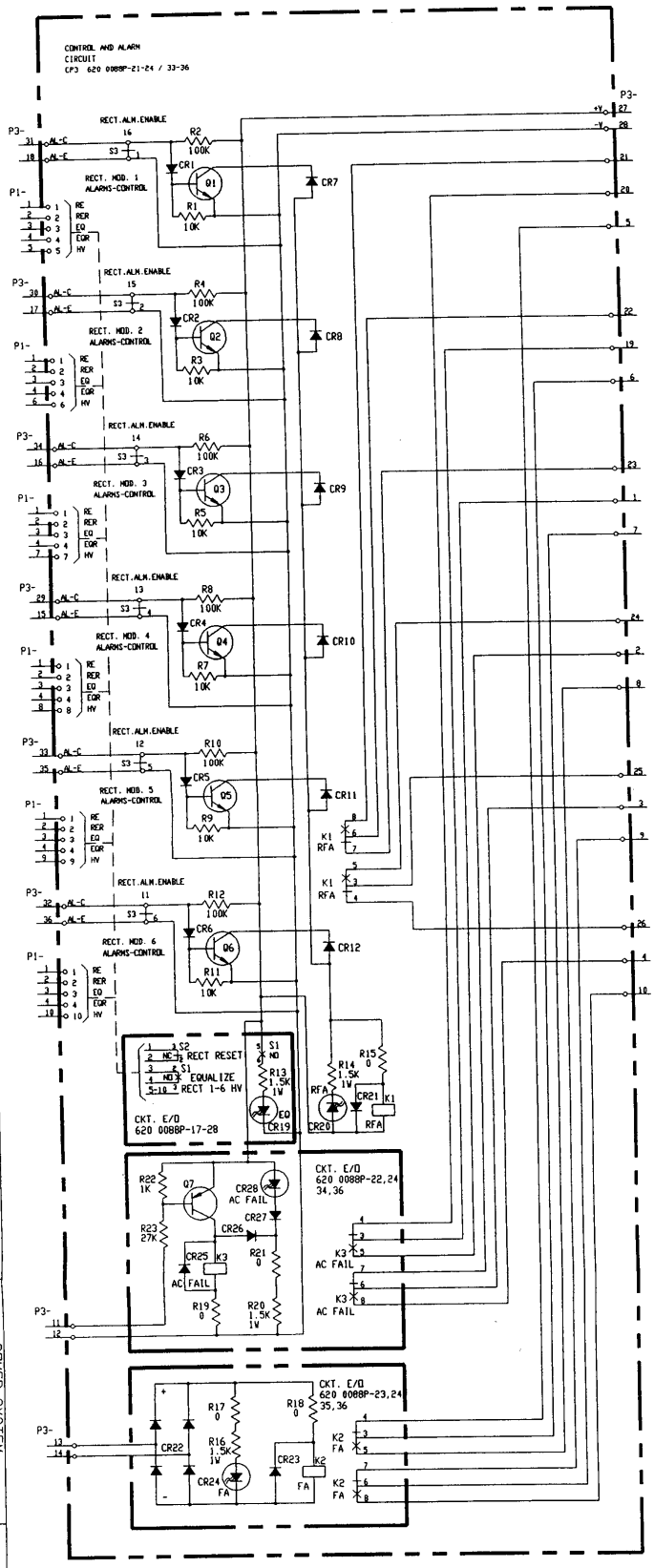
POWER SYSTEM
+24VDC @ 20/120ADC
RECTIFIER SYSTEM

PECO II Inc.
Galion, Ohio, U.S.A.

B

T-4390088P

SHEET A1



CONTROL AND ALARM (CONTACT CLOSURE)

COMPONENT LIST 620 0088P-21-24 / 33-36

DIODE

DESIG	CODE	
CR1 CR7 CR21 CR2 CR8 CR23 CR3 CR9 CR25 CR4 CR10 CR26 CR5 CR11 CR27 CR6 CR12	337 1840	1 AMP 400VDC

DIODE BRDG

DESIG	CODE	
CR22	337 0013P	1 AMP 400VDC

LED

DESIG	CODE	
CR19	322 0230	EQUALIZE
CR20	322 0231	RFA
CR24	322 0231	FA
CR28	322 0230	AC FAIL

RESISTOR

DESIG	CODE	
R1 R3 R5 R7 R9 R11	340 8765	10K 1/4W 5%
R2 R4 R6 R8 R10 R12	340 8777	100K 1/4W 5%
R13 R14	340 9051	1.5K 1W 5%
R15	375 1125	0
R16	340 9051	1.5K 1W 5%
R17	375 1125	0
R18 R19	375 1125	0
R20	340 9051	1.5K 1W 5%
R21	375 1125	0
R22	340 8751	1K 1/4W 5%
R23	340 8770	27K 1/4W 5%

SWITCH

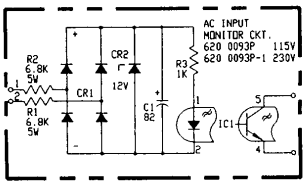
DESIG	CODE	
S1	366 0014P	2P-DT
S2	366 0013P	1P-DT - MOM

TRANSISTOR

DESIG	CODE	
Q1 Q2 Q3 Q4 Q5 Q6	370 0279	PN2222A
Q7	370 0345	PN2907A

RELAY

DESIG	CODE	
K1 K2 K3	339 0707	24VDC 1A 2P



AC INPUT MONITOR CKT.

COMPONENT LIST 620 0093P,-1

CAPACITOR

DESIG	CODE	
C1	304 0011P	82MF 25 VDC

DIODE BRDG

DESIG	CODE	
CR1	337 0013P	1 AMP 400VDC

IC

DESIG	CODE	
IC1	371 0004P	OPTOISOLATOR

RESISTOR

DESIG	CODE	
R1	340 5859	6.8K 5W 5%
R2	340 5859	6.8K 5W 5%
R3	340 8751	1K .25W 5%

ZENER

DESIG	CODE	
CR2	337 1478	12V 1W 5%

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POWER SYSTEM
+24VDC @ 100 / 120ADC
RECTIFIER SYSTEM

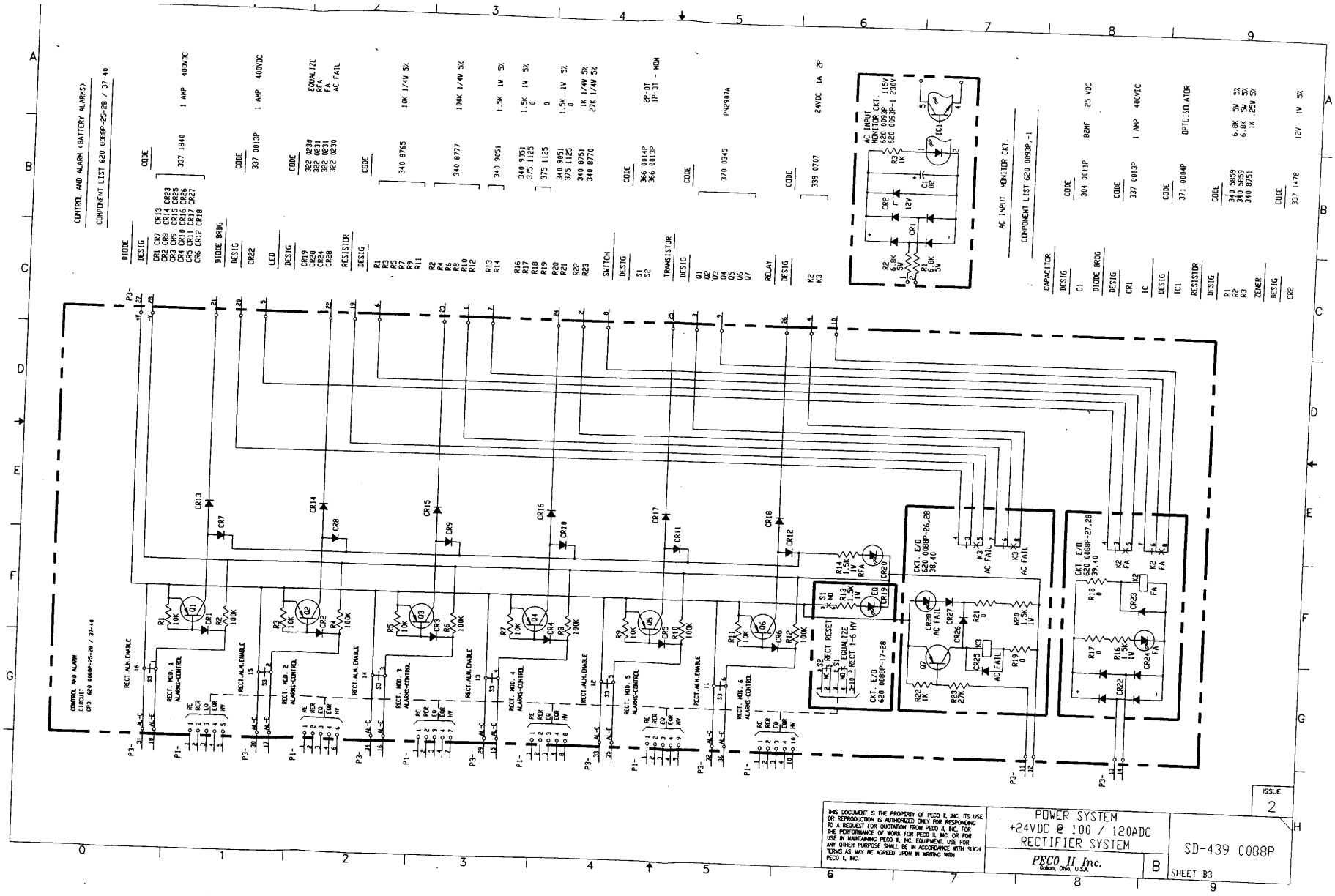
PECO II Inc.
Galion, Ohio, U.S.A.

B

SD-439 0088P

SHEET B2

ISSUE 2



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POWER SYSTEM
+24VDC @ 100 / 120ADC
RECTIFIER SYSTEM

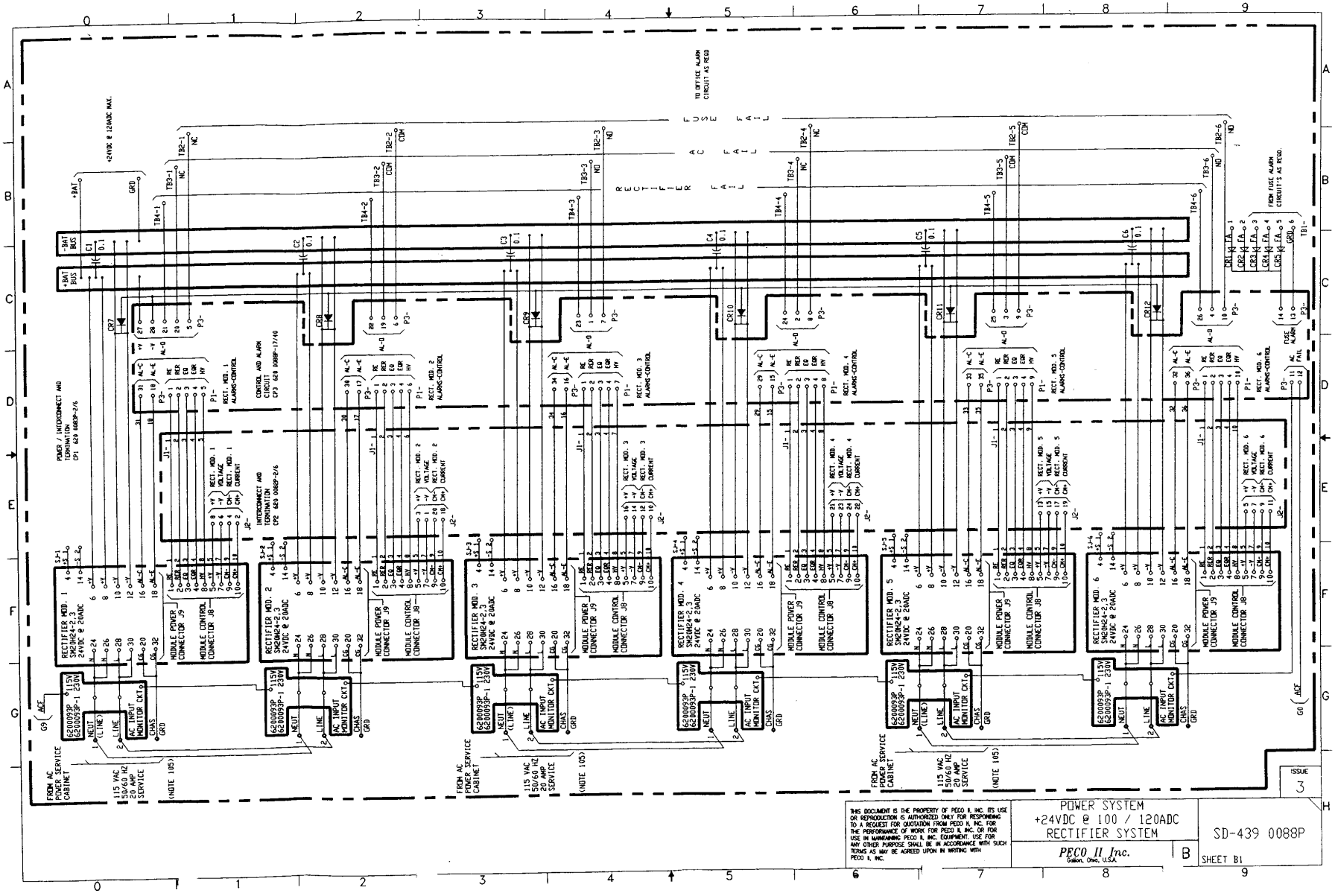
PECO II Inc.
Galion, Ohio, U.S.A.

B

SD-439 0088P

SHEET B3

ISSUE 2



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POWER SYSTEM
+24VDC @ 100 / 120ADC
RECTIFIER SYSTEM

PECO II Inc.
Galion, Ohio, U.S.A.

B

SD-439 0088P

SHEET B1

ISSUE 3

SHEET INDEX

CONTENTS	SHEET NO	ISSUE NO 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
SHEET INDEX SUPPORTING INFORMATION NOTES COMPONENTS	A1	1	2	3	4																		
RECTIFIER SHELF WIRING DIAGRAM	B1	1	2	3	3																		
CONTROL AND ALARM (CONTACT CLOSURE)	B2	1	2	2	2																		
CONTROL AND ALARM (BATTERY ALARMS)	B3	1	2	2	2																		
CONTROL AND ALARM (GROUND ALARMS)	B4	1	1	1	1																		

SUPPORTING INFORMATION

CATEGORY	NO
MANUAL	642 126NP-01

CIRCUIT NOTES:

102.

FEATURE OR OPTION		PROVIDE APP FIG	APP OR VRG	QUANTITY

103.

RECORD OF FIGURES, WIRING AND APPARATUS CHANGES						
CHANGED ON ISS	IF JOB RECORDS DO NOT SPECIFY	THIS OPTION WAS FURN	SEE NOTE	USE IN CURCUIT STD	ALM	MD

104. INPUT VOLTAGE SETTING 115 VAC (FACTORY).

105. FOR 230 VAC INPUT CONSULT FACTORY.

106. RECTIFIER FAIL AND FUSE FAIL RELAY ALARM CONTACTS ARE SHOWN IN THEIR NORMAL NO ALARM CONDITION (DEENERGIZED)
(RELAYS OPERATE ON ALARM CONDITIONS, ALARM CIRCUITS ARE DEENERGIZED IN THEIR NORMAL NO ALARM CONDITION).

107. AC FAIL RELAY ALARM CONTACTS ARE SHOWN IN THEIR ALARM STATE (DEENERGIZED)
(RELAYS RELEASE ON ALARM CONDITIONS, ALARM CIRCUITS ARE ENERGIZED IN THEIR NORMAL NO ALARM CONDITION).

108. RECTIFIER FACTORY SETTINGS GENERATION II (2):
FLOAT VOLTAGE: 27.24V
HIGH VOLTAGE ALARM: 28.0V
LOW VOLTAGE ALARM: 23.5V

RECTIFIER FACTORY SETTINGS GENERATION III (3):
FLOAT VOLTAGE: 27.24V
EQUALIZE VOLTAGE: 27.85V
HIGH VOLTAGE ALARM: 28.0V
LOW VOLTAGE ALARM: 23.5V

109. RECTIFIER FAILURE ALARMS ON TB4.

110. AC INPUT FAILURE ALARMS ON TB3.

111. FUSE FAILURE ALARMS ON TB2.

112. FUSE FAILURE INPUTS ON TB1.

113. THIS SYSTEM DRAWING REPRESENTS THE MAXIMUM NUMBER OF RECTIFIERS THAT CAN BE CONFIGURED IN A 23" CAGE (6 RECTIFIERS). IN A 19" CAGE 5 RECTIFIERS CAN BE EQUIPPED. FEWER RECTIFIERS WITH VOLTAGE AND CURRENT MONITORING ALONG WITH MISCELLANEOUS DISTRIBUTION AND DISCONNECT MODULES ARE AVAILABLE AS A SYSTEM.

INFORMATION NOTES

301. UNLESS OTHERWISE SPECIFIED RESISTANCE VALUES IN OHMS, CAPACITANCE VALUES IN MICROFARADS.

302. INPUT WIRED FOR 115VAC

POWER / INTERCONNECT AND TERMINATION

PRINTED WIRING BOARD

DESIG	CODE	
CP1	620 0083P-2/6	POWER BOARD

CAPACITOR

DESIG	CODE	
C1 C2 C3 C4 C5 C6	304 3099	0.1MFD 100VDC

DIODE

DESIG	CODE	
CR1 CR2 CR3 CR4 CR5 CR7 CR8 CR9 CR10 CR11 CR12	3371940	1N4004

RECTIFIER

DESIG	CODE	
MOD 1 MOD 2 MOD 3 MOD 4 MOD 5 MOD 6	SH20H24-2,3	24V @ 20 ADC

INTERCONNECT AND TERMINATION

PRINTED WIRING BOARD

DESIG	CODE	
CP2	620 0082P-2/6	INTERCONNECT BOARD

CONTROL AND ALARM

PRINTED WIRING BOARD

DESIG	CODE	
CP3	620 0088P-17/40	CONTROL & ALARM BOARD

SD-439 0088P

ISSUES & REVS

DRAWN	ENG.APP.	REVISED	REV.APP.
DD	BG	KDB	DJS

ISSUE NO.	CHG. NO. DATE DESCRIPTION	BY
1	8500050P 4-12-95 VLD	
2	8510625P CHG ALM CKT 2-5-96 LLL	
3	8510684P ADD ALARM ISOLATION DIODES 9-10-96 LLL	
4	8600527P NO CHANGE ADD ISS-4 TO AGREE WITH ISS-4 OF T-DWG 10-30-97 KDB	

NOTE: SD-DWG MUST AGREE WITH T EC ISSUE.

FILE NAME: SD-0088P

ISSUE 4

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POWER SYSTEM
+24VDC @ 100 / 120ADC
RECTIFIER SYSTEM

PECO II Inc.
Canton, Ohio, U.S.A.

B

SD-439 0088P

SHEET A1