

# CIRCUIT BREAKER PANEL PRODUCT MANUAL FOR P/N 111-2917 P/N 111-3765 P/N 111-3762 P/N 111-3766 P/N 111-3763 P/N 111-3768 P/N 111-3764 P/N 111-3769

UNIPOWER, LLC 65 Industrial Park Rd Dunlap, TN 37327 Phone: +1-954-346-2442 Toll Free: 1-800-440-3504 Web site – www.unipowerco.com

# RECEIVING INSTRUCTIONS & GENERAL EQUIPMENT INFORMATION

*Please Note: For your protection, the following information and the product manual should be read and thoroughly understood before unpacking, installing, or using the equipment.* 

UNIPOWER, LLC presents all equipment to the delivering carrier securely packed and in perfect condition. Upon acceptance of the package from us, the delivering carrier assumed responsibility for its safe arrival to you. Once you receive the equipment, it is your responsibility to document any damage the carrier may have inflicted, and to file your claim promptly and accurately.

### 1. <u>PACKAGE INSPECTION</u>

- **1.1** Examine the shipping crate or carton for any visible damage: punctures, dents, and any other signs of possible internal damage.
- **1.2** Describe any damage or shortage on the receiving documents, and have the carrier sign their full name.
- **1.3** If your receiving freight bill notes that a Tip-N-Tell is attached to your freight, locate it. If the Tip-N-Tell arrow has turned even partially blue, this means the freight has been tipped in transport. Make sure the carrier notes this on your receipt before you sign for the freight.

### 2. <u>EQUIPMENT INSPECTION</u>

**2.1** Within fifteen days, open the crate and inspect the contents for damages. While unpacking, be careful not to discard any equipment, parts, or manuals. If any damage is detected, call the delivering carrier to determine appropriate action. They may require an inspection.

### \*SAVE ALL SHIPPING MATERIAL FOR THE INSPECTOR TO SEE!

- 2.2 After the inspection has been made, call UNIPOWER, LLC. We will determine if the equipment should be returned to our plant for repair, or if some other method would be more expeditious. If it is determined that the equipment should be returned to UNIPOWER, LLC, ask the delivering carrier to send the packages back to UNIPOWER, LLC at the delivering carrier's expense.
- **2.3** If repair is necessary, we will invoice you for the repair so that you may submit the bill to the delivering carrier with your claim form.

**2.4** It is your responsibility to file a claim with the delivering carrier. Failure to properly file a claim for shipping damages may void warranty service for any physical damages later reported for repair.

### 3. <u>HANDLING</u>

Equipment can be universally heavy or top-heavy. Use adequate humanpower or equipment for handling. Until the equipment is securely mounted, be careful to prevent the equipment from being accidentally tipped over.

# 4. <u>NAMEPLATE</u>

Each piece of UNIPOWER, LLC equipment is identified by a part number on the nameplate. Please refer to this number in all correspondence with UNIPOWER, LLC.

# 5. <u>INITIAL SETTINGS</u>

All equipment is shipped from our production area *fully checked and adjusted*. Do not make any adjustments until you have referred to the technical reference or product manual.

# 6. <u>SPARE PARTS</u>

To minimize downtime during installation or operation, we suggest you purchase spare fuses, circuit boards and other recommended components as listed on the Recommended Spare Parts List in the back of the product manual. If nothing else, we strongly recommend stocking spare fuses for all systems.

### **PRODUCT SUPPORT**

Product support can be obtained using the following addresses and telephone numbers.

Manufacturing facility: UNIPOWER, LLC 65 Industrial Park Rd Dunlap, TN 37327 United States

Phone: +1-954-346-2442 Toll Free: 1-800-440-3504 Web site – www.unipowerco.com

When contacting UNIPOWER, please be prepared to provide:

- 1. The product model number, spec number, S build number, and serial number see the equipment nameplate on the front panel
- 2. Your company's name and address
- 3. Your name and title
- 4. The reason for the contact
- 5. If there is a problem with product operation:
  - Is the problem intermittent or continuous?
  - What revision is the firmware?
  - What actions were being performed prior to the appearance of the problem?
  - What actions have been taken since the problem occurred?

# **REVISION HISTORY**

| REV | DESCRIPTION    | CK'D & APPR'D BY /<br>DATE |
|-----|----------------|----------------------------|
| 9   | See PCO# 45463 | CJM / 9/19/19              |
| 10  | See ECN 46140  | JPR<br>1/3/24              |
|     |                |                            |

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Throughout the remainder of this manual, "UNIPOWER" will mean "UNIPOWER, LLC."

# PERSONNEL REQUIREMENTS

Installation, setup, operation, and servicing of this equipment should be performed by qualified persons thoroughly familiar with this Product Manual and Applicable Local and National Codes. A copy of this manual is included with the equipment shipment.

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| 1. | INSTALLATION   | .1  |
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|    | 1.1 MOUNTING   |     |
|    | 1.2 WIRING     | 1   |
|    | OPERATION      |     |
|    | 2.1 INSPECTION | • • |
|    |                | • 1 |

\*Associated drawings at end of manual.

# 1. INSTALLATION

### 1.1 MOUNTING

Install panel in a rack or box enclosure using 12 - 24 hardware. Panel can be mounted in a 19" or 23" rack or enclosure.

#### 1.2 WIRING

Connect a properly sized cable to the bus bar using the holes provided.

For panels equipped with the current shunts, do the following:

- 1) Confirm that the rating of the shunt matches the requirements for the monitoring circuits (i.e., 600 Amps at 50 mV).
- 2) Connect 14 AWG wires to the terminal block (TB2) located on the rear of the panel, and to the meter panel. Ensure that proper polarity is observed.

# 2. OPERATION

#### 2.1 INSPECTION

The circuit breaker panel should be inspected periodically for:

- Loose or overheated connections
- Burned or overheated parts
- Accumulation of dirt

\*WARNING: Excess load breaker capacity may result in improper operation and hazard to equipment and personnel.

| ED991-5001-B1 | ssue 3  |   |  | 2 | . ↓  | 3  |                            |   | 4  |                      |            |
|---------------|---|---|--|---|--|--|----------------------------|---|--|----------------------|------------|
|               | •   |   |  |   | ·  |  |                            |   | ISSUES   |                      | ]          |
| ENG           | INEERING NOTES  | :   |  |   | MANUFACTURING N                                    | OTES:                                    | ISSUE (                    | DESCRIPTION   |  | ISS. BY<br>ISS. DATE |            |
| 51. S         | ELECT CIRCUIT BREAKEF   | R PANEL PER TABLE A.<br>TABLE A   |  |   | 101. INSULATE BUS WITH 3/4<br>(032-0001-00).       | 4" FIBERGLASS SLEEVING                   | 6 SI                       | EE PCO# 44479   |  | WD<br>7/11/17        | A          |
| 60<br>53. P   | ITEMMODEL1111-2917-002111-2917-102111-2917-11MMETER SHUNTS, IF EQU0 AMPS. OTHER VALUES IANELS ARE EQUIPPED W0 EXTERNAL ALARM SYST                   | 250 YES (NC<br>250 YES (NC<br>JIPPED, ARE NORMALL<br>MAY BE SPECIFIED.                                | TE 53) MD<br>TE 53) STD<br>TE 53) STD<br>TE 53) STD<br>LY RATED AT<br>S FOR CONNECTION |   | 102. REPLACE BOLT SUPPLI<br>BRONZE BOLT (210-8128- | ED WITH SHUNT WITH 3/8-16 X 3/4"<br>00). |                            |   |  |                      |            |
| TH<br>Wi      | OSES ONLY WHEN THE B<br>E SWITCH CLOSES BOTH<br>HEN THE BREAKER HAND<br>SELECT THE PAINT CC<br>IE. 111-2917-, COLOR<br>IE. 111-2917-, COLOR<br>TABL | WHEN A BREAKER TH<br>LE IS IN THE "OFF" PO<br>LOR FROM TABLE E<br>A = ANSI 61 GRA<br>B = BEIGE FINISH | RIPS, AND ALSO<br>SITION.<br>3:<br>AY FINISH   |   |  |  |                            | LESS OTHERWISE  | APPROVALS  | DATE                 | в          |
|               | COLOR   | DESIGNATOR  |  |   |  |  | ± TC<br>HOLES<br>FRACTIONS |   | DRAWN<br>SAN<br>CHECKED  | 10/27/89             | <b> </b> ◀ |
| тс<br>нс      | ANSI 61 GRAY<br>BEIGE<br>HE INPUT COPPER BUS B<br>THE UNIPOWER VERTIC,<br>DLES ARE PROVIDED FOR<br>E NOT PROVIDED, BUT M                            | AL BUS BAR SYSTEMS<br>BOLTING LUGGED CA   | 5. FOR OTHER SYSTEMS,<br>ABLES. INPUT LUGS   |   |  |  | WORKMAN                    | $\begin{array}{c} (\text{XXX}) & \pm 0.010 \\ & \pm 1/2^{\bullet} \\ \hline \\ \text{DRNERS AND ANGLES ARE } \\ \text{NSHIP:} \\ \text{IC ENG032} \\ \end{array}$ | APPROVED<br>90° UNLESS OTHERWISE SPECIFIED.                              |                      | c          |
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| -<br>()<br>   | SHEET INDEX NO<br>THE ISSUE OF SHEET<br>OF THE DRAWING SET.<br>REVISED, ONLY THE IS<br>ARE CHANGED. THE IS<br>ARE NOT CHANGED.                      | I REFLECTS THE LA<br>WHEN THE DRAWIN<br>SUE NUMBERS OF N  | IG SET IS<br>MODIFIED SHEETS   |   | SHEET INDEX<br>SH NO 1 2 3<br>ISSUE 6 5 2          |  | SIZE<br>SCALE:<br>N/A      | CIRCUIT E<br>2-250 AI<br>) DOC TYPE / N<br>PN 11<br>SHEET:  | 1-2917<br>File NAME:   | L<br>T<br>ISSUE<br>6 | D          |

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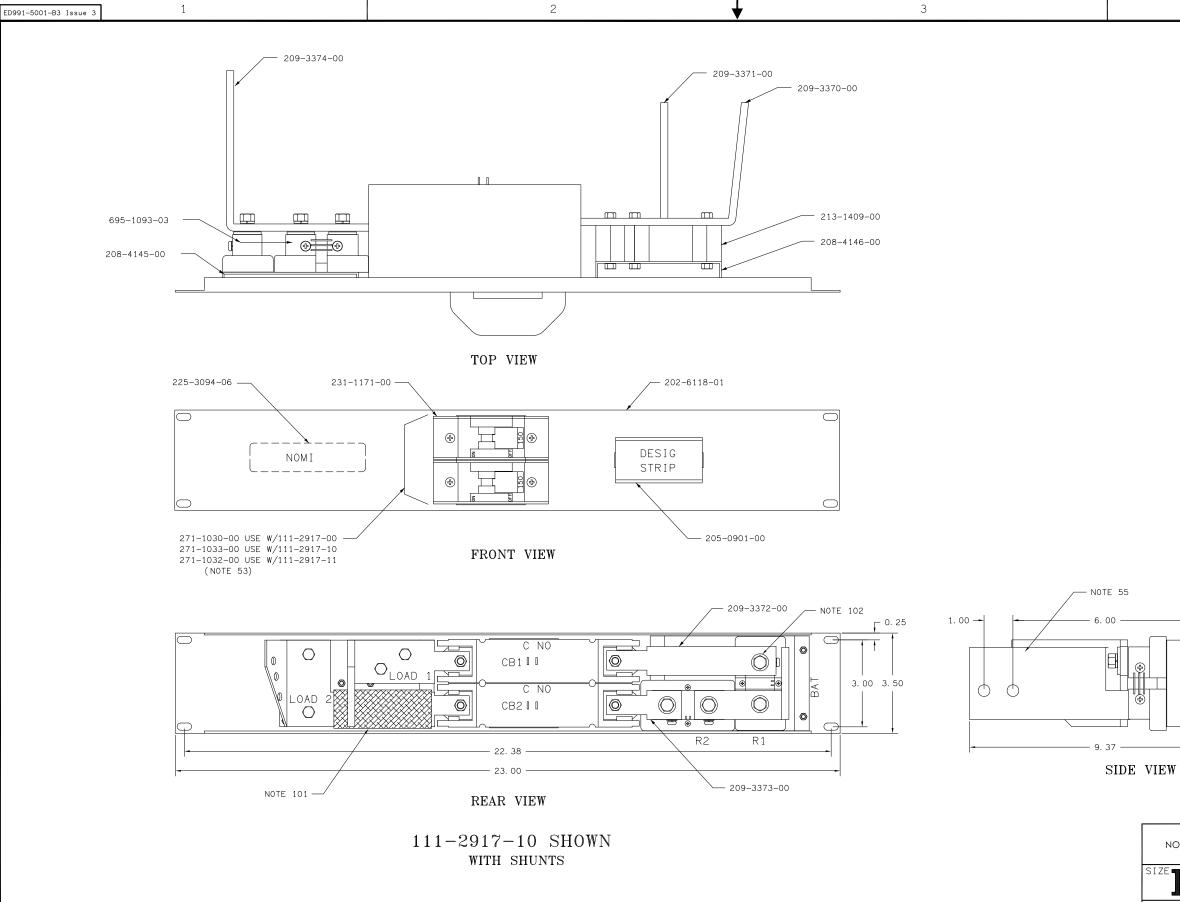
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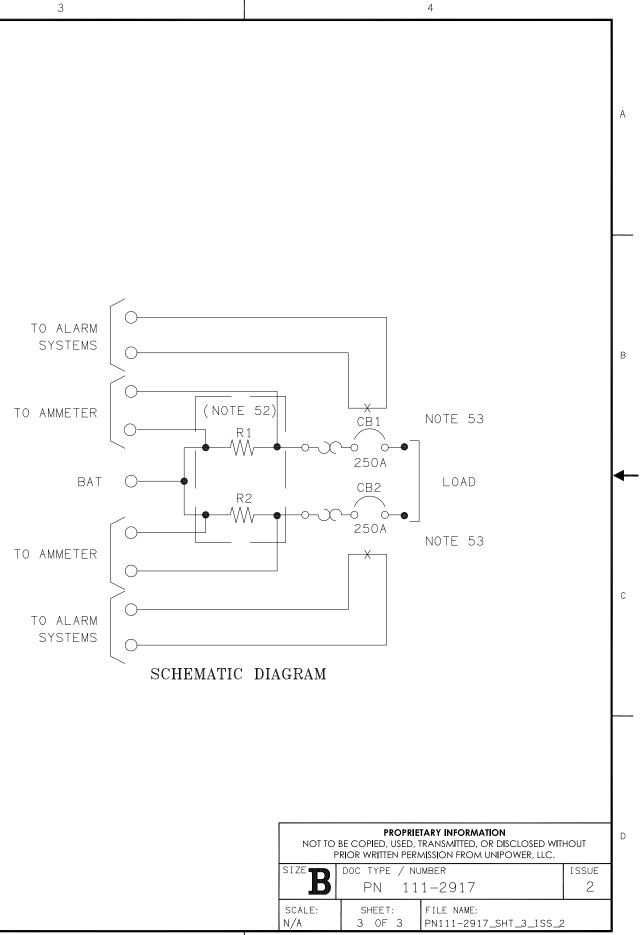
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# STOCK LIST

|           |  |              | QUAN | ITITY |
|-----------|--|--------------|------|-------|
| LINE<br># | DESCRIPTION                                  | PART NUMBERS | -10  | -11   |
| 1         | CIRCUIT BREAKER PANEL E/W 2-GJI W/ SHUNTS    | 202-6118-01  | 1    | 1     |
|           | COVER: PROTECTIVE COVER FOR GJI BREAKER      | 202-6141-01  | 2    | 2     |
|           | MULTI ROW DESIGNATION STRIP                  | 205-0901-007 | 1    | 1     |
|           | BRACKET: GJI INPUT BRACKET FOR SHUNT         | 208-4145-00  | 1    | 1     |
| 5         | BRACKET: GJI OUTPUT BRACKET                  | 208-4146-00  | 1    | 1     |
|           | BUS BAR: GJI ANGLED OUTPUT BUS, LONG         | 209-3370-00  | 1    | 1     |
|           | BUS BAR: GJI ANGLED OUTPUT BUS, SHORT        | 209-3371-00  | 1    | 1     |
|           | BUS BAR: SHUNT TO GJI BREAKER, LONG          | 209-3372-00  | 1    | 1     |
|           | BUS BAR: SHUNT TO GJI BREAKER, SHORT         | 209-3373-00  | 1    | 1     |
| 10        | BUS BAR: GJI INPUT BUS                       | 209-3374-00  | 1    | 1     |
|           | SCREW: SS, HEX HEAD. 1/4-20 X 1"             | 210-1282-00  | 4    | 4     |
|           | SCREW: STL, SEMS, P/HD PHIL, 8-32 X 5/8"     | 210-1580-01  | 4    | 4     |
|           | SCREW: STL, HEX HEAD, 1/4-20 X 3/8"          | 210-7003-00  | 4    | 4     |
|           | SCREW: STL, SEMS, HEX HEAD, 1/4-20 X 5/8"    | 210-7004-40  | 4    | 4     |
| 15        | BOLT, HEX, SIL, BRONZE: 3/8–16 X 3/4"        | 210-8128-00  | 4    | 4     |
|           | NUT, HEX STL: 8–32, ZINC, KEPS               | 211-0485-00  | 12   | 12    |
|           | NUT, HEX SS: 1/4-20                          | 211-0531-00  | 4    | 4     |
|           | LOCKWASHER, SHKPF: 1/4 INTERNAL              | 212-0500-00  | 4    | 4     |
|           | LOCKWASHER: DISH, STL, SHKPF, #8             | 212-0503-00  | 2    | 2     |
| 20        | WASHER, FLAT BRASS, 3/8"                     | 212-2035-00  | 4    | 4     |
|           | WASHER, FLAT SS: 1/4"                        | 212-2516-00  | 8    | 8     |
|           | WASHER, BELLEVILLE, SS: 1/4 X .500"          | 212-5754-00  | 8    | 8     |
|           | SPACER: HEATSINK, HEX FIBERGLASS, 1" GLASTIC | 213-1409-00  | 4    | 4     |
|           | CB1P: 250A, 125VDC, ALARM SWITCH, GJI        | 271-1033-00  | 2    |       |
| 25        | CB1P: 250A, AUX SWITCH, GJI-H2-U-250-125-2   | 271-1032-00  |      | 2     |
|           | RES, SHUNT: METER, 600A 50MV                 | 695-1093-03  | 2    | 2     |



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|  |  | ISSUE<br>#           | DESCRIPTION   |  | ISS. BY<br>ISS. DATE |     |
| ENGINEERING NOTES:   | MANUFACTURING NOTES:   | 7                    | SEE PCO# 44479  |  | WD<br>7/11/17        | 1   |
| <ol> <li>51. AMMETER SHUNTS ARE NORMALLY 600 AMPS, 50M<br/>HOWEVER, OTHER CURRENT RATINGS MAY BE SPEC</li> <li>52. THE INPUT COPPER BUS BAR IS DESIGNED FOR DIF<br/>CONNECTION TO UNIPOWER VERTICAL BUS BAR SY<br/>FOR OTHER SYSTEMS, HOLES ARE PROVIDED FOR ING<br/>ING LUGGED CABLES. INPUT LUGS ARE NOT PROV</li> </ol> | TIED. LAMINATED COPPER BUS STRUCTURE. A COMPOUND SUCH AS CRAMOLIN<br>81Rh WILL BE APPLIED TO ALL JOINTED FLAT SURFACES PER THE<br>CT MANUFACTURER'S INSTRUCTIONS.<br>TEMS.<br>DLT- 102. MOUNT WIRE LUG BETWEEN BUS BAR AND LARGE MOUNTING WASHER.  |                      |   |  |                      | - A |
| BUT MAY BE ORDERED SEPERATELY PER DRAWING ED991-0002-00.   | 103. REPLACE BOLTS SUPPLIED WITH SHUNT WITH P/N 210-8128-00,<br>AS SHOWN. USE WASHERS SUPPLIED WITH SHUNT.   |                      |   |  |                      |     |
| 53. UNIPOWER'S STANDARD PAINT IS ANSI 61 GRAY.   |  |                      |   |  |                      |     |
| 54. PANELS NOT EQUIPPPED WITH A SHUNT, DO NOT II<br>SEE TABLE A.   | CLUDE R1.  |                      |   |  |                      |     |
| <ul> <li>55. AN ALARM SIGNAL MAY BE EXTENDED TO AN EXTE<br/>SYSTEM. DURING AN ALARM, A CLOSURE TO BATTH<br/>IS PROVIDED ON THE APPROPRIATE ALARM TERMIN<br/>1) NEGATIVE GRD SYSTEMS, FA+OUT.</li> <li>2) POSITIVE GRD SYSTEMS, FA-OUT.</li> </ul>  | Y  |                      |   |  |                      | в   |
| <ol> <li>AN ALARM IS ACTIVATED ONLY BY ELECTRICAL TRI<br/>A BREAKER IN PANELS EQUIPPED WITH AN ALARM<br/>(REFER TO TABLE A).</li> </ol>  |  |                      |   |  |                      |     |
| 57. AN ALARM IS ACTIVATED BY EITHER ELECTRICAL O   |  | SP                   | INLESS OTHERWISE<br>ECIFIED DIMENSIONS<br>ARE IN INCHES | APPROVALS<br>DRAWN   | DATE                 | ┨┫  |
| TRIPPING OF A BREAKER IN PANELS EQUIPPED WIT<br>AUXILARY SWITCH, (REFER TO TABLE A).   | AN   | ±<br>HOLES           | ARE IN INCHES<br>TOLERANCES ON:<br>+0.004               | MWY<br>CHECKED   | 10/30/89             |     |
|  |  | FRACTION             | -0.002<br>is ±1/32                                      | APPROVED   |                      |     |
|  |  | DECIMALS             | s (xx) ±0.020   | МСМ  | 2/5/04               | 4   |
|  |  | ANGLES               | ±1/2*   | APPROVED   |                      |     |
|  |  | WORKM                | ANSHIP:   | 90° UNLESS OTHERWISE SPECIFIED.  |                      | -   |
|  | TABLE A  | PER SF               | PEC ENG032  |  |                      | C   |
| VOLTAG   | PANEL SHUNT RTG. & P/N CIRCUIT BRKR & P/N ALARM TYPE RATING NOTES  |                      |   |  |                      |     |
| +24  | 111-3762-00         N/A         600A, 160VDC         ALARM         STD         54,55,56           111-3762-10         600A         695-1093-03         (1) 271-1044-00         SWITCH         STD         51,55,56   | FINISH:              |   |  |                      |     |
| OR<br>- 48   | 111-3762-20         N/A         (1/ 2/1 1014 00         STD         54,55,56           111-3762-01         N/A         600A, 160VDC         AUXILARY         STD         54,55,57           111-3762-11         600A 695-1093-03         (1) 271-1043-00         SWITCH         STD         51,55,57 | NOT                  | TO BE COPIED, USED, TR                                  | ARY INFORMATION<br>RANSMITTED, OR DISCLOSED WI<br>ISSION FROM UNIPOWER, LLC. | THOUT                |     |
| SHEET INDEX NOTE:  | 111-3762-11         600A         695-1093-03         (1)         271-1043-00         SWITCH         STD         51,55,57           111-3762-21         N/A         (1)         271-1043-00         SWITCH         STD         54,55,57   |                      |   |  |                      |     |
| THE ISSUE OF SHEET REFLECTS THE LATEST ISSUE<br>OF THE DRAWING SET. WHEN THE DRAWING SET IS<br>REVISED, ONLY THE ISSUE NUMBERS OF MODIFIED SHEETS<br>ARE CHANGED. THE ISSUE NUMBERS OF UNMODIFIED SHEETS<br>ARE NOT CHANGED.   | SHEET INDEX         SHEET ISSUE NUMBER         NUMBER       1       2       3       4       5       6       7       8         1       1       2       3       4       5       6       7       8         1       1       2       3       4       5       6       7       8                            |                      | 600A, GJ  | IP, HEINEMANN  |                      |     |
|  | 2       1       2       3       4       4       5       5         3       1       1       2       3       4       5       5  | SIZE<br>SCALE<br>N/A | WITH F<br>DOC TYPE / N<br>PN 11                         | REAKER PANEL<br>USE ALARM<br>1—3762<br>FILE NAME:<br>PN111-3762_SHT_1_ISS_   | ISSUE<br>7           | D   |
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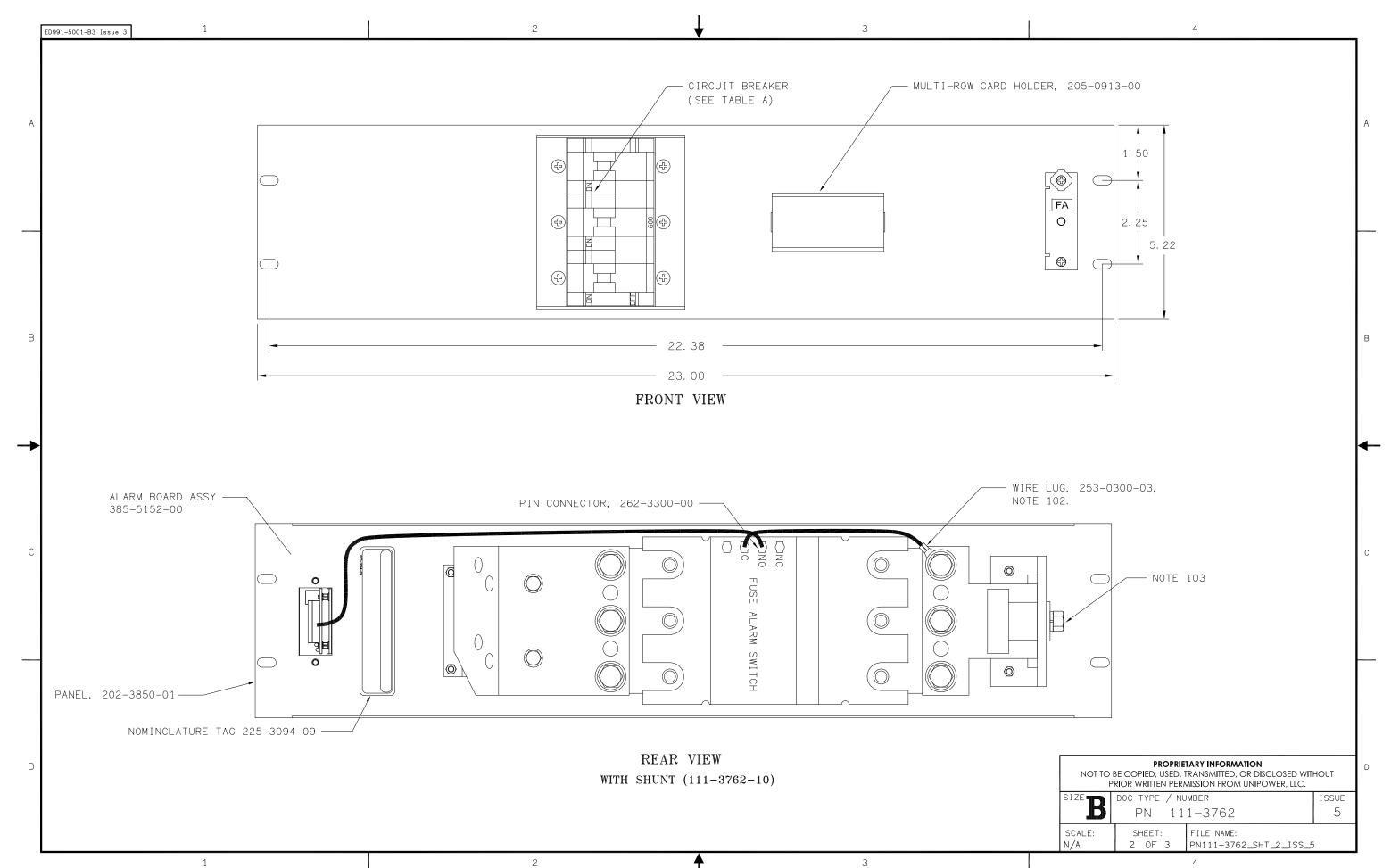
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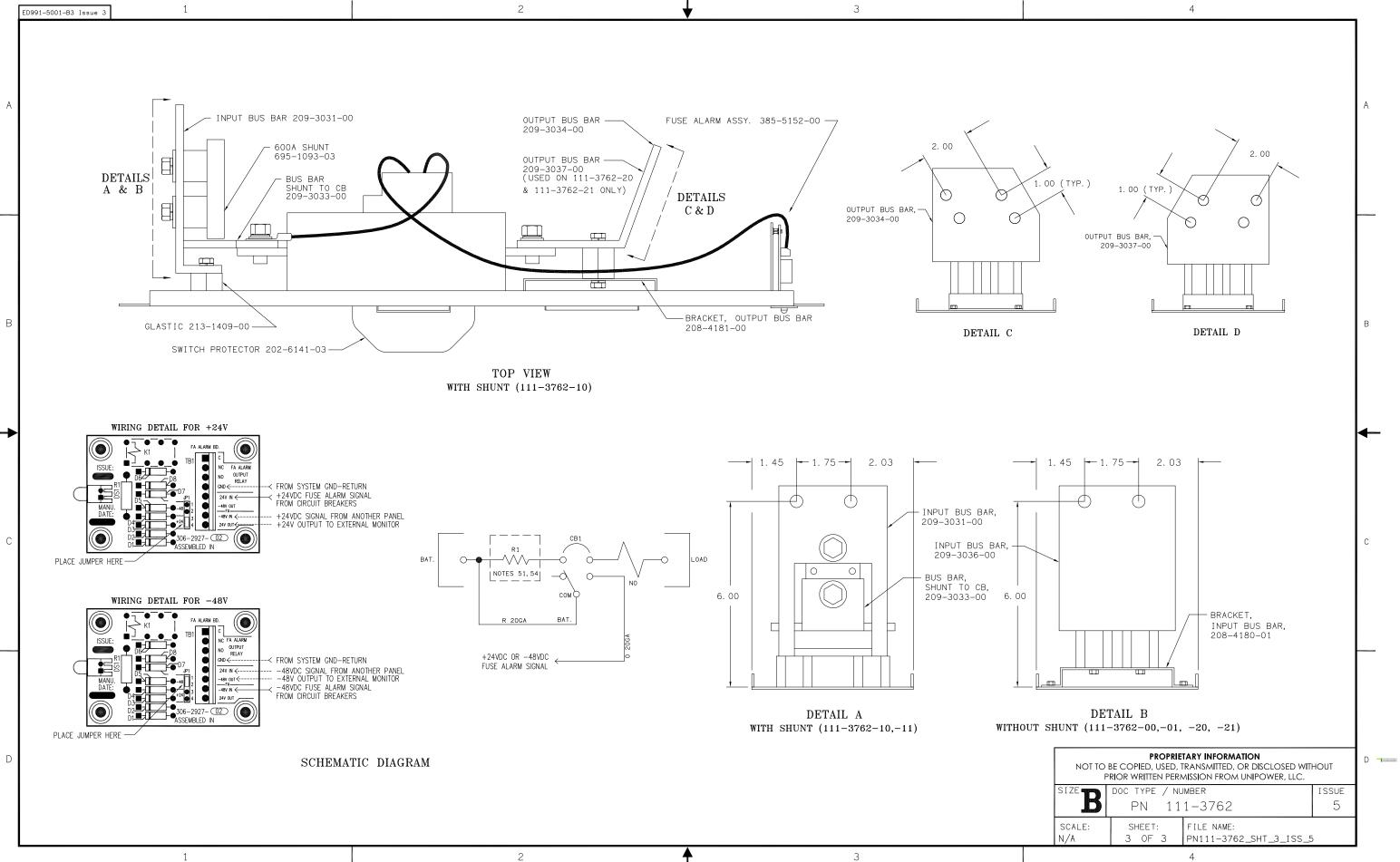
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|--|--------------|---|--|---------------------|-----|
| MANUFACTURING NOTES:   | #            |   |  | ISS. DATE<br>WD     | ł   |
| <ul> <li>101. ANTI-OXIDATION COATING WILL BE APPLIED BETWEEN ALL LAYERS OF<br/>LAMINATED COPPER BUS STRUCTURE. A COMPOUND SUCH AS CRAMOLIN<br/>81Rh WILL BE APPLIED TO ALL JOINTED FLAT SURFACES PER THE<br/>MANUFACTURER'S INSTRUCTIONS.</li> <li>102. MOUNT WIRE LUG BETWEEN BUS BAR AND LARGE MOUNTING WASHER.</li> <li>103. REPLACE BOLTS SUPPLIED WITH SHUNT WITH P/N 210-8128-00,</li> </ul> | 0            | SEE PCO# 44479  |  | 7/11/17             | - A |
| AS SHOWN. USE WASHERS SUPPLIED WITH SHUNT.   |              |   |  |                     |     |
|  |              |   |  |                     | в   |
|  |              | UNLESS OTHERWISE<br>PECIFIED DIMENSIONS   | APPROVALS  | DATE                |     |
|  | ±            | ARE IN INCHES<br>TOLERANCES ON:   | DRAWN<br>MWY   | 10/30/89            | ┫   |
| LE A   | ANGLES       | $\begin{array}{c} \text{LS (XX)} & \pm 0.020 \\ \text{LS (XXX)} & \pm 0.010 \\ \text{LS (XXX)} & \pm 1/2^{*} \end{array}$ | CHECKED<br>SS<br>APPROVED<br>MCM<br>APPROVED<br>90° UNLESS OTHERWISE SPECIFIEI | 12/14/89<br>2/19/04 |     |
|  |              | MANSHIP:<br>SPEC ENG032   |  |                     | с   |
| JIT BRKR & P/N         ALARM TYPE         RATING         NOTES           0A, 160VDC         ALARM         STD         54,55,56           271-1040-01         SWITCH         STD         51,55,56           0A, 160VDC         AUXILARY         STD         54,55,57           271-1040-00         SWITCH         STD         51,55,57  | FINISH       |   |  |                     |     |
|  | NO           | T TO BE COPIED, USED, T   | ARY INFORMATION<br>RANSMITTED, OR DISCLOSE<br>MISSION FROM UNIPOWER, I         |                     | ŀ   |
|  |              | CIRCUIT E<br>WITH   | IP, HEINEMAN<br>BREAKER PANE<br>FUSE ALARM                                     | L                   | D   |
|  | SIZE<br>SCAL | .E: SHEET:  | 1-3763<br>File NAME:   | ISSUE<br>6          |     |
| ▲ 3  | N/A          | 1 OF 3  | PN111-3763_SHT_1_  | 100_0               | 1   |

ISSUES

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#### ENGINEERING NOTES:

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- 51. AMMETER SHUNTS ARE NORMALLY 600 AMPS, 50MV. HOWEVER, OTHER CURRENT RATINGS MAY BE SPECIFIED.
- 52. THE INPUT COPPER BUS BAR IS DESIGNED FOR DIRECT CONNECTION TO UNIPOWER VERTICAL BUS BAR SYSTEMS. FOR OTHER SYSTEMS, HOLES ARE PROVIDED FOR BOLT-ING LUGGED CABLES. INPUT LUGS ARE NOT PROVIDED. BUT MAY BE ORDERED SEPERATELY PER DRAWING ED991-0002-00.
- 53. UNIPOWER'S STANDARD PAINT IS ANSI 61 GRAY.
- 54. PANELS NOT EQUIPPPED WITH A SHUNT, DO NOT INCLUDE R1. SEE TABLE A.
- 55. AN ALARM SIGNAL MAY BE EXTENDED TO AN EXTERNAL ALARM SYSTEM. DURING AN ALARM, A CLOSURE TO BATTERY IS PROVIDED ON THE APPROPRIATE ALARM TERMINAL: 1) NEGATIVE GRD SYSTEMS, FA+OUT. 2) POSITIVE GRD SYSTEMS, FA-OUT.
- 56. AN ALARM IS ACTIVATED ONLY BY ELECTRICAL TRIPPING OF A BREAKER IN PANELS EQUIPPED WITH AN ALARM SWITCH, (REFER TO TABLE A).
- 57. AN ALARM IS ACTIVATED BY EITHER ELECTRICAL OR MECHANICAL TRIPPING OF A BREAKER IN PANELS EQUIPPED WITH AN AUXILARY SWITCH, (REFER TO TABLE A).

# TABLE A

| VOLTAGE | PANEL       | SHUNT RTG. & P/N | CIRCUIT BRKR & P/N | ALARM TYPE | RATING | NOTES    |
|---------|-------------|------------------|--------------------|------------|--------|----------|
|         | 111-3763-00 | N/A              | 400A, 160VDC       | ALARM      | STD    | 54,55,56 |
| +24     | 111-3763-10 | 400A 695-1091-03 | (1) 271-1040-01    | SWITCH     | STD    | 51,55,56 |
| -48     | 111-3763-01 | N/A              | 400A, 160VDC       | AUXILARY   | STD    | 54,55,57 |
|         | 111-3763-11 | 400A 695-1091-03 | (1) 271-1040-00    | SWITCH     | STD    | 51,55,57 |

# SHEET INDEX NOTE:

THE ISSUE OF SHEET **R**EFLECTS THE LATEST ISSUE OF THE DRAWING SET. WHEN THE DRAWING SET IS REVISED, ONLY THE ISSUE NUMBERS OF MODIFIED SHEETS ARE CHANGED. THE ISSUE NUMBERS OF UNMODIFIED SHEETS ARE NOT CHANGED.

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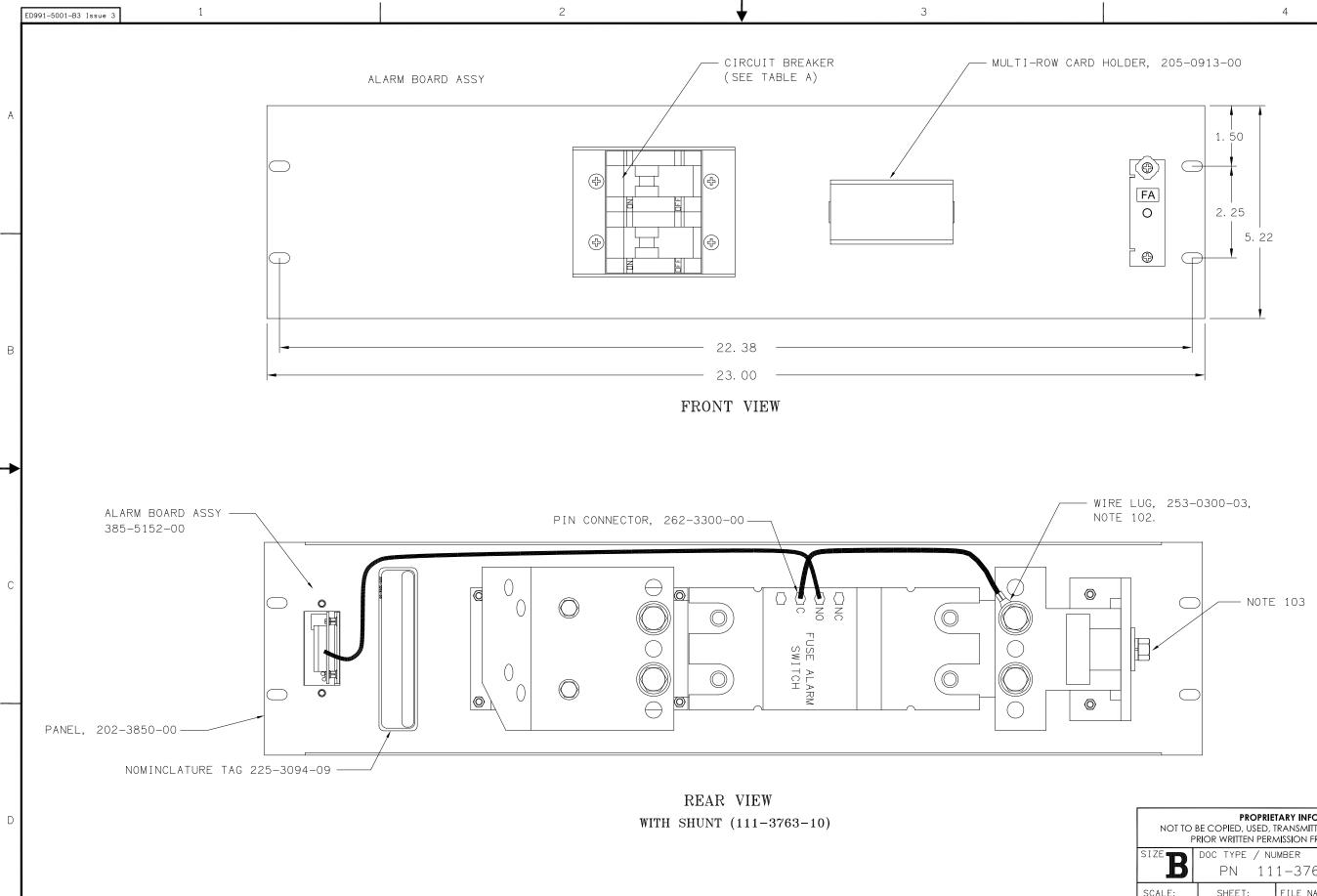
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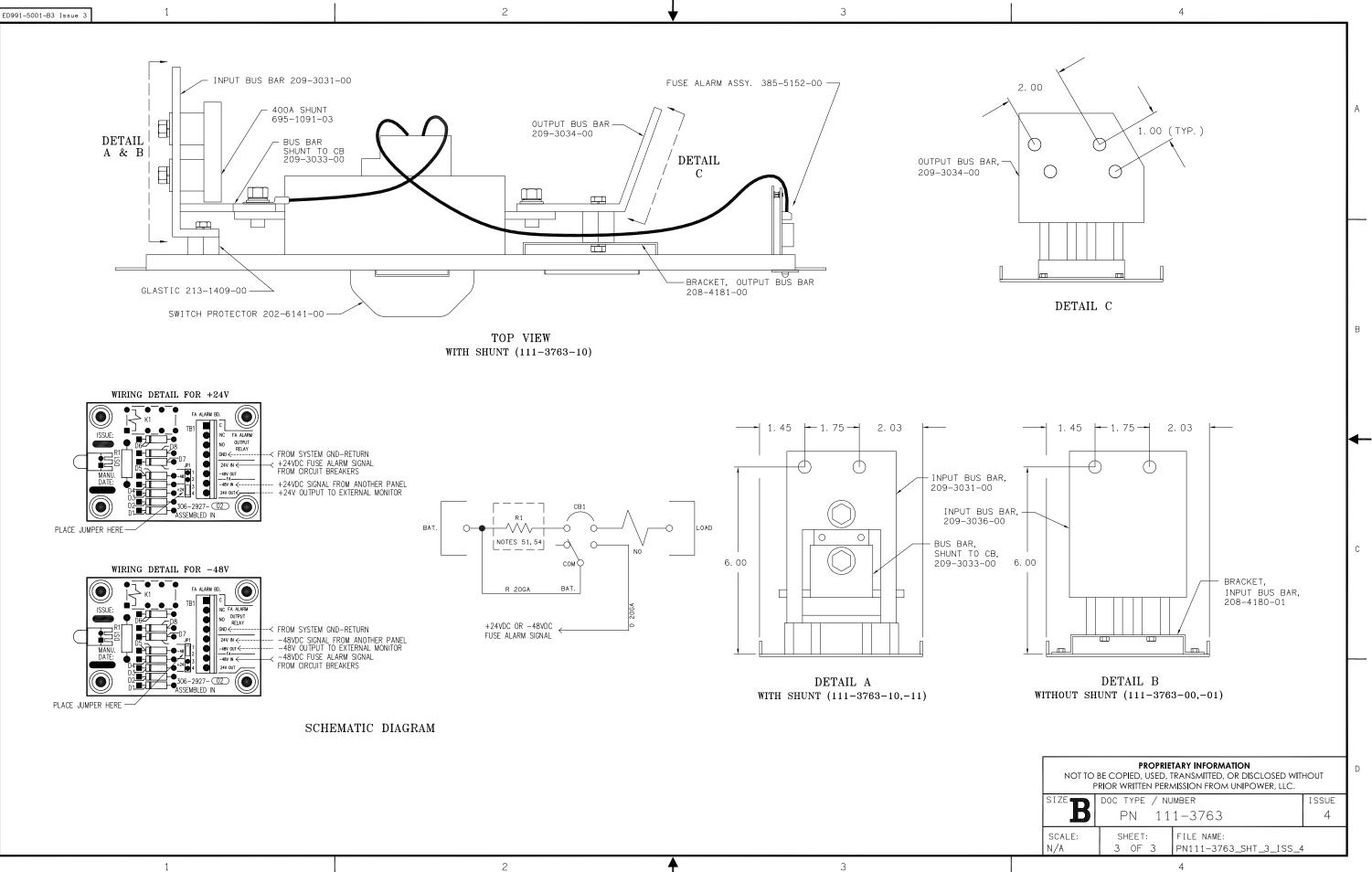
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ED991-5001-B1 Issue 3





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|--|------------------------|----------------|------------|--|--|
| SIZE <b>B</b>  | DOC TYPE / NU<br>PN 11 | MBER<br>1–3763 | issue<br>5 |  |  |
| SCALE:<br>N/A  | SHEET:<br>2 OF 3       |                |            |  |  |



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# ENGINEERING NOTES:

ED991-5001-B1 Issue 3

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1

- 51. NORMAL SHUNT RATINGS ARE DETERMINED BY TABLE "A". HOWEVER, OTHER CURRENT RATINGS MAY BE SPECIFIED.
  - 52. THE INPUT COPPER BAR IS DESIGNED FOR DIRECT CONNECTION TO UNIPOWER VERTICAL BUS BAR SYSTEMS. FOR OTHER SYSTEMS, HOLES ARE PROVIDED FOR BOLT-ING LUGGED CABLES. INPUT LUGS ARE NOT PROVIDED, BUT MAY BE ORDERED SEPARTELY.
- 53. UNIPOWER'S STANDARD PAINT IS ANSI 61 GRAY.
- 54. PANELS NOT EQUIPPED WITH A SHUNT, (TABLE A), DO NOT INCLUDE R1 OR R2.

1

# MANUFACTURING NOTES:

- 101. A COMPOUND SUCH AS CRAMOLIN 81Rh WILL BE APPLIED TO ALL JOINTED FLAT CONDUCTIVE SURFACES PER THE MANUFACTURER'S INSTRUCTIONS.
- 102. MOUNT WIRE LUG BETWEEN BUS BAR AND LARGE MOUNTING WASHER.

3

- 103. REPLACE BOLTS SUPPLIED WITH SHUNT WITH 3/8" x 16 x 3/4" BOLTS, (210-8128-00). USE WASHERS SUPPLIED WITH SHUNT.
- 104. ALL WIRES ARE 20 GA UNLESS OTHERWISE NOTED.

# TABLE A

| REF. RTG. | PANEL       | E/W SHUNT | SHUNT RTG. & P/N | RATING | CIRCUIT BRKR & P/N |
|-----------|-------------|-----------|------------------|--------|--------------------|
| 100A      | 111-3764-00 | NO        | N/A              | STD    | 100A, 125VDC       |
| TUUA      | 111-3764-10 | YES       | 200A 695-1080-03 | STD    | (2) 271–1011–00    |
| 125A      | 111-3764-05 | NO        | N/A              | SPL    | 125A, 125VDC       |
| TZSA      | 111-3764-15 | YES       | 200A 695-1080-03 | SPL    | (2) 271–1016–00    |
|           | 111-3764-01 | NO        | N/A              | STD    |                    |
| 150A      | 111-3764-11 | YES       | 200A 695-1080-03 | STD    | 150A, 125VDC       |
|           | 111-3764-21 | YES       | 600A 695-1093-03 | STD    | (2) 271-1018-00    |
| 175 4     | 111-3764-02 | NO        | N/A              | STD    | 175A, 125VDC       |
| 175A      | 111-3764-12 | YES       | 200A 695-1080-03 | STD    | (2) 271–1025–00    |
| 200A      | 111-3764-06 | NO        | N/A              | STD    | 200A, 125VDC       |
| 200A      | 111-3764-16 | YES       | 600A 695-1093-03 | STD    | (2) 271–1023–10    |
| 225 4     | 111-3764-03 | NO        | N/A              | STD    | 225A, 125VDC       |
| 225A      | 111-3764-13 | YES       | 600A 695-1093-03 | STD    | (2) 271–1026–01    |
| 250A      | 111-3764-04 | NO        | N/A              | STD    | 250A, 125VDC       |
| 230A      | 111-3764-14 | YES       | 600A 695-1093-03 | STD    | (2) 271–1033–00    |

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## SHEET INDEX NOTE:

THE ISSUE OF SHEET REFLECTS THE LATEST ISSUE OF THE DRAWING SET. WHEN THE DRAWING SET IS REVISED, ONLY THE ISSUE NUMBERS OF MODIFIED SHEETS ARE CHANGED. THE ISSUE NUMBERS OF UNMODIFIED SHEETS ARE NOT CHANGED.

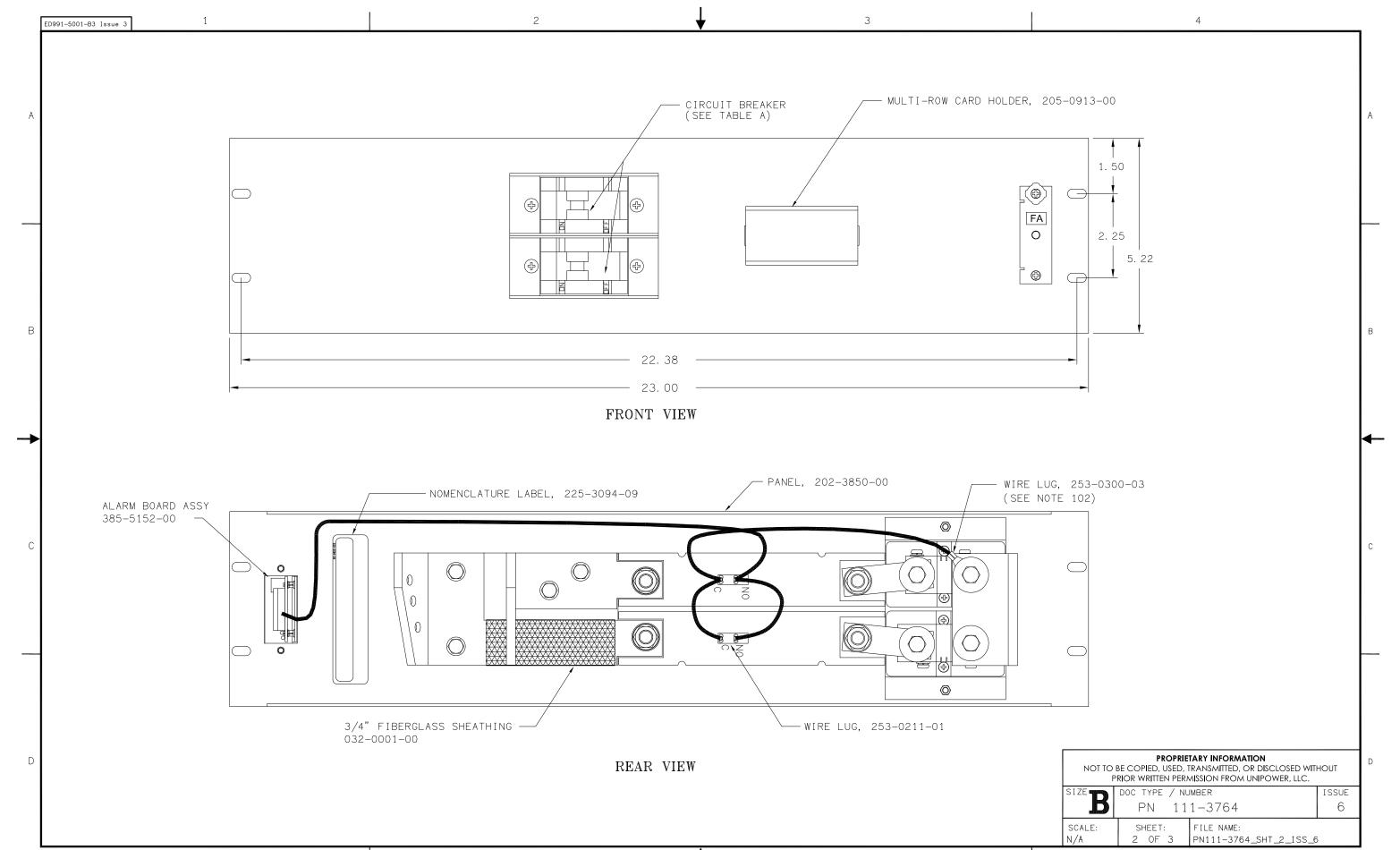
| SHEET INDEX |   |              |    |    |    |    |    |    |    |  |
|-------------|---|--------------|----|----|----|----|----|----|----|--|
| SHEET       |   | ISSUE NUMBER |    |    |    |    |    |    |    |  |
| NUMBER      | 8 | 9            | 10 | 11 | 12 | 13 | 14 | 15 | 16 |  |
| 1           | 8 | 9            | 10 | 11 |    |    |    |    |    |  |
| 2           | 5 | 5            | 6  | 6  |    |    |    |    |    |  |
| 3           | 2 | 2            | 3  | 3  |    |    |    |    |    |  |
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|                    |  | ISSUES   |                   |   |
|--------------------|--|--|-------------------|---|
| ISSUE              | DESCRIPTION                                |  | ISS. BY           |   |
| #                  |  |  | ISS. DATE         |   |
| 11 5               | SEE PCO# 44479                             |  | WD<br>7/11/17     |   |
|                    |  |  |                   | A |
|                    |  |  |                   |   |
|                    |  |  |                   |   |
|                    |  |  |                   | В |
|                    | NLESS OTHERWISE<br>CIFIED DIMENSIONS       | APPROVALS  | DATE              |   |
|                    | ARE IN INCHES<br>OLERANCES ON:             | DRAWN  | 10 /70 /80        | ┱ |
| HOLES              | +0.004                                     | MWY<br>CHECKED   | 10/30/89          |   |
| FRACTIONS          | -0.002<br>5 ±1/32                          | APPROVED   |                   | - |
| DECIMALS           |  | МСМ  | 4/1/04            |   |
| DECIMALS           | $(xxx) \pm 0.010 \pm 1/2$                  | APPROVED   |                   |   |
| SQUARE C           |  | 0° UNLESS OTHERWISE SPECIFIED.   |                   |   |
| WORKMA             | ANSHIP:<br>EC ENG032                       |  |                   | с |
| MATERIA<br>FINISH: |  |  |                   |   |
| NOT T              | O BE COPIED, USED, TR                      | <b>RY INFORMATION</b><br>ANSMITTED, OR DISCLOSED N<br>SSION FROM UNIPOWER, LLC |                   |   |
|                    | -  |  |                   |   |
|                    |  |  |                   |   |
| (                  | X(100-255A)<br>CIRCUIT BRE                 | RING TECHNO<br>, GJ1, HEINEMA<br>AKER PANEL WI<br>H & FUSE ALA                 | ANN,<br>TH        | D |
| )<br>A             | X(100-255A)<br>CIRCUIT BRE/<br>ALARM SWITC | RING TECHNO<br>, GJ1, HEINEMA<br>AKER PANEL WI<br>H & FUSE ALA                 | ANN,<br>TH<br>.RM | D |

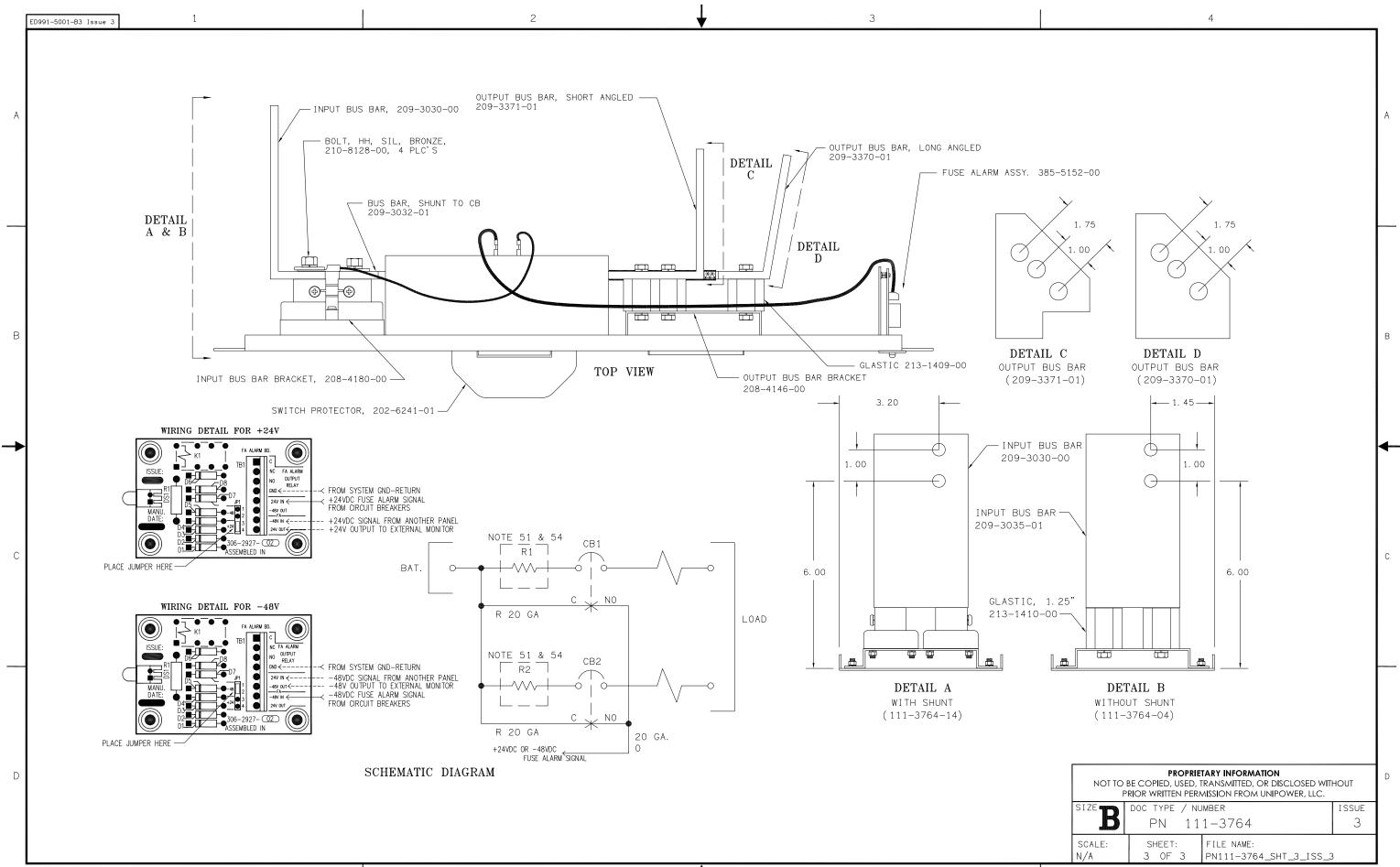
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#### **ENGINEERING NOTES:**

51. AMMETER SHUNTS ARE NORMALLY 600 AMPS, 50MV. HOWEVER, OTHER CURRENT RATINGS MAY BE SPECIFIED. PANELS NOT SPECIFIED WITH A SHUNT (TABLE "A") DO NOT INCLUDE R1.

1

- 52. THIS PANEL WILL ACCOMMODATE A MAXIMUM OF 24 5–100 AMP CIRCUIT BREAKERS OR 4, 125 AMP CIRCUIT BREAKERS. TOTAL PANEL AMPERAGE MUST NOT EXCEED 500 AMPS. ORDER CIRCUIT BREAKERS PER ED991–0009–00.
- 53. UNIPOWER'S STANDARD PAINT IS ANSI 61 GRAY.
- 54. THE INPUT COPPER BUS BAR IS DESIGNED FOR DIRECT CONNECTION TO UNIPOWER VERTICAL BUS BAR SYSTEMS. FOR OTHER SYSTEMS, HOLES ARE PROVIDED FOR BOLT-ING LUGGED CABLES.
- 55. TO COVER OPEN CIRCUIT BREAKER POSITIONS, ORDER BLANK COVERS, 213.3923.00, PER CIRCUIT BREAKER POSITION.
- 56. BUBBLE REFERENCE DESIGNATORS REFER TO CALLOUT TABLE LINE NUMBER.
- 57. PROVIDE ADEQUATE SPACE ABOVE THE CIRCUIT BREAKER PANEL FOR TURNING DISTRIBUTION CABLES. USE OF A ONE SPACE BLANK PANEL IS HIGHLY RECOMMENDED. ORDER BLANK 202–3245–00.

#### MANUFACTURING NOTES:

2

101. ANTI-OXIDATION COATING WILL BE APPLIED BETWEEN ALL LAYERS OF LAMINATED COPPER BUS STRUCTURE. A COMPOUND SUCH AS CRAMOLIN 81Rh WILL BE APPLIED TO ALL JOINTED FLAT SURFACES PER MANUFACTURER'S INSTRUCTIONS.

3

- 102. MOUNT WIRE LUG BETWEEN BUS BAR AND 1/4" FLAT WASHER.
- 103. THE REMAINING EXCESS OF ALARM WIRE MUST BE WOUND UP AND TIED TO THE BUS BAR WITH A TIE WRAP. THIS WIRE WILL BE USED FOR ADDITIONAL CIRCUIT BREAKERS.
- 104. WHEN CONNECTING ADDITIONAL CIRCUIT BREAKERS, THE ALARM CONNECTION FROM THE BREAKER (NO) TO THE FA SIGNAL "IN" IS COMPLETED BY DAISY CHAINING EACH CIRCUIT BREAKER WITH PUSH-ON.
- 105. THE ALARM WIRE LENGTH IS 52" LONG TO ALLOW FOR 24 CIRCUIT BREAKERS. (WHEN CIRCUIT BREAKERS ARE ADDED, A 2" LENGTH MUST BE CUT FROM THE REMAINING WIRE FOR EACH BREAKER. THIS 2" LENGTH MUST THEN BE JOINED WITH THE REMAINING ALARM WIRE BY A CRIMP TYPE PUSH-ON.) IF CRIMPING TOOLS ARE NOT AVAILABLE, THE PUSH-ON MAY BE SOLDERED.
- 106. LUGS AND PUSH-ONS ARE USED FOR CONNECTING EACH ALARM CONTACT (C) OF THE CIRCUIT BREAKER TO THE BUS BAR. EACH CONNECTION FROM THE ALARM CONTACT TO THE BUS BAR IS COMPLETED SEPARATELY.
- 107. WHEN A SHUNT IS REQUIRED, REPLACE ITS' BOLTS AS SHOWN IN DETAIL B. USE BRASS WASHERS SUPPLIED WITH THE SHUNT.

| TABLE A     |           |  |  |  |  |  |
|-------------|-----------|--|--|--|--|--|
| PANEL       | E/W SHUNT |  |  |  |  |  |
| 111-3765-00 | NO        |  |  |  |  |  |
| 111-3765-10 | YES       |  |  |  |  |  |

# SHEET INDEX NOTE:

THE ISSUE OF SHEET REFLECTS THE LATEST ISSUE OF THE DRAWING SET. WHEN THE DRAWING SET IS REVISED, ONLY THE ISSUE NUMBERS OF MODIFIED SHEETS ARE CHANGED. THE ISSUE NUMBERS OF UNMODIFIED SHEETS ARE NOT CHANGED.

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| SHEET INDEX |   |   |   |  |  |  |  |
|-------------|---|---|---|--|--|--|--|
| SH NO       | 1 | 2 | 3 |  |  |  |  |
| ISSUE       | 9 | 7 | 7 |  |  |  |  |
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|                                 |                                     | ISSUES   |          |                    |
|---------------------------------|-------------------------------------|--|----------|--------------------|
| ISSUE DESC<br>#                 | RIPTION                             |  |          | ISS. BY<br>ISS. DA |
| 9 SEE F                         | °CO# 44479                          |  |          | WD<br>7/11/1       |
|                                 |                                     |  |          |                    |
|                                 |                                     |  |          |                    |
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| UNLESS                          | OTHERWISE                           | APPROVALS  |          | DATE               |
| ARE I                           | DIMENSIONS<br>N INCHES<br>ANCES ON: | DRAWN<br>MWY   |          | /30/8              |
| HOLES                           | +0.004<br>-0.002                    | CHECKED  |          |                    |
| FRACTIONS                       | ±1/32                               | SS<br>APPROVED   | <u> </u> | /2/90              |
| DECIMALS (XX)<br>DECIMALS (XXX) | ±0.020<br>±0.010                    | МСМ  | 2,       | /5/04              |
| ANGLES                          | ±0.010<br>±1/2*                     | APPROVED   |          |                    |
| SQUARE CORNER                   | S AND ANGLES ARE                    | 90° UNLESS OTHERWISE SPECIFIE  | D.       |                    |
| WORKMANSHI<br>PER SPEC EI       |                                     |  |          |                    |
| MATERIAL:                       |                                     |  |          |                    |
|                                 |                                     |  |          |                    |
| FINISH:                         |                                     |  |          |                    |
|                                 |                                     |  |          |                    |
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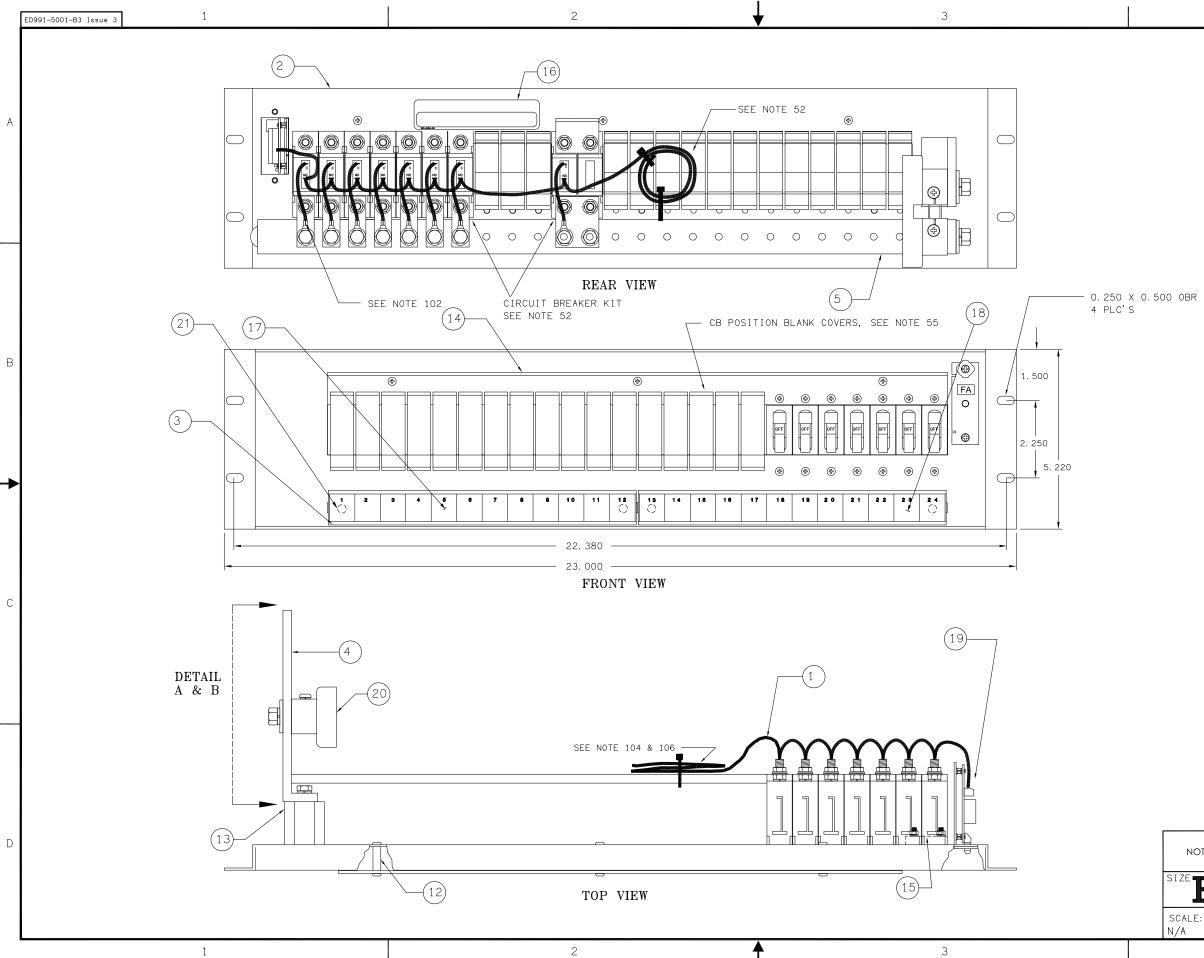
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| 24V/NEG GND & -48V/POS GND<br>AM1 5-125 AMP, CKT BKR PNL<br>W/ALM SWITCH & FUSE ALARM |  |  |  |   |  |
|---|--|--|--|---|--|
|   | DOC TYPE / NUMBER ISSUE                            |  |  |   |  |
| Ы   | PN 111-3765 9                                      |  |  |   |  |
| SCALE:<br>N/A   | SHEET: FILE NAME:<br>1 OF 3 PN111-3765_SHT_1_ISS_9 |  |  |   |  |
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| SIZE <b>B</b>  | DOC TYPE / NU<br>PN 11 | issue<br>7                           |   |  |  |
| SCALE:<br>N/A  | SHEET:<br>2 OF 3       | FILE NAME:<br>PN111-3765_SHT_2_ISS_7 | 7 |  |  |

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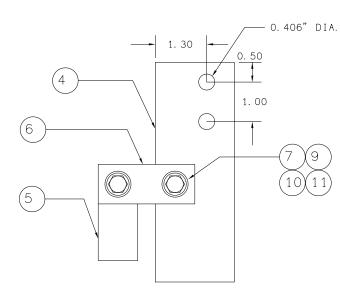
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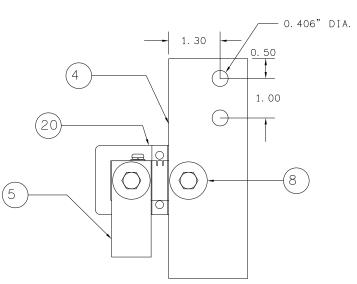
3

Α NOTE 51 INPUT BUS CB1 +24 R1 OR — BAT. 0- $\cap$  $\cap$ -48 0- NO 9 съ LOADS 18 GA. R TO AMMETER CB24 -0 О 0-• N0 9 С 0 • 18 GA. R GА 18 +24VDC OR -48VDC ← FUSE ALARM SIGNAL ← В WIRING DETAIL FOR +24V FA ALARM BD. ISSU FA ALARM OUTPUT RELAY 0 NO < FROM SYSTEM GND-RETURN</pre> GND ←-- $\rightarrow$ - +24VDC FUSE ALARM SIGNAL FROM CIRCUIT BREAKERS 24V IN ← Ļс. -48V OUT 0 MANU DATE: +24VDC SIGNAL FROM ANOTHER PANEL +24V OUTPUT TO EXTERNAL MONITOR -48V IN ←-- $\bigcirc$ PLACE JUMPER HERE С WIRING DETAIL FOR -48V FA ALARM BD. NC FA ALARM ISSU 0 OUTPUT RELAY GND ←---✓ FROM SYSTEM GND-RETURN - - 48VDC SIGNAL FROM ANOTHER PANEL
 - 48V OUTPUT TO EXTERNAL MONITOR
 - 48VDC FUSE ALARM SIGNAL FROM CIRCUIT BREAKERS 24V IN <----<u>ت</u> -48V OUT <----MANI -0-48 DATE -48V IN < 4V OUT ,  $(\bigcirc$ 



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DETAIL Α WITHOUT SHUNT 111-3765-00

# CALLOUT TABLE

|           |  |              | QUAN | ITITY |
|-----------|--|--------------|------|-------|
| LINE<br># | DESCRIPTION                                    | PART NUMBERS | -00  | -10   |
| 1         | CUT WIRE: 18 GAUGE ORANGE                      | 051-1833-52  | 1    | 1     |
|           | PANEL: CIRCUIT BREAKER AM1 POS GRD             | 202-3851-00  | 1    | 1     |
|           | CARD HOLDER: 1" X 9" AM1 CKT BKR PNL           | 208-2990-007 | 2    | 2     |
|           | BUS BAR: CKT BKR PNL AM1, INPUT, POS GRD       | 209-3040-00  | 1    | 1     |
| 5         | BUS BAR: CKT BKR PNL AM1, SHUNT TO CB          | 209-3041-00  | 1    | 1     |
|           | COMB DIST PNL: BUS, SHUNT BYPASS, 200/400A     | 209-4245-01  | 2    |       |
|           | SCREW: SS, HEX HD, 3/8-16 X 1 1/4"             | 210-1293-00  | 2    |       |
|           | BOLT, HEX, SIL, BRONZE: 3/8-16 X 3/4"          | 210-8128-00  |      | 2     |
|           | NUT, HEX SS: 3/8-16                            | 211-0533-00  | 2    |       |
| 10        | WASHER, FLAT SS: 5/16" X 3/4" X .125"          | 212-2518-00  | 4    |       |
|           | WASHER, BELLEVILLE, SS: 1/2" X .900"           | 212-5758-00  | 2    |       |
|           | STANDOFF: SWIVEL, F/F, 6-32 X 3/4 X 1/4 OD     | 213-1317-00  | 3    | 3     |
|           | SPACER: HEATSINK, HEX FIBERGLASS, 1.25"GLASTIC | 213-1410-00  | 1    | 1     |
|           | SHIELD: AM1 CKT BKR PANEL, COVER               | 213-3200-00  | 1    | 1     |
| 15        | INSULATOR: CKT BKR AM1, BUS SUPPORT            | 213-3635-00  | 1    | 1     |
|           | LABEL: NOMENCLATURE: GENERAL MISC, 0.9"        | 225-3094-09  | 1    | 1     |
|           | LABEL: 1"X 9"1–12, FOR AM1 CKT BKR PNL         | 225-3107-01  | 1    | 1     |
|           | LABEL: 1"X 9"13–24, FOR AM1 CKT BKR PNL        | 225-3108-01  | 1    | 1     |
|           | ASSY: ALARM BOARD, BKT, LABEL, FOR FA          | 385-5152-00  | 1    | 1     |
| 20        | RES, SHUNT: METER, 600A 50MV                   | 695-1093-03  |      | 1     |
|           | SCREW: ROLL/THD, 10 - 24 X 3/8                 | 210-6200-00  | 4    | 4     |
|           |  |              |      |       |
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|           |  |              |      |       |
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DETAIL В WITH SHUNT 111-3765-10

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|--|-----------------------------------|--------------------------------------|--|--|
| SIZE <b>B</b>  | DOC TYPE / NUMBERISSUEPN111-37657 |                                      |  |  |
| scale:<br>N/A  | SHEET:<br>3 OF 3                  | FILE NAME:<br>PN111-3765_SHT_3_ISS_7 |  |  |

ED991-5001-B1 Issue 3

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1

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| TABLE A     |           |  |  |  |  |
|-------------|-----------|--|--|--|--|
| PANEL       | E/W SHUNT |  |  |  |  |
| 111-3766-00 | NO        |  |  |  |  |
| 111-3766-10 | YES       |  |  |  |  |

|                                   |                               | ISSUES   |                   |                      |
|-----------------------------------|-------------------------------|--|-------------------|----------------------|
| ISSUE DESCRI                      | PTION                         |  |                   | ISS. BY<br>ISS. DATE |
|                                   | 0# 44479                      |  |                   | WD<br>7/11/17        |
|                                   |                               |  |                   |                      |
|                                   |                               |  |                   |                      |
|                                   |                               |  |                   |                      |
| UNLESS O<br>SPECIFIED D<br>ARE IN | DIMENSIONS                    | APPROVALS  |                   | DATE                 |
|                                   | CES ON:                       | DRAWN<br>MWY   | 10,               | /30/89               |
| HOLES                             | +0.004<br>-0.002              | CHECKED<br>SS  | 2                 | /2/99                |
| FRACTIONS<br>DECIMALS (XX)        | ±1/32<br>±0.020               | APPROVED<br>MCM  | 2/                | /19/04               |
| DECIMALS (XXX)                    | ±0.010                        | APPROVED   |                   |                      |
| ANGLES<br>SQUARE CORNERS          | $\pm 1/2^{\circ}$             | 90° UNLESS OTHERWISE SPECIFIED.  |                   |                      |
| WORKMANSHIP:                      |                               |  |                   |                      |
| PER SPEC ENG<br>MATERIAL:         | 032                           |  |                   |                      |
|                                   |                               |  |                   |                      |
| FINISH:                           |                               |  |                   |                      |
|                                   |                               |  |                   |                      |
|                                   | OPIED, USED, T                | TARY INFORMATION<br>RANSMITTED, OR DISCLOSED '<br>MISSION FROM UNIPOWER, LLC |                   | UT                   |
|                                   |                               |  |                   |                      |
|                                   |                               |  |                   |                      |
| NEG<br>AM1<br>W/AI                | GRD, PC<br>5-100 /<br>_M SWIT | )S 24V/48V PL/<br>AMP, CKT BKR<br>CH & FUSE ALA                              | ANT<br>PNL<br>ARM | -<br>-<br>           |
|                                   | DOC TYPE / N                  |  |                   | ISSUE                |
| ЧЧ                                |                               | 11-3766  |                   | 9                    |
|                                   |                               |  |                   | ·                    |

FILE NAME:

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PN111-3766\_SHT\_1\_ISS\_9

SHEET: 1 OF 3

SCALE:

N/A

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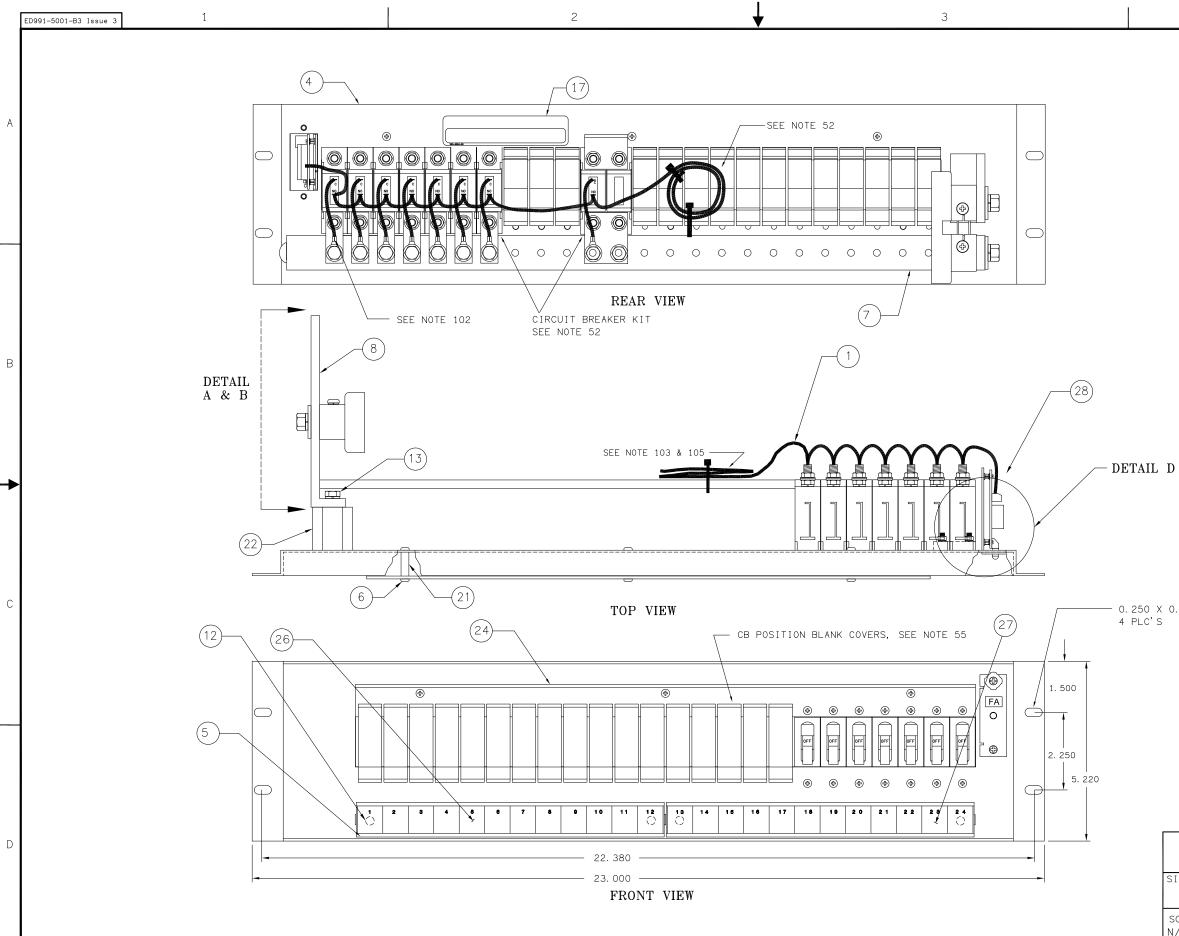
ISSUES

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| SHEET INDEX |   |   |   |  |  |  |  |
|-------------|---|---|---|--|--|--|--|
| SH NO       | 1 | 2 | 3 |  |  |  |  |
| ISSUE       | 9 | 7 | 7 |  |  |  |  |



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4 0.250 X 0.500 OBR PROPRIETARY INFORMATION D NOT TO BE COPIED, USED, TRANSMITTED, OR DISCLOSED WITHOUT PRIOR WRITTEN PERMISSION FROM UNIPOWER, LLC. SIZE **B** DOC TYPE / NUMBER ISSUE 7 PN 111-3766 SCALE: SHEET: FILE NAME:

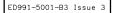
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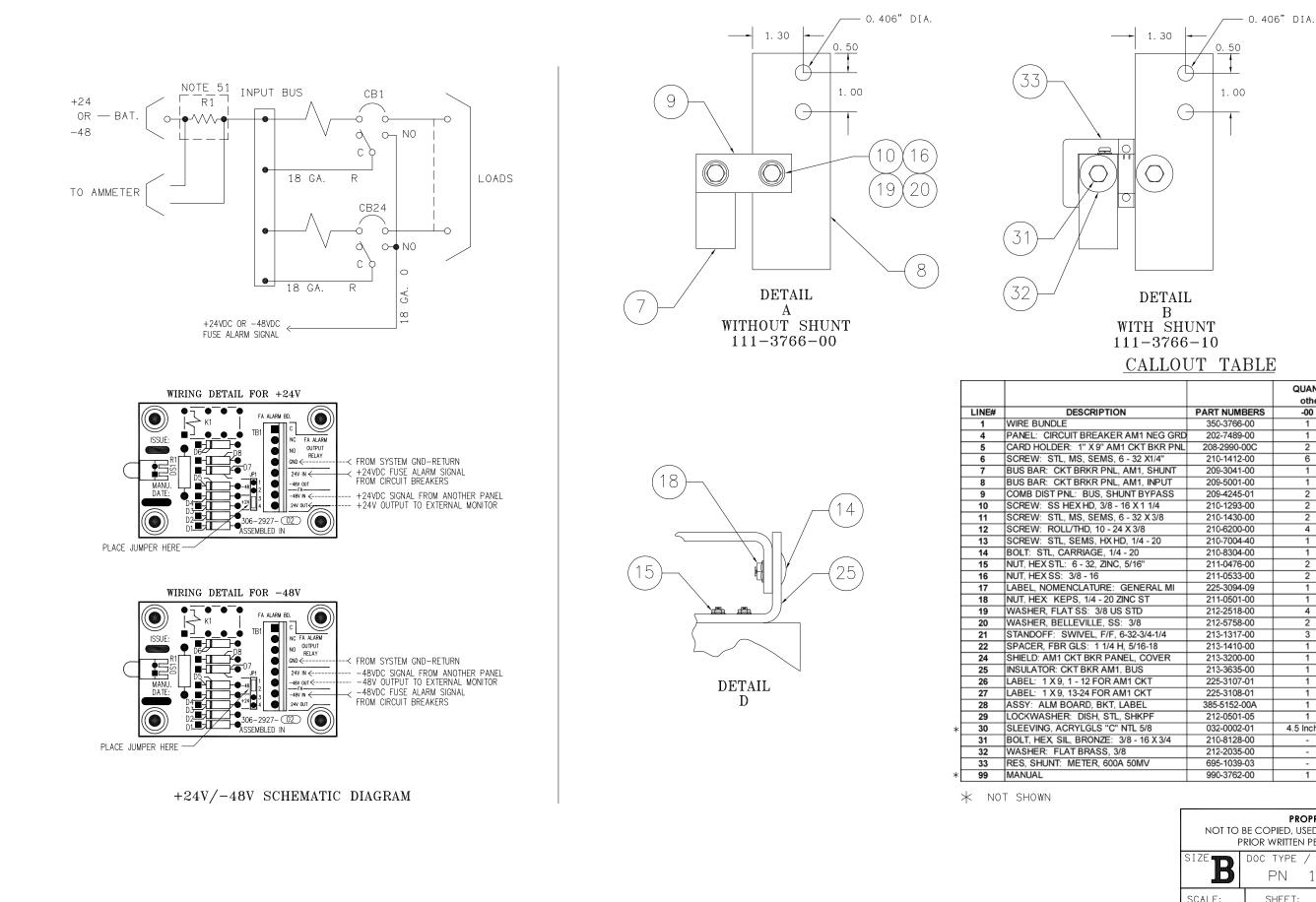
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| ALLOUT | TABLE |
|--------|-------|
|        |       |

|           |              | QUANTITY (each unless<br>otherwise specified) |            |  |
|-----------|--------------|---|------------|--|
|           | PART NUMBERS | -00   | -10        |  |
|           | 350-3766-00  | 1   | 1          |  |
| 1 NEG GRD | 202-7489-00  | 1   | 1          |  |
| T BKR PNL | 208-2990-00C | 2   | 2          |  |
| 2 X1/4"   | 210-1412-00  | 6   | 6          |  |
| 1, SHUNT  | 209-3041-00  | 1   | 1          |  |
| 1, INPUT  | 209-5001-00  | 1   | 1          |  |
| BYPASS    | 209-4245-01  | 2   | -          |  |
| 1 1/4     | 210-1293-00  | 2   | -          |  |
| 2 X 3/8   | 210-1430-00  | 2   | 2          |  |
| /8        | 210-6200-00  | 4   | 4          |  |
| 4 - 20    | 210-7004-40  | 1   | 1          |  |
| )         | 210-8304-00  | 1   | 1          |  |
| 6"        | 211-0476-00  | 2   | 2          |  |
|           | 211-0533-00  | 2   | -          |  |
| IERAL MI  | 225-3094-09  | 1   | 1          |  |
| ST        | 211-0501-00  | 1   | 1          |  |
| D         | 212-2518-00  | 4   | -          |  |
| 3         | 212-5758-00  | 2   | -          |  |
| -3/4-1/4  | 213-1317-00  | 3   | 3          |  |
| 16-18     | 213-1410-00  | 1   | 1          |  |
| COVER     | 213-3200-00  | 1   | 1          |  |
| S         | 213-3635-00  | 1   | 1          |  |
| CKT       | 225-3107-01  | 1   | 1          |  |
| кт        | 225-3108-01  | 1   | 1          |  |
| EL        | 385-5152-00A | 1   | 1          |  |
| KPF       | 212-0501-05  | 1   | 1          |  |
| 5/8       | 032-0002-01  | 4.5 Inches                                    | 4.5 Inches |  |
| 16 X 3/4  | 210-8128-00  | -   | 2          |  |
|           | 212-2035-00  | -   | 2          |  |
| MV        | 695-1039-03  | -   | 1          |  |
|           | 990-3762-00  | 1   | 1          |  |

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| <sup>SIZE</sup> <b>B</b>   | · · · ·          | doc type / number<br>PN 111-3766 |  |  |  |
| SCALE:<br>N/A  | SHEET:<br>3 OF 3 |                                  |  |  |  |
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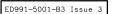
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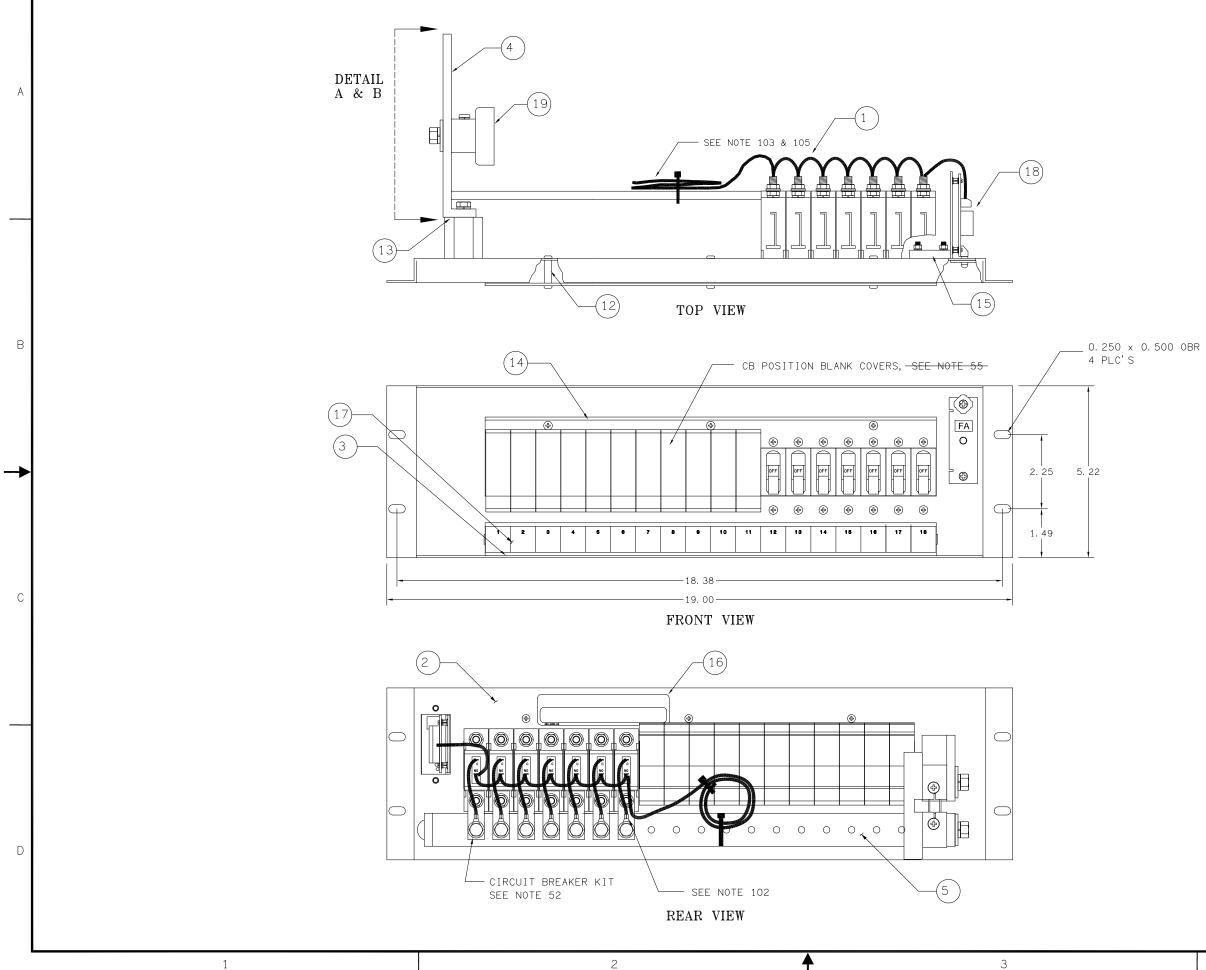
|   | ED991-5001-B1 Issue 3  | 2 3  |  | 4  |   |                      |          |
|---|--|--|--|--|---|----------------------|----------|
|   |  |  |  | ISSU   | IES   |                      | I        |
|   | ENGINEERING NOTES:   | MANUFACTURING NOTES:   | ISSUE<br>#   | DESCRIPTION  |   | iss. By<br>ss. date  | l        |
| А | 51. AMMETER SHUNTS ARE NORMALLY 600 AMPS, 50MV.<br>HOWEVER, OTHER CURRENT RATINGS MAY BE SPECIFIED.<br>PANELS NOT SPECIFIED WITH A SHUNT (TABLE "A")<br>DO NOT INCLUDE R1.   | 101. ANTI-OXIDATION COATING WILL BE APPLIED BETWEEN ALL LAYERS<br>OF LAMINATED COPPER BUS STRUCTURE. A COMPOUND SUCH AS<br>CRAMOLIN 81Rh WILL BE APPLIED TO ALL JOINTED FLAT SURFACES<br>PER MANUFACTURER'S INSTRUCTIONS.  | 7  | SEE PCO# 44479   |   | WD<br>7/11/17        | А        |
|   | 52. THIS PANEL WILL ACCOMMODATE A MAXIMUM OF 18<br>5-100 AMP CIRCUIT BREAKERS. TOTAL PANEL<br>AMPERAGE MUST NOT EXCEED 500 AMPS. ORDER<br>CIRCUIT BREAKERS PER ED991-0009-00.  | <ul> <li>102. MOUNT WIRE LUG BETWEEN BUS BAR AND 1/4" FLAT WASHER.</li> <li>103. THE REMAINING EXCESS OF ALARM WIRE MUST BE WOUND UP AND<br/>TIED TO THE BUS BAR WITH A TIE WRAP. THIS WIRE WILL BE USED<br/>FOR ADDITIONAL CIRCUIT BREAKERS.</li> </ul>   |  |  |   |                      |          |
|   | <ul> <li>53. UNIPOWER'S STANDARD PAINT COLOR IS ANSI 61 GRAY.</li> <li>54. THE INPUT COPPER BUS BAR IS DESIGNED FOR DIRECT<br/>CONNECTION TO UNIPOWER VERTICAL BUS BAR SYSTEMS.<br/>FOR OTHER SYSTEMS, HOLES ARE PROVIDED FOR BOLT-<br/>ING MURICIPALIES AND FOR BOLT-</li> </ul>      | 104. WHEN CONNECTING ADDITIONAL CIRCUIT BREAKERS, THE ALARM<br>CONNECTION FROM THE BREAKER (NO) TO THE FA SIGNAL "IN" IS<br>COMPLETED BY DAISY CHAINING EACH CIRCUIT BREAKER WITH<br>PUSH-ON.  |  |  |   |                      |          |
| в | ING LUGGED CABLES.<br>55. <del>TO COVER OPEN CIRCUIT BREAKER POSITIONS, ORDER<br/>-BLANK COVERS, P/N 213-3923-00, PER CIRCUIT BREAKER<br/>-POSITION.</del><br>56. BUBBLE REFERENCE DESIGNATORS REFER TO CALLOUT  | 105. THE ALARM WIRE LENGTH IS 40" LONG TO ALLOW FOR 18 CIRCUIT<br>BREAKERS. (WHEN CIRCUIT BREAKERS ARE ADDED, A 2" LENGTH MUST<br>BE CUT FROM THE REMAINING WIRE FOR EACH BREAKER. THIS 2"<br>LENGTH MUST THEN BE JOINED WITH THE REMAINING ALARM WIRE BY<br>A CRIMP TYPE PUSH-ON.) IF CRIMPING TOOLS ARE NOT AVAILABLE,<br>THE PUSH-ON MAY BE SOLDERED. |  |  |   |                      | В        |
| ► | <ul> <li>50. BOBBLE REFERENCE DESIGNATORS REFER TO CALLOUT TABLE LINE NUMBER.</li> <li>57. PROVIDE ADEQUATE SPACE ABOVE THE CIRCUIT BREAKER PANEL FOR TURNING DISTRIBUTION CABLES. USE OF A ONE SPACE BLANK PANEL IS HIGHLY RECOMMENDED. ORDER BLANK PANEL P/N 202-3245-00.</li> </ul> | <ul> <li>106. LUGS AND PUSH-ONS ARE USED FOR CONNECTING EACH ALARM CONTACT (C) OF THE CIRCUIT BREAKER TO THE BUS BAR. EACH CONNECTION FROM THE ALARM CONTACT TO THE BUS BAR IS COMPLETED SEPARATELY.</li> <li>107. WHEN A SHUNT IS REQUIRED, REPLACE ITS' BOLTS AS SHOWN IN DETAIL B. USE BRASS WASHERS SUPPLIED WITH THE SHUNT.</li> </ul>              | ±<br>HOLES<br>FRACTIO                                | PECIFIED DIMENSIONS<br>ARE IN INCHES<br>TOLERANCES ON:<br>+0.004<br>-0.002<br>JW<br>DNS ±1/32<br>APPRC       | N 2/2<br>KED 3/1<br>DVED  | ATE<br>27/95<br>0/95 | <b>←</b> |
| с | TABLE A         PANEL       E/W SHUNT         111-3768-00       NO         111-3768-01       NO         111-3768-10       YES         111-3768-20       NO         111-3768-21       YES   |  | DECIMA<br>ANGLES<br>SQUARE<br>WORK<br>PER S<br>MATEI | CORNERS AND ANGLES ARE 90' UNLESS<br>MANSHIP:<br>SPEC ENG032<br>RIAL:  | DVED<br>S OTHERWISE SPECIFIED.<br>DRMATION<br>TED, OR DISCLOSED WITHOUT | 0/95                 | C        |
| D | SHEET INDEX NOTE:<br>THE ISSUE OF SHEET 1 REFLECTS THE LATEST ISSUE<br>OF THE DRAWING SET. WHEN THE DRAWING SET IS<br>REVISED, ONLY THE ISSUE NUMBERS OF MODIFIED SHEETS<br>ARE CHANGED. THE ISSUE NUMBERS OF UNMODIFIED SHEETS<br>ARE NOT CHANGED.                                    | SHEET INDEX<br>SH NO 1 2 3<br>ISSUE 7 6 6  | 1<br>SIZE<br>SCAL                                    | 9" POS GRN, NEG<br>AM1 50-100 AMF<br>W/ALARM SWITCH<br>B DOC TYPE / NUMBER<br>PN 111-370<br>E: SHEET: FILE N | p, CKT BKR PNI<br>1 & FUSE ALAR<br>68                                   | gy<br>NT<br>L        | D        |
|   | 1  | 2 3  |  | 4  |   |                      |          |



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| SIZE   | doc type / number<br>PN 111-3768 |                                      | issue<br>6 |   |
| SCALE:<br>N/A  | SHEET:<br>2 OF 3                 | FILE NAME:<br>PN111-3768_SHT_2_ISS_6 | 3          |   |

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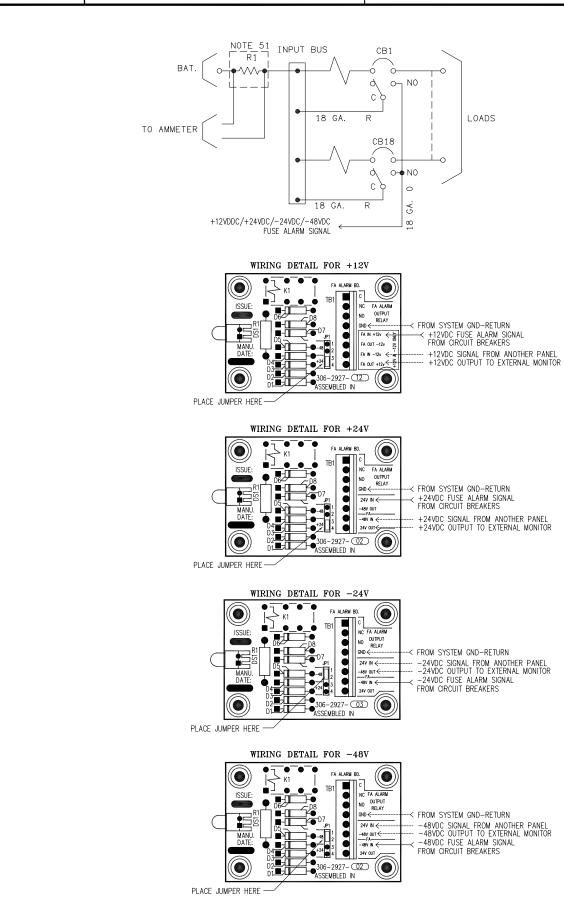
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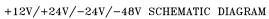
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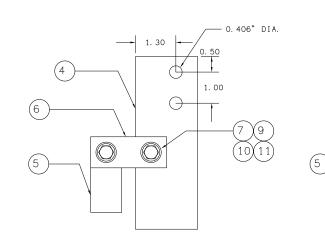
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| DETAIL          |  |  |  |  |  |
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| А               |  |  |  |  |  |
| WITHOUT SHUNT   |  |  |  |  |  |
| 111 - 3768 - 00 |  |  |  |  |  |
| 111 - 3768 - 01 |  |  |  |  |  |
| 111 - 3768 - 20 |  |  |  |  |  |



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#### CALLOUT TABLE

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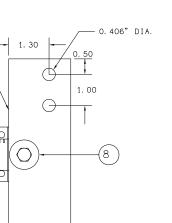
|           |  |                 | 1AUQ          | NTITY         |
|-----------|--|-----------------|---------------|---------------|
| LINE<br># | DESCRIPTION                                      | PART NUMBERS    | -00, -01, -20 | -10, -11, -21 |
| 1         | CUT WIRE: 18 GAUGE ORANGE                        | 051-1833-52     | 1             | 1             |
|           | PANEL: CIRCUIT BREAKER AM1 POS GRD, 19"          | 202-3852-00     | 1             | 1             |
|           | CARD HOLDER: 1" X 13.76" AM1 CKT BKR PNL         | 213. 3725. 1367 | 1             | 1             |
|           | BUS BAR: CKT BKR PNL AM1, INPUT, POS GRD         | 209-3040-00     | 1             | 1             |
| 5         | BUS BAR: CKT BKR PNL AM1, SHUNT TO CB            | 209-3043-00     | 1             | 1             |
|           | COMB DIST PNL: BUS, SHUNT BYPASS, 200/400A       | 209-4245-01     | 2             |               |
|           | SCREW: SS, HEX HD, 3/8-16 X 1 1/4"               | 210-1293-00     | 2             |               |
|           | BOLT, HEX, SIL, BRONZE: 3/8-16 X 3/4"            | 210-8128-00     |               | 2             |
|           | NUT, HEX SS: 3/8-16                              | 211-0533-00     | 2             |               |
| 10        | WASHER, FLAT SS: 5/16" X 3/4" X .125"            | 212-2518-00     | 4             |               |
|           | WASHER, BELLEVILLE, SS: 1/2" X .900"             | 212-5758-00     | 2             |               |
|           | STANDOFF: SWIVEL, F/F, 6-32 X 3/4 X 1/4 OD       | 213-1317-00     | 3             | 3             |
|           | SPACER: HEATSINK, HEX FIBERGLASS, 1. 25" GLASTIC | 213-1410-00     | 1             | 1             |
|           | SHIELD: AM1 CKT BKR PANEL, COVER 19"             | 213-3201-00     | 1             | 1             |
| 15        | INSULATOR: CKT BKR AM1, BUS SUPPORT              | 213-3635-00     | 1             | 1             |
|           | LABEL: NOMENCLATURE: GENERAL MISC, 0.9"          | 225-3094-09     | 1             | 1             |
|           | LABEL: 1" X 13.75" 1-18, FOR AM1 CKT BKR PNL     | 225-3107-03     | 1             | 1             |
|           | ASSY: ALARM BOARD, BKT, LABEL, FOR FA            | See Table 2     | 1             | 1             |
| 19        | RES, SHUNT: METER, 600A 50MV                     | 695-1093-03     |               | 1             |

TABLE 2

| Panel Part#    | Alarm Board Kit# |
|----------------|------------------|
| 111. 3768. 00A | 385. 5152. 00A   |
| 111. 3768. 01A | 385. 5152. 11A   |
| 111. 3768. 10A | 385. 5152. 00A   |
| 111. 3768. 11A | 385. 5152. 11A   |
| 111. 3768. 20A | 385. 5152. 10A   |
| 111. 3768. 21A | 385.5152.10A     |

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DETAIL B WITH SHUNT 111-3768-10 111-3768-11 111-3768-21

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| SIZE   | 3 | doc type / number<br>PN 111-3768 |                                      | issue<br>6 |  |
| SCALE:<br>N/A  |   | SHEET:<br>3 OF 3                 | FILE NAME:<br>PN111-3768_SHT_3_ISS_6 |            |  |

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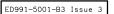
| D991-5001-B1 Issue 3   |   |        | 2    | <b>\</b>   |   | 3  |  |  | 4  |                |              |
|--|---|--------|------|--|---|--|--|--|--|----------------|--------------|
|  |   |        |      |  |   |  | ISSUE  | ESCRIPTION   | ISSUES   | 221            | BY           |
| ENGINEERING NOTES:   |   |        | MAN  | UFACTURING 1   | NOTES:  |  | #  | ESCRIPTION   |  |                | DATE         |
| <ol> <li>AMMETER SHUNTS ARE NOR<br/>HOWEVER, OTHER CURRENT<br/>PANELS NOT SPECIFIED WIT<br/>DO NOT INCLUDE R1.</li> <li>THIS PANEL WILL ACCOMMO</li> </ol> | RATINGS MAY BE SPECI<br>TH A SHUNT (TABLE "A")  |        |      | OF LAMINATED C<br>CRAMOLIN 81Rh<br>PER MANUFACTUI                    | COPPER BUS STRUC<br>WILL BE APPLIED TO<br>IRER'S INSTRUCTIONS | PPLIED BETWEEN ALL LAYERS<br>TURE. A COMPOUND SUCH AS<br>O ALL JOINTED FLAT SURFACES<br>S.<br>R AND 1/4" FLAT WASHER.                                      | 4 St   | E PCO# 44479   |  |                | VD<br>1/17 A |
| 5-100 AMP CIRCUIT BREAK<br>AMPERAGE MUST NOT EXCE<br>CIRCUIT BREAKERS PER ED   | EED 500 AMPS. ORDER                             |        | 103. | TIED TO THE BUS  |   | MIRE MUST BE WOUND UP AND<br>WRAP. THIS WIRE WILL BE USED  |  |  |  |                |              |
| 53. UNIPOWER'S STANDARD PAIR   | NT COLOR IS ANSI 61 GR                          | AY.    | 104  | WHEN CONNECTIN   | IG ADDITIONAL CIRCI   | UIT BREAKERS, THE ALARM  |  |  |  |                |              |
| 54. THE INPUT COPPER BUS BA<br>CONNECTION TO UNIPOWER<br>FOR OTHER SYSTEMS, HOLE<br>ING LUGGED CABLES.   | VERTICAL BUS BAR SYS                            | TEMS.  |      | CONNECTION FRO<br>COMPLETED BY D<br>PUSH-ON.                         | OM THE BREAKER (N<br>DAISY CHAINING EAG                       | NO) TO THE FA SIGNAL "IN" IS<br>CH CIRCUIT BREAKER WITH  |  |  |  |                |              |
| 55. TO COVER OPEN CIRCUIT B<br>BLANK COVERS, P/N 213-3<br>POSITION.  | 3923-00, PER CIRCUIT BI                         | REAKER | 105. | BREAKERS. (WHE<br>BE CUT FROM TH<br>LENGTH MUST TH<br>A CRIMP TYPE P | IN CIRCUIT BREAKER<br>HE REMAINING WIRE<br>HEN BE JOINED WITH | NG TO ALLOW FOR 18 CIRCUIT<br>RS ARE ADDED, A 2" LENGTH MUST<br>FOR EACH BREAKER. THIS 2"<br>H THE REMAINING ALARM WIRE BY<br>ING TOOLS ARE NOT AVAILABLE, |  |  |  |                | в            |
| 56. BUBBLE REFERENCE DESIGN<br>TABLE LINE NUMBER.  | IATORS REFER TO CALLO                           | JT     | 106. |  |   | R CONNECTING EACH ALARM CONTA  | .CT  |  |  |                |              |
| 57. PROVIDE ADEQUATE SPACE<br>PANEL FOR TURNING DISTR<br>ONE SPACE BLANK PANEL   | RIBUTION CABLES. USE OF                         | A      |      | (C) OF THE CIRC<br>FROM THE ALARM                                    | CUIT BREAKER TO THE M CONTACT TO THE                          | HE BUS BAR. EACH CONNECTION<br>BUS BAR IS COMPLETED SEPARAT  | ELY. UNL                                     | ess otherwise<br>Fied Dimensions<br>Re in Inches<br>Lerances on: | APPROVALS<br>DRAWN<br>MRB                          | DATE<br>3/3/9  | — ←          |
| BLANK PANEL P/N 202-32   | 245-00.   |        | 107. |  |   | CE ITS' BOLTS AS SHOWN IN<br>PPLIED WITH THE SHUNT.  | HOLES<br>FRACTIONS                           | +0.004<br>-0.002<br>±1/32  | CHECKED<br>JW<br>APPROVED                          | 3/10/          | 95           |
|  |   |        |      |  |   |  | DECIMALS ()<br>DECIMALS ()<br>ANGLES         | $(xx)$ $\pm 0.010$ $\pm 1/2^{\circ}$                             | NMS<br>APPROVED                                    | 3/10/9         | 95           |
|  |   |        |      |  |   |  | SQUARE CO<br>WORKMAN<br>PER SPEC<br>MATERIAL | SHIP:<br>ENG032  | ie 90° unless otherwise specif                     | ied.           | c            |
| TABLE A  | A<br>/w shunt                                   |        |      |  |   |  | FINISH:                                      | PROPRI   | ETARY INFORMATION                                  |                |              |
| 111-3769-00           111-3769-10  | NO<br>YES                                       |        |      |  |   |  |  |  | , TRANSMITTED, OR DISCLO<br>RMISSION FROM UNIPOWER |                | ┢            |
|  |   |        |      |  |   |  |  |  | NIPOV<br>ERING TECH                                | NOLOG          | Y            |
| SHEET INDEX NOT<br>THE ISSUE OF SHEET 1<br>OF THE DRAWING SET. V   | REFLECTS THE LATEST IS                          |        |      | SH NO 1 2  |   |  | AI<br>W/                                     | M1 5-100<br>ALARM SW   | POS 24V/48\<br>AMP, CKT BKF<br>VITCH & FUSE        | r pnl<br>Alarm | D            |
| REVISED, ONLY THE ISSU<br>ARE CHANGED. THE ISSU<br>ARE NOT CHANGED.  | JE NUMBERS OF MODIFIED<br>UE NUMBERS OF UNMODIF |        |      | ISSUE 4 3  | 3 3   |  | SIZE B                                       | DOC TYPE /<br>PN 1<br>SHEET:                                     | NUMBER<br>111-3769<br>File NAME:                   | ISSU<br>2      | 4            |
|  |   |        | 0    | A  |   | 7  | N/A  | 1 OF 3   | PN111-3769_SHT_1                                   | _ISS_4         |              |
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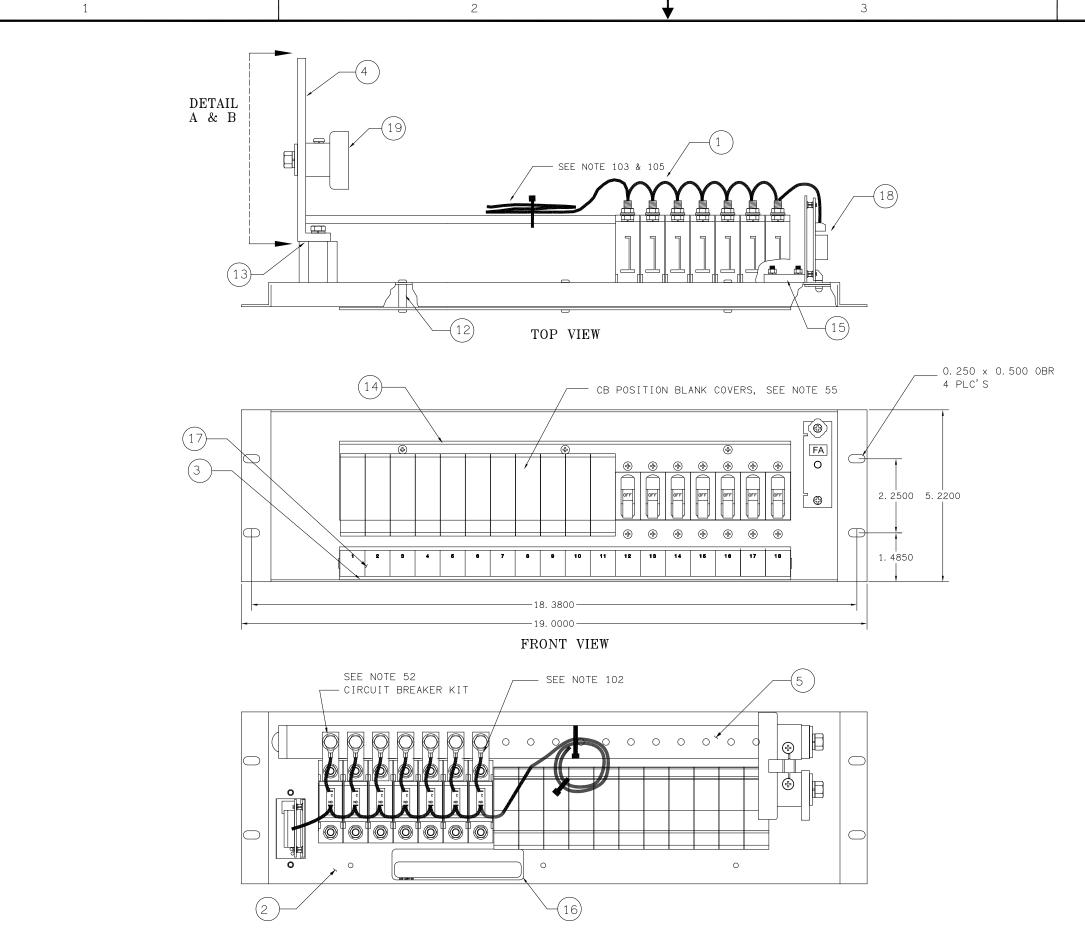
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REAR VIEW

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| scale:<br>N/A  | SHEET:<br>2 OF 3       | FILE NAME:<br>PN111-3769_SHT_2_ISS_3 |  |   |

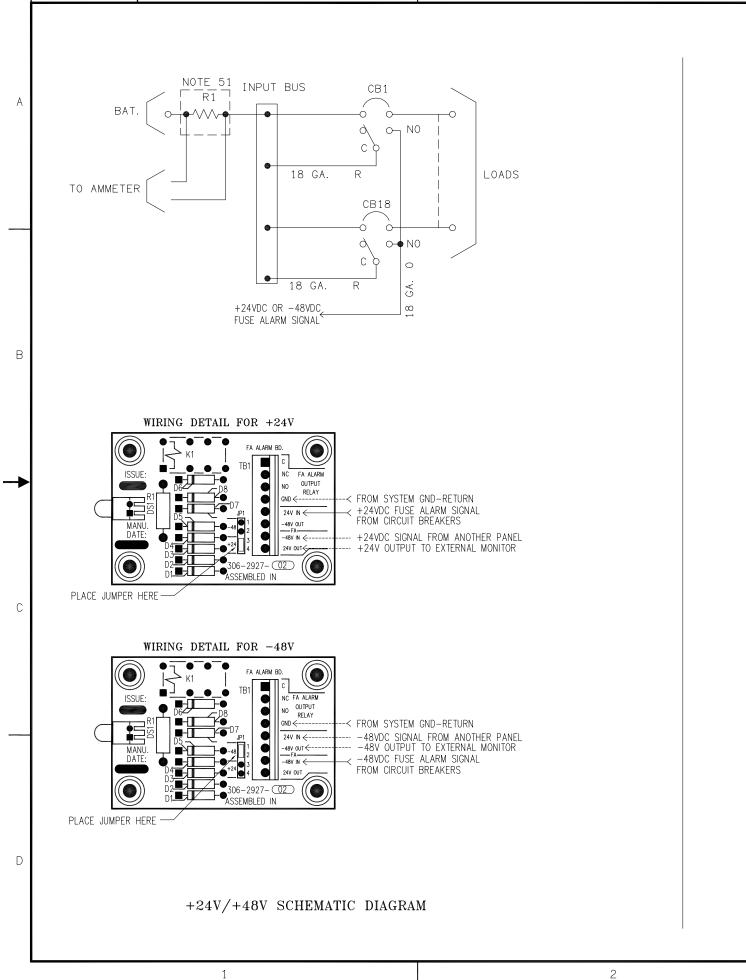
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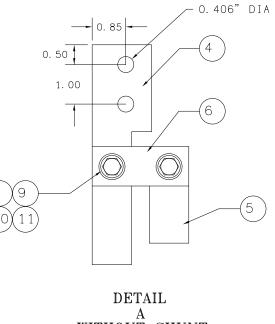
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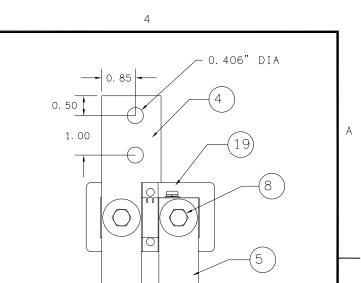


WITHOUT SHUNT 111-3769-00

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#### CALLOUT TABLE

|           |   |              | QUAN | TITY |
|-----------|---|--------------|------|------|
| LINE<br># | DESCRIPTION                                     | PART NUMBERS | -00  | -10  |
| 1         | CUT WIRE: 18 GAUGE ORANGE                       | 051-1833-52  | 1    | 1    |
|           | PANEL: CIRCUIT BREAKER AM1 NEG GRD, 19"         | 202-3852-01  | 1    | 1    |
|           | CARD HOLDER: 1" X 13.76" AM1 CKT BKR PNL        | 208-2991-00  | 1    | 1    |
|           | BUS BAR: CKT BKR PNL AM1, INPUT, NEG GRD        | 209-3042-00  | 1    | 1    |
| 5         | BUS BAR: CKT BKR PNL AM1, SHUNT TO CB           | 209-3043-00  | 1    | 1    |
|           | COMB DIST PNL: BUS, SHUNT BYPASS, 200/400A      | 209-4245-01  | 2    |      |
|           | SCREW: SS, HEX HD, 3/8-16 X 1 1/4"              | 210-1293-00  | 2    |      |
|           | BOLT, HEX, SIL, BRONZE: 3/8-16 X 3/4"           | 210-8128-00  |      | 2    |
|           | NUT, HEX SS: 3/8-16                             | 211-0533-00  | 2    |      |
| 10        | WASHER, FLAT SS: 5/16" X 3/4" X .125"           | 212-2518-00  | 4    |      |
|           | WASHER, BELLEVILLE, SS: 1/2" X .900"            | 212-5758-00  | 4    |      |
|           | STANDOFF: SWIVEL, F/F, 6-32 X 3/4 X 1/4 OD      | 213-1317-00  | 3    | 3    |
|           | SPACER: HEATSINK, HEX FIBERGLASS, 1.25" GLASTIC | 213-1410-00  | 1    | 1    |
|           | SHIELD: AM1 CKT BKR PANEL, COVER 19"            | 213-3201-00  | 1    | 1    |
| 15        | INSULATOR: CKT BKR AM1, BUS SUPPORT             | 213-3635-00  | 1    | 1    |
|           | LABEL: NOMENCLATURE: GENERAL MISC, 0.9"         | 225-3094-09  | 1    | 1    |
|           | LABEL: 1" X 13.75" 1–18, FOR AM1 CKT BKR PNL    | 225-3107-03  | 1    | 1    |
|           | ASSY: ALARM BOARD, BKT, LABEL, FOR FA           | 385-5152-00  | 1    | 1    |
|           | RES, SHUNT: METER, 600A 50MV                    | 695-1093-03  |      | 1    |
| 20        |   |              |      |      |
|           |   |              |      |      |
|           |   |              |      |      |



DETAIL В WITH SHUNT 111-3769-10

В

С

D

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|---|--|--|--|--|--|
| SIZE <b>B</b>   | DOC TYPE / NUMBER ISS<br>PN 111-3769               |  |  |  |  |
| SCALE:<br>N/A   | SHEET: FILE NAME:<br>3 OF 3 PN111-3769_SHT_3_ISS_3 |  |  |  |  |