



GE Energy

Functional Testing Specification

Parts & Repair Services
Louisville, KY

LOU-GED-118D1566

Test Procedure for a 118D1566G0001 card

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A	Initial release	J. Francis	3/9/2012
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DATE 3/9/2012	DATE	DATE	DATE 3/9/2012

<p>LOU-GED-118D1566 REV. A</p>	<p>g</p> <p>GE Energy Parts & Repair Services Louisville, KY</p>	<p>Page 2 of 6</p>
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1. SCOPE

1.1 This is a functional testing procedure for a 118D1566G0001 card.

2. STANDARDS OF QUALITY

2.1 Refer to the current revision of the IPC-A-610 standard for workmanship standards.

3. APPLICABLE DOCUMENTS

3.1 The following document(s) shall form part of this specification to the extent specified herein. Unless otherwise indicated, the latest issue shall apply.

3.1.1 Check board's electronic folder for more information

3.1.2 Referencing test instructions P3K-AL-0023, dated 7/11/1997.

4. ENGINEERING REQUIREMENTS

4.1 Equipment Cleaning

4.1.1 Equipment should be clean and free of debris prior to applying power unless performing an initial check. Refer to site specific SRA's for cleaning guidelines.

4.2 Equipment Inspection

4.2.1 Equipment should be visually inspected for any defects prior to applying power. This inspection should include the following as a minimum:

4.2.1.1 Wires - broken, cracked, or loosely connected

4.2.1.2 Terminal strips / connectors - broken or cracked

4.2.1.3 Components - visually damaged

4.2.1.4 Capacitors - bloated or leaking

4.2.1.5 Solder joints - damaged or cold

4.2.1.6 Circuit board - burned or de-laminated

4.2.1.7 Printed wire runs / Traces - burned or damaged

5. EQUIPMENT REQUIRED

5.1 The following equipment is required to perform the process requirements. Equipment may be substituted provided that all accuracy's and test ratios are equivalent or better.

Qty	Reference #	Description
1		Fluke 87 DMM (or Equivalent)

<p>LOU-GED-118D1566 REV. A</p>	<p>g</p> <p>GE Energy <i>Parts & Repair Services</i> <i>Louisville, KY</i></p>	<p>Page 3 of 6</p>
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6. Testing Process

6.1 General

- 6.1.1** This circuit board consists of circuitry to drive the SADI unit and 0-100% meters. The test is designed to check the proper operation of these circuits. The voltage tests determine that proper voltage levels are obtained with the pot ranges. Next the circuitry is tested with a test op-amp so that gain adjustment and proper operation of associated circuitry can be observed. Next the meter circuit is tested to insure that proper meter ranges can be obtained. This test will assure that proper voltage levels are provided when the overall system tests are performed.

6.2 Setup

- 6.2.1** Refer to sketch Figure 1 in section 9.
- 6.2.2** Connect SW1 SPDT, Arm to pin-33, pos. No.1 to pin-16, pos. No. 2 to pin-19 (GN).
- 6.2.3** Connect SW2 SPDT, Arm to pin-35, pos. No.1 to N.C., pos. No. 2 to pin-19 (GN).
- 6.2.4** Connect SW3 SPDT, Arm to pin-20, pos. No.1 to N.C., pos. No. 2 to pin-19 (GN).
- 6.2.5** Connect SW4 SPDT, Arm to pin-11, pos. No.1 to N.C., pos. No. 2 to pin-12.
- 6.2.6** 5.1K, 1watt resistor, from pin-3 to pin-19
- 6.2.7** Jumper pin-35 to pin-14.
- 6.2.8** Connect input to op-amp to pin-20 and output to pin-1

6.3 Testing Procedure

6.3.1 Gain & CP Adjustment

- 6.3.1.1** Switches in the following position.

- 6.3.1.1.1** SW1 Position 2
- 6.3.1.1.2** SW2 Position 1
- 6.3.1.1.3** SW3 Position 1
- 6.3.1.1.4** SW4 Position 1
- 6.3.1.1.5** SW5 Position 1

- 6.3.1.2** Turn R26 fully CCW.

- 6.3.1.3** Apply +1.14VDC to pin-35.

- 6.3.1.4** Connect DVM to TP6.

- 6.3.1.5** If connected disconnect pin-18 from pin-19.

- 6.3.1.6** Apply voltage on pin-18 (-0.5VDC to -7.1VDC) until meter reads zero.

- 6.3.1.7** Measure voltage at TP4 with DVM. Reading should be between (-0.5VDC and -7.1VDC).

- 6.3.1.8** SW2 to position 2.

- 6.3.1.9** Apply voltage at pin-18 of (V-4).

- 6.3.1.10** Adjust R8 to give (V-5) on DVM at TP6.

<p>LOU-GED-118D1566 REV. A</p>	<p>g</p> <p>GE Energy <i>Parts & Repair Services</i> <i>Louisville, KY</i></p>	<p>Page 4 of 6</p>
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6.3.1.11 Adjust voltage at pin-18 to -5.250 on DVM.

6.3.1.12 SW1 to position 1.

6.3.1.13 Adjust R6 for zero volts on DVM at TP6

6.3.1.14 Adjust voltage at pin-18 to +5.0V.

6.3.1.15 SW1 to position 2.

6.3.1.16 Adjust R7 for -0.25V at TP6.

6.3.2 Meter test (Delete in case of Hand Driven Chest Warming)

6.3.2.1 With 1K pot on test panel adjust to 1.14V at TP2.

6.3.2.2 Connect mA meter as shown in figure 1.

6.3.2.3 SW5 to position 1.

6.3.2.4 Adjust R1 for zero.

6.3.2.5 Adjust 1K pot to 0.0V at TP2.

6.3.2.6 Adjust R2 for full scale

6.3.2.7 SW5 to position 2.

6.3.2.8 With 1K pot on test panel adjust to 1.14V at TP2.

6.3.2.9 Adjust R3 for zero.

6.3.2.10 Adjust 1K pot to 0.0V at TP2.

6.3.2.11 Meter should read full scale, if not re-adjust R2.

6.3.3 Adjustment of Opening Rate Limit.

6.3.3.1 Switches in the following position.

6.3.3.1.1 SW1 Position 2

6.3.3.1.2 SW2 Position 2

6.3.3.1.3 SW3 Position 2

6.3.3.1.4 R7 fully CCW

6.3.3.1.5 Pin-18 connected to pin-19

6.3.3.2 SW4 to position 1

6.3.3.3 Verify that -22V is applied to pin-21 and that pin-19 is grounded; e.g., connected to the plus terminal of the 22V power supply. Connect pin-3 to common.

6.3.3.4 Adjust variable resistor R26 until voltage at pin-12 reads (V-OP Limit) (from data sheets).

6.3.3.5 Remove connection pin-3 to common.

<p>LOU-GED-118D1566 REV. A</p>	<p>g</p> <p>GE Energy Parts & Repair Services Louisville, KY</p>	<p>Page 5 of 6</p>
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6.3.4 Adjustment of Closing Rate Bias.

6.3.4.1 Verify that +30V is applied to pin-17 and that pin-19 is grounded. Be sure pin-19 is connected with the common potential of the +30V and the -22V power supplies.

6.3.4.2 Connect pin-11 with pin-12. (SW4 to position 2).

6.3.4.3 Adjust R4 until voltage at TP1 reads (V-CL Limit) (from data sheets).

6.3.4.4 Remove lead which connects pin-11 with pin-12.

6.4 Post Testing Burn-in Required ☒ Yes ☐ No



Note: All MARK I, II, & III Turbine related cards require a post testing burn-in of 100 hours.

6.4.1 Apply BUS or Operational power to the card for a period of 100 hours.

6.4.2 Re-test card while warm using the above procedure.

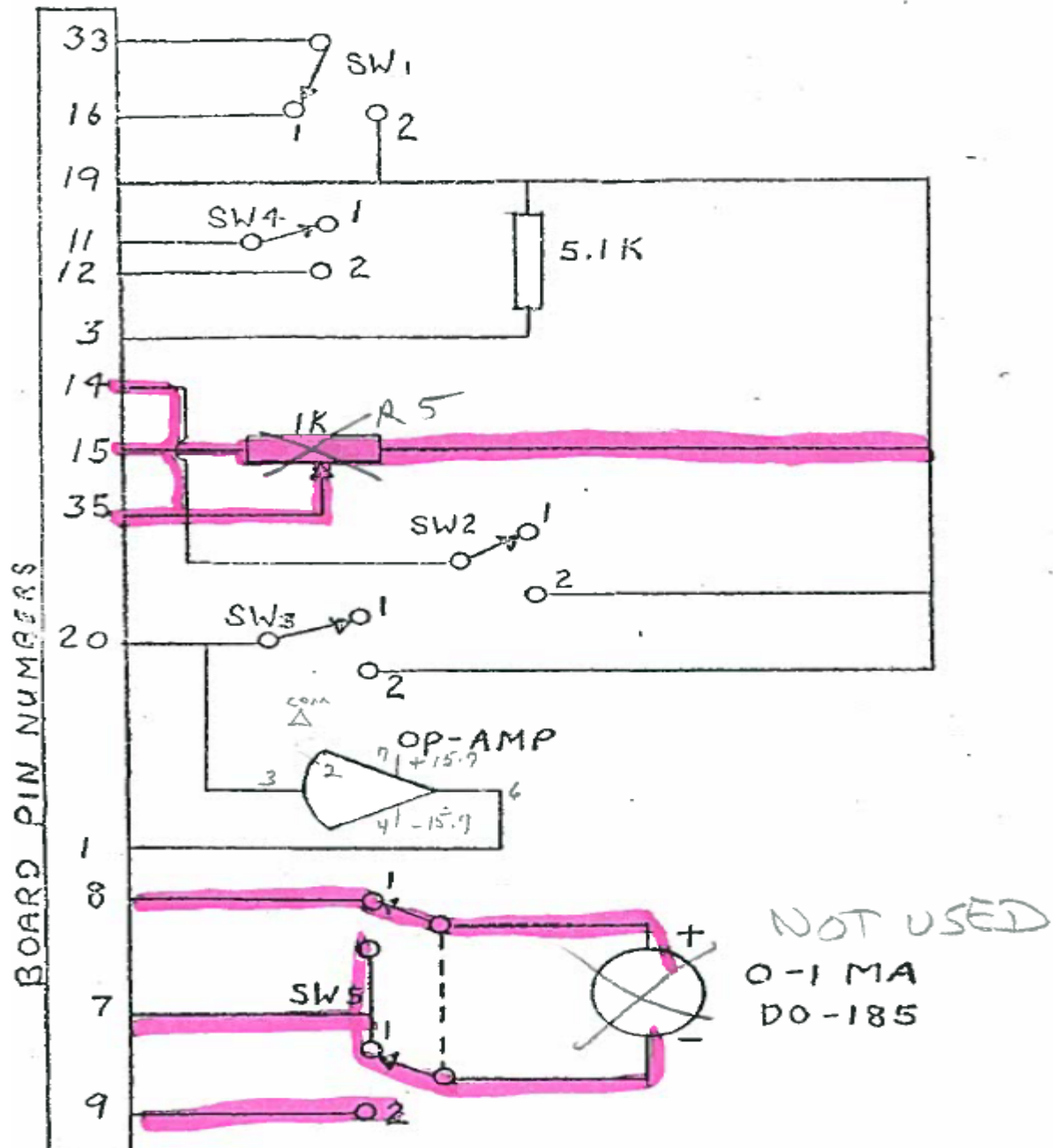
6.5 *TEST COMPLETE *****

7. Notes

7.1 None at this time.

8. Attachments

8.1 See next page for figure 1.



8.2 Figure 1