



GE Energy

## Functional Testing Specification

Parts & Repair Services  
Louisville, KY

LOU-GEF-3N8100PS102

### Test Procedure for a 1050 Memory Power Supply

**DOCUMENT REVISION STATUS:** Determined by the last entry in the "REV" and "DATE" column

REV.	DESCRIPTION	SIGNATURE	REV. DATE
A	Transferred from different format into this procedure	C. Wade	4/28/2010
B	Added section 6.2.8, one hour burn in for power supply.	C. Wade	5/5/2010
C			

© COPYRIGHT GENERAL ELECTRIC COMPANY

Hard copies are uncontrolled and are for reference only.

PROPRIETARY INFORMATION – THIS DOCUMENT CONTAINS PROPRIETARY INFORMATION OF GENERAL ELECTRIC COMPANY AND MAY NOT BE USED OR DISCLOSED TO OTHERS, EXCEPT WITH THE WRITTEN PERMISSION OF GENERAL ELECTRIC COMPANY.

<b>PREPARED BY</b> Rick Diercks	<b>REVIEWED BY</b>	<b>REVIEWED BY</b>	<b>QUALITY APPROVAL</b> <i>Charlie Wade</i>
<b>DATE</b> 4/28/2010	<b>DATE</b>	<b>DATE</b>	<b>DATE</b> 4/28/2010

<p><b>LOU-GEF-3N8100PS102 REV. B</b></p>	<p><b>g</b></p> <p><b>GE Energy</b> Parts &amp; Repair Services Louisville, KY</p>	<p><b>Page 2 of 5</b></p>
--	--	---------------------------

## 1. SCOPE

1.1 This is a functional testing procedure for a 1050 Power Supply

## 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 Instruction Book: GEK 36037C

3.1.2 Elementary Diagrams

3.1.2.1 44C285360 (PS102A1)

3.1.2.2 44C285848 (PS102C1)

3.1.2.3 44C283940 (BCR1)

3.1.2.4 44C286081 (PS102A2)

## 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
5		Fluke 77MM (or Equivalent)
2		PS102 Test Cable
1		3N8100PS102 Test Stand
1		20VDC Power Supply or Equivalent
1		Oscilloscope

<p><b>LOU-GEF-3N8100PS102 REV. B</b></p>	<p><b>g</b></p> <p><b>GE Energy</b> <i>Parts &amp; Repair Services Louisville, KY</i></p>	<p><b>Page 3 of 5</b></p>
--	---	---------------------------

## **6. TESTING PROCESS**

### **6.1 Setup**

**6.1.1** Wire Check using one of the elementary diagrams listed in section 3.

**6.1.1.1** Check components on heat sinks, 223TB-A through E, SW1 wiring AC input on 221TB, 223TB-B, 223TB-C, 223TB-D.

**6.1.2** Hook up connections and initial conditions on tester.

**6.1.2.1** Attach 115VAC cable to 221TB-C and 221TB-E.

**6.1.2.2** Attach cable labeled PS102, cannon connector to tester.

**6.1.2.3** Attach red & white leads to 223TB-A and 223TB-E.

**6.1.2.4** Attach 3 wire connector to REG8 3TB, white to J, Red to H, Blue to E.

**6.1.2.5** Attach 10 wire connector to REG8 1TB, A to A, P to P.

**6.1.2.6** Attach alligator clip to REG8 2TB-C.

**6.1.2.7** Hook up a 16VDC power supply to REG8 2TB-A (+) and REG 8 1TB-C (-), leave off.

**6.1.2.8** Attach 3 wire BCR1 connector to BCR1 1TB, A to A, B to B, C to C.

**6.1.2.9** Open load switches 1, 2, 3, (down).

**6.1.2.10** Turn AC OUT switch OFF.

**6.1.2.11** Set AC adjustment on 0 volts.

**6.1.2.12** Place battery charger load switch in LOW POSITION.

**6.1.2.13** Set PS1 and PS2 to minimum (CCW).

**6.1.2.14** Close SW1 on PS102 power supply panel. (ON)

### **6.2 Testing Procedure**

#### **6.2.1 Power On**

**6.2.1.1** Turn Tester's power switch on.

**6.2.1.2** Adjust PS1 to 5 volts with the selector switch on position 2.

**6.2.1.3** Adjust variac 115VAC for PS102A2 (48VAC for PS102C1), turn AC OUT switch ON. A slight whistle will be present. An audible hum from the transformer will indicate a fault in the supply. You may have to push the little red reset button on tester.

**6.2.1.4** Using the DC voltmeter on the tester measure voltages at the following points.

Location	Meter	Voltage	Tolerance
223TB-E to 223TB-A	Selector Switch 1	Approx. +13.65	
Across C1	Selector Switch 9	Approx. +16	+or- 1 volt

**6.2.1.5** Check AC voltage on BCR1 terminals C to A and C to B. See analog meter on tester along with toggle switch under meter. Voltage should be approximately 14VAC when the input voltage is 115VAC, depending how switch is flipped will read either (C to A) or (C to B).

**6.2.2 Adjust the battery charger output voltage.**

**6.2.2.1** Place the battery charger load switch to low. Stays in low position.

**6.2.2.2** Place the meter selector switch to position 1.

**6.2.2.3** Adjust potentiometer P1 on BCR1 board to +13.65 volts.

**6.2.3 Adjust the maximum battery charge current.**

**6.2.3.1** Place the oscilloscope ground lead on terminal 224TB-A (scope ground must be isolated from other grounds). Monitor waveform on terminal 223TB-A while placing battery charger load switch to high.

**6.2.3.2** Adjust potentiometer P2 on BCR1 board until a peak amplitude of .5 volts is obtained.

**6.2.3.3** Place the battery charger load switch to center, remove scope.

**6.2.4 Measure the voltage out of the pre-regulator by placing a DC voltmeter across 225TB-C and 222TB-B or (2TB-B and 2TB-C). The voltage will be approx. +16 volts (plus or minus 1 volt)**

**6.2.5 Using a DC voltmeter measure the output voltage levels on the REG8 board.**

**6.2.5.1** Voltage at 3TB-F should be +4.96VDC. Push red reset button if not there.

**6.2.5.2** Turn on 16VDC power supply.

**6.2.5.3** Voltage at 3TB-B should be around zero volts.

**6.2.6 Check the DC voltages on the REG8 board using the following chart.**

<u>Location</u>	<u>Voltage</u>	<u>Tolerance</u>	<u>Meter Position</u>	<u>Adjustment on REG8 board</u>
1TB-A	5	+.1V	3	P3
1TB-B	5	+.1V	4	P3
1TB-E	12	+.24V	5	P4
1TB-F	12	+.24V	6	P4
1TB-L	-5	+.1V	7	P2
1TB-M	-5	+.1V	8	P2
TS-2	+4.75V	+.01V	Check with meter	P1

NOTE: The tester's meter is not very accurate and any adjustment should be made with a separate multimeter.

**6.2.6.1** Close switches S1, S2, S3 on tester and recheck for regulation. Then lower AC input voltage to 105VAC on PS102A2 (40VAC on PS102C1) and recheck.

**6.2.6.2** Open S1, S2, and S3.

**6.2.6.3** Open SW1 on power supply.

**6.2.7 Checking battery operation**

**6.2.7.1** On tester place AC OUT switch off. Turn PS2 to 12.5 volts, meter position 1. Close SW1 on power supply.

**6.2.7.2** Reset red push button then recheck voltages as you did in section 8.

**6.2.7.3** Close S1, S2, and S3 to verify proper regulation, as in section 8. If power does not stay up increase PS2 from 12.5 volts to 13 volts. This allows for voltage drop in wires under load. If OK turn PS2 to zero volts.

**6.2.7.4** Open SW1 on power supply, open load switches S1, S2, and S3. Turn Tester off.

**6.2.8** Burn unit in for one hour.

**6.3 \*\*\*TEST COMPLETE\*\*\***

**7. NOTES**

**7.1** To reset the over voltage protector on REG8, remove AC power from the supply and open switch SW1 on power supply assembly.

**7.2** Due to long time constants on BCR1, long settling time are required following adjustments or changes in output loading on the battery circuit.