



GE Energy

Functional Testing Specification

Parts & Repair Services
Louisville, KY

LOU-GED-DS200IPCD

Test Procedure for a DS200IPCD

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A	Reformatted test from GEDS file 200IPCD.doc	J. Hardin	06/17/2014
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DATE 06/17/2014	DATE	DATE	DATE 7/10/2014

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1. SCOPE

1.1 This is a functional testing procedure for a DS200IPCD, Dynamic Brake Snubber 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

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	Description
2	DMM
2	DC Power Supply 60V or higher
1	1K 2W Resistor (104X123BH031)

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6. Testing Process

6.1 Power Supply Setup

6.1.1 Set DC Power Supply #1 to current limit at 125ma as follows:

6.1.1.1 With Supply off connect a jumper across + and - terminals.

6.1.1.2 Turn the I-limit and voltage knob fully counterclockwise.

6.1.1.3 Turn the Supply on and adjust I limit to 125ma.

6.1.1.4 Turn Supply off and remove jumper from the + and - terminals.

6.2 Power Test – Zener Test – D14 and D15

6.2.1 Connect DC Power Supply #1 with a 1K 2W resistor (104X123BH 031) in series with the plus lead to DBPL-3 and the minus lead to DBPL-2

6.2.2 Connect Digital Voltmeter #1 across DC Power Supply #1 before the 1K 2W resistor,

6.2.3 Connect Digital Voltmeter #2 plus to E7 and minus to E8.

Warning: Do Not Exceed 20 VDC on Digital Voltmeter #2 as damage will result to the transistor.

6.2.4 Adjust the DC Power Supply #1 to 40VDC, while watching the Voltage on Digital Voltmeter #2 it should read 17.8 to 19.7VDC.

6.2.5 Turn the DC Power Supply #1 voltage to zero and connect the plus lead to DBPL-2 and minus to DBPL-3

6.2.6 Adjust the DC Power Supply #1 to 40VDC, while watching the voltage on the Digital Voltmeter #2 it should read - 17.8 to -19.7VDC.

6.3 Power Test – Zener Test – D13

6.3.1 Connect DC Power Supply #1 with 1K 2W resistor in series with the minus lead to DBPL-2 and the plus lead to E6.

6.3.2 Connect Digital Voltmeter #1 across DC Power Supply #1 before the 1K 2W resistor,

6.3.3 Connect the plus lead to Supply plus and the minus to Supply minus. Connect Digital Voltmeter #2, plus to E6 and minus to E5.

Warning: Do Not Exceed 20 VDC on Digital Voltmeter #2 as damage will result to the transistor.

6.3.4 Adjust the DC Power Supply #1 towards 20VDC, while watching the Voltage on Digital Voltmeter #2, wait until it reads 11.4 to 12.6VDC.

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6.4 Transistor Test (C2E1-G2-E2)

- 6.4.1** Connect DC Power Supply #1 with a 1K 2W resistor in series with the plus lead to DBPL-3 and the minus lead to DBPL-2.
- 6.4.2** Connect DC Power Supply #2 with a 1K 10W resistor (104X123AG 008) in series with the plus lead to C2E1 and the minus lead to E2 (Both on IGBT).
- 6.4.3** Connect Digital Voltmeter #1 across the 1K 10W resistor, plus lead to DC Power Supply #2 and minus lead to C2E1.
- 6.4.4** Connect Digital Voltmeter #2 plus to E7 and minus to E8.
- 6.4.5** Adjust DC Power Supply # 2 for 40VDC.
- 6.4.6** Verify that Digital Voltmeter #1 reads zero volts (no current flow).
- 6.4.7** Next slowly adjust DC Power Supply #1 until a voltage drop appears on Digital Voltmeter #1 continue to slowly adjust DC Power Supply #1 until you read +38.5 to +40VDC on Digital Voltmeter #1. Digital Voltmeter #2 should read 5 to 7VDC.

6.5 Transistor Test (C2E1-G2-E2)

- 6.5.1** Testing not needed. Transistor not used

6.6 Resistors

- 6.6.1** Check value on resistors R31 and R32. Should be 470K +/-1%.

7. Notes

- 7.1** Steps 6.1 sets up current limits to DC Power Supply #1
- 7.2** Steps 6.2 test zeners D14 & D15 are operating correctly and that the connections are good.
- 7.3** Steps 6.3 test zener D13 is operating correctly and that the connections are good.
- 7.4** Step 6.4 checks that the transistor (C2E1-G2-E2) in the module is operating correctly.
- 7.5** Transistor C1-G1-E1 is not tested.

8. Attachments

- 8.1** None at this time.