g GE Energy	**Functional Testing Specification**
Parts & Repair Services ***Louisville, KY***	**LOU-GED-305A2078**

Test Procedure for a Volts/HZ Trip Alterrex Output Card

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Test Procedure for a Print Circuit Board

1. SCOPE

1.1 This is a functional testing procedure for a resistor assembly

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** Reference elementary 158C2489
- **3.1.2** Reference 305A2080 Test Instructions
- **3.1.3** Check 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 the local documented procedures 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 or cracked
  - **4.2.1.2** Terminal strips / connectors broken or cracked
  - **4.2.1.3** Loose wires
  - **4.2.1.4** Components visually damaged
  - **4.2.1.5** Capacitors leaking
  - **4.2.1.6** Solder joints damaged or cold
  - **4.2.1.7** Circuit board burned or de-laminated
  - **4.2.1.8** Printed wire runs 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		Multimeter 85 or equivalent
1		O-scope
1		24V Power Supply
1		15V Power Supply

6. **TESTING PROCES**

6.1 Setup

6.1.1 24VDC (+/- .2) is connected to pins 7 & 8. Common or ground shall be connected to pins 9 & 10.

6.1.2 Connect a 2.21K resistor between each of the following set of points.

From	To
Pin-11	Pin-8
Pin-12	Pin-8
Pin-30	Pin-8

6.1.3 One lamp (type 218A4867P1RD or 5V Red LED) is required to be connected to each of the following points. The opposite end of the lamp is connected per the test procedure.

6.1.3.1 Lamp L13 to Pin-13

6.1.4 Unless otherwise specified, the following conditions apply throughout the test procedure.

6.1.4.1 Voltages are positive DC.

6.1.4.2 DC inputs should be within 2 millivolts of nominal.

6.1.4.3 Inputs are to be floating unless a signal is specifically applied.

6.1.4.4 Once an input is applied it should be left applied until specifically told to remove it.

6.1.5 All scope measurements must be made with a scope that is completely isolated.

6.2 Testing Procedure

6.2.1 Apply power.

6.2.2 Verify 10.4VDC (+/-.5V) at IC102-14 with respect to TP101.

6.2.3 With an oscilloscope verify the waveform at IC104-11 with respect to 101TP. The waveform should be a square wave with 2 to 5 pulses per second.

6.2.4 Open SW102 and then depress and release the Reset Push-button (101PB).

6.2.5 Connect L13(-) to Common.

6.2.6 Close SW102 and verify the following.

6.2.6.1 L13 should be “ON”.

6.2.6.2 102L (Alarm Test/Trip Lockout) should be flashing.

6.2.6.3 Pin-12 should go from 24VDC to 0V.

6.2.7 Open SW102 and then verify L13 is “OFF”.

6.2.8 Press PB101 and verify 102L remains off and Pin-12 returns to 24VDC.

6.2.9 Apply 15.0 (+/- .1V) through a 2K resistor to pin-17 with respect to pin-19. Verify 101L (Trip) flashes on and off and pin-30 goes from 24VDC to 0V.

6.2.10 Remove 15V and 2K resistor input from pin-17, press PB101. Then verify 101L turns off and pin-30 goes to 24VDC.

6.2.11 With pin-15 open verify greater then 22V at pin-11 with respect to TP101.

6.2.12 Apply 15V through a 2K-ohm resistor to pin-15 with respect to pin-3, and then verify less then 100 millivolts at pin-11 with respect to TP101.

6.3 ***TEST COMPLETE ***

7. NOTES

7.1 None at this time.

8. Attachments

8.1 None at this time.