g GE Energy	**Functional Testing Specification**
Parts & Repair Services ***Louisville, KY***	**LOU-GED-IS200TRPS**

Test Procedure for a Terminal Board Trip Primary Steam card

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1. SCOPE

1.1 This is a functional testing procedure for a 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	Reference #	Description
1		Fluke 87 DMM (or Equivalent)
2 or more as needed		Tenma dual power supplies (or equivalent 125VDC, 28VDC, and 5VDC supplies)
1		ID chip reader
1		Test cable (Stored on test shelves)

6. TESTING PROCESS

6.1 Testing Procedure

6.1.1 Go first to sh.6. Apply P24VDC to pin 1 of the JA, JR, JS, and JT connectors. Apply P24com to pin 17 of same connectors (or just the JA1 connector if you wish). ESTOP circuit must be operational for testing. Connect TB2-44 to TB2-48. If K4 relays don't power up then D33 is probably shorted. You can test this by apply 24VDC between TB2-48 and PCOM. If K4 relays suddenly begin to work, and if once you have removed the 24VDC from TB2-48 and reconnected it to TB2-44 and the relays work once again, you have just blown the short right out of D33. Replace it.

6.1.2 Check pins 2,3,6,7 of U12 for +15VDC.

6.1.3 Check JA1-33 and JR1-33, both should have approximate 6.5VDC when ESTOP circuit is operating.

6.1.4 Now jump back to sh.2, leaving 28VDC applied as it was in Step 1 to keep ESTOP circuit energized, apply a ground to JA1-28 and PTR1 should fire. You must ground two or three of JR1-28, JS1-28, JT1-28 to fire PTR1. The same is true for PTR2 and PTR3, using JR, S, T, A1-29 and 30 respectively.

6.1.5 Jump to sh.4 Leave ESTOP circuit powered up. Apply 125VDC as follows: P125V to JP2-2, 3, & 4, N125V JP2-8, 9, & 10. Apply 5VDC through a 10K pull-up resistor to JR, S, T, A1-22 and observe with your meter. By using JA1-28 to fire PTR1 again, observe that U6 pin & output JR, S, T, A1-22 goes high. Repeat for PTR-2 and PTR-3 by observing JR, S, T, A1-23 and JR, S, T, A1-24 as they are fired.

6.1.6 Leave 125VDC powered up. Move 5V pull-up with meter to JR, S, T, A1-3. Cycle 125VDC power off, and then back on. Observe output go from low to high, then back low again, Repeat for JR, S, T, A1-4 and 11.

6.1.7 Individual 125VDC inputs: Move 5V pull-up with meter to JR, S, T, A1-12. Power down the 125VDC supply. Now connect as follows: N125VDC-TB1-5, 6, or 7, P125VDC-TB1-4 or J2-5. Turn 125VDC supply on. Observe 5V output go from High to Low. Repeat as follows:

Input (125VDC)	5V output
+J2-6 or TB1-14 -TB1-15, 16, or 17	JR, S, T, A1-8
+J2-7 or TB1-24 -TB2-25, 26, 27	JR, S, T, A1-8

6.1.8 Remove all power. Check ID chips using sh.7 for reference.

6.2 ***TEST COMPLETE ***

7. NOTES

7.1 None at this time?

8. ATTACHMENTS

8.1 None at this time?