



GE Energy

Functional Testing Specification

Parts & Repair Services
Louisville, KY

LOU-GEF-CSxx

Test Procedure for CS9 and CS11 Printed Circuit Boards

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DATE 08/10/2009	DATE	DATE	DATE 2/11/2010

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Functional test procedure for CS9 and CS11 Printed Circuit Board

1. SCOPE

- 1.1 This specification provides the Engineering Requirements for testing the CS9 printed circuit board 44A294579-G01 and CS11 44A294579-G02

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	GEK-71728	Diagnostic Software for 1050MC Controls
3.1.2	GEK-45668	Computer Access Panel
3.1.3	44C288574	Schematics

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 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	GE 1050MCCM Control	CPU3 Model
1	GE Computer Access Panel	External Interface
1	Diagnostic Tape Specific to Control	Diagnostic Tape
1	Executive Tape Specific to Control	Executive Tape

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6. TESTING PROCESS

6.1 Diagnostic Test

- 6.1.1 Remove Shop CS9 or 11 and install board to be tested.
- 6.1.2 Turn on Control.
- 6.1.3 Load the Diagnostic.
 - 6.1.3.1 Once the tape is fully loaded it will rewind back to the beginning (Before Test No. 1). The Display should show: Depress "Control OFF", then ON, follow this instruction at this time. If the Computer Access Panel is hooked up you will also have to hit the RUN switch to start the control's Diagnostic program.
- 6.1.4 Testing board with Diagnostics.
 - 6.1.4.1 Depress "**Option Stop**" button (Cycle Start and Option Stop push button will quit flashing).
 - 6.1.4.2 Test All Board Test; depress "**Cycle Start**" to run test. If all pass go on to Mode One Test (Depress "**Next**" then enter 1 from keyboard. Run for 1 to .5 hours.
- 6.1.5 Test I/O Device Test.
- 6.1.6 Start with READY ENTER DATA
- 6.1.7 Enter 44 from keyboard.
- 6.1.8 Depress "Next". The display then shows: INPUT DEVICES, DEPRESS NEXT.
- 6.1.9 Depress "Next" and the display indicates the first input device.
- 6.1.10 Test all input device until the completion of input device then the display will show OUTPUT DEVICES, DEPRESS NEXT.
- 6.1.11 Test all Output Devices by depressing the NEXT Button, Each time you depress next you will test output device, which is a LED on the Control station.
- 6.1.12 When output device test is completed the display should read "READY ENTER DATA"
- 6.1.13 Diagnostic test is done.

**** If there is no Errors go on to Functional Test.**

6.2 Functional Test

- 6.2.1 Testing in operation mole.
 - 6.2.1.1 Load Executive Tape.
 - 6.2.1.2 When Tape is loaded Depress Control "**ON**" to take control out of E-Stop, E-Stop light should go off and LED6 and LED7 on COM4 should come "**ON**". Depress Emergence Stop LED6 and LED should turn '**OFF**' then Depress Control "**ON**" to take control out of E-Stop light should go "**OFF**" and LED6 and LED7 should come "**ON**".
 - 6.2.1.3 Shut down Control and remove board under test.

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

7. NOTES

- 7.1 None at this time?

8. ATTACHMENTS

- 8.1 None at this time?