g GE Energy	**Functional Testing Specification**
Inspection & Repair Services ***Louisville, KY***	**LOU-GEF-APGMx** **1050HL Board**

Test Procedure for APGMx Printed Circuit Board for a 1050HL Control

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PREPARED BY	REVIEWED BY	REVIEWED BY	QUALITY APPROVAL
Rick Diercks			Charlie Wade
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Functional test procedure for 1050HL APGMx Printed Circuit Board

1. SCOPE

1.1 The instructions apply to all DIF2 boards in test.

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-71770

4. ENGINEERING REQUIREMENTS

4.1 Description

4.1.1 The 1050 Control is a solid-state, integrated circuit controller/processor system using LSI circuits for data processing and control. The static logic circuits are arranged on modular, plug in, printed circuit boards, clearly identified by type. The circuit boards are mounted with functional grouping. In addition, a board identification number marks each rack slot.

4.2 Equipment Cleaning

4.2.1 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.

4.3 Equipment Inspection

4.3.1 Equipment should be visually inspected for any defects prior to applying power. This inspection should include the following as a minimum:

- **4.3.1.1** Wires broken or cracked
- **4.3.1.2** Terminal strips / connectors broken or cracked
- **4.3.1.3** Loose wires
- **4.3.1.4** Components visually damaged
- **4.3.1.5** Capacitors leaking
- **4.3.1.6** Solder joints damaged or cold
- **4.3.1.7** Circuit board burned or de-laminated
- **4.3.1.8** 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 1050HL	Control with axis cart

6. Purpose:

6.1 To describe the procedure for testing the circuitry of the APGMx board using the 1050HL simulator.

7. General:

7.1 The board's entire memory is tested using the system's resident diagnostic software.

8. TESTING PROCESS

8.1 Procedure

8.1.1 Remove the test APGMx board from slot 16 and insert the board to be tested.
8.1.2 Special Mode Switch should be on (UP).
8.1.3 Press "ON".
8.1.4 "00" or "20" should appear in the message display and "?" in the alphanumeric display.
8.1.5 Press "P4", "1", and "ENTER". This instructs the control to read from the resident diagnostics boards.
8.1.6 A "T" will appear in the alpha display. Press "2000" and "ENTER". This instructs the control to read the block of diagnostics that contains the APGMx board tests. See Exhibit A.
8.1.7 Press "FWD".
8.1.8 An "I" will appear in the alpha display. Press "ENTER" to run test once or "00" and "ENTER", to iterate testing.
8.1.9 An "S" will appear in the alpha display. Press "ENTER" to stop if an error is detested or "N" and "ENTER" to continue testing.
8.1.10 A "V" will appear in the alpha display. Press "FWD" and testing will begin.
8.1.11 Any detected errors will be displayed in the message display. The meaning of these error codes can be found in Exhibit A.
8.1.12 If board has an EPROM set on it, be sure to verify checksum to masters.

8.2 ***TEST COMPLETE ***

8.3 Exhibit A

2021 Board Diagnostics for the 3050E Control
Test Descriptions - Axis Controller
Memory Tests and Timing Generator Diagnostic

EXHIBIT A

AXIS CONTROLLER MEMORY TESTS

Identification Number: 2000

Boards Tested: APGMI. 1, APGMI. 2

Commands: None

Displays: Standard displays

U - Displays pseudo-hex address of the last memory location in which an error was detected.

D - Displays pseudo-hex digits of data read from location specified by U, if an error was detected.

W - Displays pseudo-hex digits of data written to location specified by U, if an error was detected.

Table 8.
AXIS CONTROLLER MEMORY TEST NUMBERS

ERROR NUMBER	DETECTED FAILURE
77	Write/Read compare error on 16-bit Ram (0000H through 0BFFF)
78	Write/Read compare error on 8-bit RAM (0C00H through 0FFFH)
88	Failsa acknowledge

General Comments:

All memory on the APGMI. 1 and APGMI. 2 (if present) is tested.