g GE Energy	**Functional Testing Specification**
Parts & Repair Services ***Louisville, KY***	**LOU-GEF-CPSI1**

Test Procedure for CPSI1 Printed Circuit Board

DOCUMENT REVISION STATUS: Determined by the last entry in the "REV" and "DATE" column

REV.	DESCRIPTION	SIGNATURE	REV. DATE
A	Initial release	Rick Diercks	12/05/2009
B			
C			

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Rick Diercks			Charlie Wade
DATE	**DATE**	**DATE**	**DATE**
12/05/2009			12/8/2009

Functional test procedure for CPSI1F Printed Circuit Board

1. SCOPE

1.1 This specification provides the Engineering Requirements for testing the CPSI1F printed circuit board. The process applies CPSI1F board model number 44A398723-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-36093**	Diagnostic Software for 1050T Controls
3.1.2	**GEK-71632**	Diagnostic Software for 1050MC Controls
3.1.3	**GEK-45668**	Computer Access Panel
3.1.4	**44C3999950**	Schematics

4. ENGINEERING REQUIREMENTS

4.1 Description

The CPSI1 board is an interface board for the Computer Access Panel and the 1050 Control. Also the serial/output interface to the 1050 Control is on the board.

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 1050T PWM 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
1	Part Program	Exercise Tape
1	Axis Cart	Motion Cart for Control
1	RS232 Test Plug	Test plug for center connector.

6. TESTING PROCESS

6.1 Diagnostic Test

6.1.1 Remove Test CPSI1 board from 1050T Rack and place in board to be tested.

6.1.2 Install the upper and lower LP cables form Computer Access Panel and RS232 Test Plug into center connector.

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. Turn Control off then on Computer Access Panel will have to hit the RUN switch on Computer Access Panel to start the control's Diagnostic program follow this instruction at this time.

6.1.4 Setup the control for testing.

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"** than enter 1 from keyboard. Run for 1 to 2 hours. Depress "**Option Stop"** to stop test.

** **If there is no Errors go on to Computer Access Test/ RS232 Test.**

6.2 Computer Access Test/ RS232 Test

6.2.1.1 Using Computer Access Panel Depress "**Halt**" then Load RS232 Test Program (see last Page).

6.2.1.2 Load Program Counter with 6024 then the depress "**RUN**"

6.2.1.3 Program should halt @ 5seconds at location 602D. (This test should test loading program using Computer Access Panel interface with 1050 and RS232 Serial input/ output).

6.2.1.4 Turn off Control remove Diagnostic Tape install Exec Tape.

6.3 Running a Part Program

6.3.1 Turn on Control and Load executive software into control, be sure servos are disabled on motion cart.

6.3.2 After tape finishes loading and rewinding, turn off “SOFTWARE LOAD SWITCH”.

6.3.3 Press “CONTROL ON” push button to bring control out of an E-Stop condition. Control should display “**ZERO MACHINE**”.

6.3.4 Load short part program tape into tape reader and enable servos on motion cart.

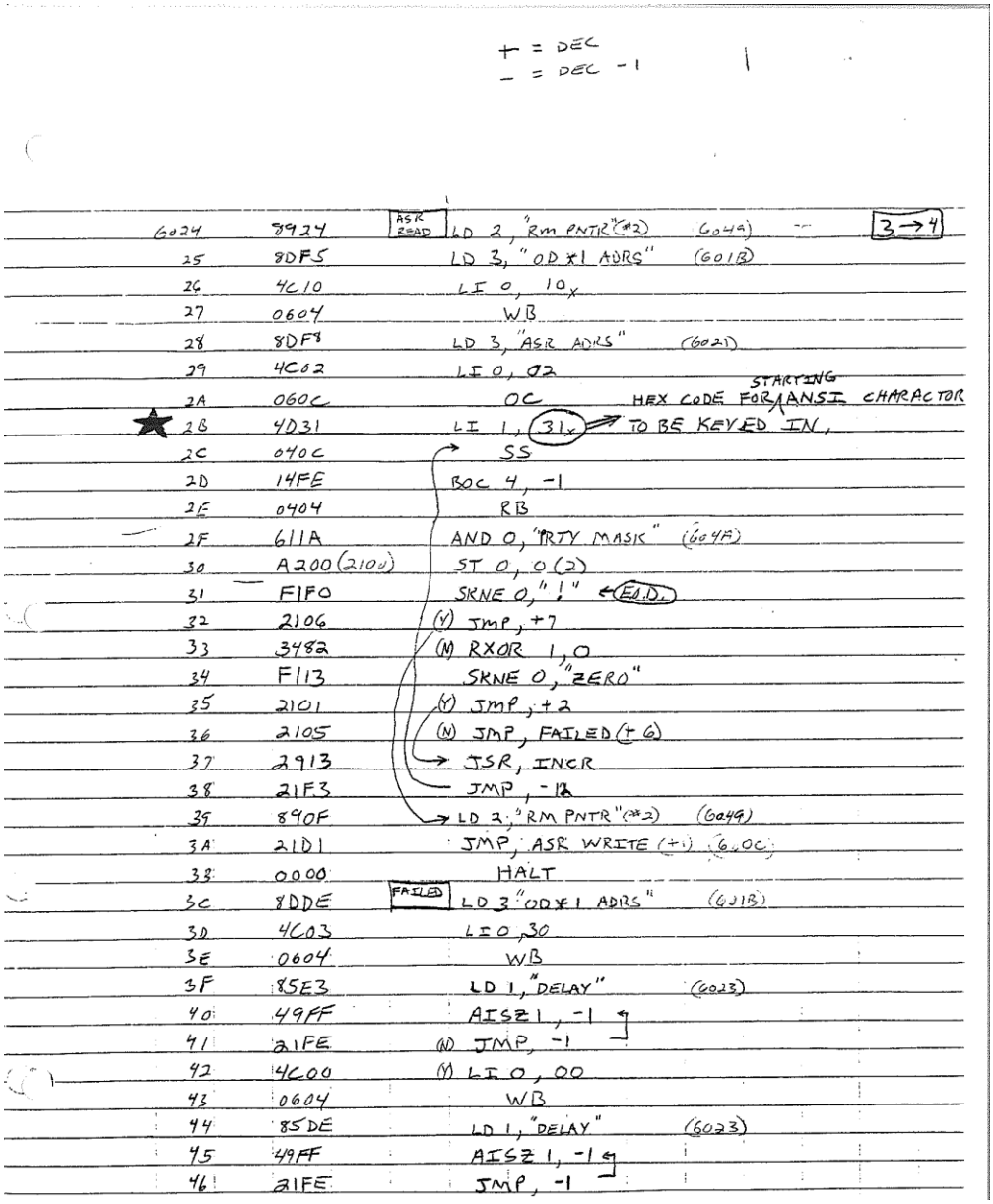
6.3.5 Press “CYCLE START” and tape reader should begin to read tape and axis’s should start turning. When tape is completed it should rewind.

6.3.6 Disable servos, shut down motion cart, and turn off control.

6.4 ***TEST COMPLETE ***

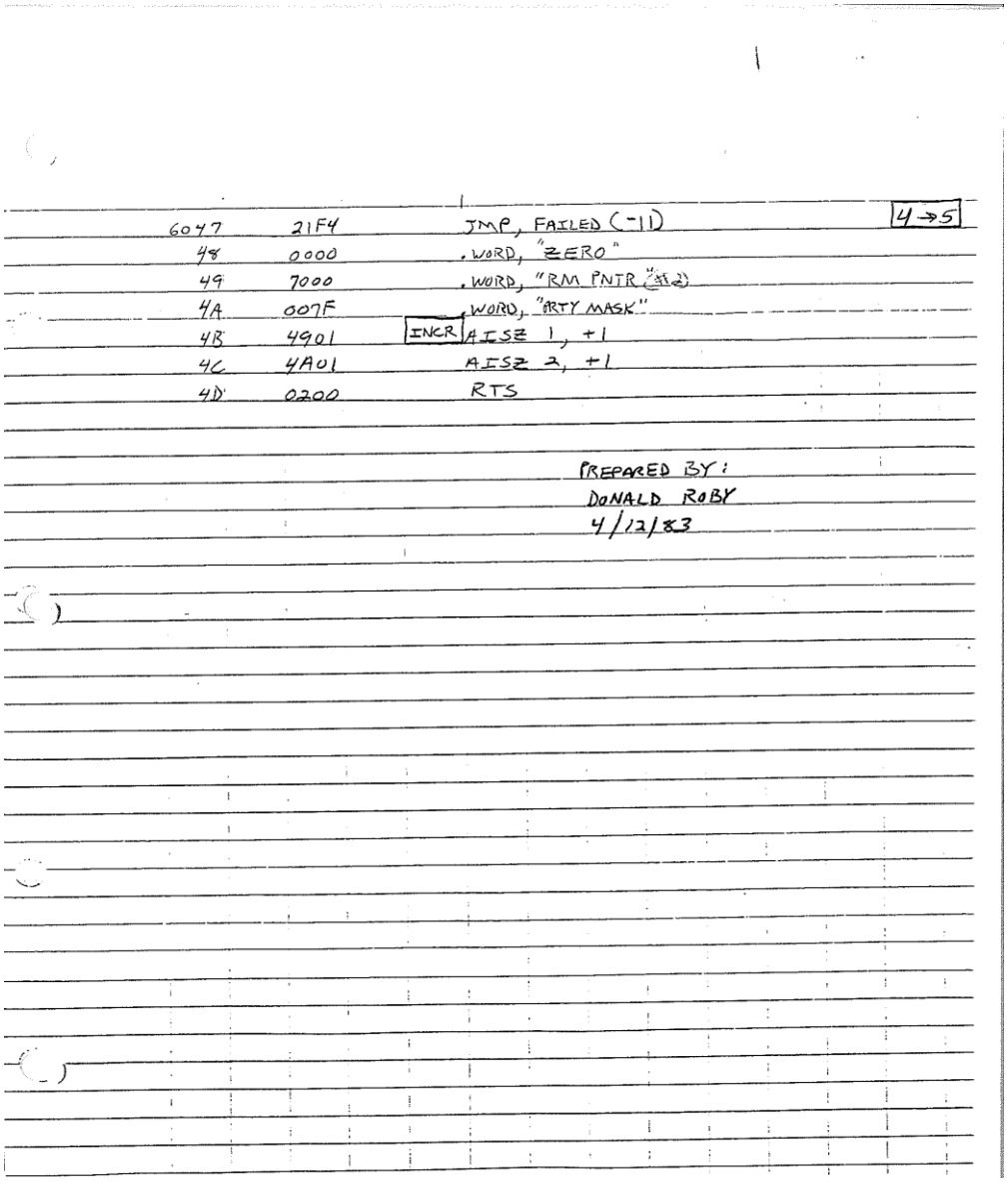
7. REFERENCES

7.1 RS232 Test Program next two pages.



```
                    + = DEC
                    - = DEC -1

6024  8924  ASR READ  LD 2, "RM PNTR" (#2)   (6049)   3→4
25    8DF5            LD 3, "OD*1 ADRS"      (601B)
26    4C10            LI 0, 10x
27    0604            WB
28    8DF8            LD 3, "ASR ADRS"       (6021)
29    4C02            LI 0, 02
2A    060C            OC   HEX CODE FOR STARTING ANSI CHARACTOR
2B    4D31            LI 1, (31x) TO BE KEYED IN,
2C    040C            SS
2D    14FE            BDC 4, -1
2E    0404            RB
2F    611A            AND 0, "RTY MASK"      (604A)
30    A200 (2100)     ST 0, 0 (2)
31    F1F0            SKNE 0, "!"  ← (E.O.L.)
32    2106            (Y) JMP, +7
33    3482            (N) RXOR 1, 0
34    F113            SKNE 0, "ZERO"
35    2101            (Y) JMP, +2
36    2105            (N) JMP, FAILED (+6)
37    2913            JSR, INCR
38    21F3            JMP, -12
39    890F            LD 2, "RM PNTR" (#2)   (6049)
3A    21D1            JMP, ASR WRITE (+1)    (6,0C)
3B    0000            HALT
3C    8DDE  FAILED    LD 3 "OD*1 ADRS"       (601B)
3D    4C03            LI 0, 30
3E    0604            WB
3F    85E3            LD 1, "DELAY"          (6023)
40    49FF            AISZ 1, -1
41    21FE            (N) JMP, -1
42    4C00            (Y) LI 0, 00
43    0604            WB
44    85DE            LD 1, "DELAY"          (6023)
45    49FF            AISZ 1, -1
46    21FE            JMP, -1
```



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6047   21F4    JMP, FAILED (-11)                    4→5
48     0000    .WORD, "ZERO"
49     7000    .WORD, "RM PNTR"
4A     007F    .WORD, "ARTY MASK"
4B     4901    INCR AISZ 1, +1
4C     4A01    AISZ 2, +1
4D     0200    RTS

                PREPARED BY:
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                4/12/83
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