Parts & Repair Services *Louisville, KY*	**Functional Testing Specification**
	LOU-GED-IS200ICBD

Test Procedure for a

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

REV.	DESCRIPTION	SIGNATURE	REV. DATE
A	Initial release	Richard Martin	5/7/20
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PREPARED BY	REVIEWED BY	REVIEWED BY	QUALITY APPROVAL
R. Martin			
DATE 5/7/2020	**DATE**	**DATE**	**DATE**

1. SCOPE

1.1 This is a functional testing procedure for an IS200ICBD 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)
1		Tenma Power Supply
1		10K Ohm Resistor

6. Modifications/Upgrades

6.1 IS200ICBDH1B replaces the IS200ICBDH1A, H1As were prone to bad messages and network crashes.

7. Testing Process

7.1 Setup

7.1.1 Connect power to the board (see Table 1-1 below).

Table 1-1

Voltage	To
+24 VDC	2PL-9
-24 VDC	2PL-8
+5 VDC	2PL-5 or 6
GND	2PL-4 or 7

7.2 Testing Procedure

7.2.1 Apply power to the card. Power should be applied during the following tests.

7.2.2 Isolated Voltages

7.2.2.1 Check for IP12 and IP24 voltages using Table 1-2.

Table 1-2

Voltage	J14-A, B, or C	J15-A, B, or C
+12 VDC	Pin 13	Pin 13
GND	Pin 14	Pin 14
+24 VDC	Pin 16	Pin 16
GND	Pin 15	Pin 15

7.2.3 IPOK Circuit

7.2.3.1 Apply 5 VDC to J15-B8 thru a 10K ohm pullup resistor.

7.2.3.2 Measure voltage at J15-B8 (use 2PL-4 or 7 for GND), voltage will be low.

7.2.3.3 Remove -24 VDC and J15-B8 will go high.

7.2.3.4 Reapply -24 VDC to 2PL-8.

7.2.4 Reset Circuit

7.2.4.1 Connect GND to 2PL-1, this must be low for circuit to work.

7.2.4.2 Check voltage at J13-A1 and 1PL-31, they will be high.

7.2.4.3 Push reset button SW1, J13-A1 and 1PL-31 will go low.

7.2.4.4 Remove GND from 2PL-1.

7.2.5 Inverting Buffers

7.2.5.1 Use 5 VDC thru a 10K ohm pullup resistor to toggle the input of U9 (1PL-38) while checking the output (J14-B24) to change from high to low.

7.2.5.2 Use Table 1-3 and apply 5 VDC to the inputs of QN1.

7.2.5.3 Toggle the inputs and check the outputs using 5 VDC thru a 10K ohm pullup resistor.

Table 1-3

IC	Input	Output
QN1-1	J14-B26	IOPL-19
QN1-2	J14-B27	IOPL-20
QN1-3	J14-C24	IOPL-21
QN1-4	J14-C25	IOPL-22
QN1-5	J14-C26	IOPL-23
QN1-6	J14-C27	IOPL-24
QN1-7	J14-C32	IOPL-25

7.2.5.4 Use Table 1-4 and apply a low (GND) to the inputs of each IC while checking the outputs to change from high to low. **NOTE:** (U10/U15-FHO0 - U10/U15-FHO3 will toggle the same as the input, due to them going thru two invertors)

Table 1-4

IC	Input	Output
U8-FIN0	1PL-8	J13-B26
U7-FIN1	1PL-9	J13-C18
U7-FIN2	1PL-10	J13-C30
U7-FIN4	1PL-11	J13-B31
U7-FIN5	1PL-12	J13-C24
U7-FIN6	1PL-13	J13-B20
U7-FIN7	1PL-39	J13-C10
U8-FIN8	1PL-40	J13-C27
U8-FT2R	1PL-28	J13-B23
U8-FHI0	1PL-29	J13-B29
U10/U15-FHO0	J13-B28	1PL-16
U10/U15-FHO1	J13-B24	1PL-17

Table 1-4 (cont.)

IC	Input	Output
U10/U15-FHO2	J13-C20	1PL-18
U10/U15-FHO3	J13-C16	1PL-19
U12-FHO4	J13-C22	1PL-35
U12-FHO5	J13-C26	1PL-36
U8-SYOSC	J13-B14	1PL-14
U10-FP10	J13-C32	1PL-20
U10-FP11	J13-C28	1PL-21
U11-FP12	J13-B8	1PL-22
U11-FP13	J13-B13	1PL-23
U11-FP14	J13-B15	1PL-24
U11-FP15	J13-B17	1PL-25
U11-FP16	J13-B18	1PL-26
U11-FP17	J13-B22	1PL-27
U12-FP26	J13-C14	1PL-32
U12-FP27	J13-C15	1PL-33
U13-LTBI1	IOPL-18	J14-A6
U14-LTBI2	IOPL-2	J14-A7
U13-LTBI3	IOPL-3	J14-A8
U14-LTBI4	IOPL-4	J14-A9
U13-LTBI5	IOPL-5	J14-A10
U14-LTBI6	IOPL-6	J14-A11
U13-LTBI7	IOPL-7	J14-B23
U14-LTBI8	IOPL-8	J14-B25

7.3 Post Testing Burn-in **Required** **_X_ Yes** **___ No**

7.3.1 Place board in the DC2000 Drive and run for one hour with errors.

7.4 ***TEST COMPLETE ***

8. Notes

8.1 None at this time?

9. Attachments

9.1 None at this time?