g GE Industrial Systems	**Functional Testing Specification**
Renewal Services ***Louisville, KY***	**LOU–GED-DS2020UCOC**

Test Procedure for a Card

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

REV.	DESCRIPTION	SIGNATURE	REV. DATE
A	Initial release	R. Thompson	05/05/95
B	Typo communication	R. Thompson	06/05/95
C	Fixed 230 V default position step 10.3	R. Thompson	07/12/95
D	Added DIP Sw CFG2, all OPEN step 10.4	R. Thompson	02/04/97
E	Removed Orange inspection step for DS200LRPAG1A	R. Thompson	12/02/01
F	Converted to Louisville format.	R. Duvall	06/27/02
G	Added Section for UCIA/UCPB testing.	R. Duvall	12/16/03
H	Added modification to assembly to keep control card from coming loose during shipping.	M. Starling	6/9/2010

PREPARED BY	REVIEWED BY	REVIEWED BY	QUALITY APPROVAL
R. Duvall	M. Starling		Robert Duvall
DATE	**DATE**	**DATE**	**DATE**
06/27/02	6/9/2010		06/27/02

Functional test procedure for OC2000 Operator Console.

1. SCOPE

1.1 This is a functional testing procedure for a OC2000 Operator Console or UC2000 Controller.

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.

2.1.1 Appropriate Bill Of Materials for item being tested
2.1.2 Assembly Drawings: 336A3548 & 336A3549
2.1.3 DS200UPLAG# documents
2.1.4 DS200UDSAG# documents
2.1.5 GEH-6334 – UC2000 Manual
2.1.6 GEH-6335 – OC2000 Manual

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 the local documented procedures 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		60 Hz Power Source
1		115 VAC Power Cord w/gnd.
1		DC200 Simulator for Arcnet test
1		Test PC with appropriate software (Control Systems Toolbox, Serial Loader)
1		OC2000 Test Unit
1		UC2000 Test Unit

6. TESTING PROCESS (OC2000)

6.1 New Modification 6-9-2010.

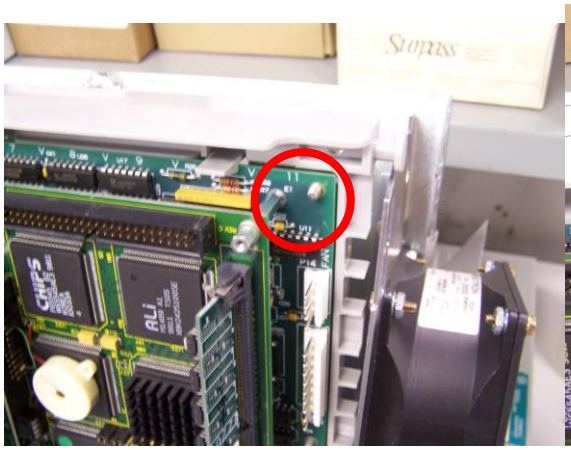
6.1.1 In an effort to reduce shipping damage please performed the following modifications.

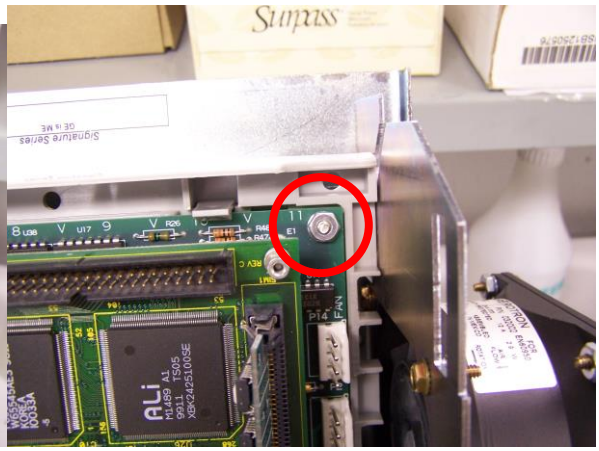
6.1.2 Cut nipples off of the four corners, front and back side of the grey card carrier. Leaved all other nipples intact.

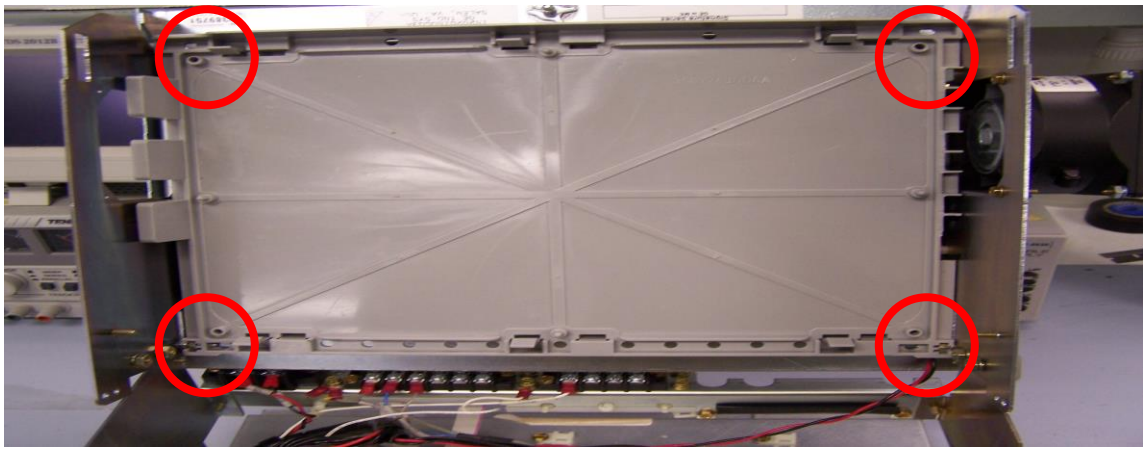
6.1.3 Using a scrap card that fits the card carrier, select a drill bit that is the same size as the four corner holes of the scrap card.

6.1.4 Snap scrap board into the carrier and use drill press to drill holes through the four corners of the carrier. The scrap card acts as a guide to keep the drill centered, and to locate holes in proper position.

6.1.5 Remove scrap board and install customers card. Select the appropriate length #6 screw and #6 shoulder nut and fasten customers card to the card carrier.







6.2 INSPECTION PROCEDURE

6.2.1 Verify DS200UDSAG1A Card revision level is "USE" in ORANGE book.

6.2.2 Verify 1 thick Gasket a one thin under keypad frame.

6.2.2.1 The keypad frame (inside) screws should be snug but not tight.

6.2.2.2 10 outside screws should be in a bag attached to Unit.

6.2.3 Lexan TB cover over 1TB. #34

6.2.4 Check all hardware for tightness.

6.2.5 Check all labels for proper location and nomenclature:

6.2.5.1 GENERAL ELECTRIC (logo on upper left front)

6.2.5.2 DS2020UCOCN1G1A (for Module id)

6.2.5.3 GND (for GND Lug)

6.2.5.4 CH A CH B 1TB (for ARCNET CH and 1TB id)

6.2.5.5 INPUT VOLTS: POWER (for Power, Fuse and RS232 id)

6.2.6 Verify assembly/MRP notes have been followed.

6.2.7 Visual Wire Check:

FROM	TO
1TB-AC1 (RED)	UPLAG1A-PWRPL-1 (Watch connector offset)
1TB-AC2 (BLK)	UPLAG1A-PWRPL-2
1TB-CCOM (WHT)	UPLAG1A-SGND
1TB-TX (CLR SLV)	UPLAG1A-ARCPL-7
1TB-RX (BLU)	UPLAG1A-ARCPL-8
1TB-SHD IN	CAPACITOR
CAPACITOR	CHASSIS GND
UPLAG1A-CMPL1	RS232 OPTION (should have 180ø twist)
UPLAG1A-CMPL2	UDSAG1A-CMPL (should lay flat)
UPLAG1A-2PL	UDSAG1A-2PL (Watch connector offset)
UPLAG1A-ARCPL	ACNAG1A-ARCPL (Watch connector offset)
3 KeyPad Ribbons	UDSAG1A-1KPL, 2KPL, 3KPL

6.3 JUMPER and SWITCH SETTINGS

6.3.1 POWER SW4 to OFF position.

6.3.2 JP1 & JP2 to 115 position.

6.3.3 JP25 to 9600 position. RS232 baud rate selection.

6.3.4 Set all jumpers to default position 1-2.

6.3.5 Set DIP Sw CFG1: (Selects Station Drop Number 5) SW1=F7/05

6.3.5.1 1, 3 OPEN position.

6.3.5.2 2, 4, 5, 6, 7, 8 CLOSED position.

6.3.6 Set DIP Sw CFG2: (Selects Operating Mode - TEST MODE)

6.3.6.1 1, 2, 3, 5, 6, 7, 8 OPEN position.

6.3.6.2 4 CLOSED position.

6.4 TEST CONNECTIONS

6.4.1 Connect 115VAC Power Cord to 1TB-AC1 & 1TB-AC2 & GND-GND LUG.

6.4.2 Leave ARCNET COAX cable disconnected at this time.

6.5 POWER TEST

6.5.1 Apply power to the OC2000 and DC2000 Simulator.

6.5.2 Set POWER SW4 ON.

6.5.3 P24, N24 Volt test.

6.5.3.1 Verify UPLAG1A GREEN LED (DS1) is on.

6.5.4 UPLAG1A serial communication with UDSAG1A test.

6.5.4.1 Verify UPLAG1A RED LED (DS2) is flickering.

6.6 DISPLAY TEST

6.6.1 Set UUT so to visually inspect the display.

6.6.2 Self Test

6.6.3 Momentarily press UPLAG1A SW5 RESET PB and verify display:

General Electric Operator Interface

Hardware Self Test Passed

Unit OK

6.6.4 You may repeat Self Test by pressing RESET PB again.

6.6.5 10 seconds later, LAMP test.

6.6.6 Verify all Display elements are on.

6.6.7 Verify all Keypad LEDs are on.

6.6.8 Verify LEDs centered in all the keypad windows.

6.7 KEYPAD TEST

6.7.1 Momentarily press all 32 keypad keys with LED indicator and verify the keys' LED goes out.

NOTE: When the first key is pressed, the display exits lamp test.

6.7.2 Momentarily press each of the 16 control keys and verify the 3rd row

6.7.3 display shows: --Key xx=0--

6.7.4 where xx is key code shown below:

Control Keys				Function Keys							
41	42	43	4A	01	02	03	04	11	12	13	14
44	45	46	4B	05	06	07	08	15	16	17	18
47	48	49	4C	09	0A	0B	0C	19	1A	1B	1C
4D	40	4E	4F	0D	0E	0F	10	1D	1E	1F	20

Note: Function keys are not tested via display. They are listed for info only.

6.8 9.0 ARCNET TEST

6.8.1 ARCNET Line Reconfiguration (LR) Test.

6.8.2 Connect the ARCNET COAX from the Simulator to CH A

6.8.3 BNC connector on Unit Under Test (UUT) and

6.8.4 LISTEN for the ACNA RELAY to pick up.

6.8.5 Verify displayed value of LR=** (second line) is NOT counting up.

6.8.6 Unhook ARCNET COAX from CH A on UUT.

6.8.7 Verify displayed value of LR=** is counting up.

6.8.8 Reconnect ARCNET COAX to CH B on UUT.

6.8.9 Verify displayed value of LR=** (second line) is NOT counting up.

6.9 FINAL INSTRUCTIONS

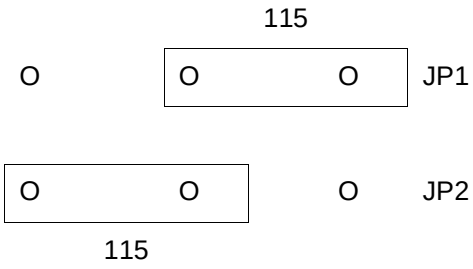
6.9.1 Turn off power to the OC2000.

6.9.2 Set POWER SW4 OFF.

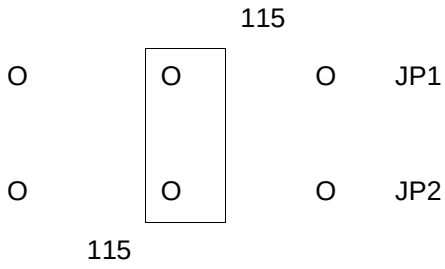
6.9.3 Set JP1 & JP2 to 230 position.

6.9.4 Set DIP Sw CFG2, position 4 to OPEN (position 1 thru 8, all OPEN).

115 Volt position



230 Volt Position



6.9.5

6.9.6 Verify bag of remaining frame screws (10) is attached to unit and that any other items(s) to be shipped with unit is complete per parts list.

6.9.7 Replace/tighten any parts removed during test.

6.9.7.1 Lexan 1TB cover.

6.10 ***TEST COMPLETE ***

7. TESTING PROCESS (OC2000)

7.1 UCIA/UCPB Testing

7.1.1 Setup

7.1.1.1 Install UUT in shop UC2000 test unit.

7.1.1.2 Install micro Geni cards.

7.1.1.3 Set Arcnet drop ID on UCPB card to 100 (Switch 3,6,7 up)

7.1.1.4 Connect and verify all cables.

7.1.2 Initial Test

7.1.2.1 Power up test unit and wait for boot up to complete.

7.1.2.2 Record any fault code present on the DN1 LED bank on the UCIA card.

7.1.2.3 Use the Serial Loader software on the test PC to read the current IP address.

7.1.3 Serial Load

7.1.3.1 Follow the instructions of the Serial loader software to reload the BIOS with the current BIOS information.

7.1.3.2 Use the Serial Loader software to reload the Flash File System and program the TCP IP settings. (192.168.101.122)

7.1.3.3 Close the Serial Loader software when complete.

7.1.4 Toolbox Load

7.1.4.1 Use the current version of GE Control Systems Toolbox to load the Product Code (Runtime).

7.1.4.2 After a successful Runtime load and reboot, download the UC1.ucb file to the UUT.

7.1.4.3 Reboot the UUT when complete.

7.1.5 Final Checkout

7.1.5.1 Verify the operation of the Genius I/O by using the OC2000.

7.1.5.2 Verify control of the DC2000 drive from the OC2000. (DC2000 must be setup for Arcnet, param 706=9)

7.1.5.3 Let UUT run for several hours and perform Final Checkout again.

7.1.6 Testing Complete

8. NOTES

8.1 None at this time