

## Test Procedure for a Universal Controller Assy, UCVF

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LOU-GED-IS215UCVF REV. A	g  <b>GE Energy</b> Parts & Repair Services Louisville, KY	Page 2 of 7
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## 1. SCOPE

1.1 This is a functional testing procedure for a Mark VI Universal Controller Assembly (UCVF).

## 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 N:\Design Folders\IS2\IS215\UCVF

## 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		Mark VI test rack Sim74

## 6. TESTING PROCESS

### 6.1 Setup

6.1.1 Setup is called out in each step.



**Note: This test currently covers only IS215UCVF.**

**Replace 3V Lithium battery with new before testing board. Disable battery jumper before replacing battery. Be sure to check battery connections after soldering for breaks/opens.**



**Note: This card can only be installed into the new Mark VI racks.**

### 6.2 Testing Procedure

#### 6.2.1 Initial Inspection:

6.2.1.1 Look the card over very closely. Physical damage & corrosion have been found on these units, along with missing hardware.

6.2.1.2 After the battery has been replaced.

To check the voltage on battery connect positive side of meter to E8 pin 7 then connect the negative side of meter to P2 D31. Verify meter reads greater than 2.8Vdc.

#### 6.2.2 Typical current draw: **Note: B1 connects to both circuits.**

6.2.2.1 (B1) After battery jumper is removed/disabled, connect a current meter to J10 Pin-1 to Pin-2. Current should read between **3uA to 5uA draw, typical**. If unit is 6uA or higher, the RTC circuit is overdrawing and battery will not last for the advertised rated period. This RTC circuit goes to a BGA (U35). If this circuit is incorrect we will have to send the card out for repair, because we lack the ability to change out BGA devices.

6.2.2.2 (B1) Next connect the current meter to E8 Pin-7 to Pin-8. Current should read **.1uA draw, typical**. If unit is .2uA or higher, U62 may require replacement to lower current draw.

6.2.2.3 GE Control Systems Solutions Toolbox, compact flash Core and TCP/IP. Remove the compact flash from the board, and set it up in the card reader. With Sim74 file of Toolbox opened up, select Device in the left of the upper toolbar, then Download, and Compact Flash. This sets up the TCP/IP address and core load for the next test step.

### 6.2.3 GE Control Systems Solutions Toolbox, card testing:

- 6.2.3.1.1 This test is performed when the unit is plugged into the rack, and includes the VCRC Graphic Test, which is performed simply as an exercise to get the UCVF to perform a task that might be asked of it in the field.
- 6.2.3.1.2 With rack power OFF, slide in the VCMI, VCRC and the UCVF connect the **RED** Ethernet cable to Lan1, connect the **BLUE** Ethernet cable to Lan2 then connect the mini D-shell connect to COM1. Power up the rack, and wait for it to finish booting up. Make sure the first word on the left-most menu, SIMPLEX, is highlighted.
- 6.2.3.1.3 Once it boots up, click on Device, then Download, and Product Code. When it's done, it will prompt you for a reboot.
- 6.2.3.1.4 Click NO and then cycle power to the rack. Once unit has finished booting up again, click on the button in the upper toolbar that has a checkmark on it. The window below should ultimately reflect "Validation complete with 0 errors & 0 warnings".
- 6.2.3.1.5 Next, click on the Build button, which has a hammer and ruler on it, and the lower window should display "xx records with 0 errors-SUCCESS" (xx records can be any number).
- 6.2.3.1.6 Go online by clicking the button on the upper right of the toolbar with two mating yellow plugs. You should see two small windows on the lower right side of the screen, one with UNKN and the other with NO CODE.
- 6.2.3.1.7 Now go to the Download button, the one with the red arrow pointing downward, click OK, then look for Download Complete.
- 6.2.3.1.8 Go Offline with the same button you went online with, cycle power to the unit, and wait for the reboot.
- 6.2.3.1.9 Once rebooted, look for the two windows in the lower right to now be Green and showing Control and Equal. NOTE: If by chance you end up with a red FAIL and green EQUAL lit up, try downloading the configurations to the VCMI and VCRC and rebooting.

#### 6.2.3.1.10 ETHERNET TEST LAN1 and LAN2.

6.2.3.1.11 Once toolbox has **CONTROL**, **EQUAL** click on the VCM1 to see live data.

This verifies that LAN1 is connected and working.

To test LAN2 open the command Prompt and type the following.

Ping 192.168.101.75 this pings LAN2.

#### 6.2.4 COM1 TEST

6.2.5 Power off the Rack then open the serial2 connection, power up the rack, on the Hyper Terminal the data on the screen will be like the example below.

```

Serial-2 - HyperTerminal
File Edit View Call Transfer Help

Proc output to serial port 3f8 at 9600 baud
Press RETURN key within 2 SECONDS to ABORT uc2k startup
'platform' found - NORMAL startup

cd /usr/bin
platform -u &
platform V02_04_01C - Apr 15 2010 02:22:54
UC2K Start: Platform Registration After 4 Seconds.
en1: flags=8863<UP,BROADCAST,NOTRAILERS,RUNNING,SIMPLEX,MULTICAST>
inet 192.168.101.74 netmask fffffff0 broadcast 192.168.101.255

cd /usr/bin
sys &
*****
MARK VI Runtime Version V05_13_04C
*****

sys_mk6 V05_13_04C - Apr 15 2010 02:26:33
V070300C FEB 2010

uc_idle V05_00_01C - Apr 15 2010 02:18:17
bgnd V06_06_00C - Apr 15 2010 02:14:03
heartbeat V06_04_01C - Apr 15 2010 02:21:39
diag V06_00_05C - Apr 15 2010 02:14:34
sdi V05_02_03C - Apr 15 2010 02:20:10
adl V07_00_10C - Apr 15 2010 02:22:37
diag_alarm V01_00_01C - Apr 15 2010 02:23:11
regio V05_00_00C - Apr 15 2010 02:21:28
modbus V02_00_00C - Apr 15 2010 02:12:59

dpm_mgr V01_10_01C - Apr 15 2010 02:23:32 - ECL 3.5 beta-0
login: *** Expansion begun ***
mapper V06_00_00C - Apr 15 2010 02:21:03
data_init_slave entering init loop...
data_init_slave found designated mode, exiting...
data_init_slave() completed successfully.
fgnd V06_16_00C - Apr 15 2010 02:15:07 (40.0 mS)
fgnd V06_16_00C - Apr 15 2010 02:15:07 (320.0 mS)
*** Expansion completed successfully ***

***** Mark VI Initialization Completed *****

```

When the unit has completed the Initialization hit the Enter key

The Login prompt will appear. Type root hit enter then type ge all lower case

Login: root



**6.2.6 Reset Compact Flash to Default:** This is very important. The unit **MUST** be reset to factory default flash settings to prevent conflicts in the field, or possible corruption when the customer goes to set the unit up for their needs.

**6.2.7 Compact Flash:**

**6.2.7.1** There should be a compact flash card mounted into a slide holder/socket that needs to be flashed. This flash that needs to be performed is the default that, after you have finished testing later on, will once again be reloaded at the end of this test.

**6.2.7.2** Remove the compact flash card from the unit, and install it into the socket located behind the keyboard on the bench right below the Sim70 rack.

**6.2.7.3** Call up the compact flash program on your desktop. Select the file that most closely matches the one labeled on the card. I say most closely because the one in the computer may be a slightly newer revision than what's in the card. For example, your card may end with \*BWP3, but \*BWP4 is what's on the menu. Select \*BWP4 and remember to print a new label to place over top of the old one on the card.

**6.2.7.4** When you select the file you want, the next window that pops up has a button on the upper right that says, "**Write**". Click on it, and then once again select the file from the next menu. It'll be the same one. You should get a progress bar next, followed by another one, and then it is finished. After the next few steps, at the end of this test, you'll be prompted to repeat this step in order to send the unit out with the default settings, so the customer can set it up for their needs.

**6.2.8 Jumpers for Battery:** Per Service Bulletin PSB25136, board jumpers shall be disabled for shipment. Estimated storage life can also be found in this bulletin.

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

**7. NOTES**

**7.1** None at this time.

**8. ATTACHMENTS**

**8.1** None at this time.