g GE Energy	**Functional Testing Specification**
Parts & Repair Services ***Louisville, KY***	**LOU-GED-IS200BPPB**

IS200BPPB Programming Procedure

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

REV.	DESCRIPTION	SIGNATURE	REV. DATE
A	Transition and updated from GED Salem's information. Modified for generic use at the Louisville Repair Facility	R. Duvall	12/8/2009
B	Revised procedure to cover testing of BPPB cards and programming after testing.	R. Duvall	12/17/09
C			

PREPARED BY	REVIEWED BY	REVIEWED BY	QUALITY APPROVAL
R. Duvall			Charlie Wade
DATE	**DATE**	**DATE**	**DATE**
12/8/2009			12/9/2009

1. SCOPE

1.1 This is a programming/testing procedure for the IS200BPPB interface 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 GEH-6701 – ToolboxST for Power Conversion Control

3.1.2 Check the board's electronic folder for current schematics for revision being serviced.

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	H188727	SIM120 Wind card mobile programming system
1	H188701 or H188849	UTS3000 test system
1	H188820	UTS3000 fixture for AEPA card

6. TESTING PROCESS

6.1 Utilizing the UTS3000 test system and the test fixture for IS215AEPA cards, install the BPPB card to be tested on known good AEPA test card and perform full functional test of AEPA card. Refer to test procedure on AEPA card for detailed instructions.

6.2 Prior to testing a BPPB card on the UTS3000 system the BPPB card must be programmed as an AEPA prior to testing. (refer to section 7)

6.3 *Note: This step will be revised to indicate test on TOFFEE system in 2010***.**

7. Programming Procedure

7.1.1 This procedure starts with a BPPB card and reprograms it with new Boot, Base and Runtime firmware (if required) for use on an upper level assembly such as an IS215AEPA or AEPC.

7.1.2 On the programming station PC, start the "BPPB Downloader" program.

7.1.3 In the "BPPB Downloader" program:

7.1.3.1 Select Product = **(AEPA, AEPC, BPPBM02, or I/O Pack)**

7.1.3.2 Select Version = i.e. **V03.02.06C (use the highest revision listed unless for a special load)**

7.1.3.3 Set IP Address to the following:

7.1.3.3.1 For AEPA – 192.168.0.23

7.1.3.3.2 For AEPC – 192.168.4.1

7.1.3.3.3 For BPPBM02 – (to be updated when test is completed)

7.1.3.3.4 For WECA - (to be updated when test is completed)

7.1.4 Make the following connections to the BPPB card to be programmed:

7.1.4.1 Serial cable from PC COM1 to BPPB–J10 (use IS200BPDBH1BPR1 interface card or shop jumper card)

7.1.4.2 Crossover Ethernet cable from PC 2nd NIC to BPPB–J4 or connect through HUB *(HUB is preferred for isolation)*

7.1.4.3 24 VDC power supply to BPPB. *(This is performed by installing the card on a working AEPC and applying power to J7)*

7.1.5 In the "BPPB Downloader" program:

7.1.5.1 Apply power to BPPB and Verify boot-up text scrolls in the dialog window. Wait for the text to finish scrolling in the dialog window.

7.1.5.2 Click the **Login** button. Wait for the command to finish.

7.1.5.3 Click the **Set IP Address** button. Wait for the command to finish.

7.1.5.4 Click the **Ping** button. Verify correct response in the DOS window:

7.1.5.4.1 Example: Reply from 192.168.4.1: bytes=32 time<10ms TTL=255

7.1.6 Click the **Download Boot, Base** button. Wait for Download Complete message.

7.1.7 Click the **Install BOOT** button. Wait for Boot Install Complete message.

7.1.8 Click the **Install BASE** button. Wait for Base Install Complete message.

7.1.9 Click the **Shutdown** button. *(this action will start a controlled software shutdown and reboot of the card's QNX operating system.)*

7.1.10 Verify boot-up text scrolls in the dialog window. Wait for the text to finish scrolling in the dialog window.

7.1.11 Click the **Ping** button. Verify correct response in the DOS window:

7.1.11.1.1 Example: Reply from 192.168.4.1: bytes=32 time<10ms TTL=255

7.1.12 Remove power, serial and Ethernet connections from the BPPB.

7.1.13 **For AEPC cards only!**

7.1.13.1 Open ToolboxST program and load AEPC file.

7.1.13.2 Use download wizard to scan for AEPC controller.

7.1.13.3 Verify Boot and Base are equal. (Downloaded by BPPB Downloader program)

7.1.13.4 Select Firmware and Runtime check boxes to download. (This will load card with factory default configuration)

7.1.13.5 Select next and observe download to verify download occurred with no errors.

7.1.13.6 Return to main screen after download and verify Toolbox will go online by selecting the online icon on far right of toolbar. (This step is to verify card accepted default configuration)

7.2 ***Programming COMPLETE ***

8. NOTES – General reference for PC/SIM setup

8.1 The following parts are required for the programming station PC:

8.1.1 PC Hardware

8.1.1.1 Generic PC running Windows XP or 2000

8.1.1.2 A 2nd NIC card, set to IP address 192.168.4.120 / 255.255.255.0

8.1.1.3 Unused COM port #1

8.1.2 Software

8.1.2.1 **ToolboxST** for Power Conversion Control (version 3.3 as of 12/16/09)

8.1.2.2 The "**BPPB Downloader**" program must be installed on the programming station PC. The installation can be accessed from the following server location:

8.1.2.2.1 \\pdevnt\Public\BPPB Downloader\

8.1.2.2.2 Note: The "ToolboxST" program must be installed on the programming station PC. Installation of the program will put the proper TGZ files in the proper directories for downloading.

8.1.3 Other Hardware

8.1.3.1 The following parts are required for interfacing to the BPPB card:

8.1.3.1.1 24vdc power supply

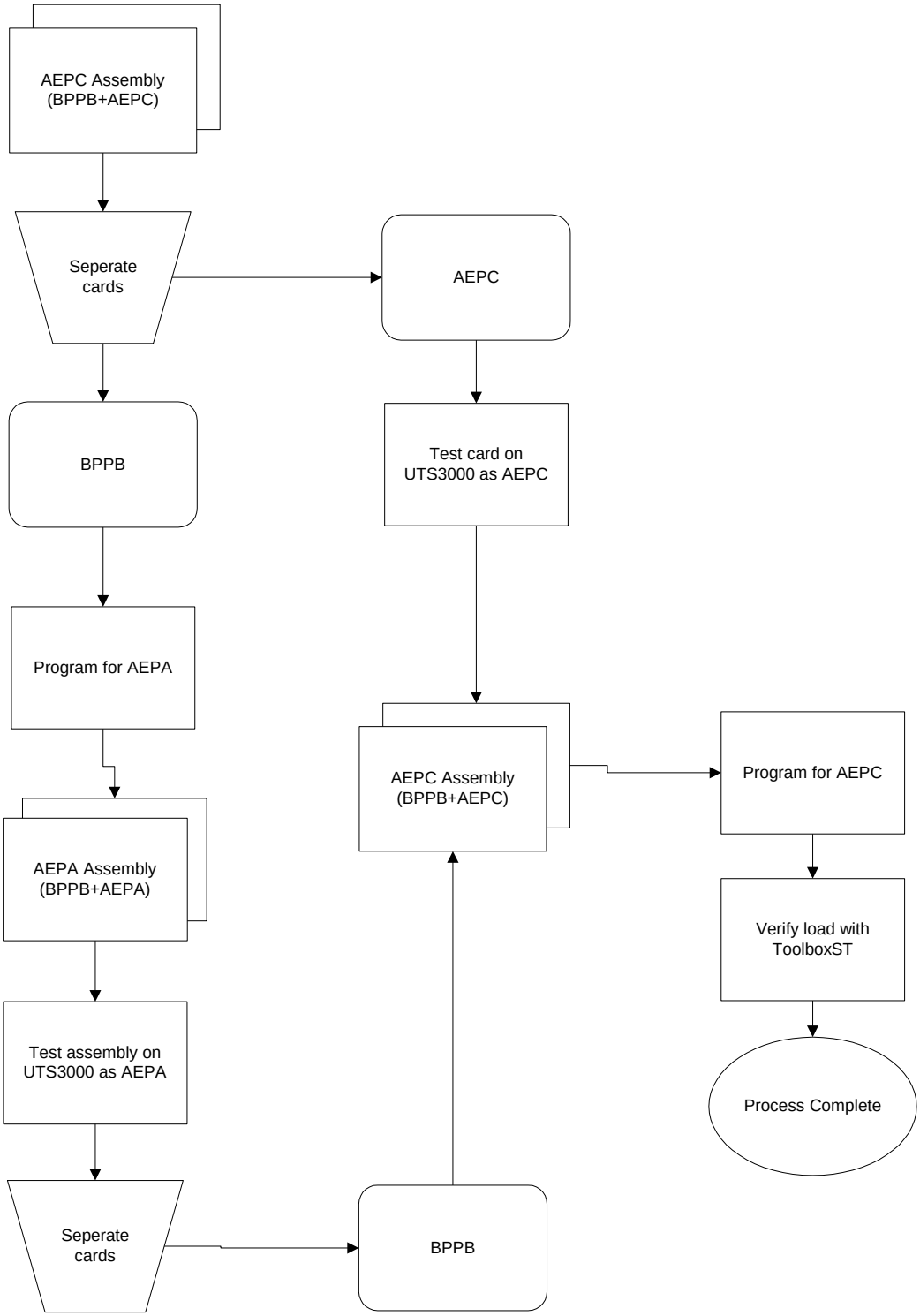
8.1.3.1.2 Serial interface card, part # IS200BPDBH1BPR1

8.1.3.1.3 Straight-thru serial cable (9-pin d-shell)

8.1.3.1.4 Crossover Ethernet cable or HUB (HUB preferred for isolation properties).

9. ATTACHMENTS

9.1 Picture of Fixture to go here when completed
9.2 AEPC testing overview flowchart



Basic AEPC testing overview.