g	GE Energy	**Functional Testing Specification**
	Parts & Repair Operations *Louisville, KY*	**LOU–GED-DS2020EXPS-C**

Test Procedure for an EX2000 Power Supply

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

REV.	DESCRIPTION	SIGNATURE	REV. DATE
A	Initial release	John Madden	8/28/06
B	Addition of DS2020EXPS test fixture and notations to that effect	John Madden	9/28/06
C	Added special note on Standoffs being brittle	C. Wade	9/10/2007

PREPARED BY John Madden	REVIEWED BY	REVIEWED BY	QUALITY APPROVAL *Charlie Wade*
DATE Aug 28, 2006	DATE	DATE	DATE 9/29/2006

1. SCOPE

1.1 This is a functional testing procedure for a DS200EXPSG1 Power Supply Assembly.

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 **K:\DS\DS200\DS200E\EXPS\Test notes.pdf**
   3.1.2 **K:\DS\DS200\DS200E\EXPS\ECN'S**
   3.1.3 **K:\DS\DS200\DS200E\EXPS\DS200EXPSG#ACSH4AA.TIF**
   3.1.4 **K:\DS\DS200\DS200G\GDPA\Schematics\AK**
   3.1.5 **K:\DS\DS2020\EXPS**

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, 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)
2		Tenma dual power supplies
1	H188632	DS2020EXPS test fixture (optional, but nice to have when testing just an EXPS card)

6. TESTING PROCESS

6.1 Setup

6.1.1 **BE ADVISED: There is an ATE test for the EXPS card. Be sure to use that test first. This is an auxiliary test, more for troubleshooting a specific problem. This test will however need to be used for the entire DS2020EXPS assembly.**

6.1.2 **SPECIAL NOTE:** Had problem with brittle standoffs breaking. Be sure to replace all standoffs, per QA.

6.1.3 Check to make sure that the main four cables are connected between the EXPS and GDPA cards. The connectors on each card are labeled the same for each end of the cable, simplifying the search. Make sure DCPL is connected between the two boards, as well as 3GDPL, 4GDPL, and CPTPL.

6.1.4 The ACPL connector of the GDPA card connects to 120Vac power, but don't apply voltage yet.

6.1.5 The green DCTB plug connector on the EXPS card is for auxiliary 120Vdc backup voltage, and should not be connected at this time.

✏️ **Note: Keep in mind the DS2020 designation when looking things up for this unit. They took the DS200EXPS name of the top card and called the whole assembly DS2020EXPS. It's easy to confuse one for the other when looking things up, and can cause you to not find whatever it is you're looking for if you type in the wrong thing. Also, there is now a complete DS2020EXPS assembly available to use if you happen to only be testing an EXPS card. Sometimes we receive a complete unit, other times the customer only sends in the upper (EXPS) or lower (GDPA) card. There is a separate test procedure for the DS200GDPA card, but you may also use the complete DS2020EXPS assembly to test them in addition to that test, as well.**

6.2 Testing Procedure

6.2.1 Apply 120Vac power to the unit as described in step 6.1.2. You should see the green "READY" and yellow "AC IN" LEDs light up on the GDPA card.

6.2.2 Measure the output voltages on the EXPS card. You should find 120Vdc between 1TB-1/2TB-1 and 1TB-3/2TB-3. Next, with your negative meter lead placed at COM (5TB-2, 6TB-2, 7TB-2, 8TB-2, 1EPL-4, or 1EPL-1), measure +24Vdc (unregulated) at 1EPL-6, 1EPL-2, 5TB-1, 6TB-1, 7TB-1, or 8TB-1. Without moving your COM lead, you should measure –24Vdc (unregulated) at 5TB-3, 6TB-3, 7TB-3, 8TB-3, or 1EPL-5.

6.2.3   There should be approximately 120Vdc across 1FTB-1/1F1PL-1 and 1FTB-3/1F1PL-2. This is rectified on the EXPS card directly from the incoming 120Vac power on the GDPA card via the CPTPL connector.

6.2.4   If all voltages read correctly, then power down the unit and remove the 120Vac connection. For this test, you don't want to risk blowing up your Tenma DC Power Supplies. With 120Vac connection removed, connect the DC power supplies so that you are able to apply 120Vdc across DCTB-1 (P125) and DCTB-3 (N125). With this connection made, and with power applied, unit should power back up again just like it did when the 120Vac was supplying power. This connection simulates a battery or capacitor bank connection to the DCTB connector and connects directly with the DC "link" bus on the GDPA card. You should now be able to repeat steps 6.2.2 and 6.2.3 with little or no appreciable difference in performance. If all voltages look good, then you are done.

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

6.4   ***TEST COMPLETE ***

7.   <u>NOTES</u>

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8.   <u>ATTACHMENTS</u>

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