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QUALITY REP: <i>Robert D. Dull</i>		
TITLE: Test Procedure for DS3800NPVA Power Supply		PROCEDURE: LOU-GED-DS3800NPVA-A

1. INTRODUCTORY DESCRIPTION

- A. This procedure establishes the methods for testing a
- B. Environmental ranges: 70 +/- 10 Deg. F. with 20-75% R.H.
- C. Unit warm-up/stabilization period requirement: 5–10 Minutes
- D. Personnel using this procedure are expected to have a high degree of confidence and expertise in related testing and calibration procedures.
- E. Procedures not explained here are considered to be understood as common practice.

2. TEST EQUIPMENT VERIFICATION

- A. Verify the accuracy of the standard(s) used in the repair/calibration process by evidence of recent calibration labeling affixed to the test equipment.
- B. All measurement standards used in this procedure shall be traceable to the NATIONAL INSTITUTE of STANDARDS and TECHNOLOGY (N.I.S.T.) and shall have the accuracy, stability, range and resolution required for the intended use.
- C. Unless otherwise specified, the collective uncertainty of the Measurement Standard(s) shall not exceed twenty five percent of the acceptable tolerance for each characteristic being calibrated.
- D. All deviations shall be documented.

3. EQUIPMENT CLEANING

- A. All equipment clean will be performed as instructed in the GE Renewal Services SOP Sec. 14.0

4. EQUIPMENT INSPECTION

- A. The following criteria should be used as a guideline or basis for the inspection process of the this unit:
 - 1. Wires broken or cracked.
 - 2. Terminal strips / connectors broken or cracked.
 - 3. Loose wires.
 - 4. Components visually damaged.
 - 5. Capacitors leaking.
 - 6. Solder joint, cold or otherwise inadequate.
 - 7. Circuit board discolored or burned.
 - 8. Printed wire runs burned or damaged.

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5. REVISION HISTORY

Revision	Date	Initials	Reason for Revision
A	6/15/02	MMS	Initial Procedure – After Verification
B			
C			
D			
E			
F			
G			
H			
I			
J			
K			

6. REFERENCE DOCUMENTATION

- DS3820DPMI Manual
- DS3800NPVA Schematics
- DS3800DPVA Schematics

7. THEORY OF OPERATION

- None Available

8. TEST EQUIPMENT TO BE USED

- Transistor Devices Inc. Variable Load, Fixture H033754
- Fluke 8842A Multimeter or equivalent
- DS3800NPVA Test Fixture H033953
- DS3800DPVA Daughter Card

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9. TEST AND OPERATION PROCESS

1. Connect variable load to back of DS3800NPVA fixture using "Y" adapter cable.
2. Connect 120 VAC power cord to back of DS3800NPVA test fixture.
3. Install DS3800DPVA daughter card on DS3800NPVA card, place unit on test fixture and connect **JA** connector.
4. Remove RTV seals from pots **R1-R4**.
5. Turn power switch on the front of the DS3800NPVA test fixture to **ON**. **Do Not** turn on load at this time.
6. Verify the following table.

***Note 1:** This is a functional pretest to determine if circuits are working, if there is a failure, repairs or adjustments will need to be made before proceeding. See Special Information 10-1.*

***Note 2:** All voltage readings should be made at **JB** connector. For testing purposes **ACOM** and **DCOM** are tied together and will be referred to throughout the test as **COM**. All voltage readings are with respect to **COM**.*

JB CONNECTOR PIN #	APPROXIMATE VOLTAGE READING
JB-1	+5 VDC
JB-3	+15 VDC
JB-5	-15 VDC
JB-6	+28 VDC

7. Apply power to variable load and adjust load amps for each of the following voltages.

VOLTAGE LEVEL	NOMINAL LOAD – AMPS
P5	2.800 AMPS
P15	0.170 AMPS
N15	0.100 AMPS
P28	0.100 AMPS

8. Measure and record **VOLTAGE** and **AC RIPPLE** at **JB-1**, **JB-3**, **JB-5** and **JB-6** respectfully.

***Note 3:** These measurements are as received, before adjustment and capacitor replacement. See Special Information 10-2 for details.*

9. Verify **LVSL OK** LED on front of test fixture is lit.

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10. Verify voltage at **JB-8** with respect to **COM** is at a low logic level.
11. Adjust **R4** counter-clockwise while monitoring voltage at **JB-1** until **LVSL OK** LED just goes out, record voltage level. (Should be approx. 4.75 VDC).
12. Verify voltage at **JB-8** with respect to **COM** is now at a high logic level.
13. Adjust voltage at **JB-8** to **5.00 VDC**; verify **LVSL OK** LED comes back on.
14. While monitoring **JB-3**, slowly increase **+15.00 VOLT** load amps on variable load. Record last voltage seen on voltmeter before voltage dropped out. After recording voltage return **+15.00 VOLT** load amps back to **0.170 AMPS**. (Use fine knob, should be ~ +14.000 VDC)
15. While monitoring **JB-5**, slowly increase **-15.00 VOLT** load amps on variable load. Record last voltage seen on voltmeter before voltage dropped out. After recording voltage return **-15.00 VOLT** load amps back to **0.100 AMPS**. (Use fine knob, should be ~ -14.000 VDC)
16. While monitoring **JB-8** with a logic probe, slowly increase **+28.00 VOLT** load amps on variable load. Record voltage at **JB-6** after logic level at **JB-8** toggles high. After recording voltage return **+28.00 VOLT** load amps back to **0.100 AMPS**. (Should be ~ -14.500 VDC)
17. Reduce all loads to zero amps. Turn off variable load and test fixture.
18. Replaced pots **R1-R4**, capacitors **C1-C5** and Glass Bead diode **CR19**.
Note 4: Sometimes CR18 has a glass bead diode installed.
Note 5: Measure pot resistance before replacing, set replacement pots to the same resistance. This will make forthcoming calibration easier.

COMPONENT	DESCRIPTION / VALUE	QTY	LOCATION
POTENTIOMETER	1K OHM	1	R1
POTENTIOMETER	2K OHM	1	R2
POTENTIOMETER	5K OHM (On Daughter Card)	1	R3
POTENTIOMETER	10K OHM	1	R4
CAPACITOR	2200UF - 20VDC (3 Leg)	2	C1 C2
CAPACITOR	680UF - 50VDC (3 Leg)	3	C3 C4 C5
DIODE	1000 VOLT 2.5 AMP (251D)	1	CR19

19. Install daughter card on NPVA and place unit back on test fixture. Connect **JA** connector and apply power to test fixture and variable load.
20. Adjust load amps for each of the following voltages.

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VOLTAGE LEVEL	NOMINAL LOAD – AMPS
P5	2.800 AMPS
P15	0.170 AMPS
N15	0.100 AMPS
P28	0.100 AMPS

21. Allow unit to warm up for 5 to 10 minutes.
22. Adjust **R4** while monitoring **JB-1** for as close to **+5.000 VDC** as possible.
23. Adjust **R2** while monitoring **JB-3** for as close to **+15.000 VDC** as possible.
24. Adjust **R1** while monitoring **JB-5** for as close to **-15.000 VDC** as possible.
25. Check previous settings and readjust if necessary.
26. Adjust **R4** while monitoring **JB-1** to as close to **+4.75 VDC** as possible.
27. If **LVSL OK** LED is not lit, adjust **R3** on daughter card **counter-clockwise** until **LVSL OK** just comes on. If **LVSL OK** LED is lit, adjust **R3** on daughter card **clockwise** until LED just goes off and then **counter-clockwise** until LED just comes on again.
28. **LVSL** trip point is now set for **+4.75 VDC**. Record this setting and adjust **R4** back to **+5.000 VDC** at **JB-1**. Seal **R3**.
29. Adjust load amps for each of the following voltages.

VOLTAGE LEVEL	MAXIMUM LOAD – AMPS
P5	4.650 AMPS
P15	0.230 AMPS
N15	0.150 AMPS
P28	0.160 AMPS

30. Allow unit to burn in for at least 1 hour.
31. This would be a good time to prepare the Service Failure Report (SFR) for finalization. Because this unit's data needs to be recorded in a manner not supported by ESBS, you must record the data in the form of a word document. A specially prepared word document is available at the following link.
J:\Biz_Data\WORDDOCS\JOB_INFO\NPVA_SFR_FORMAT.doc
 After opening this link, immediately save the document as the WIP# for the job you are working on. This will become the SFR to be sent with the job. You will need to edit information such as, WIP, address, revision level, service actions, etc... but the main body and

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layout is there, and it makes it much easier than starting from scratch. You can get the customer information necessary to edit the SFR by viewing or printing a copy of the SFR from the ESBS. On the opening ESBS screen, select **REPORTS** then **REPORT SELECT**. Type **R20035** in the **REPORT ID** field and press **ENTER**. Type the job's WIP number in the **WIP NO** field and then press **CTRL-S**. Press **F4** to exit, then select **REPORTS** and **FILE UTILITY**. Select **VIEW REPORTS**. You will now see the information needed to edit the word document.

32. After unit has burned in and with unit still at maximum load, check voltage at **JB-1, JB-3, JB-5** and **JB-6**. Make sure voltages are within the following tolerances.

CONNECTOR PIN	VOLTAGE / TOLERANCE
JB-1	+5.000 VDC +/- .200 VOLTS
JB-3	+15.000 VDC +/- .200 VOLTS
JB-5	-15.000 VDC +/- .200 VOLTS
JB-6	22 – 31 VDC

33. Reduce load settings on variable load back to nominal settings.

VOLTAGE LEVEL	NOMINAL LOAD – AMPS
P5	2.800 AMPS
P15	0.170 AMPS
N15	0.100 AMPS
P28	0.100 AMPS

34. Adjust **R4** while monitoring **JB-1** for as close to **+5.000 VDC** as possible and seal **R4**.
35. Adjust **R2** while monitoring **JB-3** for as close to **+15.000 VDC** as possible and seal **R2**.
36. Adjust **R1** while monitoring **JB-5** for as close to **-15.000 VDC** as possible and seal **R1**.
37. Measure and record **VOLTAGE** and **AC RIPPLE** at **JB-1, JB-3, JB-5** and **JB-6** respectfully.
38. While monitoring **JB-3**, slowly increase **+15.00 VOLT** load amps on variable load. Record last voltage seen on voltmeter before voltage dropped out. After recording voltage return **+15.00 VOLT** load amps back to **0.170 AMPS**. Record final results.
39. While monitoring **JB-5**, slowly increase **-15.00 VOLT** load amps on variable load. Record last voltage seen on voltmeter before voltage dropped out. After recording voltage return **-15.00 VOLT** load amps back to **0.100 AMPS**. Record final results.

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40. While monitoring **JB-8** with a logic probe, slowly increase **+28.00 VOLT** load amps on variable load. Record voltage at **JB-6** after logic level at **JB-8** toggles high. After recording voltage return **+28.00 VOLT** load amps back to **0.100 AMPS**. Record final results.

END OF TEST

Report all gathered information on SFR as described in step 31. After editing of SFR is complete, copy and paste information from Service Action area of Word Documentation (Including Parts Used) to Service Actions field on ESBS. In the Parts field on ESBS type SEE SERVICE ACTIONS in the DESCRIPTION field.

10. SPECIAL INFORMATION

1. If **LVSL** level is not set properly, unit may be in trip mode. Refer to **TEST AND OPERATION PROCESS** steps **26, 27** and **28** for setting **LVSL** trip point. (**LVSL OK** LED on front of test fixture should be on a power up).
2. Most customers are requiring a detailed Service Failure Report for this unit. For this reason all DS3800NPVA cards will be done in the format described in **TEST AND OPERATION PROCESS** step **31**. This also requires that the unit be tested and results recorded prior to and after repairs are complete.

TEST WRITTEN BY: Monte Starling

DATE: 06/15/2002

TEST VERIFIED BY: David Smith

DATE: 06/18/2002