g GE Energy *Parts & Repair Services* *Louisville, KY*	**Functional Testing Specification** **LOU-GED-DS2020AGSAG1**

Test Procedure for a GTO Stack Assembly

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

REV.	DESCRIPTION	SIGNATURE	REV. DATE
A	Initial release	J. Francis	5/13/2009
B	Added test fixture H188852 to test this unit.	G. Chandler	8/23/2010
C	Added comment on soldering to Section 7 "NOTES".	C. Wade	5/30/2012
D	Added special note section 6 about changing out 4uf snubber caps on all incoming repairs and note 7.2 about failure rates of these caps.	C. Wade	11/29/2012

PREPARED BY	REVIEWED BY	REVIEWED BY	QUALITY APPROVAL
James Francis	G. Chandler	C. Wade	Charlie Wade
DATE	**DATE**	**DATE**	**DATE**
5/13/2009	8/23/2010	11/29/2012	5/13/2009

1. SCOPE

1.1 This is a functional testing procedure for a GTO Stack 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 Assembly Drawing 173C9100
3.1.2 Elementary Drawing 246B2325 SH. 1AA
3.1.3 Check unit's electronic folder for more information.

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	H188852	Test Fixture
1		Oscilloscope

6. TESTING PROCESS

Special Note: The 4uf snubber-capacitors shall be replaced on all incoming repairs, tolerance shall be +- 5%. On warranty units they shall be tested and replaced if bad.

6.1 Setup

6.1.1 Before beginning test the DS200GDAA cards using the proper test procedure.

6.1.2 After the DS200GDAA cards successfully pass the test reinstall them in the UUT and disconnect the DS200GGDA adaptor from the test fixture.

6.1.3 The AGSA will be tested one half of the unit at a time.

6.1.4 Connect the connector marked AGSA to the test fixture at connector P2. Connect the other end of the cable to the top GDAA board to connector JA.

6.1.5 Connect the fiber optic cables to the same GDAA board.

6.1.6 Connect the cables with the large alligator clips to the connector on the test fixture marked GTO power.

6.1.7 Connect the alligator clips to the top and middle output busses. The red or pos+ alligator clip goes to the buss that has the cathode side of the output diode connect to it.

6.1.8 Connect an ISOLATTED O-scope to the test fixture in the differential mode set at 1V/div and .5 ms. The test fixture has X100 probes built in.

6.2 Power On Test

6.2.1 Release the e-stop on the test fixture and turn on the power.

6.2.2 Turn on the load switch, the chopper supply switch, the DC supply switch and the fiber optics switch in that order.

6.2.3 You should observe a 200V P-P square pulse with an approx. 50v over shoot on the edges of the square wave.

6.2.4 Power down the test fixture opposite of how you power it up. You have tested one half of the unit.

6.2.5 Move the fiber optics and JA connector the bottom GDAA board and the alligator clips to the middle and bottom busses.

6.2.6 Repeat the test procedure used for the top half.

*6.3 ***TEST COMPLETE ****

7. NOTES

7.1 It was recently identified that a GGDA card had been in operation for some period of time without CR37 (9.1V Zener) fully soldered into the card, causing an intermittent fault, after being repaired here. Before testing, be sure to perform a visual check to ensure all components have adequate solder. FRATS report can be reviewed if desired, see directory N:\Design Folders\DS\DS2020\AGSA.

7.2 There has been about a 70 to 80% failure rate on the 4uf snubber capacitors.