



GE Energy

Functional Testing Specification

Parts & Repair Services
Louisville, KY

LOU-GED-531X300CCH

Test Procedure for a DC300 Main Control Card

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REV.	DESCRIPTION	SIGNATURE	REV. DATE
A	Initial release	R. Duvall	8/9/2002
B	Typed out test procedure	C. Wade	6/1/2007
C	Added comment about Carol Stream orders to section 6.1	C. Wade	9/18/2012

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DATE 08/09/2002	DATE 6/6/2007	DATE	DATE 6/6/2007

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1. SCOPE

1.1 This is a functional testing procedure for a 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 Check board'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		Fluke 87 DMM (or Equivalent)
1		DC300 Test Fixture

6. TESTING PROCESS

6.1 Special Note:

- 6.1.1 All 531X300CCHA5M5 cards for Carol Stream shall be upgraded to the 531X300CCHAGM5 revision; no functional equivalents will be accepted.**

6.2 Setup

- 6.2.1** Set berg jumpers on the card same as test card.
- 6.2.2** Set the pots on card same as test card
- 6.2.3** Find test points at bottom right hand corner. Momentarily short PCOM to +5V, -24V, +24V, =15V, and -15V. Use an ohmmeter and check for shorts on the Bus lines by checking the following.

From	To	Approx
PCOM	+5	200 to 300 Ohms
PCOM	-24V	4.5M Ohms
PCOM	+24V	4.5M Ohms
PCOM	+15V	6M Ohms
PCOM	-15V	12K to 15K Ohms

- 6.2.3.1** Remove the test card from the drive and remove EEPROM "U12" and install it in the BUT (Board Under Test) into same location "U12". Install BUT into drive and plug in all connectors.

6.3 Testing Procedure

- 6.3.1** Power up unit by pulling the DC300 E-Stop out.
- 6.3.2** The BUT's LEDs should scroll from right to left continuously.
- 6.3.3** If no faults occur run an SCR Test.
- 6.3.3.1** On keypad push SET, DRV, 77, enter/reset, Diagnostics will be displayed on the hand held programmer.
- 6.3.3.2** Push Test, and Test will be displayed.
- 6.3.3.3** Push 12 and enter, contactor will pull in and out.
- 6.3.3.4** Display will read FL96 PASS or just "Passed" depending on the revision of the BUT.
- 6.3.3.5** Push Reset on Hand Held monitor & display will read, "OPERATE".
- 6.3.4** On Control Panel to the left of drive, check all meters. All meters will read (0) except the FCMET meter, it will read approx 7V. Turn MSR, JOGR, and Auto Speed Ref to min.
- 6.3.5** Push Start on the Control Panel and contactor will pull in & motor will hum and 2 LEDs will scroll right to left.

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- 6.3.6** Turn MSR to max and motor will speed up. Check on Hand Held Programmer, it should read approx M94%. On Control Panel MPU meter will read 10V, MPU2 meter 0V, MPU3 meter 0V, IMET meter 0V, FCMET meter approx 7V, and VMET meter approx 7V. The MPU1 meter and VMET meter will follow MSR pot from min to max. Turn MSR to min and motor will stop turning.
- 6.3.7** Push STOP on Control Panel and motor will stop humming and 1 LED will scroll Right to Left.
- 6.3.8** Push up RUN switch and motor will hum, 2 LEDs will scroll Right to Left. Turn MSR to max and motor will speed up the same as when you push the Start Button on the Control Panel.
- 6.3.9** Push RUN switch down and motor will stop humming and 1 LED will scroll Right to Left.
- 6.3.10** Push JOG switch up and motor will hum and 2 LEDs will scroll Right to Left. Turn JOGR pot to 50% and motor will turn. Display will read approx. M 50%. VMET meter will follow JOGR pot as speed increases and decreases. With JOGR pot at 50%, push POL switch up. Motor will reverse direction and VMET meter will reverse direction.
- 6.3.11** Turn JOGR pot to min and motor will stop turning and VMET meter will go to 0V.
- 6.3.12** Push JOGR and POL to middle position and motor will stop humming and 1 LED will scroll Right to Left.
- 6.3.13** Push Start on the Control Panel and adjust MSR for 50%, motor will run.
- 6.3.14** Push X STOP down and motor will stop and you will get Fault 42 on Hand Held Monitor. Push X STOP back to up position. Push STOP in and then RESET in, LEDs will scroll Right to Left.
- 6.3.15** Push START button and motor will hum. Adjust MSR to 50% and motor will run.
- 6.3.16** Push CTLN button on Control Panel and motor will stop and you will get Fault 29 on Hand Held Monitor.
- 6.3.17** Push STOP and then RESET. LEDs will scroll Right to Left.
- 6.3.18** Push in SW2 reset button on the MCC card and all LEDs will come on and then scroll Right to Left.

6.4 RUN COMMUNICATIONS TEST

- 6.4.1** On keyboard hit F8 and CRT will read Select an Operating Function, Hit F1 key. CRT will read, enter a four-character nickname. Hit enter on the keyboard and the CRT will

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read. Is this description OK? Hit "Y" on keyboard. CRT will read, read how many addresses.

6.4.2 Hit "A" on keyboard. Data will be read from EEPROM U12 and displayed on CRT.

When finished loading data CRT will read, "Upload complete to memory with no problems". Block Checksum and Educate Checksum should read 46848, if correct, program is in Test EEPROM "U12".

6.4.3 Turn off power at DC300 by pushing E-Stop in.

6.4.4 Pull out Test EEPROM "U12" and install BUT EEPROM "U12" if card had one when it came in.

6.4.5 Turn power on and run Communication Test on board under Test EEPROM "U12".

Refer to communication test above EEPROMS. Block Checksum and Educate Checksum should be the same after data is uploaded to CRT. Some cards will fault with customers EEPROM. Still should be able to run Communication Test.

6.4.6 Turn off power.

6.4.7 Turn MSR, JOGR, and Auto SPD Ref pots back to min. Install test card and make sure drive is good before leaving.

6.4.8 End of Test.

6.5 *TEST COMPLETE *****

7. NOTES

7.1 Watch out for SN75492N, lot 410C. Caused failures when testing card at 480VAC.

8. ATTACHMENTS

