



<small>DC200</small>  GE Industrial Systems	Test and Operating Procedure	
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TITLE: DC2000 DCI TEST	PROCEDURE: LOU – GED-531X302DCI- E	

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:
- 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 T&IC 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	12/17/98	JDS	Initial Procedure – After Verification
B	06/14/02	RKD	Added initial column to section 5, Updated procedure number
C	8/14/07	CW	Special Note on K2 Relay - Page 3
D	1/31/08	CW	Supply Volatges Page 4
E	7/13/18	LFG	Added link to group conversion guides to Sec. 6
F			
G			
H			
I			
J			
K			

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6. REFERENCE DOCUMENTATION

- Reference: GEK-85730
- Factory Procedure # NA
- <N:\Design Folders\531X\302DCI> – use this link to find conversion guides for converting one group number to another(Ex. G1-G4).

7. THEORY OF OPERATION

- Reference: GEK-85730



8. TEST EQUIPMENT TO BE USED

- Fixture # H033760

9. FINAL TEST AND OPERATION PROCESS

- If the card is a “G2” version then download the G2 setup from TOOLBOX
- Set jumpers as follows JP1 and 2 to the 2-3 position
- Set pot P3 (FC Scale) to 50%
- Set SW1 switches all to OFF
- Install DCI card in Drive
- Apply power to Drive
- Verify the voltage at TP FC

G2	+1.3 to 1.5 VDC
All Others	+1.9 to 2.1 VDC



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SPECIAL NOTE: Relay K2 will be change out with new, unless we have changed it in the last 18 months. Any defective relay found will be automatically changed out.

- **IF OVER SHUTDOWN DRIVE WITH E-STOP FIELD CURRENT IS TO HIGH**
- Check power supply voltage from CARD and verify the table below.

• VOLTAGE	• RANGE
• + 5 VDC	• + 4.9 to 5.1 VDC
• + 15 VDC	• + 14.4 TO 15.6 VDC
• - 15 VDC	• - 14.4 TO 15.6 VDC
• + 24 VDC	• + 25 TO 29 VDC
• - 24 VDC	• - 25 TO 29 VDC

-
- Execute Test 12 (SCR TEST).
- “CELL TEST PASSED” will be displayed on LCC card if all checks well.
- On Control Panel verify 0 ohms between MANC and MACM
- Push RUN up on Control Panel
- On Control Panel verify 0 ohms between MANO
- and MACM
- Push RUN down on Control Panel
- **END OF TEST**

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Troubleshooting:

Connect stab-on wires labeled L1, L2, L3, CPTH1, CPTH2 and CPTCL to DCI board.
Set voltmeter to DC and verify the following table. Reference all measurements to DCOM.

2PL pin #	DC Volts
1	+ 27 +/- .5
2	- 27 +/- .5
3	DCOM
4	+ 5 +/- .05
5	+ 5 +/- .05
6	DCOM
7	+ 15 +/- .2
8	- 15 +/- .2
9	+ .024 to .032

After verifying all DC voltages connect all wires and cables to DCI board

Check programmer on Drive and verify M 00 00 is on display

Press the following keys on programmer.

SET

DRV

77

ENTER

RESET

RESET

TEST

12

ENTER

Programmer will display CELL PASSED

Remove cable 1CPL

Apply 1.434 VDC to J2 (J1 DCOM) and verify the table below. Measurements are taken from DCOM to the cathode of D35

SW1 POS.	DC V
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PROCEDURE:



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ALL OPEN	+1 +/- .02
1 CLOSED	+1.65 +/- .05
2 CLOSED	+1.94 +/- .05
3 CLOSED	+2.17 +/- .05
4 CLOSED	+2.31 +/- .05

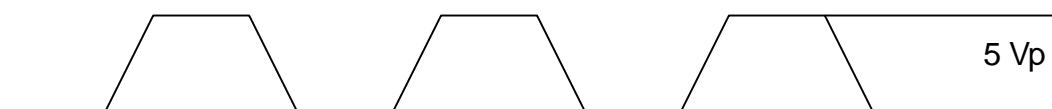
Move J2 voltage to J4 and verify the table below. Measurements are taken from DCOM to the cathode of D37.

SW1 POS.	DC V
ALL OPEN	+1 +/- .02
1 CLOSED	+1.65 +/- .05
2 CLOSED	+1.94 +/- .05
3 CLOSED	+2.17 +/- .05
4 CLOSED	+2.31 +/- .05

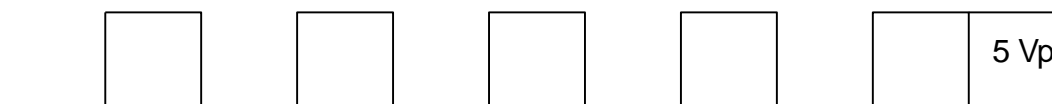
Verify 2.4 VDC on one side of R203 (Located above 1PL).

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Verify the waveforms below.




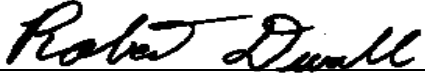
Cathode D25



U29 pin 10



Anode D23

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Remove DRPL connector and apply 100mV to DRPL-1, DRPL-2 is COM.

Verify 300 kHz +/- 1 kHz at U29 pin 8

Verify U32 pin 4 is +2.8 to 2.95 VDC

Reverse polarity of DRPL

Verify 200 kHz +/- 1 kHz at U29 pin 8

Remove 100mV from DRPL-1

Verify 250 kHz +/- 1 kHz at U29 pin 8

Verify U32 pin 4 is 0 VDC

Replace DRPL connector

Place +1 VDC to 5PL-26, 5PL-25 is COM.

Verify 350 kHz +/- 1 kHz at U29 pin 2

Verify U18 pin 14 has +2 VDC+/- .1 VDC

Increase 5PL-26 to +2 VDC



Verify 450 kHz +/- 1 kHz at U29 pin 2

Verify U18 pin 14 has +4 VDC+/- .1 VDC

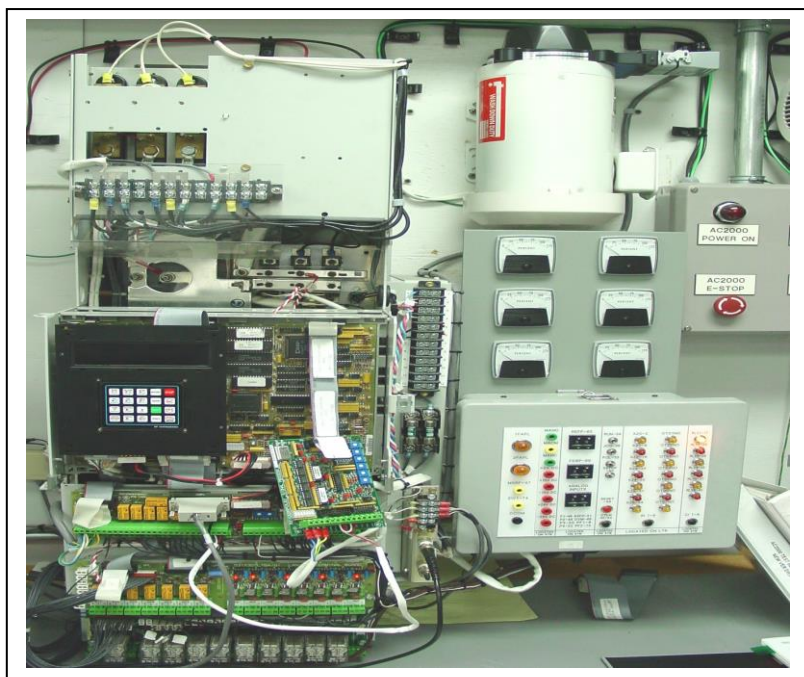
Verify 300 kHz +/- 1 kHz at U29 pin 4

Verify 250 kHz +/- 1 kHz at U31 pin 9

End of troubleshooting section.

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10. SPECIAL INFORMATION



TEST WRITTEN BY:David Smith

DATE: 12/17/98

TEST VERIFIED BY:Kenny Greenwell

DATE: 12/17/98