1. INTRODUCTORY DESCRIPTION

A. This procedure establishes the methods for testing a 44C331861-G01 Card.
B. Environmental ranges: 70 +/- 10 Deg. F. with 20-75% R.H.
C. Unit warm-up/stabilization period requirement: None
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.

5. REVISION HISTORY

Revision	Date	Initials	Reason for Revision
A	4/12/01		Initial Procedure – After Verification
B	06/10/02	RKD	Added initial column to section 5.
C	06/25/03	DAL	Corrected errors in steps I and J.
D			
E			
F			
G			
H			
I			
J			
K			

6. REFERENCE DOCUMENTATION

- Reference: GEK
- Factory Procedure #277A3760

7. THEORY OF OPERATION

- Reference: GEK
- The ceiling sensing board compares an incoming voltage (Pos or Neg) to Pos + Neg limits set by card front Pots. If the limit is exceeded, the voltage to the output jack is removed causing a normally closed relay external to this card to drop out. Time delay in operating the relay is adjustable by a Pot on the card front. A manual reset button is also provided.

8. TEST EQUIPMENT TO BE USED

- DC voltage supplies + 15v + .05v (Tenma 72-2080 or equiv.) 0 – 10v adjustable DC supply
- Digital Voltmeter (Fluke 85 or equiv.)
- Rainbow interface box with connector box for 44C cards.
- 1K Resistor

9. FINAL TEST AND OPERATION PROCESS

A. Preset pots on card:

1P	(DELAY)	3
2P	(POS. LIMIT)	0
3P	(NEG. LIMIT)	0
4P	(Pos Ref)	CCW
5P	(Neg Ref)	CCW

B. Connect time delay jumper 1S terminals 1-2.

C. Insert PCB into connector box. Turn all power switches on box to on. Apply + and - 15 Volt supplies to attached interface box, +15 to PIN 1, -15 to PIN 5, com to PIN 3.

D. Set adjustable DC supply to 0 volts and connect (+) to PIN 13, - to PIN 3.

E. Adjust 4P CW for +10V +/-.05V on 3 TP.
Adjust 5P CW for –10V +/-.05V on 4 TP.

F. Clip a 1K resistor from 1 TP to 6 TP. 6 TP = 4.46 to 4.94V. Remove resistor.

G. Set 2P (Pos limit) to 3.0 on dial.
Adjust variable supply and note that as PIN 13 reads +3.02V +/-.05V, TP 6 will Switch from +2.5 to + 5V(nom. 4.4V) to 0.2V +/-.1V. Set 2P (Pos limit) to 8.0 on dial. TP 6 Will switch to .2V +/-.1V when variable supply is adjusted until PIN 13 reads +8.02 +.05V.

H. Adjust variable supply to 0v.
Reverse variable supply polarity (- to PIN 13, + to PIN 3) and adjust 3P (neg limit) to 3.0 on dial. Adjust variable supply and note that 5 TP will switch from .2V +/-.1V to +2.5 to + 5V (nom. 4.4V) as PIN 13 voltage reaches –3.02 +/-.05V. Adjust 3P (neg limit) to 8.0 on dial and note that 5 TP switches as variable supply adjusts PIN 13 volts beyond –8V limit setting. With voltage at 5 TP at +2.5 to +5V, clip a 1K resistor between 1 TP and 5 TP. 5 TP = 4.46V to 4.94V. Remove resistor.

I. Adjust variable supply to 0V. Press and release reset button on card front. 7 TP = .1V +/- .1V. PIN 12 = -13.7 +/- .2V.

J. With 3P (neg limit) dial set at 8.0, adjust variable supply beyond –8 volts on PIN 13.
Note that 7 TP will switch immediately from 0V to +4.5V +/-.2V when PIN 13 goes beyond -8V. The voltage on Pin 12 will delay switching from –13.7V to 0V depending on the delay setting of 1P (DELAY) and jumper 1S. Verify time delays per chart below. PIN 13 voltage must be adjusted back below limit setting (above -8V) and reset button pushed to reset PIN 12 back to –13.7V after each time delay.

1S Jumper 1-2		1S Jumper 2-3	
1P Setting	Time (Sec)	1P Setting	Time (Sec)
3	8 – 12	8	41 – 54
8	19.5 – 27.5		

K. For troubleshooting use test point checks in steps N and O of Test Specifications 277A3760.
End of test.

10. SPECIAL INFORMATION

TEST WRITTEN BY: DAL **DATE:** 12-22-99

TEST VERIFIED BY: _____ **DATE:** _____