

g GE Canada

Electronic Products Repair

Test Instructions for

0517L0165 GALL

Device Number

Gate Pulse Amplifier Module with GPA Control Card

Description of Device

Originated By: Lucio Carrescia
Typed Name

Date: Aug. 2, 2006
mm/dd/yy

Approved By: Maher Albasel
Signature

Approval Date: Aug. 2, 2006
mm/dd/yy

TEST INSTRUCTIONS

PREVIOUS REVISION SHEET

0517L0165 GALL

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Description of Device

[illegible]

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Date: March 25, 2013

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1. PURPOSE:

- a. Static test procedures for Gate Pulse Amplifier Module with GPA Control Card 0517L0165 GALL

2. ELEMENTARY:

- a. S&C Data Book 1189 sec. 165 Dwg:
 - i. 0266A2167 for groups 1 to 4.
 - ii. 0237A4886AA for groups 5 to 8.
 - iii. 0237A4886CA for groups 9 to 12.
 - iv. 0237A4886BA for groups 16.
 - v. 0237A4886DA for groups 17 to 20.
 - vi. 0316A3060AA for groups 21 to 24.

3. EQUIPMENT:

- a. Multimeter
- b. Oscilloscope
- c. Function Generator
- d. Three phase 115 VAC.
- e. Resistor Load Box TL # 00355 or equivalent.
- f. 15 amp switch.
- g. 1 Ω 225W resistor.
- h. 50 volt 1 amp power supply
- i. Function Generator Amplifier TL # 00428 or equivalent.
- j. TL# 00357 if needed. (Transformer base)

4. SET UP:

- a. Connect
 - i. 115 VAC. 0° to TB6-01.
 - ii. 115 VAC. 120° to TB6-02.
 - iii. 115 VAC. 240° to TB6-03.
 - iv. Output of function generator between pin "B" (+) and pin "C" (-) of TL # 00428.
 - v. Pin "E" of TL # 00428 to TB1-01, TB1-03, TB1-05, TB1-07, TB1-09, TB1-11, TB2-01, TB2-03, TB2-05, TB2-07, TB2-09, TB2-11.
 - vi. Pin "F" of TL # 00428 to TB1-02, TB1-04, TB1-06, TB1-08, TB1-10, TB1-12, TB2-02, TB2-04, TB2-06, TB2-08, TB2-10, TB2-12.
 - vii. If the 0621L0449 card has jumpers between X – Y (X1 – Y1, X2 – Y2, ...) then connect 15 VDC to pin "A" of TL # 00428. If the jumpers are removed, connect 50 VDC.
- b. Adjust
 - i. Power supply to (with jumpers) 15 VDC, (with jumpers removed) 50 VDC.
 - ii. Function generator for a 360 Hz signal with a 200 μ s low pulse at Term B (TB1-2, 4, 6, ...)

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5. PROCEDURE:

- a. Note: Due to the multitude of versions, references to test points in this test instruction may be different from the UUT. Use exact schematics from the Masters to assist you. To upgrade old cards, look in the Masters under 0621L0402. Use the following photographs as an aid in performing the upgrade. Note that the areas with the black dots are the points where the new daughter board pins will be inserted. For additional general information, also look under 0621L0449, 0621L0452, and 0517L0165.
- b. AC input power
 - i. Make sure that the 600 VAC three phase is connected.
 - ii. Apply the 115 VAC three phase to the module.
- c. Bus power
 - i. Measure P65 VDC. ± 3 VDC. between GPCOM and GP55.
 - ii. Measure P18 VDC. ± 1 VDC. between GPCOM and GP18.
 - iii. Measure N8.0 VDC. ± 2 VDC. between GPCOM and GN06.
- d. Relay pick up test
 - i. K1
 1. K1 should pick up after 115 VAC. three phase power is applied.
 2. Measure 0Ω between TB5-1 and TB5-2.
 3. Remove the 115 VAC. three phase power from the module.
 4. Measure $\infty\Omega$ between TB5-1 and TB5-2.
 - ii. K2
 1. Apply 115 V three phase
 2. K2 should pick up after CB1 is closed.
 3. Measure 0Ω between TB5-3 and TB5-4.
 4. Open CB 01.
 5. Measure $\infty\Omega$ between TB5-3 and TB5-4.
 - iii. K3
 1. K3 should pick up after CB2 is closed.
 2. Measure 0Ω between TB5-5 and TB5-6.
 3. Open CB 02.
 4. Measure $\infty\Omega$ between TB5-5 and TB5-6.
- e. Breaker test
 - i. CB1 Trip level
 1. Connect load side of breaker (GP55) to GPCOM through a 15 amp switch in series with a 1Ω 225W resistor.
 2. Momentarily close the 15 amp switch and CB1 should trip in 5 seconds or less.

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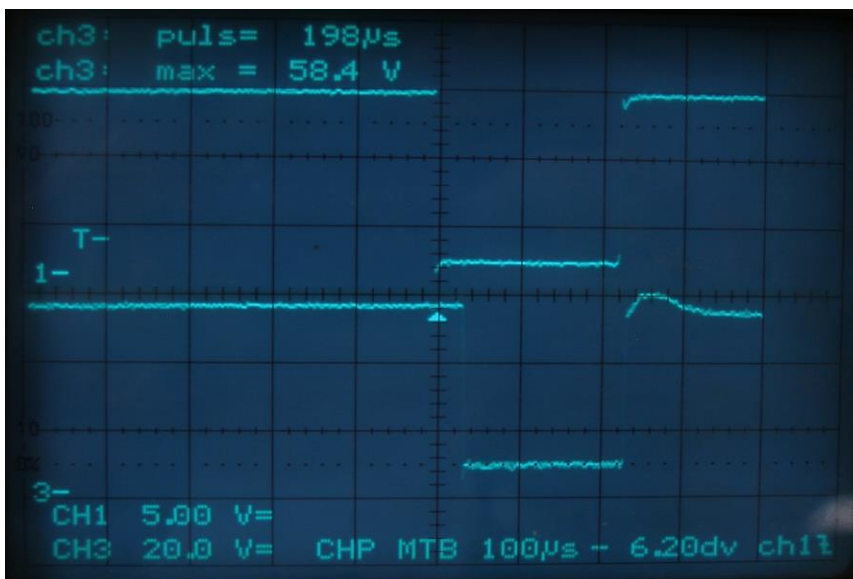
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- ii. CB2 Trip level
 - 1. Connect load side of breaker (GP55) to GPCOM through a 15 amp switch in series with a 1Ω 225W resistor.
 - 2. Momentarily close the 15 amp switch and CB2 should trip in 5 seconds or less.
- f. Pulse Amplifier leakage test
 - i. G5-G12 and G16-G20
 - 1. Close CB1 and CB2.
 - 2. Observe that LED2A to LED2L are off.
 - 3. Measure 0V between "C" and "D".
 - ii. G1-G4 and G21-G24
 - 1. Close CB1 and CB2.
 - 2. Observe that LED2A to LED2L are barely on.
 - 3. Measure $3V \pm 200mV$ between "C" and "D".
- g. Pulse Amplifier test
 - i. Connect a 10Ω 50W between "C" and "D" using TL#355.
 - ii. Apply the 360Hz, 200 μs low pulse into the "B" inputs.
 - iii. Turn on the breakers and measure the amplified signal between "C" and "D".
 - iv. Measure the 9.5 μs \pm 3 μs time delay between the input and output pulses.



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h. Crowbar test

- i. **If the card contains the new time delay breakers, temporarily replace them with the old faster tripping breakers (0177A1622 P004). These non delay breakers will trip on power up (inrush current) and will therefore require about 3 quick successive power ups before the breaker will stay on.**

ii. G5-G12, G16-G20

1. Remove the 10 Ω loads.
2. Adjust R050 until CP34 is 4.0 VDC.
3. Increase the pulse width from 200 μ sec. pulse to 200 msec. pulse and CB1 should trip after 25 msec. \pm 5 msec. delay.
4. Repeat this procedure for all circuits connected through CB1.
5. Adjust R051 until CP37 is 4.0 VDC.
6. Increase the pulse width from 200 μ sec. pulse to 200 msec. pulse and CB2 should trip after 25 msec. \pm 5 msec. delay.
7. Repeat this procedure for all circuits connected through CB2.

iii. G1-G4, G21-G24

1. Remove the 10 Ω loads.
2. Function Generator still generating 360 Hz and a 200 μ sec pulse at only one input of the forward section.
3. Adjust R050 until CP33 (referenced to s-com) is NEG 2 ± 0.2 V.
4. Increase width of the pulse from 200 μ sec. pulse until CB1 trips (the pulse should be greater than 700 μ sec). Just set the signal generator to 2.5 Hz, 50% duty cycle and momentarily connect the lead to the signal generator to cause CB1 to trip. Remove the lead when setting up this test for the next circuit.
5. Repeat this procedure for all circuits connected through CB1.
6. Function Generator generating 360 Hz and a 200 μ sec pulse at only one input of the reverse section.
7. Adjust R051 until CP36 (referenced to s-com) is NEG 2 ± 0.2 V.
8. Increase width of the pulse from 200 μ sec. pulse until CB2 trips (the pulse should be greater than 700 μ sec). Just set the signal generator to 2.5 Hz, 50% duty cycle and momentarily connect the lead to the signal generator to cause CB2 to trip. Remove the lead when setting up this test for the next circuit.
9. Repeat this procedure for all circuits connected through CB2.

i. Seal Pots

- i. Seal both R050 and R051.

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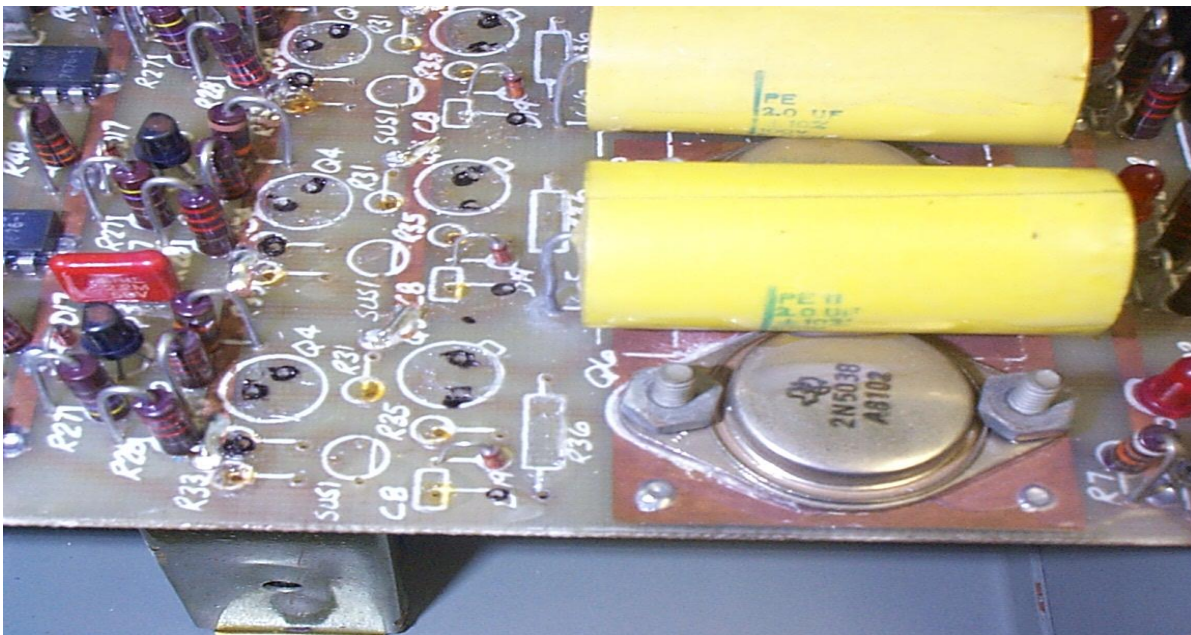
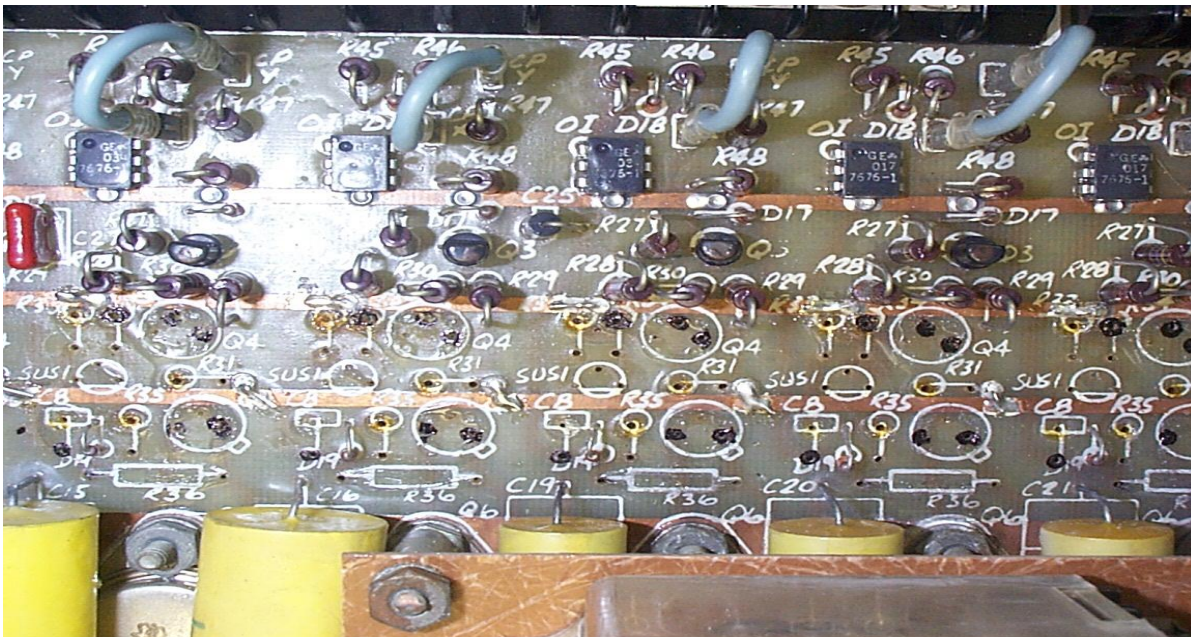
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6. UPGRADES:

- a. To upgrade old cards, look in the masters under 0621L0402. Use the following photographs as an aid in performing the upgrade. Note that the areas with the black dots are the points where the new daughter board pins will be inserted. For additional general information, also look under 0621L0449, 0621L0452, and 0517L0165.



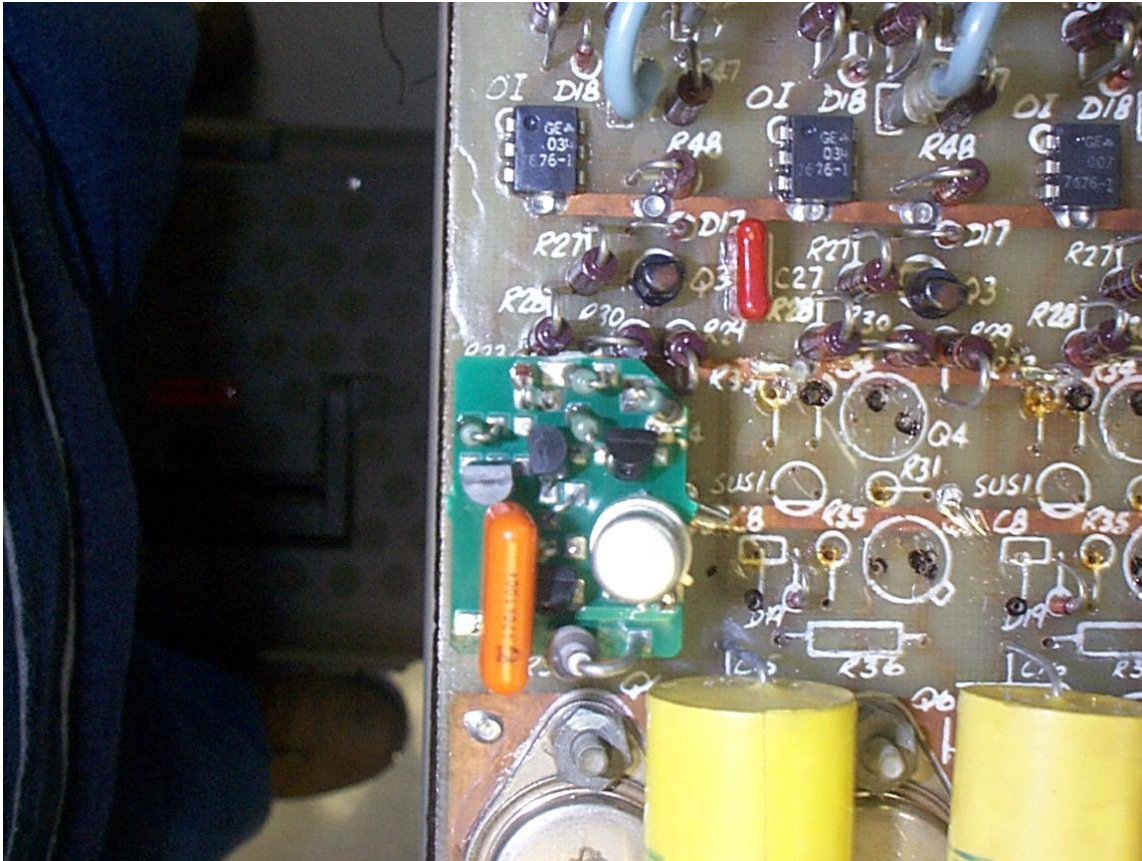
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7. END.