

ENGINEERING MANUFACTURING INSTRUCTION	NO.-	5764
	SECTION-	503
SUBJECT:	PART-	1 & 3
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### 1. PURPOSE

To test the Brushless Exciter Regulator card 0621L0503 G1, along with the DC Brushless Exciter Power Card 0621L0504 G1.

### 2. ELEMENTARY

Industrial electronics data book 1190 sec. 0503 G001 dwg. 0316A3097AA.

### 3. EQUIPMENT

- a) 115V RMS single phase AC supply
- b) Variac
- c) Isolation transformer
- d) Oscilloscope
- e) DVM
- f) 20 conductor ribbon cable
- g) 100 ohm resistor (0177A1023 P29)
- h) 200 K ohm resistor (0177A1026 P49)
- i) 432 K ohm resistor (0177A1026 P81)
- j) 200 ohm 200 W resistor
- k) Test switch assembly
- l) Brushless exciter power card (0621L0504 G1) *use Tail #00548 Instead*

### 4. SET UP

- a) Connect the ribbon cable between JP of the '503 card, and JP of the '504 card.
- b) Connect the AC supply through the variac, and isolation transformer to 2TB2/2TB10 and 2TB4/2TB11 of the '504 card.
- c) Install the following components on the '503 card:
  - i) SC1 to SC4                      432              K ohm resistor
  - ii) SC7 to SC10                      200              K ohm resistor
  - iii) SC11 to SC12                      100              ohm resistor
- d) On the '503 card:
  - i) set P1    CW
  - ii) set P2    CW
  - iii) set P3    CCW
  - iv) jumper CP2 to CP3
  - v) jumper CP5 to CP6
  - vi) jumper CP7 to CP8

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ROUTE: PER EMI 700 SECTION 0

Z = Revision

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e) Set SW1 to 6 to the open (down) position.

5. TEST

a) Power up the AC supply, and adjust the variac for 108V RMS between 2TB10, and 2TB11.

Note: This test involves high voltage use caution!

b) Check the voltage at the following points on the '504 card, with reference to TP13 (ACOM):

- i) TP10 = +17.8 +/- 1.9 volts
- ii) TP15 = -17.8 +/- 1.9 volts
- iii) TP11 = +15.0 +/- 0.6 volts
- iv) TP14 = -15.0 +/- 0.6 volts
- v) TP12 = +5.0 +/- 0.2 volts
- vi) U15 pin 5 = -7.5 +/- 0.4 volts

c) Check the voltage across the following points on the '504 card:

- i) Cathode of Z1 & top of R17 = 17.8 +/- 1.9 volts
- ii) Cathode of Z1 & anode of Z1 = 8.2 +/- 0.4 volts
- iii) Cathode of Z2 & top of R18 = 17.8 +/- 1.9 volts
- iv) Cathode of Z2 & anode of Z2 = 8.2 +/- 0.4 volts

d) Adjust P5 until the rising edge of the square wave on TP3 of the '503 card is in line with the zero crossing of the sine wave at 2TB2 on the '504 card.

Note: Check 60HZ jumper, CP5 to CP6 is in place.

e) Check CP8 on the '503 card for fig. 1.

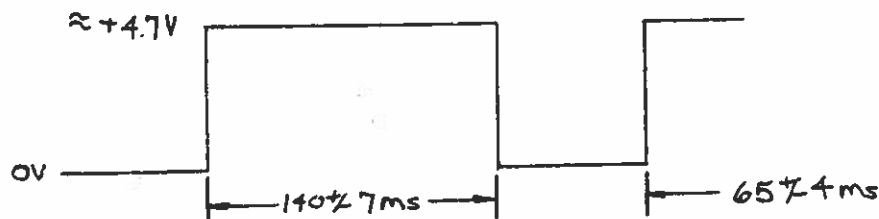


fig. 1

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f) Check the waveform at pin 7, and 8 of U15 to fig. 2.

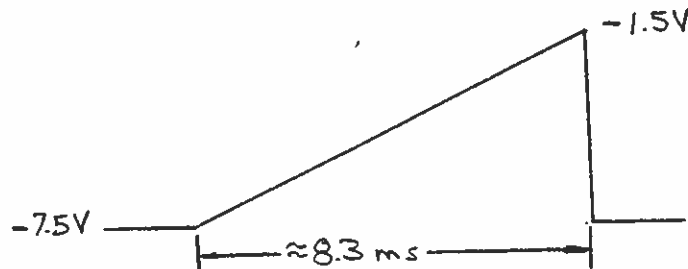


fig. 2

g) Check the waveform at pin 3 of U18 to fig. 3.

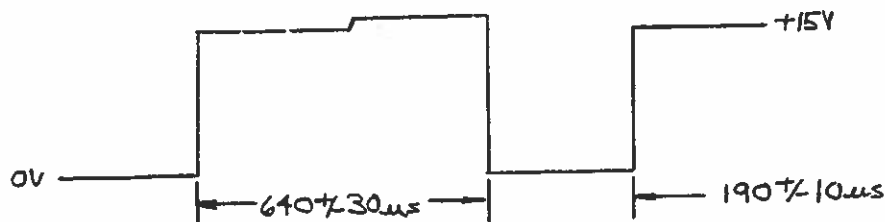


fig. 3

h) Adjust P4 for 0 volts at CP4.

i) Close SW2 and SW4 (up), for 30 seconds, then reopen.

j) Check the voltage at:

- i) 1TB15 = 0 +/- 0.04 volts
- ii) 1TB17 = 0 +/- 0.04 volts

k) Close SW5, and check CP1 switches to +13 volts for 2 seconds. Set P3 fully CW, and check the voltage at:

- i) 1TB15 = +5.0 +/- 0.2 volts
- ii) SC10 = -8.2 +/- 0.4 volts

l) Set P2, and P3 CCW, close SW1, and note the voltage at 1TB15, ramps to -5.0 +/- 0.2 volts in 20 seconds.

m) Set P2 CW, and check the voltage at:

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- i) SC2 = +5.0 +/- 0.3 volts  
ii) SC10 = -8.2 +/- 0.4 volts
- n) Set P2 fully CCW, and check the voltage at SC10 is 0 +/- 0.03 volts.
- o) Open SW1, and close SW2, note the voltage at 1TB15 ramps toward 0 volts. When the voltage is about -2.5 volts, close SW1, and note the ramping stops.
- p) Open SW1, and allow the voltage at 1TB15 to ramp to 0 volts.
- q) Open SW2, close SW3, and note the voltage at 1TB17, ramps to -5 volts in 20 seconds.
- r) With P2, and P3 CCW, check the voltage at:  
i) SC4 = +8.2 +/- 0.4 volts  
ii) CP1 = 0 +/- 0.04 volts
- s) Close SW6, and check the voltage at CP1 is +4.1 +/- 0.3 volts.
- t) Open SW3, close SW4, and note the voltage at 1TB17 ramps toward 0 volts. When the voltage is about -2.5 volts, close SW3, and note the ramping stops.
- u) Set P2, and P3 CW, close SW5, and use the scope in the differential mode to check the gate pulses across R15, and R16 of the '504 card. See fig. 4.

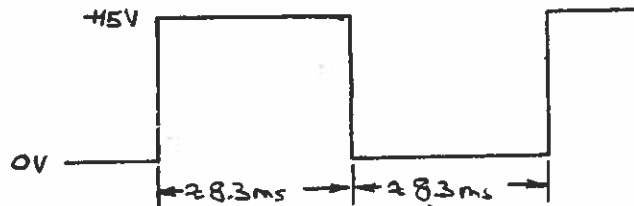


fig. 4

- v) Open all switches, set P3 CCW, close SW1, and when the voltage at CP1 is approx. +2.5 volts, reopen SW1.
- w) Note the voltage at CP1, and 1TB17, then power down.
- x) With P2 CW, connect the 200 ohm load resistor between 2TB6, and 2TB8 of the '504 card.

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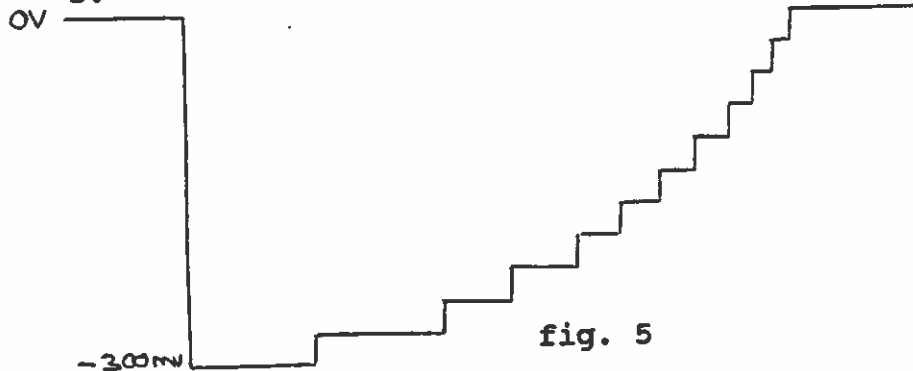
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- y) Power up, and check the voltage at CP1, and 1TB17 is the same as step w).
- z) Set P3 to 50%, close SW5, and check the waveform at CP4 to fig. 5.



#### 6. SEALING

- a) Remove the resistors between SC1/SC4, SC7/SC10, and SC11/SC12.
- b) Do NOT seal pots.
- c) RTV the leads of T4 to the board on the '504 card.

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