g   GE Canada
Electronic Products Repair

Test Instructions for

0621L0553 G002
Device Number

Tension regulator & progressive draw
Description of Device

Originated By: _____Dennis Cully_____
Typed Name

Date: <u>December 9, 2004</u>
mm/dd/yy

Approved By: _____Lucio Carrescia_____
Signature

Approval Date: <u>December 9, 2004</u>
mm/dd/yy

TEST INSTRUCTIONS

PREVIOUS REVISION SHEET

0621L0553 G002
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Tension regulator & progressive draw
Description of Device

Originated By	— Date —mm/dd/yy	Description of change
H. Keyzers	Aug 20, 1978	Created original test instructions.
Dennis Cully	–June 16, 1995	Created test instructions for Tension Regulator/Progressive Draw 621L553.
Scott Andrus	June 3-, 1996	Modified test instructions
Rogerio Cordeiro	September 22, 1998	Created new instructions using original.
Dennis Cully	December 9, 2004	Created dynamic test instructions for Tension regulator & progressive draw 0621L0553 G002
G. Chandler	April 1, 2014	Removed dynamic procedure because fixturing could not be transferred from Canada to LSC

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0621L0553 G002
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1.   PURPOSE:

     a. Static ~~and dynamic~~ work instruction ~~test procedures~~ for Tension regulator & progressive draw 0621L0553 G002

2.   ELEMENTARY:

     a. S&C Data book 1190 Sect 553 DWG 0266A9899 G1
     b. S&C Data book 1190 Sect 553 DWG 0237A4973 G2

3.   EQUIPMENT:

     a. Multi meter HP 34401A TL # 00321 or equivalent.
     b. Oscilloscope Fluke PM3394B TL # 00666 or equivalent.
     c. Pulse Generator HP 8116A TL # 00138 or equivalent.
     d. Triple 50V 1A power supply TL # 00199 or equivalent.
     e. Drive unit TL# 00294 or equivalent.
     f. Extender board TL#00397 or equivalent.
     g. One 0177A1032 P022 20K resistor for R74 or equivalent.
     h. Two 0177A1016 P020 100K resistors for R75 & R77 or equivalent.
     i. Two 0177A1017 P017 1M resistors for R45 & C23A or equivalent.
     j. One 0177A1049 P039 2µF for C23B or equivalent.
     k. Two 0197A8108 G001 jumpers for CP36 to CP41 & CP39 to CP40

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    l.   Powerstat variac TL# 00149 or equivalent.

    m. 115 /21 volt Isolation transformer TL# 847 TM 002 or equivalent.

4.   SET UP:

    a.   Connect TB17 to P15V.

    b.   Connect TB18 to ACOM.

    c.   Connect TB19 to N15V.

    d.   Install C23A, C23B, R45, R74, R75 & R77.

    e.   Connect CP36 to CP41.

    f.   Connect CP39 to CP40.

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5.   STATIC PROCEDURE:

a. **POWER SUPPLIES:**

   i.   Turn on the PN15 volt power supplies.

   ii.   Measure P15VDC on CP25 and CP26.

   iii. Measure GND on CP27 and CP28.

   iv.   Measure N15VDC on CP29 and CP30.

   v.   Adjust R10 for P10VDC $\pm$100mV on P10V test point.

   vi.   Adjust R11 for N10VDC $\pm$100mV on N10V test point.

   vii. Measure P10VDC at CP01 & CP04

   viii. Measure N10VDC at CP03 & CP06.

   ix.   Jumper CP02 to CP03.

   x.   Measure N10VDC at TB01.

   xi.   Connect CP04 to CP05

   xii. Measure 0VDC on CP07 with R4 CCW and P10VDC with R4 CCW.

   xiii. Remove Power and Measure 0 Ohms between TB01 and CP02 with R03 CCW
         and 9.5910K with R03 CCW.

b. **TENSION REGULATOR:**

   i.   Zero

         1.   Apply power.

         2.   Connect CP08 to CP09.

         3.   Connect TB1504 to ACOM.

         4.   Set R02 CW.

         5.   Adjust R05 until CP10 is 0VDC.

         6.   Remove TB1504 from ACOM.

         7.   Remove CP08 from CP09.

7.

    ii. Gain

       1. Connect TB05 to ACOM. Jumper CP21 to CP22

       2. Connect TB07 to ACOM.

       3. Set R02 CCW and set R1 CCW

       4. Apply P5VDC to TB02.

       5. Measure N7.5VDC at CP10.

       6. Remove P5VDC from TB02.

       7. Apply P5VDC to TB03.

       8. Measure N7.5VDC at CP10.

       9. Remove P5VDC from TB03.

      10. Apply P5VDC to CP08.

      11. Measure N7.5VDC at CP10.

      12. Remove P5VDC from CP08.

      13. Apply P.5VDC to TB04.

      14. Measure N7.5VDC at CP10.

      15. Set R02 CW.

      16. Measure N10.5VDC at CP10.

    iii. Voltage follower

       1. Set R06 CCW.

       2. Measure 0 volts on TB08.

       3. Measure 0 volts on TB09.

       4. Set R2 CCW.

       5. Set R06 CW.

       6. Measure N10.5VDC on TB08.

       7. Measure P10.5VDC on TB09

       8. Remove P.5VDC from TB04.

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    iv. Feedback

1. Connect the variable AC power supply to the primary of the isolation transformer, jumper CP11 to CP12.
2. Connect the secondary of the isolation transformer between TB20 & TB21.
3. Set R07 CCW and set R2 CCW.
4. Apply 10VAC between TB20 & TB21.
5. Slowly turn R07 CW until CP10 is N7.5VDC volts.
6. Remove TB07 from ACOM.
7. Measure N5VDC on CP10.
8. Remove the AC power supply from TB20 & TB21.

    v. Clamp

1. Apply negative 0N.5VDC to TB04.
2. Measure P5VDC on CP10.
3. Connect TB06 to ACOM.
4. Measure P.5VDC on CP10.
5. Remove TB06 from ACOM.

c. Progressive draw

    i. Zero

1. Connect TB11 to ACOM.
2. Adjust R08 until CP14 is 0VDC.
3. Adjust R09 until TB13 is 0VDC.

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~~3.~~

    ii. Gain

        1. Remove TB11

        ~~1.~~2.Apply P10VDC on TB11.

        ~~2.~~3.Measure P10VDC on TB13.

        ~~3.~~4.Remove P10VDC from TB11.

        ~~4.~~5.Apply N10VDC on TB12.

        ~~5.~~6.Measure N10VDC on TB13.

    iii. Clamp

        1. Measure 0VDC on CP17.

        2. Connect TB16 to ACOM.

        3. Measure N10VDC on CP17.

    iv. Summing junction

        1. Measure N10VDC on TB14.

        2. Remove N10VDC from TB1~~1~~2.

d. Auxiliary operational amplifier

    i. Measure 0VDC on CP42.

    ii. Apply 100VDC between CP35+ & CP38-.

    iii. Measure N4.95VDC on CP42.

    iv. Remove the 100VDC from CP35 & CP38.

~~6.DYNAMIC PROCEDURE:~~

~~a.Set up~~

    ~~i.Insert the extender card into the blue slot on portable test unit.~~

    ~~ii.Insert the 0621L0553 card into the extender card.~~

iii. Connect TJ17 Blue to TJ39 Yellow.

iv. Connect TJ18 Blue to TJ38 Yellow.

v. Connect TJ19 Blue to TJ37 Yellow.

vi. Connect TJ05 Blue to ACOM.

vii. Connect TJ07 Blue to ACOM.

viii. Connect TJ09 Blue to TB06 Yellow.

ix. Connect TJ12 Blue to TJ04 Yellow.

x. Connect TJ14 Blue to TJ15 Blue.

xi. Connect CP35 to + feedback Yellow.

xii. Connect CP38 to - feedback Yellow.

xiii. Connect CP42 to TJ02 Blue.

xiv. Set R01 & R02 CCW.

xv. Set R06 CW.

b. Setup to apply the field of M1.

i. Apply AC power to the 0621L0212 card.

1. Put the reference switch "R" up.

2. Put the reference potentiometer. "R" CW.

3. Put the super card power switch "R" up

4. Put the locked rotor switch "R" up.

5. Put the IEC switch "R" up.

6. Put the local remote switch "R" up.

7. Put the suicide "R" switch down.

8. Momentarily press the start button "R".

ii. Apply AC power to the 0621L0106 card.

1. Put reference switch "G" up and reference potentiometer. "G" CW.

2. Put the reference potentiometer. "G" CW.

3. Put the super card power switch "G" up.

4. Put the local remote switch "G" up.

5. Put the IEC switch "G" down

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6. Put the suicide switch "G" down.

iii. Apply AC power to the 0632L0504 module

1. Put switch super card power "B" up.

2. Put the local remote switch "B" up.

3. Put the locked rotor switch "B" down.

iv. Apply AC power to the 0621L0118 card

1. Put the reference switch "Y" up.

2. Put the reference potentiometer. "Y" CW.

3. Put the super card power switch "Y" up.

4. Put the local remote switch "Y" up.

5. Put the IEC switch "Y" down

6. Put the suicide switch "Y" down.

7. Momentarily press the start button "Y" to give +125VDC output to the armature of M1.

8. Drive should slowly begin to rotate and motor should run at 125 volts.

9. Output at TB09 should be P6.8VDC.

10. Output on TB02 should be 6.2VDC.

11. Output on TB13 should be P10VDC.

12. Adjust R02 CW.

13. Drive power should be 165VDC.

14. Output at TB09 should be P8.3VDC.

15. Output on TB02 should be 8.2VDC.

16. Adjust R01 CW until drive power is 180VDC.

17. Output at TB09 should be P9.9VDC.

18. Output on TB02 should be 8.9VDC.

7.6.   UPDATES:

a.   Group 1 becomes Group 2 Revision 0

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b. Replace R47C, R47D, R52A, & R52B with a 10K 0177A1460 P223 resistor.

c. Replace D2 & D3 with a wire.

d. Revision status should be changed to GR2 R0

8. END.

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