



GE Energy

Functional Testing Specification

Parts & Repair Services
Louisville, KY

LOU-GED-872D430G1

Test Procedure for a 872D430G1 Wobblator Card

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A	Initial release	G. Chandler	10/4/2011
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1. SCOPE

1.1 This is a functional testing procedure for a

2. STANDARDS OF QUALITY

2.1 Refer to the current revision of the IPC-A-610 standard for workmanship standards.

3. APPLICABLE DOCUMENTS

3.1 The following document(s) shall form part of this specification to the extent specified herein. Unless otherwise indicated, the latest issue shall apply.

3.1.1 Check board's electronic folder for more information

4. ENGINEERING REQUIREMENTS

4.1 Equipment Cleaning

4.1.1 Equipment should be clean and free of debris prior to applying power unless performing an initial check. Refer to site specific SRA's for cleaning guidelines.

4.2 Equipment Inspection

4.2.1 Equipment should be visually inspected for any defects prior to applying power. This inspection should include the following as a minimum:

4.2.1.1 Wires - broken, cracked, or loosely connected

4.2.1.2 Terminal strips / connectors - broken or cracked

4.2.1.3 Components - visually damaged

4.2.1.4 Capacitors - bloated or leaking

4.2.1.5 Solder joints - damaged or cold

4.2.1.6 Circuit board - burned or de-laminated

4.2.1.7 Printed wire runs / Traces - burned or damaged

5. EQUIPMENT REQUIRED

5.1 The following equipment is required to perform the process requirements. Equipment may be substituted provided that all accuracy's and test ratios are equivalent or better.

Qty	Reference #	Description
1		Shop Op Amp Box (Needs Number)
1		30VDC Power Supplies
1		X-Y Recorder
3		Fluke 85 or equivalent

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6. Testing Process

6.1 Description

- 6.1.1** This board generates a triangular wave form which varies turbine speed from 2900 to 3100 PRM by being an input to the Low Value Gate speed amplifier. This board consists of an integrator, two biasing networks, and a transistor triggering network to trigger relay K1.

6.2 Setup

- 6.2.1** Locate patchboard which is already wired to handle this board type or wire one up according to the wire table at the end of these instructions. Notes highlighted in yellow were penciled in on factory scanned procedure located in (N:\Design Folders\8xx\872D\872D430).

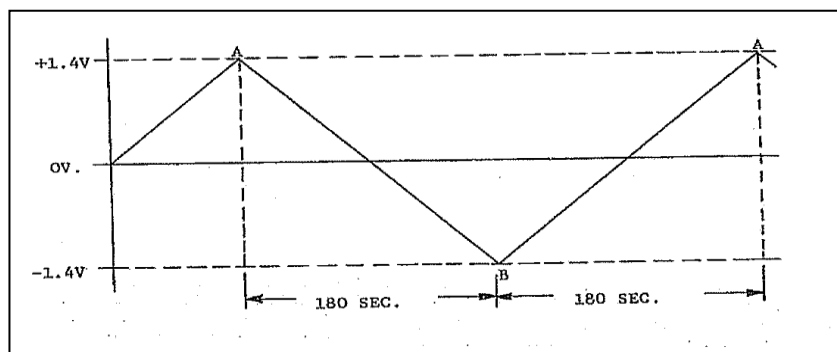
6.3 Testing Procedure

- 6.3.1** Plug board under evaluation into PCR#2 (5). Select switch SW3 down (Closed).
- 6.3.2** Adjust R8 CW to the limit of its adjustment. Adjust R12 for -0.18V (-0.2V) at TP3. Adjust R8 for -1.5V (-1.4) at TP2
- 6.3.3** Select switch SW3 to the up (Open) position and monitor TP1 with DVM. TP1 should increase to +1.4 (1.2 thru 1.6) +/-0.2V; then it should start to decrease.
- 6.3.4** When TP1 starts to decrease, adjust R17 for +0.18V (+0.2V) at TP3 and adjust R7 for +5.6 at TP2.
- 6.3.5** The voltage at TP1 should decrease to -1.4 +/- 0.2V; then it should start to increase. While it is increasing, readjust R12 for -0.18 (-0.2) at TP3.
- 6.3.6** If the voltage at TP1 doesn't start to decrease when it reaches +1.4 +/- 0.2V, R8 will have to be adjusted. Likewise, if the voltage at TP1 doesn't start to increase when it reaches -1.4V +/- 0.2V, R7 will have to be adjusted. Repeat step 4, 5, and 6, until no further adjustment is needed.
- 6.3.7** Select Switch SW3 "Down" (Closed)
- 6.3.8** After calibrating X-Y recorder, including time base, set function selector at standby. Set time base at .02 inches/sec and Y input to 10000MV/inch. Adjust zero adjust knobs so that the pen is about (2) inches from the top border and near the left hand margin.
- 6.3.9** Hook Y input from XY recorder to BP1 and Ground from XY recorder to BP2.
- 6.3.10** Switch time base to start and open switch SW3 "Up". (6 min = 7.2 divisions)

6.3.11 Measure the time it takes the voltage at TP1 to go from +1.4 +/- 0.2V to -1.4 +/- 0.2V; it should be 180 seconds +/- 15 sec. Also measure the time it takes the voltage at TP1 to go from -1.4 +/- 0.2V to +1.4 +/- 0.2V, it should be 180 seconds +/- 15 seconds.

6.3.12 If the time from +1.4V +/- 0.2V to -1.4 +/- 0.2V is not obtained, adjust R17 only when going from +1.4 +/- 0.2V to -1.4 +/- 0.2V until 180 seconds +/- 15 is reached. (R17 going from + to - CW shorten time).

6.3.13 If the time from -1.4V +/- 0.2V to +1.4 +/- 0.2V is not obtained, adjust R12 only when going from -1.4 +/- 0.2V to +1.4 +/- 0.2V until 180 seconds +/- 15 is reached. (R12 going from - to + CW shorten time).



6.3.14 Now make a final plot of the wobbulator and after recording the serial number, date, and your initials on it, record the total time of one cycle. File all recording in numerical order.

6.3.15 After "T" stamping the board so it can be coated, sign your name or initials after appropriate serial number in the Test Sign-off book.



Note:

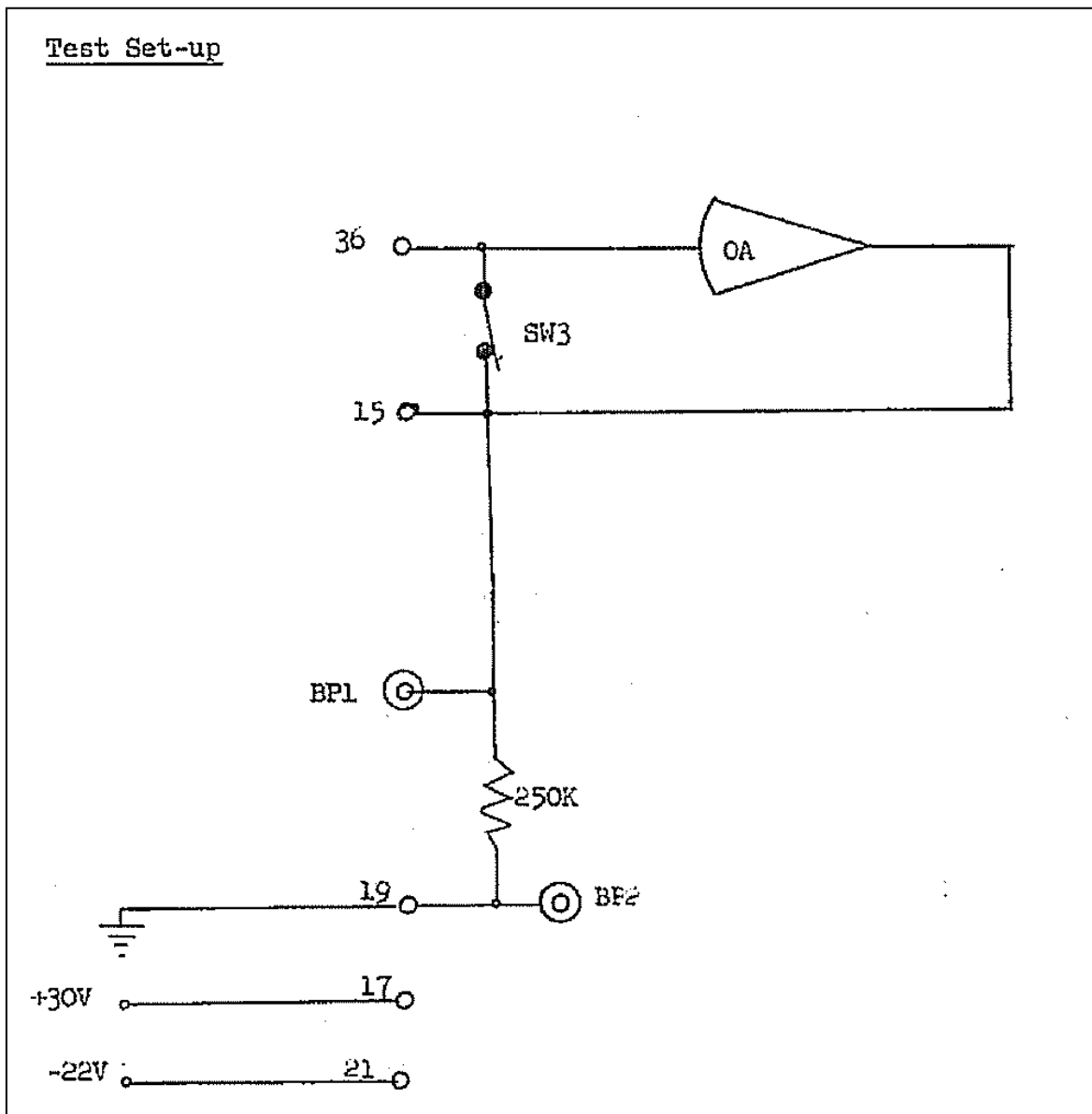
R8 – CW shortens (+) excursion very touchy. R7 – CCW shortens (-) excursion very touchy. They also interact. TO spread exc, go ½ turn CCW on R8, and ½ turn CW on R7 – Do both.

6.3.16 Post Testing Burn-in Required ☒ Yes ☐ No

6.4 *TEST COMPLETE*****

7. Notes

- 7.1 The setup below is for testing. You can reference the drawing on the following page for more information on connections. Saw a note on one instruction that said use Op Amp 784E661G1, because other may oscillate, do not know if this is true or not, has not been verified.



8.2 Data Sheet for Test Procedure (872D430G1)

Test Procedure Step	Nominal	Lower Limit	Results	Upper Limit	Pass/Fail
6.3.2 - TP3	-0.18V	None		None	
6.3.2 - TP2	-1.5V	None		None	
6.3.3 – TP1 Increases to	+1.4V	+1.2V		+1.6V	
6.3.4 – TP1 Decreases to	-1.4V	-1.2V		-1.6V	
6.3.4 – TP3	+0.18V	None		None	
6.3.4 – TP2	+5.6V	None		None	
6.3.5 – TP1 Increases to	+1.4V	+1.2V		+1.6V	
6.3.5 – TP3	-0.18V	None		None	
6.3.11 – TP1	180 seconds	165 Sec		195 Sec	