



GE Energy

Functional Testing Specification

Parts & Repair Services
Louisville, KY

LOU-GED-165D741AD

Test Procedure for a 125D458ADG2 Turbine Card

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LOU-GED-165D741AD REV. A	 GE Energy Parts & Repair Services Louisville, KY	Page 2 of 7
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1. SCOPE

1.1 This is a functional testing procedure for a 125D458ADG2 Turbine Card.

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

3.1.2 Reference Fitchburg Test 165A741AD

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
4		Fluke 87 DMM (or Equivalent), Two voltage and current Meters
5		+/- 15VDC Power Supplies

6. Testing Process

6.1 Setup

6.1.1 Clip lead in the following components:

R1	1K
R2	1K
R3	1K
R4	1K
R5	1K
R6	1K
R8	4.99K
R9	4.99K
R10	10K

6.1.2 Leave all other spots open.

6.1.3 Connect the circuit as shown in Fig 1. See attachment in section 8. Data sheet is also attached in section 8.

6.2 Testing Procedure

6.2.1 Note that PS2 and PS3 are clipped in at the junction of C22 & R28 and C24 & R33 respectively. Turn on power and observe the M1 and M2 read less than _____Ma.

6.2.2 Adjust PS2 to 0VDC. Vary P2 and verify that the range at TP3 is 5.3V to 10.9V. Adjust PS2 to get 0VDC at TP3.

6.2.2.1 With this circuit duplicated outside of the original equipment you may get a wider range of values now, values between +5.0 to +11.5 were taken.

6.2.3 Adjust PS3 to 0VDC. Vary P3 and verify that the range at TP4 is 5.3V to 10.9V. Adjust PS3 to get 0VDC at TP4.

6.2.3.1 With this circuit duplicated outside of the original equipment you may get a wider range of values now, values between +5.0 to +11.5 were taken.

6.2.4 With 0VDC at TP3 & TP4, adjust PS1 to 0VDC. Turn P1 fully CW, M3 should now read less than 20mA. Now turn board pot P1 fully CCW, M3 should read over 400mA. Verify that TP6 ranges from -1.33V to +1.33V as this is done. Adjust P1 to 125mA on M3

6.2.4.1 With this circuit duplicated outside of the original equipment you will probably get a wider range of voltages at TP6 and your current readings will not be so high, around 0.330mA or higher. Previous readings taken were 0.346 to 0.349mA.

6.2.5 Checking the gain of the servo amplifier.

6.2.5.1 Adjust PS1 to get 100mA on M1. Record the TP2 voltage _____.

6.2.5.2 Adjust PS1 to get 350mA on M1. Record the TP2 voltage _____.

6.2.5.3 The difference between the two voltages should be 0.375V. _____, +-1%.

6.2.5.3.1 With this circuit duplicated outside of the original equipment you will probably get a higher voltage. Previous readings taken were 0.407V thru 0.475V. A 10% reading was possible, not 1%.

6.2.6 Noise check. With an ungrounded scope check that the noise between TP9 and TP10 is less than 250mV.

6.3 Post Testing Burn-in Required ☒ Yes ☐ No



Note: All MARK I, II, & III Turbine related cards require a post testing burn-in of 100 hours.

6.3.1 Apply BUS or Operational power to the card for a period of 100 hours.

6.3.2 Re-test card while warm using the above procedure.

6.4 *TEST COMPLETE *****

7. Notes

7.1 Fill out data sheet in Section 8

8. Attachments

8.1 Data Sheet

Job # _____

Serial # _____

Burn-in Start _____

Date _____

Data Sheet for __125D458ADG2_____

Burn-in Stop _____

Test Procedure __165A741AD_____

Technician _____

Test Procedure Step	Nominal	Lower Limit	Pre-Burn in Results	Post Burn in Results	Upper Limit	Pot Values If applicable CW CCW		Pass/Fail
3	+5.3V to +10.9V	> +5.3V			< +10.9	-	-	
3a		-			-			
4	+5.3V to +10.9V	> +5.3V			< +10.9	-	-	
4a		-			-			
5a		-			< 20ma	-	-	
5b		> 3.3ma			-			
6a	.375V	-			-			
7	< 250mV	-			-			

FIG 1

8.3 Old test procedure 165A741AD

TEST INSTRUCTIONS FOR POS 3 MDT-80S

- Clip lead in the following components:

R1	1 K	}	25
R2	1 K		
R3	1 K		
R4	1 K		
R5	1 K		
R6	1 K		
R8	4.99 K	}	36
R9	4.99 K		
R10	10 K		

1.631

6-1K PPS.

2-5K PPS.

3-10K PPS.

*Leave all other spots open.
- Connect the circuit as shown in Fig. 1. Note that PS2 and PS3 are clipped in at the junction of C22 and R28, and C24 and R33 respectively. Turn on power and observe that M1 and M2 read less than Ma.
- Adjust PS2 to 0V. Vary P2 and verify that the range at TP3 is 5.3V to 10.9V. Adjust PS2 to get 0V at TP3.
+5.05 to +11.26
- Adjust PS3 to 0V. Vary P3 and verify that the range at TP4 is 5.3 to 10.9V. Adjust PS3 to get 0V at TP4.
+5.06 to +11.46
- With 0V at TP3 and TP4, adjust PS1 to 0V. Turn P1 fully CW. M3 should now read less than 20 Ma. Now turn Board POT P1 fully CCW. M3 should read over 300 Ma. Verify that TP6 ranges from -1.33V to 1.33V as this is done. Adjust P1 to get 125 Ma on M3. *1.672 +1.253 SN 101 349 mA*
- Check the gain of the servo amplifier. Adjust PS1 to get 100 Ma on M1. Record the TP2 voltage. Adjust PS1 to get 350 Ma on M1. Record the TP2 voltage. The difference between the two voltages should be .375V ± 1%. *SN 101 = 0.467*
- Noise check. With an ungrounded scope check that the noise between TP9 and TP10 is less than 250 Ma. *360*

Data Needed: Quiescent Current
Requirement from ±15V supplies
for normal board.