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GE Industrial Systems

Functional Testing Specification

*Renewal Services
Louisville, KY.*

LOU-GED-193X523xx

Test Procedure for: 193X523xx

DOCUMENT REVISION STATUS: Determined by the last entry in the "REV" and "DATE" column

REV.	DESCRIPTION	SIGNATURE	REV. DATE
A	Initial release	<i>Jeffrey D. Barton</i>	07/17/02
B	Added to refer to GEK24970A for setting Jumpers YA-YD. Removed Step 6.1.2.7, jumper not needed.	David Smith	9-1-2007
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PREPARED BY Jeffrey D. Barton	REVIEWED BY	REVIEWED BY	QUALITY APPROVAL <i>Robert D. Dwyer</i>
DATE 3/17/2021	DATE	DATE	DATE 07/17/02

Functional test procedure for: 193X523XXG0X

1. SCOPE

1.1 This is a functional testing procedure for a 193X523XXG0X field control 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 **GEK-24970A**

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 the local documented procedures 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 or cracked
- 4.2.1.2 Terminal strips / connectors broken or cracked
- 4.2.1.3 Loose wires
- 4.2.1.4 Components visually damaged
- 4.2.1.5 Capacitors leaking
- 4.2.1.6 Solder joints damaged or cold
- 4.2.1.7 Circuit board burned or de-laminated
- 4.2.1.8 Printed wire runs 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	H033631	193X523XXG0X Test Fixture
1		Inductive Load
2		DMM
1		3 Phase – 230Vac Supply

<p>LOU-GED-193X523xx REV. B</p>	<p>g</p> <p>GE Industrial Systems Renewal Services Louisville, KY</p>	<p>Page 3 of 5</p>
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6. TESTING PROCESS

6.1 Setup – 193X523xx

6.1.1 **Write down customer's jumper settings on back of WIP Tag prior to reconfiguring UUT to test fixture!!!**

6.1.2 Jumper Setting Adjustments:

6.1.2.1 REFER TO GEK-24970A FOR SETTING JUMPERS YA THROUGH YD
FOR 5 AMPS OUTPUT.

6.1.2.2 PW-PH and NW-NH

6.1.2.3 FC-FCO

6.1.2.4 ZA-ZB

6.1.2.5 TI-TC

6.1.2.6 TN-TAX

6.1.2.7 FE-FP2

6.1.3 Potentiometers Settings:

6.1.3.1 FMAX – CW

6.1.3.2 SCAL – CCW

6.1.3.3 SLIM – Mid-range

6.1.3.4 FMIN – CCW

6.1.3.5 CROSS – CW

6.1.3.6 FLOSS - CCW

6.1.4 Input Voltage:

6.1.4.1 Connect 230Vac – 3 Phase to L1 / L2 / L3, (connections are not phase sensitive).

6.1.5 Inductive Load:

6.1.5.1 **F1** connected to positive lead terminal of load.

6.1.5.2 **F2** connected to 36Ω terminal of load.

6.2 Testing Procedure

6.2.1 Connect DMM #1 from **MFB to COM**.

6.2.2 Connect DMM #2 to **F1 and F2**.

6.2.3 Apply power to unit by releasing E-STOP.

6.2.4 Adjust VR1 on test fixture for 0Vdc on DMM #1.

<p>LOU-GED-193X523xx REV. B</p>	<p>g</p> <p>GE Industrial Systems Renewal Services Louisville, KY</p>	<p>Page 4 of 5</p>
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- 6.2.5 Adjust **FMAX** for 150Vdc on DMM #2.
- 6.2.6 Adjust **FMIN** for 30Vdc on DMM #2 while pressing and holding PB1 on test fixture.
- 6.2.7 Adjust **FLOSS** CW until SYS LED Illuminates.
- 6.2.8 Release PB1 and SYS LED should go out.
- 6.2.9 Readjust **FMIN** for 50Vdc DMM #2 while pressing PB1 on test fixture.
- 6.2.10 Test **CROSS** by adjusting VR1 on test fixture for +5Vdc on DMM #1.
- 6.2.11 Adjust **CROSS** CCW until output starts to drop on DMM #2.
- 6.2.12 Readjust VR1 on test fixture +4Vdc on DMM #1.
- 6.2.13 Verify approx. 150Vdc on DMM #2.
- 6.2.14 Connect DMM #1 to **TA and COM; (next to pots.)**
- 6.2.15 Adjust **SCAL** to 0Vdc, (this adjustment is unstable but normal).
- 6.2.16 Reconnect DMM #1 from **MFB to COM.**
- 6.2.17 Adjust VR1 on test fixture for 0Vdc on DMM #1.
- 6.2.18 Turn **SLIM** fully CCW and increase VR1 until SYS LED illuminates.
- 6.2.19 **Make a note of voltage on DMM #1, (approx. +4.5Vdc).**
- 6.2.20 Readjust VR1 on test fixture for 0Vdc on DMM #1.
- 6.2.21 Verify SYS LED Goes out.
- 6.2.22 Adjust **SLIM** fully CW.
- 6.2.23 Turn VR1 on test fixture in the positive direction until SYS LED Illuminates.
- 6.2.24 Verify voltage on DMM #1 is **equal to or greater than** as noted in step #
6.2.20; (approx. \geq +4.5Vdc).
- 6.2.25 Leave **SLIM** fully CW.
- 6.2.26 Adjust VR1 on test fixture for 0Vdc on DMM #1.
- 6.2.27 Turn VR1 on test fixture in the positive direction.
 - 6.2.27.1 SYS LED should go out at 0Vdc on DMM #1.
 - 6.2.27.2 With DMM #1 at approx. +4.4Vdc, DMM #2 voltage should drop.
 - 6.2.27.3 At approx. +5Vdc SYS LED should illuminate.
- 6.2.28 Adjust VR1 on test fixture for 0Vdc on DMM #1.
- 6.2.29 Turn VR1 on test fixture in the negative direction.
 - 6.2.29.1 SYS LED should go out at 0Vdc on DMM #1.
 - 6.2.29.2 With DMM #1 at approx. -4.4Vdc, DMM #2 voltage should drop.
 - 6.2.29.3 At approx. -5Vdc SYS LED should illuminate.
 - 6.2.29.4 De-energize UUT by pressing E-STOP.

6.2.30 Disconnect **NW-NH** and verify resistance between **NW** and **NL** is **2M Ω** .

6.2.31 Disconnect **PW-PH** and verify resistance between **PW** and **PL** is **2M Ω** .

6.2.32 Verify resistors **R104** and **R105** are **475K Ω** .

6.3 Jumper Setting Readjustments:

6.3.1 **Reconnect customer's jumper settings per back of WIP Tag Notes of Section 6.1.1 prior to COMPLETEING unit !!!**

6.4 *TEST COMPLETE *****

7. NOTES:

8. Oscilloscope Verification Examples:

Fig. 1

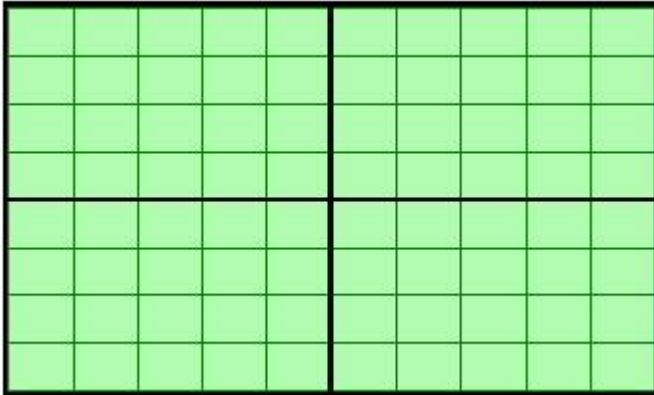
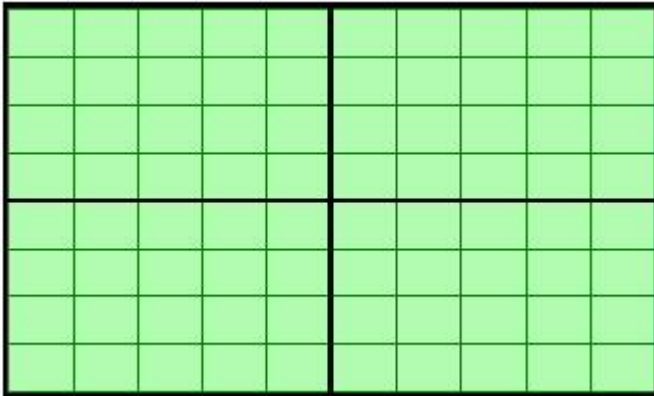


Fig. 2



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