
 GE Industrial Control Systems	Test and Operating Procedure	
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QUALITY REP: 		
TITLE: Test Procedure for DC-285/200		PROCEDURE: LOU – GED-DC285/200-C

1. INTRODUCTORY DESCRIPTION

- A. This procedure establishes the methods for testing a DC-285 or DC-200
- B. Environmental ranges: 70 +/- 10 Deg. F. with 20-75% R.H.
- C. Unit warm-up/stabilization period requirement:
- D. Personnel using this procedure are expected to have a high degree of confidence and expertise in related testing and calibration procedures.
- E. Procedures not explained here are considered to be understood as common practice.

2. TEST EQUIPMENT VERIFICATION



- A. Verify the accuracy of the standard(s) used in the repair/calibration process by evidence of recent calibration labeling affixed to the test equipment.
- B. All measurement standards used in this procedure shall be traceable to the NATIONAL INSTITUTE of STANDARDS and TECHNOLOGY (N.I.S.T.) and shall have the accuracy, stability, range and resolution required for the intended use.
- C. Unless otherwise specified, the collective uncertainty of the Measurement Standard(s) shall not exceed twenty five percent of the acceptable tolerance for each characteristic being calibrated.
- D. All deviations shall be documented.

3. EQUIPMENT CLEANING

- A. All equipment clean will be performed as instructed in the GEES SOP Sec. 14.0



4. EQUIPMENT INSPECTION

- A. The following criteria should be used as a guideline or basis for the inspection process of this unit:
 - 1. Wires broken or cracked.
 - 2. Terminal strips / connectors broken or cracked.
 - 3. Loose wires.
 - 4. Components visually damaged.
 - 5. Capacitors leaking.
 - 6. Solder joint, cold.
 - 7. Circuit board discolored or burned.
 - 8. Printed wire runs burned or damaged.

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5. REVISION HISTORY

Revision	Date	Initials	Reason for Revision
A	12/17/98	JDS	Initial Procedure – After Verification
B	06/14/02	RKD	Added section 5 & 6, Updated procedure number
C	7/24/14	J. Archiblad	Changed those reading were is said 0 ohms to <1 ohm. Changed 9.2.34 & 35 from 48 to 46, Armature voltage from 240VDC to 150VDC
D			
E			
F			
G			
H			
I			
J			
K			

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6. REFERENCE DOCUMENTATION

- Reference: Check board's electronic folder for more information

7. THEORY OF OPERATION

- Reference: GEK85769A or GEJ7301

8. TEST EQUIPMENT TO BE USED

- **Fluke 85 or equivalent**
- **DC-285 test stand**
- **15 HP DC motor**
- **DC-285 test EEPROM Rev A**

9. FINAL TEST AND OPERATION PROCESS

9.1. Initial Setup

Control card settings

JP2 1-2 JP21 1-2 (not on all cards)

JP5 1-2 JP22 1-2 (not on all cards)

JP38 1-2 JP23 1-2(not on all cards)

JP19 1-2 JP24 1-2

JP20 3-4 JP36 2-3

JP39 2-3 JP37 2-3

JP40 1-2

3TB Settings SW 1 1-Up 2-Up 3-Up 4-Down

SW 2 1-Up 2-Up 3-Up 4-Up



SW 9 1 Close 5 Close

2 Close 6 Close

3 Open 7 Open



4 Open 8 Close

Pot settings (CONTROL CARD ONLY) Middle



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9.2. Testing



- 9.2.1. Insert DC-285 test EEPROM REV. A U12
- 9.2.2. Connect Armature , Field and Tach to test stand
- 9.2.3. Push POWER SWITCH on (Located on lower righthand side of test fixture)
- 9.2.4. Verify that LED s on Control Card are scrolling from right to left
- 9.2.5. LED s are not a fault has occurred refer GEJ-7301 or GEK-85769 for troubleshooting tips
- 9.2.6. Verify power supply voltages at 3TB (This is card with screw terminals)
- 9.2.7. + 24 vdc tol 26.4 to 21.8 vdc from 3TB 67 (acom) to 56
- 9.2.8. + 15 vdc tol 15.75 to 14.28 vdc from 3TB 67 (acom) to 66
- 9.2.9. - 15 vdc tol 15.75 to 14.28 vdc from 3TB 67 (acom) to 64
- 9.2.10. + 5 vdc tol 5.25 to 4.76 vdc from 3TB 67 (acom) to 68
- 9.2.11. Above power supply tolerances are taken for GEJ-7301 manual page 14
- 9.2.12. Perform a SCR test by doing the following steps
- 9.2.13. Press RESET
 - 9.2.13.1. Close SW9-4 (located at bottom-middle of card)
 - 9.2.13.2. Push RESET
 - 9.2.13.3. Open SW9-4
 - 9.2.13.4. Push START
- 9.2.14. If SCR Test passed FAULT 42 will be displayed on LED s
- 9.2.15. If SCR Test failed refer to GEJ-7301 or GEK85769 for troubleshooting tips
- 9.2.16. Push START/STOP to STOP
- 9.2.17. Press RESET
- 9.2.18. Relay test K1
- 9.2.19. Check for <1 ohm between 3TB 52 to 54

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- 9.2.20. Check for meg ohms between 3TB 52 to 53
- 9.2.21. Turn MSR Ref to min.
- 9.2.22. Push RUN/JOG to RUN
- 9.2.23. Push START/STOP switch to START
- 9.2.24. Check for meg ohms between 3TB 52 to 54
- 9.2.25. Check for <1 ohm between 3TB 52 to 53
- 9.2.26. Push START/STOP to STOP
- 9.2.27. Relay test K2
- 9.2.28. Turn MSR Ref to max.
- 9.2.29. Check for < 1 ohm between 3TB 46 to 47
- 9.2.30. Push START/STOP to START and wait until Armature volts reach 240 vdc on panel meter
- 9.2.31. Check for <1 ohm between 3TB 46 to 47
- 9.2.32. Push START/STOP to STOP
- 9.2.33. Relay test K3
- 9.2.34. Check for <1 ohm between 3TB 47 to 46
- 9.2.35. Press and hold RESET and check for (infinite) ohms between 3TB 47 to 46
- 9.2.36. RESET test
- 9.2.37. Press and release EXT RESET
- 9.2.38. LED s will all go out then go to diagnostics (Scroll across)
- 9.2.39. Press RESET on control card (Located on lower right-hand corner)
- 9.2.40. LED s will all go out then go to diagnostics (Scroll across)
- 9.2.41. MSR test and FWD test
- 9.2.42. Turn MSR Ref to min
- 9.2.43. Push FWD/REV to FWD

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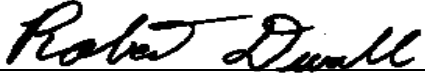
- 9.2.44. Push START/STOP to START
- 9.2.45. Turn MSR Ref slowly CW . Armature volts will track with MSR Ref with some delay. When MSR Ref is full CW Armature volts will be 150 vdc. “VERY IMPORTANT” note the polarity of Armature current meter to properly test next stage.
- 9.2.46. REV test
- 9.2.47. Push START/STOP to STOP
- 9.2.48. Push FWD/REV to REV
- 9.2.49. Push START/STOP to START
- 9.2.50. After Armature reaches 150 vdc the Armature current meter will read opposite polarity
- 9.2.51. Push START/STOP to STOP
- 9.2.52. JOGR and JOG SPEED pot test
- 9.2.53. Push RUN/JOG to JOG (Motor will start)
- 9.2.54. Located JOG SPD pot in the lower right-hand corner of Control Card and adjust full CCW. Armature volt will be approx 10 vdc.
- 9.2.55. Adjust JOG SPD pot full CW. Armature volts will reach approx. 65 vdc
- 9.2.56. Push RUN/JOG to RUN (Motor will stop)
- 9.2.57. INC/DEC test
- 9.2.58. Turn MSR Ref to min
- 9.2.59. Press RESET.
- 9.2.60. Push START/STOP to START
- 9.2.61. Press and hold INC until Armature volts reaches 100 vdc (Takes approx. 25 sec.)
- 9.2.62. Press and hold DEC until Armature volts reaches 0 vdc (Takes approx. 25 sec.)
- 9.2.63. Push START/STOP to STOP
- 9.2.64. Push RESET

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- 9.2.65. ILIM test
- 9.2.66. Located ILIM pot in the lower right-hand corner of Control Card and adjust full CCW
- 9.2.67. Turn MSR Ref to max.
- 9.2.68. Push START/STOP to START
- 9.2.69. Motor will ramp up to max in approx. 3 seconds.
- 9.2.70. Push START/STOP to STOP
- 9.2.71. Turn ILIM full CW
- 9.2.72. Push START/STOP to START
- 9.2.73. Motor will ramp up to max in approx. 10 seconds.
- 9.2.74. Push START/STOP to STOP
- 9.2.75. DAC 8 test
- 9.2.76. Turn MSR Ref to max.
- 9.2.77. With multimeter measure +15 vdc between 3TB 65 (Red lead) and 3TB 67 (Blk lead)
- 9.2.78. Turn MSR Ref to min.
- 9.2.79. With multimeter measure 0 vdc between 3TB 65 (Red lead) and 3TB 67 (Blk lead)
- 9.2.80. MAN SCAL pot
- 9.2.81. Push START/STOP to START
- 9.2.82. Turn MSR Ref to max.
- 9.2.83. Located MAN SCAL pot in the lower right-hand corner of Control Card and adjust SRS(+) test point located above MAN SCAL pot for +3.8 vdc, @ TB3-67 (Com) (-)
- 9.2.84. Adjust MAN SCAL above and below +3.8 vdc and back to +3.8 vdc

9.3. End of test

10. SPECIAL INFORMATION

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TEST WRITTEN BY: Kenny Greenwell DATE: 02/17/98

TEST VERIFIED BY: J. Smith DATE: 12/17/1998