

TM 11-6625-273-35

DEPARTMENT OF THE ARMY TECHNICAL MANUAL

FIELD AND DEPOT
MAINTENANCE

INSULATION
BREAKDOWN
TEST SET
AN/GSM-6

This copy is a reprint which includes current
pages from Changes 1 and 2.



HEADQUARTERS, DEPARTMENT OF THE ARMY

JULY 1959

TECHNICAL MANUAL }
 No. 11-6625-273-35 }

HEADQUARTERS,
 DEPARTMENT OF THE ARMY
 WASHINGTON 25, D. C., 15 July 1969

INSULATION BREAKDOWN TEST SET AN/GSM-6

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CHAPTER 1

THEORY

Section I. GENERAL THEORY

1. Scope

a. This manual covers field and depot maintenance for Insulation Breakdown Test Set AN/GSM-6. It includes instructions appropriate to third, fourth, and fifth echelons for troubleshooting, testing, and repairing the equipment, and replacing maintenance parts. It also lists tools, materials, and test equipment for third, fourth, and fifth echelon maintenance. Detailed functions of the equipment are covered in the theory section.

b. The complete manual for this equipment includes one other publication, TM 11-6625-273-12, Insulation Breakdown Test Set AN/GSM-6, Operation and Organizational Maintenance.

c. Forward comments concerning this manual to the Commanding Officer, United States Army Signal Publications Agency, Fort Monmouth, N. J.

Note. For applicable forms and records, see paragraph 2, TM 11-6625-273-12.

2. Block Diagram Analysis

(fig. 1)

The test set supplies high-value direct current (dc) voltages for testing the insulation qualities of electrical insulators. The main component of the equipment is Insulation Breakdown Test Set TS-928/G (tester), which contains a control unit and a rectifier unit. The

control unit contains the control circuit and metering circuit; the rectifier unit contains the oil-immersed high-voltage rectifier and doubler circuit.

a. The input power is applied to the test set through the control circuit. The control circuit feeds the power to the high-voltage rectifier and doubler, which provides the dc voltage for performing the required tests (TM 11-6625-273-12).

b. The metering circuit indicates the output voltage of the tester, and the amount of leakage current through the dielectric (insulation) of the test specimen. Connection to earth ground is made through a connector on the rectifier unit.

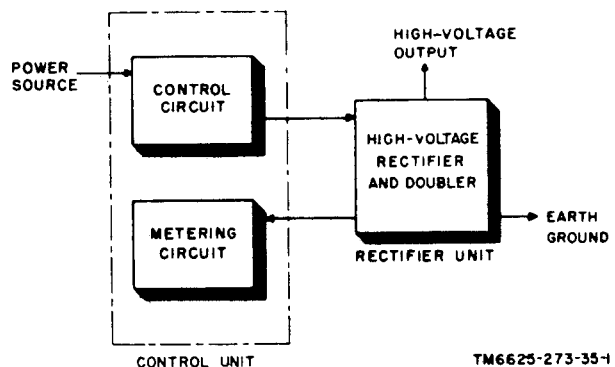


Figure 1. Insulation breakdown test set TS-928/G-block diagram.

Section II. CIRCUIT ANALYSIS

3. Protective Circuits

(fig. 17)

The protective circuits prevent power from being applied to the equipment until all power connections are complete and correctly polarized.

a. Power can be applied to the tester when both sides of INCORRECT POLARITY indicator DS103 are at ground potential. Under this condition, terminal 1 of input cable W101 connects to the ground side of the power

source, and ground cable W201 makes good connection to both the equipment and to earth ground. When power is applied to the tester, the source voltage is fed to relay K101 circuit, voltage control T101, and filament transformer T202.

- (1) In the ON position, circuit breaker switch CB101 completes the circuit to INPUT VOLTAGE indicator IS101 and filament transformer T202. The filaments of rectifier tubes V201 and

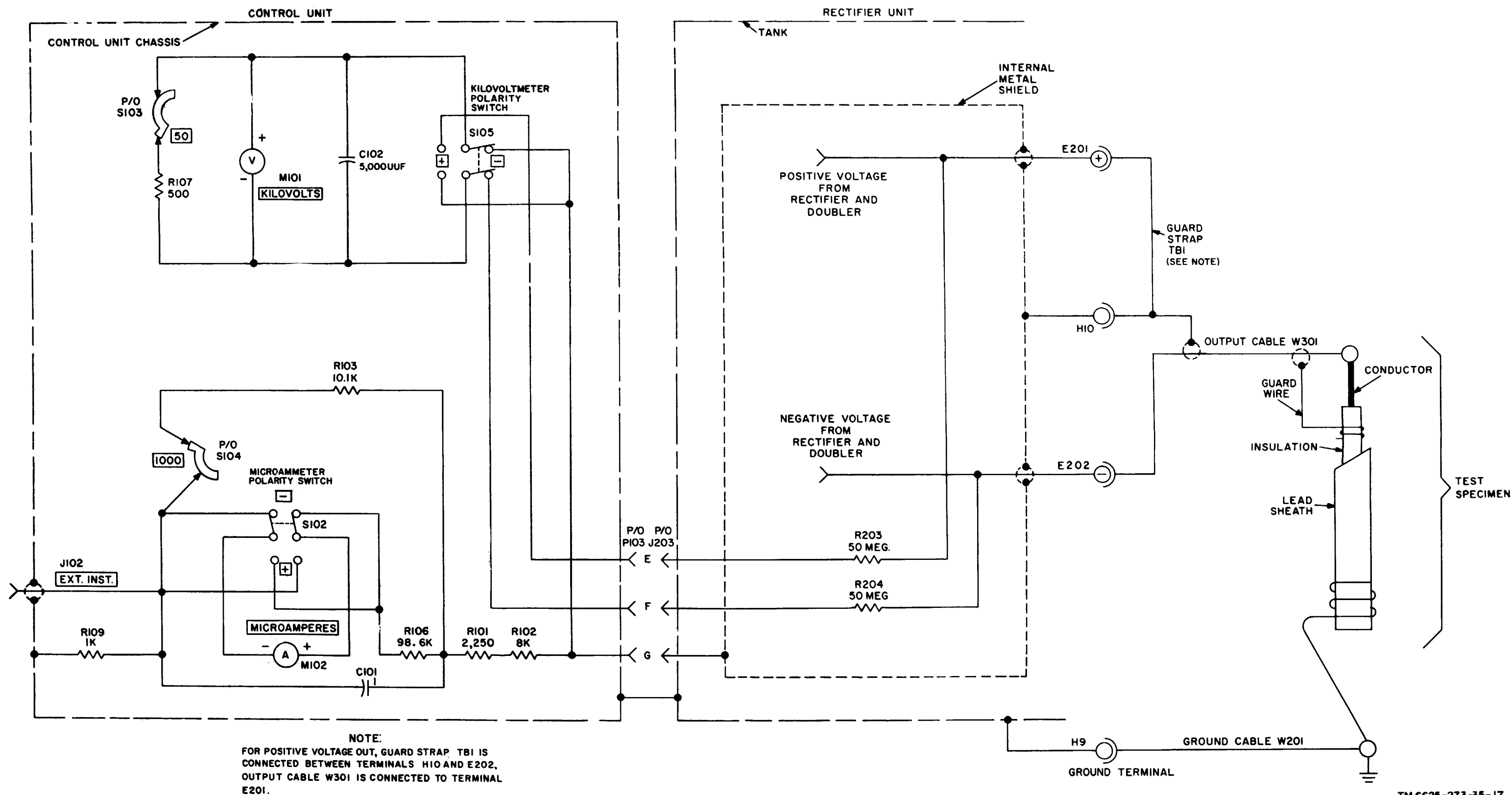


Figure 2. Insulation breakdown test set AN/GSM-6—partial schematic diagram, showing metering circuits and connections to test specimen.