DIODE TESTER

VRC101-7

This unique system is designed to test regular Diodes, Avalanche diodes and Zener diodes (up to 35 volts).
NOTE : This unit is adapted to the Transpo VRC101 regulator tester.

1. Power Off :
   - Set DC voltage range of VRC101 to 32 volt.
   - Set "Field" to "A" circuit.
   - Set "Field Load" to 0.5 ampere ONLY .
   - Connect Battery Positive to "INPUT" terminal of VRC101-7.
   - Connect Battery Negative to "G1" terminal of VRC101-7.

A. TRANSIENT SUPPRESSOR TEST (AVALANCHE MODE)

Connect VRC101-7 as follow : (Fig. 2)
- Set the VRC101-7 switch to "A" mode.
- Connect "FLD" terminal of VRC101 to the Battery Negative.

Power On :
- "Field" lamp will stay on and VRC101 meter will indicate approximately 38-42 volts.
- VRC101-7 meter will indicate approximately 35-37 volts.
- Connect "G1" terminal to Anode (positive) of diode.
- Connect "OUTPUT" terminal to Cathode (negative) of diode.
- VRC101-7 meter will indicate breakdown voltage of approximately 24-32 volt for non-leaky Avalanche diodes.
- After completion of this test, disconnect "FLD" terminal of VRC101 from the Battery Negative.

B. FORWARD VOLTAGE

Connect VRC101-7 as follow : (Fig. 2)
- Set VRC101-7 switch to "A" mode.
- Connect "G1" terminal to Cathode (negative) of the diode.
- Connect "OUTPUT" terminal to Anode (positive) of diode.
- VRC101-7 meter will indicate approximately 0.6 to 1.0 volt for a good diode. A large forward voltage drop may indicate a marginal diode.

C. REVERSE LEAKAGE CURRENT

- Set the VRC101-7 switch to "B" mode. (Fig. 3)
- Set DC voltage range to 24 volt.
- VRC101-7 meter will indicate 0.00 .
- Connect "G2" terminal to Anode (positive) of the diode.
- Connect "OUTPUT" terminal to Cathode (negative) of diode.
- VRC101-7 meter will indicate the Reverse Leakage Current in Micro Amps (0.000001 Amp). A non-leaky diode should read approximately 50 Micro Amp at 20 volts. Table 1. is a copy of Motorola specification on a Transient Suppressor. Please note

that if the diode is shorted or very leaky, VRC101-7 meter will indicate +1. This means that leakage is in excess of 200 Micro amp at 20 volt nominal and this translates to approximately 1000 Micro amps or one mili-amp at 100 volts. Leakage current is a function of impressed voltage; hence, a diode has less or almost zero leakage at very low voltage.

ELECTRICAL CHARACTERISTICS

Characteristic	Symbol	Min	Max	Unit
Reverse Current (V_R = 20 Vdc, T_C = 25°C) (V_R = 20 Vdc, T_C = 100°C)	I_R	 — —	 50 300	μAdc
Breakdown Voltage (I_R = 100 mAdc, T_C = 25°C)	$V_{(BR)}$	24	32	Volts
Breakdown Voltage (1) MR2525L only (I_R = 40 Amp, T_C = 85°C)	$V_{(BR)}$	—	40	Volts

(1) Pulse Test: Pulse Width ≤ 10 ms, Duty Cycle ≤ 2.0%

Table 1.
Transient Suppressor electrical characteristics

- Reset the voltage range to 32 volts and notice the reading on VRC101-7 tester. Figure 1. indicates the voltage-current characteristics of a leaky and a non-leaky diode at 25 C. Please note that a leaky diode has a large deviation of voltage-current characteristics vs the non-leaky diode.

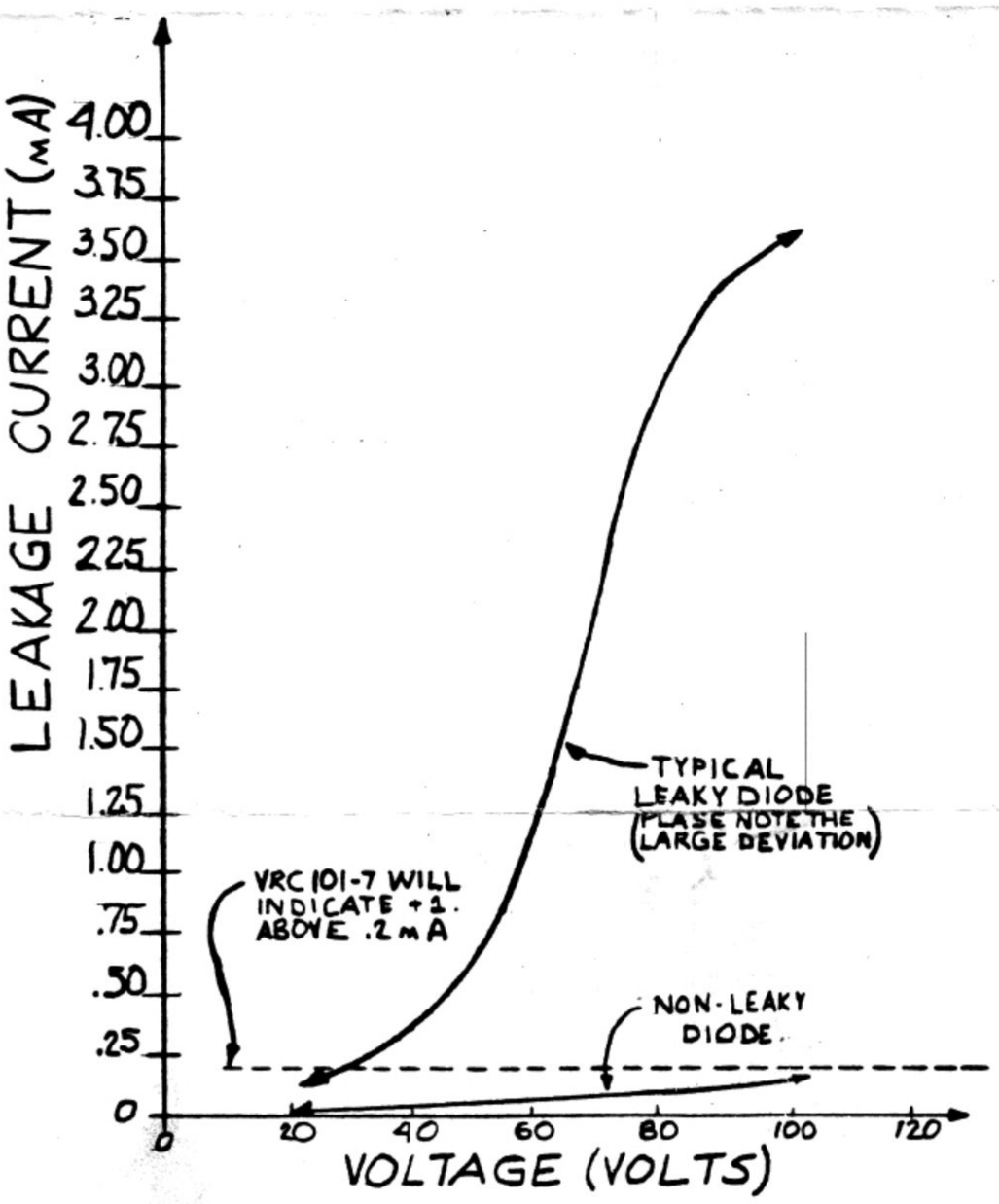


Fig. 1.
Voltage vs Current characteristics

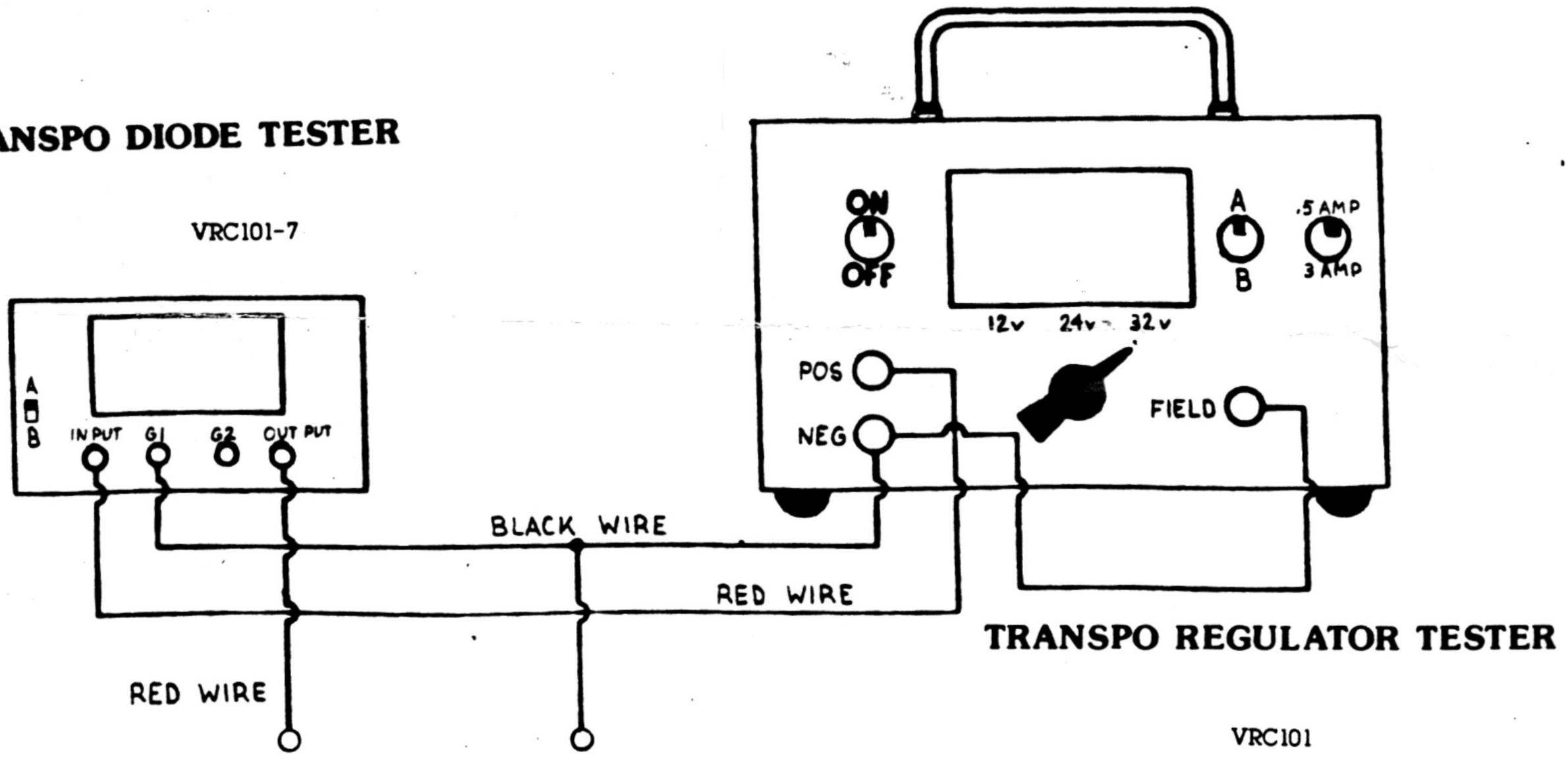


FIG 2-AVALANCHE MODE/FORWARD VOLTAGE TEST HOOKUP

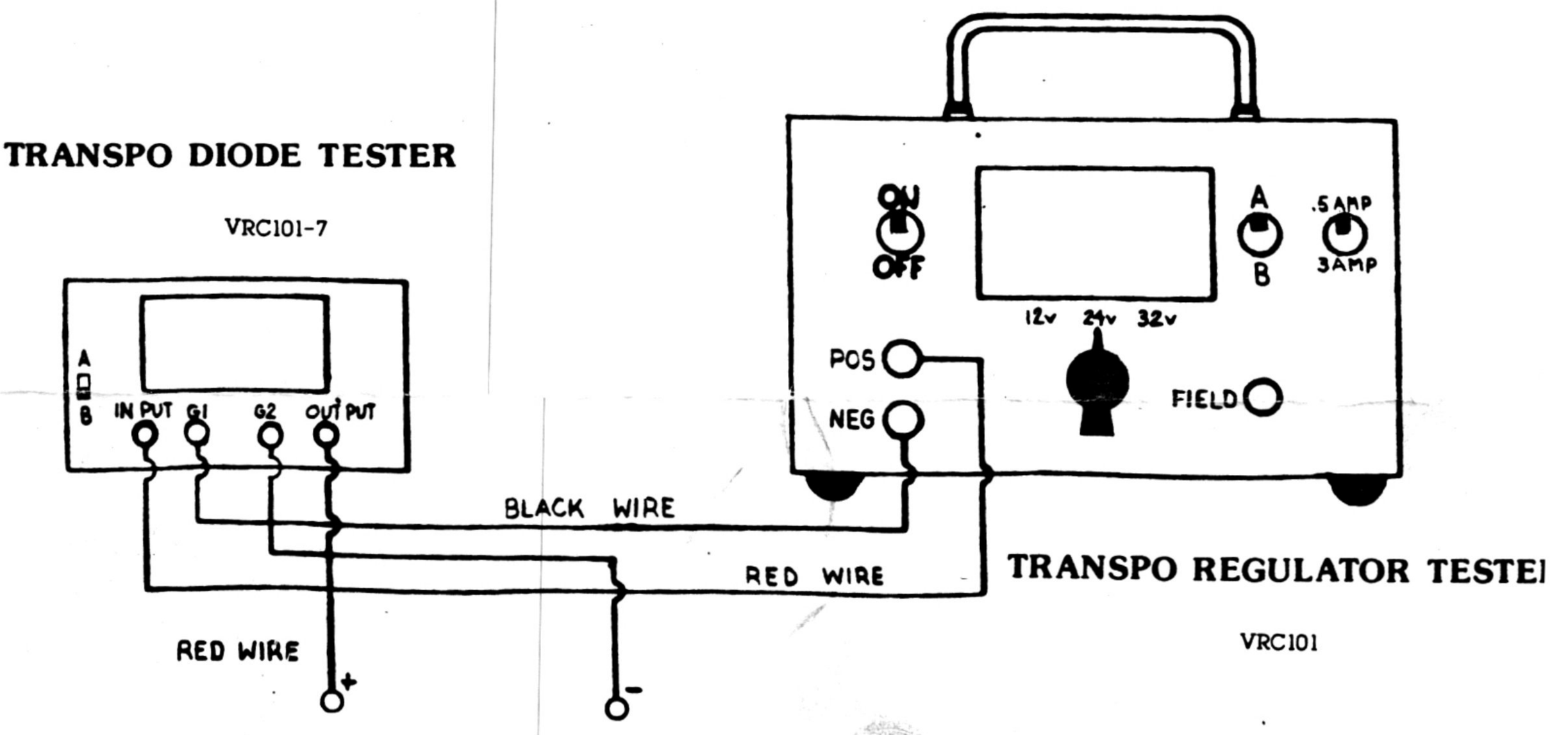


FIG 3-REVERSE LEAKAGE TEST HOOKUP