

TRIPLETT MODEL 310C VOLT-OHM-MILLIAMMETER

1. GENERAL

1.01 This practice provides the description and operation of the Triplet Model 310C Volt-Ohm-Milliammeter (V.O.M.). Maintenance instructions are also included in this practice.

2. DESCRIPTION

2.01 Figure 1 shows the operational features on the Triplet 310C V.O.M.

2.02 The DC voltage ranges have sensitivities of $20,000\Omega$ per volt. The AC voltage ranges have sensitivities of $15,000\Omega$ per volt.

2.03 Directly under the zero adjust control located on the side of the meter case, in the upper left-hand corner, is a polarity reversing switch for the DC voltage and current ranges. This switch has no effect on the AC volts or ohms ranges. The positive battery of the ohmmeter circuit is connected to the positive V.O.M. terminal.

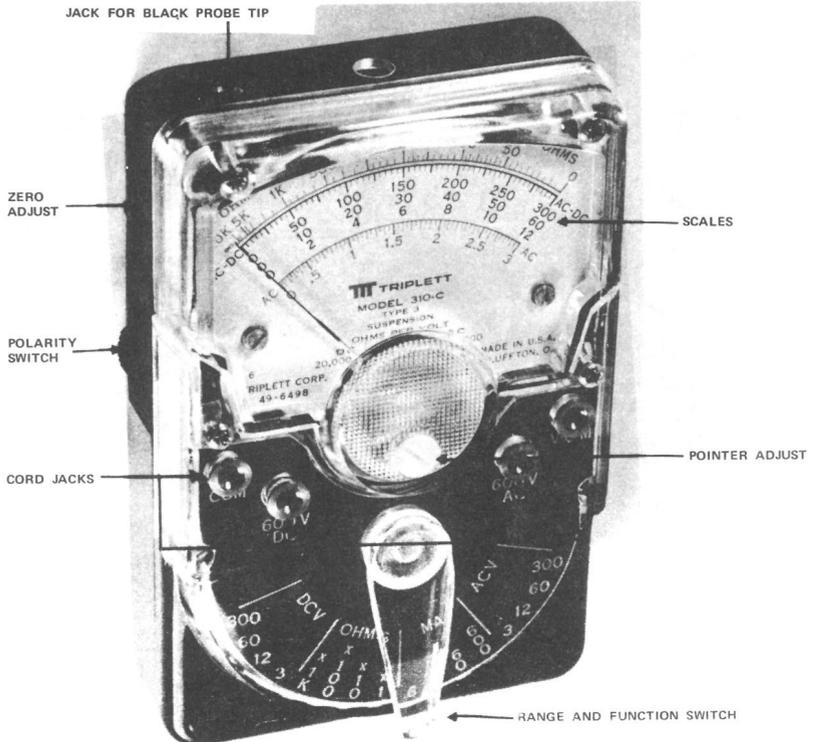


FIGURE 1. Triplet Model 310C V.O.M.

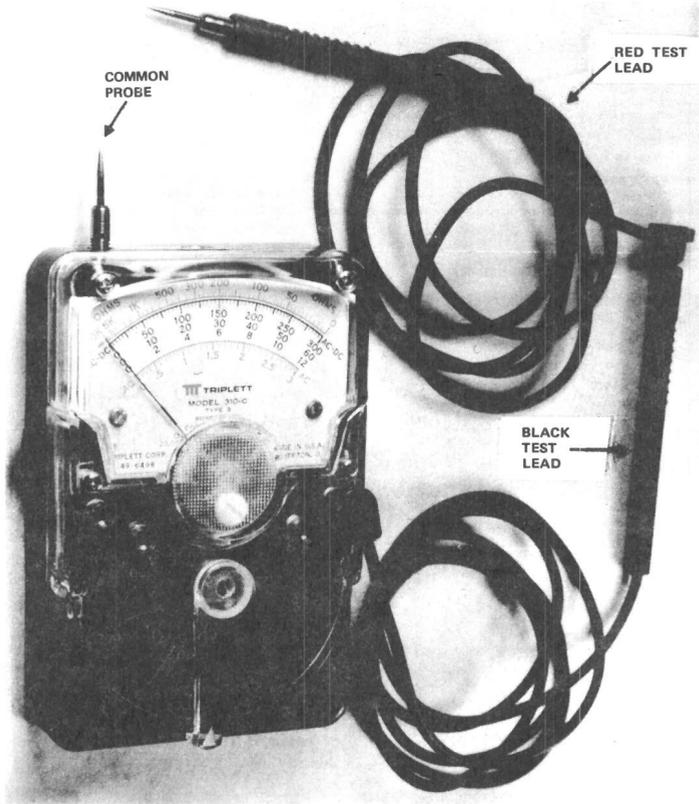


FIGURE 2

2.04 To avoid the necessity of handling the meter and two test cords with probes, unscrew the tip from the black test lead probe and insert it in the jack on the top of the meter. By doing this, the meter can be held in one hand and used as the common probe. With the red test lead connected to the V.O.M. jack, the other hand is free to operate the red test lead. The two leads can be connected together if a long lead is necessary. This can be accomplished by removing the black probe tip and inserting the red lead plug end into the cavity of the black probe. See Figure 2.

3. OPERATING PROCEDURES

3.01 The volt-ohmmeter is designed to measure resistance, AC and DC voltage and DC current. The resistance is in four ranges, i.e., 0-20,000 Ω , 0-200,000 Ω , 0-2 M Ω , and 0-20 M Ω . All four ranges may be used without changing the positions of the test leads. This is done as follows:

- a. To measure resistance from 0 to 20,000 Ω , move the range switch lever to position X1.
- b. To measure resistance from 0 to 200,000 Ω , move the range switch lever to position X10.

- c. To measure from 0 to 2 M Ω , move the range switch lever to X100.
- d. To measure from 0 to 20 M Ω , move the range switch lever to X1K.
- e. To make all the above measurements, connect the black test lead to the COM jack and the red test lead to V.O.M. jack. See Figure 3.

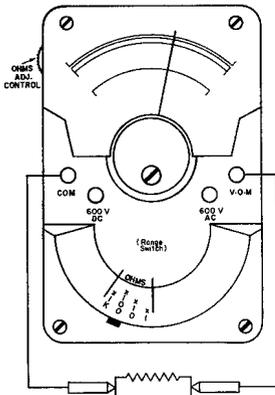


FIGURE 3. Resistance

CAUTION: Before making Ω readings, place the range switch lever in the proper position. With the black test cord in the COM jack and the red test cord in the V.O.M. jack, short the test cord together and adjust the OHMS Adjust control so the pointer will rest on 0 of the Ω scale, which is the top scale.

3.02 The DC voltage ranges are 0-3, 12, 60, 300 and 600 volts and are read as follows (see Figure 4):

- a. Read all DC volts on the black scales. The 0-3 volt range is read on the 0-300 scale. Divide the reading by 100; therefore, if the meter reads 250, this would be 2.50 volts.
- b. The 0-12, 0-60, and 0-300 ranges are read directly on the corresponding scales.
- c. The 0-1200 range is read on the 0-12 scale by adding two zeros to the reading. A meter reading of 8 would be 800 volts.
- d. To make readings on 3, 12, 60 and 300 ranges, connect the black test lead to the COM jack and the

red test lead to the V.O.M. jack, with the range switch lever at the position of the scale to be used.

- e. To make a reading on the 600 volt range, move the red test lead to the 600 VDC jack and set the range switch lever to the 300 DCV position.

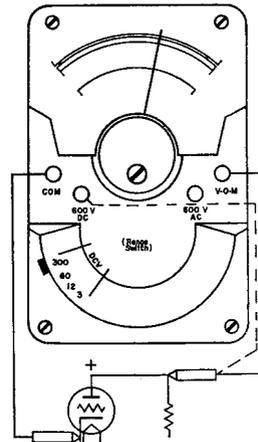


FIGURE 4. DC Voltage

CAUTION: Always place the range switch in the position you intend to use before making contact with the test leads to any equipment. If approximate voltage is unknown, place the range switch in the highest DC position.

3.03 The AC voltage ranges are 0-3, 12, 60, 300 and 600 and are read as follows (see Figure 5):

- a. Read all AC volts on the red scale. For greater accuracy, a separate scale is provided for 0-3 volts.
- b. The 0-12, 0-60, and 0-300 ranges are read on the corresponding scales.
- c. The 0-600 range is read on the 0-60 scale by adding one zero to the reading. A meter reading of 40 would be 400 volts.
- d. To make readings on 3, 12, 60 and 300 ranges, connect the black test lead to the COM jack and the red test lead to the V.O.M. jack, with the range switch lever on the position of the scale to be used.
- e. To make a reading on the 600 volt range, move the red test lead to the 600 VAC jack and set the range switch lever to the 300 ACV position.

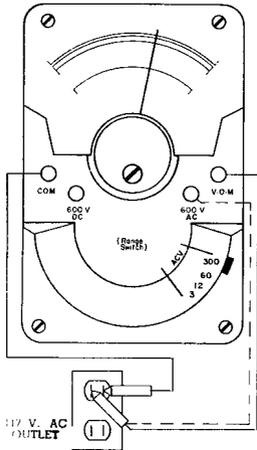


FIGURE 5. AC Voltage

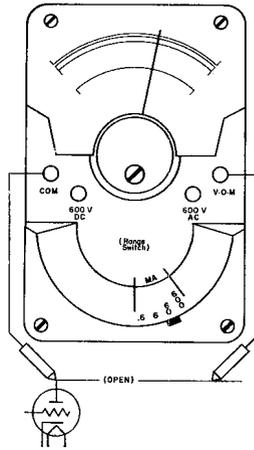


FIGURE 6. DC Current

TABLE A

OPERATION CHART

To Measure	Set Range Switch	Leads Connections Black Lead "COM" Red Lead Listed Below	Read on Scale	Each Scale Div. Equals
DC Volts 0-3 0-12 0-60 0-300 0-600	DCV 3 DCV 12 DCV 60 DCV 300 DCV 300	V-O-M V-O-M V-O-M V-O-M 600 V DC	300±100 12 60 300 60x10	.05 Volt .20 Volt 1 Volt 5 Volt 10 Volt
AC Volts 0-3 0-12 0-60 0-300 0-600	ACV 3 ACV 12 ACV 60 ACV 300 ACV 300	V-O-M V-O-M V-O-M V-O-M 600 V AC	3 AC 12 60 300 60x10	.05 Volt .20 Volt 1 Volt 5 Volt 10 Volt
OHMS 0-20,000 0-200,000 0-2 Meg. 0-20 Meg.	Ω X1 Ω X10 Ω X100 Ω X1K	V-O-M V-O-M V-O-M V-O-M	0-20K 0-20Kx10 0-20Kx100 0-20Kx1000	
DC MH. 0-6 0-6 0-60 0-600	MA .6 MA 6 MA 60 MA 600	V-O-M V-O-M V-O-M V-O-M	60±100 60±10 60 60x10	.01 MH. .1 MH. 1 MH. 10 MH.
				* Polarity switch at + position

CAUTION: Always place the range switch in the position you intend to use before making contact with the test leads to any equipment. If approximate voltage is unknown, place the range switch in the highest AC position.

3.04 The four DC current ranges are 0-.6, 0-6, 0-60, and 0-600 milliamperes. All four ranges are read on the 0-60 DC scale as follows (see Figure 6):

- a. On the 0-.6 range, divide the reading by 100; on the 0-6 range, divide by 10; on the 0-60 range, read the scale directly; on the 0-600 range, multiply the reading by 100 or add one zero to the reading.
- b. All current readings are made with the black test cord in the COM jack, the red cord in the V.O.M. jack, and the range switch lever in the range position to be used.
- c. Connect the meter in series with the circuit to be measured. Do not test directly across any potential circuit as this may harm the meter. Where polarity is difficult to determine and the meter reads reversed, exchange the probe end of the test leads.

3.05 Table A is a reference chart for lead hookup, range switch setting, scale readings and what each division on the scale equals.

4. MAINTENANCE

4.01 To adjust the pointer so that it will rest on "0", use a small screwdriver placed in the adjusting screw located on the front of the meter.

4.02 When the ohms ranges X1, X10 and X100 will not zero with the ohms adjust control, the 1.5V battery should be replaced. If the X1K range will not zero, then replace the 15 volt battery. To replace either battery, remove the small panel on the back of the meter.

CAUTION: Watch polarity when replacing batteries.

4.03 The plastic window has been treated to dissipate static charges. If cleaning is necessary, use cotton dipped in a solution of common household detergent and water. After cleaning, allow the solution to dry without rubbing; the resultant detergent film will effectively dissipate static charges.

CAUTION: Solvents may crack or scar the plastic window if applied to it.