



MODEL 312

HIGH VOLTAGE MULTIPLIER PROBE

30,000 VOLTS D.C. (MAX.)

CAT. NO. 0155

GENERAL DESCRIPTION

The high voltage multiplier probe, is designed primarily to extend the range of the Simpson Model 312 Vacuum Tube Voltmeter. It is to be used in conjunction with the Simpson Model 312 Vacuum Tube Voltmeter, and is not recommended for use with any other tester.

The probe body is made of high temperature polystyrene in order to provide high dielectric strength and low leakage. It contains a high resistance value, high voltage precision resistor.

A shielded cable and internal probe shield are used to protect the operator from any possible flash-over and to ground any electro-static charges that might accumulate on the probe body. The internal shield and cable shield are connected to ground, through the cable connector to the grounded side of the chassis connector.

ELECTRICAL SPECIFICATIONS

Accuracy:

Probe Resistance $\pm 2\%$

SHOCK HAZARD (as defined in Underwriters Laboratories Radio and Television Receiving Appliances Standard for Safety, Tenth Edition, Dated October, 1958).

A shock hazard is considered to exist at any part involving a potential of between 30 volts and 40 kilovolts peak in the following cases:

1. If the current through a load of not less than 500 ohms exceeds 300 milliamperes after 0.0003 second.
2. If the current through a load of not less than 500 ohms exceeds 5 milliamperes after 0.2 second.
3. If the time required for the current through a load of not less than 500 ohms to decrease to 5 milliamperes is between 0.1 and 0.2 second, and the total quantity of electricity passed through the load up to that time exceeds 4 millicoulombs.
4. If the time required for the current through a load of not less than 500 ohms to decrease to 5 milliamperes is between 0.03 and 0.1 second, and the total quantity of electricity passed through the load up to that time exceeds $75T-350T^2$ millicoulombs, where 'T' is the time in seconds.

CAUTION NOTES

Voltage encountered when using this probe are dangerous and can be fatal. The Operating Instructions should be followed closely in making connections and extreme care taken in making voltage measurements.

Where a shock hazard exists (see Shock Hazard paragraph) the following precautions are recommended:

1. Turn off power and discharge all capacitors before connecting or disconnecting the probe from the circuit being measured.
2. Be sure the clip of the ground return lead is firmly connected to the common (low potential) chassis, and earth (power line) ground.
3. Whenever possible, avoid holding the probe in the hand.
4. Avoid making measurements under humid or damp conditions.
5. The probe body should be kept clean and dry at all times. Use soap and water to clean, and dry thoroughly.
6. To prevent possible damage to the multiplier resistors, the highest voltage measured should never exceed 30,000 volts.
7. Always use the probe at the point of high potential with the ground return lead connected to the chassis.

OPERATING INSTRUCTIONS

Take precaution as stated under "CAUTION NOTES" above.

Connect the clip of ground lead (Black) from the tester to the chassis of circuit to be measured.

Connect the cable connector of the high voltage multiplier probe to the chassis connector of the tester.

Place the function switch of the tester in the +DC or the -DC position, depending upon the polarity of the voltage to be measured.

Place range switch in the appropriate range.

Voltage	Range	Read Dial Scale	Mult. Reading By
0-30 KV (Max.)	500 V	0-50 V	1,000
0-15 KV (Max.)	150 V	0-15 V	1,000
0-5 KV (Max.)	50 V	0-50 V	100

1500 or less, use DC-AC/Ohms Probe #10-830150

High temperature polystyrene material was selected for the probe body because of its high dielectric strength, high resistivity and low moisture absorption, all of which are vitally important factors in high resistance and high voltage applications.

This material begins to soften at approximately 200 degrees and melts at approximately 300 degrees Fahrenheit. Caution should therefore be exercised when using the probe near components which operate at high temperatures, in order to prevent distortion or other damage to the probe body due to heat.

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