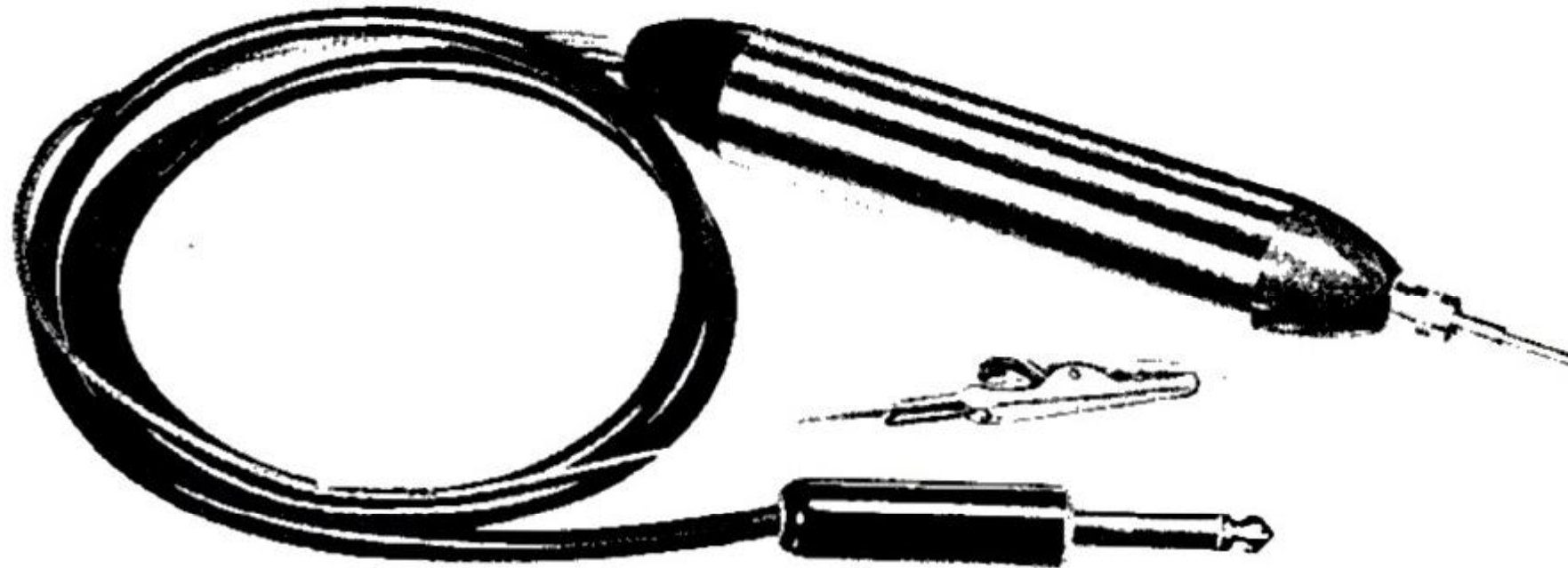


# ASSEMBLY AND OPERATION OF THE HEATHKIT R. F. PROBE MODEL 309-C

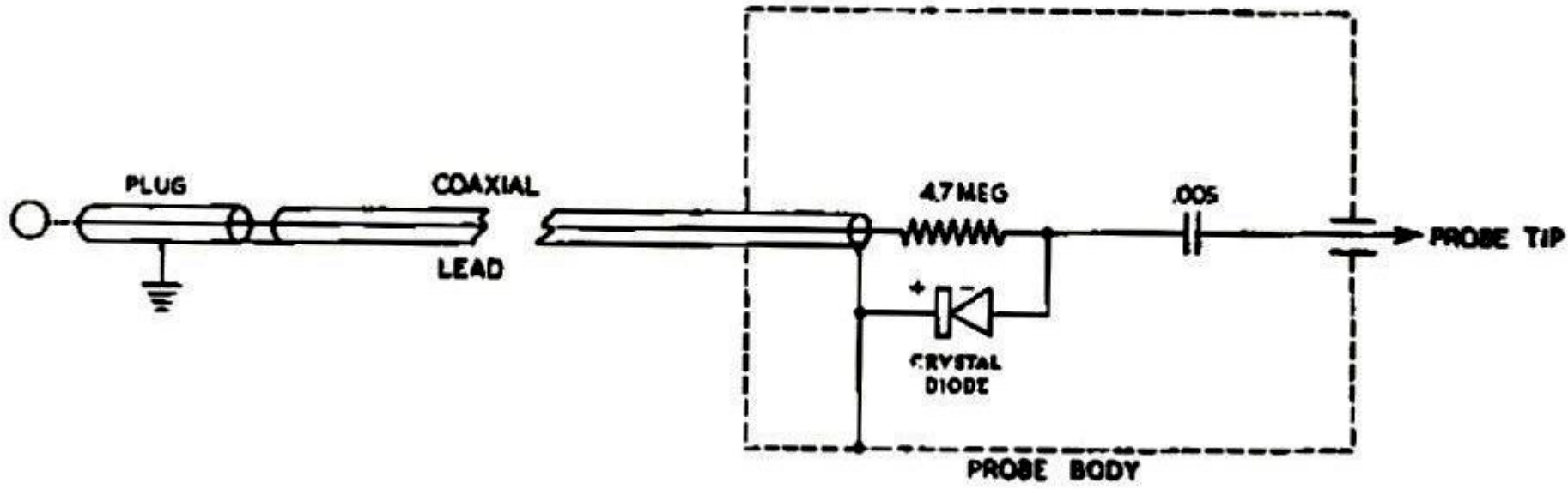
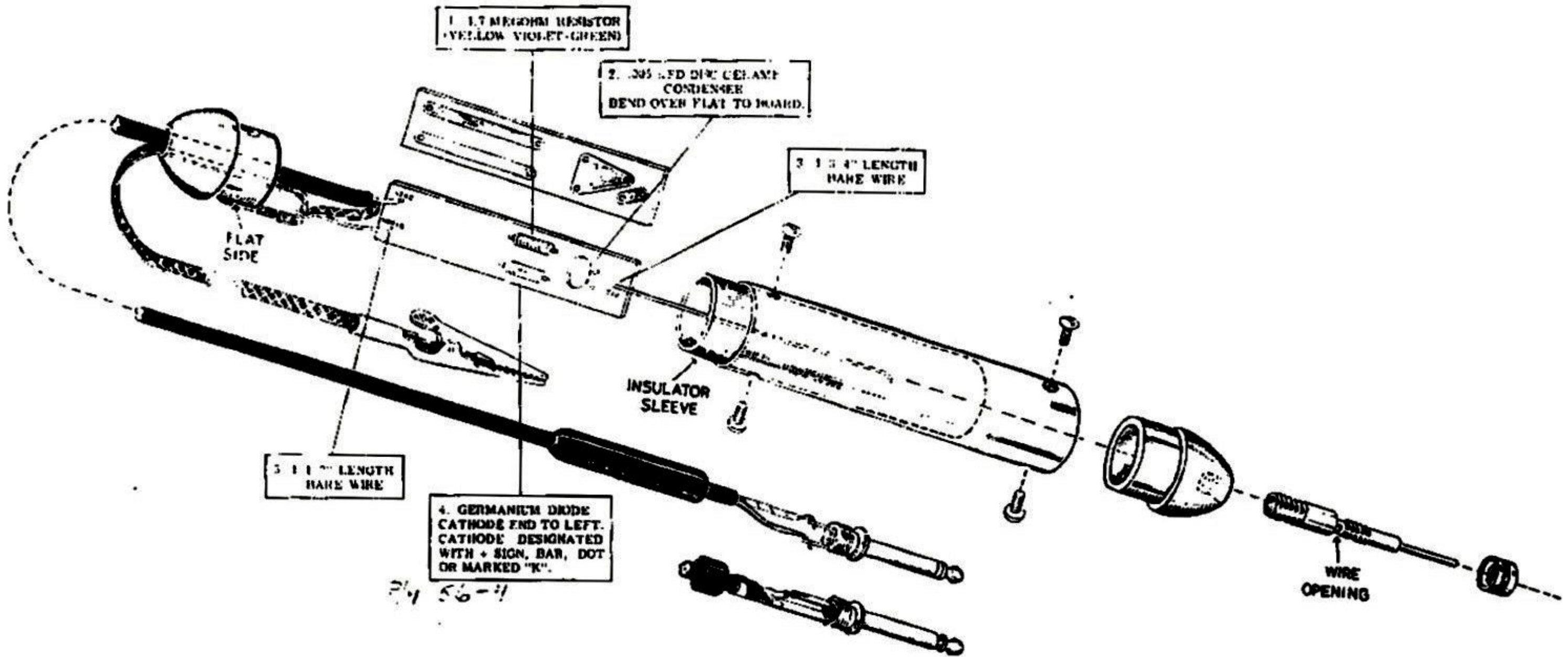


The #309-C crystal probe extends the AC range of any 11 megohm input vacuum tube voltmeter to over 100 megacycles. A crystal diode employed as a rectifier is capable of linear response over a very wide range of frequencies. Response of the #309-C probe is substantially flat from 1000 cycles to over 100 megacycles. D. C. isolation is provided by the .005  $\mu$ fd condenser. A ceramic capacitor of this type has low impedance to RF and is ideal for use in this application. The 4.7 megohm resistor acts as a combination isolation filter and multiplier. Voltage at the cable end of the resistor is negative DC and the VTVM selector should be set accordingly.

A well shielded probe with the detecting elements contained in the housing is necessary for satisfactory readings at high frequencies. The Heathkit #309-C RF Probe meets these requirements. Input leads are extremely short in order to eliminate extraneous signal pickup which can give false readings. The metal probe housing is grounded to prevent hand capacity effects from causing deflection of the meter needle. Etched circuit wiring cuts down circuit capacity, improving high frequency response.

The input capacitor is rated at 500 volts DC and the probe should not be applied to circuits where DC voltages higher than this are found. AC or RF voltages in excess of 30 volts should not be measured, as damage to the crystal may result. As this probe is designed primarily for RF, signals below 1000 cycles will read low and the rectifier in the VTVM should be employed by turning the selector switch to AC. The capacitive effect of the regular AC leads will be negligible at frequencies below 1000 cycles.

Accuracy of the probe is maintained within approximately  $\pm 10\%$  and this accuracy is adequate for RF work. The readings obtained are RMS and should be multiplied by 1.414 to convert to peak readings.



RF PROBE 309-C



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