

Circuit for Obtaining Mutual-conductance Characteristic Curves of Tubes

THE mutual-conductance grid-voltage characteristic curve of an amplifier tube can be traced with this circuit by using the tube as a high-frequency amplifier

with a low-impedance load in the plate circuit and a small grid signal and by plotting the rectified output against the variable grid voltage. The signal is sup-

plied by a 175-kc oscillator to the grid whose mutual conductance is under consideration.

To plot No. 1 grid mutual conductance against No. 1 grid voltage for various No. 3 grid voltages, the signal and a 60-cycle voltage are applied in series to grid No. 1, and the step voltage, generated as in a circuit for obtaining amplifier-tube characteristic curves, is applied to the No. 3 grid. The output of the detector feeds the vertical deflection plates of the oscilloscope, and the horizontal deflection plates are supplied by the same 60-cycle voltage as the grid of the tube under test. It is desirable to include a microammeter in the lead of each grid having one of the variable potentials, in order to adjust the minimum bias to zero. The order of magnitude of the deflecting voltages obtained from this circuit is such as to require an oscilloscope having an amplifier in each of the deflecting plate circuits.

