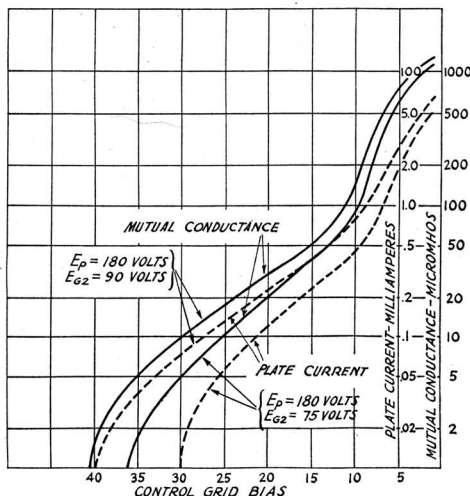
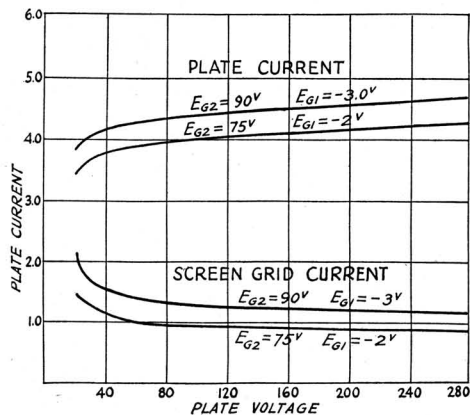


The Type '39

A New R.F. Pentode for Receivers

THE new Type '39 tube is a member of the family of six-volt d.c. heater-type tubes popularly known as the "automobile" group. It is a variable-mu screen-grid pentode, which makes it a really different type of tube instead of simply another standard type with



taneous plate voltage cannot drop below the screen voltage without causing secondary emission and consequent distortion. In ordinary broadcast receiver design this effect is not particularly bothersome because high plate voltages can be used, but where the plate voltage is low, as in automobile and 110-volt d.c. receivers, the addition of the suppressor grid makes it possible to use a high screen voltage and low plate voltage without limiting the tube's output.

The use of the suppressor grid also makes the screen-grid characteristics more uniform, with the result that a series resistor instead of a potentiometer can be used for obtaining screen voltage from the plate supply.

Following are the preliminary ratings and characteristics of the Type '39:

Heater Voltage		6.3 volts d.c.
Heater Current		0.3 amperes
Plate Voltage	90	180 volts (max.)
Screen Voltage	90	90 " "
Grid Voltage	-3	-3 " (min.)
Plate Current	4.4	4.5 milliamperes
Screen Current	1.3	1.2 " "
Plate Resistance	375,000	750,000 ohms
Amplification Factor	360	750
Mutual Conductance (-3 v. bias)	960	1000 micromhos
Mutual Conductance (-30 v. bias)	10	10 " "
Interelectrode Capacitances		
Effective grid-plate		0.0007 μ fd. max.
Input		4 μ fd.
Output		10 μ fd.

Figs. 1 and 2 show the plate and mutual characteristics of the Type '39. These curves were furnished by the National Carbon Company.

— G. G.



W9DZD discovered an ad for a BCL receiver in which are incorporated "self-heating" electrolytic condensers! He suggests they might be a welcome addition to a ham station in the cold attic in winter.

I. R. E. CONVENTION

slightly different ratings. In appearance it resembles the Type '36.

The chief feature of interest about the new tube is the fact that it is the first r.f. tube in which is included a suppressor grid. The reason for the pentode construction is quite clear when it is remembered that in the ordinary screen-grid tube the r.f. plate voltage swing is definitely limited by the screen voltage, since the instan-

The seventh annual convention of the Institute of Radio Engineers, which will be known as the Twentieth Anniversary Convention in commemoration of the founding of the Institute in 1912, will be held at the Hotel William Penn, Pittsburgh, Pa., April 7th-9th, 1932. Plans are being prepared for an excellent program of technical papers by prominent engineers as well as trips of high educational interest to those who will attend.