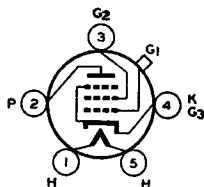
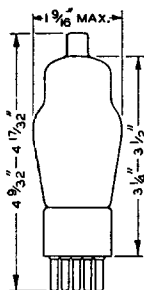


# RCA-39/44

## SUPER-CONTROL R-F AMPLIFIER PENTODE



The 39/44 is a heater-cathode tube of the remote cut-off type suitable for use primarily as a radio-frequency amplifier, intermediate-frequency amplifier, and mixer in receivers designed for its characteristics. The 39/44 is effective in reducing cross-modulation and modulation-distortion over the usual range of signal voltages without the use of antenna potentiometers or auxiliary volume-control switches. An explanation of the Super-Control feature is given on page 16.

### CHARACTERISTICS

HEATER VOLTAGE (A. C. or D. C.)	6.3	Volts
HEATER CURRENT	0.3	Ampere
PLATE VOLTAGE	90 180	250 max. Volts
SCREEN VOLTAGE	90 90	90 max. Volts
GRID VOLTAGE (Minimum)	-3 -3	-3 Volts
PLATE CURRENT	5.6 5.8	5.8 Milliampere
SCREEN CURRENT	1.6 1.4	1.4 Milliampere
PLATE RESISTANCE	0.375 0.75	1.0 Megohm
AMPLIFICATION FACTOR	360 750	1050
TRANSCONDUCTANCE	960 1000	1050 Micromhos
TRANSCONDUCTANCE (At -42.5 volts bias)	2 2	2 Micromhos
GRID-PLATE CAPACITANCE (With shield-can)	0.007 max.	$\mu\mu\text{f}$
INPUT CAPACITANCE	3.5	$\mu\mu\text{f}$
OUTPUT CAPACITANCE	10	$\mu\mu\text{f}$
BULB		ST-12
CAP		Small Metal
BASE		Small 5-Pin

### INSTALLATION

The base pins of the 39/44 fit the standard five-contact socket. The socket may be installed to hold the tube in any position.

For heater operation and cathode connection, refer to INSTALLATION for type 6A8.

The screen voltage for the 39/44 may be obtained from a section of the B-battery, from a fixed or variable tap on a voltage divider across the supply voltage, or from a portion of the supply. Care should be taken to keep the impedance between the screen and cathode as low as possible.

When the 39/44 is self-biased, a resistor in series with the high-voltage supply may be used for obtaining the screen voltage. This is possible because of the stable screen-current characteristic of the 39/44 pentode. The resistor method of securing the screen voltage is limited to circuits where the screen-voltage supply does not exceed 180 volts as a maximum. The value of this resistance should be such that under the conditions of minimum grid bias and maximum plate current the screen voltage will not exceed 90 volts. A resistance of approximately 80000 ohms will be suitable.

Complete shielding of all stages is necessary if maximum gain per stage is to be obtained.

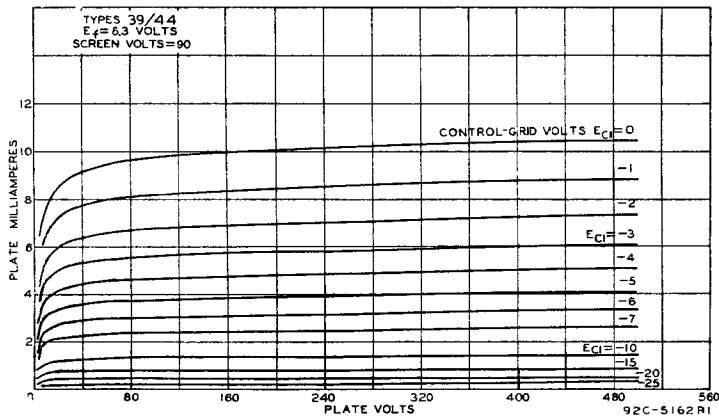
APPLICATION

As a radio-frequency and intermediate-frequency amplifier, the 39/44 should be operated as shown under CHARACTERISTICS. In general, properly designed radio-frequency transformers are preferable to interstage coupling impedances, especially in cases where a high impedance B-supply may cause oscillation below radio frequencies.

Volume control of receivers designed for the 39/44 may be accomplished by variation of the negative grid bias of this tube. In order to obtain adequate volume control, an available grid-bias voltage of approximately 45 volts will be required. The exact value will depend upon the circuit design and operating conditions. This voltage may be obtained from a potentiometer, a bleeder circuit, a variable resistor in the cathode circuit, or from a separate source.

As a detector mixer in superheterodyne receivers, the 39/44 may be utilized. Suitable operating voltages for such service are: Plate voltage, 90 to 250 volts; screen voltage, 90 volts; grid voltage, -7 volts (approx.), with a 6-volt peak swing from the oscillator. By varying the grid bias on the mixer in conjunction with that on the r-f and/or the i-f stages, additional control of volume may be accomplished.

AVERAGE PLATE CHARACTERISTICS



AVERAGE PLATE CHARACTERISTICS

