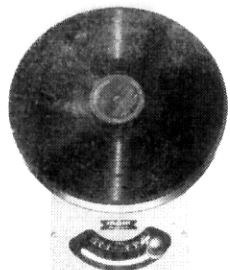


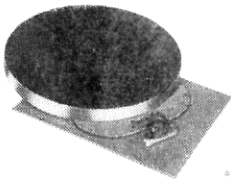
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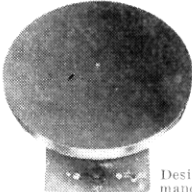
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# AUDIO PATENTS

RICHARD H. DORF\*

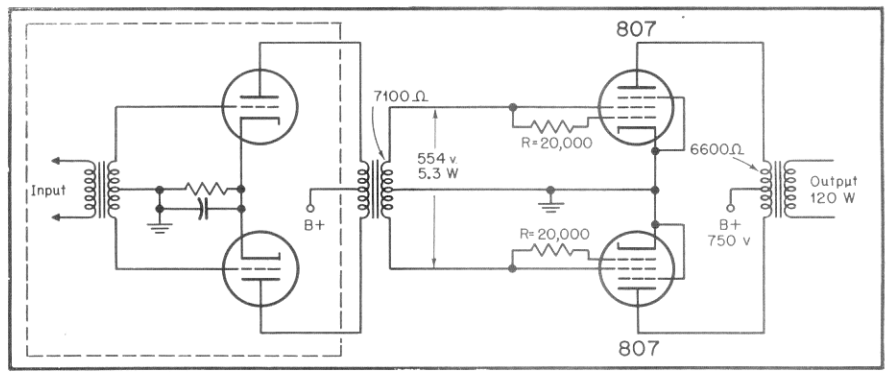


Figure 1

THE 807 and its smaller counterpart, the 6L6, have excellent class-AB<sub>2</sub> characteristics, and they are very attractive for high-power work—such as in high-power PA systems and in transmitter modulators—because of their small size and price, the unipotential cathode, and the ability to deliver a great deal of power at comparatively low plate voltage. They are not used to a great extent for these jobs, however, probably because furnishing screen and grid-bias voltages with the necessary regulation is neither easy nor economical.

The necessity for screen and grid supplies has been entirely eliminated by Arthur Mack Seybold in his patent No. 2,494,317 (assigned to RCA). Despite this, the full 120-watt output specified in the ICAS handbook ratings for the 807 may be had. The price paid is a requirement for greater grid drive, but at 5.3 watts that is hardly a king's ransom.

The circuit of the 807 output stage appears in Fig. 1. The driver, within the dashed box, is merely a pair of push-pull 2A3's (or 6B4's or 6A3's etc.) in an en-

tirely standard circuit. The "gimmick" is the resistor *R* between each 807 screen and control grid, and the fact that the screen is directly connected to the secondary of the driver transformer. There is no screen supply, no bias supply; the stage is as easy to construct as a zero-bias class-B stage.

Figure 2 shows some plate-family curves taken under various conditions, illustrating the effect of resistors *R*. *E<sub>c</sub>* in each case is

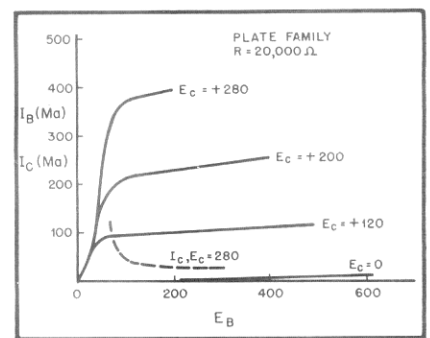


Figure 3

the voltage applied to the screen grid. The *R*=0 curve indicates what would happen if the tubes were operated simply as triodes with screen and control grids tied together. The knee is poor because the control grid draws too much current. The same is true of the lower resistance values when *R* is inserted. The optimum condition is reached when *R* is about 20,000 ohms. Higher values are not advisable because the grid and screen then require higher driver voltages than the ratings permit. Figure 3 is a complete plate family with *R* equal to 20,000 ohms. Grid and screen current combined are indicated by the dashed curve labelled *I<sub>c</sub>*.

Actually, the only important difference between this circuit and regular zero-bias class-B triodes is in the effective grid re-

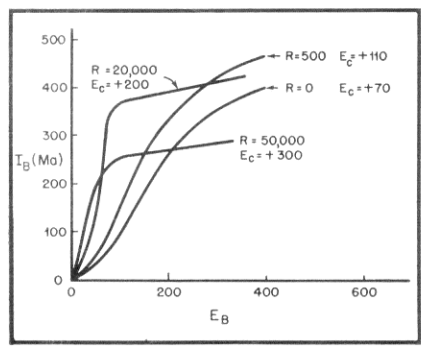


Figure 2

\* Audio Consultant, 255 West 84th Street, New York, N. Y.