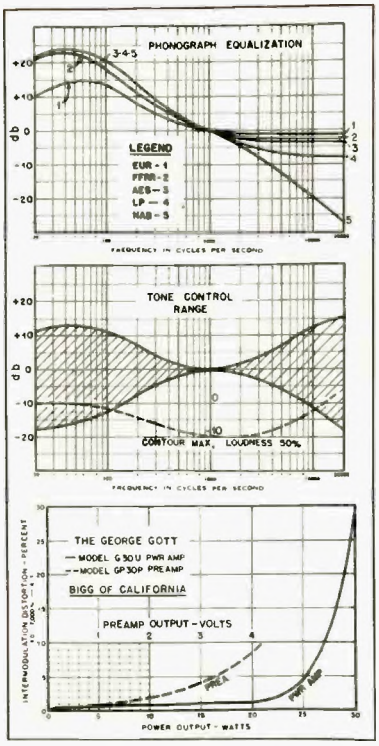

Fig. 1. Performance curves for the George Gott amplifier by Bigg of California.

The George Gott amplifier and preamp by Bigg of California—Heathkit AG-9

CONVENTIONAL in almost every particular except price, the George Gott amplifier and preamplifier are of considerable interest because they show that it is possible to construct an amplifier of good performance at a price that is particularly attractive. These two units are a power amplifier rated by the manufacturer at 30 watts and following the usual Williamson-type circuit arrangement, and a self-powered preamplifier with several inputs, five phonograph equalizations, bass and treble tone controls. Performance curves for both are shown in *Fig.* 1.

The power amplifier, model G-30-U, utilizes two 5881's and two 6SN7's, with a 5U4GB rectifier. It is fairly compact, measuring 12 by 8½ inches and 7 inches high, and is equipped with a hum balancing potentiometer and two a.c. outlets for attachment of other equipment. There is no power switch, since it is expected that the unit would be plugged into a control amplifier on which there would be additional a.c. outlets controlled by the power switch on the latter unit. By standard measurement techniques, the hum level from the amplifier is 83 db below 1 watt, which agrees within 1 db with the manufacturer's specification of 98 db below maximum output. Input sensitivity is such that a signal of 0.22 volts at the input gives the standard 1-watt output. Observations show good response to square waves up to better than 20,000 cps, and the output of the power amplifier is down 6 db at 300 kc, indicating an excellent output transformer. A slight oscillation was noted when a 0.1-μf capacitor was placed across the 16-ohm resistive load of the test circuit. The external appearance is shown in *Fig.* 4.

Figure 2 shows the preamplifier—Model GP-30-P—mounted in its wooden cabinet, which is available as an accessory. There are five controls on the panel—from left to right they are: treble, bass, selector, loudness, and mixer. The tone controls are of the Baxendall type, and give the limiting curves shown in the center section of *Fig.* 1. The selector switch provides for the five phono equalization positions, and for six high-level inputs, although there are no input jacks for the three marked AUX. Presumably these could be added if the user required the additional inputs. As can be seen from the schematic, *Fig.* 3, the TAPE OUT jack provides a feed for a tape recorder ahead of the tone and loudness controls, and a MIKE jack connects directly to the grid of the first section of the second 12AX7. Additional preamplification would be required for the microphone, but the input jack would be a convenience to some users. The output is from a cathode follower. There are two jacks labeled BINAURAL IN and BINAURAL OUT. These feed to and from the 1-meg. control labeled MIXER on the front panel, and could serve as the volume control for a second channel if such were to be controlled at this point.

The loudness control is rather unusual in that it works on the tone-control feedback network. On the rear apron is a control marked CONTOUR (R_{16} on the schematic). This changes the feedback circuit so that at settings of the loudness control of less than maximum there is compensation. The amount and character of the compensation is shown in the center section of *Fig.* 1 for the maximum setting of the contour control and with the loudness control at its midpoint. One useful feature is the adjustment of pickup loading resistance from 1800 to 101,800 ohms, and the hum control potentiometer provides a noticeable effect on over-all hum output, which was measured at 60 db below 1 volt on the phono positions, and 70 db below 1 volt for the high-level inputs. An input of 26 mv at the phono jacks gives a 1-volt output; the same output is obtained from an input of 1.25 volts at the high-level jacks. IM distortion for the preamplifier section is shown by the dotted line in the lower section of *Fig.* 1 in reference to the scale indicated in the graph. N-24

Fig. 2. The preamplifier section of the Gott amplifier system shown in its accessory cabinet.

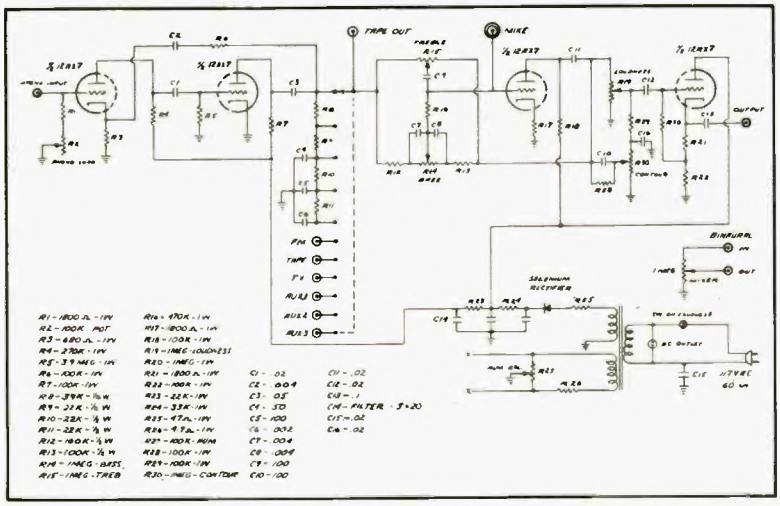

Fig. 3. Schematic of the preamplifier section of the unit.

Fig. 4. External appearance of the power amplifier section.