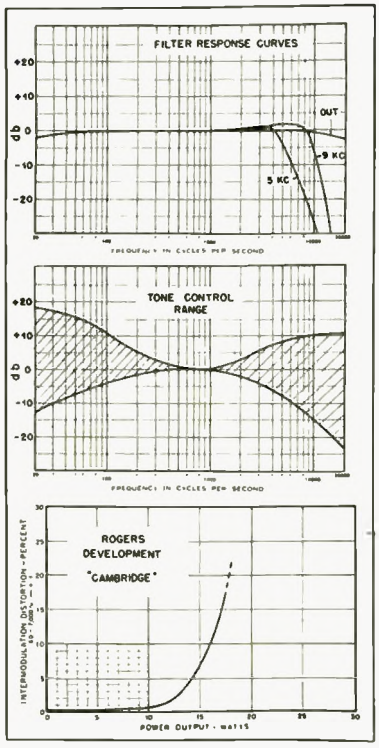

Fig. 4. Performance curves for the Cambridge amplifier.

Fig. 5. The Cambridge control unit, which is compact enough for even the smallest installation.

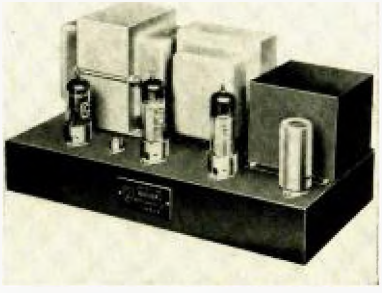

Fig. 6. The power amplifier of the Cambridge combination.

ROGERS DEVELOPMENTS LTD. "CAMBRIDGE" AMPLIFIER

The two units comprising the "Cambridge" amplifier, a product of Rogers Developments Ltd., London, England, provide a small amplifier system suitable for most home applications where the power requirements are not so severe as to warrant an amplifier of 25, 30, or more, watts. And while it may be argued that *any* home system needs upwards of 20 watts, it must still be remembered that the greatest majority of hi-fi systems are started with 10- or 15-watt amplifiers—as the user adds more speakers or becomes more conscious of the desirability of considerably higher power, he may go to higher powers, but for the average small home, 15 watts can be considered satisfactory.

The Cambridge amplifier consists of two separate units—the control unit and the power amplifier, shown in *Figs.* 5 and 6 respectively. *Figure* 7 is the schematic of the power amplifier, while *Fig.* 4 represents the performance of the combination.

The control unit provides for three inputs—a microphone input which requires a signal of 2.8 mv for a 1-watt output, a radio input which requires a signal of approximately 32 mv for a 1-watt output, and a pickup input which requires a signal of approximately 3 mv for a 1-watt output. In addition, there are two jacks on the front panel which permit feeding a tape recorder with a signal which is not affected by the volume control, and another which will accept the output from a tape recorder (low-level, high-impedance). This makes it posible to use the Cambridge with a portable tape recorder with a minimum of connection difficulty.

Four phonograph positions are provided —with conventional curves being offered. All fall within ±2 db of those specified by the manufacturers, and are for HMV LP, Decca LP, Ortho (RIAA), and 78. The input selector switch also selects the phono curve. The equalization is obtained by feedback around the first section of the dual triode, with a "flat" feedback being applied for the radio and microphone positions. Plugging a tape recorder into the TAPE REPLAY jack eliminates the first stage.

The tone controls are associated with the second stage—the bass control being a six-position switch while the treble control is a potentiometer. In addition, there is a filter control which is continuously variable from a cutoff at 9000 cps down to a cutoff at 5000 cps. A switch on the counterclockwise end of the control's rotation cuts out the filter altogether, leaving the response essentially flat up to 20,000 cps. The effect of the filter is shown in the upper section of *Fig.* 4, while the range of the tone controls is shown in the center section. The control unit employs only one tube—an ECC-83, which is a high-mu twin triode. The volume control follows the filter and tone-control network, and the TAPE RECORD jack is connected at the high side of the volume control. The control unit is connected to the power amplifier by a single cable which includes the a.c. pair leading to the power switch which is integral with the volume control.

The control unit is quite small, being only 1⅞ in. deep behind the panel, which is 8½ × 5¼ in. A feature unique to this amplifier is its availability in four panel colors—red, ivory, black, or bronze—and with pointer knobs in red, ivory, black, or gray or with round fluted knobs (as shown in *Fig.* 5) in ivory, black, or brown. This permits the user to select the colors most suitable for use with his particular decor and cabinet style.

In case the control unit were to be used with any power amplifier other than the 10-watt unit in the Cambridge combination, the connection could be made through a single octal socket mounted on the power amplifier chassis, and a plate supply of 8 ma at 270 volts is required. The heater drain is 0.4 a. at 6.3 v.

The Power Amplifier

The 15-watt main amplifier of the Cambridge employs an ECC-83 as the voltage amplifier and phase splitter, a pair of EL-84's in the push-pull output stage, and an EZ-81 rectifier. It is a relatively small unit, yet sufficiently large to permit neat and careful workmanship and to accommodate an improved C-core Partridge output transformer. A semi-fixed presence control (the 220-ohm resistor and the 0.5-μf capacitor shown below the rectifier tube on

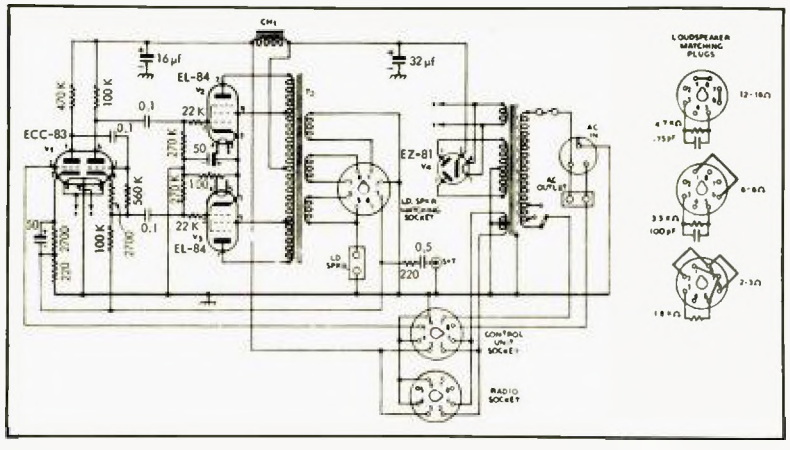

Fig. 7. Schematic of the power amplifier.