15-Watt AC/Vibrator Amplifier

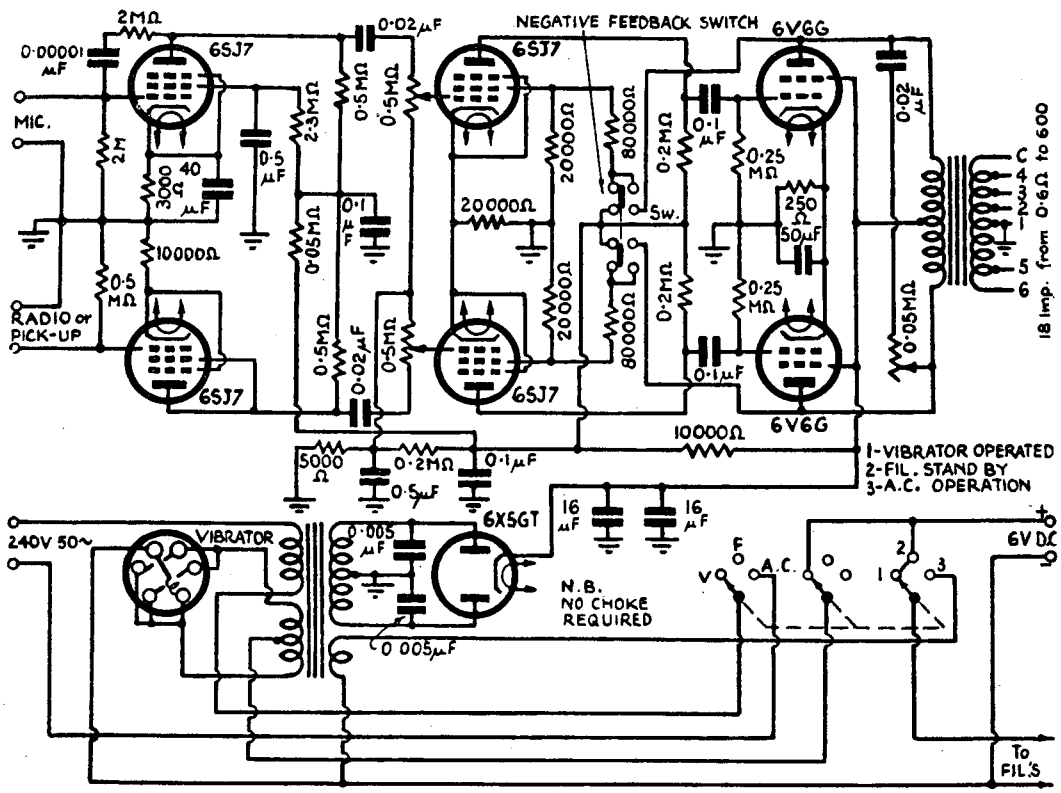
The circuit diagram on page 47 shows an amplifier system capable of delivering an AF output of 15 watts, which may be operated either from the AC mains of from a 6 volt accumulator. The arrangement, which was brought under notice by reader H. W. M. of Gulgong, NSW, is very similar to the AWA amplifier type 1G3241 which operates from AC mains or from a 12 volt battery. In the original circuit arrangement two vibrator units are provided, a switch being arranged so that the spare vibrator can be quickly switched into circuit should the other fail. The original arrangement also provided for low-impedance microphone input.

This version uses only one vibrator, which can be quickly changed should trouble occur. Two 6X5GT rectifiers are used. The plates in each valve are paralleled and each valve is used as a half-wave rectifier in a full-wave rectifier circuit. It will be seen that the rectifiers operate when the amplifier is being driven either by the AC mains or vibrator supply (6 volts).

The circuit uses a modified "Barnes" push-pull driver arrangement with two input channels, and the output is approximately 15 watts. Somewhat greater output is possible by switching out the negative feedback, which is obtained in rather an ingenious manner by feeding the screens of the push-pull drivers through resistors from the plates of the output valves. These resistors go to the normal HT supply when the feedback is switched out.

Particular note should be taken of the grid and cathode circuit arrangements for the push-pull driver stage. Both valves in this stage are fed independently with signals from the respective input stages and the required out-of-phase voltage for the other driver valve is obtained by the use of the unbypassed common cathode resis-

(Continued on page 47)



15-watt amplifier system which may be operated either from an AC supply or a 6-volt accumulator.

(Continued from page 45)

tor ("Barnes" system). However, the high value required (20,000 ohms) for this resistor to ensure adequate coupling would result in excessive grid bias if the grids were returned direct to ground, and to offset this, they are returned instead to a positive potential point provided by a voltage divider across the plate supply to the first stage — the nett difference between the cathode and grid return voltages being adjusted to the required bias voltage.

The entire arrangement is rather interesting and well worthy of careful study.