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QST Issue: Oct 1936
Title: Flash! W9ERU Wins Code Speed Contest
Author: E.L. Battey, W1UE

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(say) 1250 cycles from an audio oscillator having a *sinusoidal* wave form (see Fig. 7) is applied to the audio system at any convenient stage. This signal is then increased until its peak value at the grid of the power tube (or at one tube in a push-pull stage) is the maximum permissible for the tube and circuit under test. For a power tube operating Class A, the peak signal voltage should not exceed the grid bias. The signal can also be adjusted by listening to a loud speaker—the critical maximum limit being reached when the tone changes and begins to lose its purity. A pure resistance load of the correct value and wattage (for example, 7000 ohms for a single 47 pentode) is then shunted across the primary of the output transformer, no secondary load being used. The peak a.c. voltage across the resistance load is measured with the v.t. voltmeter. Using the 47 as an example, we find that the measured peak output voltage E_{pk} is about 186 volts. This must be changed to an r.m.s. value, for power calculations, by multiplying by 0.707. Thus,

$$E_{rms} = (0.707)\ (186) = 132 \text{ volts.}$$

From the relation

$$P = \frac{E_{rms}^2}{R}$$

we find that

$$P = \frac{(132)^2}{7000} = 2.5 \text{ watts, the power output.}$$

The peak plate current of a mercury-vapor rectifier can be measured as a check on rectifier operation. A 100-ohm resistor is placed in the —B lead of the system, between the filter and the center tap of the high-voltage transformer. The v.t. voltmeter will measure the peak d.c. *voltage* developed across the resistor while the rectifier is under normal load. Ohm's Law gives the peak plate current in the circuit, $I_{pk} = \frac{E_{pk}}{100}$. Such a check will show whether or not the input choke of the filter system is limiting the peak plate current of the rectifier tube to a safe value, as judged by the tube manufacturer's rating.

The ripple voltage of high-voltage power supplies can be determined, provided that there is enough ripple to measure (0.5 volt or more). The d.c. blocking circuit of Fig. 6 is used, of course, to keep the high d.c. voltage away from the 6C6. The blocking condenser should have a voltage rating sufficiently high so that there will be no danger of its breaking down. The peak ripple voltage is then measured in the usual manner, by adjustment of the slide-back potentiometer, R_7.

In a subsequent issue of *QST*, Part II of this article will describe several applications of the v.t. voltmeter in the adjustment of transmitters. Modulation measurements will be discussed, as well as an entirely different, simple circuit using a 6E5 for the sole purpose of checking modulation. In addition, normal applications of the 6E5 as a visual tuning indicator will be covered. It will be shown that the "Magic Eye" can be employed to advantage for tuning purposes in many receivers *not* having automatic volume control.

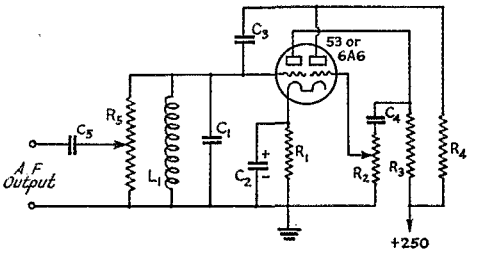

FIG. 7—SIMPLE SINE-WAVE AUDIO OSCILLATOR OF THE CAPACITY-FEEDBACK TYPE

With the L-C constants given below, the generated frequency is approximately 1250 cycles per second. (This oscillator makes a good tone generator for i.c.w. in 5-meter transmitters.)

C_1—0.1 μfd.
C_2—16-μfd. electrolytic, 15-volt.
C_3, C_4, C_5—0.1 μfd.
R_1—750 ohms, ½ watt.
R_2—500,000-ohm potentiometer.
R_3, R_4—50,000 ohms, ½ watt.
R_5—50,000-ohm potentiometer.
L_1—1500-turn honeycomb coil (160 millihenrys).

Flash! W9ERU Wins Code Speed Contest

EUGENE A. HUBBELL, W9ERU, of Rockford, Illinois, is winner of the Amateur Code Speed Contest held at the A.R.R.L. Central Division Convention in Chicago on September 6th. Mr. Hubbell attained an official computed speed of 52.2 words per minute! He was awarded a beautiful silver trophy. All contestants were examined on plain language text with tape transmission for two-minute intervals, ranging from 25 w.p.m. upward and at 52.7 w.p.m. W9ERU made but one error. The runner-up was John Huntoon, W9KJY. Those participating in the finals, without indication of order of merit, were W8BKM, W8SS, W9DKZ, W9ERU, W9ERS, W9HUM, W9KJY, and W9MKX. Judges were T. R. McElroy, W1JYN, holder of the world's code speed record; G. J. Maki, W9RQZ, ex-K7HV, Chairman, Code Speed Contest Committee; and F. E. Handy, W1BDI, A.R.R.L. Communications Manager.

This was the first official Amateur Code Contest ever held. Only bona-fide amateurs, holding at least an amateur operator's license, were eligible. Holders of commercial licenses were ineligible, with the following exceptions: (a) Holders of commercial licenses without experience under same. (b) Holders of commercial licenses whose duties specifically are not telegraph operating (i.e., 'phone licenses). (c) Holders of commercial licenses engaged specifically as attendants

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