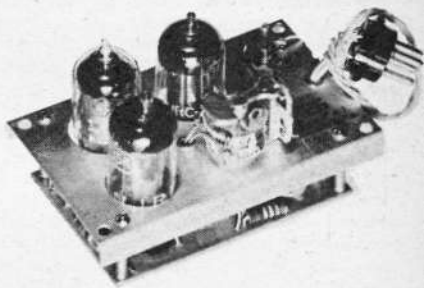


RADIO CONTROL REVIEW

CG Electronics' Non-Selective Audio Frequency Equipment



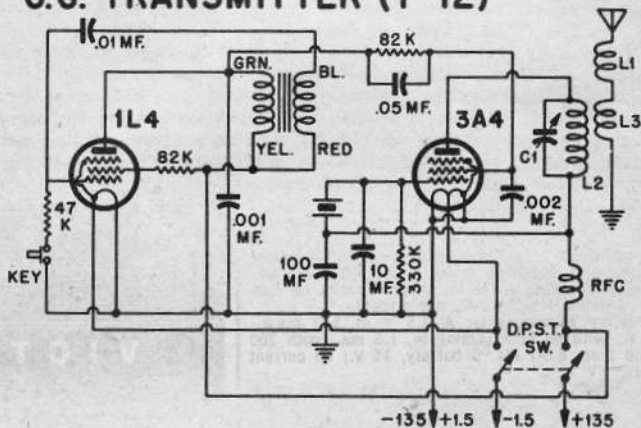
■ This apparatus works on the audio tone principle, but is not selective. That is, any tone over a rather wide range will cause the receiver relay to operate, but it requires a modulated signal to do so—a plain carrier will not affect the receiver. This is considered a safety factor in these days of crowded 27¼ mc. work and frequent interference. The fact that no particular modulation frequency is required means also that a reasonable amount of AF drift at the transmitter—as might be experienced if the B batteries were allowed to drop drastically—will not shift the modulation tone out of the range of the receiver.

The equipment we will describe here is manufactured by CG Electronics Corp. (Albuquerque, N. M.), which is successor to E.C.E. of the same city. The R-1 receiver is a three-tuber, but since one

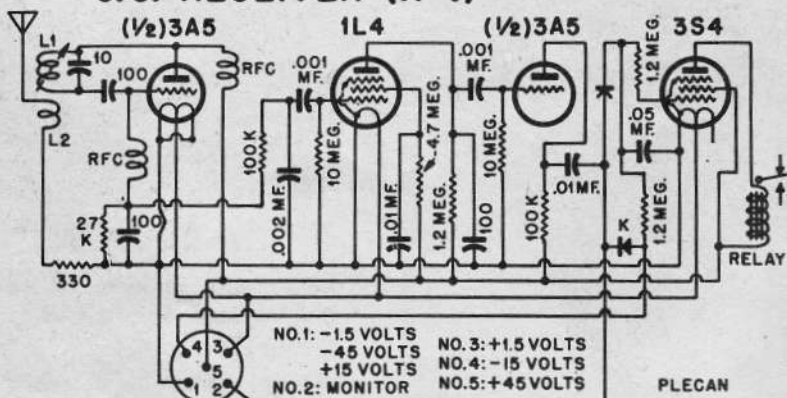
tube is a 3A5, 4-tube results are obtained. The line-up gives a super-regenerative detector, two A.F. amplifier stages, and a relay tube. The circuit is such that the latter draws no current when there is no audio signal coming in, due to the 15 V. negative bias on the grid. The other tubes in the receiver draw the same current with or without modulation, and with or without carrier.

The receiver is of the printed-circuit style, with all components mounted on the etched plate; only the relay and the tuning inductance are on the upper aluminum frame, which has three holes to clear the tubes. The relay is a Jaico "Gem," and in the set we checked was adjusted to operate at 2 ma. and release at 1.7 ma. Since relay current runs from zero to around 5 ma. when a tone is sent, you get *solid* relay action.

C.G. TRANSMITTER (T-12)



C.G. RECEIVER (R-1)



OCTOBER, 1955

There are four holes in the corners of the aluminum top plate for suspension of the receiver by means of rubber bands, and connections are made to the set by a 5-prong plug on a 9" long cable. A socket for this plug is furnished. Operation of this type of receiver is very simple, as there is only a single control—that for tuning—and the unit is not at all fussy about antenna length. Since the relay current is zero unless a tone is received, this type of receiver is generally considered to be more "fail-safe" than one that idles at high plate current; any breakage of wiring in the receiver A and B batteries, or sudden loss of voltage of these batteries will leave the relay in the same position that it normally has when the transmitter key is not depressed. Flying out of range, or a transmitter failure, gives the same result.

The Model T-12 transmitter sends out a constant signal as long as the power switch is on, and an audio tone of about 700 cycles when the key is depressed. Audio tone systems in general require much less transmitter power than plain carrier (C.W.) systems, and the B drain of the T-12 is very low.

The transmitter is wired by the conventional system (not printed circuit) and all parts are contained in a sturdy steel case, which is painted gray. The tuning adjustment is reached through a hole in the front of the case—a non-metallic screwdriver should be used, since the tuning screw is "hot."

Inductive antenna coupling is utilized and there is a large loading coil in series with the antenna, to attain more efficient signal radiation. The three-section antenna slips through an insulating grommet in the top of the case and is held in place by screwing it onto a threaded stud on the internal chassis.

Since this transmitter operates at very low power, it will not "bend the needle" of a field strength meter. Antenna of the latter should be held close to the transmitter antenna, to get a good reading. The transmitter may be operated with the antenna collapsed, with no harm to tubes or crystal; this makes it most useful for bench tests for simulating the effect of a very weak signal, when checking the equipment in your model.

SPECIFICATIONS: Receiver Model R-1. Non-selective audio tone type, for operation on 27.255 mc. Tubes are: 3A5-detector and second A.F., 1L4-first A.F., 3S4 (only half of filament used) relay tube. Overall size including tubes—3 x 2—2 $\frac{1}{8}$ x 2 $\frac{1}{4}$ ". Weight with tubes—3 $\frac{1}{4}$ oz. Single control for tuning. Antenna length, 2-4', not critical.

Battery requirements: A—1.5 V at 340 ma. B—45 V.; with no tone coming in, 1.6 ma.; with 700 cycle tone, 6.5-7 ma. C battery, 15 V.; no current drain.

Transmitter T-12. One 3A4 tube as crystal oscillator, one 1L4 as modulator. Overall size—8 x 4 $\frac{1}{2}$ x 3 $\frac{1}{8}$ ". Weight with batteries and antenna—4 lbs. Single tuning screw, On-Off switch, and Keying button on front panel. Three section antenna extends 19" above case when collapsed, 55" when extended.

Battery requirements: A—1 $\frac{1}{2}$ V. at 255 ma. B—135 V.; 6 ma. with key up, and 8 ma. with key depressed. Case designed to hold one size D flashlight cell and two 67 $\frac{1}{2}$ V. B. batteries (Eveready 467 or equiv.).

