

# Radio Control Equipment: CG's RT-1

■ A pair of interesting audio tone single-channel receivers by CG Electronics Corp. (Albuquerque, N. M.), look alike externally. Their circuits are similar, except that one utilizes a tube as the detector while the other has a transistor in this position. The two amplifiers in each receiver are transistors, with very similar circuits and component values.

Why two such receivers? Well, CG offers one RT-1 in the form of a "parts package" (concern prefers not to call it a kit); this is the one which has the "tube" front end. While the transistor detector is quite as reliable as the tube type—and even more so, considering that there is no filament to burn out or a battery to drop down—the RF transistor installation job is a delicate one. CG finds it is better to use front-end tube in the home-built sets forestalling possible gripes from those who could not install the RF transistor properly.

Both receivers use the same high voltage supply, both have about the same sensitivity and work on the same audio frequency. They are thus completely interchangeable IF you remember that the ready-made set does not require an A supply (the A lead is left blank in the connection plug). It should be noted that B plus in both receivers goes to ground, unlike normal tube type R/C receivers, while B minus is the "hot" lead.

The RT-1 consists of a super-regenerative detector (or oscillator), followed by

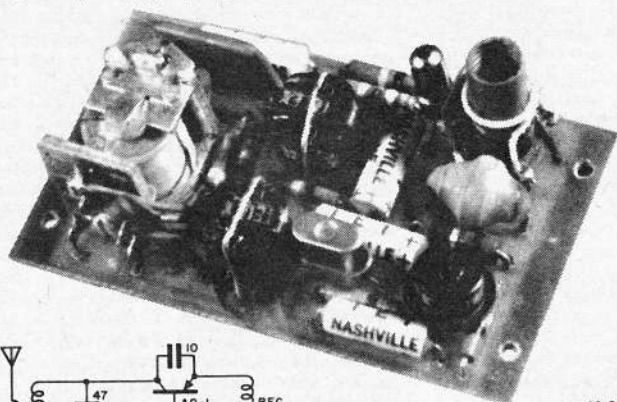
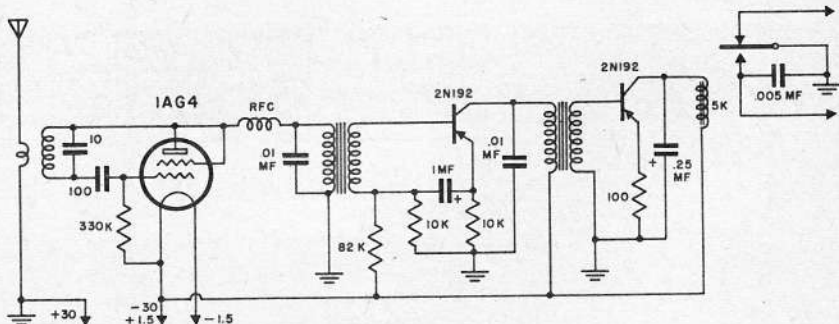
two transformer-coupled AF amplifiers, the second of which operates the relay. Audio range is 300 to 600 cycles; the transmitter should be capable of at least 95% modulation. CG's T-12 transmitter is recommended, but many other commercial AF transmitters will also do a good job.

While 30 volts is the normal supply for the RT-1, the tube version is said to work satisfactorily on 22½ volts, within temperature extremes of 60 to 110 degrees F. In any case, no more than 35 volts should be applied to either receiver, or the transistors and other parts might be damaged.

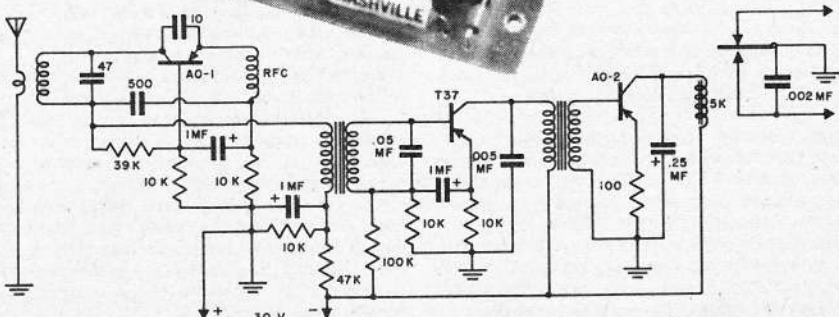
The receivers are not particularly sensitive to "electrical noise" and bonding of escapements or other control units is not normally required. They are intended for use in temperatures from 32 to 130 degrees F. No bias battery is needed and there is no sensitivity control. Antenna length is not critical.

It is possible to get "blocking" action when a transmitter is very close to the receiver; with the T-12, this can occur when the two are 10' or less apart. To eliminate this condition, the transmitter antenna can be grounded with one finger until the model is far enough away not to be affected.

Pulse operation of the all-transistor receiver (the one we tested) is very good when the relay is set to operate at about 2 ma. and release at around 1.5 ma.



RT-1 with tube shown above. Transistor detector version is below. Photo is all-transistor unit.



**SPECIFICATIONS:** Model RT-1 receiver for 27.255 mc, 300-600 cycle modulation. Ready-made version uses three transistors; "parts package" has one tube, two transistor circuit. Single adjustment, for tuning. Antenna length not critical—18 to 36" recommended. Receivers have printed-circuit "chassis", blue-anodized aluminum cover. Weight with power cable and plug, 1.95 oz.  $1\frac{1}{8}$  x  $2\frac{3}{4}$  x 1" high.

**POWER REQUIREMENTS:** A supply,  $1\frac{1}{2}$  volts at 45 ma (tube version only); B supply, 30 volts. Both receivers draw about 1.25 ma with transmitter tuned in but no AF modulation. With strong signal, both draw about 5 ma. The 30 volt battery should be replaced when it drops below 27 volts with receiver turned on. A cell should be replaced when it drops below 1.1 volts with the filament on. For the tube version, maker recommends a single pen cell (Burgess type Z or equiv.); B battery can be a single volt unit (Burgess type U-20 or equiv.)