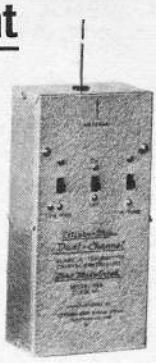
"Blue Ribbon" Radio Control Equipment

Dual Channel Offered by Citizen-Ship on 27.255 mc.



■ Dual-channel equipment for the masses is apparently the aim of Citizen-Ship Radio Corp., in marketing their Model RER receiver and REX transmitter, which sell for $39.95 each. Intended to afford two separate and distinct control channels, the equipment may be used to work two servos, escapements, etc., each entirely independent of the other.

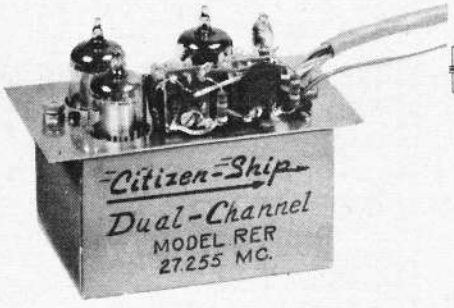
The tuned-relay style RER receiver is a rugged unit in a steel case using four tubes. There is a relay for each channel mounted on the top of the case, through which the tops of the four tubes protrude. Circuit-wise, the receiver is quite similar in many ways to the T-R receiver described in *Air Trails Hobbies* (June '55 issue), but has been considerably simplified, and to keep cost down, miniature rather than sub-min parts are used.

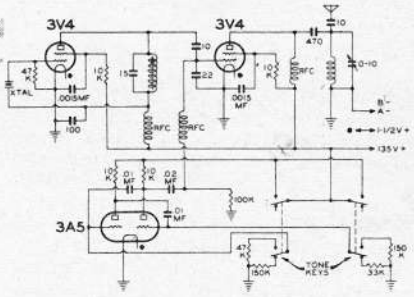
As the circuit shows, two sources of C bias are required, about 15 V for the last two tubes, and 1½ V for the clipper (the two diodes connected between the 1U4 and 3S4 tubes which hold the output of the preceding tube to a predetermined level). Actually, the filament supply can be used just as well for the clipper, by a simple connection shown in the Instructions; if this is done, though, the filament batteries will have to be changed more often. For proper clipper operation at least 1.25 V must be available; for filament use only, the A supply can be allowed to drop to 1.1 V. The smallest possible 1½ V cell will do fine for this bias source, as there is no drain at all upon it. There is a low drain on the 15 V bias battery, since a variable resistor is connected across it, to allow adjustment of the bias to the two 3V4 tubes, as the B battery drops in voltage. Drain here is so slight that a tiny 15 V hearing aid battery will suffice. The receiver has provision for checking operation of each relay circuit individually, by hooking a low range *voltmeter* across the 470 ohm resistors, or you can check tuning by use of a pair of headphones.

In order to cut total A drain, only half of the filaments of the 3V4 tubes are connected; also, the two sockets are wired up so that a 3V4 with either half of the filament intact may be utilized.

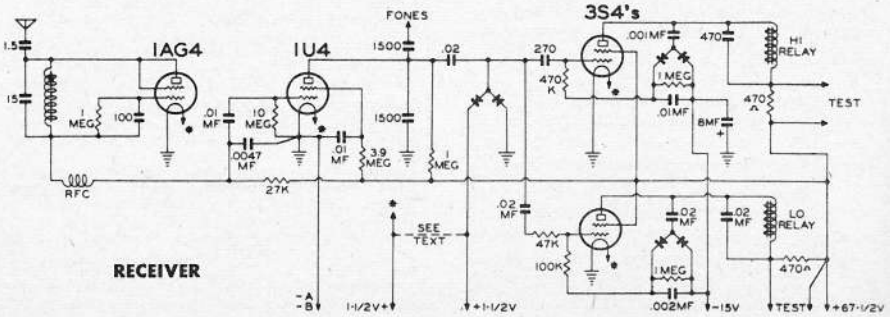
The Hi tone relay works fast enough so that it can be used for compound escapements or for proportional pulsing at moderate pulse rates. The Lo relay is somewhat more sluggish, however, and should be used for self-neutralizing escapements, motor escapements or motor servos that do not require extremely fast action.

The Model REX transmitter is an MOPA unit utilizing pentode tubes for oscillator and amplifier, and a dual-triode for the oscillator and modulator. Two push-buttons on the front of the case allow selection of either tone as desired, while an On-Off switch controls the carrier. To save shipping charges, the transmitter is furnished without an antenna; a regular 3' length of ⅛" dia. music wire should be used. Due to the type of circuit used, no harm is done if the transmitter is used with a short antenna, or with





TRANSMITTER



RECEIVER

none at all; in fact, shop tuneup of the receiver with no antenna in the transmitter is advisable.

Detailed instruction booklets are furnished with each unit, and should be read most carefully before operation, especially that for the receiver. Though the makers do not guarantee it, most of the receivers will give dual simultaneous operation—that is, you can work both channels together by pushing both tone buttons at once. A simple receiver alteration may facilitate this, and is well-covered in the receiver booklet.

SPECIFICATIONS

Model RER receiver: 27¼ mc. dual-channel unit measuring 3⅞ x 2⅜ x 2¾" high. One adjustment on receiver for tuning; variable C bias resistor mounted in plane. Utilizes 1AG4 oscillator tube, 1U4 voltage amplifier, and two 3V4 relay tubes. All connections except antenna and battery common lead made through 7-pin plug. Two 5000 ohm Gem relays fitted. Antenna length non-critical—about 18" is ample. Complete receiver weight, 7.35 oz.

Receiver battery requirements: A supply 1½ V at 185 ma. (four pencells or two C cells in parallel recommended). B battery—67½ V. Idling current drain (transmitter on but no tones) is about 7 ma. per channel. with around 10 ma. on simultaneous. C battery—1½ V cell of smallest size, plus 15 V battery; very slight drain on latter. Installation kit—a $4.95 accessory—includes 500,000 ohm C bias pot, plus switch, plugs, sockets etc.

Model REX transmtter: 27¼ mc. crystal-controlled MOPA outfit in steel case measuring 4⅝ x 2¾ x 9½" high. 3V4 tubes used as oscillator and power amplifier, 3A5 as modulator-audio tone generator. Hi tone is about 1200 cycles, Lo is 240 cycles, and 500 cycle tone is sent with both buttons pressed. Gray hammertone-finished case has tone buttons and On-Off switch on front, and grommet hole on top for antenna. Single variable condenser may be tuned for best output as measured on FSM. Weight with ant. and batteries, 5 lb.

Transmitter battery requirements: A—1½ V at 200 ma. (Eveready #742 or equiv.). B—two 67½ V. units in series (Eveready #467 or equiv.). B drain is about 22 ma. with carrier only, rises to about 28 ma. when tone is transmitted.

Next Issue!

QUEEN OF THE R/C FLEET

Photo and article report on the most sensational radio controlled boat in the country!