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QST Issue: Aug 1971
Title: Ten-Tec Model RX 10 Communication Receiver
Author: W4WFL/1

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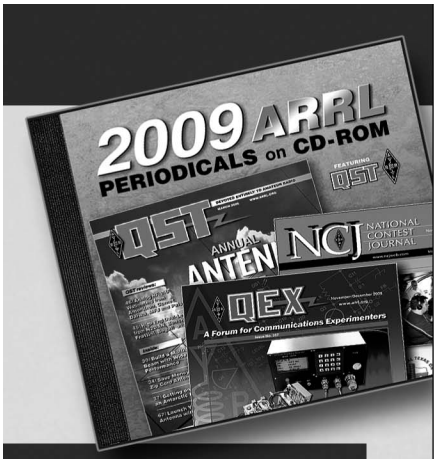

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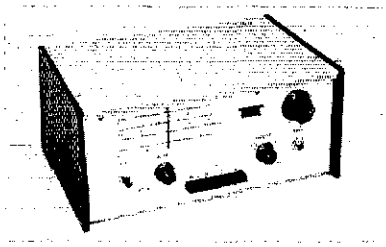
Recent Equipment

To acquaint you with the technical features of current amateur gear.

Ten-Tec Model RX 10 Communication Receiver



THE RX-10 solid-state receiver is an interesting and attractive addition to Ten-Tec's growing line of practical and inexpensive equipment for amateurs.

Utilizing the synchrodyne direct-conversion circuit, the RX-10 is a "hot" performer on the 80-, 40-, 20-, and 15-meter bands. Selectivity is determined by an audio filter between the mixer and the first audio amplifier. With the 2-kHz bandwidth provided by the filter, ssb reception is excellent. Measured drift is well within the manufacturer's claim of 100 Hz (no warm-up), and, after 30 minutes, ssb signals stay "locked-in." Although single-signal cw reception is not possible with the RX-10, all one has to do to attenuate an interfering signal is to tune to the opposite side of zero beat. Exalted-carrier reception of a-m signals is possible by zero beating the incoming carrier.

The solid-state direct-conversion circuit produces excellent results with a minimum number of components. An incoming signal is heterodyned in the mixer stage with the output of the VFO to produce an audio beat note that is fed through the 2-kHz-wide filter and then to four stages of audio amplification. The output is sufficient to provide comfortable listening, using headphones, on all but the weakest signals.

A different approach is used for the oscillator circuit in order to cover four bands. Fig. 1 shows the complete circuit of the oscillator and multiplier stages. Basically, the VFO tunes 3.5 to 4 MHz. When going to 40 meters, L5 is switched into the circuit along with changing the connection for C35, the MAIN TUNE capacitor. C35 is moved over to be in parallel with C40, providing the correct bandspread for 40 meters. The output from the oscillator is amplified in Q8 and then fed to gate 2 of Q1. When going to 14 or 21 MHz, Q9 operates as a multiplier, to provide injection voltage for the detector.

With only 20 feet of wire out a window for an antenna, this writer found the receiver's sensitivity to be impressive on all bands. Care should be taken in the adjustment of the ANTENNA TUNE control to prevent interference from out-of-band stations. This type of interference is caused by envelope detection of very strong signals by the mixer. QRM of this sort can be easily recognized, as it is not affected by the MAIN TUNING. If additional rf selectivity is required, a Transmatch such as the Ten-Tec AC5 should be used.

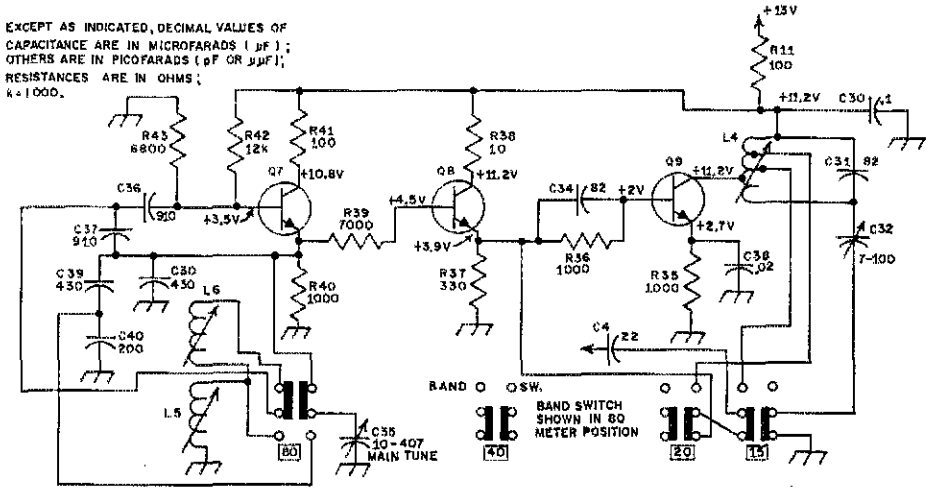


Fig. 1 — This is the circuit of the oscillator and multiplier. All component designations are the same as used in the manufacturer's instruction manual.

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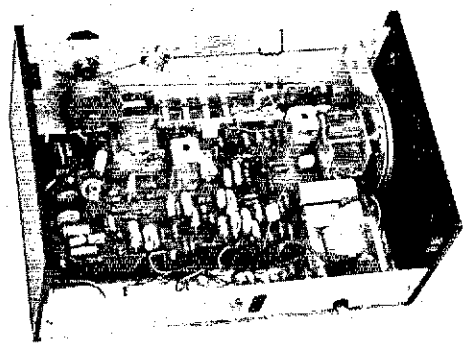
An added bonus of special interest to the Novice is the built-in code practice oscillator, which can also be used as a keying monitor. The RX-10 is attractively packaged in a heavy-gauge aluminum cabinet with wood-grained plastic end plates, making a sturdy portable unit. With the option of 117-volt ac or 12-volt dc operation, it should be popular with campers, vacationers, and beginners looking for an inexpensive receiver that will deliver good performance. — *W4WFL/1*

Ten-Tec RX-10 Communications Receiver
Height: 4 1/2 inches.
Width: 10 3/8 inches.
Depth: 7 1/4 inches.
Weight: 2 1/4 pounds.
Power Requirements: 117 volts ac, 50-60 Hz, 1/8 A, or 12 V dc, 35 mA.
Price Class: $60.
Manufacturer: Ten-Tec, Inc., Sevierville, TN 37862.



Here's an inside view of the RX-10. The weighted knob on the front panel is used to drive the MAIN TUNING capacitor. The variable capacitor just below the weight knob is the PRESELECTOR tuning.

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Regency Electronics HR-2 FM Transceiver

IMAGINE, IF YOU CAN, a neat looking package measuring 8 x 5 1/2 x 2 1/4 inches, into which is carefully packed a double-conversion receiver, and a transmitter with an output power of 10 watts or more. Next, envision some 24 transistors, 2 integrated circuits and 7 diodes, plus all of the other components needed to make up the transceiver. Dream stuff, you say? Not at all! The foregoing description is a word picture of the Regency HR-2 amateur fm station.

The equipment comes with crystals for 146.34/146.94-MHz operation. The company also provides the buyer with a dc power cable, microphone, mobile mounting bracket, and 12 spare crystal sockets which will be discussed later. The rig can be tucked away under the instrument panel of any automobile – large or small – and will still allow ample leg room for all but the most rotund of passengers.

The writer's HR-2 has been in service for some 6 months. It has seen daily use in a 1970 VW car, and despite the rather minuscule battery dimensions there have been no signs of charge depletion even though "somebody" carelessly left the HR-2 power switch in the ON position overnight on a few occasions. (Making a similar mistake with a tube-type mobile unit will normally leave the red-faced operator with a battery whose best effort will provide a mere grunt from the starter when it is engaged.) Solid-state mobile gear, therefore, has its advantages!

Regency rates the transmitter output power at 10 watts. Checks with a calibrated vhf wattmeter showed 13 watts output into a 5/8-wave antenna tuned for an SWR of 1. Operating voltage (engine running) was 13.6 during the tests. Despite Connecticut's rough terrain (small mountains, if you will), the author has never experienced difficulty in working through area repeaters at distances up to 50 or 60 miles. It is worth mentioning, however, that the 5/8-wave antenna contributes significantly to the aforementioned good results. The slight gain over a 1/4-wave whip (approximately 3 dB) can be beneficial under marginal signal conditions.

The only failure experienced to date, and one that appears to be case history with many HR-2 units, was a faulty set of relay contacts. After several hours of use the B+ transfer contacts of the changeover relay apparently become pitted in the transmit position. When this happens it may take numerous squeezes of the mike button to get into the transmit mode. Being unable to obtain a reply from Regency regarding a solution to the problem, owing, perhaps, to faulty mail service, the writer