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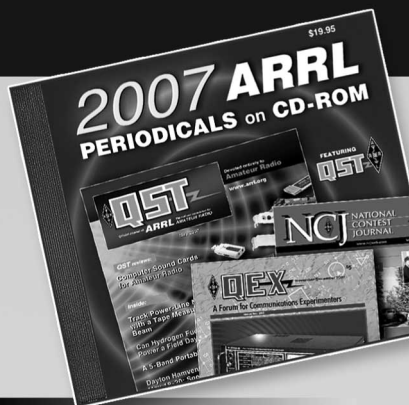
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Hints and Kinks

For the Experimenters



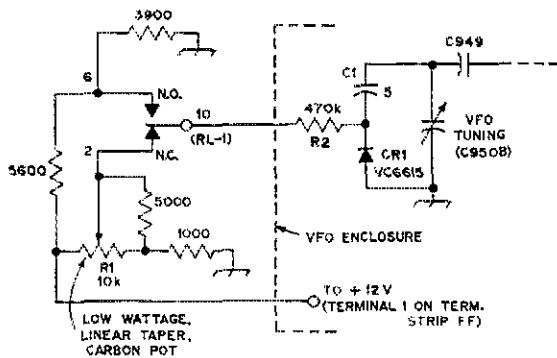
RIT FOR THE HW-101

This simple circuit provides an incremental tuning range of 4 kHz for the receiver and makes use of a voltage-variable-capacitance diode. With slight modification to the T-R relay in the HW-101 and front panel, a beautiful addition can be made. The circuit to be described may be applied to any transceiver that can provide:

- 1) A source of dc voltage in the range of 12 to 20 volts (+ or -).
- 2) A spare pole on the T-R relay with one normally closed and one normally open contact.

The diode is mounted inside the VFO enclosure. The dc voltage for CR1 is taken from the regulated 12-V line at terminal 1 of the strip FF. In our case, the voltage-divider circuit was built into an external Minibox and connected to the VFO and relay through shielded cables. Feedthrough capacitors were used where the leads entered the VFO enclosure. There is more than enough room in the HW-101 VFO enclosure to house the voltage-divider components. In the permanent modification R1 could be mounted just to the left of the meter on the front panel of the HW-101.

CR1 is made by Eastron Corp., 25 Locust Street, Haverhill, MA 01830. This diode offers a capacitance range of 7.5 to 35 pF over a bias range of 0 to 20 volts. The diode is installed in parallel with the transceiver VFO tuning capacitor. If your transceiver offers only a negative dc voltage within the VFO, simply reverse the diode polarity in the circuit. The diode remains in the circuit at all times. A fixed value of bias is applied to the diode on transmit to provide a reference capacitance around which the receive-mode capacitance is varied. The bias is varied by R1 on receive, thus changing the VFO frequency. R2 serves as a



RIT for the HW-101.

decoupling resistor to prevent the oscillator from being loaded down by the dc source. C1 isolates the dc from the oscillator tank circuit. With the resistances shown, a total change of about 4 kHz is realized over the range of R1. If you substitute different values for any of the resistors, make sure the transmit frequency is not varied accidentally when R1 is adjusted.

To set the reference of the RIT, measure the voltage at the diode when the transceiver is in the transmit mode. Now switch to receive and adjust R1 for the same voltage. This setting of R1 is the point where the transmit and receive frequencies coincide. Next, the dial is calibrated while using the 100-kHz calibrator. This completes the alignment. - *Floyd Sense, K4EQA*

INEXPENSIVE MOBILE ANTENNA MOUNT

Mobile or would-be mobile operators looking for a low-cost bumper mount for their antennas might be interested in this system. Basically, it consists of a flat, stiff aluminum plate placed against whichever part of the bumper projects out the farthest. It is held solidly by means of four hooks behind the aluminum. The plate should be 1/4- to 1/2-inch thick, or it can be a piece of 1-inch board if you aren't too concerned with appearance. Quarter-inch steel plate will work also, but can rust in short order.

The four hooks are made from eye-bolts such as the ones sold in hardware stores. The hooks should be plated to resist rust, be at least 1/4 inch in diameter, and one inch longer than the depth of the bumper. They should be threaded over most of the shank (for adjustment). The best way to open the "eyes" is to drive a cold chisel down into the crack where the end is curled around to touch the shank. Laying the eye over the partly opened jaws of a vise will enable one to further open the eye with the cold chisel.

Most mobile antennas require a ground connection to the automobile frame, and this mount does not make a particularly good one - especially if you use a piece of board for the mounting plate. So it would be wise to use a separate ground lead

