



Hints and Kinks

For the Experimenter



RIT FOR THE HW-101

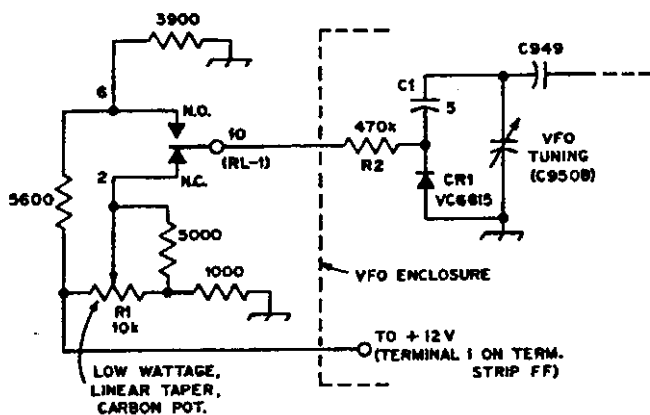
This simple circuit provides an incremental tuning range of 4 kHz for the receiver and makes use of a voltage-variable-capacitance diode. With slight modification to the T-R relay in the HW-101 and front panel, a beautiful addition can be made. The circuit to be described may be applied to any transceiver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

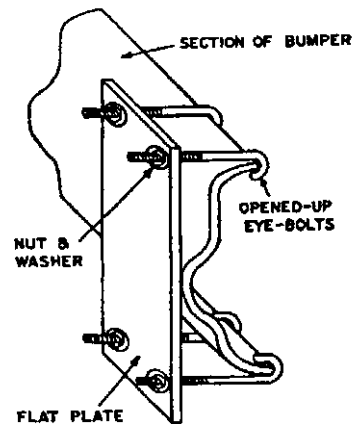
To set the reference of the RIT, measure the voltage at the diode when the transceiver is in the transmit mode. Now switch to receive and adjust R1 for the same voltage. This setting of R1 is the point where the transmit and receive frequencies coincide. Next, the dial is calibrated while using the 100-kHz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

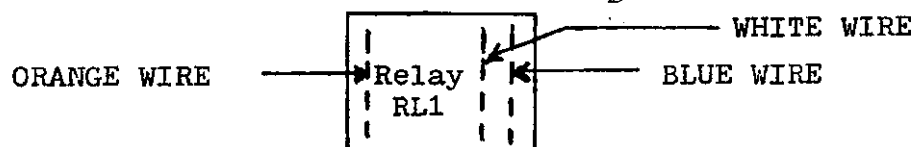
The four hooks are made from eye-bolts such as the ones sold in hardware stores. The hooks should be plated to resist rust, be at least 1/4 inch in diameter, and one inch longer than the depth of the bumper. They should be threaded over most of the shank (for adjustment). The best way to open the "eyes" 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



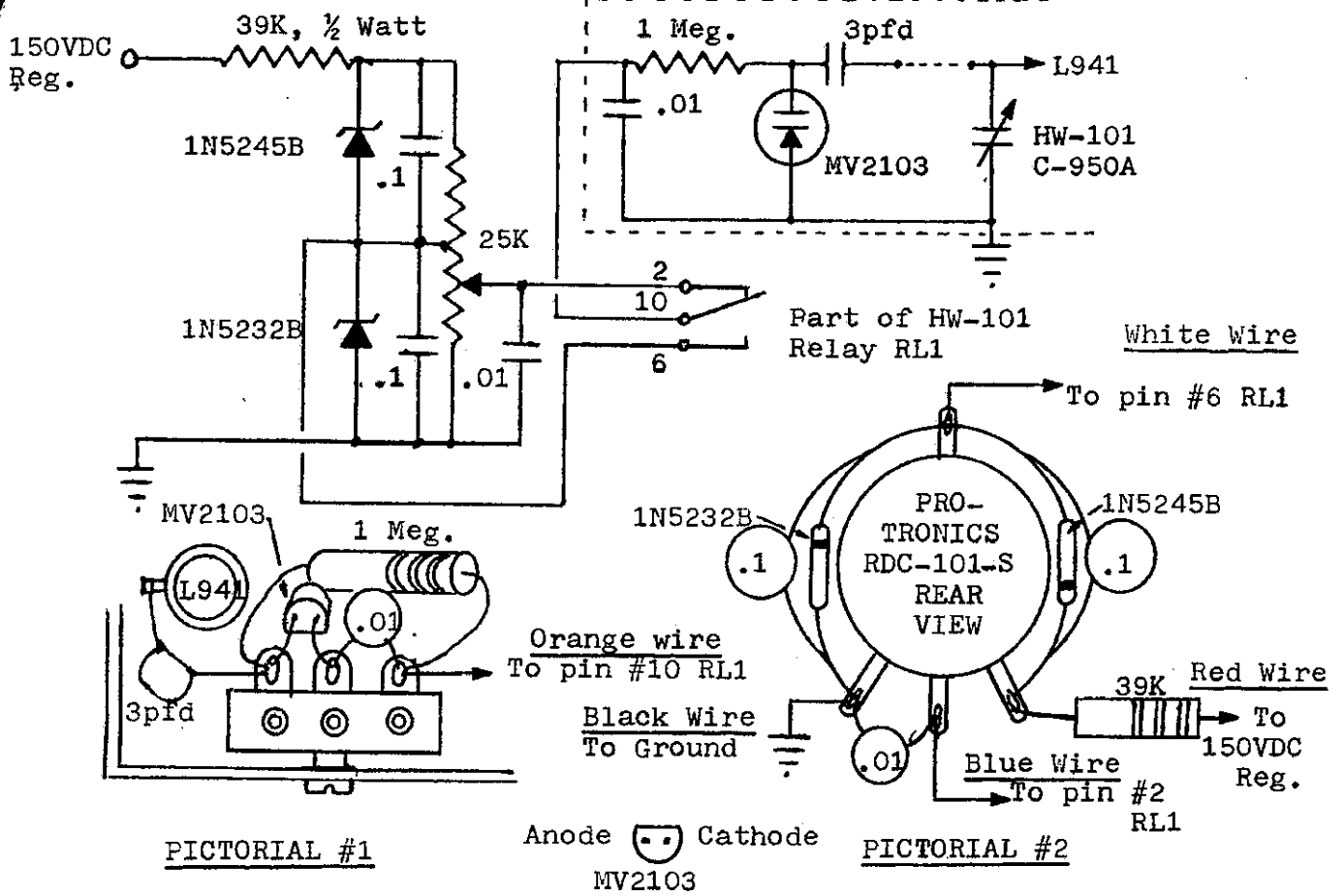
RIT INSTALLATION INSTRUCTIONS

1. Assemble the RIT KIT's 3 terminal, terminal board, as shown in PICTORIAL #1.
2. Assemble the special RIT KIT potentiometer as shown in PICTORIAL #2.
3. Refer to the DMK-101 Installation Instructions and complete Steps 1. thru 8.
4. Remove the HW-101 ZERO SET button.
5. Unsolder the B+ wire, Bias wire and Filiment wire from the rear terminals of the VFO.
6. Remove the four VFO mounting nuts and remove the VFO.
7. Remove the Zero-Set Post located on the VFO case. The Zero Set Post screw hole will be used to route the orange wire from the three terminal, terminal board to pin #10 of relay RL1.
8. Install the three terminal, terminal board as shown in Detail 1-A. Re-install the VFO. Replace the B+, Bias and Filiment wires.
9. Carefully cut the letters "ZERO SET" off of the HW-101 Escutcheon.
10. Apply the RIT decals as shown in Detail 1-B. It is recommended that you mask off a small area around the Rit decal and spray the RIT decal lightly with a clear plastic spray.
11. After the spray dries. Install the assembled RIT potentiometer in the ZERO SET BUTTON HOLE. Install the RIT control knob.
12. Route the red wire from the 39K resistor located on the RIT potentiometer to the +150VDC terminal (B+) located on the rear of the VFO. Cut off excess wire and solder to the B+ terminal of the VFO.
13. Route the Black wire of the RIT potentiometer to the grounded terminal of the HW-101 FUNCTION SWITCH. Cut off excess wire and solder to the grounded terminal.
14. Route the white, Blue and Orange wires to relay RL1 of the HW-101. Cut off excess wire and terminate as shown below.




15. This completes the RIT installation. Continue with STEP 9. of the DMK-101 installation instructions.

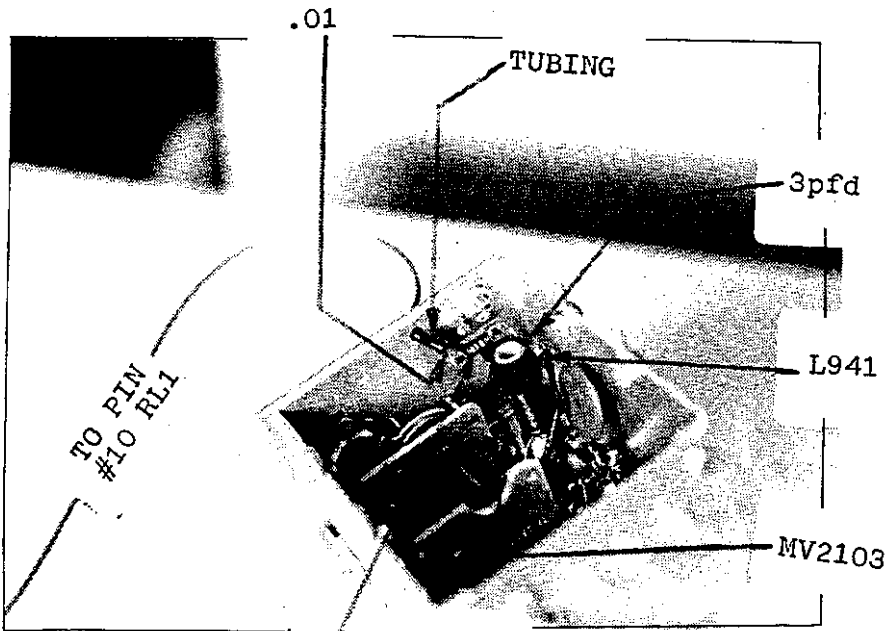
RIT KIT for the HW-101



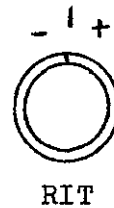
PICTORIAL #1

Anode  Cathode
MV2103

PICTORIAL #2



DETAIL 1-A



RIT LABELING

DETAIL 1-B