

# VEC-621 DUAL BAND VHF ANTENNA TUNER

## **INTRODUCTION**

Thank you for purchasing the VEC-621 Dual Band VHF Antenna Tuner. The VEC-621 covers frequency range from 144 MHz to 220 MHz. It will handle up to 300 watts PEP of output power. It is designed to match a wide range of impedances for coax fed antennas. The built-in SWR/Watt meter is usable for both the 144 MHz and 220 MHz bands.

## **INSTALLATION**

1. Connect your coax line fed antenna to the coax connector on the VEC-621 marked ANTENNA.
2. Connect a short coax line from the coax connector on the VEC-621 marked TRANSMITTER to the antenna connector of your transceiver.
3. Connect a ground wire from the GROUND wing nut of the VEC-621 to the transceiver ground or earth ground of your station.

## **OPERATION**

### **SWR/Watt Meter**

1. SWR Measurement:
  - a. Set the push button switch to SET position (IN).
  - b. Transmit a continuous carrier and set the SWR/POWER control for a full scale meter deflection.
  - c. Set the push button switch to SWR position (OUT) and read the SWR on the SWR scale of the meter.
2. Power Measurement (144 MHz):
  - a. Set the push button switch to SET position (IN).
  - b. For 30 watts range -- rotate the SWR/POWER control to the 30 mark and read the power level on the 30 watt scale.
  - c. For 300 watts range -- rotate the SWR/POWER control to the 300 mark and read the power level on the 300 scale.

**Note:** The SWR/POWER control on the VEC-621 is factory calibrated for the 30 watt range. Do not reset the knob on this control. However, due to

component tolerance when precision reading is desired, the 300 watt range can be recalibrated as follows:

- a. Set the push button switch to SET position (IN).
- b. Rotate the SWR/POWER control to the 30 mark and read the power level on the 30 watt scale.
- c. Rotate the SWR/POWER control counter-clockwise until the power level reading on the 300 watts scale is the same as it is on the 0 watts scale as noted on Step b. above.
- d. Mark the control setting for the re-calibrated 300 watt range.

### 3. Power Measurement (220MHz):

Power measurement on the 220 MHz operation is the same as in the 144 MHz operation as in Step 2. However, instead of using the 30 and the 300 marks, use the mark to the left of the 30 for 30 watt range and left of the 300 for the 300 watt range.

### **Antenna Operation**

The ANTENNA and TRANSMITTER controls on the VEC-621 present a minimum capacitance at "0" and a maximum capacitance at "10".

After properly installing the VEC-621, use the tuner to tune for minimum SWR as described below.

1. Set both the TRANSMITTER and ANTENNA controls to "0".
2. Apply enough transmitter power to have an adequate indication on your SWR/Watt meter. Do not apply full power while tuning for minimum SWR.
3. While transmitting, alternately adjust the TRANSMITTER control and the ANTENNA control for minimum SWR. Since the TRANSMITTER and the ANTENNA controls interact, the two controls can best be adjusted by turning the TRANSMITTER control at a small increment at a time and then rotating the ANTENNA control for the minimum SWR. Repeat this process until a minimum SWR is obtained.
4. After minimum SWR is obtained, full output power up to 300 watts PEP may be applied to the VEC-621.