

## **MFJ-16010 Random Wire Antenna Tuner**

Thank you for purchasing the MFJ-16010 Random Wire Antenna Tuner.

### **GENERAL INFORMATION**

The MFJ-16010 is a variable L-network designed to match the low output impedance of your transmitter to the high impedance of a random wire (or vice versa). It will match almost any random length of wire to any transmitter from 160 thru 10 meters. The transmitter may have an output RF power up to 200 watts. For best results, the random wire should be as long, high, and clear of surrounding objects as possible. Do not ground the random wire antenna.

The connectors are labeled properly to match a transmitter to a higher impedance. This is the normal connection.

To match impedances that are lower than your transmitter impedance (such as a mobile whip), simply interchange the normal transmitter and antenna connections to the MFJ-16010.

Remember the MFJ-16010 is designed to match a single random wire and not a coaxial line, even though coaxial connectors are used for both antenna and transmitter connections (these connectors make it easy to interchange antenna and transmitter connections).

A standard banana plug will fit nicely into the center of the SO-239 coaxial connector and can be used to connect the single random wire in lieu of a coaxial plug (PL-239).

A standard coaxial cable having an impedance that matches your transmitter output impedance, should be used to connect your transmitter to the MFJ16010. Make sure the MFJ-16010 is well grounded to the transmitter.

If you are using the MFJ-16010 to match a vertical or mobile whip, the tuner needs to be at the feed point of the antenna and not at the transmitter end of the coaxial transmission line.

### **USING THE MFJ-16010**

To match high impedances, the transmitter connector of the MFJ-16010 should be connected to your transmitter or receiver and the random wire connected to the antenna connector. The Inductance switch of the MFJ16010 presents a minimum inductance when pointed straight up. Low inductance is for high frequency operation and high inductance is for low frequency operation. The capacitor is completely closed (maximum capacitance) when the control is pointed straight to the left. When tuning up

your transmitter, it is best to use a SWR meter. Connect the MFJ-16010 as in figure A.

Tune your transmitter for minimum SWR using the following procedure:

1. For each position of the Inductance switch, rotate the Capacitance control for maximum noise.
2. Apply enough transmitter power to give adequate indication on your SWR meter. Do not apply full power while tuning for minimum SWR.
3. Turn the Inductance control for a drop in SWR.
4. Adjust the Capacitance control for minimum SWR.
5. If minimum SWR is not achieved, increase or decrease the Inductance control one position then adjust Capacitance until minimum SWR is achieved. If arcing between capacitor plates occurs, increase or decrease the Inductance control one position then adjust Capacitance control for minimum SWR.
6. After minimum SWR is obtained, full power up to 200 watts output may be applied to the MFJ-16010.

For receiving, repeat step 1 then adjust Capacitance control for maximum noise or signal strength.



Connect the MFJ-16010 as shown

Figure A

### CIRCUIT DIAGRAM

