



MFJ VERSA TUNER III **MODEL MFJ-962B**



OWNER'S MANUAL

CAUTION: Read All Instructions Before Operating Equipment.

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INTRODUCTION

The MFJ-962B VERSA TUNER III is an antenna tuning unit designed for use in Amateur transmitting systems. The tuner is designed to match most antenna systems from 1.8 to 30 MHz, and will handle 1.5 KW PEP RF output power.

SWR/WATTMETER

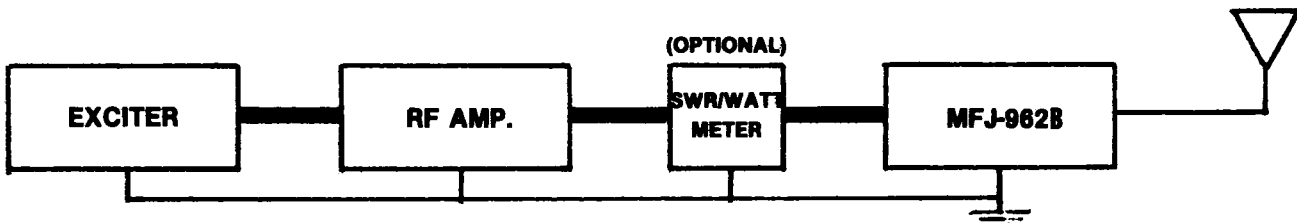
The cross needle meter is easy to use. To read FORWARD power, set the POWER switch to Hi or Lo then read the power level on the forward scale. Maximum power reading on the Hi scale is 2KW and Maximum power reading for the Lo scale is 200W. Reflected power can be read from the reflected power scale. SWR is indicated by the SWR line where the two needles crossed. No SWR sensitivity adjustment is needed to read SWR.

ANTENNA SELECTOR

The ANTENNA SELECTOR switch allows the selection of two coax fed antennas through the tuner or direct, a balanced line/wire antenna, and a coax bypass position. The balanced line circuit employs a 4:1 balanced to unbalanced transformer (balun) specially designed to minimize the power loss and give good frequency response. The balun uses a high permeability ferrite toroid core with a minimum number of turns to give both good low frequency and high frequency response.

INSTALLTION

1. Locate the tuner in a convenient location at the operating position. NOTE: LOCATE THE TUNER SO THAT THE REAR OF THE TUNER IS NOT ACCESSIBLE DURING OPERATION.
2. Install the tuner between the transmitter and the antennas as shown in the diagram. Use coax cable such as RG-8/U between the transmitter output and the SO-239 connector marked TRANSMITTER on the tuner.



3. Connect the antenna(s) to the tuner as follows:
 - A. Coax cable feed lines to the coax connectors. Up to two coax lines may be connected to the tuner at the same time.
 - B. Balanced feed lines are connected to the terminals marked BALANCED LINE.
 - C. Random wire antennas or single wire lines are connected to the WIRE terminal. Install a jumper between the binding posts as marked on the tuner when using wire ant.NOTE: ROUTE ALL SINGLE WIRE AND BAL. LINES TO PREVENT RF BURN HAZARD.

cont.

4. Ground the tuner to the transmitter, amplifier, and earth GND.

OPERATION

The INDUCTOR switch on the MFJ-962B has a minimum inductance at position A and maximum at L. The ANTENNA MATCHING and TRANSMITTER MATCHING controls are at maximum capacitance when set to 10. For optimum operation of the MFJ-962B, tune the exciter into a 50 ohm load. For convenience connect the external 50 ohm load to one of the coax outputs so the exciter will not have to be disconnected when it is tuned up. (use COAX BYPASS)

Follow these steps for proper tuning:

1. Tune the exciter up into a dummy load. (Most solid state transmitters are pretuned to 50 ohms and do not require tuning up into a dummy load.)
2. Select the desired antenna with the ANTENNA SELECTOR.
3. Set the ANTENNA and TRANSMITTER MATCHING controls to about 4.
4. Starting from minimum on the INDUCTOR, tune for maximum noise and signals.
5. With the linear amplifier OFF or in stand-by, set the meter power switch to Lo range and transmit a low power signal (10 to 50 watts).
6. Adjust the ANTENNA and TRANSMITTER MATCHING controls for minimum. If SWR is not 1:1 adjust the inductor up or down and repeat Step 6. If the capacitors are at maximum capacitance, increase the inductance. If the capacitors are at minimum capacitance, decrease the inductance.
7. After minimum SWR is achieved the amplifier may be turned on and tuned up according to the manufacturer's instructions.
8. For quick retuning of the tuner, record the INDUCTOR and CAPACITOR settings.

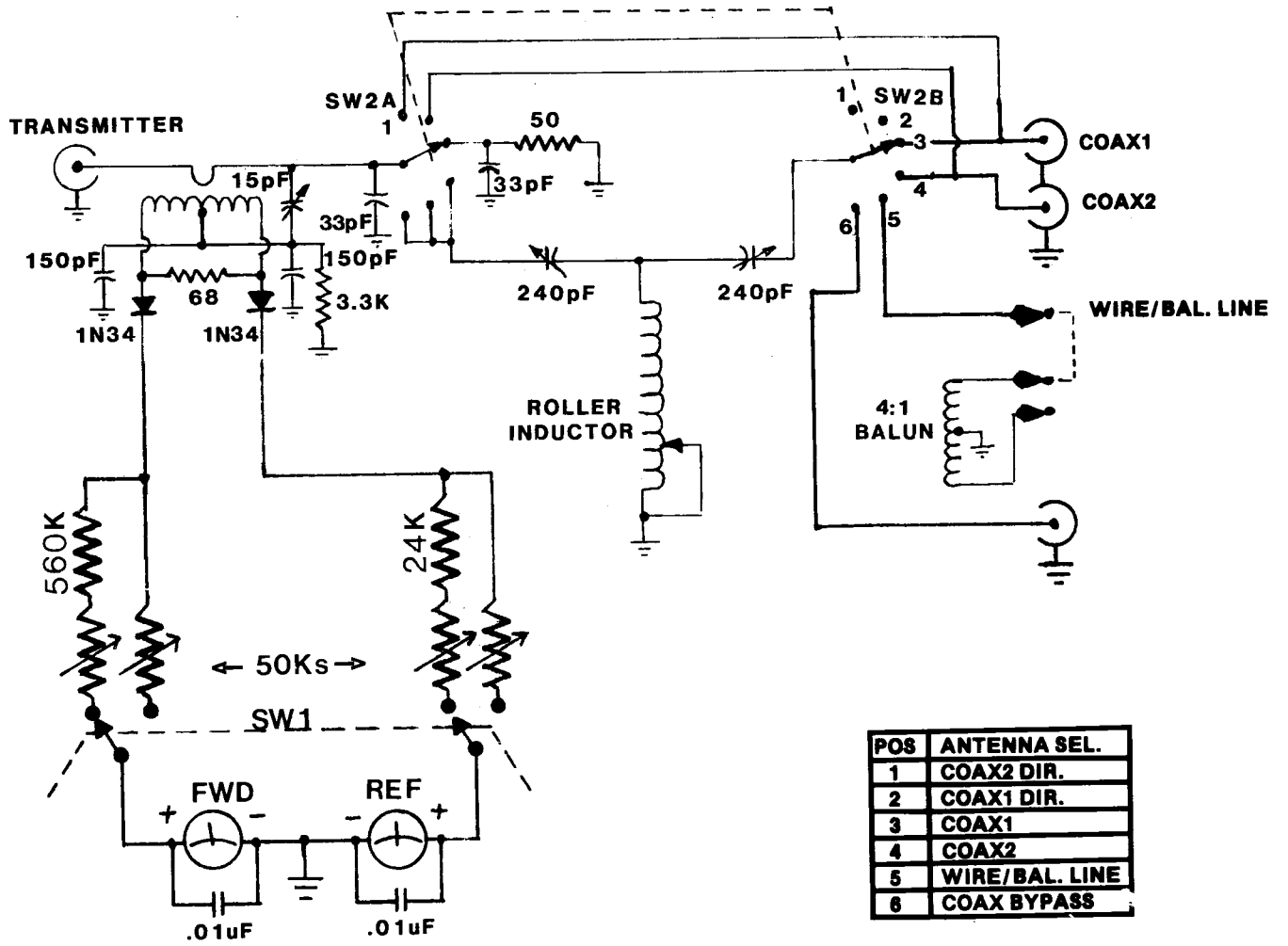
OPERATING NOTES

1. Even though this tuner is designed to have as large a tuning range as possible, it may not always be possible to tune an antenna system to a 1:1 SWR. A SWR of 1.5:1 to 2:1 is usually acceptable to most transmitters (see your transmitter instructions.) If a higher SWR is not acceptable there are several things which can be tried. For example, if the antenna is very short try lengthening it. A loading coil or a capacitive hat may also help raise the impedance to within the tuner range.
2. A SWR of 1:1 can occur for more than one control setting. If this should occur use the setting which gives the highest received signals and noise.

WARNING

1. NEVER OPERATE THE TUNER WITH THE COVER REMOVED. THE VOLTAGES INSIDE ARE VERY DANGEROUS DURING OPERATION.
2. NEVER ROTATE THE "INDUCTOR" OR THE "ANTENNA SELECTOR" SWITCH WHILE OPERATING, DAMAGE TO THE SWITCH MAY RESULT.
3. LOCATE THE TUNER SO THAT IT WILL NOT BE ACCESSIBLE FROM THE REAR.
4. DISCONNECT THE ANTENNAS FROM THE TUNER DURING LIGHTNING AND STORMS.
5. ALWAYS TUNE WITH LOW POWER (i.e. LESS THAN 100 WATTS). APPLY MAXIMUM POWER ONLY AFTER TUNING.
6. DO NOT KEY TRANSMITTER INTO HIGH SWR FOR LONG PERIODS OF TIME.

cont.



POS	ANTENNA SEL.
1	COAX2 DIR.
2	COAX1 DIR.
3	COAX1
4	COAX2
5	WIRE/BAL. LINE
6	COAX BYPASS

MFJ-962B
SCHEMATIC DIAGRAM

