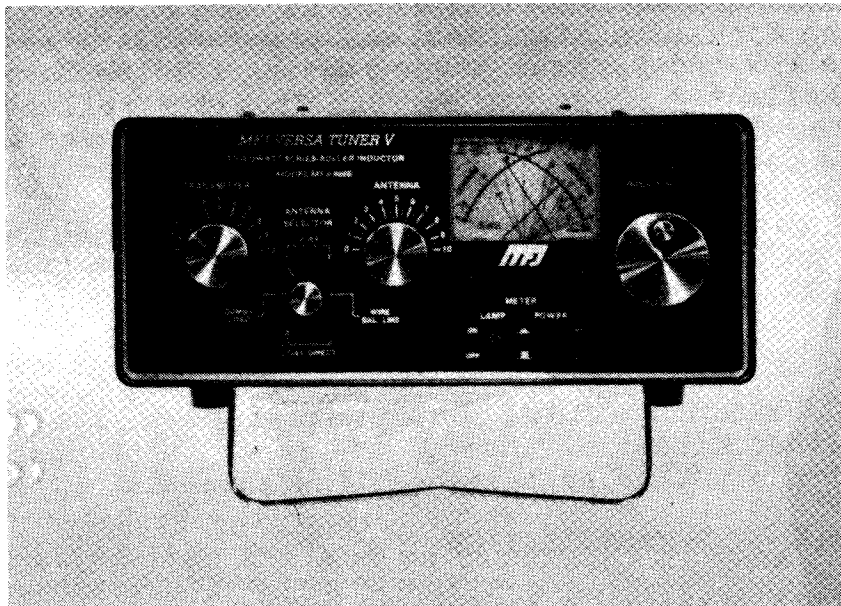




# MFJ VERSA TUNER V



MODEL MFJ-989 B

OWNER'S MANUAL

**CAUTION: Read All Instructions Before Operating Equipment.**

## MFJ ENTERPRISES, INC.

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The MFJ-989B Versa **Tuner V** is designed for use in high power amateur transmitting installations upto 3KW PEP. The tuner is designed to match most antenna systems from 1.8 to 30

MHz. This tuner has a built in 50 ohm, 300W dummy load for easily tune up of your exciter. The MFJ-989B also has a cross needle SWR/Wattmeter to allow you easy tune up and power measurement.

#### 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.

Meter lamp can be power by a 12Vdc source. Use a 2.5 mm plug with the tip of the plug connected to the positive. Meter lamp switch will activited the meter lamp.

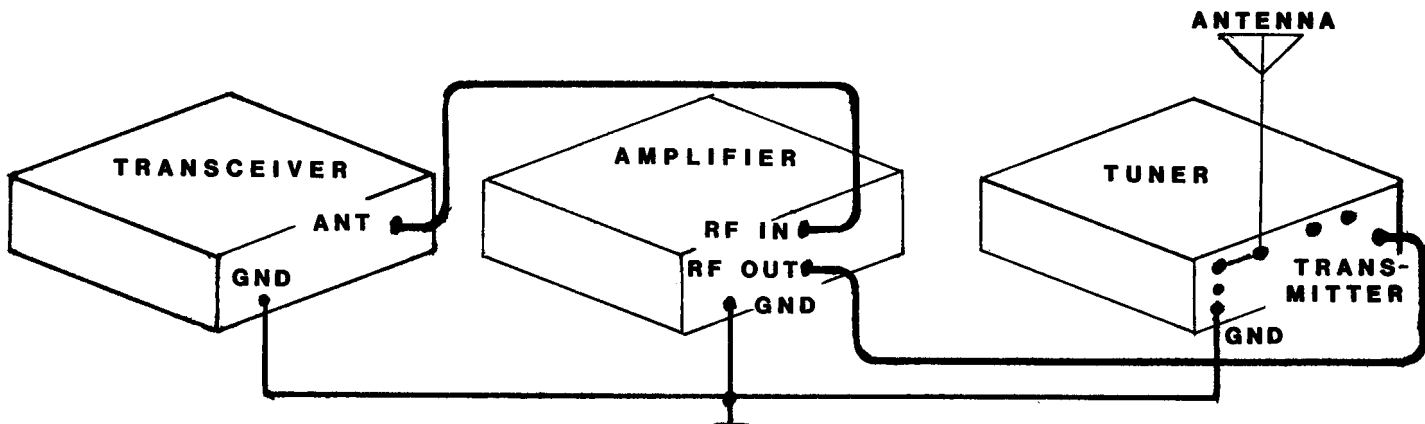
#### ANTENNA SELECTOR

The ANTENNA SELECTOR allows you to select 2 coax fed antennas either direct or through the tuner, a 50 ohm dummy load, and a wire or balanced line antenna.

#### INSTALLATION

1. Locate the tuner in a convenient location at the operating position. NOTE: LOCATE THE TUNER SO THE REAR IS NOT ACCESSABLE DURING OPERATION. If random wire or balanced line operation is used the ceramic feed through insulators will have high RF voltages which can cause serious RF burns if touched when transmitting.
2. Install the tuner between the transmitter and the antenna as shown in the diagram below. Use coax cable such as RG-8/U to connect the transmitter to the connector marked TRANSMITTER on the rear of the tuner.
3. Connect the antenna(s) to the tuner as follows:
  - A. coax cable feed lines to the coax connectors 1 and 2 coax lines may be fed direct or through the tuner as selected by the ANTENNA SELECTOR switch.
  - B. Wire antenna is connected to the WIRE terminal.
  - C. Balanced line is connected to the BALANCED LINE terminal and the top balanced line terminal as indicated by the dotted Line.

- A ground post is provided for ground connection.



## CONNECTION DIAGRAM

### OPERATION

The roller inductor has a maximum inductance at 99 and a minimum at 00 on the reference counter. The capacitors have a maximum at 10 and a minimum at 0.

- Tune the exciter up into the dummy load. (most solid state transmitters are pretuned to 50 ohms and do not require tuning up into the dummy load.)
- Select the desired antenna with the ANTENNA SELECTOR.
- Select the desired antenna with the ANTENNA and TRANSMITTER controls to about 4.
- Starting from minimum on the INDUCTOR, tune for maximum noise and signals. If the maximum noise and signal setting is not found set the inductor to the setting in TABLE 1 and proceed to the next step.
- With the linear amplifier OFF or in stand-by set the meter power switch to Lo range, transmit a low power signal (10 to 50 watts).
- Adjust the ANTENNA and TRANSMITTER 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.
- After minimum SWR is achieved the amplifier may be turned on and tuned up according to the manufacturer's instruction.
- For quick retuning of the tuner, record the INDUCTOR and CAPACITOR settings.

### OPERATING NOTES

- The tuner is designed to have as large a tuning range as possible. But there are limits to the tuning range of the

capacitors and inductor. This means that some antennas may require more or less inductance or capacitance than the controls have. In these cases the SWR may not be reduced to 1:1. If the SWR is higher than the limits on your rig, try changing the length of the antenna to bring the impedance to within the tuning range of the tuner.

2. In tuning the tuner use the minimum inductance required to obtain a minimum SWR. This will help reduce the losses in the inductor and reduce the chances of tuning the tuner to a point where the tuner absorbs the power instead of transferring it to the antenna.

3. If the INDUCTOR counter slips out of calibration turn the INDUCTOR fully clockwise. Then, with a small screw driver or pencil push the reset lever through the hole beside the counter and set the counter to "000".

Table 1  
Initial Tune-up Inductor Settings

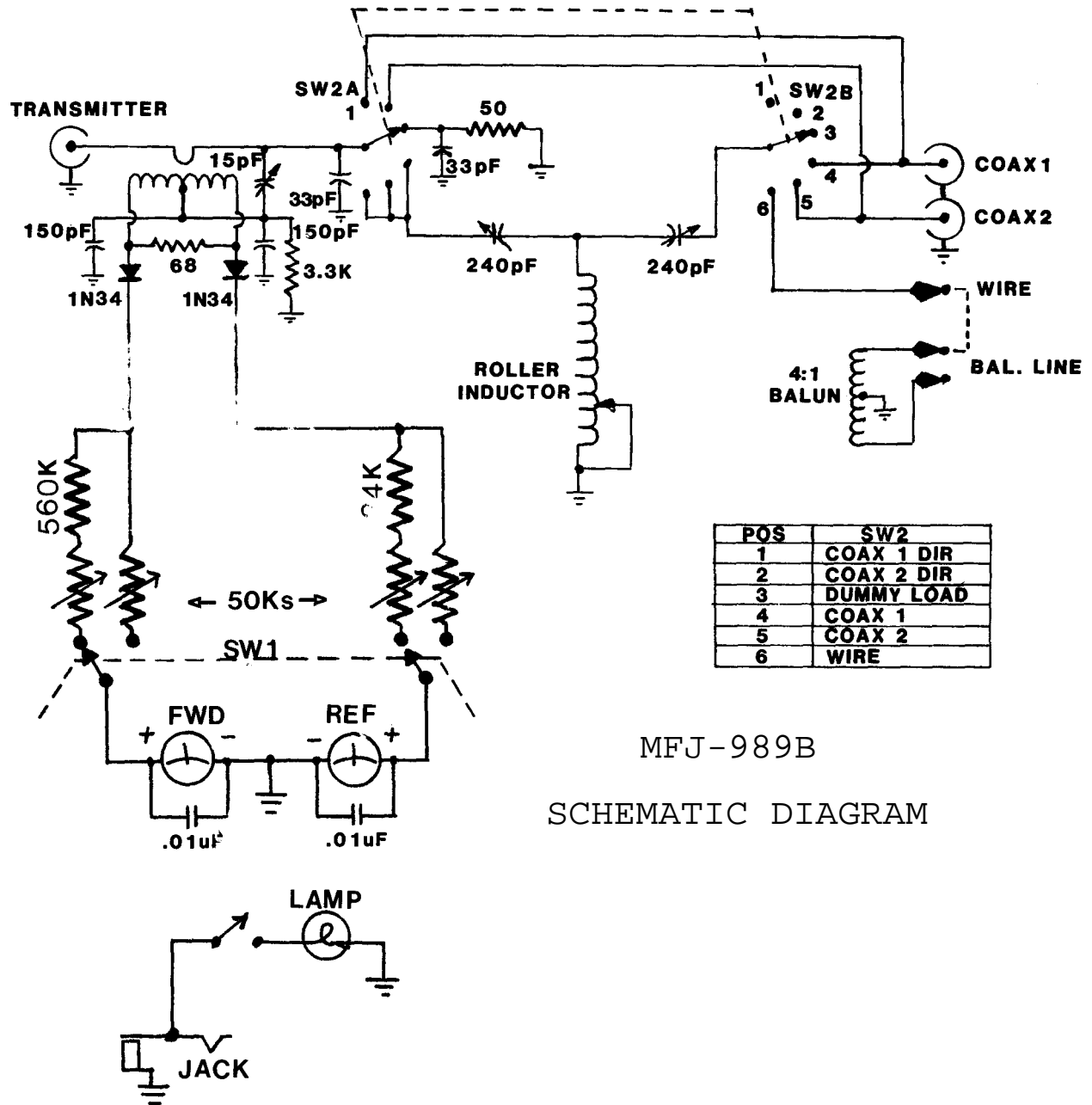
BAND	INDUCTOR
160 M	99
80 M	48
40 M	18
20 M	8
15 M	4
10 M	2

TABLE 1: Initial Tune-up Inductor Settings

NOTES: These settings are approximate. The exact setting will depend on the particular antenna system.

#### WARNING

1. Never operate the tuner with the top removed. The voltages inside are very dangerous during operation.
2. Never rotate the ANTENNA SELECTOR switch while transmitting, 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 up.
6. Do not key transmitter into high SWR for a long period of time.



POS	SW2
1	COAX 1 DIR
2	COAX 2 DIR
3	DUMMY LOAD
4	COAX 1
5	COAX 2
6	WIRE

MFJ-989B

SCHEMATIC DIAGRAM



## FULL 12 MONTHS WARRANTY

MFJ Enterprises, Inc. warrants to the original owner of this product, if manufactured by MFJ Enterprises, Inc. and purchased from an authorized dealer or directly from MFJ Enterprises, [inc.to](#) be free of defects in material and workmanship for a period of 12 months from date of purchase provided the following terms of this warranty are satisfied.

1. The purchaser must retain the dated proof-of-purchase (bill of sale, canceled check, credit card or money order receipt, etc.) describing the product to establish the validity of warranty claim and must submit the original or a machine-reproduction of such proof-of-purchase to MFJ Enterprises, [inc.at](#) the time of warranty service. MFJ Enterprises, Inc. shall have the discretion to deny warranty without dated proof-of-purchase. Any evidence of alteration, erasure, or forgery of proof-of-purchase shall be cause to void any and all warranty terms immediately.
2. MFJ Enterprises, Inc. agrees to repair or replace at MFJ's option without charge to the original owner any defective product provided the product is returned postage prepaid to MFJ Enterprises, Inc. with a personal check, cashier's check or money order for \$4.00 covering postage and handling.
3. MFJ Enterprises, Inc. will supply replacement parts free of charge for any MFJ product under warranty upon request. A dated proof-of-purchase and a \$4.00 personal check, cashier's check or money order must be provided to cover postage and handling.
4. This warranty is NOT void for owners who attempt to repair defective units. Technical consultation is available by calling (601) 323-5869.
5. This warranty does not apply to kits sold or manufactured by MFJ Enterprises, Inc.
6. Wired and tested PC board products are covered by this warranty provided only the wired and tested PC board is returned. Wired and tested PC boards installed in the owner's cabinet or connected to switches, jacks, cables, etc. sent to MFJ Enterprises, Inc. will be returned at the owner's expense unrepaired.
7. Under no circumstances is MFJ Enterprises, Inc. liable for consequential damages to person or property by the use of any MFJ product.
8. Out-of-Warranty Service: MFJ Enterprises, Inc. will repair any out-of-warranty product provided the unit is delivered prepaid. All charges will be shipped COD to the owner.
9. This warranty is given in lieu of any other warranty express or implied.
10. MFJ Enterprises, Inc. reserves the right to make changes or improvement in design or manufacture without incurring any obligation to install such changes upon any of the products previously manufactured.
11. AN MFJ products to be serviced in-warranty or out-of-warranty should be addressed to MFJ Enterprises, Inc., 921A Louisville Road, Starkville, Mississippi 39759, USA and must be accompanied by a letter describing the problem in detail along with a copy of your dated proof-of-purchase.
12. This warranty gives you specific rights, and you may also have other rights which vary from state to state.