

MFJ

MFJ Travel Tuner

Model MFJ-902B



INSTRUCTION MANUAL

CAUTION: Read All Instructions Before Operating Equipment

MFJ ENTERPRISES, INC.

300 Industrial Park Road
Starkville, MS 39759 USA
Tel: 662-323-5869 Fax: 662-323-6551

DISCLAIMER

Information in this manual is designed for **user purposes only** and is *not* intended to supersede information contained in customer regulations, technical manuals/documents, positional handbooks, or other official publications. The copy of this manual provided to the customer will *not* be updated to reflect current data.

Customers using this manual should report errors or omissions, recommendations for improvements, or other comments to MFJ Enterprises, 300 Industrial Park Road, Starkville, MS 39759. Phone: (662) 323-5869; FAX: (662) 323-6551. Business hours: M-F 8-4:30 CST.

INTRODUCTION

The MFJ-902B Travel Antenna Tuner was specially compact-built for Icom IC-706MKIIG, Yaesu FT-100, Kenwood TS-50, and other rigs with a built-in SWR Meter.

You can operate 80 through 6 Meters -- anywhere with any transceiver. It's great for mobile, base, backpack, etc. The MFJ-902B handles 150 watts RF output and has a tuner bypass switch.

INSTALLATION

The MFJ-902B should be installed between the transmitter and antenna.

1. Locate the tuner in a convenient location at the operating position.
2. Use a 50 ohm coaxial cable to connect the transmitter or transceiver to the SO-239 labeled TRANSMITTER on the back of the tuner.
3. Connect an antenna feed to the appropriate tuner output:
 - a.) COAX-FEED to the SO-239 connector labeled ANTENNA.
 - b.) RANDOM WIRE

MFJ-902: A random wire may be used by connecting to the center of the SO-239 connector with the supplied plug.

The MFJ-902B *must be* grounded when using a random wire.

4. Connect your tuner and transmitter to a good earth ground.

OPERATION

This tuner has a BYPASS/TUNE switch located on the back of the unit. Simply place the switch toward the BYPASS labeling to completely bypass the tuning circuit. Change the switch toward the TUNE labeling to place the tuning circuit between the transmitter/transceiver and the antenna.

This tuner also has a 6M/HF switch located on the front of the unit that changes the tuner into a "L network" for 6 meters. This will allow the tuner to match loads in the 50 Mhz range. This setting can also be used to match some antennas on the higher HF bands allowing the tuner to be slightly more efficient.

In this tuner the TRANSMITTER and ANTENNA matching controls have maximum capacitance at position 0 (fully meshed), and minimum capacitance at

position 10 (fully open). Be sure to use the highest possible capacitance for each band. This will provide the smoothest tuning, highest efficiency, and greatest power handling capability.

The INDUCTANCE switch has maximum inductance in positions "A" and "B", with minimum inductance in position "L". The use of two maximum inductance settings improves the voltage rating and helps prevent carbon arcing. Less inductance is needed as the frequency is increased. If too little inductance is used, the tuner may not match the load properly. If too much inductance is used, the tuner will be "touchy", power handling will be compromised (capacitors could arc, etc.) and the bandwidth will not be as wide.

Special Note: Always use the minimum amount of inductance as possible. Minimum inductance gives the best efficiency, maximum power handling, and widest bandwidth.

The MFJ-902B covers 80 through 6 meters. **Do not operate on 160 meters.**

Tuning Procedure:

1. Position the TRANSMITTER control to 5 on the corresponding scale.
2. Position the ANTENNA control to 0 on the corresponding scale.
3. Place the BYPASS/TUNE switch in the TUNE position.
4. Place the 6M/HF switch in the 6M or HF position for 6 Meters or HF operation.
5. Apply just enough power to obtain noticeable deflection on the reflected power meter or SWR meter.
6. Adjust the INDUCTOR control for lowest deflection on the reflected power.
7. Carefully adjust the TRANSMITTER control for the lowest reflected power, then increase the ANTENNA control slightly and adjust the TRANSMITTER control for the lowest reflected power. Again, increase the ANTENNA control slightly and adjust the TRANSMITTER control for lowest reflected power. Repeat this process for lowest reflected power.

Note: These controls interact. Go back and forth between these adjustments as many times as required until the lowest reflected power (best SWR) is obtained.

8. After the lowest reflected power (or SWR) is obtained in step 6, use the INDUCTOR switch to reduce the inductance one switch position (L is the lowest inductance setting). Adjust the TRANSMITTER and ANTENNA controls for the lowest SWR. Continue this process until the lowest SWR cannot be repeated, then use the INDUCTOR switch to increase the inductance by one switch position (A is the highest inductance setting). Tune for lowest SWR.

WARNING: Never transmit while changing the INDUCTOR switch.

Note: Always use as little inductance as possible. Step 7 minimizes the inductance and maximizes the capacitance.

9. After a low SWR is obtained, the transmitter power may be increased to any value up to 150 watts.

WARNING: Do not exceed 150 watts output. You will damage the tuner!

TECHNICAL ASSISTANCE

If you have any problem with this unit first check the appropriate section of this manual. If the manual does not reference your problem or your problem is not solved by reading the manual you may call *MFJ Technical Service* at **662-323-0549** or the *MFJ Factory* at **662-323-5869**. You will be best helped if you have your unit, manual and all information on your station handy so you can answer any questions the technicians may ask.

You can also send questions by mail to MFJ Enterprises, Inc., 300 Industrial Park Road, Starkville, MS 39759; by Facsimile to 662-323-6551; or by email to techinfo@mfjenterprises.com. Send a complete description of your problem, an explanation of exactly how you are using your unit, and a complete description of your station.

NOTES:

FULL 12 MONTH 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 from 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 the warranty claim and submit the original of machine reproduction or 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 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 under warrantee provided the product is returned postage prepaid to MFJ Enterprises, Inc. with a personal check, cashiers check, or money order for **\$7.00** 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 **\$5.00** personal check, cashiers 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 by 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 product is returned**. Wired and tested PC boards installed in the owner's cabinet or connected to switches, jacks, or 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 products.
8. **Out-of-Warranty Service:** MFJ Enterprises, Inc. will repair any out-of-warranty product provided the unit is shipped prepaid. All repaired units will be shipped COD to the owner. Repair charges will be added to the COD fee unless other arrangements are made.
9. This warranty is given in lieu of any other warranty expressed or implied.
10. MFJ Enterprises, Inc. reserves the right to make changes or improvements in design or manufacture without incurring any obligation to install such changes upon any of the products previously manufactured.
11. All MFJ products to be serviced in-warranty or out-of-warranty should be addressed to **MFJ Enterprises, Inc., 300 Industrial Park 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.



MFJ ENTERPRISES, INC.
300 Industrial Park Road
Starkville, MS 39759

MFJ-902B Manual
Version 1B
Printed In U.S.A.