

MFJ-842 Mobile HF/VHF SWR/Wattmeter Instruction Manual

Introduction

The MFJ-842 Mobile HF/VHF SWR/Wattmeter measures forward and reflected power and SWR simultaneously and is designed to operate on 140-525 MHz. The MFJ-842 has two power scales, which are selected with a push button switch. The high power scale measures 0-150 Watts forward power and 0-50 Watts reflected power. The low power scale measures 0-15 Watts forward power and 0-10 Watts reflected power. The MFJ-842 utilizes an illuminated Cross-Needle meter to read the SWR from 1:1 to ∞ . This compact SWR/Wattmeter is rugged enough to take the abuse of brutal mobile and portable operation.

Specifications

Frequency Range:	140-525 MHz
Input Impedance:	50 Ohms
Power Range:	15 and 150 Watts Forward Power 5 and 50 Watts Reflected Power
Power Accuracy:	10% at full scale
Minimum Input Power:	1 Watts
Connectors:	UHF (M type)
Dimensions:	3.35"W x 3.43"H x 3.74"D
Weight:	0.64 lb
Lamp Input Power:	12 VDC

Installation

1. Connect your transmitter to the connector labeled **TX**, on the back of the unit and connect your antenna to the connector labeled **ANT**, on the back of the unit. It is important that you use good quality coax and properly installed connectors.
2. An internal lamp backlights the meter scale. The lamp circuit requires 12 VDC supply such as the MFJ-1312B. Use a 2.1 mm coaxial plug with the center conductor positive and the sleeve ground.
3. To measure the power output capability of a transmitter/amplifier you should connect a quality 50-ohm dummy load to the **ANT**, connector of the MFJ-842.

Operation

1. The meter's full-scale forward and reflected power range is controlled by the **POWER RANGE** button. When the button is pushed **in**, the forward power scale is on **150 Watts** and the reflected power scale is on **50 Watts**. When the button is pushed **out**, the forward power scale is on **15 Watts** and the reflected power scale is on **5 Watts**. If your transmitter/amplifier runs more than 30 Watts of output power, push the button **in** for 150 Watts. If your transmitter runs less than 15 Watts of output power, push the button **out** for 15 Watts.
2. Forward power is displayed on the left-hand FORWARD meter scale. This scale is calibrated from 0 to 150 Watts and is read directly in the **150W (in)** position. Each picket (scale mark) represents 10 Watts below 60 Watts, 20 Watts between 60 and 150 Watts. In the **15W (out)** position, the forward power scale must be divided by 10. Each picket represents 1 Watt below 6 Watts, 2 Watts from 6 to 30 Watts.
3. Reflected power is displayed on the right-hand REFLECTED meter scale. Reflected power is 100 Watts full scale when the **150W (in)** power scale is selected, and 10 Watts full scale when the **15W (out)** power scale is selected.
4. The most accurate power readings occur in the upper half of the meter scales. When trying to measure power with a less than perfect match, the reflected power should be subtracted from the forward power reading in order to find the true power.
5. The SWR is read directly from nine red SWR curves that range from 1:1 to ∞ . SWR is measured by observing the point where the forward and reflected power needles cross. The SWR is indicated by the red curve closest to the needle crossing point.

Calibration

The MFJ-842 has been calibrated at the factory. If it should ever need to be recalibrated, then follow this procedure:

Equipment Needed

1. 50-ohm dummy load that is capable of handling full transmitter output power and has better than a 1.15:1 SWR.
2. Power meter of known accuracy. The calibration will only be as good as the standard reference meter.
3. 50-ohm cables capable of handling the power. RG-58/u is recommended. DO NOT USE RG-59 or RG-11.

Meter Calibration

1. In order to calibrate the meter, you must remove the rear panel of the meter by removing the screw located in between the **ANT**, and **TX**, connectors. The trim pots used to set the needles are located on the bottom. Refer to *Figure 2* for the Test Setup and refer to the Trim Pot Location in *Figure 3* for trim pot location.
2. Connect the Test Setup equipment as shown in *Figure 2*. Use a 50-ohm dummy load for the antenna. Set the Transmitter to the 14 MHz in the 20-meter band.
3. With the **POWER RANGE** button pushed **in** for the 150 Watt scale, transmit 100 Watts as indicated on the reference meter. Adjust the HI FWD trim pot to set the forward power scale to 100 Watts.
4. With the **POWER RANGE** button pushed **out** for the 15 Watt scale, Transmit 10 Watts as indicated on the reference meter. Adjust the LO FWD trim pot to set the forward power scale to 100 Watts.
5. To set the reflected power, interchange the TRANSMITTER and ANTENNA coax cables so that the transmitter is connected to the ANTENNA connector and the dummy load is connected to the TRANSMITTER connector.
6. With the **POWER RANGE** button pushed **in** for the 100 Watt reflected scale, Transmit 100 Watts as indicated on the reference meter. Adjust the HI REF trim pot to set the reflected power scale to 100 Watts.

Meter Calibration (cont.)

7. With the **POWER RANGE** button pushed **out** for the 10 Watt reflected scale, Transmit 10 Watts as indicated on the reference meter. Adjust the LO REF trim pot to set the reflected power scale to 10 Watts.
8. SWR requires no calibration. Read SWR directly from the crossing point of the forward and reflected needles.

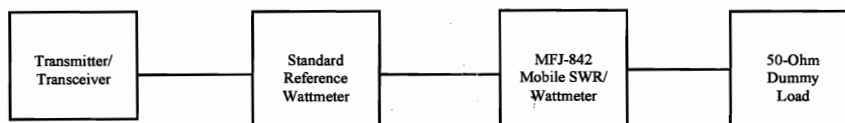


Figure 2: Test Setup

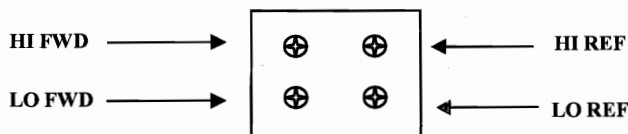


Figure 3: Trim Pot Location (Bottom View of MFJ-842)

12 MONTH LIMITED 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 or 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 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 warranty, 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 (662) 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 unrepared.
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.