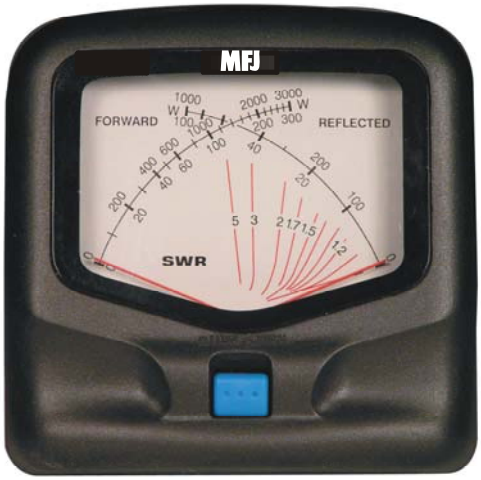
MFJ

Mobile VHF/UHF SWR/Wattmeter

Model MFJ-842



INSTRUCTION MANUAL

CAUTION: Read All Instructions Before Operating Equipment

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VERSION 1A

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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.

MFJ-842 Mobile HF/VHF SWR/Wattmeter

Introduction

The MFJ-842 Mobile VHF/UHF 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 0-5 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:	0.62 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 15 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 5 Watts below 30 Watts, 10 Watts between 30 and 150 Watts. In the **15W (out)** position, the forward power scale must be divided by 10. Each picket represents 0.5 Watt below 3 Watts, 1 Watts from 3 to 15 Watts.

3. Reflected power is displayed on the right-hand REFLECTED meter scale. Reflected power is 50 Watts full scale when the **150W (in)** power scale is selected, and 5 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. NOTE: In the case of 220 MHz band measurement, both forward and reflected power must be converted with the following formula:
   DIRECT READOUT X 0.7 = ACTUAL 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. Transmitter capable of supplying enough power to obtain ½ to full-scale reading at 140 or 525 MHz.

2. 50-ohm dummy load that is capable of handling full transmitter output power and has better than a 1.15:1 SWR.

3. Power meter of know accuracy. The calibration will only be as good as the standard reference meter.

4. 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 a mid-band frequency.

3. With the **POWER RANGE** button pushed **in** for the 150 Watt scale, transmit 150 Watts as indicated on the reference meter. Adjust the HI FWD trim pot to set the forward power scale to 150 Watts.

4. With the **POWER RANGE** button pushed **out** for the 15 Watt scale, Transmit 15 Watts as indicated on the reference meter. Adjust the LO FWD trim pot to set the forward power scale to 15 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 50 Watt reflected scale, Transmit 50 Watts as indicated on the reference meter. Adjust the HI REF trim pot to set the reflected power scale to 50 Watts.

Meter Calibration (cont.)

7. With the **POWER RANGE** button pushed **out** for the 5 Watt reflected scale, Transmit 5 Watts as indicated on the reference meter. Adjust the LO REF trim pot to set the reflected power scale to 5 Watts.

8. SWR requires no calibration. Read SWR directly from the crossing point of the forward and reflected needles.

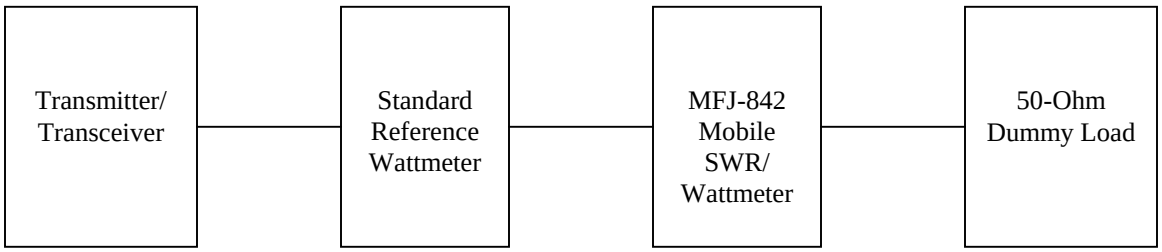

***Figure 2**: Test Setup*

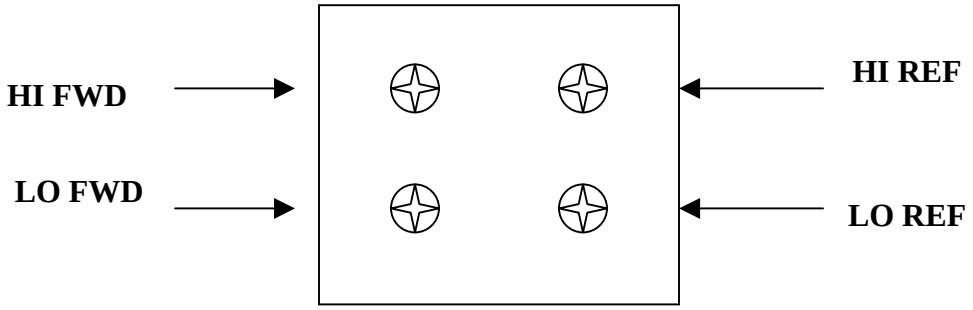

***Figure 3**: Trim Pot Location (Bottom View of MFJ-842)*

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 reading the manual does not solve your problem, 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 (FAX) 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.

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