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MFJ MFJ-929

MFJ-929 IntelliTuner Automatic Antenna Tuner Instruction Manual

Model: MFJ-929

1. INTRODUCTION

The MFJ-929 IntelliTuner is an automatic antenna tuner designed to efficiently match a wide range of antennas to your transceiver. It supports both coax-fed and random wire antennas across the 1.8 to 30 MHz frequency spectrum, handling up to 200 Watts SSB/CW.

This tuner offers a broad matching range of 6 to 1600 Ohms, accommodating SWR values up to 32:1. It utilizes 256 discrete values for both capacitance and inductance, providing 131,072 potential matching solutions for optimal performance.

Key features include:

- **Automatic Tuning:** Rapidly finds optimal matching solutions.
- **LCD Display:** A two-line, 16-character backlit LCD shows SWR, peak or average forward/reflected power, frequency, selected antenna (1 or 2), and L/C tuner values.
- **Power Meter:** Auto-ranging 20/200 Watt bargraph with 60 segments for forward/reflected power and 36 segments for SWR.
- **Audio Feedback:** Includes an audio SWR meter.
- **Frequency Counter:** Built-in 50 MHz frequency counter.
- **Radio Interface:** Allows connection to compatible transceivers via a simple wire cable.
- **StickyTune Mode:** Enables one-hand tuning by locking the TUNE button, allowing tuning by transmitting.
- **Robust Components:** Features 10 Amp/1000V relays and RF duty silver mica capacitors.

2. SETUP AND CONNECTIONS

Before operating the MFJ-929 IntelliTuner, ensure all connections are secure and correct. Refer to the diagram below for connection points.



Figure 1: MFJ-929 IntelliTuner Front and Rear Panels. The top unit features a front panel with an LCD showing frequency, SWR, forward, and reflected power. Control buttons include ANT, C-UP, L-UP, TUNE, MODE, C-DN, L-DN, and POWER. The bottom unit shows the rear panel connections: 12VDC power input, Radio Interface port, Transmitter output, Antenna 2 input, Antenna 1 input, Ground terminal, and a Wire antenna terminal with a warning not to connect Wire and Antenna 2 simultaneously.

2.1 Power Connection

- Connect a **12VDC, 800mA** power supply to the "POWER 12VDC 800mA" jack on the rear panel. Ensure correct polarity.

2.2 Antenna Connections

- **Transmitter:** Connect your transceiver's antenna output to the "TRANSMITTER" SO-239 connector.
- **Antenna 1:** For your primary coax-fed antenna, connect it to the "ANTENNA 1" SO-239 connector.
- **Antenna 2:** For a secondary coax-fed antenna, connect it to the "ANTENNA 2" SO-239 connector.
- **Wire:** For a random wire antenna, connect it to the "WIRE" binding post.
- **Important Warning:** **Do not connect both the "WIRE" terminal and the "ANTENNA 2" SO-239 connector simultaneously.**

2.3 Ground Connection

- Connect a good RF ground to the "GROUND" terminal for optimal performance and safety.

2.4 Radio Interface

- If your transceiver supports it, connect a compatible interface cable to the "RADIO INTERFACE" port for automatic band data or tuning initiation.

3. OPERATING INSTRUCTIONS

3.1 Power On/Off

- Press the **POWER** button on the front panel to turn the unit on or off.

3.2 Antenna Selection

- Use the **ANT** button to cycle through Antenna 1, Antenna 2, or Wire antenna selections. The selected antenna will be indicated on the LCD.

3.3 Automatic Tuning

1. Select the desired antenna using the **ANT** button.
2. Set your transceiver to a low power output (typically 5-10 Watts) in CW or FM mode.
3. Press the **TUNE** button. The tuner will automatically search for the best match.
4. Alternatively, in **StickyTune mode**, press and hold the **TUNE** button until it locks. Then, transmit a continuous carrier from your transceiver. The tuner will automatically tune. Release the PTT when tuning is complete.
5. The LCD will display the SWR, forward power, and reflected power during and after tuning.

3.4 Manual Tuning (Advanced)

For fine-tuning or specific matching scenarios, the IntelliTuner allows manual adjustment of capacitance and inductance values.

- Use the **C-UP** and **C-DN** buttons to adjust capacitance.
- Use the **L-UP** and **L-DN** buttons to adjust inductance.
- Observe the SWR reading on the LCD to achieve the lowest possible SWR.

3.5 Display Modes

- Press the **MODE** button to cycle through different display options on the LCD, such as SWR, power (peak/average), frequency, and L/C values.

4. MAINTENANCE

The MFJ-929 IntelliTuner is designed for reliable operation with minimal maintenance. To ensure longevity and optimal performance:

- Keep the unit clean and free from dust. Use a soft, dry cloth for cleaning.
- Avoid exposing the unit to moisture, extreme temperatures, or direct sunlight.
- Ensure all connections are tight and free from corrosion.
- Do not attempt to open the casing or perform internal repairs, as this may void any warranty and could expose you to hazardous voltages.

5. TROUBLESHOOTING

If you encounter issues with your MFJ-929 IntelliTuner, consider the following basic troubleshooting steps:

- **No Power:** Check the 12VDC power supply connection and ensure it is providing the correct voltage and current (800mA). Verify the power supply is functional.

- **Tuner Not Tuning:**

- Ensure your transceiver is transmitting a continuous carrier at low power.
- Verify all antenna and transmitter connections are secure.
- Check that the correct antenna (Antenna 1, Antenna 2, or Wire) is selected on the tuner.
- Confirm that the "WIRE" and "ANTENNA 2" terminals are not connected simultaneously.

- **High SWR After Tuning:**

- The antenna system may be outside the tuner's matching range (6-1600 Ohms).
- Inspect the antenna and feedline for damage or faults.
- Ensure a good RF ground connection.

- **Display Issues:** If the LCD is blank or unreadable, check power connections. If the issue persists, contact support.

For persistent problems, refer to the manufacturer's official support resources or contact their customer service.

6. SPECIFICATIONS

Feature	Specification
Model Number	MFJ-929
Frequency Range	1.8 - 30 MHz
Power Rating	200 Watts SSB/CW
Antenna Matching Range	6 - 1600 Ohms (SWR up to 32:1)
Matching Solutions	131,072 (256 L/C values each)
Display	Two-line, 16-character backlit LCD
Power Input	12VDC, 800mA
Product Dimensions (H x W x D)	2.75 x 6.5 x 7.5 inches
Item Weight	2.4 pounds

7. WARRANTY AND SUPPORT

Warranty information for the MFJ-929 IntelliTuner is typically provided with the product at the time of purchase or can be obtained directly from MFJ Enterprises, Inc. Please retain your proof of purchase for warranty claims.

For technical support, service, or further inquiries, please contact MFJ Enterprises, Inc. directly. Contact details can usually be found on their official website or on the product packaging.