

MFJ-269C Test Procedure

Through Hole Parts Notes

1. Remove all shorts, solder balls or tombstoned SMT parts.
2. Remember the 150pF capacitor on the back of the board. The capacitor lead to the left should be short, about 1/16 to 1/8 inch long after soldering to the pad. The other side after soldering is 3/4 inch long and insulated with tubing. The body of the capacitor will be in the open area of the ground plane under the relay and against the board. The insulated lead should fall near the 2 switch pads near the capacitor and may need to be moved around a little if there are oscillator problems.
3. L13 and L6 make sure the coils are against the board with minimum lead length and not standing above the board.
4. SW3 turn shaft CCW to stop and set the stop pin to 4.
5. Make Sure L9 is vertical with no tilt to it. There is no clearance between L9 and the mounting post or the switch. The flat side of the post will have to align with L9.
6. Install a short piece of RG-78B to connect the HF board and the VHF/UHF board.

Bridge Calibration using Dummy Loads

1. Go to TEST MODE by turning on the unit and alternating pressing GATE and MODE several times quickly
2. Set R,S and Z but turning certain trim pots for certain loads.(see chart below). Check the values with no trimpot adjustment.

MFJ-269C			
RESISTOR	R	S	Z
12.5	999 (R53)	CCC (R73)	333 (R88)
50	0/8	17FF	800
75	334 (R89)	665 (R73)	999 (R88)
100	85	85	170
200	999 (R53)	333 (R90)	CCC (R72)
(Hexadecimal)			

Frequency Range Calibration

HF Section

The bands are indicated here as A through I, highest frequency to lowest frequency. A is with both rotary switches fully CCW. Tuning is done by setting the maximum frequency for each band then tuning to the lowest frequency for each band and making note of the frequency. The next lower band maximum frequency should be higher than the minimum.

1. Band A (turn SW1) L13
 - a. Set the maximum frequency to 232MHz range 230 to 234 is OK
 - b. check minimum is less than 154.5MHz
 - c. when tuning check to make sure the oscillator runs ok and the frequency does not jump around randomly. Also check around 165MHz to make sure the oscillator does not quit in that area.
2. Band B L6
 - a. Set the maximum frequency to 155.5MHz. Should be about 1 MHz above the minimum or Band A
 - b. Check the minimum is less than 112.5MHz
3. Band C L5
 - a. Set the maximum frequency to 113.5MHz. Should be about 1 MHz above the minimum for Band B
 - b. Check the minimum less than 66.5MHz.
4. Band D L4
 - a. Set the maximum frequency to 67.5MHz. Should be 0.5 to 1MHz above the minimum for Band C
 - b. Check the minimum less than 27.7MHz
5. Band E L3
 - a. Set the maximum frequency to 28.1MHz. Should be 0.2 to 0.5MHz above the minimum of Band D
 - b. Check the minimum less than 10.5MHz
6. Band F L2
 - a. Set the Maximum frequency to 11.0 7MHz
 - b. Check the minimum less than 4.65 MHz
7. Band G (turn SW3) L9
 - a. Set the maximum frequency to 4.7 MHz. Should be 0.2MHz above Band F minimum.
 - b. Check the minimum less than 2.07 MHz.
8. Band H L14
 - a. Set the maximum frequency to 2.10 MHz. Must be above the 160 meter band edge of 2.00MHz.
 - b. Check the minimum less than 1.00 MHz
9. Band I L12
 - a. Set the maximum frequency to 1.02 5MHz
 - b. Check the minimum around 0..520 MHz.
 - c. When the 630 meter band is allocated the tuning range can be lowered to 0.470 to cover the 472 to 479KHz band. There will be a gap around 0.950MHz.
The coils L13, L6 and L5 are tuned by spreading the turns. They should not end up being smashed against the board. L4 has a fragile core and will break if care is not taken in tuning. Turning CCW where the core comes up raises the frequency. L3, L2, L9, L14, and L12 tune CW or down into the coil to raise the frequency. L12 can go either way but best if down.

VHF/UHF Section

1. Make sure the UHF switch is pushed in.
2. Put the FREQUENCY switch to the UHF LO position.
3. Set the frequency to 440 MHz.
4. Connect the spectrum analyzer to the ANTENNA connector.
5. Set the harmonics by turning the RED trim caps, C171, 172, and 173. (details below)
 - a. Set the spectrum analyzer center frequency to 440 MHz.
 - b. Turn the RED trimcaps until the 440 MHz signal is highest and the other harmonics are 30 db below the center.
 - c. Set the spectrum analyzer to 470 MHz.
 - d. Turn the RED trimcaps until the 470 MHz signal is highest and the other harmonics are 30 db below the center. (You may need to change the switch to UHF HI for the 470 MHz)
 - e. Put the FREQUENCY switch to the UHF HI position.
 - f. Set the spectrum analyzer center frequency to 490 MHz.
 - g. Turn the RED trimcaps until the 490 MHz signal is highest and the other harmonics are 30 db below the center.

Analog Meter Calibration

1. Using a 100 Ohm load, turn R67 until the OHMS meter reads 100
2. Using the same 100 Ohm load, turn R56 until the SWR meter reads 2.
3. Check the meters using a 50 Ohm Load. OHMS meter should read 50 and the SWR meter should read 1.

Open-End Cable Test

1. Connect a 6-ft open-ended patch cable to the ANTENNA connector.
2. Set the frequency to the highest band (230 MHz). R should be 0 and X should be approximately 386.
3. As you turn the frequency down, the R and X should get closer to one another. Check to make sure this is happening.

External Frequency Counter Test

1. Go to FREQUENCY COUNTER mode by pressing MODE.
2. Connect a signal generator into the Frequency Counter Input hole labeled J2 and compare the display to the signal generator.

Battery Charger Check

1. Connect a DC voltmeter to the ON pin of the CHARGER header and check to make sure there is voltage there.
2. Install a jumper on the OFF position on the CHARGER header.