Mfj 259c service manual pdf

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On this page you get schematic, users with manual instructions, manual service, technical supplements, lead sheets and other good things. If you have some things that are not listed here you can provide this by contacts mods.dk. Note that there is a limit to the number of files you can download. And when you click the file or icon it will count as a download. If you can't find a manual please don't contact us, all the manuals we have online. HOME ©2003-2012 W8JI Revised 8/24/03 Revised May 18, 2005 R84 Named in Error R89 in Adjustment Harmonious Review Major 24, 2012 Warning! Some MFJ manuals were re-written and distance-to-fraying error measurement procedures were introduced. I think this was done sometimes around 2002, but it was later corrected. If your manual tells you to tune in to the next band or down when measuring any processing length (stem, DTF, etc.) it is absolutely correct. The correct procedure is to tune Z to the lowest Z on the master and lower X on the digital display, place the reading as 1, and then locate the very next dip up or DOWN frequency and store it at 2. You can tune either up or down from the initial slot to null, but the next tip must frequency to next up or down where Master Z is lower and X on the display as low as possible. I'm not sure if any other errors have been introduced in the manual rewriting. History: My two JB was the main MFJ259B designer, and I helped with harmful algorithms and RF and laptop parts. This information is here because it is the correct way to calibrated the MFJ-259B analyzer. This task is all data. K1BQT took a set of instructions set supplied by MFJ, originally developed by JB, and re-written it. I've reviewed, edited, and modified this job. This page is the most actual result. It's better that there is no one copy of this, and start handling it from Mars. The only reason for this request is to be to have a point of control of information, so it can be corrected or expanded as modification, error, or omitted show up. I am not aware of any other source that provides incorrect calibration procedures. It's important that the MFJ259B be calibrated by these steps, even if they sound complex. Without following the many special function steps may not work correctly, even if the unit tests well on calibration loads! Operating tips and Quirks please try it the manual! Reading impedance are smaller when near 1:1 SWR. When adjusting a normal antenna, the lowest possible SWR is always lower reaction. There might be exceptions to this, but would only occur if antennas or change resistance (real parts) faster than reactions. I doubt this will happen. If you see 1: 1 VSWR, the impedance must be 50 j0. Don't waste time trying to make the analyzer read the R50 X0 if SWR says 1.0:1 or some acceptable SWR number. Even a few bits of error, or a very small voltage on the connect, will affect the algorithm that determines reaction. The vault was supposed to contain an algorithm that presses the VSWR with priorities on Vs And Vz used to determine impedance. As sometimes happens, no insurance for everyone stayed on the same page. I didn't write the code, I only suggested changes to minimize errors. Reading SWR should use list R and X reading around 1:1 SWR, but I don't have a high level of confidence which guidelines have followed. Operating Defect or Failure the most common simple failures are dirty strip switches, broken antenna lantern connections to comb antennas (this is fairly new, caused by a manufacturing change in the circuit board), and impresses voltage on the antenna connecting from the antenna or charge (not just streaming station). This test RFI broadcast is an expensive bridge directly coupled into the feedline. There is no RF or dc isolation from the connectors to the bridge. This makes the bridge sensitive to dc, low ac frequency, and RF voltage on virtually any frequency from dc to light. TEST: EmissionS RFI, or even low frequency AC or DC voltage on cables will be generated error. The easiest way to check for these errors is to set the analyzer in frequency reversal mode and carefully observe the SWR master. If the SWR owner is distorted in all of the frequency count mode, the analyzer is biased out of the lantern skin isn't something. I don't suggest using a low pass or high pass. I suggest using the MFJ device specifically designed as a Bandpas filter. The MFJ device, properly used, will not seriously affect other readings such as low passes or high pass filters made from filter ripd passband and phase changes. Connector Pin Break at some point after lead free odors were used, someone was thin down track where the comb connectors were sold to the board. This was an idiotic error. Instead of just using a suitable size and rhythm to pick up the comb with appropriate training, someone changed the board. While this allows the twist to shed better, the tracks are too weak to support the mechanical stress on the comb. There were, cutting and on, attempts to use a wire jumper. That also was a really bad idea, wire to rest them. This is the chart area to change. Thinking this traces down to improving odors or using a solid thread is a serious mistake. Good original chart as engineer: Correct pin twist on good chart: Review defective comb areas. Instead of teaching people to bear themselves with correct tools, they thought this track. This breaks the connection life. Switch Saloy Another common question is a dirty band switch. This shows especially as a really skipping frequency, even at the frequency point reading goes way out of strips or stops. This is a problem with changing fat and changing manufacturing quality control. The change needs a little bit of polishing and crying in their contacts. Don't get all hyper about what the cleaner uses. WD40 is working fine. Putting the analysis on it at back, removing the switch knob, and spritz just a bit ting to normal WD40 on the shabby, enabling it to run down the bushing shift. Run the switch back and forth rapidly. Don't soak the change, but use the internal wet enough to change and soften the internal fat. Note: A room switch shows as unstable or greater frequency reading. Minor jump or drive in low digits is normal. How does this type of device work this type of analyzeser have an RF oscillate, a highly linear empowered to increase power, and an internal resist bridge to a modified Whetstone setup bridge. Since it is designed to be expensive and simple, and since the design is aging now, there is a few pitfall with this system. The bridge is dc-tangled from an internal resist bridge to the lantern port. Each leg of the bridge has a diiod detector. That's the weak point for accuracy. The bridge detectors are not selective frequency, and respond to anything from minor dc offset to microwave signals. This causes incusion if any voltages over a few millivolts appear across the antenna skin. (This is also true for analyzing competition from other manufacturers.) There are several reasons why, at times design, these units were dc coupled with broadband sensors. Hopefully one day a higher cost-design and selective sensors will be available, but for now this is all that is for amateur use in any manufacturer.' MFJ259 Series RF Power Level's range is about 10 dBm, although this varies with impedance in charge. Since the bridge relies on nulls, any external voltage will be thrown at reading. Second cut is the internal emlator to be linear and has very low harmonical content. Total harmonious power, to employ the lowest charge, must be down at least 25dB and preferably 35dB. This is true for any analytical antenna, since you do not want the analyser to measure the burden of two frequency! Because the sensors are broadband and because it is dc coupled to the antenna, any external voltage across the antenna skin causes error measurements. It is the accumulated voltage of multiple most important sources, not the strength of any individual signal. Because of that, large antennas should be tested at times when signals spread to the range of the antenna's response are at minimal strength. An RFI defined improvement is designed with a special parallel band-tuned filter, but multiple-section banners, low passes, or high pass filters cause measurement problems to prevent. Multiple section filters behave like transmission lines of random line impedance, loss, and electrical lengths as frequency varies. The best solution is to use a single-stage filter bandpas and dc isolation on large array or with long feed lines. I often use a good 1:1 transform isolation for measurement, and often find a parallel L/C filter (such as the MFJ-731 Filter) useful. Where did the impedance come from? The bridge may have been thought of as a simple voltage divide. Voltage via Vz is R2 / (50 + R2) * 255 = Voltage bits via Vs is 50/ (R2 + 50) * 255 = bit and 12.5 ohms R2 we have 12.5/50+ 12.5*255 = 51 bit Vz and 50/12.5 + 50 * 255 = 204 Bit Vs Using this, it is possible to calibrated the 259B and higher load resistance values. This can provide better high accuracy. This circuit is expanded to a bridge: Most likely Failure Other than manufacturing errors, the dido detects clearly stand out as the most common problem. They are the most easily damaged devices in the analyser. If you have a sudden problem, it's most likely a detector detector detector detector. Damage is granted almost always from accidentally applied voltage on the antenna port. Why is the diiod so sensitive? In order for the sensors to be accurate at a fraction of a percent (somewhat), diiod sensors must have very low capacity and very low voltage doorstep. That means the diiod, via necessity, must be low-power zero-bus Schottky microwave dido sensors. The same features that make them accurate and linear also cause the diome to be especially sensitive to the damage of small spikes. Always disect large antennas before connecting them to the analyzer! Never apply external voltage greater than 3 volt to the antenna port! Technical support error Measuring Stub and Fault Distance I developed distance for and function strategy length. The theory is the frequency of space between minimal prevents, when converted to half wavelen, is the distance of an open or short. This requires the open or short to be a reasonable good open or short, and not an antenna or charge. This system works well, when implemented properly. I successfully get open and cut into my trunk cables, some cables are 3000 feet long, within a few feet. For a short period of time, with the best of intentions, someone recruited various manuals. Unfortunately, they are arbitrary changing manual instructions for stub length and distance-to-fault measurements. For a period of time, as a direct result of this error, MFJ support instructs customers to ignore the older, original, and correct manuals. The new manual, now long two-printed, advisers tune for second impedance to dive on the next strips - range up or down from the first lead. This is absolutely wrong. The original manual was incorrect. Whatever your manual or verbal instructions might say, this is the proper streak and/or the distance to false tune methods: You must tune to lower X and/or minimal staff. Whatever you choose to focus on when diving, stay with this specific Store observation method that points to frequency Move the analyzer up or down to the FREquency NEXT frequency that provides minimum reading X and/or lower reading impasse. This may be on the same belt, or you might have to switch to the next strips. What is critical is you sweep up (or down), and choose the next dip frequency. When you store instantly adjacent frequency point, the correct frequency length will appear. That's supposed you set cable speed well. Note: Error Measurement of tax and cable length will occur if the harmonical null does not adjust correctly in the 259B or 269! Putting a test point at a certain voltage, such as volt 3, is not completely reliable. My Error Adjustment Bias occurs the simple linear mfj259B mfj259B. The bias adjustment was never intended to be put to a fixed voltage at a test point. Some instructions tell users to set bias to enrich, which minimizes production flaws, in a certain testing to implify voltage points. This method can be unreliable, and can cause streaks with DTF (the fault distance) error. They should be appropriate adjustment in viewing deformations, the best indicators of harmonious ones. This is accomplished by putting the analysis at mid-HF, generally around 15 MHz. The analysis is terminated at a low anticipation, which puts the highest burden on the RF amplifier. A morph analysis is pumped across lower-than-normal load resistance. Bias adjusts for minimal harmonious content, consistent with second harmonic being at least 25 to 30 dB below the fundamental. This ensures maximum accuracy and narrow load strips. If you use a receiver for adjustment, make sure that the receiver is tuned to the second harmonious MFJ259B, and that the receiver was not too loaded by the fundamental 10-15 MHz MFJ259B Schematic How this unit works this is a rough plan of how this unit works: the MFJ-259B, and other MFJ antenna analysis, compares three high voltages of a 50-ohm bridge circuit. They are: Vz = Voltage across the burden. This is called Z in the display alignment display menu, because it is across impedance of charges. Vr = Voltage indicating bridge balance. This voltage is called R in the alignment display menu, for SWR Vs = Voltage across a set of 50-ohm resistance between the RF source and the payload. This voltage is called S in alignment display menu, for the entire voltage drop voltage range to convert to an eight-bit A-D converter in a 256-bit numeric output and a test-display range of 0-255 bits. Not knowing the ratio of these voltages, as compared to the RFC source voltage, many different load parameters can be calculated. An antenna analyser could calculate everything (except reaction signs) from Measuring Only Vs. Vz, but of certain impedance any small errors in either Vs Vz becomes critical. This is especially true when voltage is numerical in a 256-bit format (~0.4% step). In certain impedance, an almost imagable voltage change will cause a sudden jump in the waterproof parameters measured. When a load is reactive, the theoretical total of Vs and Vz exceeds 255 bits. Consequence, if the total Vz 259 and Vs exceed 255, the display indicates reaction. Although any calibration skin can affect readings, significant reactive errors in extremes prevent extremes often occur from enhancing environments in low-bit adjustment. Low-bit adjustment offense compensate linear dyode at low voltage. To reduce display prevent jumps, SWR is pressing in the calculation of reaction and resistance to low SWR values. (A SWR bridge is more accurate when the load is closer to 50 ohms, which is a main measurement area where fingerprint measurements of Vz and Vs become critical.) By factoring in a direct SWR measurement of an internal bridge, the analyzer can check and correct any small level errors in Vs or Vz. This reduces the prevented jump that would occur with a one-bit jump of voltage. That's also why bits must be calibrated for precision accuracy accuracy. A one-bit error can cause a resistive payload to appear reactive (total of Vs and Vz must still be below 255 per charge to be considered resistance). Calibrating MFJ-259B Antenna Analyzer this calibration procedure is the correct procedure for the later MFJ-259B. Take any other information with a single tablet. Since MFJ-259B firmware has several versions under the same model number, you can get some final performance or invalid function verification steps. The following steps will involve parameters that are not displayed on the display. Before you go, make sure you've printed a copy of the chart's layout showing adjustment points, have read this whole thing, and have appropriate loads. This unit adjustment has tracking and getting adjustment for Vz, Vs, and Vr. System is found at high voltage sensors or large bit, per R53 (extreme SWR), R72 (Vz High Voltage Load), and R73 (Vs Impedance Charges, High-Vs Series bits). Linearity is set to low voltage, per R90 (low load impedance), R88 (high load enmpedances), and R89 (low VSWR readings). Simultaneously, the low-bit and high-bit adjustment linear diode, making voltage production systems detects almost tracking current RF voltage displayed via bridge resistance. Control Detector Primary Load Primary Load Calibration Function determines R73 V bits set of actual load low enmpedances, sensors obtained, high S bits R and X low load Z charge R90 Vz bit voltage via load impedance charge, linear sensors, low Z bits R and X Low Z load R72 Vz high voltage via impedance high load high load, detector find, large bit Z R and X High Z load R88 V small load range current high load thread, linear sensors, low S bits R and X high Z load R53 VR high SWR high reading SWR high reading, sensors taken, large SWR bit high SWR reading R VR low SWR bits low SWR reading and low reaction , SWR detects the low linear SWR reading this unit also has master calibration adjustment. The analog owners suffer from some scale-linear issues, so they'll be a bit less accurate than the digital display of a perfectly calibrated unit. Adjustments are mastered, R56 (SWR) and R67 (Impedance), only affect analog master readings. These master adjustments do not affect the digital display, but the digital sensors adjustment will affect analog master readings. Current quiescent (bias) in the RF amplifier section is adjustment. This change directly affects the output of harmonical content signals. The harmonical worst and voltage equipment is low, with low staff burden. Be sure to check the harmonic as below description, and a 1/4 wl open-stem circuit!! Expensive harmonic cases cause serious errors in measurements of frequency-selective burdens, even when clown-load SWR tests appear. The most sensitive loads of harmonical-induced errors include, but are not limited to, antenna tank measurements, tank circuit antennas, reasonable short circuit antennas, and the distance to measure length and short sun. If you notice something funny goes on with a stub measurement, it can be a fault of correct bias. Tool alignment and equipment: #2 and #1 Phillips-top digital meter visrewdrivers or accurate analog owners for checking voltage equipment for small set of non-metallic alignment up for nails, and viewing the small jeler to control well filtered equipment for stable power, adjustment of 12-volts, or as specified general receiver and master level, or a spectrum analysis for stub test and adjustment, an ~10 MHz 1/4wl open-stub. 15' Of solid quality - dielectric RG-8, and a UHF connected at end, open at the other end, is working. 2.2-ohm 1/4 or 1/2 Watt Film Resist Accurate Load Set include: A.Short B.12.5-W Load C.50-W Load D.75-W Load E.100-W Load F.200-W Charge Type-N or BNC loads can be made with mount resistance surfaces on a BNC male chassis connected mount, and the beonet is removed. This makes a quick connect connect that will slide directly into a Type-N female, or a female BNC. In this case, use a good UHF BNC female adapter, or UHF female 50-ohm N, for the MFJ259 units. With a 269, the burden will outlets directly into the N-Women unit. Note 2: The power source should be below expected operating voltage. DO NOT use a standard wall-kit or batteries! You can decrease the voltage from a conventional 13.8v controlled equipment by adding a few serial diomets. Diiode Silicon will normally drop about 0.6volts or so per diomet. Three or four diome series will reduce voltage below 12 volt. WARNING: The MFJ-1315 adapter or other wall-stools should not be used to power the unit for most alignment steps. It's better to calibrated into typical lower voltage expected battery. Step 1, look at these things carefully. Visual inspection: Before, during, and after calibration, be forgotten with physical conditions. Look for missing or coated hardware. Don't tug, stress, or repeat flexx leads, or attention flop or toss of stuff on. Unlike my bench, keep your own workbench. Follow these rules all the time you have the unit apart! Step 2, prepare the Unit. Tray Battery Remove: This step provides access to trim-pots with most indicator adjustment. [] Remove the last two batteries from each end of the platter. [] Remove two battery screws (right side) and extract the tray. [] Always position the battery tray to minimize strewn on wire. [] Do not resize batteries. If the holder or drive get short, you can melt things. See the Table Layout below for specific adjustment locations. R90 Load Z Low-bit R89 swR bit low R73 Series bit high R88 Series low bit R72 Load Z High R53 swR bit high R84 amplifier Null harmonic R67 SW master soil R56 master R56 Impedance master L1 Lower range L6 Highest range Figure 1 Step 3, Verify VFO Range Band overlapping: Each band should overlap the next by a small amount to ensure gap-free protection of 1.8 MHz to 170 MHz. that view the LCD frequency display, play the Bandswitch from side-to-side slowly. Look for any display or master collapse. Starting in the highest frequency group, check each band as follows: 114-170 MHz: L6 oscillator weigh-spread tune from below 114.0 MHz above 170.0MHz. Check tune for dead spots. 70-114 MHz: L5 oscillator weigh-spread tune from below 70.0MHz above 114.0MHz 27-70 MHz: Oscillator flu: Oscillator flu tune from below 27.0MHz above 70.0MHz. 10-27 MHz: osilator flu from below 10.0MHz above 27.0MHz. 4-10 MHz: Fabric Oscilator tun from below 4.0MHz above 10.0MHz.1.8MHz : canvas oscillate tun from below 1.8MHz above 4.0MHz. Check tune for dead spots. While audit strips overlap, check the lowest and highest strips carefully for dead spots. The LCD display will indicate 000,000MHz if a dead place occurs. to die generally indicates a defective tune capacitor (TUNE). If bandswitch causes a drop, the switch may contain dry or dirty contact. Less likely they are poor older joints, but check out their encounters first. If you have to clean and lubricate the switch, be careful it is a tough task. The whole chart needs to be lifted from the front of the case. Contact strips-switch room can be restored and spray tuners-cleaned, or WD-40. The best place to spray the switch is from the front side (side shades), right below the black. You must remove the black index table switch with the metal switch (stopped) under the black. Make sure the stop is back exactly as removed. To correct overlap problems, locate and return the appropriate VFO coil (see pictorial for coil location). Note that L1-L4 are lazy and require an isolated hex-top mix up. Using the wrong size or parting dry tool can stress and split a sluggish. Indicators L5 and L6 are located on the side of the chart and are compression-tune (press Turn closer together at lower frequency or spread apart for increased frequency). Make only very small editing — especially in L5 or L6 — and decheck the strips you're adjusting. You should also check the next lower group after each adjustment ensures that the lower strips haven't moved too much. Important warning: VFO coils must be aligned from higher frequency strips to the lower frequency band. All the highest ranges affect the lower bands, with the highest bands having the largest effect. Don't try vfo coil adjustment money unless you have experience working with the VHF-LC circuit or analog drawn circuit alignment procedure. Step 4, set the level of RF level Harmonic Deletion/Generator level bias: Connect the analyzer exactly as shown below. The employee of the cable of the measurement device should match the employee of the measurement device. The T must connect either directly to or place within a few inches of the analyzer. The power source to be the lowest voltage is expected to operate. The measurement device must be properly protected, and do not pick up any substantial signals from the analyzer when the T is dismayed from the analyzer. Step 5 Generator Bias Level (R84): This adjustment determines the level of lightning links, and thus determines harmonious content and battery life. Too much harmony will cause incorrect readings under many common load conditions, especially accidental bulbs. We still want the maximum possible battery life, consistent with adequate harmonious deletion. WARNING: Correct adjustment of R84 won't display with nummy assembly loads!!! The unit will appear calibrated correctly, but will produce errors in staircase length, fragment-to-fence, and other frequency-selective functions or purposes. When R84 is set properly, the harmonious deletion of -30dBc or more should be possible via most of the analyzer's analyzer series. This particular adjustment should be in particular at the lowest voltage expected to operate. Good alignment a 12.0-volt regulationr provided as a power source. Never use an AC adapter, or any higher voltage equipment than 12-volt, when making this adjustment. A calibrated spectrum analysis works best for harmonical production monitoring, but a well-protected general receiver and signal-level meter will also work. The receiver must T'd in the analyzer as the spectrum analyzer is, the T and Resist must be located right in the CAL connect. If you don't have a quality receiver or spectrum analyser, you probably should not have made this adjustment. If you insist on adjusting bias without a receiver or analyze, you can connect a 1/4 wave open wave, tune into the null in Vz, and see test-mode Vz while adjusting R89. Vz will roughly fully indicate the same harmonious voltage, when the analyzer is placed at the exact reasonable frequency. Entering the test mode described in Detector Calibration (6 steps). []a. Install either a 15'RG-8 open streak, or a low load resistance and spectrum measurement device, and tune analyzing to approximately 10-15 MHz or exactly are stupid reasons. [b. (stem and internal Vz used only) Observe Vz on the data display (analyzer test mode), adjust frequency until reading in lowest fundamental output (or lower staff) is found. You should clearly see the fundamental frequency of MFJ's analytical voltage production (Vz) going into a deep null. [C] c. Observe the analytical frequency reading. This is the approximative reasonable frequency of the theater. [] d. Without changing the frequency analyzer test settings, observe the second harmonical level. This harmonical will be in twice the MFJ analytical frequency against reading. Alternatively, you can watch Vz on the test mode display. [e. Adjust R84 for lower 2nd meter harmonic reading on the receiver, lower Vz-mode reading, or lower harmonious level on the spectrum analyzer. Make sure the fundamental frequency level remains naked in the therapies, if used to stem. Warning: Always repeat steps (b) of (e) at least one extra time when you are counting on Vz display. The original null point in any sting will change if there is a substantial reduction in harmonic after R84 is adjusted. The original theft frequency, as observed in (c), will probably change slightly. It is not necessary to merge when performing a resisting load test and a quality analyzer spectrum or receiver. With a resistance, exact frequency is not critical. NOTE: If you have an injury spectrum analyzer, or if you have a receiver with limited dynamic range, use a 1/4 wave strut with the spectrum analyzes or receiver instead of a resistance 2.2 ohm resistance. In the stem case, always make sure the 259B is on the reasonable frequency. If you have a reasonable quality spectrum analyzer or receiver (at least 50dB dynamic range) use a 2.2-ohm resistance that is not inductive to the link. Resisting load adjustment is much easier and much more accurate, so it's preferred. Detect Calibration Steps This critical sequence calibrated A-D conversion for various load conditions. If you know your unit has been appeased with, preset trim doors R88, R89, and R90 at center positions before continuing. If any under-out controls during adjustment procedures, you either install an incorrect load for the control adjustment or the analyzer has a detected defective detector. To prepare for detected tracking alignment, set the analyzer to Test Mode. Entering test mode can be difficult with some units, and it can take practice. To enter Test Mode: [] Turn off power off. [] Hold down button BITE and GATE while restoring power. [] As display comes, slowly (over period 1 second) stone between applying finger-pressure on the BITE and SPOILED switch. The best method is to use two fingers, stone your hands from side-to-side to alternate your finger between the two buttons. [] Confirming analyzer has been entered in test mode (it can take more than one try). [Using the MODE button, advanced display of the screen R-S-Z (shown below). Note: If you go past the screen R-S-Z, you can still see R-S-S-Z by pushing and holding the MODE button. 10,000 MHz RxxSxXZxxx for initial adjustment, if the unit has never been aligned, start here. Otherwise, jumping down to the next break.[Tune analyzer operates the frequency of approximately 10-15 MHz. This is not critical. [] Let Antenna Connector Open[] Set R72 to Z = 255 [Set R88 to S = 000, if possible[] Install the short R53 [Set R90 to Z = 000, if possible [Set R73 for S = 255 [] Set R53 to R = 255 The following list is starting for any second or third run-to point, or touch calibration ups. You have now set the first rough setting for all three sensors, Procedure of employee calibration load[] Install 12.5-W load[] Set R90 to Z=051 [Set R73 to S=204[] Set R53 to R= 153 (for 4:1 digital SWR) Change charges to continue impedance calibration [] Install 200-W Load[] Set R88 to S =051[] Set R72 to Z = 204 Change charge to continue to prevent calibration[] Install 12.5-W load [Reset R90 to Z = 051 [Reset R73 to S =204 [Reset] Reset R53 to R = 153 (4: 1 Digital SWR) Change charges to continue impedance calibration[] Install 200-W load [Verify or Reset R8 for S=051[Verify or set R72 to Z=204[Verify or set R53 to near R=153(4:1 digital SWR). This reading should be compromised with the charge 12.5ohm. Change the calibrated SWR change [] Install 75-W load [] Set R89 to R89 for R = 051 (digital 1.5:1 SWR) [Set R56 for SWR Master 1.5:1 Change Change calibrated master prevent [] Install 50 ohm load [] Set R67 for a Master impedance reading at 50-ohms You have now set follow to prevent tracking of 12.5 and 200 ohms, SWR Digital tracking between 1.5:1 and 4:1 SWR , and set the master SWR analog for 1.5:1 SWR points. There is no analog SWR master tracking adjustment, so you may want to compromise R56 and multiple SWR test loads. R56 will not affect anything except reading the master swr analog. After Audit carefully assemble your antenna analyzer. Important Note: 1.) Small single-turn trim threshold can be impacted to adjust, and follow the somewhat interactive settings. If specified readings are not fully found on the first run-through, repeat the sequence carefully a second time. When the sequence is finished, power turns off. This will remove the analyze from Test Mode. 2.) Be particularly witty in the total bit of Vz and Vs. If the sum of these bits all exceeds 255 and a resistant load, the analyzer will indicate reaction. 3.) The ANAlog SWR master and the impedance analog owner have no linear adjustment. To be compromised for your particular master unit and the scale area you want to be more accurate. Periodic verification periodically check your analyzer and load testing! To install resist all the way down to the connectors, the target is zero length Use precision 1% carbon or metal film 1/8th-1/4 watt resist 12.5W = (4) 50-ohm or one 15W with 82W 1% in parallel 50W = 49. 5 99-ohm or 100W with 100W in parallel 75W = 75-ohm or 150W with 150W in parallel 100W = 1 200W = 200-ohm or 100W + 100W of series I use to connect male BNC with the handle blocking removed, and mountain surface resistance. These connectors will plug in Type-N 50-ohm connectors as connectors quick connectors: Important Note: Many simple HF loads, inside PL259 connectors, will not be accurate above 30 MHz. Only termination accuracy should be used in the VHF region. Even then, there may be some errors from connecting with trace length inside the analyzer. The MFJ-259B is not correct for connecting impedance bumps, or correcting for the electrical length between an external load and the sensors inside the Unit.