



## Notes on setting up the FWD/REF Power settings on the KAT2 ATU

When doing the Reflected Power null adjustment on C55, you may find it difficult to determine when you reach the null of the trimmer cap by relying solely on the K2's Front Panel LCD display. Even at low settings of the Power control, it is common to get a Hi reading on the display when first adjusting C55. Preset C55 to its mid position, with the screwdriver slot parallel to the wide portion of the KAT2 Control Board.

First be sure you have the proper 50 dummy load connected to the ANT1 connector of the KAT2, and that ANT1 is the selected antenna jack on the rear of the K2's top cover when the KAT2 is installed. See page 16 of the KAT2 manual. Set the K2 for the 40m band.

Be sure the Power setting is set for low output, below 1 watt to start with. Since it is easy to miss a dip in the null of C55 when a digital display of the Reflected power is used, you may find it easier to connect an analog voltmeter to the ungrounded side of trimmer pot R2 on the KAT2 Control PCB. This is the terminal of pot R2 nearest to C55. Set the analog meter to read about 3-5 volts full scale, and press the Tune button on the K2. Slowly adjust C55 with an insulated tool for a dip in the meter reading. Once you get close to the null, you may see the digital display on the K2's Front Panel indicate a small value of Reflected power. Gently turn C55 until you obtain the lowest reading on the LCD. It should be zero, or very close to zero.

You may then want to increase the K2's Power control to 5 watts or so, to verify you have achieved a good null. Making the preliminary adjustment at a lower power level may make it easier to get close to the null setting, and then the final adjustment to C55 can be done at 5 watts.

### **WARNING:**

**DO NOT SET THE K2's POWER CONTROL TO MAXIMUM UNTIL YOU ARE SUCCESSFUL IN ACHIEVING A NULL IN THE SWR SENSOR!**

It is possible to damage the contacts of the latching relays in either the K2's low-pass filter, or one of the relays in the KAT2 if there is a short circuit from the RF path to ground. High RF currents can damage the relay contacts if there is a short circuit. Heed this warning to prevent costly relay damage and subsequent replacement of a failed relay.

If this procedure does not work, and you cannot get a null on C55, then check the SWR sensor T1, and all of the components in that portion of the schematic. Be sure you have a good 50 ohm



dummy load connected to the KAT2, and that the proper antenna connector (ANT1) is selected using the Tap ANT 1/2 feature of the Tune button. Examine the interconnecting cable and connections to the K2's Control PCB if there is no indication of Reflected or Forward power at all to the K2 display from the KAT2 SWR sensor.

You can use an ohm meter to verify continuity between the RF input cable of the KAT2, and each of the antenna connectors on the KAT2 when either ANT1 or ANT2 is selected, since all of the inductors (and capacitors) are switched out of the LC network when in CALn mode. Also, there should be no continuity to ground anywhere in the RF path of the KAT2 with it disconnected from the K2 RF connector, from the RF input cable or either antenna connector. Any fault in these connections will prevent the CALn adjustment from nulling.

Note that there *is* a DC short to ground in the K2's RF output circuitry, because of the 3-4 winding of PA output transformer T4. Do not be fooled by this when checking the KAT2 RF path for shorts and opens. Disconnect the RG-174/u cable from the K2 and remove the 50 ohm dummy load if performing continuity tests on the KAT2 RF path.

After the CALn procedure is completed, continue in the manual to set the Power calibration and trimmers R1 and R2 to their proper settings, as shown on page 17 of the KAT2 manual.

This information should help speed the alignment of the KAT2, and assist you in troubleshooting if there is a problem. As always, your feedback is welcome.