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Notes on Adjusting C22 to put
the K2 on Frequency

C22 on the Control Board is used to set the K2's 4MHz oscillator on frequency and as a result calibrate its internal frequency counter.

You will not see any change in the dial calibration of the K2 after adjusting C22 -until- you re-run CAL PLL on each band.

While early digital reading rigs with analog VFO's used an internal frequency counter to display the operating frequency, PLL based rigs like the K2 do not.

C22 only changes the calibration of the K2 frequency counter, which is only used during CAL PLL, CAL FIL and CAL FCTR. The frequency you see displayed during regular use of the K2 is simply calculated by the microprocessor when it programs the PLL for each frequency. (The frequency counter is not used.)

CAL PLL uses the internal frequency counter to calibrate and linearize the PLL lookup tables. These tables are subsequently used by the microprocessor when it programs the PLL divider ratio and reference oscillator offset as you tune the dial.

So remember: You must re-run CAL PLL on EACH band after adjusting C22 before you will see the resulting frequency change. Follow the procedures in the manual to get C22 adjusted correctly while running CAL PLL on a single band. Then, once C22 is correct, run CAL PLL on all other bands to get them on frequency properly.
You can calibrate C22 using a signal generator, ham transmitter, or strong AM carrier such as WWV at 10 MHz. The K2's receiver is used to zero-beat this signal to determine how far off the VFO is, then C22 is adjusted to compensate. Note: Because of the way CAL PLL works, you should only use a signal source that is at one of the lower band edges, e.g. 7000.00 or 10000.00.

Here's the procedure:

1. Select LSB or USB mode on the K2.

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2. Zero-beat the calibrated signal source on the K2, then note the VFO dial error. For example, 10 MHz WWV might zero-beat at 10000.20 kHz. The error is then 10000.20 - 10000.00 = +0.20. Do not move the VFO from this position.

3. Connect the K2's internal counter to the VCO test point (TP1).

4. Select and activate CAL FCTR using the menu.

5. Note the displayed VCO frequency. (In this example, 14913.88 kHz. Your VCO frequency will be somewhat different.)

6. Subtract the VFO dial error from the VCO to obtain a target VCO frequency. (In our example, 14913.88 - 0.20 = 14913.68.)

7. Adjust C22 until the VCO is at the target frequency.

8. Re-run CAL PLL on the present band only (see Calibration Functions). Tap MENU to exit CAL PLL when "End" appears.

9. Move the counter probe to TP2 (BFO). Using CAL FIL, change the BFO control parameter for the filter presently being used by at least one count, then return it to the original setting. Tap MENU to exit without switching filters. This will force the K2 to re-measure the BFO frequency.

10. Repeat step 2. If the VFO dial is still off, repeat steps 3 - 9.

11. Connect the counter probe to TP1. Do CAL PLL on *all* bands.

12. Modify *all* BFO settings using CAL FIL (as in step 9).