

CB to 10

—part XXI: the Johnson Viking 352

Here it comes folks, another CB rig converted to ten meters—the Johnson Viking 352. This rig has a great deal of flexibility when properly modified. It can offer more features than the average CB-to-ten-meter conversion, and this means more QRP contacts for you.

The 352 is an SSB/AM eleven-meter 23-channel transceiver. The logical place to convert it seems to be 28.5 MHz to 28.8 MHz, so the SSB can be used at the lower end and the AM section will cover the upper end where there is activity in this mode.

At this point, it would be wise to pick up the Sams Photofact® no. CB-112 on the rig if you don't have the schematic for it already.

The rig has a standard four-by-six crystals synthesis scheme, so the bank of four crystals is changed in the interest of economy. The bank of crystals was changed from the 7 MHz range to 9.065 MHz, 9.045 MHz, 9.035 MHz, and 9.025 MHz for crystal positions Y610 to Y607 respectively. While awaiting delivery of your crystals, you can perform the following modifi-

cations to attain greater frequency coverage (fill in the "holes" between channels) and add one more channel.

First, we will activate the mysterious "blank" channel between channels 22 and 23. Locate the pink wire which runs from S1, deck C, pin 14 to R608 and disconnect it from the switch deck. Tape the end so that it will not short to anything else, and *voilà*, 24 channels.

Next, we switch the fine tune from a receive-only function to a receive-and-transmit function. Cut the green wire at relay K1's swing arm and reconnect it to the fine-tune potentiometer (R625) wiper. This produces approximately 2 kHz of transmit-and-receive fine tune which is usually not enough for serious QRP work on ten meters. The fine tune can be expanded to 10 kHz and more by adding a variable inductor (Miller 4204) between the anode of CR606 and ground. Note that this is a variable inductor; a frequency counter should be used to adjust it to allow a maximum of 12½ kHz of fine tune. Any more than this will cause excessive

non-linearity and fast tuning in the fine-tune knob.

When these modifications are complete and operating well, your new crystals should be well along the way. When you get them replace Y607 through Y610 with 9.025, 9.035, 9.045, and 9.065 MHz, respectively. Connect a frequency counter to TP1; with the Johnson Viking 352 on channel 11 AM, adjust T601, T602, and T603 for an output of 20.845 MHz. Be sure that 17 or 24 MHz are not present, or the synthesis won't come out right. This part can be done with an oscilloscope, using a hand calculator to determine frequency to determine frequency. (This is how I do it.) After you have the 20.845 MHz, adjust T601, T602, and T603 for maximum rms voltage at TP1. Now change the controls to channel 13 and USB; with the VTVM rf probe or scope still connected to TP1, adjust T604, T605, T606, T501, and T502 for maximum.

The synthesis is now producing 28 MHz rf and the receiver needs to be aligned. Set up a low-level signal source at approximately 28.6 MHz. If you have obtained and installed

the previously-mentioned crystals, 28.6 MHz should be at channel 7 with the fine tune at 9 o'clock position. Couple the weak signal source to the antenna jack and adjust T401 through T409 for maximum signal indication on the S-meter. (Be sure to reduce signal strength as you align the receiver, to avoid overload and false tuning.) The transmitter alignment is done by using an output indicator and a 52-Ohm dummy load which is capable of handling 5 Watts or so. Adjust T701 through T705 for maximum output power.

Now, that was easy, wasn't it? Whatever your answer, you now have a rig which will perform very well and provide the flexibility to work QRP on ten meters. I have converted four of these rigs, and all of the operators (including myself) are doing very well with modest antenna systems. I am presently 8 states away from my WAS QRP 10m SSB, have worked all continents, and have 48 countries worked (including a JT1, a 5N2, and a VP2S). Not bad for an obsolete CB rig. See you on ten meters QRP. ■