SR SERIES RIT/CAL ADJ DISCUSSION

The RIT/CAL ckt is virtually the same for the SR series gear from the SR-150 thru the SR-2000

The CAL ADJ and the RIT CONTROL are used to fine tune the bias voltage on the vari-cap (also referred to as a varactor diode) in the VFO. With the RIT off both the TX and RX are fine tuned by the CAL ADJ pot. With the RIT on the RIT CONTROL fine tunes the RX and the CAL ADJ controls the TX. These two pots are in parallel in the vari-cap voltage divider network. On a perfectly aligned band when the CAL ADJ pot is in its electrical center position then the RIT CONTROL will also be in the center of its rotation.

If all the oscillators in the rig are dead on then the RIT CONTROL and the CAL ADJ will run in the electrical center of their rotation. But we have a problem with the heterodyne oscillator. Each band has its own xtal and there is no way to adjust individual xtals so the oscillator will run exactly on frequency. In the old days when xtals were cheap and readily available we would select xtals to get them as close to on freq. as possible. Now, I am lucky to have 1 or 2 spares.

NOTE: The specs are a little vague on the tolerance for the oscillators in the series. The overall spec for maximum band to band shift is ***2khz*** which seems like a lot. However I did find one spec sheet that stated that the minimum swing on the CAL and RIT controls is +/- 3khz another stated +/- 4.5khz. This is more than ample to off-set any osc differences.

What this means is that we can have as much as 2000HZ difference from band to band (if we are in spec). This is OK because with the CAL ADJ we can bring the rig dead on as we go from band to band. However if we use the CAL ADJ pot to calibrate a band and we use the RIT function the RIT CONTROL pot will need to be off-set an equal amount off center to match the CAL ADJ setting. This is normal and it is common for the RIT to be a little off top dead center.

So here is what you do to insure you are on freq on a band. **ASSUMING A PROPERLY ALIGNED RIG.** With the RIT off, turn on the CAL oscillator ((For the 150, 400 and 2000 pull out on the CAL knob. For the 160 and the 500 turn the OPERATION switch to the CAL position)). Tune the VFO dial to the nearest 25khz point to where you intend to operate (100KHZ point for early 400's, 150's, 160's, and 500's). That is, if you are going to operate at 7.240 (west coast swap net) adjust the dial to 7.225 or 7.250 exactly on the dial. Adjust the CAL ADJ for a zero beat (I actually like to go for about 500hz tone). Turn ***on*** the RIT and adjust the RIT CONTROL for the same zero beat or tone. Now flip the RIT ON/OFF back and forth while adjusting the RIT CONTROL until there is no difference in the tone when switched. Ok now, assuming the VFO is in proper tracking alignment, you are calibrated for that entire band and ready to operate.

Bottom line is, if your RIT CONTROL is top dead center on each band you have an exceptional rig and all your heterodyne xtals are dead on. If it isn't you have a normal rig.

IMPORTANT FINAL NOTE: Any time you are aligning and tuning the VFO you ***must*** insure that the RIT is turned **off** and the CAL ADJ pot is in the **center** of its rotation.

73, WDØGOF