

SR150 LOW POWER IN CW AND TUNE

Tune the rig up on 3.90MHz. then switch to LSB mode, MOX, key the mic and slowly repeat the words "three four three four three four". If the power out is substantially higher than it was in the tune function a fault lies somewhere in the 1650 IF system, could be alignment or component drift.

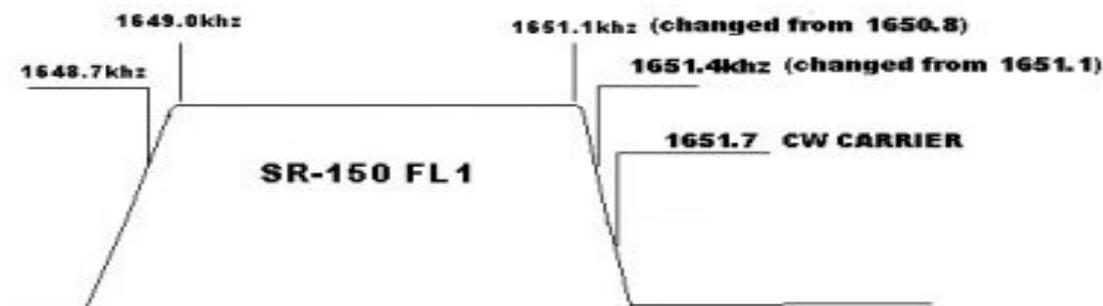
BACKGROUND:

The rig was designed as an SSB rig primarily. CW stretches the limits of the 1650 KHz filter. The CW and TUNE functions use the USB carrier xtal regardless of what band you are on. The passband of FL1 is from 1648.700KHz to 1651.400KHz. In TUNE mode the balanced modulator CR10 & CR11 is biased to a full off-balance mode letting the 1651.7 KHz from the USB carrier osc pass through. This 1651.7 KHz is ideally 12 to 15dB down the skirt of the filter passband, and this normally is enough to saturate the TX mixer. With ageing of the filter and associated cktry it sometimes drops to 18 to 25 dB down and the tune and cw functions suffer power loss.

QUICK FIX::: Adjust the USB Xtal (trimmer C106) to get 1651.500KHz instead of 1651.7MHz. That will move the carrier back up into the bandpass of the filter. LSB voice will not be affected. CW and USB voice will be shifted up 200 HZ which can be easily off set with the cal function. I have offset the USB osc as much as 500Hz and still gotten in-spec performance. Recheck the power out it the Tune function. You can continue to operate in this condition. However, **caution** this is a cover-up. There is a fault and it will most likely continue to degrade.

Interestingly when the SR-2000 was designed a capacitor was switched into the USB oscillator in the CW and Tune functions to correct this offset. The SR-2000 design was actually approved and put into production BEFORE the SR-400 cyclone years ahead of the 400A. I do not understand why they did not include this function in the 400's.

Ideally tuned passband should look like below. 1648.7 and 1651.4 are -3db 1651.7 is -12db.



This anomaly is common to the 150 and the 400's.