

## SR 160/500

### RX RF AMP AND TX DRIVER TRACKING

Getting the receiver front end and the transmitter driver to track can sometimes be a challenge. The challenge comes from the DRIVER TUNE control. This control functions as the receiver preselector tune as well as the driver tune. It is a three-section capacitor. The first section C8A is the receiver RF amp V1, grid tuning. Section 2 C8B is the RF amp plate tuning **AND** the driver, V14 grid tuning. Section 3 C8C is the driver plate tuning. The center section in the train is where the challenge comes from. As components age the tracking of the receiver and transmitter will shift.

~The coils, L5, L6, L7, L8, L9 and L10 are aligned in the transmit mode for max power out.

~The coils, L1, L2, and L3 are aligned in the receive mode for max s-meter deflection.

~The coils, L5, L6 and L7 effect both the receiver and transmitter operation and due to aging sometimes do not track in receive and transmit modes. To test for this, you complete the normal alignment procedure. That is: align L5 through L10 in transmit mode on each band <sup>(1)</sup> and align L1, L2 and L3 in receive mode on each respective band. Then test each band. Start with 80meters. Set the main tuning to 3.900MHz, Adjust DRIVER TUNE for max power output. Connect and adjust the signal generator for max s-meter with 3uv signal in. ***Do not move the tuning dial***, adjust only the test generator for max rx operation. Now tune the slug of L5 ¼ turn in each direction, if the s-meter reading does not increase more than ½ of 1 s unit it is good. Repeat the test on 40 meters, 7.237MHz, testing L6 and on 20 meters 14.287 testing L7.

<sup>(2)</sup> There are two solutions to the problem. One solution is to test and optimize all the components associated with C8B and S1C. (L5, 6, 7, C89, C90, C93, C94 and C96).

Another approach is an off-set alignment. Normally when aligning the receiver front end and the driver circuits the DRIVER TUNE control is set in the center of its rotation. If you have a tracking problem rotate the DRIVER TUNE control 15° to 20° counter-clockwise and realign the front end and driver coils. If the tracking

gets worse readjust the DRIVER TUNE control 15° to 20° clockwise from the center of its rotation and realign. If one of these two methods produce satisfactory results then check each end of each band to see if you can still get minimum power out and minimum receiver sensitivity. It is normal to have some drop off on the ends of the bands but, it should still meet min spec.

If neither of these two approaches works then more analysis is needed.

Are all bands not tracking?

Is one band significantly worse than the others?

Is tracking worse on one end of the band than the other.

Remove the mounting screws of C8, apply De-Oxit to holes and screws, replace screws.

Individually test all components listed above.

Send me an email and we will both curse it.

- (1) The alignment sequence of the transmit and receive coils is not clearly defined in the original manual, The DRIVER TUNE control should be tuned to the center of its rotation and never moved throughout the entire alignment procedure. Also align both the transmitter coils first and the receiver coils second, on each band before moving to the next band. When you align a band set the VFO to the center of that band and do not move it until you finish that band.
- (2) When you are finished with the alignment of the receiver front end coils and the driver coils in the center of each band you should check the band ends. If the transmitter or receiver drifts out of spec. on the high or low end of the bands You should check the alignment of T1 and T2, and the output of the VFO across the band.