

## SR-160/500 driver and PA optimization

The driver and PA on both the 160 and the 500 are far from optimized. The following is a guide for a simple process to insure your driver and PA are optimized.

The essential assumption is that the receiver, driver input and driver plate alignment have all been done properly and has no faults.

OK, lets attack C119, 120 and 121 first. Only C121 is used on 20 meters. C120 and C121 are both used on 40 meters. All three on 80. The process is tedious and can be accomplished is several different ways.

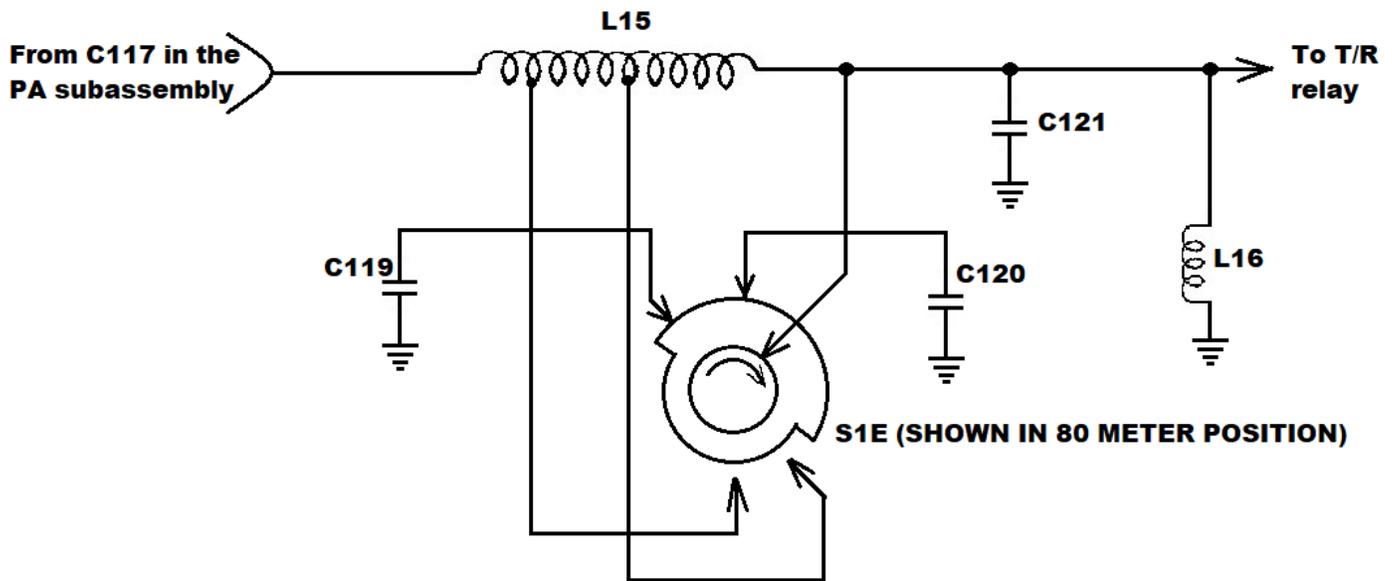
- 1 Set the FINAL TUNE to the center of the band section for the band you are optimizing. This is critical and must not be moved until you are finished optimizing that band.
- 2 Tune up for max power, record power out and plate current.
- 3 Power down.
- 4 Replace cap under test with slightly larger or smaller value. Retune and record power out and plate current. If the power change is small but plate current is large go with lower plate current. If you have access to high voltage variable caps you can tack one in and adjust for optimum power out and plate current. Then pull the variable, measure it and install a fixed value of that value.
- 5 KEEP the FINAL TUNE control in the center of its band segment for each band at all times

So, we will start on 20 meters. NOTE: The following center frequencies are based of primary usage will be general class phone operation. If your operational requirement differs then you should use a center frequency that corresponds to your need.

setup: 20-meter band, 14.287 on the dial, FINAL TUNE set to the center of the 20 meter white bar. Now tune up and select C121 for most power out.

Setup: 40-meter band, 7.237 on the dial, FINAL TUNE set to the center of the 40 meter white bar. now tune up and select C120 for max power out.

Setup: 80-meter band, 3.900 on the dial, FINAL TUNE set to the center of the 80 meter white bar. Now tune up and select C119 for max power out.



Now for the low power on 80 meters.

A) Tune up on 3.900MHz and note the power out. Connect the mic and turn up the mic gain, Go to SSB, key up and repeat the words THREE FOUR rapidly 4 or 5 times. If you have considerably more power out then you have a problem in T1, T2 or FL1.

B) Prior to V13 (the tx mixer) the ckts for 80 and 20 meters are the same. 80 meters is (VFO - CARRIER) and 20 meters is (VFO + CARRIER). If you look at the signals on pin 7 or pin 2 of V13 (tx mixer) they should be the same on 80meters and 20meters (20 meters may be slightly higher due to mixer efficiencies). If they are not then you most likely have a dirty band switch.

C) If you look at the signal on pin 2, the grid of the driver V14, the signal should be the same level pp on 80 and 20 meters when tuned up. 20 meter may be slightly higher due to mixer efficiencies. If not suspect the band switch.

Note the odd configuration of the 80 meter coils L5 and L8. They are in the ckt on all bands. So the normal alignment of the driver should be 80 meters, 40 meters and last the 20meter band. Note also that C90 and C102 effect only the 80 meter band.

The J 155-000010 version of the SR-160 has an error. It shows a jumper from C92 to the base of L7 (in the TX mixer plate/driver grid ckt). That would connect the negative bias to the 275v line.