

TRANSMITTER TUNING (cont.)

When in "TUNE" mode, the meter reading is strictly a relative indication of power output.

6. When first tuning the 500CX, you may find the 30 second time limit too short. In that event, switch back to REC mode for a minute or so, and then resume tuning procedures. With experience, transmitter tuning will require only 10 to 15 seconds. Do not tune more often than necessary. You should not have to retune except when changing bands or antennas. The P.A. tubes will last for many months or even years of normal operating, but constant tuning at full grid drive will shorten their life considerably.

7. **Caution:** The 500CX may be tuned to frequencies outside the amateur bands. Do not tune or operate the transmitter unless you are within your permitted band limits.

TUNING STEPS:

1. The Sideband Selector must be in "NORM" position during transmitter tuning procedures. Bandswitch and tuning dial set to desired frequency. MIC. GAIN at minimum, CAR. BAL. straight up, 12 o'clock.

2. Move the function Switch to TRANS. mode, and quickly rotate the CAR. BAL. control for minimum meter reading. If the control has no effect at this time, do not be concerned. The P.A. (Power Amplifier) stage is now "resting" or "idling," and there is no grid drive being applied. The meter is reading "idling" current, which should be about 50 ma. as read on the 800 ma. scale. The permissible idling range is between 40 and 60 ma. If the P.A. is idling above or below this range, adjust the P.A. Bias control on back of the chassis.

3. If this is the first time you are tuning the transmitter, set the COARSE LOAD control to position 4. (After experience in tuning, this control may be set to whatever position has been found optimum on each respective band.)

Note: Up to now, the transmitter has been merely "idling," and there has been no particular time limit involved. The following step begins applying grid drive, and requires caution and observation of the recommended 30 second time limit.

4. With the Function Switch still in TRANS. mode:
a. Set the CAR. BAL. control to ~~either 9 o'clock or 3 o'clock~~ **FULL COUNTERCLOCKWISE POSITION**
b. Rotate the P.A. GRID control for maximum meter reading.
c. *Immediately* rotate the P.A. PLATE control for minimum meter reading, or "dip." This is the critical adjustment known as "resonating" the plate circuit, and *must be performed quickly* to preserve P.A. tube life!
d. Re-adjust CAR. BAL. for minimum meter reading.

5. Switch to TUNE position and quickly adjust P.A. PLATE and P.A. LOAD controls for maximum meter reading.

a. If the meter goes off scale, use the OUTPUT LEVEL control to bring it back to about midscale.
b. Advance the COARSE LOAD control clockwise a step at a time, readjusting P.A. PLATE each time, until the position for maximum output is found. Use the FINE LOAD control for vernier load adjustment. Each time a change in either load control is made, the P.A. PLATE must be re-tuned.
c. Switch back to REC. position.
d. Once the proper settings have been found, make notes on a card so they can be quickly re-set each time you change bands.

6. **Voice Transmission.** After tuning up as outlined above, switch to TRANS. position and then carefully set the CAR. BAL. control for minimum meter reading. Carrier balance will usually occur with the CAR. BAL. somewhere around mid-range, but the setting is not important or significant, as long as a null can be observed. While speaking into the mike, slowly rotate the MIC. GAIN control until occasional peak readings of 200 to 225 ma. are obtained. With most microphones, the MIC. GAIN control will be set between 9 and 12 o'clock, but it may vary considerably. The amplified ALC circuit will help limit cathode current to about 225 ma., but turning the MIC. GAIN up too high will still produce flat topping and spurious signals, so it is important to hold it down. The meter is quite heavily damped, and its reading with average voice modulation may not look very impressive, but the voice peaks are going well over the 550 watt power rating of your Swan transceiver. NOTE: Transceiver will not modulate with Function Switch in CAL. position.

7. AM Operation (Single Sideband With Carrier)

a. Tune transmitter to full output on single sideband as described above.
b. Rotate MIC GAIN control to minimum, full CCW.
c. With Push-to-talk pressed, rotate CAR. BAL. control until cathode current is approximately 150 ma.
d. While talking in a normal tone of voice into the microphone, increase MIC. GAIN setting until the meter kicks upward slightly. This setting will result in excellent AM transmission.

8. CW Operation

a. Insert a CW Key in the Key Jack on back of the 500-CX Transceiver.
b. After tuning up for maximum output as outlined in Step 5, switch to CW mode, press the key, and insert carrier by rotating the CAR. BAL. control until the meter indicates a P.A. Cathode Current of 450 ma. Power input will then be the rated 360 watts. It may be reduced to whatever level is required to maintain contact. Full power level is not