TUNING STEPS (cont.)

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 700 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 700-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 500 ma. Power input will then be the rated 400 watts. It may be reduced to whatever level is required to maintain contact. Full power level is not always necessary. NOTE: PTT-VOX switch must be in PTT position.

c. In Manual CW operation it will be necessary to switch the Function control back to REC. for receiving and then to CW for transmitting.

d. **Semi-break-in CW**

When the VOX accessory, model VX-2 is used, Break-In operation may be employed. Move the PTT-VOX switch to VOX position, and rotate the Function control to CW mode. Rotate the VOX GAIN full clockwise and the ANTI-TRIP control on the VX-2 to full counterclockwise position. Press the CW key to transmit. When you stop keying the circuits will automatically switch back to receive mode. Adjust the VX-2 DELAY control to the position which gives the desired delay time in returning to Receive.

e. **Off-set CW Transmit Frequency:**

While receiving, the carrier oscillator frequency is located 300 cycles outside the passband of the crystal lattice filter, thus providing a single heterodyne note, or "single-signal" for CW reception. When transmitting in CW mode, the carrier frequency is moved approximately 800 cycles higher, placing it well inside the passband. This frequency shift is termed "Off-set CW transmit frequency," and avoids the problems encountered when the receive and transmit frequency are exactly the same. When receiving CW, the receiver must be tuned off frequency several hundred cycles in order to hear an audio beat. By providing this shift automatically in the 700-CX, CW operation is greatly amplified.

Sidetone Oscillator

A sidetone oscillator circuit is included in the 700-CX, and permits CW monitoring. An 800 cycle tone will be heard coming from the speaker or headphones. The strength, or volume of the tone may be changed if desired by changing the resistance value of R1202 in the sidetone circuit. Note that the A.F. GAIN control will have some effect on the sidetone.

9. After tuning for maximum output, it will be useful to know how much cathode current the P.A. is drawing at full power input. This will help indicate condition of the P.A. tubes, as well as the driver stage and other tubes in the transmitter circuitry.

a. This may be done by switching to CW mode, and inserting full carrier with the CAR. BAL. control. The key jack circuit must be closed by a CW key for this test.