manently damaged in just a few seconds. Once resonance has been established, the P.A. tubes can operate at full power input for a considerable length of time, although we recommend 30 seconds as a safe maximum. But, it is most important to realize that the 30 second limit assumes that the P.A. PLATE has been *immediately* resonated. This rule applies generally to all transmitters.

2. P.A. PLATE resonance may be accomplished by (1) tuning for the "dip" in P.A. cathode current, or (2) tuning for maximum transmitter output, depending on which circuit is being metered.

3. In the 700 CX you are reading P.A. cathode current when in Press-To-Talk, TRANS., or CW mode, so P.A. PLATE must always be tuned for the "dip" in meter reading when in any of these modes.

4. When the 700 CX Function Switch is in "TUNE" mode, the meter circuit is automatically switched to indicate transmitter output level, so P.A. PLATE must always be tuned for maximum meter reading when in "TUNE" mode.

–Read items (3) and (4) over carefully to be sure you understand.

5. The OUTPUT LEVEL control located on the right hand side of the panel meter adjusts the meter reading to a convenient level when in "TUNE" mode. It is important to realize that this control has no effect whatsoever on transmitter power. It is required because of wide variations in meter readings caused by various antenna loads, and different frequency bands.

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

6. When first tuning the 700 CX, 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 700 CX 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.

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.