

## ANTENNA (cont.)

Start out with the antenna whip at about the center of its adjustment range. Set the VFO to the desired operating frequency and then adjust P. A. TUNE for dip, and P. A. LOAD for 100 ma. Then observe the field strength reading. The Field Strength Meter may be set on top of the dash, on the hood, or at an elevated location some distance from the car.

Change the whip length a half inch, or so, at a time, retune the P. A. for 100 ma. loading each time, and check field strength. Continue this procedure until the point of maximum field strength is found. This adjustment will be most critical on 75 meters, somewhat less critical on 40, etc., until on 10 meters the adjustment will be quite broad. After tuning the antenna to resonance, load the P. A. to full power.

## MICROPHONE

The microphone input is designed for high impedance microphones only. The choice of microphone is important for good speech quality, and should be given serious consideration. The crystal lattice filter in the transceiver provides all the restriction necessary on audio response, and further restriction in the microphone is not required. It is more important to have a microphone with a smooth, flat response throughout the speech range. The microphone plug must be a standard 1/4 in. diameter three-contact type. The tip connection is for push-to-talk relay control, the ring connector is the microphone terminal, and the sleeve is the common chassis ground. The microphone manufacturer's instructions should be followed in connecting the microphone cable to the plug. With many microphones, the push-to-talk button must be pressed to make the microphone operative. For VOX operation, this feature may be disabled, if desired, by opening the microphone case and permanently connecting the contacts which control the microphone.

## EXTERNAL SPEAKER CONNECTIONS

Receiver audio output from the 500-CX is at 4 ohms voice coil impedance. This output is terminated at pin 12 of the Jones Power connector. When using the 117-XC matching power supply, connection is automatically made to the speaker which is built into the supply.

For mobile installations, an external speaker may be connected to pin 12 of the Jones connector. The other speaker terminal goes to pin 6, or chassis ground. The speaker may be any good 4 ohm permanent magnet type in the 4 inch or larger size.

## INTERNAL SPEAKER

Provision is made for installation of a standard 3x5 inch speaker inside the 500-CX. This may be desirable particularly in mobile installations. The speaker mounts on the left side of the chassis - terminal lugs are provided near the 6GK6 audio output tube. Simply connect wires from the 2 speaker lugs to these terminals. One is "hot," and the other is ground.

## AUXILIARY SWITCHING

A 3 lug terminal strip on back of the 500-CX provides for switching of external accessories. They are marked R, C, and T. R and C are connected when receiving. C and T are connected when transmitting. In particular, terminals C and T are used when the Swan Mark II Linear Amplifier is used.

## V6 OUTPUT

A phono type output jack is provided on back of the 500-CX for connecting the antenna system to an auxiliary receiver. Thus, a separate receiver may be used, if desired, with the same antenna system. V6 is the 12BZ6 R. F. amplifier stage in the 500-CX receiver circuit, and it serves as a pre-amplifier for the auxiliary receiver.

## CONTROL FUNCTIONS

### On-Off Switch (On AF Gain Knob)

Turns power supply on and off

### Cal-Rec-Trans-CW-Tune

#### Calibrate

All voltages are applied to transceiver. Grounds emitters of Q4, Q5, Q6, and Q7. Removes ground from cathode of V14A.

#### Receive

All voltages are applied to transceiver.

#### Transmit

12 volt DC circuit through relay K1 and K2 is completed, and tubes used only in receive are biased to cutoff. Meter reads P.A. cathode current.

#### CW

All circuits for transmit are energized, as above. Capacitor C1501 in the carrier oscillator is removed from ground. Carrier must be inserted with CAR. BAL. control. Meter reads P.A. cathode current.

#### Tune

Same as CW except that carrier is fully inserted. Meter reads relative output.

#### Mic. Gain

Controls potentiometer R1402 in the grid of V14A. Controls amount of audio to the balanced modulator.

#### Car. Balance

Controls potentiometer R1307 in the balanced modulator deflection plate circuit, and permits nulling out the carrier.

#### RF Gain

Controls variable resistor R1809. Controls gain of receiver mixer, RF Amplifier, and IF Amplifiers.

#### AF Gain

Controls potentiometer R1201 in grid circuit of V12 AF Output. Controls audio volume.

#### Main Tuning

Controls C1708 in frequency determining tank circuit of VFO.