

fed to the signal injection grid of V6, the receiver mixer. The oscillator injection grid of the mixer is fed from the VFO, at the same frequency as used in transmit. The output of the mixer, a SSB signal centered at 5174.5 kc is fed through the crystal lattice filter, FL-1 to the two IF stages V7 and V8, then to the Product Detector, V12. BFO injection from the carrier oscillator, at 5173.5 kc, is fed to the Product Detector, effectively "reinserting carrier" at the transmit frequency and allowing detection and demodulation of the proper sideband. The detector audio output is amplified through two stages, the other half of V12 and the AF output, V10.

TUNE

Normally, the frequency of the carrier oscillator is approximately 300 cps outside the passband of the crystal lattice filter. In TUNE position, the transceiver is placed in normal transmit condition, but one deflection plate of the balanced modulator is grounded, completely unbalancing the modulator, and capacitor C1301, normally connected to chassis ground, in the carrier oscillator is removed from ground. The carrier oscillator crystal operates in parallel resonance, and capacitors C1301 and C1302 are effectively across the crystal. The oscillation frequency of the crystal is controllable through a limited range by the value of these two capacitors, and the exact frequency of oscillation is determined by this capacitor network. In TUNE position, C1301 is removed from the circuit, and the frequency is determined solely by C1302. This moves the carrier frequency into the passband of the crystal filter, and with the modulator unbalanced, tuning is accomplished with full carrier drive.

IMPORTANT NOTE

It is essential that transmitter tuning be accomplished at full drive to the power amplifier. The power amplifier is operated as a linear amplifier, and loading on this tube affects the linearity. If the transmitter is tuned to a certain loading, operation on SSB to peaks above that loading will result in non-linear operation or "Flat-topping". The cathode current meter cannot follow the syllabic variations in cathode current normal in SSB operation, and it indicates between 1/3 and 1/2 of the actual peak current. It is essential that the power amplifier average current, as shown by the meter, be less than half the peak cathode current used in tuning to avoid flat-topping. This is controlled by proper setting of the Mic. Gain control.