

fully tight then back out a  $\frac{1}{2}$  turn. Adjust antenna tank condenser (C1) for max. reading of the PRF meter or maximum brilliance of the lamp. Re-adjust C2 condenser for max reading on the "PRF" meter. Then re-adjust C1 condenser for maximum lamp brilliance or max reading of meter.

## T.V. INTERFERENCE TRAP

This transceiver contains a built-in series-resonant trap (L5) in shunt with the antenna output receptacle. When tuned correctly, it suppresses television interference in the transmitting position. If when transmitting, the transmitter causes excess TV interference this trap may be tuned to help remove this effect.

Turn on a TV receiver that you can see from your transmitting location, and tune to one of the three lower TV channels that has a station operating in your vicinity. If you notice a "cross-hatch" or "wavy-line" pattern on the screen while you are transmitting, it will be necessary to adjust the RF trap coil slug screw, (L5) in rear of cabinet, to eliminate or minimize this interference. This will usually only be necessary when the transmitter antenna is located near the TV antenna, or that of a neighbor. This coil slug screw is located between the antenna input jack and the power input cable receptacle.

## DESCRIPTION OF CONTROLS

**VOLUME CONTROL AND POWER SWITCH:** — Varies the sound output of the loudspeaker. Also incorporates an on-off switch at the most counterclockwise end of rotation.

**TUNING CONTROL** — Tuning is accomplished in the same manner as when using a standard broadcast band radio. Note: Receiver tuning has no effect on the frequency of transmission. The tuning control knob operates the illuminated dial scale and tuning condenser through a reduction drive to insure ease and accuracy in the selection of stations.

**CRYSTAL SELECTOR SWITCH**—Note that there are 3 positions on the crystal selector marked VFO, 1, 2. Selecting the No. 1 position will set the transmitter to the frequency of the crystal (Fundamental x 6) in the No. 1 crystal socket on the front panel, etc.

When the selector is in the VFO position, the frequency of the transmitter is controlled by the VFO plugged in the VFO socket on the front panel.

The transmitter is normally supplied with a crystal for 50.124 Mc (Fundamental frequency x 6), already installed in front panel crystal holder No. 1. Therefore the other selector positions can not be used until additional crystals are installed. All crystals must be of the fundamental type and be within .01% accuracy. The use of any other type of crystal may result in illegal (Off-frequency) operation. The transmitting frequency will be the fundamental crystal frequency stamped on the crystal case multiplied by 6.

**SPOT SWITCH** — When the spot switch is in the "ON" position the operator can set the receivers tuning dial to the exact frequency as transmitted. Set spot switch to "ON" position. Set meter switch to "S" position. Tune in internal generated crystal frequency for maximum gain on "S" meter. Switch is to be normally in "Off" position.

**NOISE LIMITER** — is used to reduce excessive noise (such as that caused by auto ignition or other disturbances) in those cases where this characteristic type noise is greater in intensity than the received signal. The use of this control may reduce slightly the overall sensitivity of the receiver.

**STAND-BY SWITCH** — This unit is equipped with a dual action push-push stand-by switch. To keep unit in stand-by position, push limiter control knob in. The tubes will stay heated, but the "B" power will be off. To place unit again in operation, push same knob in and the "B" power will be on.

**RF PEAKING** — This control is to be used after desired station has been tuned in.

When tuning, the RF Peaking knob for maximum gain it is advisable to rock both the tuning knob and the RF Peaking knob for best sensitivity.

**TRANSMITTER OUTPUT TANK CONTROL** — The Tank Condenser is to adjust the Transmitter for maximum output.

**ANTENNA TUNE CONTROL** — This adjustment is used for loading the Transmitter into the antenna.

**V.F.O. POWER JACK** — LOCATED IN THE REAR AND IT'S USED FOR POWERING LAFAYETTE'S HE-61, 6 METER V.F.O.

## TRANSMITTING

Be sure that the proper power supply cable has been connected to the transceiver as instructed earlier, and that the unit has an adequate ground (if not mounted to a metal surface). One of the antenna systems discussed earlier should be connected. Plug the microphone into the jack provided on the extreme right of panel.

To transmit, push the button on the side of the microphone and hold it in that position. Talk directly into the microphone. Release the button to receive. The transceiver will not function as a receiver unless the button is released.

1. Turn the transceiver on, and set the tuning control to the frequency on which you desire to operate. The tuning dial will be illuminated indicating power has been applied to the unit. The "Spot" switch may be used if you desire to receive on the same frequency that is being transmitted.

2. Set CRYSTAL SELECTOR SWITCH to the required position for transmission on the desired frequency. Positions on Selector switch correspond to position numbers on crystal sockets on front panel.

3. Set the METER SWITCH to the position marked "PRF". The meter will read when the microphone button is in the transmit position. This reading will be an indication of the R.F. power delivered to the antenna.

4. Hold the microphone 4 to 8 inches away and speak in a normal tone of voice, shouting will not increase the strength of your signal. Speak clearly and slower than you would normally. As you speak into the microphone you will notice that the meter needle will "Flicker", giving an indication that the speech amplifier and modulator circuits are operating properly. Release the microphone button at the completion of your message.

5. To record the signal strength of the desired received signal set the METER switch to the position marked "S". The meter dial is calibrated in "S" units. The tuning control can be used with the meter as a very fine tuning meter.

6. An external Variable Frequency Oscillator may be connected using the VFO socket on the front panel. Selector switch is to be in the VFO position.

## ADDITIONAL CRYSTALS

The Model HE-45B is normally supplied with a crystal for 50.124 Mc already installed in the front panel crystal holder. Additional crystals for other 6 meter frequencies may be inserted. The transmitting frequency will be the fundamental crystal frequency stamped on the crystal case multiplied by 6. All crystals must be of the fundamental type and be within .01% accuracy. The use of any other type of crystal may result in illegal (Off-frequency) operation.

When replacing crystals it is suggested that the user use the nearest operating frequencies in the range of 50.15 Mc to 50.5 Mc in order to prevent TV interference.

## TUBE REPLACEMENT

If tube replacement becomes necessary, all tubes can be made accessible by removing the top shell cover. Remove the two screws from the top of the front panel and then remove the two screws on each side of the top shell. Slide shell upward to remove shell from bottom plate. Do not remove any other screws from the case as a shock hazard is present if the base plate is removed. The replacement tube must have the same type number as the original. A tube location diagram can be found on the license label on the bottom of the base plate. Replace shell, side mounting screws and front panel screws.