

COLLINS SIGNAL

the use of the same types of plug-in inductances as are used in the famous 30W Transmitter. On 1750, 3500 and 7000 kc. a crystal is used which has its fundamental frequency either in the desired band or in the next lower frequency band, and the buffer is operated as a straight amplifier or as a buffer-doubler. On all three of these bands the final amplifier is operated as a straight amplifier. 14,000 kc. operation is accomplished by doubling the frequency in the final amplifier. This is contrary to ordinary Collins practice but is done in this case to obtain greater simplicity of operation. When the frequency is doubled in the final amplifier the output on 14,000 kc. is approximately 10 watts as against 20 to 25 watts output on all of the other bands. Shifting from one band to the other is a very simple matter as will be explained later.

Meters and Controls

One of the primary specifications set down for the design of every Collins transmitter is that it must be capable of tuning solely by meter readings and that no flashlight bulbs resonance indicators or other

"gadgets" are required to adjust it properly on any desired frequency. For this reason meters have always loomed large in the cost analysis of these outfits. This specification has not been departed from in the 32A and 32B Transmitters but by use of a clever switching arrangement it has been possible to reduce the number of meters required in order to hold the cost of these transmitters within the popular range. Two Weston model 301 surface type meters are used on the 32A. One 0-50 milliammeter is connected in the grid circuit of the power amplifier stage. The other 0-200 milliammeter can be switched to read either the power amplifier plate current or buffer and oscillator plate currents. The 32B has these two meters and in addition has an 0-150 milliammeter in the plate circuit of the modulators which serves as a percentage modulation indicator. Switches are provided on the 32A in the 110 AC circuit, in the buffer and power amplifier plate circuits (used when neutralizing), and a single switch controls the position of the plate milliammeter. The 32B has the same switching facilities and in addition has a CW-phone control.

Audio Fidelity

The 32B Transmitter has an overall frequency characteristic which would do justice to the average broadcasting station. Its response is substantially flat from 80 to 8,000 cycles. Standard Broadcast type transformers are used in the audio circuits. The quality of transmission with this outfit depends almost entirely upon the quality of microphone which is used. Although good results can be obtained with a single button microphone, it is strongly recommended that a good double button, ribbon or condenser microphone be used in connection with the 90C Input Amplifier. The more faithful reproduction of voice obtained in this way is really worth while in putting an understandable signal through severe interference.

Tuning Procedure

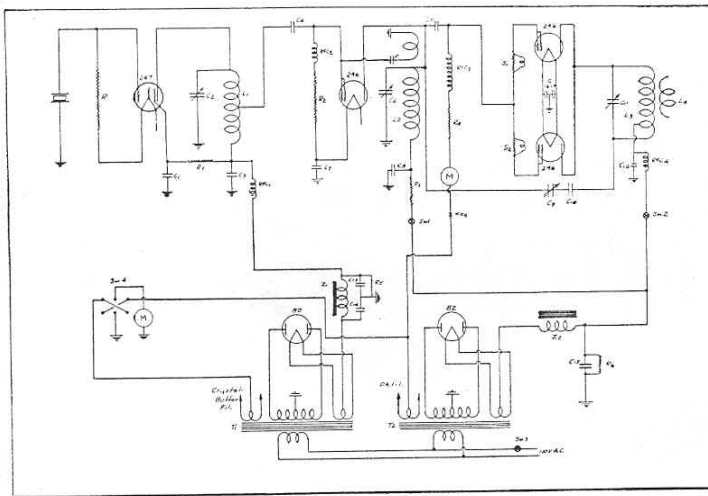
The tuning routine for both the 32A and 32B is as follows

One: Insert all tubes, coils and crystal in their proper positions.

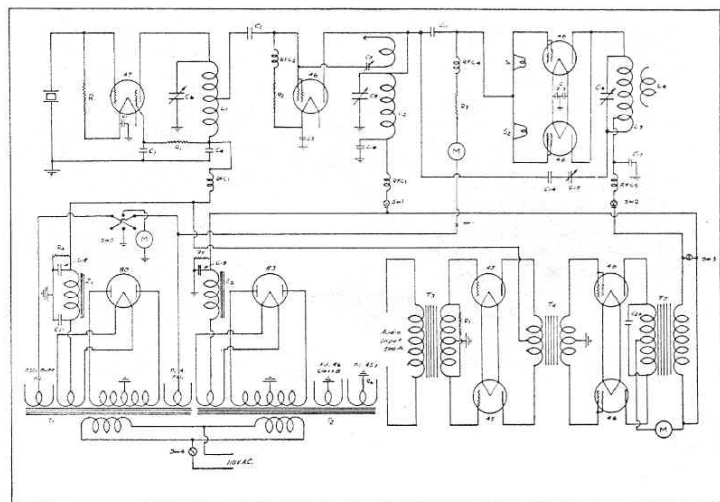
Two: Switch off the plate current to the buffer and the power amplifier and turn on the 110 AC.

Three: Rotate the crystal oscillator tuning dial until the crystal oscillator plate current shows a decided dip. This dip indicates that the crystal is oscillating.

Four: If the buffer is to be operated on the crystal frequency, it is necessary to neutralize it. This is accomplished as follows: With the crystal oscillator and the buffer and power amplifier turned off, press the key and rotate the buffer tuning dial until a grid current of a few ma. is registered. This grid current indicates that a certain amount of energy is passing through the buffer stage due to incomplete neutralization. Adjust the small neutralizing condenser on top of the buffer coil with an insulated screw driver. This adjustment will interlock slightly with the setting of the crystal oscillator and it will be necessary to reset the oscillator tuning for maximum grid current. A position of the buffer neutralizing condenser will be found where the



Circuits: 32A (above) and 32B (right).



PRICES

32A CW Transmitter	.....	\$85.00
Kit of Matched Tubes	.....	5.80
Mounted Crystal	.....	7.50
32B CW Phone Transmitter	.....	125.00
Kit of Matched Tubes	.....	9.80
Mounted Crystal	.....	7.50