OVER THE SOLDERING IRON

RCA VICTOR

PREPARED FOR THE INFORMATION OF RCA VICTOR DISTRIBUTORS' SERVICE MANAGERS

SERVICE DIVISION - RCA MANUFACTURING COMPANY, INC. - CAMDEN, N.J. - NOVEMBER 23, 1937

ADDITION OF RESISTOR - Models 813K and 816K

Resistor, Stock #30647, 1.8 ohms, with a five ampere maximum current rating, is now specified for use in the circuit supplying the "Music-Speech" and "Manual - Electric - Remote" indicating lamps. This part should be installed on all chassis of Models 813K and 816K requiring service in the field. It may be conveniently added to the circuit in place of the "brown" lead which connects from the front section of the range switch to the "Manual-Electric-Remote" switch.

MODEL U-105 PICKUP IMPEDANCE

The Service Note covering Model U-105 incorrectly classifies the pickup as "High Impedance Type". Proper technical data on this unit is as follows:- Low Impedance Type; 96 ohms impedance at 1000 cycles; 27 ohms d-c resistance. Service Note specifications and diagrams should be corrected accordingly.

RECTIFIER TUBE - Models T 9-7 and T 9-8

Where unstable operation, high or fluctuating line voltage, or development of intermittent hum occurs on these instruments, it is advisable to check the condition of the 25Z6 rectifier tube and the associated C-41, 16 mfd capacitor. Replacement of the 25Z6 with a 25Z6-G will provide more stable performance. These tubes are electrically and mechanically interchangeable in the T 9-7 and T 9-8 receivers.

PHONOGRAPH RUMBLE - Model U-107

In any instances where a rumble or low frequency vibration causes interference in the reproduction of records, the same can be satisfactorily minimized by spacing the loudspeaker baffle board 3/8 inches away from the cabinet. Small metal or wood spacers may be used for this purpose, employing one over each mounting screw.

LOW FREQUENCY REPRODUCTION - Model U-109

It is important that the pick-up voltage be adjusted in accordance with instructions on Page 13 of the Service Note, if normal tone quality is to be obtained. Reproduction will be thin and lifeless if the adjustment is low. With record #84519-A being played at 400 cycles, the control should be set to give 5 volts across the speaker voice coil. Note that "Over the Soldering Iron" August 31, 1937, page 1, should be corrected to read 5 volts instead of 12 volts in paragraph four.

REVISED ALIGNMENT PROCEDURE
Model 150 - Electronic Sweep Oscillator

A. Adjustment of Fixed Frequency Oscillator - The 6F7 oscillator stage must be adjusted to operate exactly at 800 KC in all positions of the "CW-AMP-FREQ." switch.

(1) Adjust tap of resistor R-10 to give 2.75 volts between the cathode of the Frequency Control tube (6C6) and ground.

(2) Advance "Range KC" Control to #6 position and set variable capacitor to its minimum capacitance position (full out of mesh).

(3) Tune in the 8th harmonic (800 KC) of an RCA Stock #9572 Crystal Calibrator on a broadcast receiver.

(4) Connect the test oscillator output to receiver antenna-ground terminals.

(5) Set oscillator "Modulation" Control on "FREQ." and reduce the "Sweep KC" (R-1) control to its zero position or turned completely counter-clockwise.

(6) Adjust trimmer C-28 to produce zero beat signal in receiver output.

(7) Without otherwise disturbing oscillator or receiver, shift "Modulation" Control to "CW", and adjust compensating capacitor C-17 to restore the zero beat. If proper zero beat adjustment is not within the range of C-17, it will be necessary to slightly re-adjust the bias resistor R-10 - see (1). If zero beat requires less indicated capacitance in C-17, then the bias voltage should be increased slightly. If more indicated capacitance is required on C-17, the bias voltage must be decreased slightly. The alignment steps (2), (3), (4), (5), (6) and (7) must then be repeated.

B. Adjustment of Variable Frequency Oscillator - Trimmers are provided in the variable oscillator circuits for alignment at the high frequency end of each tuning range. These must be properly adjusted in respect to frequency and correct dial setting. The following procedure will establish correct alignment of the variable oscillator at the proper points; while the 800 KC oscillator is kept inoperative so as to avoid beat signals and harmonics that may be confusing otherwise. The oscillator and crystal calibrator must be operating into a receiver which will tune to 1100 KC, 1800 KC, 3300 KC, 7800 KC, 13000 KC. and 31000 KC.

(1) Adjust the dial so that the index mark is exactly opposite the continuous radial line at the low frequency end of the scales when the capacitor is in full mesh.

(2) Ground the top control grid of the 6A7 variable oscillator. This removes the 800 KC signal from the Mixer Stage leaving only the variable oscillator signal in the output.

(3) Band #1 - Tune the receiver to the 11th harmonic of the Crystal Calibrator at 1100 KC. Set the oscillator to the 300 KC dial reading. Adjust trimmer C-36 to produce zero beat.

(4) Band #2 - Tune the receiver to the 18th harmonic of the Crystal Calibrator at 1800 KC. Set the oscillator to a reading of 1000 KC. Adjust trimmer C-35 to give zero beat.

(5) Band #3 - Tune the receiver to the 33rd harmonic of the Crystal Calibrator at 3300 KC. Set the oscillator to 2500 KC on the dial. Adjust trimmer C-34 to give zero beat.

(6) Band #4 - Tune the receiver to the 78th harmonic of the Crystal Calibrator at 7800 KC. Set the oscillator to 7000 KC on the dial. Adjust C-33 to give zero beat.

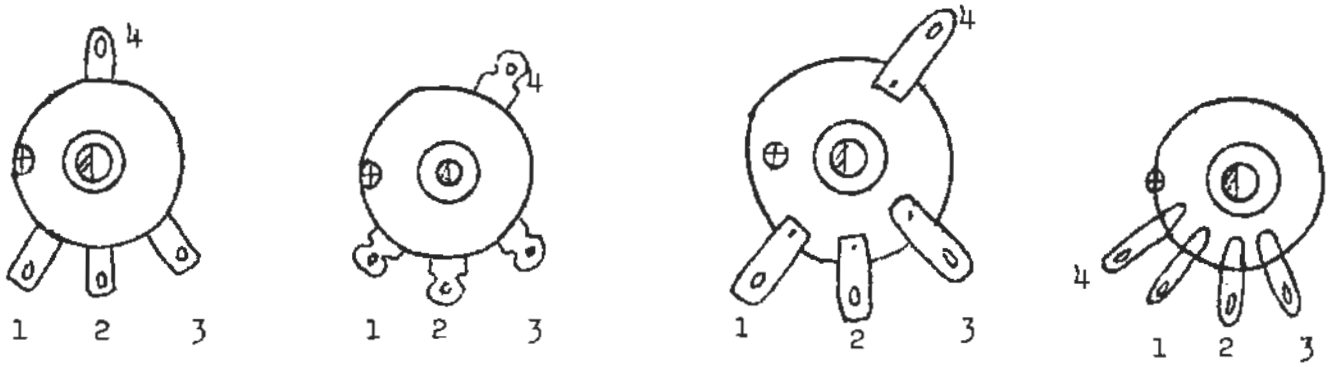
(7) Band #5 - Tune the receiver to the 13th harmonic of the Crystal Calibrator at 13,000 KC. Set the oscillator to 13,800 KC on the dial. Adjust C-32 to give zero beat.

(8) Band #6 - Tune the receiver to the 31st harmonic of the Crystal Calibrator at 31,000 KC. Set the oscillator to 31,800 KC on the dial. Adjust C-31 to give zero beat.

C. Adjustment of Sweep Control - The bias adjustment R-10 determines the symmetry of frequency sweep and also affects the tuning of the 800 KC fixed frequency oscillator. The correct setting of this adjustment is to a value of 2.75 volts, however, due to slight variations in characteristics of the 6C6 tubes a slightly lower or higher value may be required to give:- (a) equal range of sweep above and below the normal frequency, and (b) proper control range for capacitor C-17.

Check of the symmetry can be made by placing the Oscillator in operation at 580 KC. (or some other frequency where the receiver dial is graduated in 5 KC. markings) with "Modulation" in the "Freq." position. The signal should be tuned on a broadcast receiver with an Oscillograph connected and adjusted to show the typical forward and reverse curves. Tuning the receiver above and below 580 KC will cause the curves to disappear or merge into a straight horizontal line. The points on the receiver dial at which the curve disappears should be at approximate equal KC. from the 580 KC. reference point. If seriously poor symmetry is indicated, R-10 should be readjusted, and if necessary, exchange the 6C6 Frequency Control tube. If R-10 is varied, it is imperative to re-check the alignment of the Fixed Frequency Oscillator as in A.

VOLUME CONTROL CONNECTIONS - STOCK #14335 - The Stock #14335 volume control, as used in several models of the new 1937-38 line may have any one of four constructional arrangements.



The different controls are, however, inter-changeable both electrically and mechanically. Terminal locations are shown inthe above diagram. Terminal #1 is the low potential end of unit; terminal #2 is the wiper arm; terminal #3 is the high potential end of the unit; and terminal #4 is the tone-compensation tap. The illustrations are as viewed from the front of the control.

SERVICE NOTE CORRECTIONS - Models 811-K and 812-K - Stock #13734, 120,000 ohm resistor R-41, should be changed to Stock #30552, 120,000 ohm, Special Carbon Type Resistor - R-41.