



# 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. - OCTOBER 13, 1938.

## LOW FREQUENCY ALIGNMENT - Models 95T5, 96T, 96TL, & 96E

Where additional sensitivity is desired on these single band receivers, it can be obtained by alignment of the tuning condenser at 600 KC and re-alignment of the trimmer at 1500 KC as follows:-

- (1) Check alignment of antenna coil with "Tuning Wand" at 600 KC. If brass end gives increase in signal, bend rotor plates of antenna section of tuning condenser outward to produce maximum peak output. If magnetite end gives increase in signal, bend plates of oscillator section of tuning condenser to obtain maximum output.
- (2) Re-align 1500 KC antenna and oscillator trimmers in the usual manner.

## SCISSORS GEAR - Models 811-K, 813-K & 816-K

In servicing chassis from any of these instruments or similar types, it is advisable to adjust the reversing switch of the electric tuning mechanism as low as possible to assure that it is positively actuated at the ends of the tuning range. Failure to reverse may result in a damaged "scissors gear" on the tuning condenser shaft. A satisfactory repair of this gear can be made, where necessary, as follows: -

- (1) Remove compression springs from gears.
- (2) Mesh and align both gears accurately with pinion gear.
- (3) Solder the movable and fixed gears together at each end.
- (4) Re-adjust mesh with the pinion and run through cycle several times to wear-in any irregularities.
- (5) Re-adjust reversing switch as suggested; replacing same if questionable.

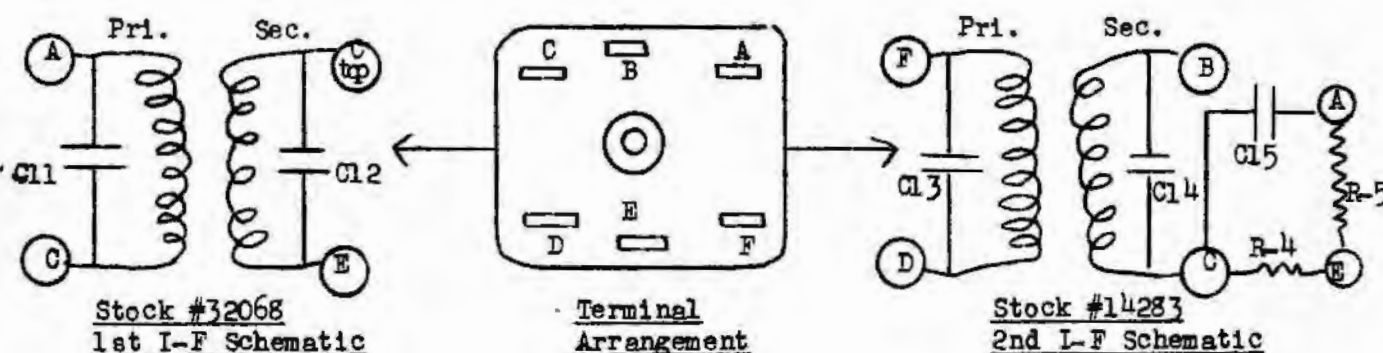
Stock #32167, List Price \$7.35 covers the Tuning Condenser, less gear assembly, for models 811K, 812K, U-109, & U-108. This condenser is being made available in lieu of #14727.

I. F. TRANSFORMER MODIFICATIONS

Models 98K, 99T, 99K, 910KG, U126 &amp; U128

Later production instruments include I-F transformers having circuit and connection arrangements as shown below. These transformers have a bakelite top closure as contrasted to the original completely closed metal shield. The 1st I-F is stamped #76456-8 and the 2nd is stamped 76456-3. For replacement purposes, these units are mechanically interchangeable with the original transformers. Connections are, however, different and details are provided in the accompanying diagrams.

NOTE: that R-4, R-5 and C-15 are included in the second I-F assembly, and must be removed from the external circuit.



C - To plate 1st detector  
 C - To +B high voltage  
 C(top) - To 6K7 I-F grid  
 E - To AVC circuit

F - To plate 6K7 I-F Stage  
 D - To +B high voltage  
 B - To diode plate 2nd det.  
 E - To capacitor C-17  
 C - To R-3, 2.2 meg. resistor  
 A - To chassis ground

Replacements

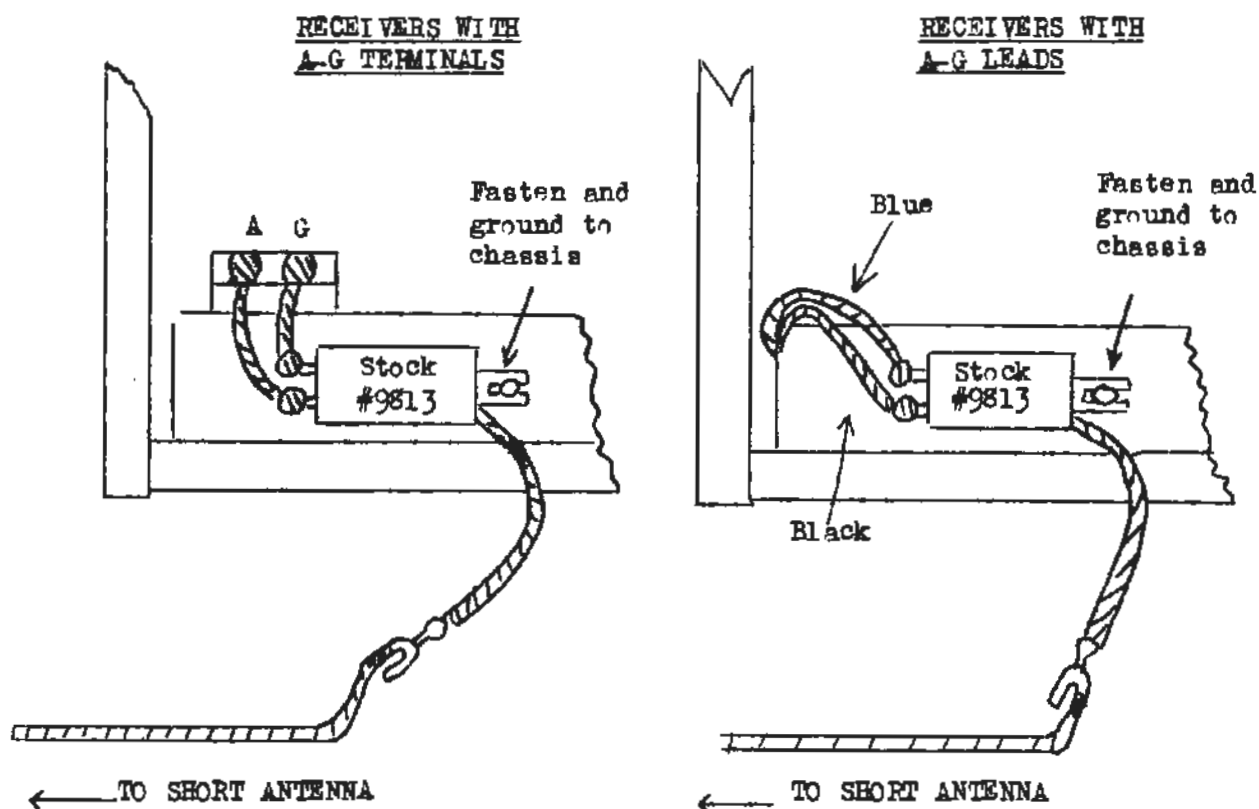
Stock #32068	First I-F Transformer.....	Unit List Price \$ 2.00
Stock #14283	Second I-F Transformer.....	" " " 3.80

Components of #32068 & #14283

Stock #14262	Capacitor 109 mmfd. (C11-C12)...	Unit List Price \$ 0.30
Stock #12404	Capacitor 120 mmfd. (C13-C14)...	" " " 0.30
Stock #14712	Capacitor 180 mmfd. (C15).....	" " " 0.15
Stock #11398	Resistor 220,000 ohms (R5).....	" " " 0.15
Stock #14284	Resistor 22,000 ohms (R4).....	" " " 0.15

ANTENNA CONNECTIONSRCA 5-6-7 Tube 1939 Models

The antenna circuit of the new RCA receivers is designed to provide the best possible pickup or sensitivity when used in conjunction with a normal antenna having a length 60-100 feet. It is also essential that a ground connection be used. The maximum results from these sets will not be obtained when used with a very short piece of wire or makeshift antenna as is sometimes employed on temporary demonstration. However, performance under the latter conditions can be greatly improved by using a standard RCA receiver coupling unit, stock #9813, connected as shown below. It is to be especially noted that this unit is not required for an installation where a normal antenna is used.



In weak signal or remote areas where signal pickup predominates in importance to local noise reduction, it is best not to employ the Magic Wave, Master, or similar antenna kits employing receiver coupling transformers. The RCA #395 Antenna is very suitable on these sets and provides good signal transfer as well as reasonable noise reduction.

BALLAST TUBE RMA NUMBERING

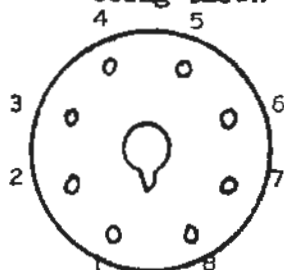
The internal connections and voltage characteristics of ballast tubes used in AC/DC receivers are indicated by the type number and its arrangement. As an example of the RMA coding, note type BK-36-C.

"B" indicates that a ballast section is provided for one or more pilot lamps.

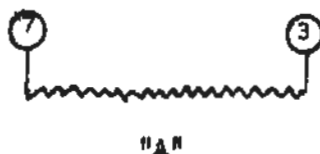
"K" means that the pilot lamp(s) is a 0.150 amp, 6.3 volt type (Mazda 40 or 47)

"36" implies that a 36 volt drop occurs across the entire unit in normal operation with pilot lamps connected. This rating will always be an approximate multiple of 6.3.

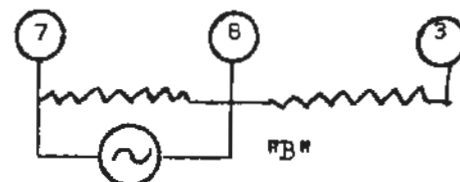
"C" or the final letter refers to the terminal arrangement; the present systems being shown below.



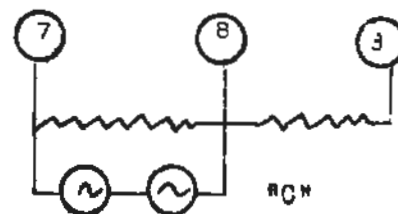
Bottom View  
Octal Base



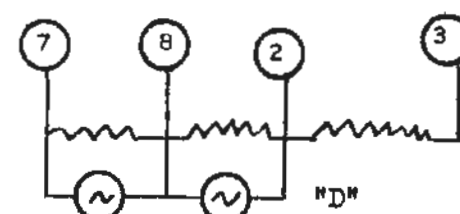
"A"



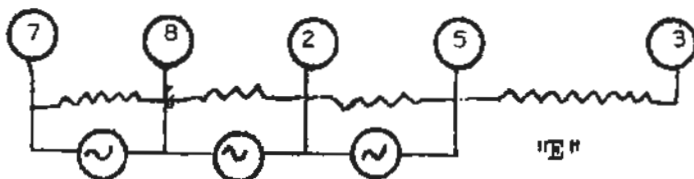
"B"



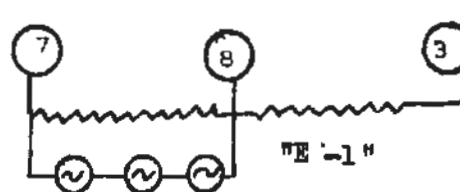
"C"



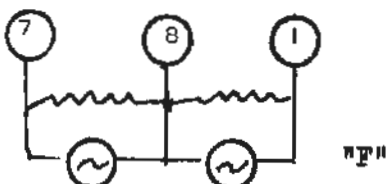
"D"



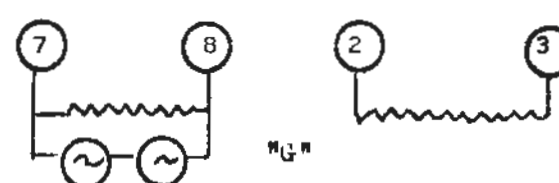
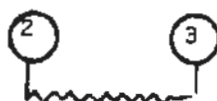
"E"



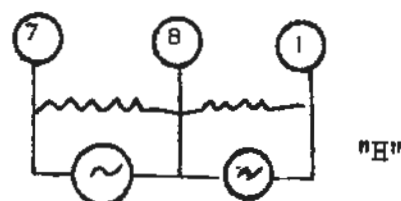
"E-1"



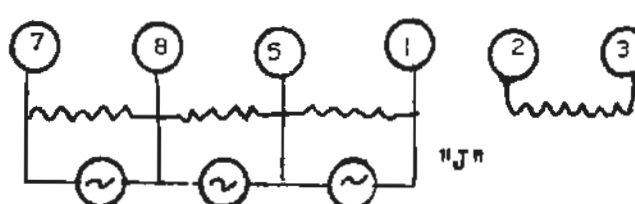
"F"



"H"



"I"



"J-1"

BLOCKING OR DISTORTION AT HIGH VOLUME - Model R-39

The amount of reserve amplification provided in this instrument is such that on records having very "heavy" modulation, there may be a tendency to block or produce a choking type of distortion. This condition can be removed by reducing the value of R-9 from 10 megohms to 1 megohm. This resistor is in the grid return circuit of the 6F5. The 1 megohm may be added in multiple with the 10.

MODEL 96T3 SPEAKER PARTS

On some 96T3 instruments, a speaker mechanism marked 72870-1 is employed. The replacement components for this speaker are different from those specified in the service notes and should be ordered as follows:

Stock #13822 Field Coil for speaker assembly 72870-1.....List Price \$1.35  
Stock #13677 Cone and Voice Coil for speaker 72870-1.....List Price 1.75  
Stock #13678 Output Transformer for speaker 72870-1 .....List Price 2.00

LIMITATION PUSH BUTTON RANGES

5-6-7 Tube Receivers, 1939 Line

Occasionally a receiver is found where the lower frequency limit specified on a particular button cannot be reached. The alternative button having the same specified range will cover properly and should be employed to tune the desired station falling at the low frequency limit.

DISTORTION WITH LARGE ANTENNA - Model 95X6

Whenever distortion occurs on this instrument, it is usually possible to remedy the condition by reversing the power line plug, addition of filter capacitors to the power circuit, and decreasing the effectiveness of the antenna system by reduction of length.

MECHANICAL NOISE - MOTOR TYPE ELECTRIC TUNING

Noisy operation of the electric tuning mechanism, especially on larger instruments of the 1939 series, may be reduced by application of the following suggestions:-

- (1) Thoroughly lubricate slide rods which carry dial pointer. Use an oil that does not tend to harden with age and also clings well to the guides.
- (2) Lubricate the fork of AFC switch (where used) with similar oil.
- (3) See that the dial drum is not rubbing against pilot light shields.
- (4) Check alignment between motor shaft and pinion gear shaft, to see that these are adjusted on the same axis. It may be necessary to "shin" the motor mounting to accomplish ideal alignment.

REPLACEMENT PARTS FOR RCA PHONOGRAPH DRIVE MOTORS

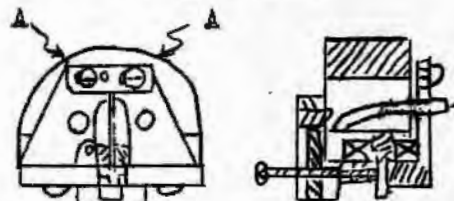
Small Governor, and Constant Speed Types, 105-125 Volts

MOTOR	NAMEPLATE	MARKING	Field		SCREW Speed	Spindle	
Stk. No.	Dwg. Ref.	Cycles	Coils & Laminations	GOVERNOR	Regulator With Nut	& Gear	USED IN
			Stk. No.	Stk. No.	Stk. No.	Stk. No.	
11701	72444-1	50-60	31625	11703	Not Used	31629	D8-28, D9-19
11702	72444-2	25	31626	31624	"	"	D8-28, D9-19
13577	72444-3	50	31625	11703	"	"	7U2
13578	72444-4	25	31626	31624	"	"	7U2
13576	72933-1	60	31618	31623	31620	31630	7U2
14325	72933-3	60	31618	31623	"	31631	R94
14326	72933-4	50-60	31619	11703	"	"	R94
14327	72933-5	50-60	31628	11703	"	"	R94
14800	72933-6	60	31618	31623	"	31632	R96, U102E
30475	72933-7	50-60	31619	11703	"	"	U102E
9799	72986-1	60	31618	31623	"	31633	R97, U103, U105
14465	72986-2	50-60	31619	11703	"	"	R97, U103, U105
31157	72986-3	60	31618	31623	"	31634	U125, U130 U126, U132 U128, U134
31163	72986-4	50-60	31619	11703	"	"	U125, U130 U126, U132 U128, U134
14466	84008-1	25	31626	31624	31620	31633	R97, U103 U105
31448	84008-4	25	31626	31624	"	31636	U125, U130 U126, U132 U128, U134
31461	84323-1	60	31618	31623	"	31621	U119, U124 U122E,
31462	84323-2	50-60	31619	11703	"	"	U119, U124 U122E,
31983	84323-3	50-60	31619	11703	Not Used	31621	8QU, 8QU1, 8QU2, M81, M82, M83
31876	84333-1	50-60	31619	11703	Not Used	31634	11QU, 12QU
31724	84388-1	25	31626	31624	31620	31773	U119, U124 U122E,
32006	84415-1	(D.C. 50-60 AC	32033	32034	"	32035	UY122E, UY124
32135	84430-1	60	32175	Not Used	Not Used	32177	U115

Rotor Bearing Thrust Screw #31616 used all models except on #32135 motor; it carries #32176. Governor End Bearing Bracket #31617 applies on all motors using such a bracket. Metal and Felt washers #31622 for turntable bearing fit all motors using same.

Replacement Pickup Mechanism - R-93 and R-93A

The pickup mechanism, as illustrated is being made available for replacement use on record players R-93 and R-93A. This unit is identical in construction to Stock #31,100 described in March 25, 1938 issue of "Over the Soldering Iron" except that the magnet is CHROME instead of cobalt.



Details of Pickup

Stock #32205

List Price \$3.95

Appx. Output 0.4v.

Wiring Change - Models 98X, 98EY, & 98YG

The shield of cable which interconnects the 6J7 grid to the volume control, has been changed from the tone control terminal to terminal #3 (one nearest end of chassis) of the volume control. Such a change of return point for the shield minimizes hum and possible audio oscillation.

Dial Light Diffusion Screen

Models 98K, 99T, 99K, &amp; 910KG

Where warpage of the light diffusion screen tends to obstruct movement of the dial pointer, it is usually possible to bend the pointer outward so that clearance is obtained. It is also possible to reduce the warpage by leaving the set in a reasonably dry place for several days. Should replacement of the screen be necessary, it may be ordered as Stock #32083 - Dial Color Screen and Frame Assembled, less pointer carriage and rods. This part supersedes Stock #31306.

Modification of Push Button Ranges

Models 95T5, 96T, 96M, 96E, &amp; 97X

The push button tuning ranges of these instruments have been modified so that the arrangement is 2-1-2 instead of 1-2-2. The ranges are now as follows:

Buttons #1 & #2 - 550 KC to 980 KC  
" #3 - 650 KC to 1080 KC  
" #4 & #5 - 850 KC to 1500 KC

All receivers having these ranges are stamped "MOD" on the rear of the chassis; the labels indicating range correspond to the above; and the "run letter" associated with code marking is "C" or greater (alphabetically).

Stock #32066 Antenna Trimmer Bank is used for the 2-1-2 setup.

Stock #31415 Coil is used for L-12 & L-13 on 95T5, 96T, 96M, & 96E.

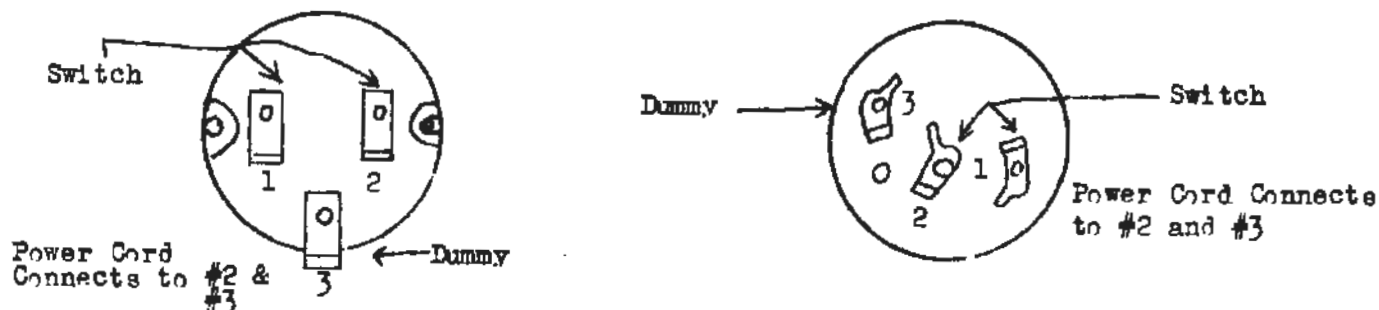
Stock #31385 Coil is used for L-12 & L-13 on 97X.



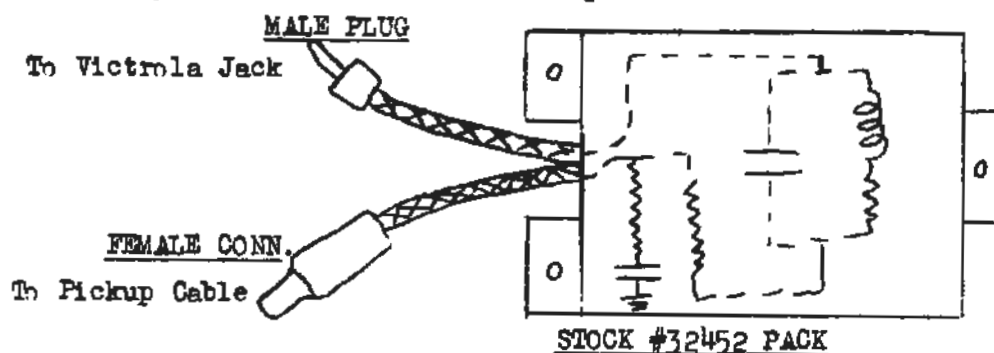
VOLUME CONTROL - STOCK #31366

Models 96T3, 96K2, 97KG, Etc.

There is a variation in power switch connections between the two types of volume - tone - switch controls employed on the 6-7 tube receivers. The relation is illustrated below in views of the switch and of the control.

PHONOGRAPH FIDELITY REVISION - Models U-132 and U-134

It has been found that more "brilliance" can be provided on record reproduction by use of a special phonograph input circuit. A complete compensation pack, including such a circuit encased and shielded, is therefore being made available for use where it is considered desirable. The pack is illustrated and described below:



INSTALLATION - Locate pack on chassis mounting panel, 5 inches to right and 1 inch above bottom edge. Connect between pickup cable and "Victrola" jack on chassis. Disconnect resistors R-101, R-102, R-103, and capacitor C-104 from circuit. See that capacitor C-105 connects directly to "Victrola" jack.

RADIO INTERFERENCE ON PHONO - Model U-132

Where crosstalk from a strong local station occurs during phonograph reproduction, a remedy may be effected by one or more of the following:- (1) Replace 6R7 tube, (2) check Victrola switch contacts, and (3) shield grid lead of 6R7 under chassis, extending shield as closely as possible to C-55.

SERVICE DIVISION  
RCA MANUFACTURING COMPANY, INC.