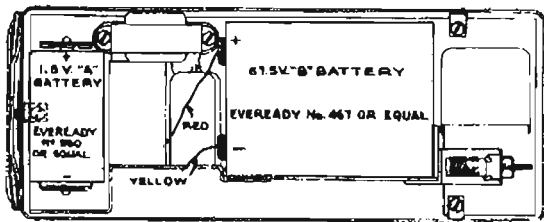


Alignment Procedure

Output Meter Alignment.—If this method is used, connect the meter across the voice coil, and turn the receiver volume control to maximum.

Test-Oscillator.—For all alignment operations, keep the output as low as possible to avoid a-v-c action.



Steps	Connect the high side of test-osc. to—	Tune test-osc. to—	Turn radio dial to—	Adjust the following for max. peak output—
1	Tuning condenser stator (ant.) in series with .01 mfd.	455 kc	Quiet point at 1,600 kc end of dial	L7, L6, L5, L4 (2nd and 1st I-F transformers)
2	Radiated signal 1,620 kc	1,620 kc	Full clockwise (out of mesh)	C5 (oscillator)
3	Radiated signal 1,300 kc	1,300 kc	1,300 kc	C9 (antenna)
4	Radiated signal 600 kc	600 kc	600 kc	L2 (sec.)
5	Repeat steps 2, 3 and 4.			

Electrical and Mechanical Specifications

FREQUENCY RANGE..... 540-1,600 kc
INTERMEDIATE FREQUENCY..... 455 kc

RCA TUBE COMPLEMENT

- (1) RCA-1R5..... 1st Det.—Osc.
- (2) RCA-1T4..... I-F Amplifier
- (3) RCA-1S5..... 2nd Det., A-F, and A.V.C.
- (4) RCA-1S4..... Power Output

POWER SUPPLY

Type Battery	Current Consumption	Approximate Life (Intermittent Duty)
"A"—1.5 volt Eveready No. 950	0.25 amperes	3-5 hours
"B"—67.5 volts Eveready No. 467	8.5 milliamperes	25-40 hours

POWER OUTPUT

Undistorted.....	0.05 watts
Maximum.....	0.12 watts

LOUDSPEAKER

Type..... 3-inch permanent-magnet dynamic
V.C. Impedance..... 8 ohms at 400 cycles

Cabinet Dimensions (inches)	Height	Width	Depth
Weight.....	8	8 1/2	8 1/2
Tuning Drive Ratio.....	3 1/2 lbs. (net)	4 1/2 lbs. (shipping)	1 to 1

NOTES, DATA

"KNOCKED-DOWN" VOICE COIL AND CONE

Installation Instructions:

To simplify cone replacement in certain speakers, the cone and voice coil are supplied as two separate units: (1) The voice coil and support, (2) The cone diaphragm.

General Procedure

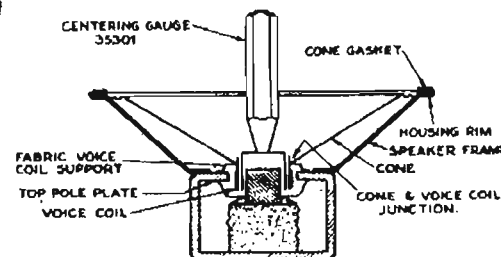
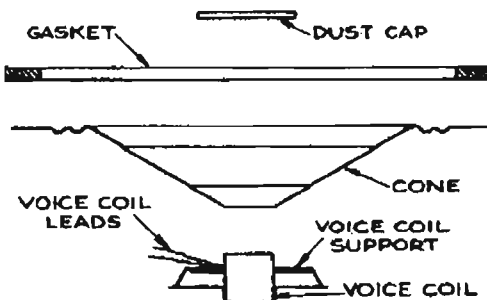
- Cement voice-coil support to the speaker, using centering gauge or speaker shims.
- Solder voice-coil leads.
- Put cone in place, cementing around rim of speaker frame.
- Cement junction of cone and voice coil.

Detailed Instructions

- Remove old cone and voice coil. Protect air gap with scotch tape. Clean off all paper and cement.
- Apply a ring of cement (Duco Household) on top plate.
- Insert centering gauge in new voice coil, handle first, from the winding end.
- Remove scotch tape from gap. Insert voice coil and gauge in gap with leads in correct position for soldering. Press rim of voice coil support into the cement.

- Solder the voice coil leads to terminals, allowing sufficient slack to permit free motion of the cone. Dress leads in plane of motion, clear of cone and housing.
- Apply a ring of cement around the rim of speaker frame. Place cone down over voice coil and press cone rim tight to speaker frame.

- Allow cement to dry on cone rim and voice-coil support. Then run a ring of cement around the junction of the cone and voice coil, being careful the cement does not run inside voice coil.
- After cement at junction has dried, remove gauge, using a rotary motion.
- Cement large cardboard gasket in place. Set the speaker in inverted position on a flat surface until gasket is dry. Current dust cap on cone center.



Certain replacement cones are supplied "knocked-down" in two pieces—(1) The voice coil and centering support, (2) The cone diaphragm.

When installing "knocked-down" speaker cone, the junction of the cone and the voice coil is cemented last.

ABSORPTION WAVE TRAP

For Loop Receivers:

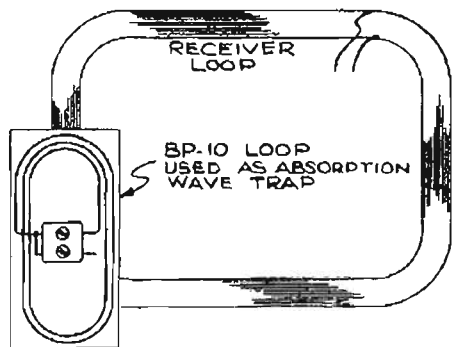
Interference and cross modulation due to the presence of a strong local broadcast station is seldom experienced on loop-type receivers because the signal pickup is much less on a loop than on an antenna.

However in rare cases where such interference is encountered, it can generally be eliminated by using an absorption-type wave trap, loosely coupled to the loop on the receiver, as shown in accompanying sketch, and tuned to the frequency of the interfering station.

A good absorption trap can be made with a small loop like that used in Model BP-10 "Personal" radio. Fasten a two-section mica trimmer (salvaged from a discarded IF transformer) on the small loop. Connect the trimmer across the terminals of the small loop. Use one trimmer, or both in parallel, depending on whether the interfering station is at the high or low end of the broadcast band.

Tune the receiver to the frequency of the interfering station, place the trap near the receiver loop, and adjust the trap trimmer(s) to resonance, indicated by a sharp dip in signal strength. Use smaller or larger capacity trimmers if required to reach resonance.

Check to see if the particular interference effects have been eliminated. Adjust the position of the trap to secure closer coupling if necessary to further increase signal absorption. Avoid over coupling. Fasten the trap in the desired position on the receiver loop.



On a loop receiver, interference from a strong local broadcast station can be reduced by using an absorption loop, tuned to the interfering station, and loosely coupled to the receiver loop.

VOICE COIL IMPEDANCE

And DC Resistance:

In servicing RCA radio loudspeakers, it is helpful to know that the DC resistance of the voice coil is approximately 10 percent less than the impedance at 400 cycles.

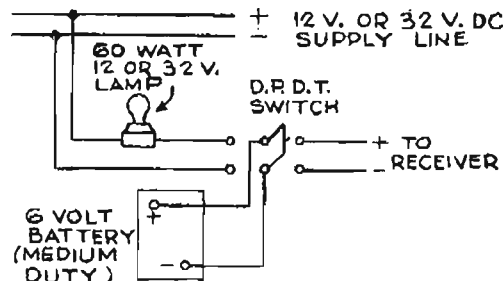
For example, a speaker with a rated voice-coil impedance of 2.2 ohms at 400 cycles will measure about 2 ohms DC resistance.

Radio storage battery can be charged on a DC farm-lighting outfit.

RECHARGING 6V BATTERY

On 12V or 32V DC Supply:

A 12-volt or 32-volt DC farm-lighting supply can be used to recharge a 6-volt radio storage battery. The recommended circuit is shown herewith. The charging rate may be increased or decreased by using a higher or lower wattage lamp.



BATTERY COMPLEMENT

For RCA Portable Models:

MODEL	BATTERIES	EVEREADY No. *
BP-10 (RC-544)	1 1.5 volt "A" 1 0.75 volt "B"	No. 950 No. 467
15BP Series (RC-527, 527-A)	1 1.5 volt "A" 2 45 volt "B"	No. 743 No. 482
25BP (RC-527-D, 1030)	1 1.5 volt "A" 2 45 volt "B"	No. 743 No. 482
26BP (RC-559)	2 4.5 volt "A" 2 45 volt "B"	No. 746 No. 482
BP-55, -56, -85 (RC-455)	1 6 volt "A" 2 45 volt "B"	No. 747 No. 482
94BP (RC-407)	1 1.5 volt "A" 2 45 volt "B"	No. 742 No. 782
94BP (RC-407-B)	1 1.5 volt "A" 2 45 volt "B"	No. 742 No. 782
	1 1.5 volt "A" 2 45 volt "B"	No. 745 No. 482 or 727
	1 1.5 volt "A" 2 45 volt "B"	No. 741, 742, 743 No. 482 or 727
94BP-4 (RC-410)	1 1.5 volt "A" 2 45 volt "B"	No. 742 No. 782

* Or equivalent.

RCA SCHEMATICS

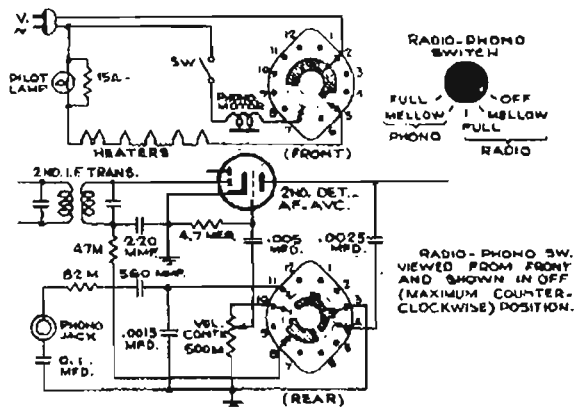
Switch Positions:

Practically all of the larger RCA receivers have decals on the cabinet (or other means) to indicate the function of each position on the more complicated switches. In cases where only the chassis is brought in for service, the corresponding information about controls is given in a knob drawing printed in the Service Note.

For example, the accompanying schematic shows the radio-phono-tone control switch circuit in Model V-195, drawn as usual in the extreme counter-clockwise position. The knob view shows the function of each position:

- (1) "Off" (counter-clockwise).
- (2) Radio—mellow tone.
- (3) Radio—full tone.
- (4) Phono—mellow tone.
- (5) Phono—full tone (clockwise).

As a general rule, on RCA receivers clockwise rotation of a control produces an increase. Thus on a range switch, the lowest-frequency band is counter-clockwise, and the highest-frequency band is clockwise. On tone controls, the narrowest audio range or deepest tone is counter-clockwise. The widest audio range or highest tone is clockwise.



In RCA Service Note schematics, wafer switches are shown in extreme counter-clockwise position, and the drawing of control knobs gives sequence and function of switch positions.

Installing No. 38204 Antenna Loop in BP-10 Where Loop is Held with Snap Fasteners:

- A. Remove the defective loop and its flat molded cover by prying out the two snap fasteners.
- B. Spread white paint or ink on the surface of the two bosses in lid.
- C. Place the new loop and cover in correct position inside the lid and press down so the paint will transfer on to the loop cover.
- D. Drill holes (.242-inch, No. C drill) in the flat loop cover at the exact center of each paint mark. Countersink each hole (approximately 3/64-inch) on loop side, so that the flat cover will set flush with the top of the bosses.
- E. Fasten the loop and cover to the lid with the two snap fasteners supplied.

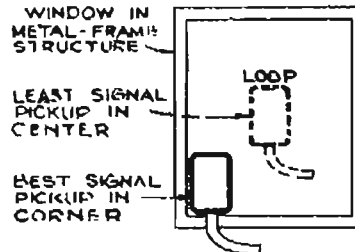
Installing No. 38204 Antenna Loop in BP-10 Where Loop is Riveted in Lid:

- A. Drill the riveted ends of the rivets, and knock the rivets out, being careful not to damage the molded lid. Remove the defective loop and its flat molded cover.
- B. Place the new loop and cover in correct position inside the lid. Use the two rivet holes in the lid as a guide to drill corresponding holes in the loop cover.
- C. Fasten the loop assembly to the lid with the two rivets supplied.

BEST LOOP PICKUP

In Corner of Window:

In a metal-framed structure, such as a car, train, plane, or steel building, best signal pickup is usually obtained by placing the loop in one corner of the window instead of in the center. The center of the glass space is usually a null for signal. This fact should be kept in mind when using the extension loop on a portable radio, as there is a natural tendency to fasten the loop in the center of the window.



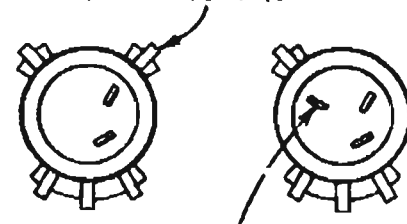
For best signal pickup, the extension loop on a portable set should be placed in corner of window.

DUMMY TERMINAL

On Replacement Volume Controls:

On certain replacement volume controls, the location of the "dummy" terminal is changed as shown in accompanying sketch.

ORIGINAL LOCATION OF DUMMY TERM.



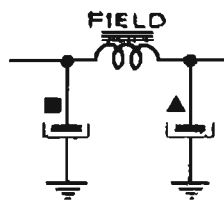
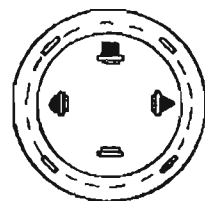
NEW LOCATION OF DUMMY TERMINAL (HAS COPPER RIVET)

Change in location of dummy terminal on certain replacement volume controls.

ELECTROLYTIC CAPACITORS

Terminal Identification:

On certain types of multiple-section electrolytics, the terminals are identified by small markings (triangle, half-round, or square). The marks are either cut-outs or mouldings in the base. Corresponding marks are shown adjacent to the electrolytic symbols in the schematic diagrams.



In some electrolytic capacitors, the terminals are identified by half-round, triangular, and square markings. Corresponding marks are shown adjacent to the symbols in the schematic.

QU7, QU-51, -52, -55, -56

Tone Arm Pressure Spring:

When replacing the tone arm, or the magnetic pickup head, check the needle pressure which should be approximately 3 1/2 ounces. Alter the counter-balance spring in arm to obtain the correct pressure, or install a new spring. Two springs (66 turns and 75 turns) are supplied under Stock No. 88218. Use the spring that most nearly gives the correct pressure and then remove turns, or stretch the spring, as required, for final adjustment.

BP-10

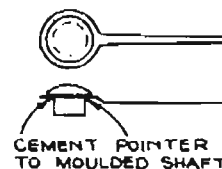
Loop and Moulded Lid:

Stock No. 38204 antenna loop with undrilled flat molded cover, and/or Stock No. 38211 molded lid with bosses for snap fasteners, can be used in any Model BP-10 where the antenna loop is secured in place with rivets, or with snap fasteners.

6X2, 24BT-1, -2

Loose Dial Pointer:

Expansion and contraction due to temperature changes may cause the metal dial pointer to become loose on the moulded button shaft. This condition has been corrected in production by fastening the pointer with "Du Pont Household Cement" as shown.



Loose dial pointer can be repaired with Du Pont Household Cement.

Installing Stk. No. 38211 Molded Lid in BP-10 Where Loop is Riveted in Lid:

- A. Snip the two hinge pins and pull the pins out of the hinges, to permit removal of the defective lid.
- B. Drill the riveted end of the rivets and knock them out, being careful not to damage the flat loop cover. Remove the loop and its cover from the lid.
- C. Spread white paint or ink on the surface of the two bosses in the Stock No. 38211 lid.
- D. Place the original loop with its flat cover in correct position inside the Stock No. 38211 lid and press down so the paint will transfer to the loop cover.
- E. Drill holes (.242 inch, No. C drill) in the flat loop cover at the exact center of each paint mark. Countersink each hole (approximately 3/64-inch) on loop side, so that the flat loop cover will set flush with the top of the bosses.
- F. Fasten the loop and cover to the No. 38211 lid with the two snap fasteners supplied.
- G. Assemble the lid and loop to the chrome panel, using the hinge pins and springs furnished with No. 38211 lid.

MODELS 15X, 16X-1,
16X-2, 16X-3
MODELS 16X-11,
16X-13, 16X-14
MODELS 500, 501

MODELS 15X, 16X-1, 16X-2, 16X-3

Alignment Procedure

Output Meter Alignment.— If this method is used, connect the meter across the voice coil, and turn the receiver volume control to maximum.

Test-Oscillator.— For all alignment operations, keep the output as low as possible to avoid a-v-o action.

MODELS 500, 501

Steps	Connect the high side of test-osc. to—	Tune test-osc. to—	Turn radio dial to—	Adjust the following for peak output—
1	12SK7 grid in series with .001 mfd.	455 kc	Quiet Point at 1,500 kc end of dial	C17, C18 (2nd I-F Trans.)
2	12SA7 grid in series with .001 mfd.			C15, C16 (1st I-F Trans.)
3	Antenna term. of ant. trans. in series with 100 mmfd.	1,720 kc	Full clockwise (out of mesh)	C14 (oscillator)
4		1,500 kc	Resonance on 1,500 kc signal	C12 (antenna)

Precautionary Lead Dress:

- .01 mfd. capacitor from output plate to cathode to be dressed as far as possible away from .015 mfd. 1st audio grid condenser and volume control terminals to eliminate audio howl.
- Filament lead to pin No. 7 on 85L6-GT socket to be dressed away from 1st audio grid.
- Dress B+ lead on 12SK7 I.F. socket across bottom of socket between grid and plate contacts to aid reduction of grid plate capacitance.
- Dress excess lead lengths of I.F. transformer, grid and plate leads into cans to aid shielding.
- Dress filament leads of 85L6-GT around 12SQ7 socket and into chassis corner to reduce hum.

Steps	Connect the high side of test-osc. to—	Tune test-osc. to—	Turn radio dial to—	Adjust the following for maximum peak output
1	12SK7 I-F grid, in series with 0.1 mfd.	455 kc	Quiet Point at 1,700 kc end of dial	C29, C28 2nd I-F transformer
2	12SA7 1st det. grid, in series with 0.1 mfd.			C21, C20 1st I-F transformer
3	12SK7 R-F grid, in series with 0.1 mfd.	1,720 kc	1,720 kc	C18 (osc.)
4	Radiated signal 1,300 kc		Signal frequency	C16 (ant.)
5	Repeat steps 3 and 4			

Alignment Procedure

MODELS 16X-11, 16X-13, 16X-14

Steps	Connect the high side of test-osc. to—	Tune test osc. to—	Turn radio dial to—	Adjust the following for max. peak output—
1	12SK7 I-F grid in series with 0.1 mfd.	455 kc	"A" Band Quiet Point 1,600 kc end of dial	C23, C22 2nd I-F Transformer
2	12SA7 1st Det. grid in series with 0.1 mfd.			C21, C20 1st I-F Transformer
3	Ant. terminal in series with 47 mmfd.	19 mc	"C" Band 19 mc	C18 (osc.)
4	Radiated Signal 18 mc		"C" Band Resonance on Signal	C31 (ant.)

Steps	Radiated Signal	Resonance on Signal	Inductance of L12*
5	Radiated Signal 6.1 mc		
6	Ant. terminal in series with 200 mmfd.	1,720 kc	"A" Band 1,720 kc C35 (osc.)
7	Radiated signal 1,400 kc		"A" Band Resonance on Signal C33 (ant.)
8	Ant. terminal in series with 200 mmfd.	590 kc	"A" Band 590 kc C36 (osc.)
9	Repeat steps 6, 7 and 8		

* Adjust by dressing proximity of AVC lead to coil.

Calibration Scale.—The glass tuning dial may be easily removed from the cabinet and temporarily attached to the dial backing plate for quick reference during alignment.

Replacement Parts MODEL BP-10

Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

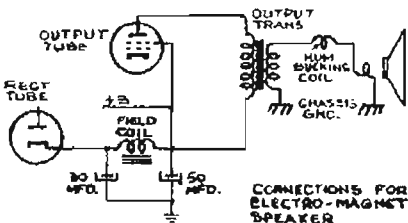
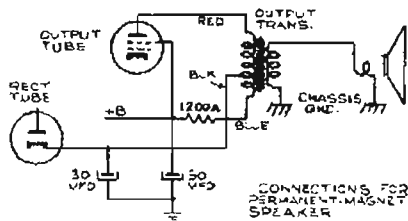
STOCK No.	DESCRIPTION	Unit List Price	STOCK No.	DESCRIPTION	Unit List Price
CHASSIS ASSEMBLIES (RC-544)					
36717	Capacitor—20 mmfd.	.40	30992	Resistor—10 megohm, 1/2 watt	.20
36715	Capacitor—50 mmfd.	.40	31085	Screw—No. 8-32 x 1/2 set screw for knobs	.15
36716	Capacitor—100 mmfd.	.40	36500	Socket—Tube socket	.15
12488	Capacitor—270 mmfd.	.35	36089	Socket—1T4 tube socket	.20
36163	Capacitor—.001 mfd.	.25	36492	Transformer—First I.F. transformer	1.90
33584	Capacitor—.005 mfd.	.25	36499	Transformer—Second I.F. transformer	1.90
36248	Capacitor—.02 mfd.	.20	SPEAKER ASSEMBLIES (84991-501)		
32787	Capacitor—.05 mfd.	.20	36504	Speaker—3-inch P. M. speaker, complete with cone and voice coil, less output transformer	2.50
36718	Capacitor—Electrolytic, 10 mfd., 80 volts	.40	36505	Transformer—Output transformer	.75
36497	Coil—Oscillator coil	.70	MISCELLANEOUS ASSEMBLIES		
36496	Condenser—Variable tuning condenser	2.75	36510	Antenna—Antenna loop and cover	1.75
36495	Control—Volume control	1.00	36507	Bottom—Receiver case bottom cover	1.50
36608	Core—Adjustable core and stud for oscillator coil	.15	36508	Center—Receiver case center strip	2.50
36503	Holder—Battery holder complete	.40	36509	Handle—Carrying handle and bracket	.45
36501	Knob—Tuning knob	.75	36688	Initials—100 initials to each set comprising 25 groups of the average initials and one tube of cement	2.00
36502	Knob—Volume control knob	.80	36511	Lid—Receiver case top cover and panel	5.50
30158	Resistor—820 ohms, 1/2 watt	.20	36695	Strap—Shoulder strap	.60
36714	Resistor—15,000 ohms, 1/2 watt	.20	36506	Switch—Power switch	.40
36787	Resistor—47,000 ohms, 1/2 watt	.20			
32856	Resistor—100,000 ohms, 1/2 watt	.20			
30652	Resistor—1 megohm, 1/2 watt	.20			
31417	Resistor—3.3 megohm, 1/2 watt	.20			
30831	Resistor—4.7 megohm, 1/2 watt	.20			

ALL PRICES ARE SUBJECT TO CHANGE OR WITHDRAWAL WITHOUT NOTICE.

1X, 12X, 14X SERIES

Speaker changed from "PM" to "EM":

First Production of the following models use RL-81-B2 "PM" (permanent-magnet) speaker. In 2nd Production, the speaker is changed to RL-86-A3 "EM" (electro-magnet) speaker. The circuit for each type of speaker is shown in the accompanying diagrams.



Circuit for "PM" and "EM" Speakers in 1X, 12X, and 14X Series.

Replacement Parts for the RL-86-A3 "EM" speaker are as follows:

Table with 4 columns: Model Number, Chassis Number, Cone and Voice Coil No., Output Transformer No. Lists parts for models 1X, 12X, and 14X.

Unit List Price: No. 35570, \$1.20; No. 35056, 1.30; No. 88994, 1.30

The Field Coil for RL-86-A3 Speaker is Stock No. 39543.

1X, 1X2, 1AX, 1AX2, 45X5

Line Bypass Capacitor:

In some production, the .005 mfd. line bypass is connected from plate to cathode on the rectifier tube, instead of from plate to chassis.

1X, 1X2, 1AX, 1AX2

2nd Production:

The tuning-knob shaft and its "C" washer are changed as follows:

Table showing Shaft and "C" Washer changes for 1st and 2nd production runs.

Capacitor Changes:

C14 changed from .015 to .02 mfd., No. 36248; C17 changed from .085 to .02 mfd., No. 36248; C24 (1AX, 1AX2) changed from .2 to .1 mfd., No. 43763; R4 changed from 2.2 to 3.3 megs., No. 12928

QB2, QB6

I-F or A-F Transformer Breakdown:

In 2nd production, a 10-megohm, 1/2-watt resistor is connected across the +B circuit electrolytic capacitor to discharge the capacitor when the set is tuned "off". This eliminates any voltage difference (retained by capacitor) between the chassis and I-F and A-F transformer primaries while the set is "off" and therefore reduces transformer breakdown due to electrolysis in humid climates.

CV-112X CONVERTER

AC Power Unit for QB2, QB5, QB6:

The CV-112X is designed to convert Models QB2, QB3, and QB6 from battery to a-c operation. It differs from the CV-112 in that it has a tapped filament winding to provide correct filament voltage with 4- and 5-tube, or 6-tube receivers. A plug, which fits in a socket on the side of the unit, is used to select the correct tap, as shown in accompanying diagram.

QB3 (RC-539)

C15, 66 mmfd., Stock No. 36072:

In 2nd Production of QB3, C15 is changed to 66 mmfd. (Stock No. 36072, List Price \$1.30) to improve tracking.

QB6 (RC-529D)

Service Data:

Model QB6 is essential the same as Model QB2, except for the following parts which are used in the QB6:

Table listing replacement parts for QB6, including Stock No., Description, and Unit List Price.

10X, 2ND PRODUCTION

Chassis No. RC-1001-B:

The 1st production of Model 10X has chassis No. RC-1001, with an "EM" speaker.

In 2nd production, the chassis is No. RC-1001-B, with RL-81B2 "PM" speaker.

The circuit in 2nd production is the same as shown in the Service Note for Model 12X.

For replacement parts, refer to the 10X Service Note, and the following parts which are used in the 2nd production:

Table listing replacement parts for 10X 2nd production, including Stock No., Description, and Unit List Price.

SPEAKER ASSEMBLIES (RL-81B-2)

Table listing speaker assembly parts, including Stock No., Description, and Unit List Price.

LOCATING INTERFERENCE

With a Model BP-10:

The Model BP-10 "Personal" loop receiver has been used successfully in tracking down the source of electrical interference, and the location of local rectification in stubborn cases of local cross-modulation and hum-modulation.

The directional pattern of the BP-10 is essentially a figure "8," with a sharp minimum at right angles to the plane of the loop.

The small size, light weight, and high sensitivity of this battery-operated receiver makes it ideally suited for this work.

BP-10 AND 15BP

Oscillator Coil Color Code:

The correct color code for the oscillator coil in these models is as follows: Lead to oscillator plate... Blue; Lead to +B... Red; Lead to oscillator grid... Green; Lead to chassis... White

SPEAKER GAUGE No. 39598

For BP-10 Elliptical Speaker:

A special gauge, No. 39598, is now available for centering the voice coil in Model BP-10 with elliptical speaker.

CONE CENTERING GAUGE

For BP-10 Round Speakers:

A cone centering gauge for the BP-10 round speaker (Stock No. 36504, Part No. 84091-501) is now available. The gauge is carried as Stock No. 70003.

The cone centering gauge for the BP-10 elliptical speaker is Stock No. 39598 (see Supplementary Information 6 and 7).



Stock No. 70003—Cone Centering Gauge

12X, 12X2, 12AX, 12AX2

Antenna Coupling Coil:

In 2nd production, the shunt resistor R7 across the primary of the antenna coupling coil is omitted, and the antenna coupling coil is changed from Stock No. 37856 to 37962, list price \$1.75.

14AX, 14AX-2

Changes in 2nd Production:

C3, in grid circuit of 12SQ7, is changed from .015 to .02 mfd., Stock No. 36248.

C5, in 50L6GT plate circuit, is changed from .025 to .02 mfd., Stock No. 36248.

C21, chassis ground to power ground, is changed from .2 to .1 mfd., Stock No. 4839.

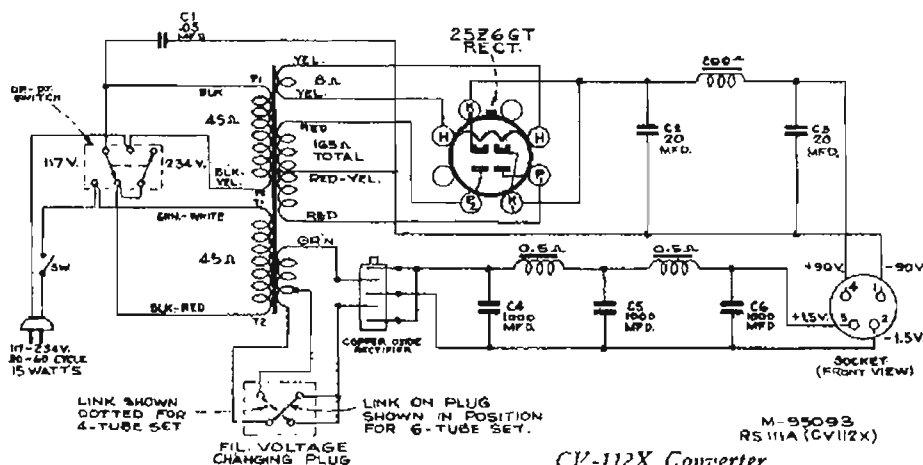
14AX2 (RC-1001E)

Service Data:

The Service Data for Model 14AX applies to Model 14AX2, except for the following parts used in 14AX2:

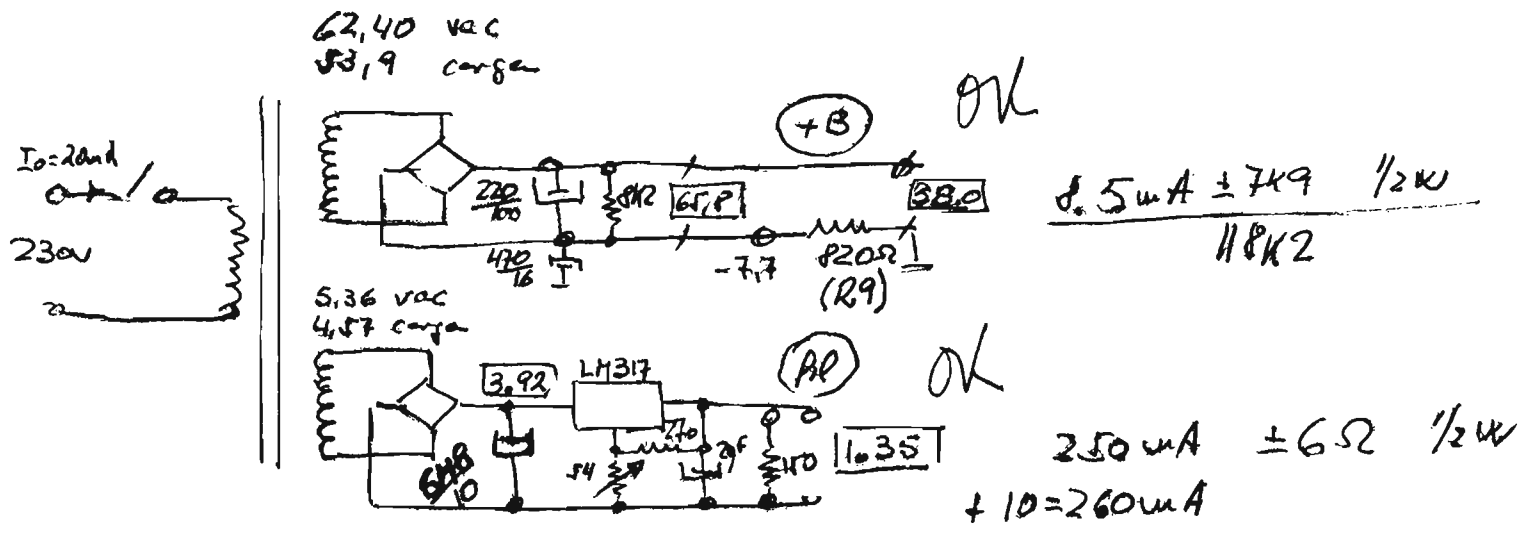
Table listing replacement parts for 14AX2, including Stock No., Description, and Unit List Price.

RL-86-A3 "EM" speaker is used in some production of 14AX2, as specified elsewhere in this supplement.

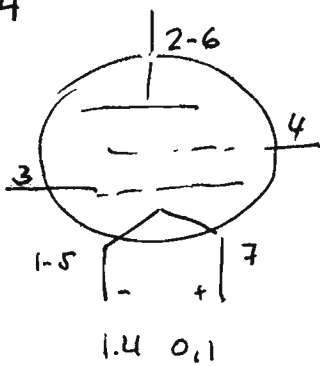


CV-112X Converter.

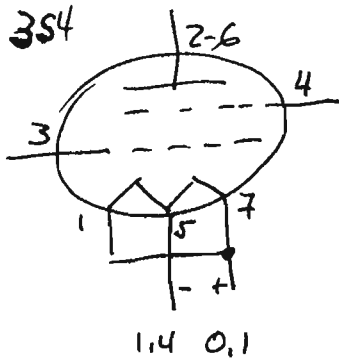
Factible FA para la BP-10 (RCA portátil) (Eliminador de Baterías)



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ORIGINAL



Modificar el Chasis

Facilidad de encontrar
354 >> mejor que 154