



# RCA VICTOR



PH505

Battery Operated Personal Receiver

## MODEL B-411

Chassis No. RC-1098

## SERVICE DATA

— 1950 No. 24 —

PREPARED BY RCA SERVICE CO., INC.

FOR

**RADIO CORPORATION OF AMERICA**  
**RCA VICTOR DIVISION**  
**CAMDEN, N. J., U. S. A.**

### Specifications

Tuning Range .....	540-1600 kc
Intermediate Frequency .....	455 kc
Tube complement:	
1. RCA 1R5.....	Converter
2. RCA 1U4.....	I.F. Amplifier
3. RCA 1U5.....	2nd Det.-A.F. Amp.-A.V.C.
4. RCA 3V4.....	Output
Loudspeaker	
Size and type.....	2" x 3" P.M.
Voice coil impedance.....	11 1/4 ohms at 1000 cycles

Batteries Required:		
Type of Battery	Current Consumption	Approx. Life (Intermittent Service)
"A"—1.5 volt RCA VS 036 or VS 001	} 0.25 amp.	7 to 10 hrs.
"B"—67.5 volts RCA VS 016	} 8.45 ma.	40 to 60 hrs.
Power Output:		
Undistorted.....		.075 watt
Maximum.....		.10 watt
Dimensions (over-all).....		5 1/2" x 7 5/8" x 2 1/2"
Weight (with batteries).....		slightly under 3 lbs.

### Replacement Parts

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION	
CHASSIS ASSEMBLIES RC 1098				
75778	Antenna—Ferrite rod antenna (L1)		47,000 ohms, ± 20%, 1/2 watt (R5) 100,000 ohms, ± 20%, 1/2 watt (R1)	
75783	Capacitor—Variable tuning capacitor (C1-1, C1-2)		1 megohm, ± 20%, 1/2 watt (R9) 3.3 megohm, ± 20%, 1/2 watt (R4, R10)	
73153	Capacitor—Ceramic, 4 mmf. (C5)		4.7 megohm, ± 20%, 1/2 watt (R3, R7) 10 megohm, ± 20%, 1/2 watt (R8)	
75784	Capacitor—Ceramic, 56 mmf. (C2, C7)	70527	Screw—#6-32 x 3/16" socket head set screw for volume control knob	
75785	Capacitor—Ceramic, 82 mmf. (C9, C10)	75780	Socket—Tube socket, 7 pin, miniature saddle mounted	
73960	Capacitor—Ceramic, 10,000 mmf. (C4)	75775	Transformer—First I-F transformer (T1)	
73964	Capacitor—Electrolytic 10 mfd., 70 volts (C15)	75776	Transformer—Second I-F transformer (T2)	
72792	Capacitor—Tubular, paper, .001 mfd., 200 volts (C12)	75777	Transformer—Output transformer (T3)	
72315	Capacitor—Tubular, paper, .002 mfd., 200 volts (C11, C14)		SPEAKER ASSEMBLY 92523-4	
73961	Capacitor—Tubular, paper, .003 mfd., 200 volts (C6)	70428	Speaker—2" x 3" P.M. speaker complete with cone and voice coil	
71928	Capacitor—Tubular, paper, .02 mfd., 200 volts (C13)		MISCELLANEOUS	
73553	Capacitor—Tubular, paper, .05 mfd., 400 volts (C8)	75787	Back—Case back	
75781	Clip—Battery mounting clip	75647	Case—Case front only complete with side turns, metal grille and emblem less handle and links	
75010	Clip—Output transformer mounting screw clip	75651	Emblem—"RCA Victor" emblem	
75774	Coil—Oscillator coil complete with adjustable core (L2, L3)	75648	Grille—Metal grille	
75782	Contact—Battery contact	75649	Handle—Carrying handle	
75773	Control—Volume control and power switch (R6, S1)	75788	Knob—Dial knob less spring clip	
37396	Grommet—Rubber grommet for antenna rod	75650	Link—Carrying handle link	
75779	Knob—Volume control knob less set screw	75801	Screen—Crinoline screen (black) for case front	
75786	Lead—"B" battery lead complete with connector	74734	Spring—Spring clip for dial knob	
Resistor—Fixed, composition: 390 ohms, ± 10%, 1/2 watt (R11) 1000 ohms, ± 20%, 1/2 watt (R12) 15,000 ohms, ± 10%, 1/2 watt (R2)				

APPLY TO YOUR RCA DISTRIBUTOR FOR PRICES OF REPLACEMENT PARTS

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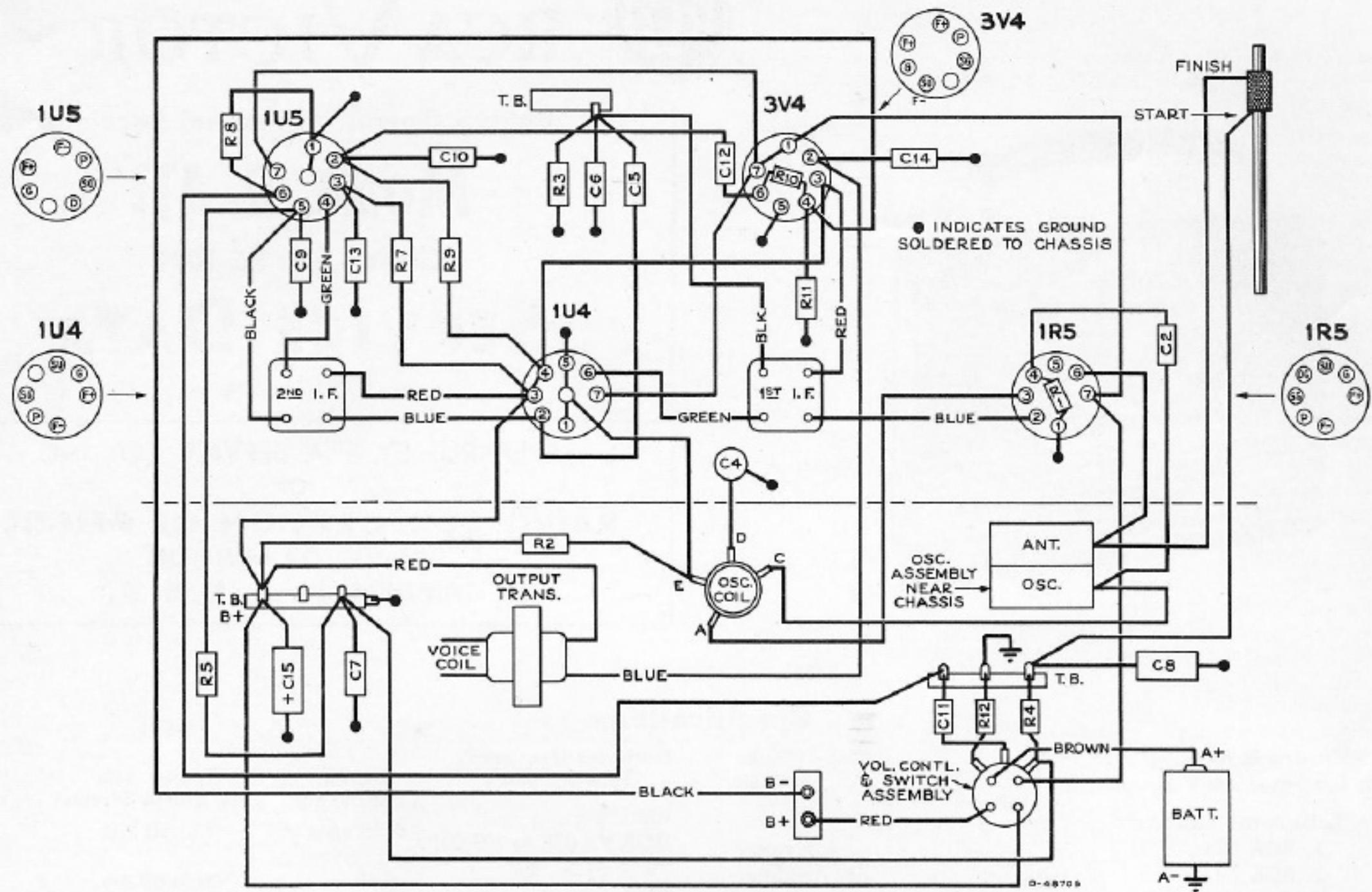


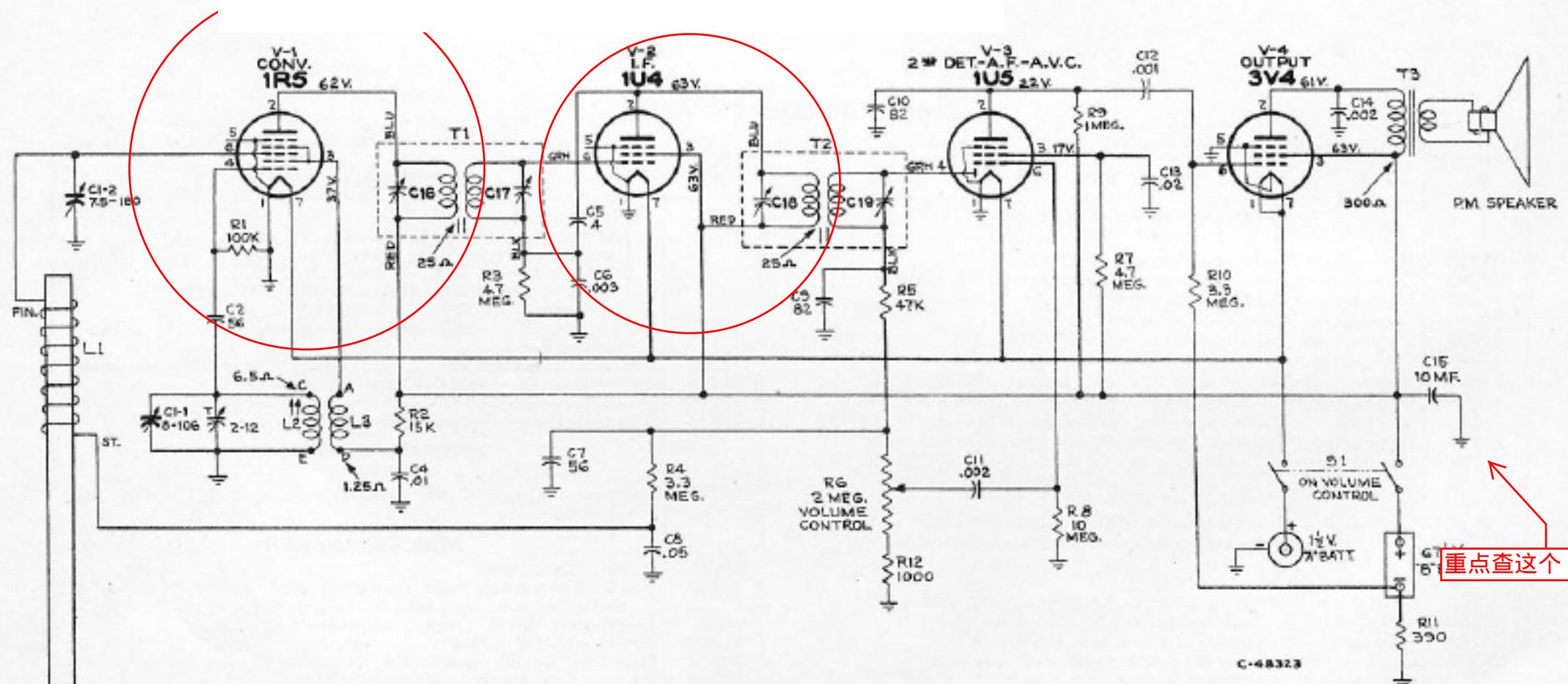
Fig. 1—Connection Diagram

先判断是低频啸叫还是高频啸叫。拔掉6A2、6K4叫声消失，是属于高频自激类的故障；如果叫声依旧，那是低频啸叫。

低频啸叫多由负反馈变成正反馈引起。

高频啸叫有振荡过强，6K4衰老，管子暗棚压过高等原因。

要先确定管子直流电位，再查交流通路，逐步排查。



**Output Meter.**—Connect meter from No. 2 terminal of V4 (plate of 3V4) to ground. Turn volume control to maximum position.

**Test-Oscillator.**—For all alignment operations, connect the low side of the test-oscillator to the receiver chassis, and keep the oscillator output as low as possible to avoid a-v-c action.

**Note:**—The inductance of the antenna coil is adjusted by sliding the coil along the Ferrite rod. This ant. coil is supplied pre-adjusted and cemented to rod. This makes further adjustment unnecessary. However when replacing ant. assembly make certain that the coil end of the rod extends two inches beyond the tube shelf.

#### CRITICAL LEAD DRESS

1. Dress all I-F transformer leads down to base and push any excess lead back in can.
2. Black lead from 1st I-F should lay down against top of tube shelf with capacitor C6 over it.
3. Dress neutralizing capacitor C5 direct and above chassis base, avoid lead length.
4. Dress blue lead from volume control and green lead from terminal board near volume control down to base and under gang frame diagonally to termination.
5. Dress blue lead from output transformer under clamp on back of gang condenser and direct to terminal 2 of V4.
6. Adjust Ferrite antenna so that coil end of rod extends two inches beyond tube shelf.
7. Dress all bare wires, pigtail leads and non-insulated components to prevent shorts.

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				C18, C19 2nd I-F trans.
2	Connection lug of C1-2 located on rear of gang in series with .01 mfd.	455 kc	Quiet point near 1600 kc	C16, C17 1st I-F trans.
Repeat steps 1 and 2				
4		1400 kc	14 Rock gang	C1-1T (osc.)
5	*Antenna coupling loop (Chassis in case)	600 kc	60 Rock gang	L2 (osc.)
6				Repeat steps 4 and 5

\*Steps 4 and 5 require a coupling loop from the signal generator to feed a signal into the receiver ant. coil. This loop should be loosely coupled to the receiver antenna coil so as not to disturb the receiver ant. coil inductance.

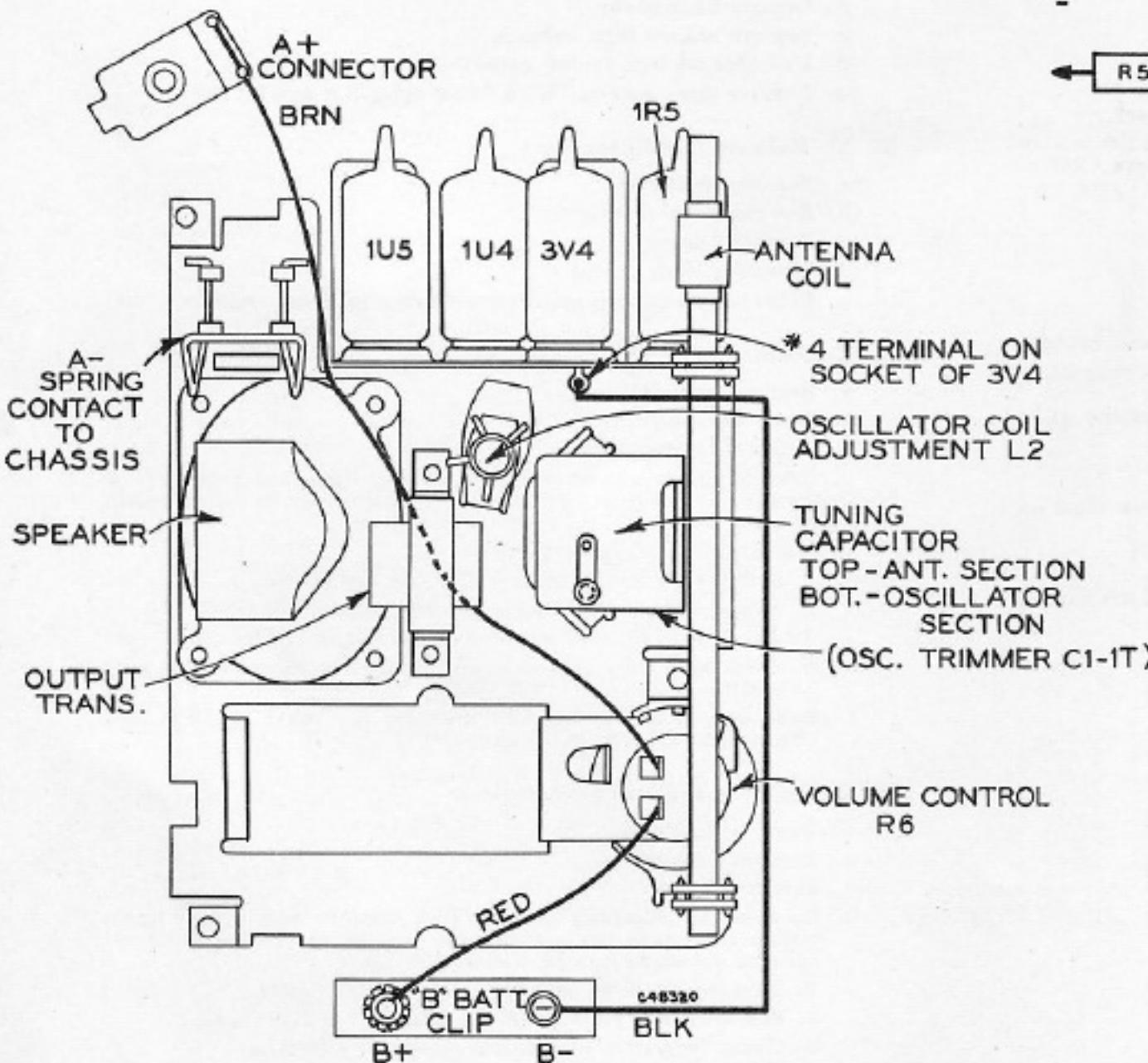
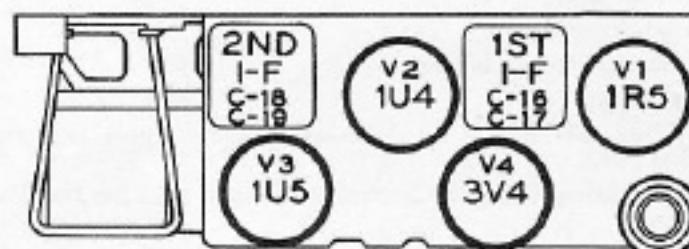


Fig. 3—Tube Trimmer location

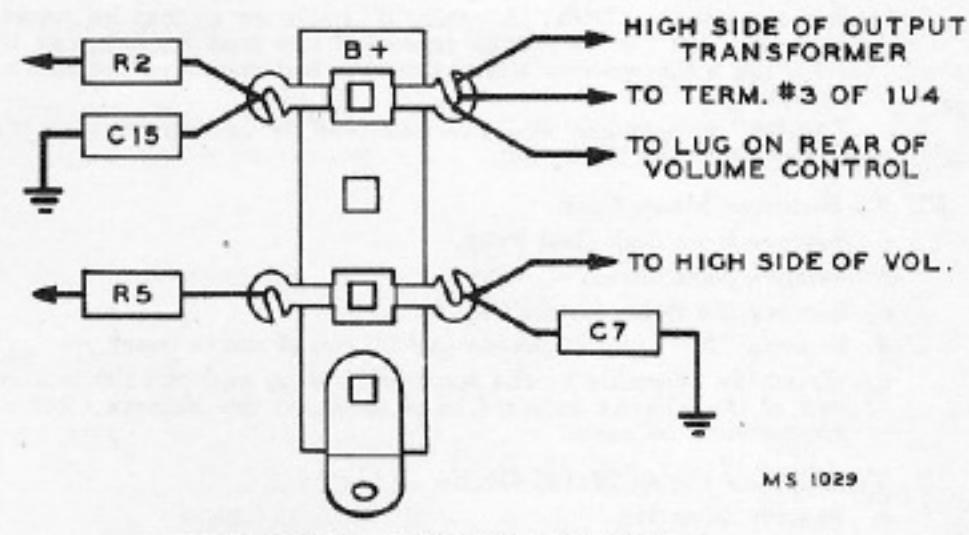


Fig. 4—Terminal Strip

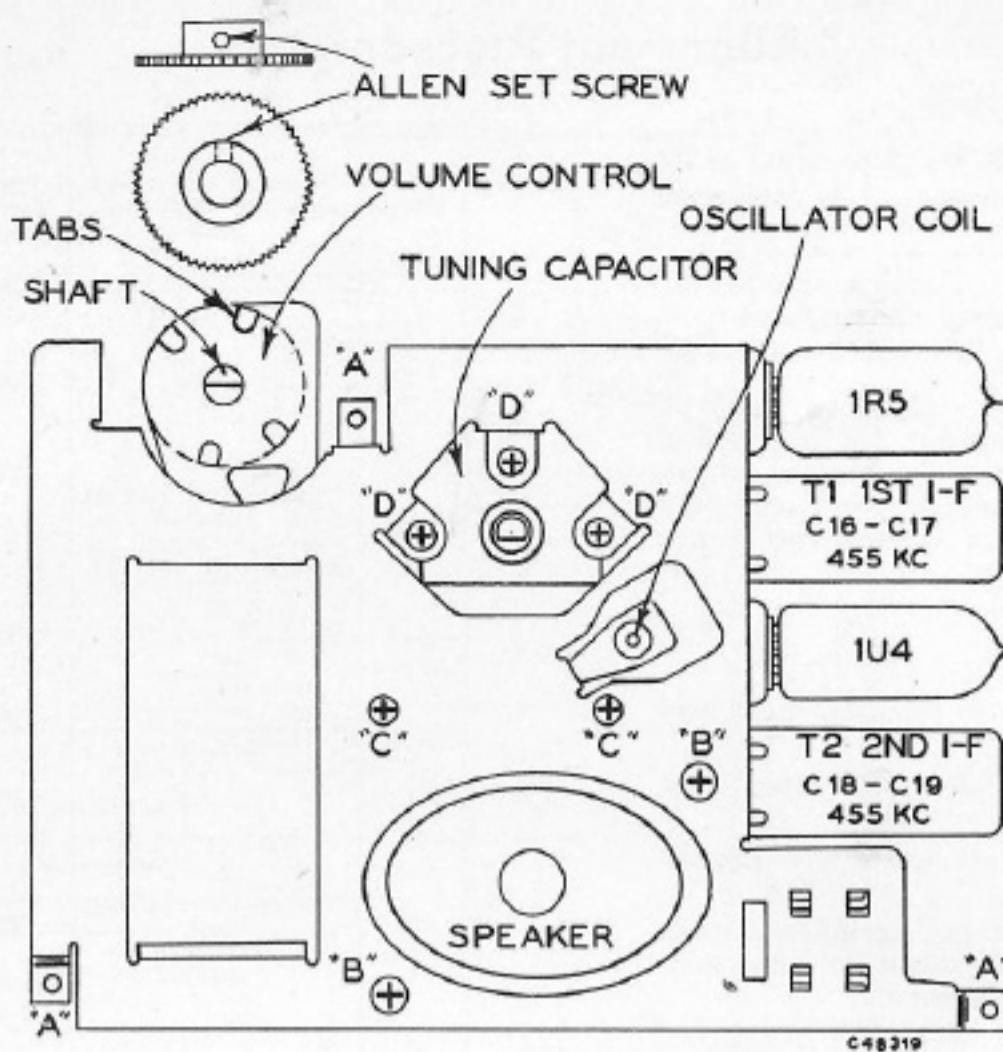


Fig. 5—Chassis assembly

## REPLACEMENT OF COMPONENT PARTS

### I. To Remove Back Cover

- Depress top of case midway between the handle supports, until the top end of the back separates from the main case.
- Pull the back cover back and up, thereby unhooking the retaining lugs in the bottom of the main case.

### II. To Replace Batteries

- Remove back cover.
- Remove either or both "A" and "B" batteries as may be necessary. The "B" battery snap fasteners can best be removed by inserting a screwdriver under the snap fastener strip and prying upward.
- The "A" battery can easily be removed by pulling back on the spring wire and lifting out.

### III. To Remove Main Case

- Remove front dial. (Just Pull).
- Remove back cover.
- Remove the three screws "A".
- Remove "A+" clip (Squeeze and lift out of slot in case).
- Grasp the assembly by the speaker housing and pull the bottom end of the chassis outward then down so the Volume Control knob clears the case.

### IV. To Replace Front Metal Grille

- Remove front dial.
- Remove back cover.
- Remove chassis.
- Bend small tabs inside case and separate metal strips from cabinet.
- Bend small tabs inside case and separate grille from cabinet. Insert new grille and bend tabs.  
Note:—A black non-metallic screen is placed between the grille and the cabinet.

### V. To Remove Handle

- Remove handle by separating the square spring wire clips on each end of handle and lift out.

### VI. To Remove Tubes

- There is very little room in the cabinet so it is suggested the chassis be removed from the cabinet to replace tubes.
- Remove front dial.
  - Remove back cover.
  - Remove chassis
  - Remove tubes.

### VII. To Remove Speaker

- Remove front dial.
- Remove back cover.
- Remove chassis from cabinet.
- Unsolder voice coil leads.
- Remove two screws "B" figure 3 and lift speaker out.

### VIII. To Remove Output Transformer

- Remove front dial.
- Remove back cover.
- Remove chassis from cabinet.
- Unsolder leads.
- Remove two screws "C" and lift transformer out.

### IX. To Remove Volume Control

- Remove front dial.
- Remove back cover.
- Remove chassis from cabinet.
- Unsolder leads.
- Loosen Allen Set screw on Volume Control knob and remove knob. (Just Pull).
- Bend tabs holding Volume Control to chassis and lift the Volume Control out.

### X. To Remove Tuning Capacitor

- Remove front dial.
- Remove back cover.
- Remove chassis from cabinet.
- Unsolder leads to tuning capacitor.
- Remove three screws "D" holding capacitor and lift out.

### XI. To Remove Oscillator Coil

- Remove front dial.
- Remove back cover.
- Remove chassis
- Unsolder leads to coil.
- Remove coil by unsnapping mounting clips from angle bracket.

### XII. To Remove First I-F Transformer

- Remove front dial.
- Remove back cover.
- Remove chassis.
- Remove the mounting screws of both speaker and output transformer and move the speaker and transformer as found necessary for access to 1st I-F transformer leads.
- Unsolder four leads from transformer.
  - Blue lead from #2 terminal (Plate of 1R5 tube).
  - Red lead from #3 terminal (Screen grid of 3V4 tube).
  - Green lead from #6 terminal (Control grid of 1U4 tube).
  - Black lead from lug on small terminal board on top of tube shelf.
- Bend one mounting lug and unsolder the other lug from the chassis and lift the transformer out.

### XIII. To Remove 2nd I-F Transformer

- Remove front dial.
- Remove back cover.
- Remove chassis.
- Remove the mounting bolts of both speaker and output transformer and move the speaker and transformer as found necessary for access to 2nd I-F transformer leads.
  - Blue lead from #2 terminal (Plate of 1U4 tube).
  - Red lead from #3 terminal (Screen grid of 1U4 tube).
  - Green lead from #4 terminal (Diode of 1US tube).
  - Black lead from #5 terminal (Dummy terminal of 1US tube).
- Unsolder the tabs from the chassis and lift the transformer out.