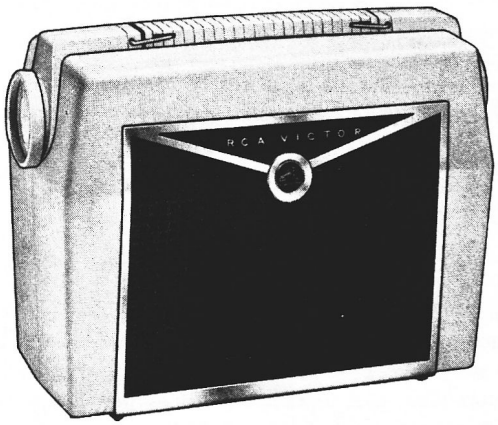
RCA VICTOR



Model BP68

AC-DC-Battery Portable Receiver

Model BP68

SERVICE DATA

— 1955 No. 6 —

ISSUED BY
GENERAL SERVICE DEPARTMENT
RCA VICTOR COMPANY, LTD.
MONTREAL, CANADA

Specifications

Tuning Range ..... 540-1,600 kc
Intermediate Frequency ..... 455 kc
Power Supply Rating
Power Line Operation
115 volts, d. c. or 50 to 60 cycles a. c. ..... 18 watts
or
Battery Operated ..... using RCA VS 050 Battery
(Average battery life — 100 hrs. intermittent service)
Battery current ..... "A" 50 ma., "B" 13 ma.
Battery voltage ..... "A" 7½ volts, "B" 75 volts

Tube Complement

(1) RCA 1R5 ..... Converter
(2) RCA 1T4 ..... I.F.-Amplifier
(3) RCA 1U5 ..... Det. — AVC — 1st A.F.
(4) RCA 3V4 ..... Output
RCA Stock No. 77958 ..... Selenium Rectifier

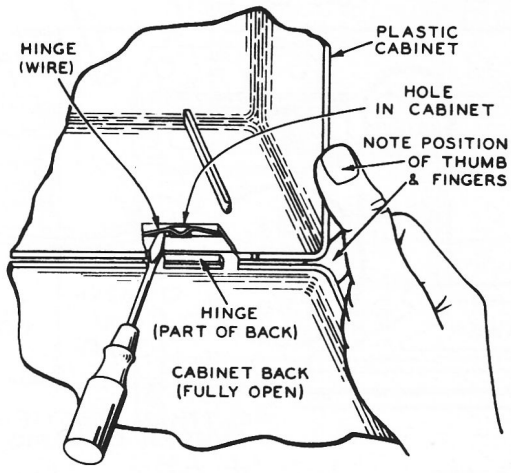
Loudspeaker
Size and Type ..... 4 in. P.M.
Voice Coil impedance ..... 3.2 ohms at 400 cycles

Power Output
Undistorted ..... 0.19 watt
Maximum ..... 0.32 watt

Tuning Drive Ratio ..... 1:1 (Direct Drive)

Weight (Approx.)
Without battery.... 5 lb. With battery.... 8 lb. 2 oz.

Cabinet Dimensions
Height..... 8¾ in. Width..... 12 in. Depth..... 5 in.



Removal of Cabinet Back

To Remove Cabinet Back

With the back fully open, grip the cabinet as illustrated. Insert a screwdriver under one hinge and pry the center of the hinge out of the opening in the cabinet while maintaining pressure on the back with the fingers and on the cabinet with the thumb. Repeat this procedure with the other hinge. Pull the back straight to the rear using both hands.

To Remove Hinges

Remove back from cabinet as described above. Spread the hinge apart to remove it from the cabinet back.

To Remove Chassis:

1. Pull out battery and disconnect battery plug.
2. Unsolder the two loop antenna leads.
3. Remove pull-off type volume and tuning knobs.
4. Remove the two large screws in the top of the case near the volume and tuning control shafts.

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, connect the low side of the test oscillator to the receiver chassis and keep the oscillator output as low as possible to avoid AVC action.

Battery operation of the receiver is preferable during alignment; on AC operation, an isolation transformer (117v./117v.) may be necessary for the receiver if the test oscillator is also AC operated.

Step	Connect High Side of Sig. Gen. to —	Sig. Gen. Output	Dial Pointer Setting	Adjust for Max. Output
1	Disconnect loop—remove chassis—remove bottom plate.			
2	Connect a 10,000 ohm resistor in parallel with r. f. tuning cond. C1B.			
3	Pin #6 of 1T4 I.F. Amplifier thru 0.01 mf.	455 kc	Quiet point near 1600 kc	2nd I.F. Trans. T2 Top
4	Pin #6 of 1R5 Converter thru 0.01 mf.			1st I.F. Trans. T1 Top & Bottom
5	Remove the 10,000 ohm resistor from r.f. tuning cond. C1-B. Replace bottom cover and install chassis in cabinet. Reconnect loop.			
6	Short wire placed near loop for radiated signal	1620 kc	min. cap.	1620 kc osc. trimmer C1A-T
7		1400 kc	1400 kc Signal	1400 kc ant. trimmer* C1B-T
8		600 kc	600 kc Signal	T4 osc. core* while rocking gang
9	Repeat Steps 6, 7 and 8			

* The position of the battery affects loop inductance. The battery should be in place during steps 6 to 9.

Critical Lead Dress

1. Dress antenna leads away from trimmer adjustment.
2. Dress capacitors down against chassis where possible.
3. Dress output transformer primary leads against chassis.
4. Dress power cord leads away from selenium rectifier and audio connections.
5. Dress leads and components away from bleeder resistor.
6. Dress C2 away from gang towards front apron to permit rotor plates of gang to open fully without interference.

Circuit Description

Model BP 68 is a portable radio receiver designed to operate from a 105-125 volt A.C. or D.C. power source, as well as a self contained battery pack. The receiver contains four miniature tubes plus a selenium rectifier, and covers the Standard Broadcast range of 540 to 1600 Kcs.

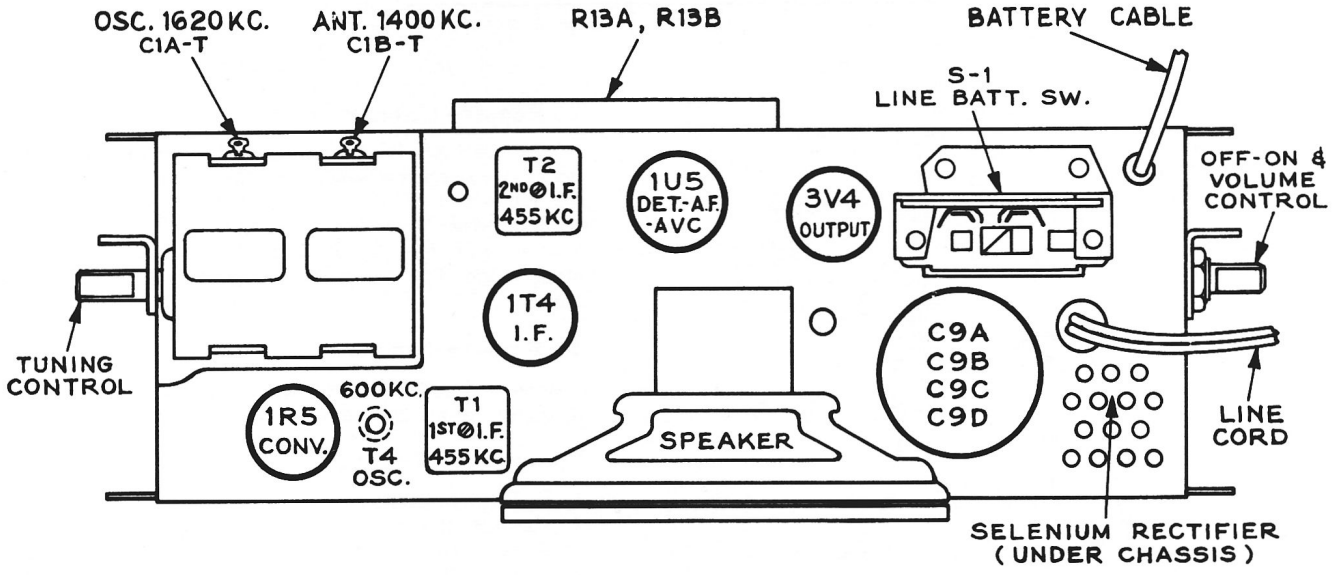
The case for this instrument is molded from nonbreakable "Impac". The dial is incorporated into a highly styled tuning knob. The gang is direct driven by this tuning knob and is on the right-hand-side of the cabinet. The ON-OFF, volume control knob is on the left side of the cabinet.

The receiver circuit is a superheterodyne, using a pentagrid converter, a double-tuned first I.F. transformer, pentode I.F. amplifier, a second I.F. transformer with one tuned, and one untuned circuit, a combined second detector, AVC and first audio tube, and a power output tube. When the receiver is connected to an A.C. power line, a conventional half-wave rectifier is used to provide operating power.

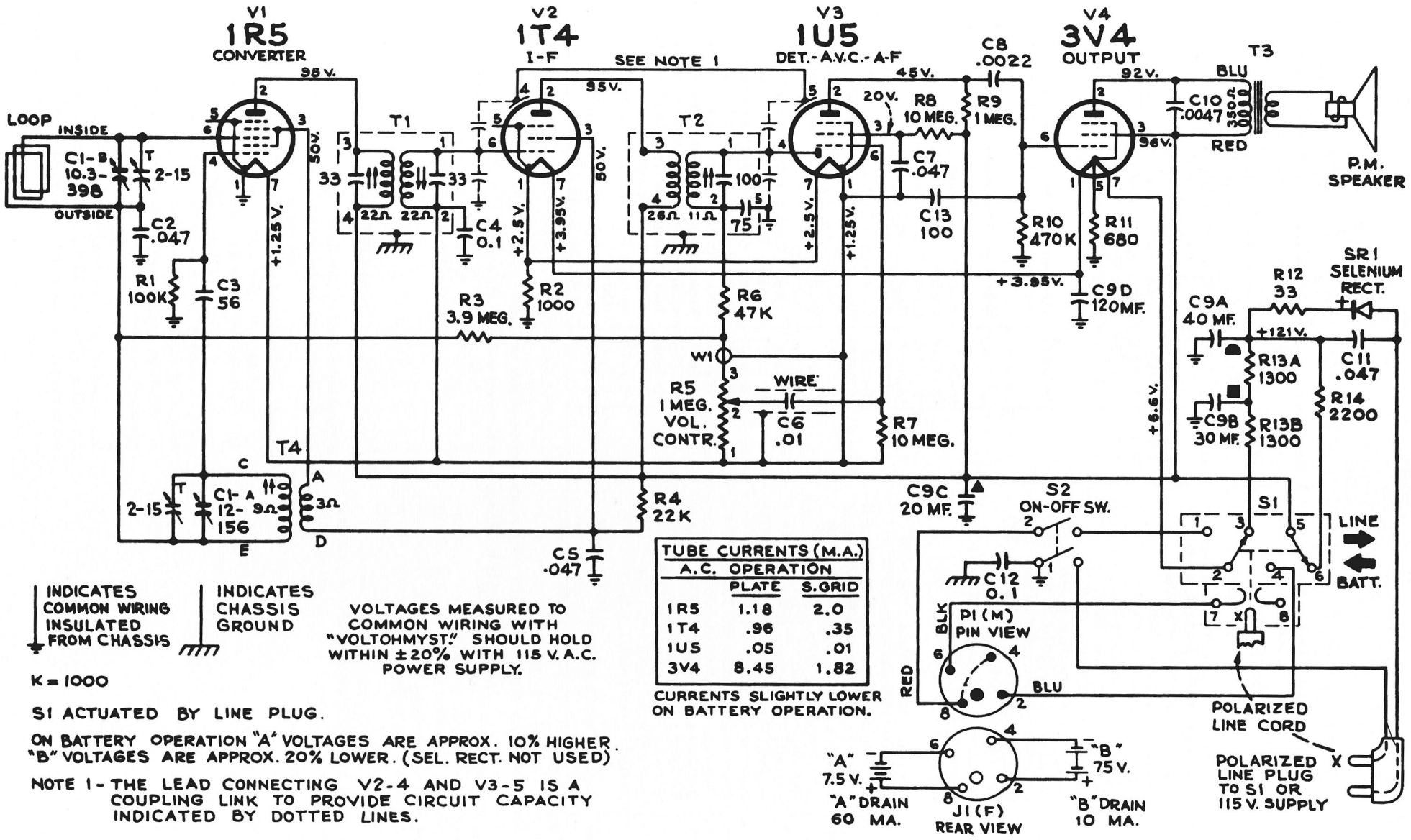
Tuning of the signal circuits is accomplished by means of a variable capacitor, direct driven by a tuning knob. A cut-plate oscillator section is employed to provide tracking. The antenna is a built-in loop, insulated with celanese acetate spiral-wound and mounted on the back cover.

CAUTION —

Do not remove any tubes from the chassis with the set operating and the plug connected to the power line. Damage to tubes may result.



Tube and Trimmer Locations



INDICATES COMMON WIRING INSULATED FROM CHASSIS

INDICATES CHASSIS GROUND

VOLTAGES MEASURED TO COMMON WIRING WITH "VOLTOHMYST." SHOULD HOLD WITHIN ±20% WITH 115 V. A.C. POWER SUPPLY.

K = 1000

S1 ACTUATED BY LINE PLUG.

ON BATTERY OPERATION "A" VOLTAGES ARE APPROX. 10% HIGHER. "B" VOLTAGES ARE APPROX. 20% LOWER. (SEL. RECT. NOT USED)

NOTE 1 - THE LEAD CONNECTING V2-4 AND V3-5 IS A COUPLING LINK TO PROVIDE CIRCUIT CAPACITY INDICATED BY DOTTED LINES.

TUBE CURRENTS (M.A.)
A.C. OPERATION

	PLATE	S.GRID
1R5	1.18	2.0
1T4	.96	.35
1U5	.05	.01
3V4	8.45	1.82

CURRENTS SLIGHTLY LOWER ON BATTERY OPERATION.

Schematic Diagram

REPLACEMENT PARTS LIST FOR MODEL BP68

Insist on Genuine Factory Tested Parts, which are readily identified and may be purchased from Authorized Dealers.

Symbol No.	Stock No.	Description	Symbol No.	Stock No.	Description
C-1	S-6871	Capacitor - Variable Tuning Condenser.	SR-1	S-6868	Rectifier - Selenium Rectifier
C-2		Capacitor - paper .047 mfd. 400V			
C-3	72184	Capacitor - 56 mmf. 20 % 500V	T-1	73129	Transformer - Ist I. F. Transformer
C-4		Capacitor - 0.1 mfd. 200V	T-2	74775	Transformer - 2nd I. F. Transformer
C-5		Capacitor - .047 mfd. 400V	T-3	*S-20570	Transformer - Audio Output Transformer
C-6		Capacitor - .01 mfd. 200V	T-4	74405	Coil - Oscillator Coil
C-7		Capacitor - .047 mfd. 200V			
C-8		Capacitor - .0022 mfd. 600V			SPEAKER ASSEMBLIES
C-9A		Capacitor - Electrolytic 40 mfd. 150V			
C-9B	S-6881	Capacitor - Electrolytic 30 mfd. 150V		*S-20546	Speaker - 4" P.M. speaker complete with cone and voice coil (32 ohms.)
C-9C		Capacitor - Electrolytic 20 mfd. 150V			
C-9D		Capacitor - Electrolytic 120 mfd. 25V			
C-10		Capacitor - .0047 mfd. 400V			MISCELLANEOUS ASSEMBLIES
C-11		Capacitor - .047 mfd. 400V			
C-12		Capacitor - 0.1 mfd. 400V		*S-20577	Antenna - Loop Antenna
C-13	74777	Capacitor - Mica 100 mmf. 500V		*S-20594	Cable - Battery Cable.
				*S-20595	Case - Case Front - Gray
R-1		Resistor - 100000 ohms. 10% 1/2W		*S-20596	Case - Case Front - Green
R-2		Resistor - 1000 ohms 10% 1/2W		*S-20597	Case - Case Back - Gray
R-3		Resistor - 3.9 megohm 10% 1/2W		S-20598	Case - Case Back - Green
R-4		Resistor - 22000 ohms 10% 1/2W		S-20589	Case - Complete Case - Gray
R-5	S-6626	Control - Volume Control 1 megohm		74339	Clip - Clip Catch for cabinet front.
R-6		Resistor - 47000 ohms 10% 1/2W		73275	Connector - 5 contact male, connector for battery cable.
R-7		Resistor - 10 megohm 10% 1/2W			
R-8		Resistor - 10 megohm 10% 1/2W		S-6870	Cover - Chassis bottom cover.
R-9		Resistor - 1 megohm 10% 1/2W		*S-20575	Handle - Carrying Handle - Grey
R-10		Resistor - 470000 10% 1/2W		*S-20576	Handle - Carrying Handle - Green
R-11		Resistor - 680 ohms 10% 1/2W		*S-20572	Knob - Tuning Control Knob - Grey
R-12	S-4468	Resistor - 33 ohms 10% 1 watts		*S-20574	Knob - Tuning Control Knob - Green
R-13A	S-6968	Resistor - Dual 1300 ohms 3.5 watts		*S-20571	Knob - Volume Control Knob - Grey
R-13B		Resistor - Dual 1300 ohms		*S-20573	Knob - Volume Control Knob - Green
R-14		Resistor - 2200 ohms 10% 1/2W		*S-20591	Link - Handle Carrying Link (2 req'd.)
R-15		Resistor - 820 ohms 10% 1/2W		73103	Shield - Tube Shield
R-16		Resistor - 680 ohms 10% 1/2W		*S-20593	Spring - Reinforcing Spring for Cabinet Catch
S-1	S-6834	Switch - Switch Assembly		*S-20592	Socket - Tube Socket - 7 contact, miniature wafer.

* Indicates New Stock Item

Only items listed under stock numbers are available as Replacement Parts.
All parts subject to change or withdrawal without notice.