

MODEL BP51



RCA VICTOR

A.C.-D.C. BATTERY PORTABLE RECEIVER



MODEL BP51

SERVICE DATA

— 1953 No. 11 —

HOME INSTRUMENT SERVICE DIVISION
RCA VICTOR COMPANY LIMITED
MONTREAL, QUE.

General Circuit Description

The model BP51 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 receiver circuit is a superheterodyne, using a pentagrid converter, a double-tuned first I.F. transformer, pen-

tode 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.

Electrical & Mechanical 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 Eveready No. 755
(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. S-6868 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

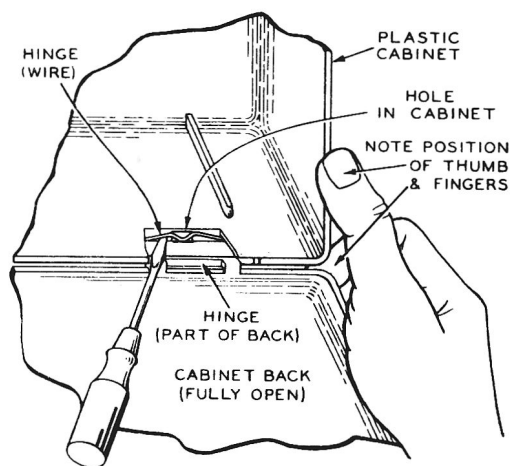
Tuning Drive Ratio 1:1 (Direct Drive)

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

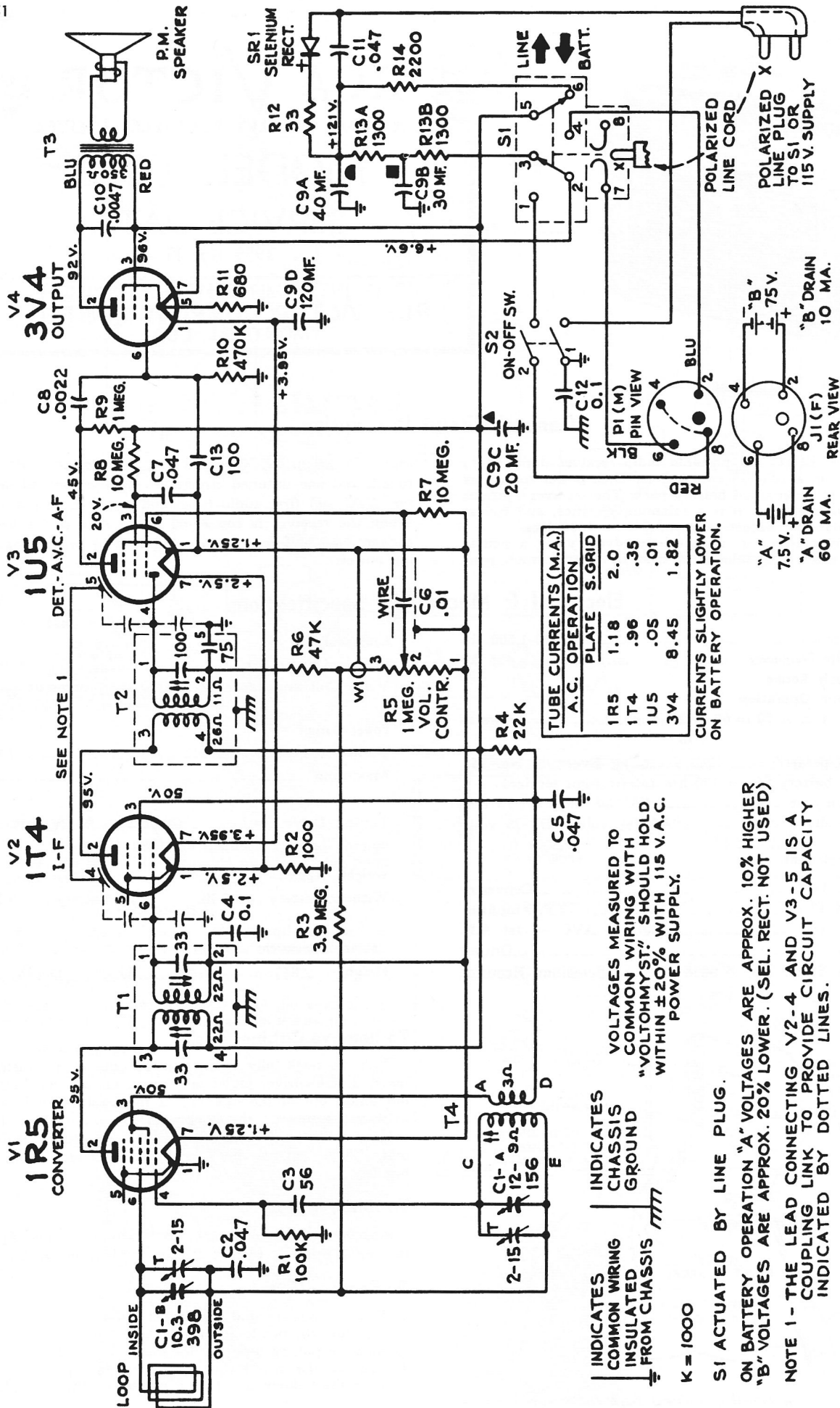
With the back fully open, grip the cabinet as illustrated. Insert a screwdriver under one hinge and pry the center of the hinge out of the opening in the cabinet while maintaining pressure on the back with the fingers and on the cabinet with the thumb. Repeat this procedure with the other hinge. Pull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



INDICATES COMMON WIRING FROM CHASSIS GROUND

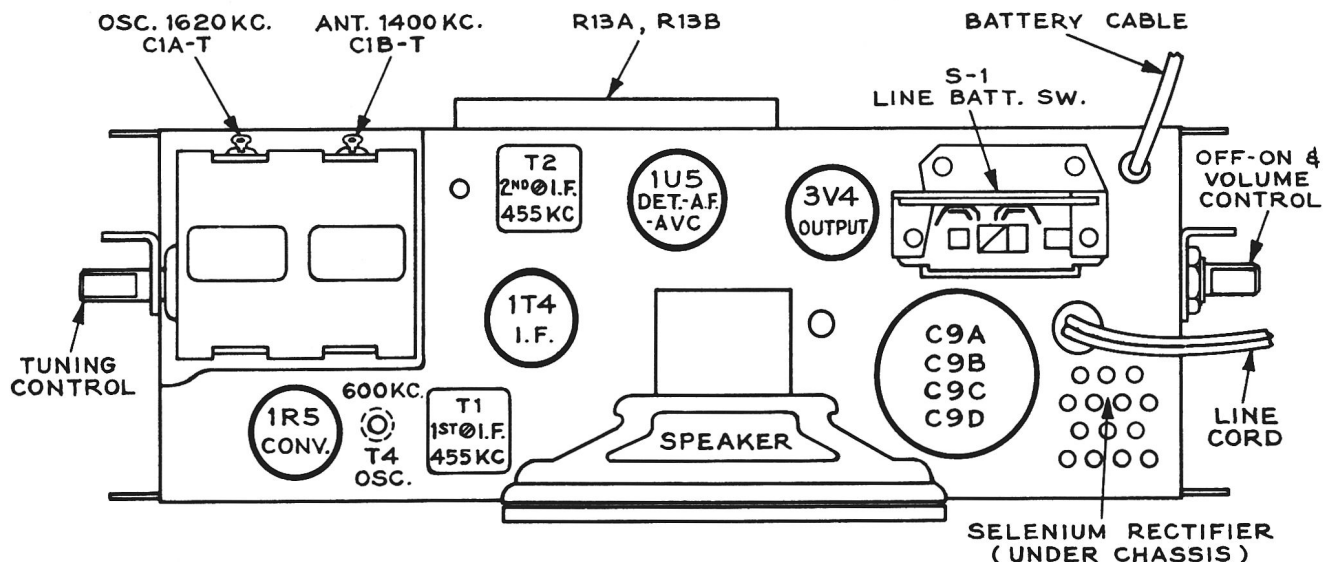
INDICATES CHASSIS GROUND

VOLTAGES MEASURED TO COMMON WIRING WITH "VOLTOHMYST" SHOULD HOLD WITHIN $\pm 20\%$ 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)



Tube and Trimmer Locations

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.

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.

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.

Alignment Chart

Order of Alignment		TEST OSCILLATOR					Receiver Dial Setting	Circuit to Adjust	Adjustments Symbols	Notes
		Connect "HI" Side To	Connect "LO" Side To	Dummy Antenna	Frequency Setting	Range Selector				
I.F. ALIGNMENT	1	Disconnect loop - remove chassis - remove bottom plate, connect a 10,000 ohm resistor in parallel with R.F. tuning condenser C1-B.								
	2	1T4 I.F. Grid Pin #6	Gnd	.01 mfd	455 Kc		550 Kc	2nd I.F. Trans.	Top Core	Max. output
	3	1R5 Conv. Grid Pin #5	Gnd	.01 mfd	455 Kc		550 Kc	1st I.F. Trans.	Top & Bottom Core	Same
	4	Remove the 10,000 ohm resistor. Replace bottom cover and install chassis in cabinet. Re-connect loop.								
S.B. ALIGNMENT	5	SHORT WIRE PLACED NEAR RECEIVER (FOR RADIATED SIGNAL)	Gnd		1620 Kc		1620 Kc	Osc.	C1-AT	Same
	6		Gnd		1400 Kc		1400 Kc	Ant.	C1-BT	Same
	7		Gnd		600 Kc		600 Kc	Osc.	T-4 (Rocking Gang)	Same
	8	Repeat steps No. 5, 6 & 7								

The position of the Battery affects Loop Inductance. Battery should be in place during steps 5 to 8.

REPLACEMENT PARTS FOR MODEL BP51

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

SYMBOL	STOCK NO.	DESCRIPTION	SYMBOL	STOCK NO.	DESCRIPTION
C-1A	*S-6871	Capacitor-Variable tuning capacitor			SPEAKER ASSEMBLY
C-1B		Capacitor-Variable tuning capacitor	*S-20025		Speaker-4" P.M. Speaker
C-2		Capacitor, .047 mfd. 400V.	*S-20026		Cone & Voice Coil Assembly
C-3		Capacitor, 56 mmf. 20%, 500V. D.C.			MISCELLANEOUS ASSEMBLY
C-4		Capacitor, 0.1 mfd. 400V.	*S-6949		Antenna-Ant. Loop. winding only
C-5		Capacitor, .047 mfd. 400V.	*S-6951		Back-Case Back-Brown-compl. with loop less front ass'y.
C-6		Capacitor, .01 mfd. 400V.	*S-6952		Back-Case Back-Tan-compl. with loop less front ass'y.
C-7		Capacitor, .047 mfd. 400V.	*S-6953		Back-Case Back-Green-compl. with loop less front ass'y.
C-8		Capacitor, .0022 mfd. 600V.	*S-6954		Back-Case Back-Red-compl. with loop less front ass'y.
C-9A	*S-6881	Capacitor-Electrolytic 40 mfd.	*S-20090		Case-Case Front-Brown-Complete with RCA Emblem-(Less handle, links & back)
C-9B	*S-6881	Capacitor-Electrolytic 30 mfd.	*S-20091		Case-Case Front-Tan-Complete with RCA Emblem-(Less handle, links & back)
C-9C	*S-6881	Capacitor-Electrolytic 20 mfd.	*S-20092		Case-Case Front-Green-Complete with RCA Emblem-(Less handle, links & back)
C-9D	*S-6881	Capacitor-Electrolytic 120 mfd.	*S-20093		Case-Case Front-Red-Complete with RCA Emblem-(Less handle, links & back)
C-10		Capacitor, .0047 mfd. 600V.	*S-6943		Dial-Tuning dial knob-Brown
C-11		Capacitor, .047 mfd. 400V.	*S-6945		Dial-Tuning dial knob-Tan
C-12		Capacitor, 01 mfd. 400V. D.C.	*S-6944		Dial-Tuning dial knob-Green
C-13		Capacitor, 100 mmf. 500V. D.C.	*S-6946		Dial-Tuning dial knob-Red
	S-6869	Cable - Batt. cable	*S-6879		Emblem-RCA Victor
	73275	Connector-5 contact male connector for battery cable	*S-6935		Handle-Carrying Handle-Brown
	S-6626	Control-Vol. control & Power Switch	*S-6937		Handle-Carrying Handle-Tan
	S-5149	Cord-Power cord and plug	*S-6936		Handle-Carrying Handle-Green
	*S-6870	Cover-Bottom cover	*S-6938		Handle-Carrying Handle-Red
R-1		Resistor-100,000 ohms, 10%, $\frac{1}{2}$ watt.	*S-6939		Knob-Vol. control & Power switch knob-Brown
R-2		Resistor-1,000 ohms, 10%, $\frac{1}{2}$ watt.	*S-6941		Knob-Vol. control & Power switch knob-Tan
R-3		Resistor-3.9 megohm, 10%, $\frac{1}{2}$ watt.	*S-6940		Knob-Vol. control & Power switch knob-Green
R-4		Resistor-22,000 ohms, 10%, $\frac{1}{2}$ watt.	*S-6942		Knob-Vol. control & Power switch knob-Red
R-5	S-6626	Resistor-Vol. control & Pwr. Sw. - 1 megohm	74790		Hinge Spring
R-6		Resistor-47,000 ohms, 10%, $\frac{1}{2}$ watt.	*S-6880		Link-Carrying handle-Link
R-7		Resistor-10 megohms, 10%, $\frac{1}{2}$ watt.	S-6872		Trim-Cabinet Trim
R-8		Resistor-10 megohms, 10%, $\frac{1}{2}$ watt.			
R-9		Resistor-1 megohm, 10%, $\frac{1}{2}$ watt.			
R-10		Resistor-470,000 ohms, 10%, $\frac{1}{2}$ watt.			
R-11		Resistor-680 ohms, 10%, $\frac{1}{2}$ watt.			
R-12		Resistor-33 ohms, 10%, 1 watt.			
R-13A	*S-6968	Resistor-dual resistor			
R-13B	*S-6968	Resistor-1300 ohms, } Volt. Div. 3.5 watts.			
R-14		Resistor-2200 ohms, 10%, $\frac{1}{2}$ watt.			
	*S-6868	Rectifier-Selenium Rectifier			
S-1	*S-6834	Switch-Battery Switch			
T-1	73129	Transformer-1st I.F. Transf.			
T-2	*S-6875	Transformer-2nd I.F. Transf.			
T-3	*S-6947	Transformer-Output Transf.			
T-4	S-5671	Coil-Osc. coil; complete with adj. core.			

(*) Indicates new stock items.

Only items listed under stock numbers are available as Replacement Parts.

All parts subject to change or withdrawal without notice.