



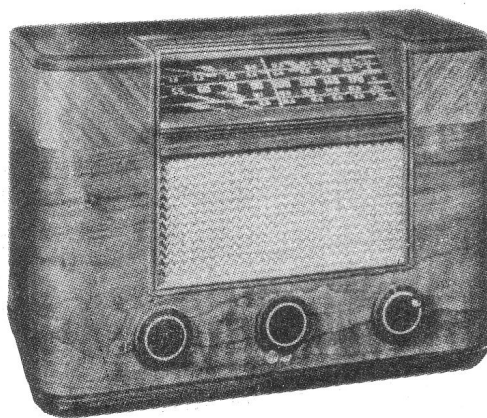
RCA Victor

MODELS B61 and B70

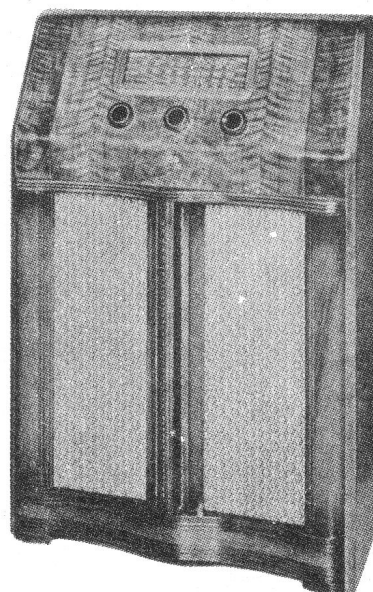
Six-Tube, Five-Band, Battery-Operated, Superheterodyne Receivers

TECHNICAL INFORMATION AND SERVICE DATA

SERVICE DIVISION • RCA • VICTOR COMPANY LIMITED • MONTREAL



Model B61



Model B70

Electrical and Mechanical Specifications

FREQUENCY RANGES

Standard Broadcast
("A" Band) 540-1,720 kc (555-174 m)
Medium Wave ("B" Band) .. 3.0-9.5 mc (100-31.5 m)
Short Wave 9.5-11.7 mc (31.5-25.6 m)
Short Wave 11.7-15.1 mc (25.6-19.9 m)
Short Wave 15.1-22.5 mc (19.9-13.3 m)

INTERMEDIATE FREQUENCY 455 kc

TUBE COMPLEMENT

(1) Type-1R5 1st Det.,—Osc.
(2) Type-1N5-G 1st I-F Amplifier
(3) Type-1N5-G 2nd I-F Amplifier
(4) Type-1H5-G 2nd Det., A-F, and A.V.C.
(5) Type-1A5-G Audio Driver Amplifier
(6) Type-1G6-G Power Output

BATTERIES REQUIRED

1—1.5 volt "A" Battery; 2—45 volt "B" Batteries

CURRENT CONSUMPTION

"A" 0.35 amperes
"B" 14.0 milliamperes

POWER OUTPUT

Undistorted 0.55 watts
Maximum 0.65 watts

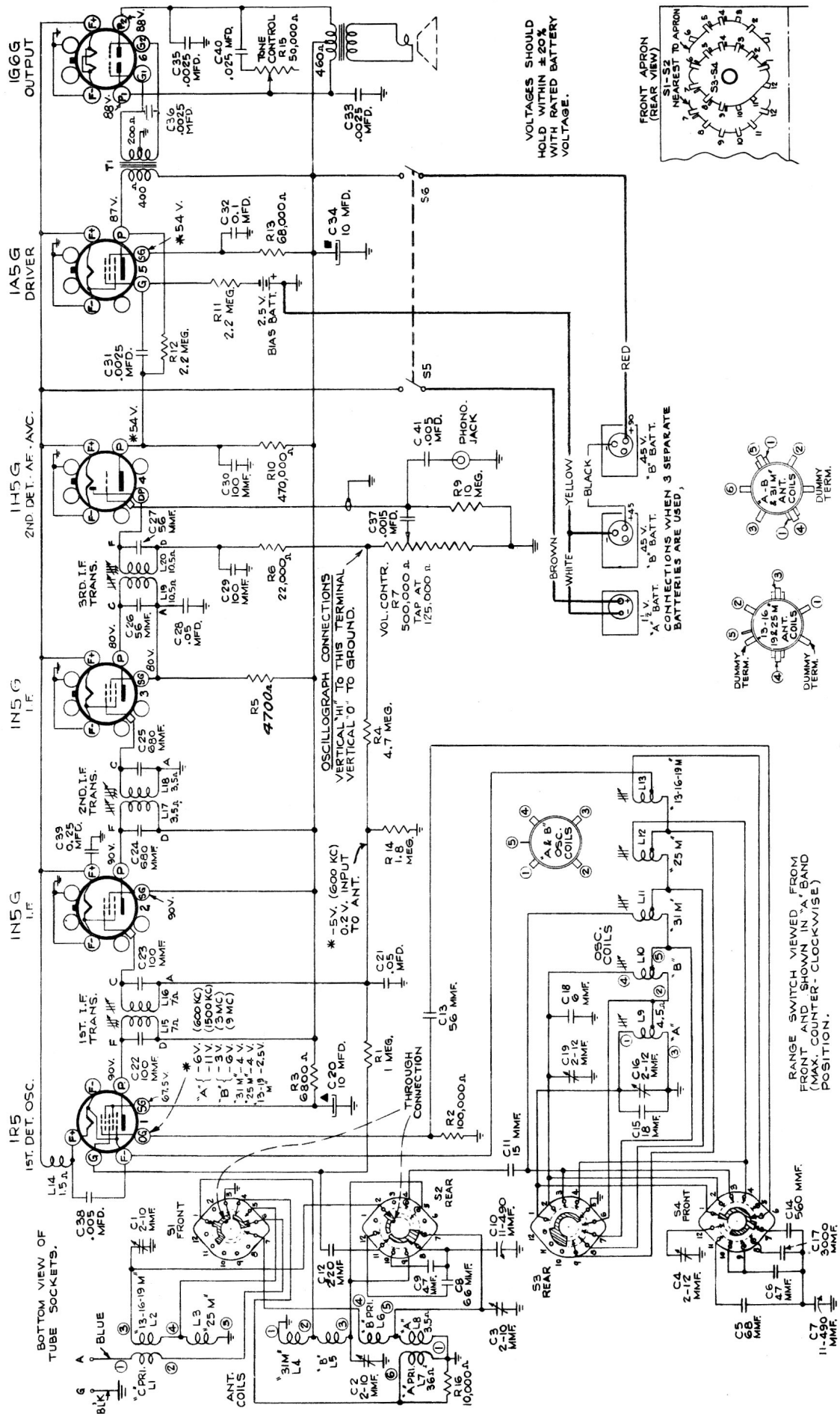
LOUDSPEAKER (CRL515-3) (B61)

Type 6 inch permanent-magnet dynamic
Voice Coil Impedance 3.4 ohms at 400 cycles

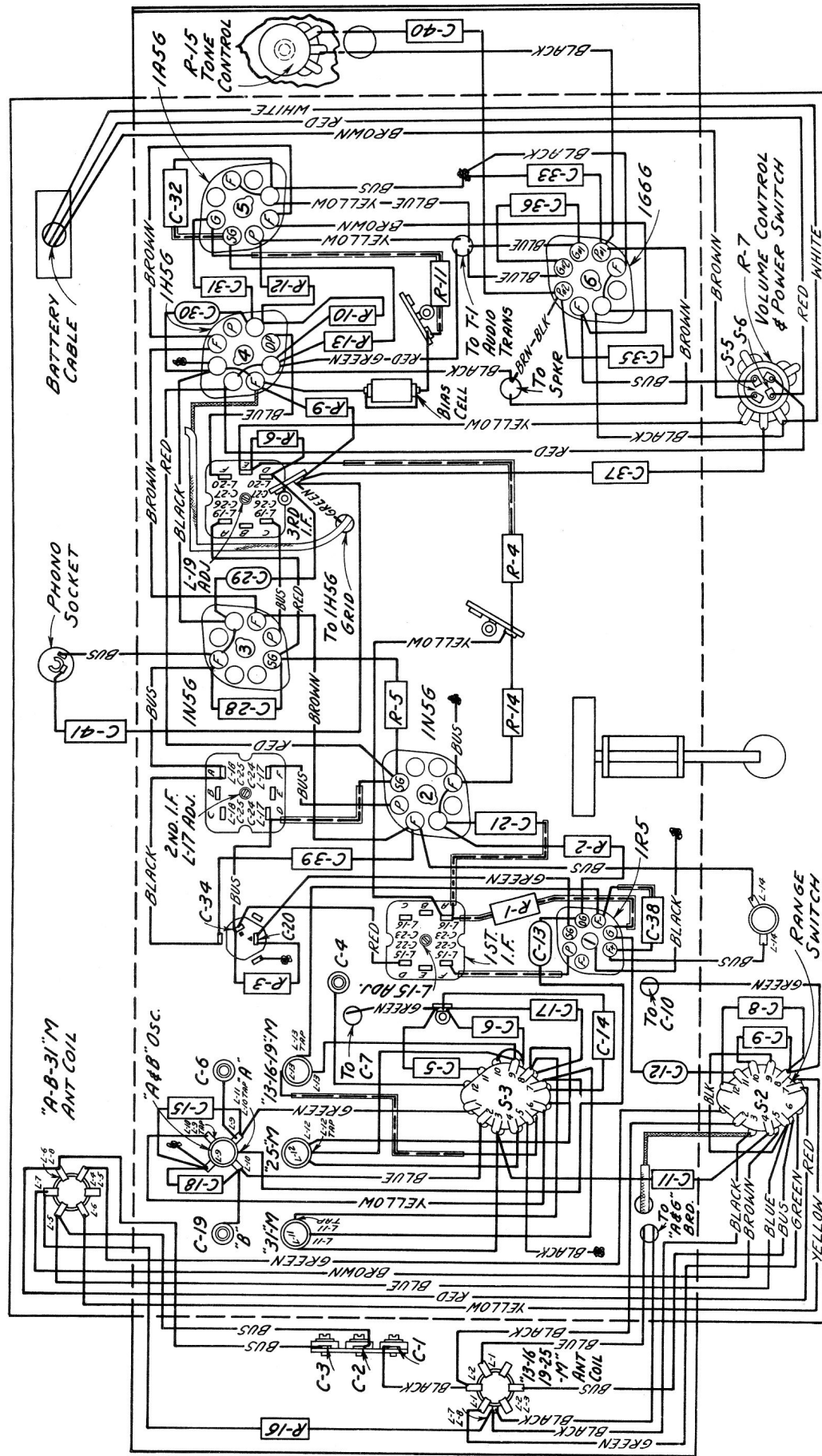
LOUDSPEAKER (CRL510-2) (B70)

Type 12 inch permanent magnet dynamic
Voice Coil Impedance 3.4 ohms at 400 cycles

	Height	Width	Depth
CABINET DIMENSIONS (B61)....	11 ¹ / ₈ "	16 ³ / ₈ "	7 ⁵ / ₈ "
CABINET DIMENSIONS (B70)....	37 ³ / ₈ "	25"	11 ¹ / ₈ "



Schematic Circuit Diagram

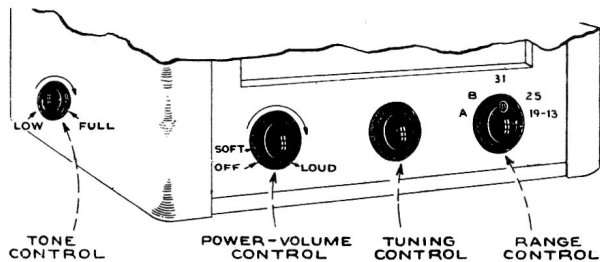


Chassis Wiring Diagram

General Description

These models employ a six tube, five band battery operated chassis which incorporates the latest developments in receiver design. Features of design include such outstanding developments as:—Low drain 1.4 volt tubes including the new type 1R5 convertor; individual oscillator coils for each band; Class B output minimizing current drain; iron core I.F. transformers and oscillator coils; Phono input socket; flywheel manual tuning; variable tone control and a large glass dial individually calibrated for each

band. Reference to the schematic circuit diagram will disclose complete details of the electrical design.



Alignment Procedure

Cathode-Ray Alignment is the preferable method. Connections for the oscillograph are shown in the schematic diagram.

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

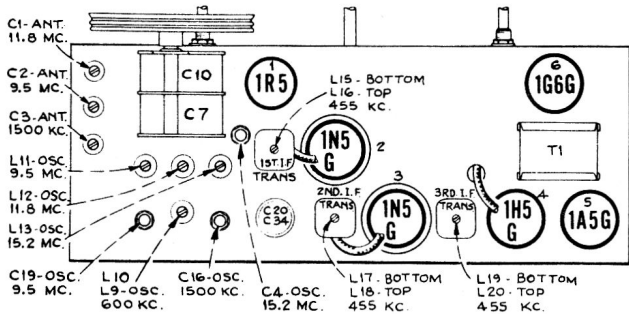
Test-Oscillator.—For all alignment operations, connect the low side of the test-oscillator to the receiver chassis, and keep the output as low as possible to avoid a-v-c action.

Calibration Scale on Indicator-Drive-Cord Drum.—The tuning dial is fastened in the cabinet and cannot be used for reference during alignment, therefore a calibration scale is attached to the indicator-drive-cord drum which is mounted on the shaft of the gang condenser. The setting of the gang condenser is read on this scale, which is calibrated in degrees. The correct setting of the gang in degrees, for each alignment frequency, is given in the alignment table.

As the first step in r-f alignment, check the position of the drum. The "180°" mark on the drum scale must be vertical and directly over the center of the gang-condenser shaft when the plates are fully meshed. The drum is held to the shaft by means of two set screws, which must be tightened securely when the drum is in the correct position.

Pointer for Calibration Scale.—Improvise a pointer for the calibration scale by fastening a piece of wire to the gang-condenser frame, and bend the wire so that it points to the "180°" mark on the calibration scale when the plates are fully meshed.

Dial-Indicator Adjustment.—After fastening the chassis in the cabinet, attach the dial indicator to the drive cable with indicator at the 540 kc mark, and gang condenser fully meshed. The indicator has a spring clip for attachment to the cable.



Tube and Trimmer Locations

Spread-Band Alignment.—The most satisfactory method of aligning or checking the spread-band ranges is on actual reception of short-wave stations of known frequency, by adjusting the magnetite-core oscillator coil for each band so that these stations come in at the correct points on the dial.

In exceptional cases, when the set is being serviced in a location where the noise level is high enough to prevent reception of short-wave stations, a test-oscillator may be used for alignment, but an extremely high degree of accuracy is required in the frequency settings of the test-oscillator, as a slight error will produce considerable inaccuracy on

the spread-band dials. The frequency settings of the test-oscillator may be checked by one or both of the following methods:

1. Determine the exact dial settings of the test-oscillator (for frequencies at or close to the specified alignment frequencies) by zero-beating the test-oscillator against short-wave stations of known frequency.
2. Use harmonics of the standard-broadcast range of the test-oscillator, first checking the frequency settings on this range by means of a crystal calibrator (RCA Stock No. 9572), or by zero-beating against standard broadcast stations.

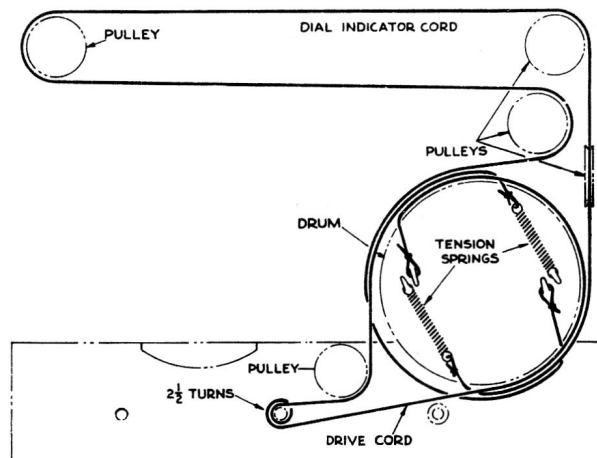
When a test oscillator is employed for spread-band alignment, a final check should be made on actual reception of short-wave stations of known frequency, and the magnetite-core oscillator coil for each band should be re-adjusted so that the stations come in at the correct points on the dial.

Steps	Connect the high side of the test-osc. to—	Tune test-osc. to—	Range switch	Turn radio dial to—	Adjust the following for max. peak output
1	1N5G —2nd I-F grid cap, in series with .01 mfd.	455 kc	A	Quiet point near 180°	L20, L19 3rd I-F transformer
2	1N5G —1st I-F grid cap, in series with .01 mfd.				L18, L17 2nd I-F transformer
3	1R5—1st Det. grid, in series with .01 mfd.				L16, L15 1st I-F transformer
4	Ant. lead in series with 300 ohms	11.8 mc	25M	138.5°	L12 (osc.) C1 (ant.)
5		15.2 mc		17°	C4 (osc.)*
6		Repeat steps 4 and 5.			
7		15.2 mc	19-13M	156°	L13 (osc.)**
8		9.5 mc	31M	156°	L11 (osc.)** C2 (ant.)
9		9.5 mc	B	11.5°	C19 (osc.)***
10		Ant. lead in series with 200 mmf.	1,500 kc	A	26°
11	600 kc		150°		L9 (osc.) (Rock gang)
12	Repeat steps 9 and 10.				

* Use minimum capacity peak if two can be obtained. Check image to determine that C2 has been adjusted to the correct peak by tuning receiver to approximately 14.29 mc (29°) where a weaker signal should be received.

** Peak at minimum position of plunger if two peaks can be obtained.

*** Peak at minimum capacity of two peaks can be obtained.
NOTE: Oscillator tracks above signal on all bands.



Drive Cord Assembly

Precautionary Lead Dress:

1. All leads between antenna coil and switch must be as short as possible and kept away from the oscillator coil leads and switches.
2. Tap on 19-13 meter oscillator coil to pin No. 6 on oscillator tube socket must be dressed as far away from the air trimmer as possible.
3. All oscillator coil leads must be kept apart from each other, as well as other leads and parts.
4. Oscillator grid coupling condenser must bear against parts on S3, and be kept away from the shield between S2 and S3.
5. Check for correct bias cell polarity. Do not shunt with voltmeter.
6. The speaker leads must be kept from the volume control and associated parts and leads.
7. The two paper condensers on the sides of the 2nd I-F transformers must be held close to chassis to reduce interstage coupling.

Replacement Parts for Models B61 & B70

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

STOCK NO.	DESCRIPTION	STOCK NO.	DESCRIPTION
RECEIVER ASSEMBLIES			
S-2973	Cable-Battery cable complete with plugs.....	36063	Control-Volume Control and power switch (R7,S5,S6).....
35642	Calibrator-Drive drum calibrator....	S-2979	Cord-Drive cord (approx. 26 in.)....
12714	Capacitor-Air trimmer-medium (C4,C16,C19).....	S-2985	Cord-Indicator drive cord (approx. 46 in.) (Model B70 only).....
34654	Capacitor-Mica trimmer comprising 3 sections of 2.5-10 mmfd. (C1,C2,C3).....	S-2980	Cord-Indicator drive cord (approx. 51 in.) (Model B61 only).....
35646	Capacitor-6 mmfd. (C18).....	35788	Core-Adjustable core & stud for A & B band osc. coil.....
36012	Capacitor-15 mmfd. (C11).....	31259	Core-Adjustable core & stud for spread band osc. coil.....
31350	Capacitor-18 mmfd. (C15).....	35627	Drum-Drive drum less calibrator dial.
13141	Capacitor-47 mmfd. silver mica (C6)..	S-2969	Flywheel-Tuning shaft & flywheel assembly.....
35644	Capacitor-47 mmfd. ceramic (C9)....	34499	Holder-Bias cell holder.....
12723	Capacitor-56 mmfd. (C13).....	5119	Plug-3 contact female speaker plug...
36072	Capacitor-66 mmfd. (C8).....	S-1628	Plug-3 contact male battery plug....
35645	Capacitor-68 mmfd. (C5).....	32208	Plug-2 contact male battery plug....
12720	Capacitor-100 mmfd. (C29,C30).....	31280	Pulley-Drive cord pulley.....
12694	Capacitor-220 mmfd. (C12).....	35630	Pulley-Drive cord pulley located between the range switch shaft & the tuning shaft.....
31433	Capacitor-560 mmfd. (C14).....	30146	Resistor-4,700 ohm, 1/4 watt (R5)....
35643	Capacitor-3,000 mmfd. (C17).....	12265	Resistor-6,800 ohm, 1/4 watt (R3)....
33806	Capacitor-.0015 mfd. (C37).....	14559	Resistor-10,000 ohm, 1/4 watt (R16)...
34459	Capacitor-.0025 mfd. (C31,C33,C35)...	13998	Resistor-22,000 ohm, 1/4 watt (R6)....
33584	Capacitor-.005 mfd. (C38).....	13715	Resistor-68,000 ohm, 1/4 watt (R13)...
30938	Capacitor-.025 mfd. (C40).....	14560	Resistor-100,000 ohm, 1/4 watt (R2)...
32787	Capacitor-.05 mfd. (C21,C28,C36)...	12285	Resistor-470,000 ohm, 1/4 watt (R10)...
4839	Capacitor-0.1 mfd. (C32).....	13730	Resistor-1 meg., 1/4 watt (R1).....
12484	Capacitor-0.25 mfd. (C39).....	5028	Resistor-1.8 meg., 1/4 watt (R14)....
33790	Capacitor-Electrolytic comprising two 10 mfd. sections (C20,C34).....	12679	Resistor-2.2 meg., 1/4 watt (R11,R12)...
31581	Cell-Bias cell.....	30271	Resistor-4.7 meg., 1/4 watt (R4).....
35632	Coil-A & B band antenna coil (L4,L5,L6,L7,L8).....	13601	Resistor-10 meg., 1/4 watt (R9).....
35631	Coil-Spread band antenna coil (L1,L2,L3).....	14350	Screw-No. 8-32 square head set screw for drum (Pkg.5).....
36071	Coil-Filament series choke coil (L14)	35633	Shaft-Range switch slip-on indicator shaft.....
36065	Coil-Oscillator coil - A & B bands (L9,L10).....	35637	Shaft-Tuning shaft.....
36066	Coil-Oscillator coil - 13-19 meter bands (L13).....	35787	Socket-Phono input socket.....
36067	Coil-Oscillator coil - 25 meter band (L12).....	36069	Socket-1R5 tube socket & ring.....
36068	Coil-Oscillator coil - 31 meter band (L11).....	31251	Socket-Tube socket.....
35619	Condenser-Variable tuning condenser (C7,C10).....	13638	Spring-Drive cord tension spring (Pkg.5).....
		31418	Spring-Indicator pointer drive cord spring (Pkg.3).....
		35640	Support-Drive cord pulley support with one pulley.....

Replacement Parts for Models B61 & B70 Continued

STOCK NO.	DESCRIPTION	STOCK NO.	DESCRIPTION
36064	Switch-Range switch (S1,S2,S3,S4)...		REPRODUCER ASSEMBLIES(CRL510-2)(12")
S-2975	Tone control (R15) (Model B61 only).		(MODEL B70 ONLY)
36062	Tone control (R15) (Model B70 only).	13866	Cap-Dust cap for cone center(Pkg.5)
36061	Transformer-Driver transformer(T1)...	S-2565	Cone-Reproducer cone & voice coil...
35636	Transformer-First I.F. transformer (L15,L16,C22,C23).....	5118	Plug-3 contact male plug.....
36070	Transformer-Second I.F. transformer (L17,L18,C24,C25).....	S-2976	Reproducer complete.....
35628	Transformer-Third I.F. transformer (L19,L20,C26,C27).....	S-2977	Transformer-Output.....
33726	Washer-"C" washer for pulley(Pkg.5).		MISCELLANEOUS ASSEMBLIES
2917	Washer-"C" washer for tuning shaft (Pkg.4).....	S-2981	Dial-Station selector dial scale...
	REPRODUCER ASSEMBLIES(CRL515-3)	35647	Frame-Dial frame complete less dial & pointer.....
	(MODEL B61 ONLY)	35648	Indicator-Station selector indicator.....
32907	Cap-Dust cap for cone centre-(Pkg.5).....	35651	Knob-Range switch knob(outer section).....
32934	Cone-Reproducer cone and voice coil.....	35652	Knob-Range switch knob(inner section).....
5118	Plug-3 contact male plug.....	35650	Knob-Tone control knob.....
S-2974	Reproducer complete.....	36038	Knob-Tuning or volume control knob.
35941	Transformer-Output.....	35653	Mounting-Complete set of hardware to mount speaker consisting of grommets, eyelets & nuts.....
		4982	Spring-Retaining spring for knob Stock #35652-(Pkg.2).....
		14270	Spring-Retaining spring for knob Stock #35650,35651,or 36073(Pkg.2)