RCA Victor

MODEL 19K (Chassis No. RC-512A)

Nine-Tube, Three-Band, A-C, Loop, Superheterodyne

TECHNICAL INFORMATION AND SERVICE DATA

—1940 No. 23—

SERVICE DIVISION • RCA MANUFACTURING COMPANY, INC. • CAMDEN, N. J., U. S. A.

A Service of the Radio Corporation of America

Electrical and Mechanical Specifications

FREQUENCY RANGES

Standard Broadcast "A"	540-1,600 kc
Medium Wave "B"	1.5-4.0 mc
Short Wave "C"	5.8-18.0 mc

INTERMEDIATE FREQUENCY ..... 455 kc

TUBE COMPLEMENT

(1) RCA-6SK7	R-F Amplifier
(2) RCA-6SA7	1st Detector-Oscillator
(3) RCA-6SK7	I-F Amplifier
(4) RCA-6H6	2nd Detector, A.V.C.
(5) RCA-6SF5	A-F Amplifier
(6) RCA-6SF5	Phase Inverter
(7) RCA-6F6-G	Power Output
(8) RCA-6F6-G	Power Output
(9) RCA-5Y3-G	Rectifier

PILOT LAMPS (2) ..... Mazda No. 51, 7.5 volts, 0.20 amp.

POWER OUTPUT RATING

Undistorted	5 watts
Maximum	5.5 watts

CABINET DIMENSIONS

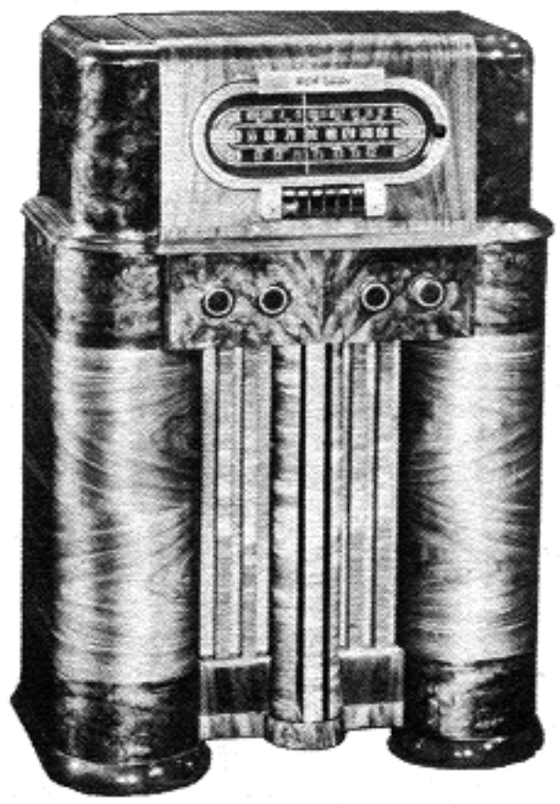
Height	41 inches
Width	28 inches
Depth	16 inches
Weight (shipping)	80 pounds
Weight (net)	60 pounds
Chassis Base Dimensions (inches)	Height 2¾, Width 18, Depth 6⅞
Overall Chassis Height	12½ inches
Tuning Drive Ratio	15 to 1

LOUDSPEAKER (RL 70J-1)

Type	12 inch electrodynamic
V.C. Impedance	2.2 ohms at 400 cycles

POWER SUPPLY RATINGS

Rating A	105-125 volts, 50-60 cycles, 100 watts
Rating B	105-125 volts, 25-60 cycles, 100 watts



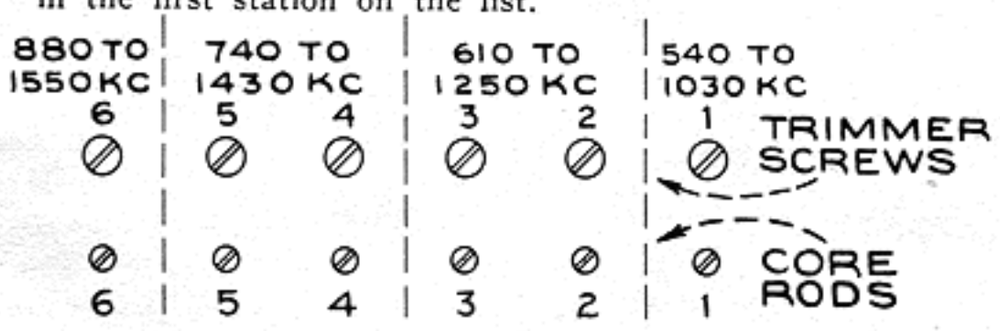
Model 19K

Adjustment for Electric Tuning

This model has six push buttons for electric tuning. The buttons connect to separate magnetite-core oscillator coils and separate antenna trimmers which must be adjusted for the desired stations. Use an insulated screwdriver or alignment tool such as RCA Stock No. 31031. Allow at least five minutes warm-up period before making adjustments.

The procedure is as follows:

1. Make a list of the six desired stations, arranged in order from low to high frequencies.
2. Turn Range Control knob to "A" position, and manually tune in the first station on the list.



Push Button Adjustments

Turn the Loop Antenna to give **minimum** pickup of signal, no outside antenna should be used and link on antenna board should be closed.

3. Turn Range Control knob to "PB" and press push button No. 1 and adjust No. 1 oscillator core to receive this station. Screw the core all the way in, to lowest frequency, and then unscrew slowly until station is received.
4. Adjust No. 1 antenna trimmer for maximum output on this station.

   Owing to the relatively high R-F gain, it may be found that there are several settings of each push-button magnetite core that will bring in any particular station. In such cases it is advisable to unscrew the push button antenna trimmers to minimum capacity before adjusting the oscillator cores.

   Clockwise adjustment of cores and trimmers tunes the circuits to lower frequencies.
5. Adjust for each of the remaining five stations in the same manner.
6. After all six stations are tuned-in on the buttons, turn the Loop Antenna to a position giving the best signal pickup and make a final careful adjustment of all core rods until best reception is obtained for each. Outdoor antenna should now be reconnected if used.

First Edition

Printed in U. S. A.

Alignment Procedure

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

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 "90°" mark on the drum scale must be vertical, and directly under 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.

To determine the corresponding frequency for any setting of the calibration scales, refer to the accompanying drawing which shows the dial with 0-180° calibration scales drawn at top and bottom.

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 "0" mark on the calibration scale when the plates are fully meshed.

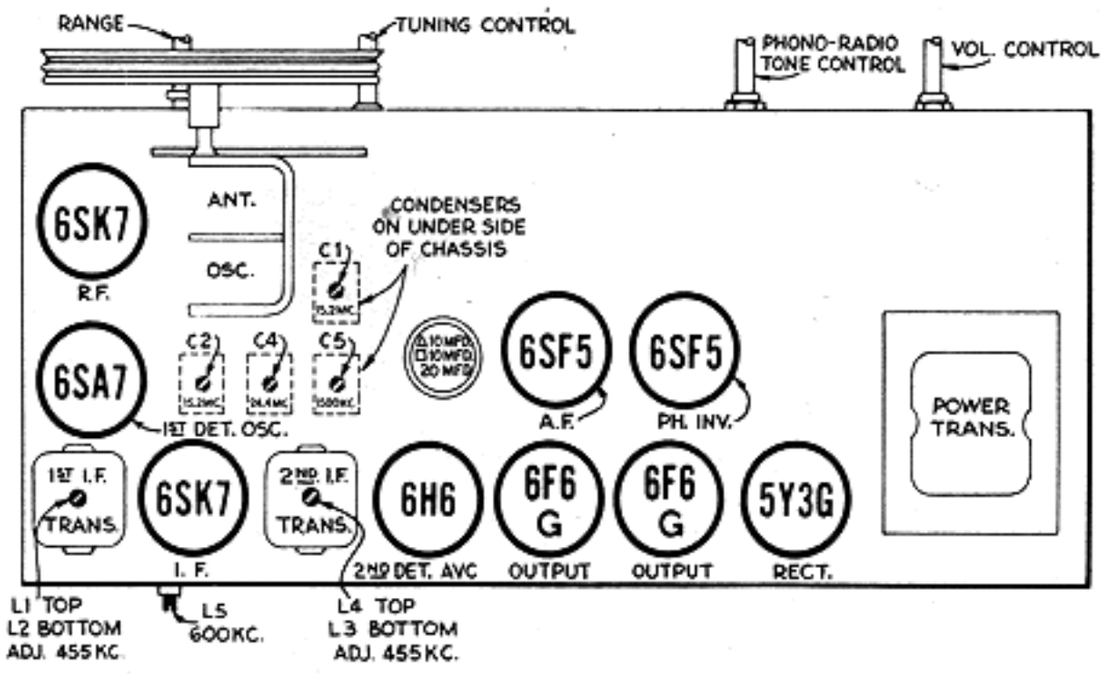
Dial-Indicator Adjustment.—After fastening the chassis in the cabinet, attach the dial indicator to the drive cable with indicator at the 540 kc mark, and gang condenser fully meshed. The indicator has a spring clip for attachment to the cable.

Preacautionary Lead Dress.—

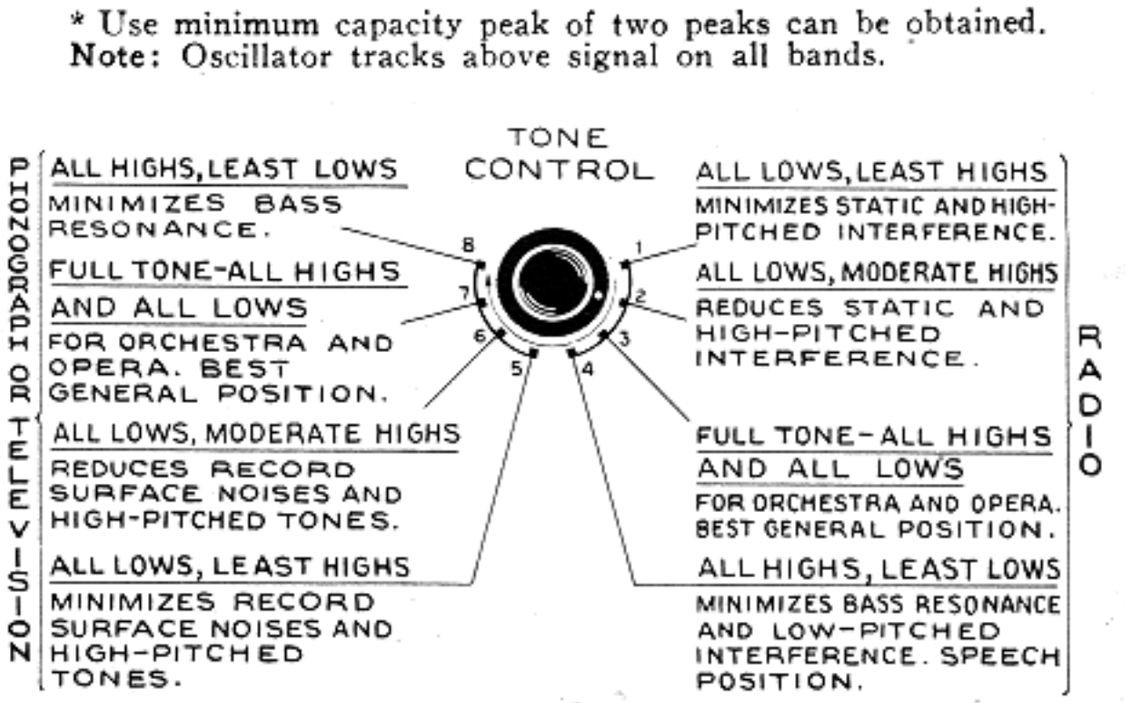
1. Dress 2nd I.F leads close to chassis.
2. Dress leads from volume control and tone switch away from filaments, diode and power leads.
3. Dress .005 mfd. volume control condenser away from electrolytic.

Steps	Connect the high side of test-osc. to—	Tune test-osc. to—	Range switch	Turn radio dial to—	Adjust the following for max. peak output
1	6SK7 I-F grid in series with .01 mfd.	455 kc	"A"	Quiet Point near 180°	L3 and L4 (2nd I-F Trans.)
2	6SA7 1st Detector in series with .01 mfd.				L1 and L2 (1st I-F Trans.)
3	Ant. terminal "A" in series with 47 mmf.	15.2 mc	"C"	148.5°	C1 (ant.) C2 (osc.)*
4	Ant. section of gang condenser in series with 300 ohms	2.44 mc	"B"	97°	C4 (osc.)*
5		1,500 kc	"A"	160°	C5 (osc.)*
6		600 kc		30°	L5 (osc.) (Rock gang)
7	Fasten chassis in cabinet. Connect loop, see that link is closed on the antenna board, attach dial indicator to drive cord, with indicator at 540 kc mark and gang at maximum capacity.				
8	Radiation loop consisting of two turns of wire 18 in. in diameter located 4 to 6 feet from receiver	1,500 kc	"A"	1,500 kc	C3 (ant.) (on loop)
9		600 kc		600 kc	L5 (osc.) (Rock gang)
10		Repeat steps 8 and 9			

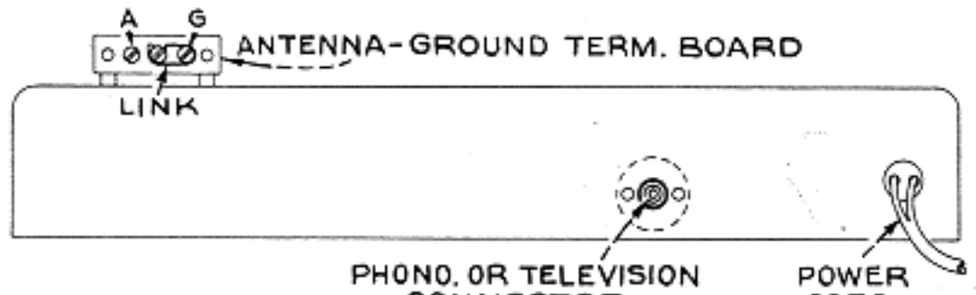
* Use minimum capacity peak of two peaks can be obtained.
Note: Oscillator tracks above signal on all bands.



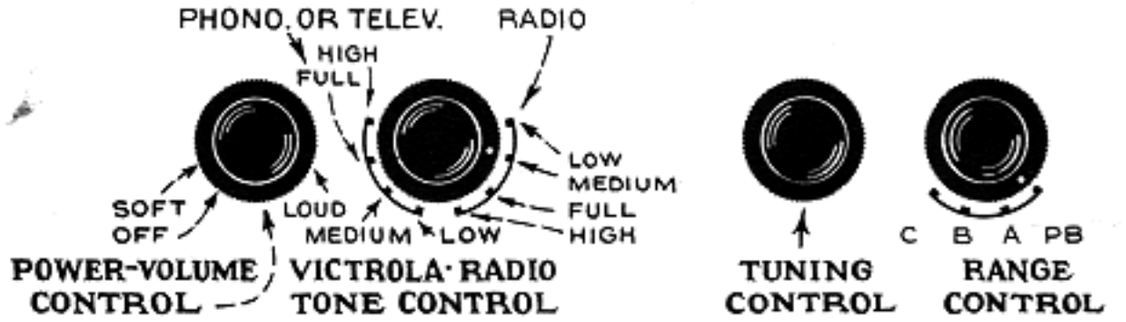
Tube and Trimmer Locations



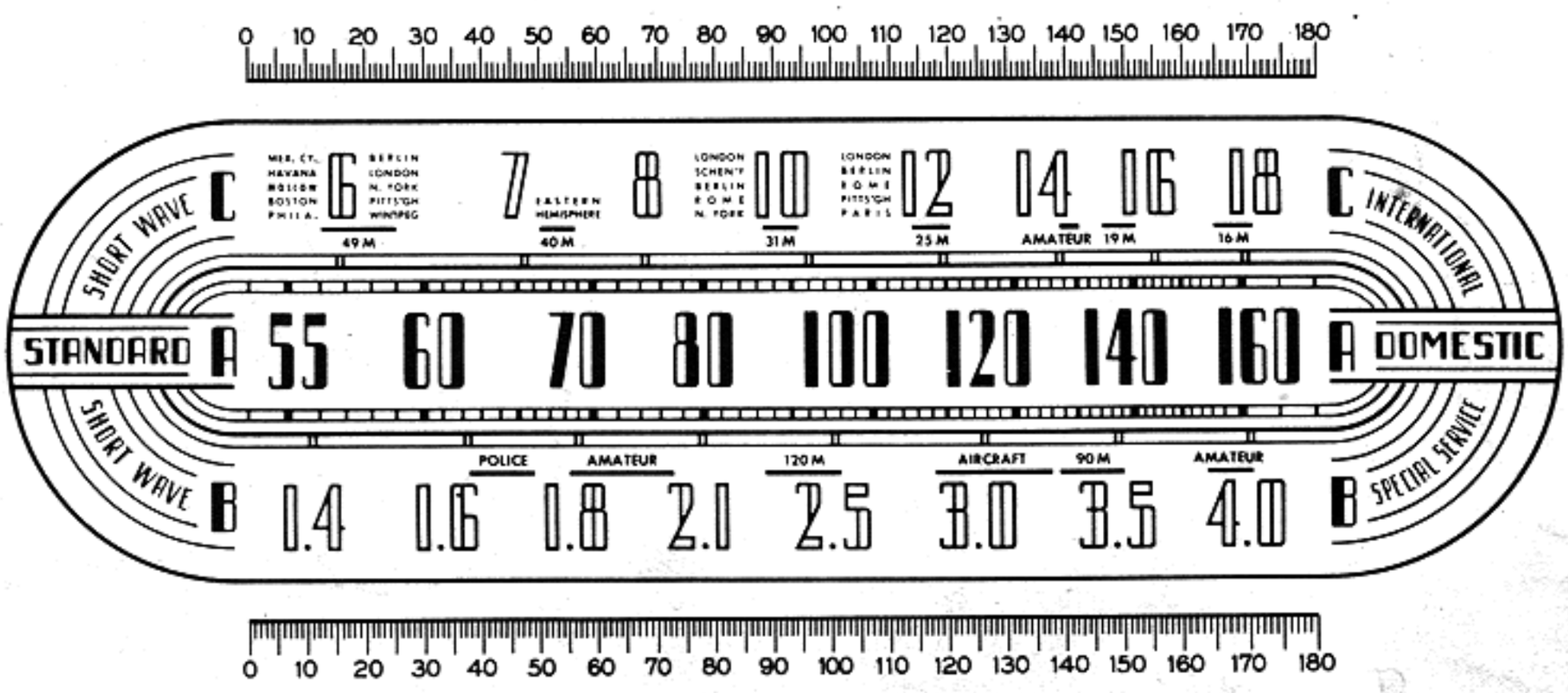
Tone Control and Phono-Radio Switch



Back of Chassis



Location of Controls



Calibration Scale

Reduced Reproduction of Receiver Dial, and Corresponding 0-180° Calibration Scales

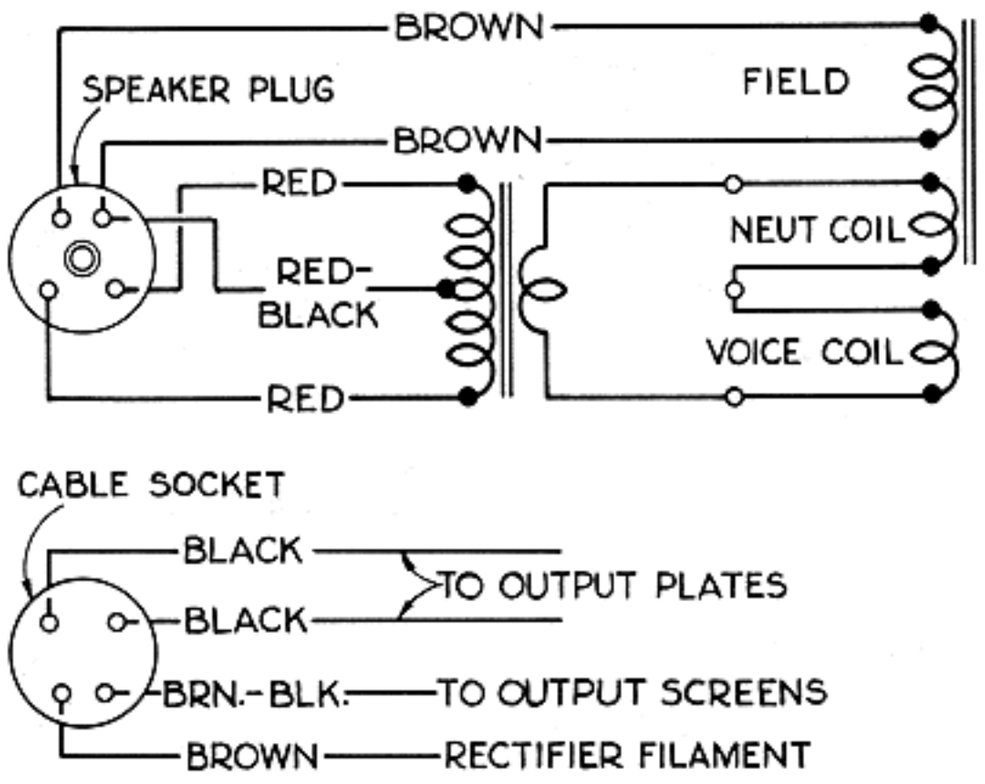
The corresponding position of the dial indicator for any setting of the calibration scale can be determined by drawing a line from this point on the bottom calibration scale to the same point on the top calibration scale. For example: 30° on the calibration scale corresponds to approximately 600 kc on "A" band. Read instructions under "Alignment Procedure."

Replacement Parts

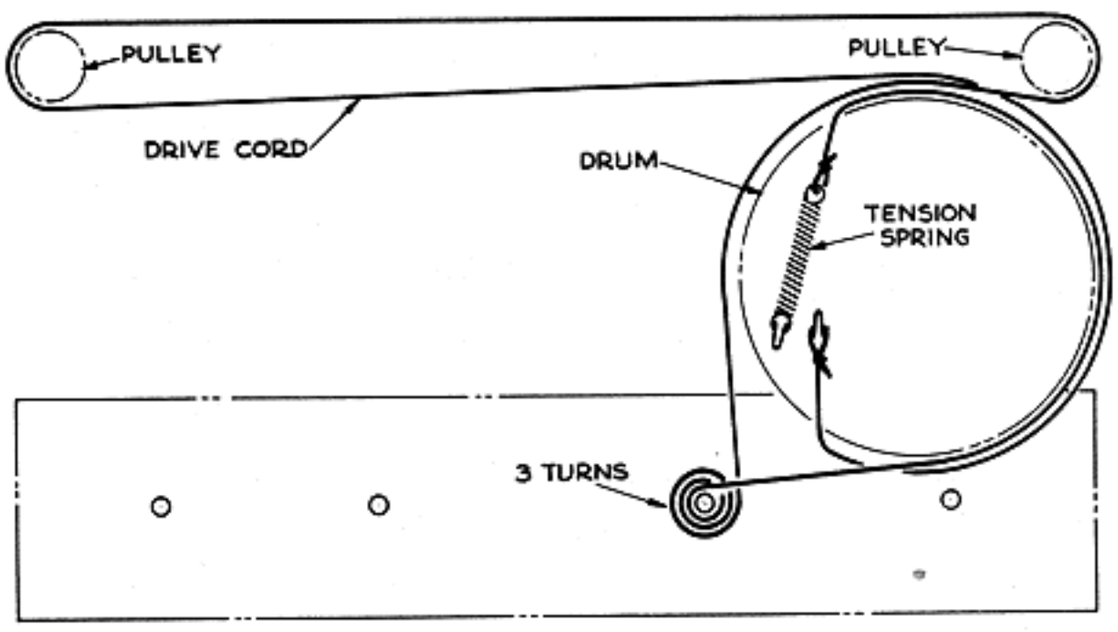
Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	Unit List Price
	CHASSIS ASSEMBLIES (RC-512A)	
35966	Board—"Antenna-Ground" board	.20
35795	Calibrator—Drive drum calibrator	.25
35961	Capacitor—Mica trimmer (C1)	.25
14079	Capacitor—6.8 mmfd.	.35
35791	Capacitor—Mica trimmer comprising 3 sections (C2, C4, C5)	.50
35804	Capacitor—Mica trimmer comprising 6 sections for push buttons 1, 2, 3, 4, 5, 6	1.15
13057	Capacitor—68 mmfd.	.35
12720	Capacitor—100 mmfd., moulded	.35
34699	Capacitor—100 mmfd., mica	.30
34700	Capacitor—120 mmfd.	.30
13003	Capacitor—180 mmfd.	.35
12952	Capacitor—330 mmfd.	.35
35877	Capacitor—720 mmfd.	.45
13895	Capacitor—5,600 mmfd.	.70
34506	Capacitor—.0018 mfd.	.25
33584	Capacitor—.005 mfd.	.25
14393	Capacitor—.01 mfd.	.30
32787	Capacitor—.05 mfd.	.20
4839	Capacitor—0.1 mfd.	.30
35858	Capacitor—Electrolytic comprising 2 sections of 10 mfd., 400 volts each and 1 section of 20 mfd., 25 volts	1.70
35965	Coil—Antenna coil—"C" band	.60
35876	Coil—Coil and resistor assembly L6	.30
35789	Coil—Oscillator coil (A, B, C)	1.15
35803	Coil—Push button switch oscillator coil	.30
35960	Condenser—Variable tuning condenser	2.50
35962	Control—Volume control and power switch	2.00
34662	Cord—Drive cord	.25
35788	Core—Adjusting core and stud for oscillator coil (L5)	.15
35871	Core—Adjusting core and stud for push button oscillator coils 1, 2, 3, 4, 5, 6	.55
35794	Drum—Tuning condenser drive drum—less calibrator	.70
35970	Indicator—Station selector indicator and carriage	.30
35972	Plate—Dial plate complete with drive cord pulleys	1.10
36009	Plug—2-contact male plug for loop cable	.25
5040	Plug—4-contact female plug for speaker cable	.30
35973	Pulley—Drive cord pulley	.08
32165	Resistor—470 ohms, 2 watts	.25
14720	Resistor—1,000 ohms, ½ watt	.20
14024	Resistor—2,700 ohms, ½ watt	.20
30694	Resistor—3,900 ohms, ½ watt	.20
35875	Resistor—12,000 ohms, 3 watts	.35
12695	Resistor—15,000 ohms, ½ watt	.20
12738	Resistor—27,000 ohms, ½ watt	.20
12454	Resistor—33,000 ohms, ½ watt	.20
12412	Resistor—47,000 ohms, ½ watt	.20
12199	Resistor—270,000 ohms, ½ watt	.20
12285	Resistor—470,000 ohms, ½ watt	.20
12679	Resistor—2.2 meg., ½ watt	.20
13601	Resistor—10 meg., ½ watt	.20
35968	Shaft—Tuning shaft and pulley	.25
35772	Shield—Bottom shield for power transformer	.30
35709	Shield—Top shield for power transformer	.30
31364	Socket—Dial lamp socket	.20
31251	Socket—Tube socket	.25
31418	Spring—Drive cord spring	.05
35787	Socket—Phono. input socket	.15
35974	Support—Dial plate support	.65
35967	Switch—Push button selector switch	3.50
35964	Switch—Range switch (S1, S2, S3, S4)	1.90
35963	Switch—Tone switch (S5, S6)	1.00
35636	Transformer—First I-F transformer	1.70
35790	Transformer—Second I-F transformer	1.60
35588	Transformer—Power transformer—110 volts, 25 cycle	6.30
35959	Transformer—Power transformer—110 volts, 60 cycle—less end shields	3.75
35969	Washer—"C" washer for tuning shaft	.02
	SPEAKER ASSEMBLIES (RL-70J1)	
31825	Cap—Cone center dust cap	.02
11469	Coil—Hum neutralizing coil	.30
33116	Coil—Speaker field coil	2.10
31275	Cone—Speaker cone, voice coil, and dust cap	1.50
5039	Plug—4-prong male, for speaker	.30
33444	Transformer—Output transformer	2.00
	MISCELLANEOUS ASSEMBLIES	
36005	Button—Push button	.15
35998	Capacitor—Mica trimmer (C3) for loop	.25
36002	Coil—Loop primary coil	.40
35914	Decalcomania—Control panel decal	.10
36019	Dial—Glass dial scale	1.65
36006	Escutcheon—Dial scale escutcheon—less dial	2.75
36003	Knob—Tone or range switch knob	.25
36004	Knob—Tuning or volume control knob	.25
11765	Lamp—Dial lamp	.15
35997	Loop—Antenna loop	3.00
36149	Marker—Station selector push button markers	.35
36007	Mounting—Antenna loop mounting hardware	.10
35029	Mounting—Speaker mounting hardware	.35
35999	Socket—Two contact socket for antenna loop	.25
34053	Spring—Push button spring	.02
14270	Spring—Retaining spring for knobs	.05

ALL PRICES ARE SUBJECT TO CHANGE OR WITHDRAWAL WITHOUT NOTICE.



Connections and Colors of Loudspeaker and Cable



Arrangement of Drive Cords for Tuning Condenser and Dial Indicator

1.6 X (ANT. TO GRID) (600KC.) — 1.5X(AVC WORKING) (600KC) / 7X(AVC BUS GROUNDED) — CONVERSION GAIN (600 TO 455 KC) 40X — 0.8X (455 KC) — 100X(AVC WORKING(455KC) / 200X(AVC BUS GND) — 0.8 X 455 KC — 50 X 400~ — 35 X 400~ — 17 X 400~ — APPROX. GAIN DATA USING RCA-RIDER "CHANALYST."

ANT. AROUND CABINET
A
G
LINK CLOSED FOR LOOP OPERATION
C3 ON LOOP
"A"-"B" LOOP
PRI.
1Ω
70Ω
SOCKETS TERM. VIEW
PLUGS PRONG VIEW
BLACK
BLUE
GREEN
BROWN
S1 FRONT
"C" BAND COIL
PRI. 5Ω
C1 15.2MC
6.8 MMF.
100 MMF.
CONNECTED
"C" BAND COIL
S2 REAR
2.2MEG.
6SK7 R.F.
BOTTOM VIEW OF TUBE SOCKETS
177V.
10,000Ω
L6 2Ω
100 MMF.
3900Ω
.01 MFD.
1000Ω
14MA
83V
6SA7 1ST DET.-OSC.
8MA
240V.
47,000Ω
1ST I.F. TRANS. 455KC
100 MMF
100 MMF
7Ω
L1 L2
-7V (600KC) -9V(1500KC) A BAND
-4V(1600KC) -7V(4000KC) B BAND
-4V(6MC.) -8V(18MC) C BAND
0.1 MFD
.05 MFD.
6SK7 I.F.
240V.
83V
13.5 MA.
2ND. I.F. TRANS. 455KC.
120 MMF
120 MMF
L3 L4
270,000Ω
180 MMF.
330 MMF.
270,000Ω
*30V. AVC WITH 0.2V TO ANT. (600KC)
12,000Ω
2-2 MEG.
6H6 2ND DET.-AVC.
.005 MFD.
S5 FRONT
PHONO. TELEV. JACK
S6 REAR
.005 MFD.
.0018 MFD.
6SF5 A.F.
60V*
VOL. CONTR. 2 MEG. TAP AT 500,000Ω
.005 MFD.
10 MEG.
27,000Ω
.01 MFD.
6SF5 PH. INV.
68V*
.005 MFD.
15,000Ω
470,000Ω
470,000Ω
.005 MFD.
6F6 OUTPUT
2700Ω 22MA.
235V
240V.
.005 MFD.
470Ω
20 MFD.
BLK. & BRN.
BLACK
650Ω
2Ω
.005 MFD.
BLACK
6F6 OUTPUT
24MA.
235V.
240V.
470,000Ω
93207-2 19K (RC 512A)
OSCILLOGRAPH CONNECTIONS
VERTICAL "HI" TO THIS TERMINAL
VERTICAL "O" TO CHASSIS.
33,000Ω
68MMF.
APPROX. RANGE OF FREQUENCIES COVERED BY PUSH BUTTONS.
880 TO 1550 KC
740 TO 1430 KC
610 TO 1250 KC
540 TO 1030 KC.
P.B. SW. TOP SECTION
ANT. TRIMMERS
P.B. SW. (BOTTOM SECTION)
OSC. COILS
OSC. COIL
C2 15.2MC.
0.5Ω
C4 24.4 MC.
1.5Ω
L5 600 KC.
3.5Ω
5600 MMF.
C5 1500KC
S3 FRONT
S4 REAR
720 MMF.
5Y3G RECT.
GREEN-RED
340V.
82 MA.
RED
9.5Ω 60V
GREEN-RED
BROWN
550Ω 60V
BRN & BLK
BROWN
BLUE
BLUE
RED
SWITCH ON VOL. CONTR. S7
117V.
TO HEATERS & DIAL LAMP
FIELD 1060Ω
10 MFD.
10 MFD.
VOLTAGES SHOULD HOLD WITHIN ± 20% WITH 117V. AC SUPPLY.
*MEASURED WITH "CHANALYST" OR "VOLTOHMYST"

Schematic Circuit Diagram