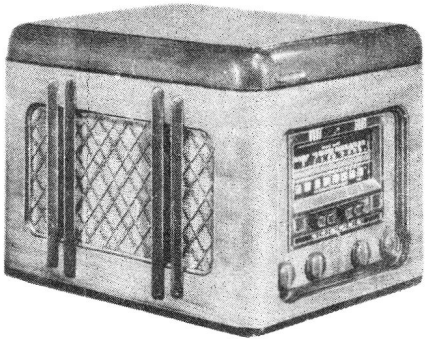
RCA Victor

MODELS VR-1 and VR-4

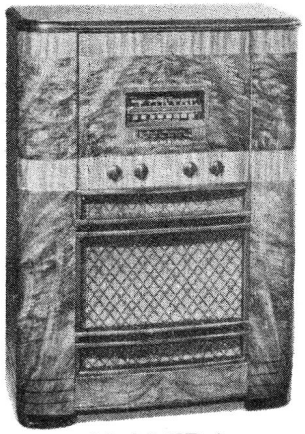
Five-Tube, Two-Band, AC, Superheterodyne Victrolas

TECHNICAL INFORMATION AND SERVICE DATA

SERVICE DIVISION • RCA VICTOR COMPANY LIMITED • MONTREAL



Model VR-1



Model VR-4

Electrical Specifications

FREQUENCY RANGES

Standard Broadcast ..... 540-1,720 kc
Short Wave ..... 5.8-18 mc
INTERMEDIATE FREQUENCY ..... 455 kc

TUBE COMPLEMENT

(1) Type-6SA7 ..... 1st Detector—Oscillator
(2) Type-6SK7 ..... I-F Amplifier
(3) Type-6SQ7 ..... 2nd Detector, A.V.C., and A-F Amplifier
(4) Type-6F6-G ..... Power Output
(5) Type-5Y4-G ..... Rectifier
PILOT LAMPS (2).....Mazda No. 44, 6.3 volts, 0.25 amp.

POWER OUTPUT RATING

Undistorted ..... 2.5 watts
Maximum ..... 4.5 watts

LOUDSPEAKER (VR-1) (RL79-1)

Type ..... 6-inch Electrodynamic
V.C. Impedance ..... 3.4 ohms at 400 cycles

LOUDSPEAKER (VR-4) (RL70H-1)

Type ..... 12 inch Electrodynamic
V.C. Impedance ..... 3.4 ohms at 400 cycles

POWER SUPPLY RATINGS

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

Push Button Adjustments

The push buttons should be adjusted for six favorite stations after the receiver has had a brief warm-up period.

Any standard broadcast stations may be chosen. The preferable arrangement is to adjust for stations in the order of frequency, from low to high.

Proceed as follows:—

1. Set the accessory tone knob to "Radio" and turn the range selector to "A" band position.

2. Remove the six push buttons by inserting a small screwdriver blade in the slot provided on the under side of the button. Press the screwdriver blade upwards at the same time pull the button forward.

3. Loosen the push arm adjusting screws accessible through the push button openings.

4. Press in the tuning knob and accurately tune in the first station.

5. With station accurately tuned in, press in the first push button and tighten screw.

6. Proceed in a similar manner to adjust the remainder of the push buttons.

7. Replace push buttons by inserting in the escutcheon openings, spring side down. Press button in as far as possible to securely lock button in escutcheon.

8. Place call letter tabs in openings provided.

Alignment Procedure

Cathode-Ray Alignment is the preferable method. Connections for the oscillograph are shown in the chassis 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 tuning drum. 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.

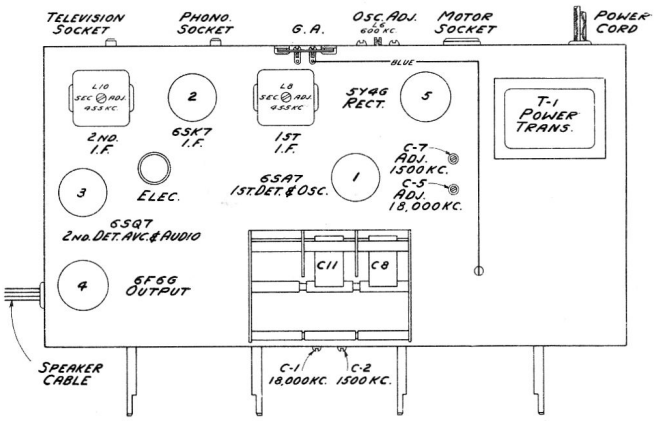
As the first step in r-f alignment, check the position of the drum. The 240° mark on the drum scale must be vertical and directly above the center of the shaft of the tuning drum when the plates are fully meshed. The drum is held to the shaft by means of two set-screws, which must be tightened securely when the drum is in the correct position.

On the inner side of the tuning drum are two projections which serve as stops to prevent extreme rotation of the gang condenser. The tuning drum should be set so that the stop limiting clockwise movement of the drum takes effect just as the gang condenser plates are becoming fully meshed, thus preventing stress on the gang due to extreme rotation.

Pointer for Calibration Scale.—Improvise a pointer for the calibration scale by fastening a piece of wire to the chassis, and bend the wire so that it points to the 240° mark on the calibration scale when the plates are fully meshed.

Steps	Connect the high side of the test-osc. to—	Tune test osc. to—	Turn radio dial to—	Adjust the following for maximum peak output
1	6SK7 grid in series with .01 mfd.	455 kc	"A" Band Quiet Point between 550-750 kc	L9 and L10 (2nd I-F Trans.)
2	6SA7 grid in series with .01 mfd.			L7 and L8 (1st I-F Trans.)
3	Ant. terminal in series with 300 ohms	18 mc	18 mc (24°) "C" Band	C5 (osc.)* C1 (ant.)
4	Ant. terminal in series with 200 mmfd.	1,500 kc	1,500 kc (41.75°) "A" Band	C7 (osc.) C2 (ant.)
5		600 kc	600 kc (200.25°) "A" Band	L6 (osc.) Rock Gang
6	Repeat step 4.			

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



Tube and Trimmer Locations

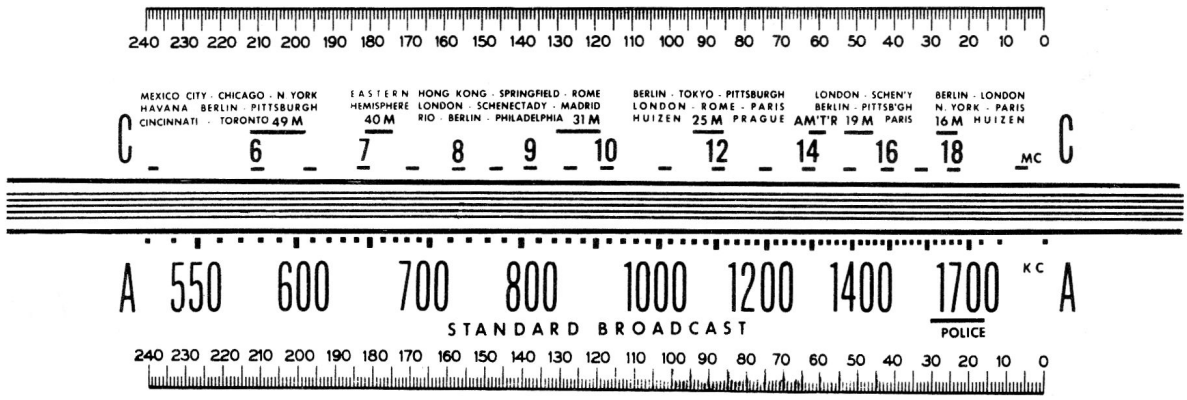
RADIOTRON SOCKET VOLTAGES

Type	Function	Plate	Screen Grid	Cathode	Heater
6SA7	Det.	260V	80V	----	6.6V
	Osc.	----	----	2.3V	----
6SK7	I.F.	260V	80V	----	6.6V
6SQ7	Audio	80*V	----	----	6.6V
6F6-G	Output	245V	260V	16V	6.6V
5Y4-G	Rectifier	----	----	350V	5.0V

* Cannot be measured with an ordinary voltmeter.

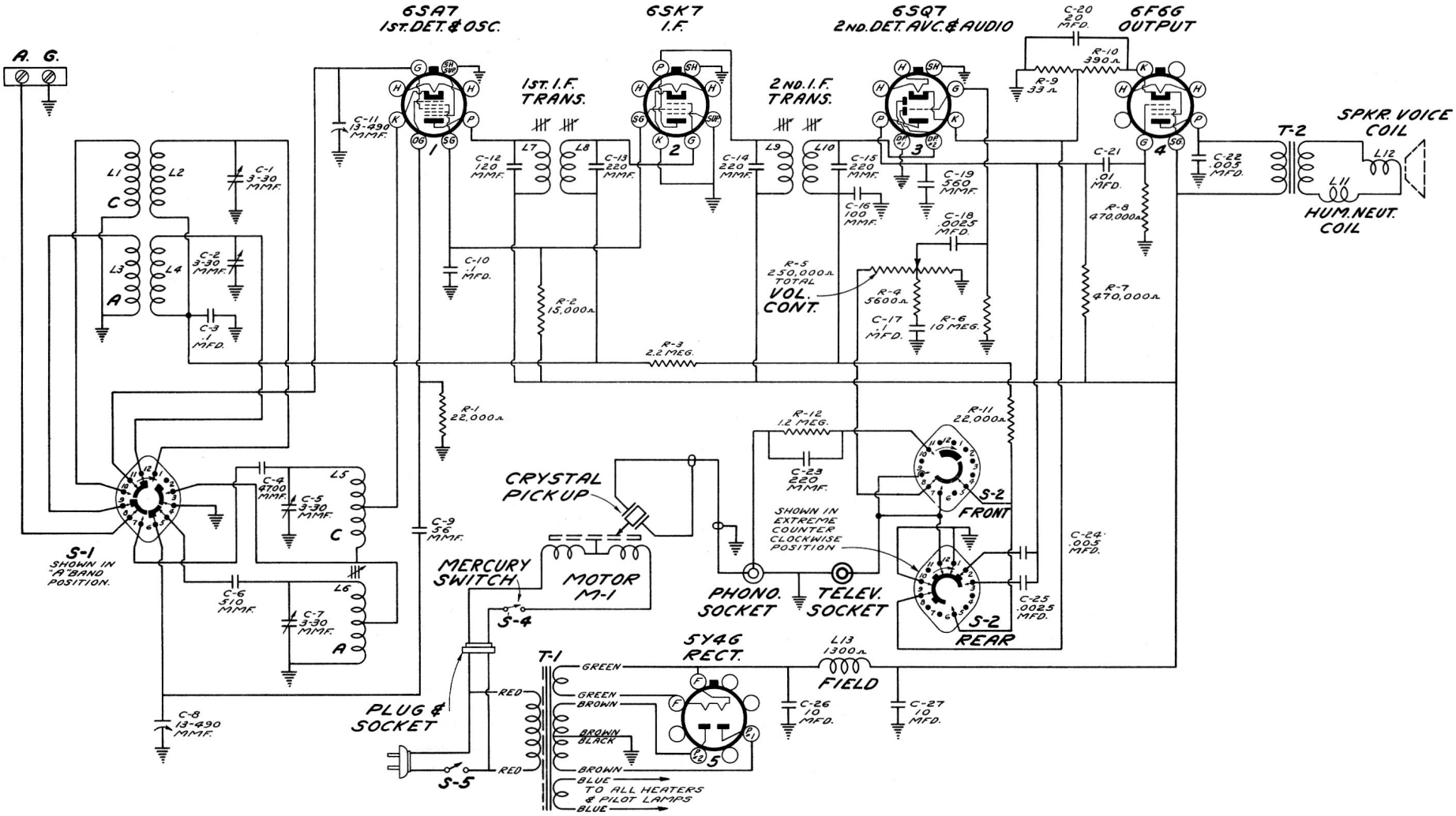
The above voltages are measured with a 1000 ohm-per-volt meter. All values should hold within + 20 percent.

Calibration Scale

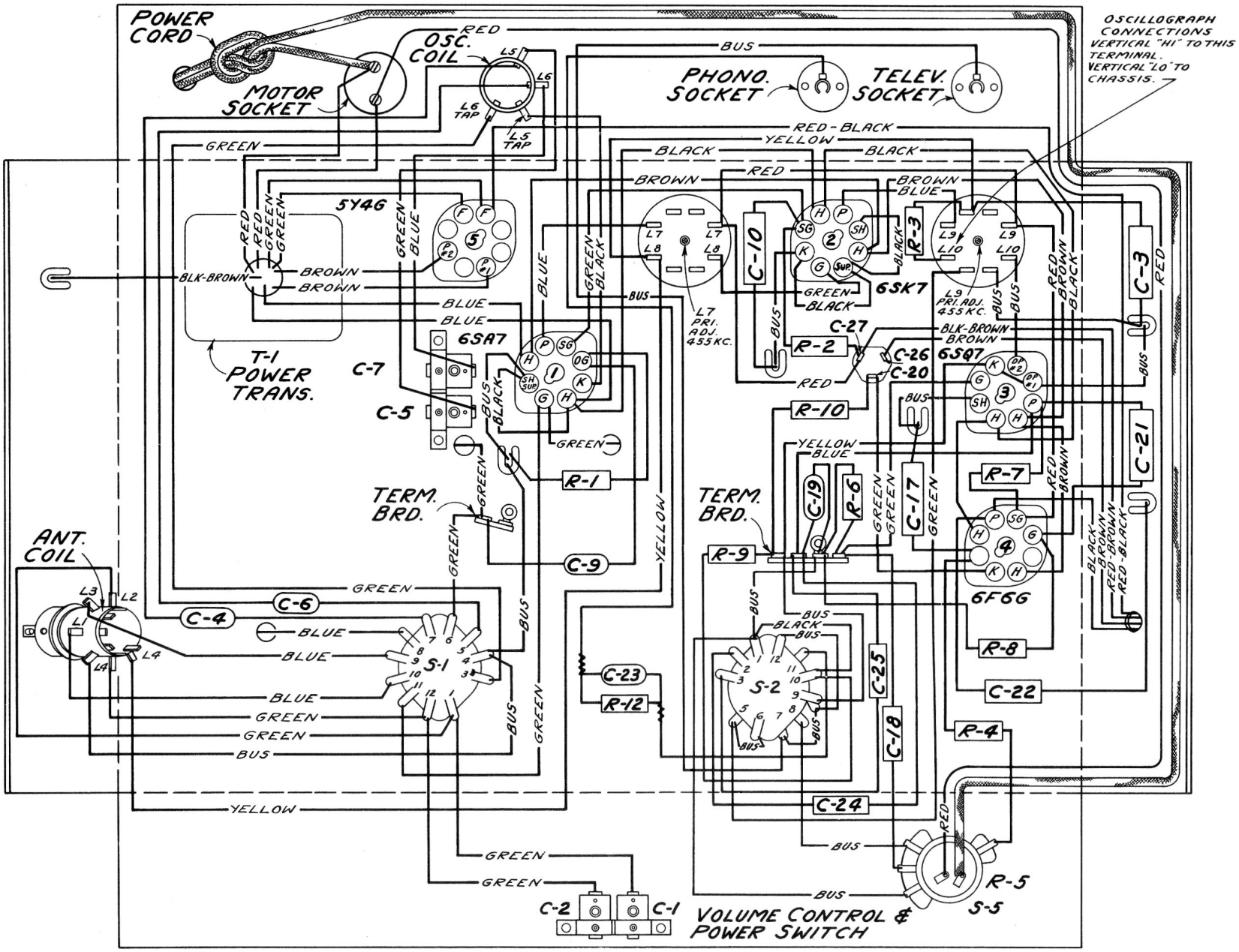


Receiver Dial Scales, and Corresponding 0-240° Calibration Scales

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, 200.25° on the calibration scale corresponds to 600 kc on "A" band. Read instructions under "Alignment Procedure."



Schematic Circuit Diagram



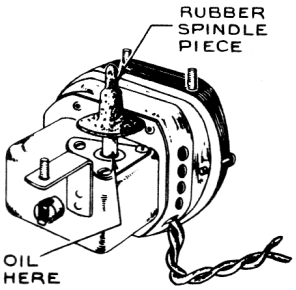
Chassis Wiring Diagram

Miscellaneous Service Data

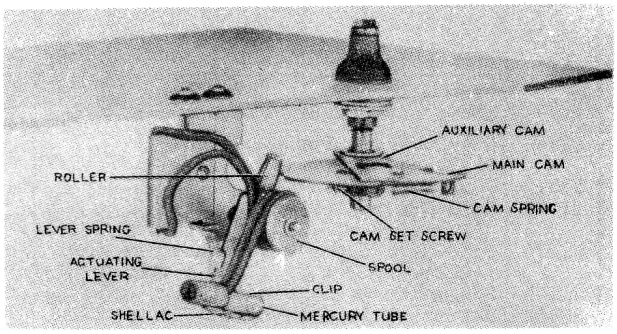
Phonograph Mechanism:
The phonograph motor is a self-starting, constant-speed induction type. It should be lubricated every six months by applying a few drops of light machine oil to the spindle bearing and oil hole.

The motor spindle is tapered, and a conical rubber piece fits snugly on the spindle. The hole in the turntable bushing is tapered to fit the rubber. This provides an excellent self-centering floating mounting.

A metal washer is placed on the spindle under the rubber piece. The washer has ears on the under side which fit over a pin that projects through the spindle.



Phonograph Motor



Switch Mechanism
(Shown with pickup in rest position)

The motor switch is automatic for both starting and stopping, and when properly adjusted, will turn the motor on as the pickup is moved from the pickup rest toward the turntable. The switch should be adjusted so that it will snap into the "off" position when the pickup needle is 1¾ inches from the center line of the spindle shaft. The motor may be shut off at any time by placing the pickup on the pickup rest.

REPLACEMENT PARTS FOR MODELS VR-1 TABLE & VR-4 CONSOLE 5 TUBE 2 BAND AC COMBINATIONS

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

STOCK NO.	DESCRIPTION	
	RECEIVER ASSEMBLIES	
S-2524	Arm-Trip arm & set screw located on range switch.....	
14517	Board-Antenna ground terminal board..	
31292	Capacitor-Dual,adjustable trimmer, two sections 3-30 mmfd. (C1,C2,C5, C7).....	
12723	Capacitor-56 mmfd. (C9).....	
12694	Capacitor-220 mmfd.(C23).....	
30608	Capacitor-510 mmfd.(C6).....	
12537	Capacitor-560 mmfd.(C19).....	
12897	Capacitor-4700 mmfd.(C4).....	
5107	Capacitor-.0025 mfd.(C18,C25).....	
4838	Capacitor-.005 mfd.(C22,C24).....	
4937	Capacitor-.01 mfd.(C21).....	
4839	Capacitor-0.1 mfd.(C3,C10,C17).....	
32240	Capacitor-Electrolytic capacitor consisting of two 10 mf., and one 20 mfd. sections (C20,C26,C27).....	
S-2527	Coil-Antenna coil (L1,L2,L3,L4).....	
S-2528	Coil-Oscillator coil (L5,L6).....	
S-2529	Cord-Indicator pointer drive cord....	
S-2538	Dial-Station selector dial scale.....	
34267	Drum-Variable condenser drive drum...	
S-2531	Indicator-Station indicator pointer..	
11891	Lamp-Dial Lamp.....	
5040	Plug-4 contact female speaker plug...	
14671	Resistor-33 ohms, 1/4 watt (R9).....	
31388	Resistor-390 ohms, 1 watt (R10).....	
S-1894	Resistor-5,600 ohms, 1/4 watt (R4)...	
33489	Resistor-15,000 ohm, 2.5 watt (R2)...	
13998	Resistor-22,000 ohms,1/4 watt (R1, R11).....	
12285	Resistor-470,000 ohms, 1/4 watt (R7,R8).....	
30208	Resistor-1.2 meg., 1/4 watt (R12)....	
12679	Resistor-2.2 meg., 1/4 watt (R3).....	
13601	Resistor-10 meg., 1/4 watt (R6).....	
4669	Screw-Drum set screw (Pkg.10).....	
31418	Spring-Drive cord tension spring (Pkg.2).....	
31364	Socket-Dial lamp socket.....	
33514	Socket-Phono and television dual socket.....	
31251	Sooket-Radiotron socket.....	
S-2533	Switch-Range Switch (S1).....	
33424	Switch-Tone-Phono-Television Switch (S2).....	
S-2534	Transformer-First I.F. Transformer (L7,L8,C12,C13).....	
33761	Transformer-2nd I.F. Transformer (L9,L10,C14,C15).....	
S-2535	Transformer-Power transformer 105/125 volts, 25 cycle (T1).....	
S-2548	Transformer-Power transformer 105/125 volts, 60 cycles (T1).....	
S-2536	Volume control & switch (R5,S5).....	

STOCK NO.	DESCRIPTION	
	MOTOR BOARD ASSEMBLIES	
S-2285	Damper-Turntable damper plate and sleeve.....	
32558	Motor-Phonograph motor 105/125 volts, 60 cycle (M1).....	
32638	Motor-Phonograph motor 105/125 volts, 25 cycle (M1).....	
31463	Turntable-Motor Turntable.....	
	AUTOMATIC SWITCH ASSEMBLY	
33221	Cam-Cam assembly comprising main & auxiliary cams,hubs & set screws...	
32864	Lever-Actuating lever with roller & mercury tube clip.....	
32869	Screw-Set screw for cam hub(Pkg.10).	
32868	Spring-Actuating lever tension spring (Pkg.2).....	
32867	Spring-Cam tension spring (Pkg.2)...	
32865	Support-Switch support & terminal board.....	
S-2549	Switch-Mercury tube & leads (S4)....	
31608	Washer-"C" washer for actuating lever shaft (Pkg.10).....	
	PICKUP & ARM ASSEMBLIES	
S-2451	Base-Pickup arm mounting base and pivot shaft.....	
33122	Crystal-Pickup crystal cartridge & needle screw.....	
33529	Screw-Pickup needle screw.....	
33591	Shell-Pickup shell less crystal unit and mounting base.....	
	(VR1) REPRODUCER ASSEMBLIES (RL79-1)	
32907	Cap-Dust cap for cone center (Pkg.5)	
33077	Coil-Field coil (L13).....	
32906	Coil-Hum neutralizing coil (L11)....	
32934	Cone-Reproducer cone and voice coil (L12).....	
31302	Plug-4 contact male plug.....	
33078	Reproducer complete.....	
32905	Transformer-Output (T2).....	

REPLACEMENT PARTS FOR MODELS VR-1 TABLE & VR-4 CONSOLE--Continued

STOCK NO.	DESCRIPTION	
	(VR4) REPRODUCER ASSEMBLIES (RL70 H-1)	
13866	Cap-Dust cap for cone center (Pkg.5).....	
12012	Coil-Field coil (L13).....	
11469	Coil-Hum neutralizing coil (L11).....	
31275	Cone-Reproducer cone and voice coil (L12).....	
31302	Plug-4 contact male plug.....	
31592	Reproducer complete.....	
14355	Transformer-Output (T2).....	

STOCK NO.	DESCRIPTION	
	MISCELLANEOUS ASSEMBLIES	
S-2537	Button-Station selector push button	
S-2539	Escutcheon-Dial scale escutcheon...	
S-2540	Knob-Volume,tone,range or tuning control knob.....	
S-2541	Marker-Push button markers(1 set)..	
S-2446	Retainer-AC socket retainer(Pkg.3).	
S-2447	Socket-AC power socket.....	
14270	Spring-Knob retaining spring(Pkg.10)	
S-2543	Spring-Push button retaining spring (Pkg.3).....	
S-2542	Tool-Push button adjusting tool....	