



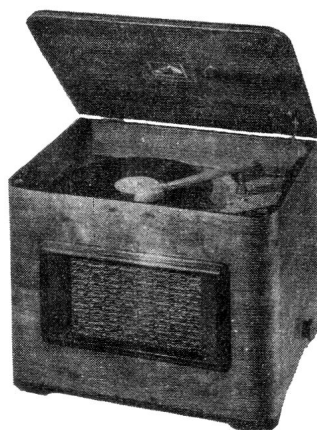
RCA Victor

MODEL R97

Three-Tube, A-C, Electric Phonograph

TECHNICAL INFORMATION AND SERVICE DATA

SERVICE DIVISION • RCA VICTOR COMPANY LIMITED • MONTREAL



Model R97

Electrical Specifications

RADIOTRON COMPLEMENT

(1) Type 6SQ7	Audio Voltage Amplifier	(2) Type 6F6G	Power Output
(3) Type 5Y4G			Rectifier

POWER SUPPLY RATINGS

Rating A	105-125 volts, 50-60 cycles, 75 watts
Rating B	105-125 volts, 25 cycles, 75 watts

POWER OUTPUT

Undistorted	1.75 watts
Maximum	4.5 watts

LOUDSPEAKER

Type	Elliptical 9x6-inch Electrodynamic
Impedance (V.C.)	4.5 ohms at 400 cycles

MOTOR-BOARD

Motor Type	Synchronous, rim drive with self start and automatic stop
Turntable Speed	78 r.p.m.
Pickup	Permanent stylus crystal
Pickup Impedance	100,000 ohms at 1000 cycles

Mechanical Specifications

Height	13½ inches
Width	17¾ inches
Depth	13½ inches
Weight (Net)	30 pounds
Weight (Shipping)	36 pounds
Operating Controls	Volume Control and Power Switch

General Description

The Model R97 Electric Phonograph consists of a three-tube audio amplifier with a dust-proof electrodynamic loudspeaker. A constant speed rim drive motor, with a new type permanent point crystal pickup are combined in a hinged-top table-type cabinet. Design

features include a resistance-coupled audio system, self-starting constant-speed rim drive motor, automatic motor switch, and an aurally compensated volume control.

Service Data

The various diagrams of this booklet contain such information as will be needed to isolate causes for defective operation if such develops. The ratings of the resistors, capacitors, coils, etc., are indicated adjacent to the symbols signifying these parts on the diagrams. Identification titles such as R1, L1, C1, etc., provide reference between the illustrations and Replacement Parts List. The coils, transformer windings, and reactors are rated in terms of d-c resistance to permit continuity checks.

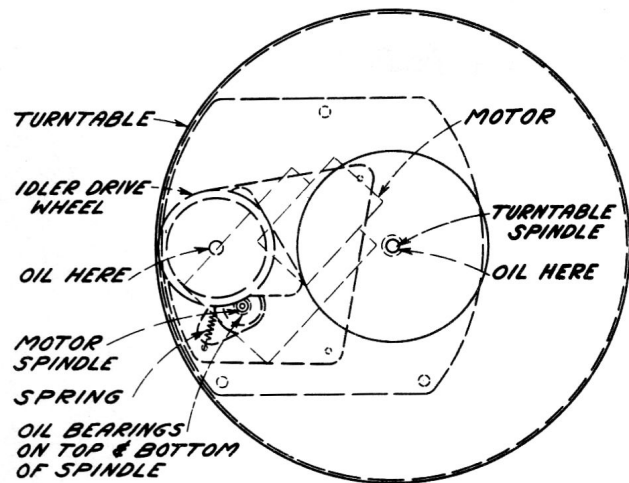
The crystal pickup unit is enclosed in a metal casing as protection against damage. If failure occurs due to a defective crystal, no attempt should be made to repair the unit, but a new replacement crystal unit should be installed.

The turntable drive is a self-starting, constant-speed rim drive induction motor. The motor speed should be 78 r.p.m., and may be checked by placing a piece of paper between a record and the turntable, with the paper protruding beyond the edge of the record, and counting the number of revolutions of the turntable per minute while playing a record.

Operation.—The motor is started by moving the pickup arm towards the turntable. An adjustment on the automatic motor switch may be made so that the switch will be in the "off" position when the stylus in the pickup head is $1\frac{3}{4}$ inches away from the center of the turntable.

It is important that the drive motor spindle, and rubber tire be kept clean and free from oil, grease, dirt, or any foreign matter at all times. Any quick-drying naphtha is satisfactory for cleaning these parts.

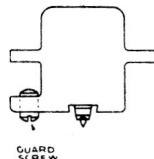
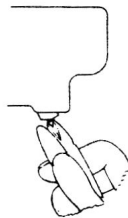
Motor Data



Turntable Lubrication.—Apply a few drops of medium machine oil to the turntable spindle bearing every six months.

Replacement of Permanent Stylus

As an additional precaution against rough handling, the top of the permanent stylus is dipped in a rubber cement before being inserted in the pickup. To remove the stylus, grasp it firmly with a pair of tweezers, give it a few turns to loosen the cement and then pull it out. Much easier handling of the stylus will result if the tweezers are notched with a file as shown.



Naphtha may be used as a thinner should difficulty with the rubber cement be experienced.

Before inserting the new stylus it should be dipped in the rubber cement previously thinned with naphtha. After insertion clean the point with naphtha if there is any doubt as to the presence of cement.

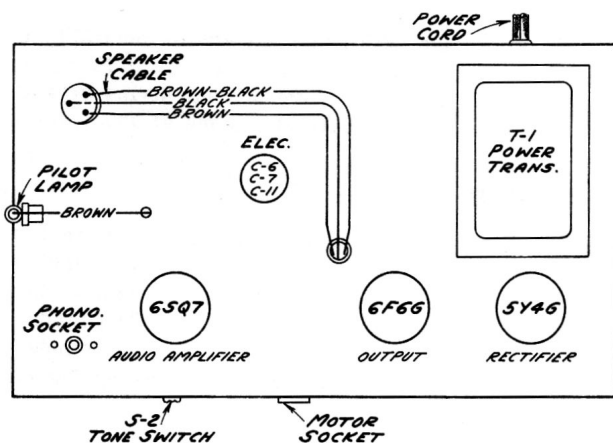


Figure 1—Radiotron Locations

Circuit Revisions

On some production of Model R97 resistors R1, 47,000 ohms, R4, 8200 ohms and capacitor C10, .025 mfd. were not used.

Also the plate circuit of the 6SQ7 tube contained the following revisions:

Resistor R7, 470,000 ohms was replaced by (2) 100,000 ohm resistors R10 and R11 wired in series. Connection to coupling capacitor C3 was then made to the junction of resistors R10 and R11.

Dotted wiring on the schematic diagram (Fig. 2) illustrates these changes.

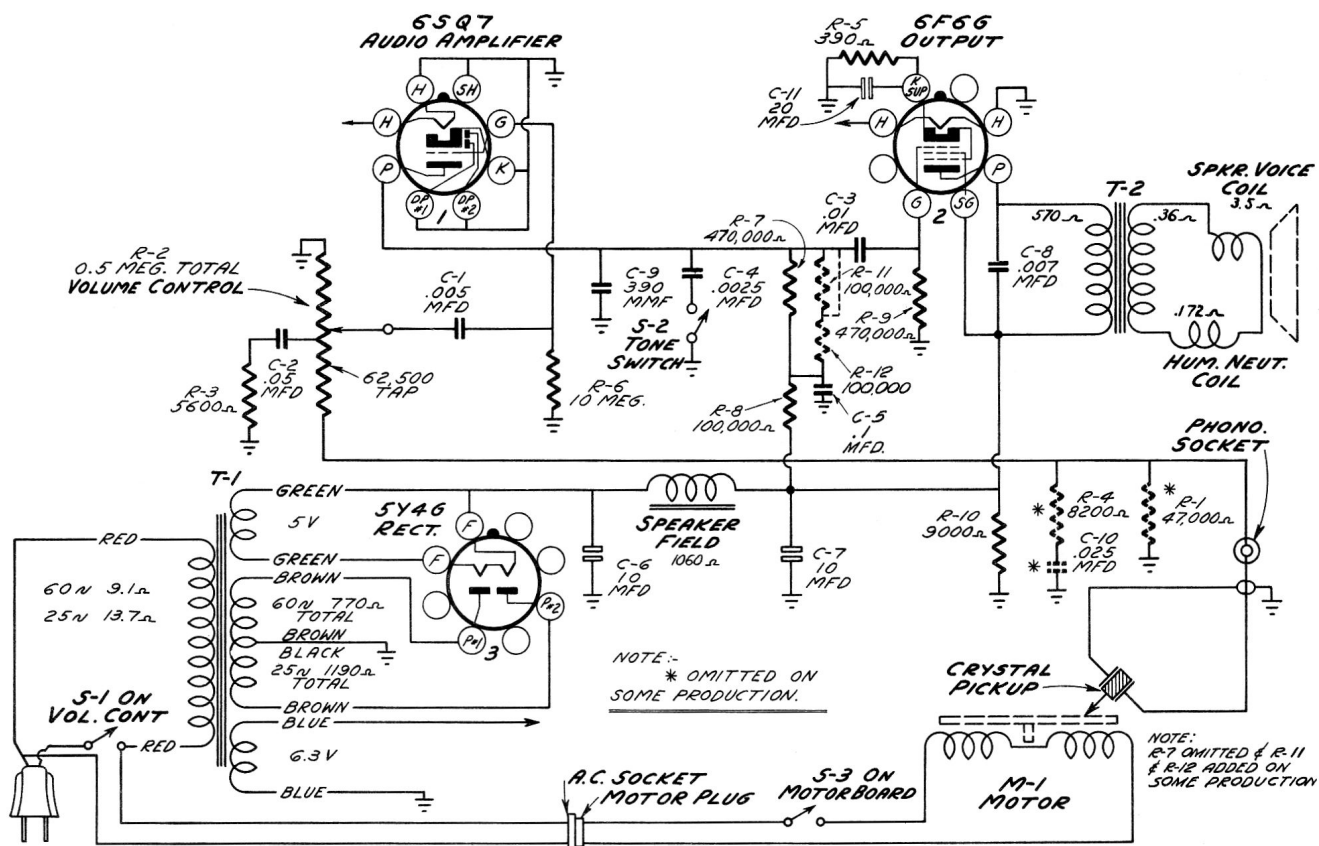


Figure 2—Schematic circuit diagram

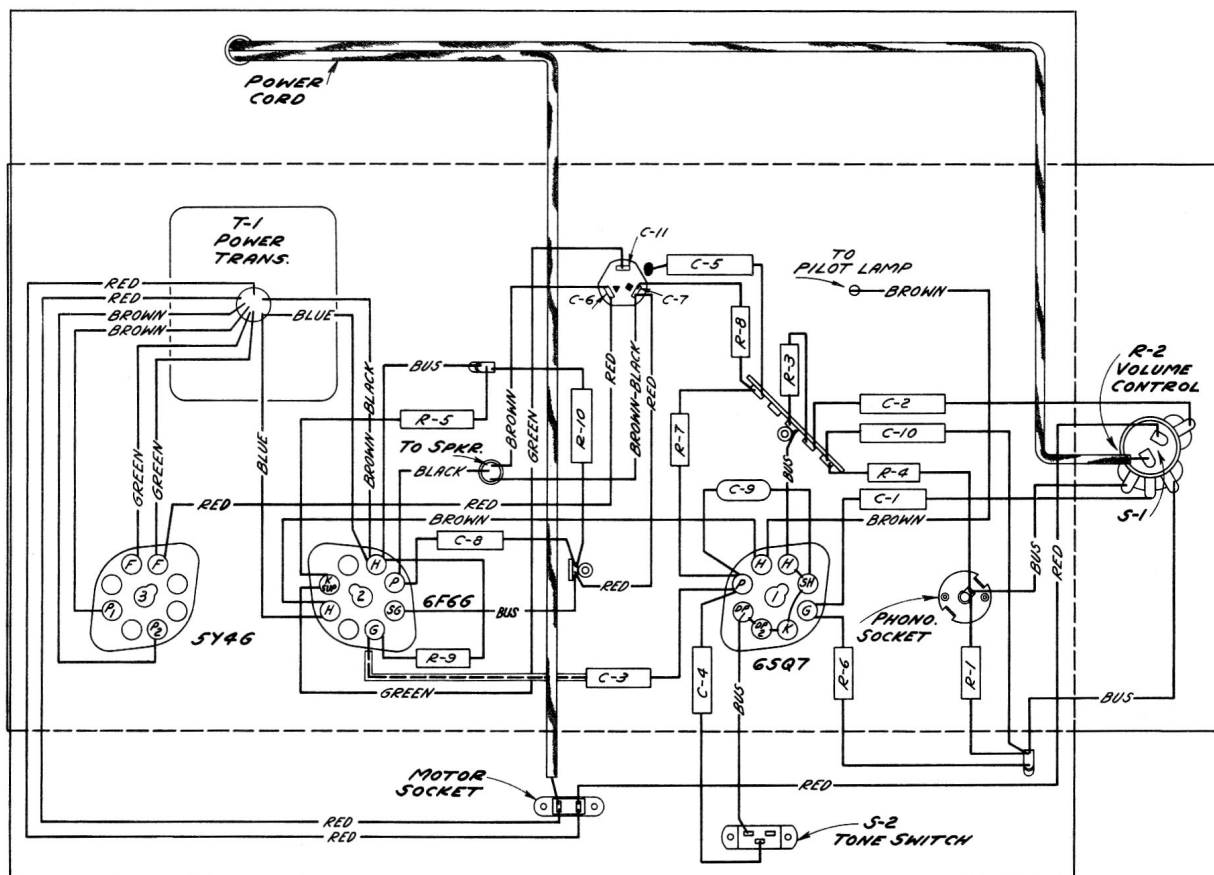


Figure 3—Chassis wiring diagram

Radiotron Socket Voltages

Type	Plate	Screen Grid	Control Grid	Filament
6SQ7	100V		—0.2V	6.3V
6F6G	250V	266V	—0.3V	6.3V
5Y4G	From Each Plate to gnd. 346V A.C.			5.0V

Note:—All the above voltage values should hold within $\pm 20\%$ when instrument is operated at its rated line voltage. To duplicate the conditions under which the voltages are measured, use a 1,000 ohm-per-volt d-c meter, having ranges of 10, 50, 250 and 500 volts. Use the nearest range above the specified measured voltage. A-C voltages were measured with a corresponding A.C. meter.

REPLACEMENT PARTS FOR MODEL R97

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

STOCK NO.	DESCRIPTION	STOCK NO.	DESCRIPTION
AMPLIFIER ASSEMBLIES		AUTOMATIC SWITCH ASSEMBLIES	
13894	Capacitor-390 mfd (C9).....	36772	Cam-Cam assembly comprising main and auxiliary cam, hub and screw
34459	Capacitor-.0025 mfd (C4).....	32869	Screw-Set screw for cam hub (Pkg.10).....
33584	Capacitor-.005 mfd (C1).....	36521	Spring-Actuating lever tension spring (Pkg.2).....
5148	Capacitor-.007 mfd (C8).....	36529	Switch-Contact and Plunger assembly.....
4937	Capacitor-.01 mfd (C3).....		
4870	Capacitor-.025 mfd (C10).....		
32787	Capacitor-.05 mfd (C2).....		
4839	Capacitor-.1 mfd (C5).....		
32240	Capacitor-Electrolytic comprising two sections of 10 mfd. and one section of 20 mfd (C6,C7,C11)....		
11765	Lamp-Pilot Lamp (Mazda #51).....		
31388	Resistor-390 ohm, 1 watt (R5).....		
13714	Resistor-5600 ohm 1/4 watt (R3)...		
14075	Resistor-8200 ohm 1/4 watt (R4)...		
S-2330	Resistor-9000 ohm 15 watt (R10)...		
12412	Resistor-47,000 ohm 1/4 watt (R1)...		
14560	Resistor-100,000 ohm 1/4 watt (R8,R11,R12).....		
30648	Resistor-470,000 ohm 1/4 watt (R7,R9).....		
30992	Resistor-10 megohms 1/4 watt (R6)...		
S-2824	Socket-A.C. Socket.....		
14278	Socket-Pickup Socket.....		
31364	Socket-Pilot Lamp Socket.....		
5119	Socket-Speaker cable socket (3 contact).....		
31251	Socket-Tube socket.....		
33634	Switch-Tone switch (S2).....		
S-2331	Transformer-Power 105/125 volt, 25 cycle (T1).....		
32911	Transformer-Power 105/125 volt, 60 cycle (T1).....		
S-2333	Volume Control and Power Switch (R2,S1).....		
SPEAKER ASSEMBLIES (Elliptical)			
31825	Cap-Dust cap cone centre (Pkg.5)...		
S-3311	Cone-Speaker cone and voice coil..		
5118	Plug-3 contact male connector plug		
S-3231	Speaker complete.....		
S-3312	Transformer-Output (T2).....		
MOTOR ASSEMBLIES			
S-3077	Motor-110 volt,60 cycle motor complete (M1).....		
S-3078	Motor-110 volt,25 cycle motor complete (M1).....		
4577	Plug-2 contact A.C. motor plug....		
S-3079	Spindle-Turntable spindle.....		
S-3080	Spring-Drive wheel tension spring (Pkg.2)		
S-3081	Turntable-Motor turntable.....		
S-3082	Wheel-Rubber tired drive wheel....		
			PICKUP ASSEMBLIES
			Arm-Pickup arm-shell only.....
			Base-Pickup arm base and pivot shaft.....
			Crystal-Crystal cartridge with permanent stylus.....
			Damper-Viscoloid damper.....
			Grommet-Pickup base rubber grommet
			Nut-Speed nut to hold cable in arm (Pkg.2).....
			Plate-Bottom plate for pickup arm, less screws.....
			Plug-Pickup cable plug.....
			Screw-No.4-40 x 1/4 in. headless set screw for pickup arm(Pkg.10).
			Screw-No.4-40 x 1/4 in. screw to mount crystal, (Pkg.25).....
			Screw-No.4-40 x 3/16 in. headless set screw for pickup crystal (oval point) (Pkg.5).....
			Screw-No.4-40 x 3/16 in. screw for pickup arm bottom plate (Pkg.25).....
			Screw-No.6-32 x 9/32 in. headless set screw for pickup arm(Pkg.15).
			Spring-Pivot arm spring (Pkg.2)...
			Stylus-Permanent stylus.....
			MISCELLANEOUS ASSEMBLIES
			Jewel-Pilot lamp jewel.....
			Knob-Volume control knob.....
			Spring-Knob retaining spring (Pkg.5).....
			Tip-Pickup rest rubber tip (Pkg.2).....