



# RCA Victor

## MODEL R-96 A

Three-Tube, A-C, Electric Phonograph

### TECHNICAL INFORMATION AND SERVICE DATA

SERVICE DIVISION • RCA VICTOR COMPANY LIMITED • MONTREAL



### Electrical Specifications

|                             |                                                           |                        |                        |
|-----------------------------|-----------------------------------------------------------|------------------------|------------------------|
| <b>RADIOTRON COMPLEMENT</b> |                                                           | (2) Type 6F6G .....    | Power Output           |
| (1) Type 6F5 .....          | Audio Voltage Amplifier                                   | (3) Type 5Y4G .....    | Rectifier              |
| <b>POWER SUPPLY RATINGS</b> |                                                           |                        |                        |
| Rating A .....              | 105-125 volts, 50-60 cycles, 75 watts                     |                        |                        |
| Rating B .....              | 105-125 volts, 25 cycles, 75 watts                        |                        |                        |
| <b>POWER OUTPUT</b>         |                                                           | <b>LOUDSPEAKER</b>     |                        |
| Undistorted .....           | 1.75 watts                                                | Type .....             | 8-inch Electrodynamic  |
| Maximum .....               | 4.5 watts                                                 | Impedance (V.C.) ..... | 2.2 ohms at 400 cycles |
| <b>MOTOR-BOARD</b>          |                                                           |                        |                        |
| Motor Type .....            | Synchronous, rim drive with self start and automatic stop |                        |                        |
| Turntable Speed .....       | 78 r.p.m.                                                 |                        |                        |
| Pickup .....                | High-impedance crystal                                    |                        |                        |
| Pickup Impedance .....      | 100,000 ohms at 1000 cycles                               |                        |                        |

### Mechanical Specifications

|                               |                                                                                        |
|-------------------------------|----------------------------------------------------------------------------------------|
| Height .....                  | 13 <sup>5</sup> / <sub>16</sub> inches                                                 |
| Width .....                   | 17 <sup>7</sup> / <sub>8</sub> inches                                                  |
| Depth .....                   | 14 <sup>3</sup> / <sub>16</sub> inches                                                 |
| Weight (Net) .....            | 30 pounds                                                                              |
| Weight (Shipping) .....       | 36 pounds                                                                              |
| Chassis Base Dimensions ..... | 9 <sup>3</sup> / <sub>4</sub> inches x 5 <sup>1</sup> / <sub>2</sub> inches x 2 inches |
| Over-all Chassis Height ..... | 5 <sup>3</sup> / <sub>4</sub> inches                                                   |
| Operating Controls .....      | Volume Control and Power Switch                                                        |

## General Description

The Model R-96 A Electric Phonograph consists of a three-tube audio amplifier, an eight-inch dust-proof electrodynamic loudspeaker, a constant speed motor, and a new type, balanced arm, crystal pickup, com-

bined in a hinged-top table-type cabinet. Its design includes 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.

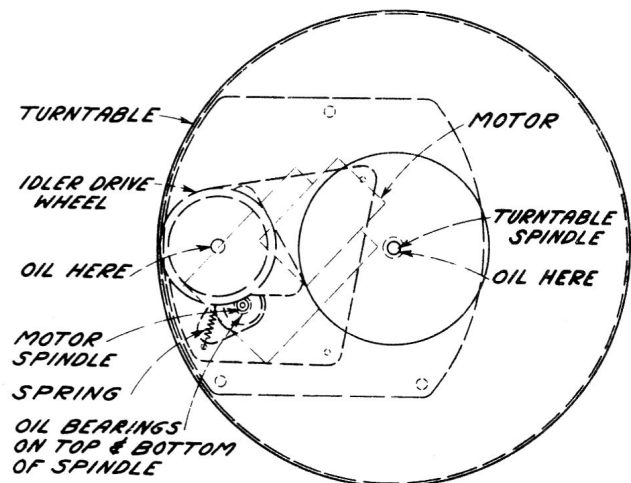
The crystal pickup unit is thoroughly sealed in a metal casing as protection against extreme changes of climate. If failure occur due to a defective crystal unit, no attempt should be made to repair the unit, but a new replacement crystal unit should be installed.

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. The adjustment on the automatic motor switch should be made so that the switch will be in the "off" position when the needle 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.

## Electrical Description

The High Impedance crystal pickup is coupled to the control grid of the Type 6F5 audio amplifier tube through the aurally-compensated volume control circuit. The output of the type 6F5 is resistance-coupled to the Type 6F6G power output Pentode. The output of the Type 6F6G is fed to the loudspeaker through a step-down transformer.

A Type 5Y4G Radiotron is employed as a full-wave rectifier supplying the necessary voltages to the plates of the amplifier tubes. Figures 1 and 2 show the chassis Top view and Schematic Diagram respectively.

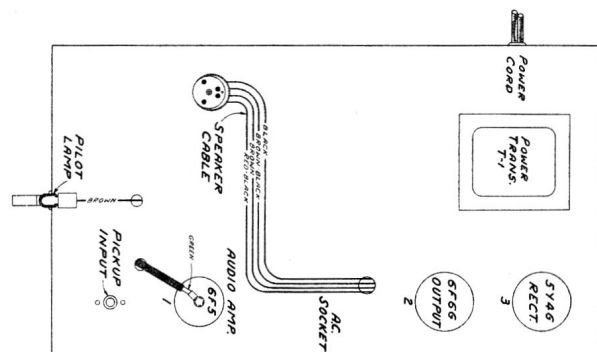


Figure 1—Radiotron Locations



# Radiotron Socket Voltages

| Type | Plate                                | Screen Grid | Control Grid | Filament |
|------|--------------------------------------|-------------|--------------|----------|
| 6F5  | 230V                                 |             | —0.2V        | 6.3V     |
| 6F6G | 250V                                 | 266V        | —0.3V        | 6.3V     |
| 5Y4G | From Each Plate to gnd.<br>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 R-96A

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

| STOCK NO.                   | DESCRIPTION                                                                                      | STOCK NO.                        | DESCRIPTION                                                                |
|-----------------------------|--------------------------------------------------------------------------------------------------|----------------------------------|----------------------------------------------------------------------------|
| <b>AMPLIFIER ASSEMBLIES</b> |                                                                                                  | <b>PICKUP AND ARM ASSEMBLIES</b> |                                                                            |
| S-2301                      | Cap-Grid connector cap (Pkg.3)....                                                               | S-3043                           | Arm-Pickup arm.....                                                        |
| 12694                       | Capacitor-220 mmfd.(C1).....                                                                     | S-3233                           | Base-Pickup arm support shaft and assembly.....                            |
| 13894                       | Capacitor-390 mmfd.(C9).....                                                                     | 34307                            | Crystal-Pickup crystal and needle screw.....                               |
| 13762                       | Capacitor-1500 mmfd.(C10).....                                                                   | 33529                            | Screw-Needle screw.....                                                    |
| 34459                       | Capacitor-.0025 mfd.(C4).....                                                                    |                                  |                                                                            |
| 5148                        | Capacitor-.007 mfd.(C8).....                                                                     |                                  | <b>MOTOR ASSEMBLIES</b>                                                    |
| 4886                        | Capacitor-.05 mfd.(C2).....                                                                      | S-3077                           | Motor-110 volt, 60 cycle motor complete (M1).....                          |
| 4839                        | Capacitor-.1 mfd.(C5).....                                                                       | S-3078                           | Motor-110 volt, 25 cycle motor complete (M1).....                          |
| S-2329                      | Capacitor-Electrolytic capacitor comprising two sections of 10 mfd. and one of 20 mfd.(C3,C6,C7) | 4577                             | Plug-2 contact male motor plug....                                         |
| 11765                       | Lamp-Pilot Lamp.....                                                                             | S-3079                           | Spindle-Turntable spindle.....                                             |
| 14671                       | Resistor-33 ohm 1/4 watt (R4)....                                                                | S-3080                           | Spring-Drive wheel tension spring (Pkg.2).....                             |
| 31388                       | Resistor-390 ohm 1 watt (R5)....                                                                 | S-3081                           | Turntable-(9" Diameter).....                                               |
| 13714                       | Resistor-5600 ohm 1/4 watt (R3)...                                                               | S-3082                           | Wheel-Rubber tired drive wheel....                                         |
| S-2330                      | Resistor-9000 ohm 15 watt wire-wound (R10).....                                                  |                                  | <b>AUTOMATIC SWITCH ASSEMBLIES</b>                                         |
| 14560                       | Resistor-100,000 ohm 1/4 watt (R8)                                                               | 36772                            | Cam-Cam assembly comprising main and auxiliary cam, hub and set screw..... |
| 13734                       | Resistor-120,000 ohm 1/4 watt (R6,R7).....                                                       | 32869                            | Screw-Set screw for cam hub (Pkg.10).....                                  |
| 30648                       | Resistor-470,000 ohm 1/4 watt(R9)...                                                             | 36521                            | Spring-Actuating lever tension spring (Pkg.2).....                         |
| 30208                       | Resistor-1.2 megohm 1/4 watt (R1)...                                                             | 36529                            | Switch-Contact and plunger assembly (S2).....                              |
| S-2824                      | Socket-A.C. Socket.....                                                                          |                                  | <b>MISCELLANEOUS ASSEMBLIES</b>                                            |
| 14278                       | Socket-Pickup Socket.....                                                                        | 4391                             | Box-Used needle box with cover....                                         |
| 31364                       | Socket-Pilot lamp socket.....                                                                    | 36246                            | Holder-Needle package holder.....                                          |
| 31251                       | Socket-Tube socket.....                                                                          | 13103                            | Jewel-Indicator light jewel.....                                           |
| 5040                        | Socket-4 contact speaker cable socket.....                                                       | S-3101                           | Knob-Volume control knob.....                                              |
| S-2331                      | Transformer-Power 105/125 volt, 25 cycle (T1).....                                               | 33673                            | Support-Pickup-arm support.....                                            |
| S-2332                      | Transformer-Power 105/125 volt, 60 cycle (T1).....                                               |                                  |                                                                            |
| S-2333                      | Volume control and power switch (R2,S1).....                                                     |                                  |                                                                            |
|                             | <b>SPEAKER ASSEMBLIES (CRL-514-1) 8"</b>                                                         |                                  |                                                                            |
| 31825                       | Cap-Dust cap for speaker cone(Pkg.5)                                                             |                                  |                                                                            |
| 31310                       | Cone-Speaker cone*and voice coil(L1)                                                             |                                  |                                                                            |
| 12012                       | Coil-Field coil (L3).....                                                                        |                                  |                                                                            |
| 31302                       | Plug-4 contact male plug.....                                                                    |                                  |                                                                            |
| 14358                       | Screw-Screw, washer and lockwasher, to hold core in yoke (Pkg.3)....                             |                                  |                                                                            |
| S-3381                      | Speaker complete.....                                                                            |                                  |                                                                            |
| 14355                       | Transformer-Output (T2).....                                                                     |                                  |                                                                            |
| 14357                       | Washer-Spring washer to hold field coil (Pkg.2).....                                             |                                  |                                                                            |