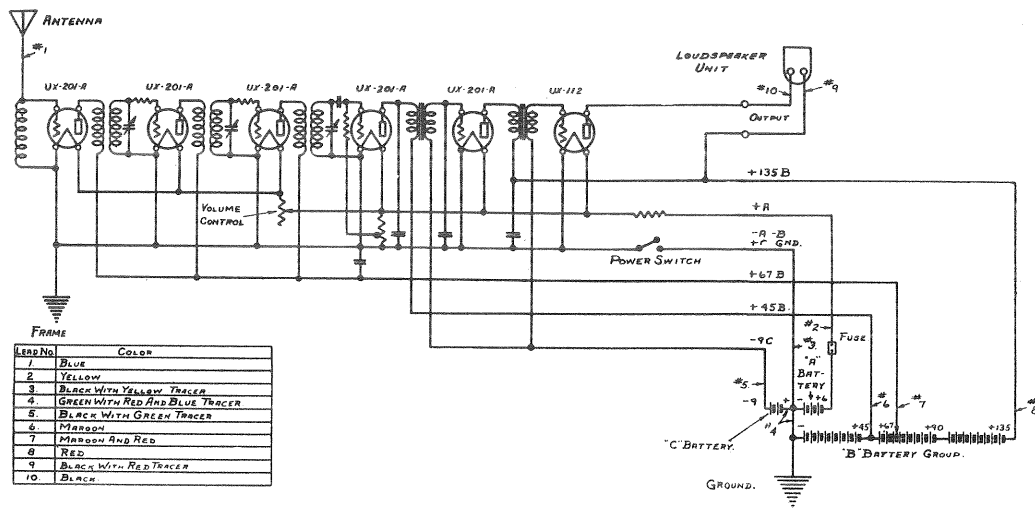


# Victor Model 7-10



Wiring Diagram for Victor Radiola 16  
(Used in Model 7-10)

## VICTOR RADIOLA 16 (AS USED IN MODEL 7-10)

The Radiola used in combination with the Orthophonic Victrola in the model 7-10 is a six-tube battery operated tuned radio frequency receiver of the inside or outside antenna type, employing three stages of radio frequency amplification, a detector, and two stages of audio amplification. The UX-112-A power tube is used in the last stage of audio amplification. The Radiotrons UX-201-A are used in all the other stages and in the detector.

Most of the common causes of trouble can be located and corrected by the tests given below. In making the tests the use of a Weston Radio Set Tester is recommended. If this is not available, a high resistance voltmeter of reliable manufacture, having two scales (0-7.5 and 0-150 volts), should be used. The meter should be equipped with flexible insulated leads.

1. Test "A," "B" and "C" batteries or battery eliminator if used.
2. Test all cable connections to the batteries.
3. Test loudspeaker unit.
4. Test tubes.

If the Weston Radio Set Tester is used, the tube tests can be made in the regular manner by placing the plug in socket No. 1, Fig. 1. If the set tester is not available, the low scale of the voltmeter can be used, the procedure being as follows:

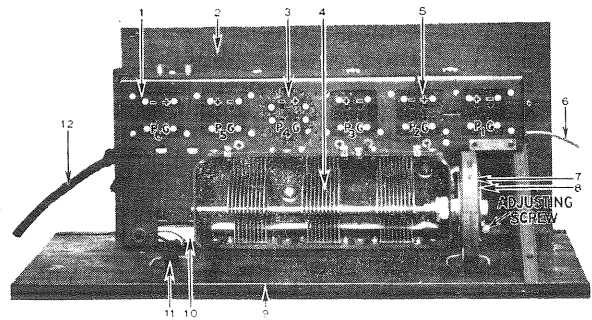


Fig 1

- a. Remove Radiotrons from all sockets except the one to the extreme right. Filament regulation in this socket can be obtained by means of the Volume Control.
- b. Place the two leads connected to the low scale of the voltmeter in the two filament socket contacts of Radiotron Socket No. 2 marked "+" and "-" as shown in Fig. 1; regulate the voltage to 5 volts.
- c. Remove the  $+67\frac{1}{2}B$  lead from the battery terminal, and connect this lead to the 7.5 terminal of the meter; connect from the + terminal of the meter to the  $+67\frac{1}{2}B$  on the "B" battery.
- d. Note the deflection of the meter when the latter is connected as described above, and compare this deflection with that given by a tube which is known to be good. The amount of deflection depends on (1) the meter used, (2) the condition of the "B" batteries, and (3) the condition of the tube under test. (1) and (2) remaining unchanged, a comparative indication of the condition of the various tubes can be obtained; in general a high deflection indicates a good tube, and a low deflection indicates a poor tube.
- e. All Radiotrons may be tested in the same manner. The UX-112-A will ordinarily give a higher reading than the UX-201-A.

5. The various Radiotrons, shown in Fig. 1, function as follows:

1. First Radio Frequency Amplifier (UX-201-A).
2. Second Radio Frequency Amplifier (UX-201-A).
3. Third Radio Frequency Amplifier (UX-201-A).
4. Detector (UX-201-A).
5. First Stage Audio Frequency Amplifier (UX-201-A).
6. Second Stage Audio Frequency Amplifier (UX-112-A).

Changing the Radiotrons UX-201-A in the various sockets will often improve reception.

6. If the receiver oscillates:

- a. Various Radiotrons should be tried in sockets Nos. 2 and 3, Fig. 1, until two have been found which cause a minimum amount of oscillation.
- b. If the set still continues to oscillate, the four leads under the center radio frequency transformer should be examined and pushed as far away from this coil as possible. Lengthening the antenna will also help to stop oscillation as the set has a tendency to oscillate more on a short antenna than on a long antenna. In no case, however, should this length exceed 150 feet, including the lead-in.

7. If the trouble has not been located in the batteries or tubes, make the following tests to localize the trouble in the set itself:

- a. **FILAMENT TESTS**—Observe if all the filaments light. Any trouble in the filament circuit may be traced to:
  - (1) Broken wire in cable.
  - (2) Broken contact on fixed resistor, 22, Fig. 2, in +A line.
  - (3) Broken filament leads from resistor to sockets.
  - (4) Poor socket contacts.
  - (5) Leads to volume control, 10, Fig. 1, broken or loose.
  - (6) Contact arm on volume control not making proper contact.
  - (7) Open fuse (if used) in +A lead.
  - (8) Poor contact at battery terminals.

These tests can be made with a 4½ volt "C" battery connected in series with the low voltage scale of the voltmeter binding posts of a Weston Radio Set Tester, or with a voltmeter described in

the beginning of this bulletin and connected as shown in Service Bulletin No. 5-A. All "B" and "C" batteries should be disconnected when making filament tests.

- b. **GRID TESTS**—Reconnect the batteries; remove all tubes from the sockets; and turn the Switch knob of the Weston Radio Set Tester to the "C" position, or using the low scale of the 0-7.5 and 0-150 voltmeter, test the "C" battery voltage in sockets Nos. 5 and 6. No "C" battery reading will be obtainable from sockets 1, 2, 3 and 4. If the voltmeter is used, place the lead connected to the + terminal of the meter in a "—A" contact, and the lead connected to the 7.5 terminal of the meter in the "G" contact shown in Fig. 1. With the power switch pushed down to the "on" position, the following are the approximate results which should be obtained.

Note—All readings listed below were made with a Weston Radio Set Tester Type 519. Readings will vary slightly, depending upon the meter used and the condition of the batteries.

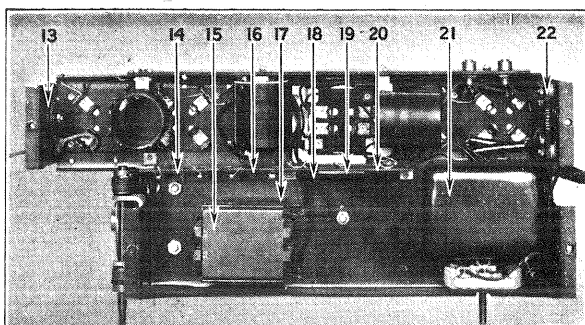


Fig. 2

#### METER READING

Normal	Faulty	Fault
G <sub>1</sub> 6.5	0	Open first A. F. transformer secondary or broken wire.
G <sub>2</sub> 6.5	0	Open second A. F. transformer secondary or broken wire.

- c. **PLATE TESTS**—Using the "B" scale of the set tester or the high scale of the voltmeter, test the plate voltages in the various sockets. If the voltmeter is used, the lead from the high voltage terminal should be placed in the —A socket contact and the lead from the + terminal in the plate contact. With the power switch downward to the "on" position, the following are the approximate results which should be obtained.

#### METER READING

Normal	Faulty	Fault
P <sub>1</sub> 63	0	Open R. F. coil or broken lead.
P <sub>2</sub> 67	0	Open R. F. coil or broken lead.
P <sub>3</sub> 63	0	Open R. F. coil or broken lead.
P <sub>4</sub> 36	0	Open A. F. transformer primary or broken wire.
P <sub>5</sub> 122	0	Open A. F. transformer primary or broken wire.
P <sub>6</sub> 118	0	Poor contact or broken wire on loud-speaker unit.

8. If the trouble has not yet been located, connect a 4½ volt "C" battery and voltmeter as described in (a) above, and proceed as follows:

- a. Disconnect all batteries from the cable.
- b. Test between the stator (stationary) plates and rotor (rotating) plates of each tuning condenser. No deflection of the meter will indicate that there is a broken or loose connection between the condensers and their respective coils or open circuits in the coils themselves.
- c. Check all condensers to see that the rotor plates do not touch the stator plates as the Station Selector is being turned.
- d. Reconnect the batteries.

#### GENERAL

1. Adjustment of condenser drive cable.

Any slack in the condenser drive cable can be taken up by tightening the adjusting screw shown in Fig. 1.

2. Loose volume control contact.

A loose volume control contact is often a cause of noisy reception. If such a condition is found, the contact arm should be bent until it makes a firm contact against the resistance strip.

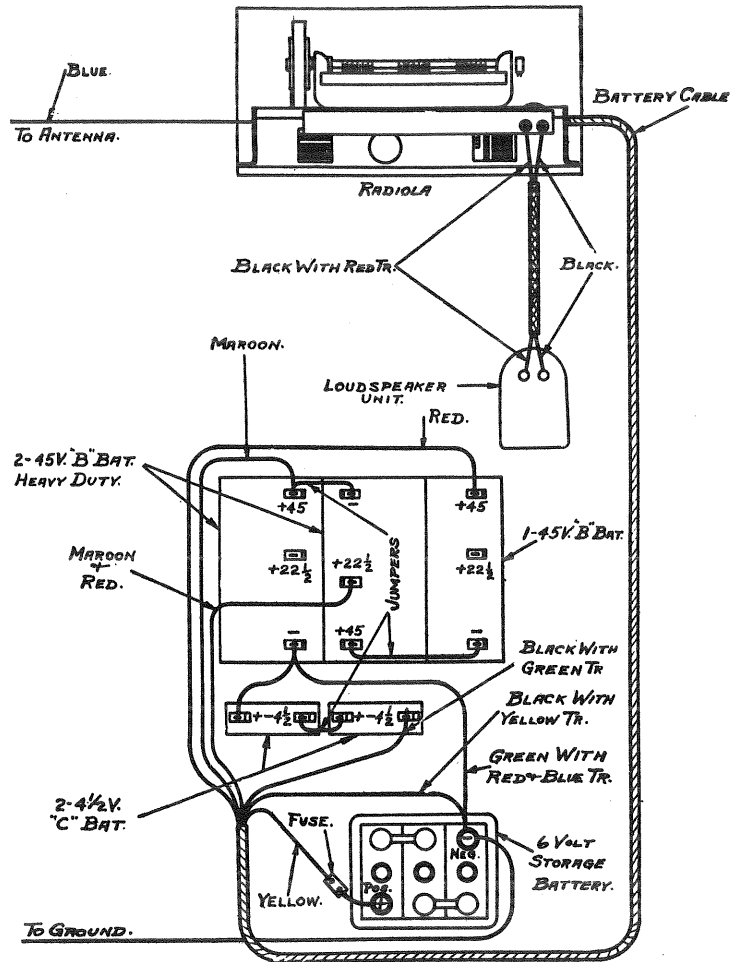
3. Operation with "B" battery eliminator not supplying 67½ volts plate voltage.

The Radiola requires 67½ volts for the radio frequency amplifiers and 45 volts for the detector. A higher amplifier plate voltage may cause the set to oscillate and will seriously affect the tone quality. A lower detector plate voltage will reduce the efficiency of the receiver. On battery eliminators not equipped to supply 67½ volts, the use of a potentiometer in excess of 18,000 ohms resistance is recommended. The General Radio Potentiometer No. 371 (18,000 ohms) is suggested for this purpose. Connection should be made across the +45 and the +90 (+Det. and +Ampl.) taps of the eliminator, with the contact arm connected to the 67½ volt lead of the cable. Using a high resistance voltmeter of the proper scale reading and connected across the —B and the contact arm, adjust the voltage to 67½ volts.

The Philco units AB-6562B (60 cycle) and AB-6522B (25 cycle) are equipped to supply 67½ volts on the +Ampl. tap and 45 volts on the +Det. tap. When using any other Philco unit, the small cartridge resistance should be replaced with a similar cartridge resistance of 50,000 ohms.

#### Battery cable colors.

A+6V	Yellow.
A—	Black with yellow tracer.
B—	} Green with red and blue tracers.
C+	
Ground	
B+Det.	45V Maroon.
B+Ampl.	67V Maroon and red.
B+Pwr.	135V Red.
C—Pwr.	9V Black with green tracer.



-Battery Cable Diagram