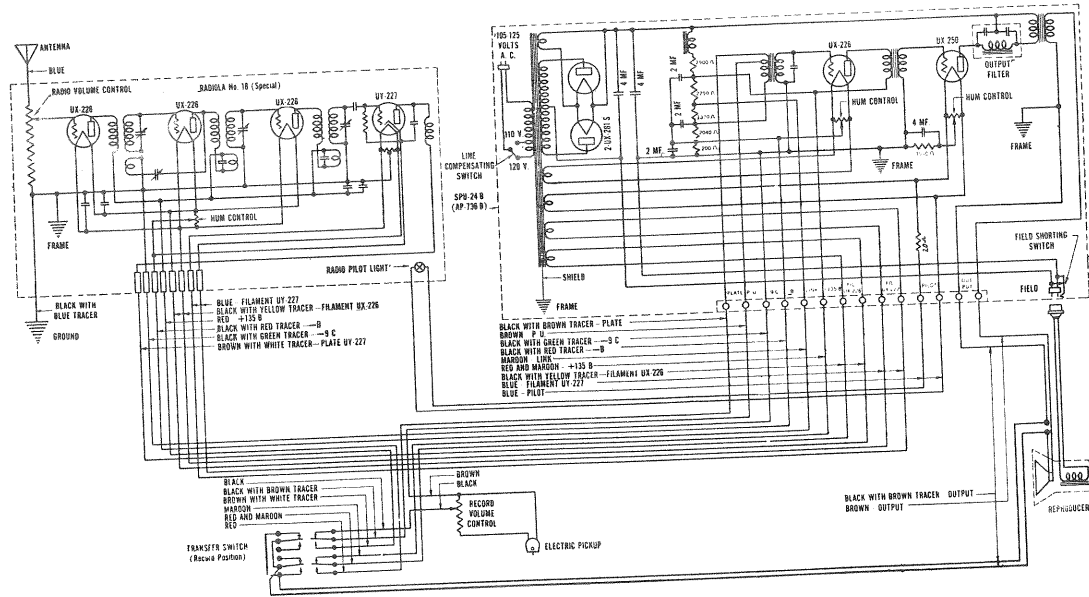
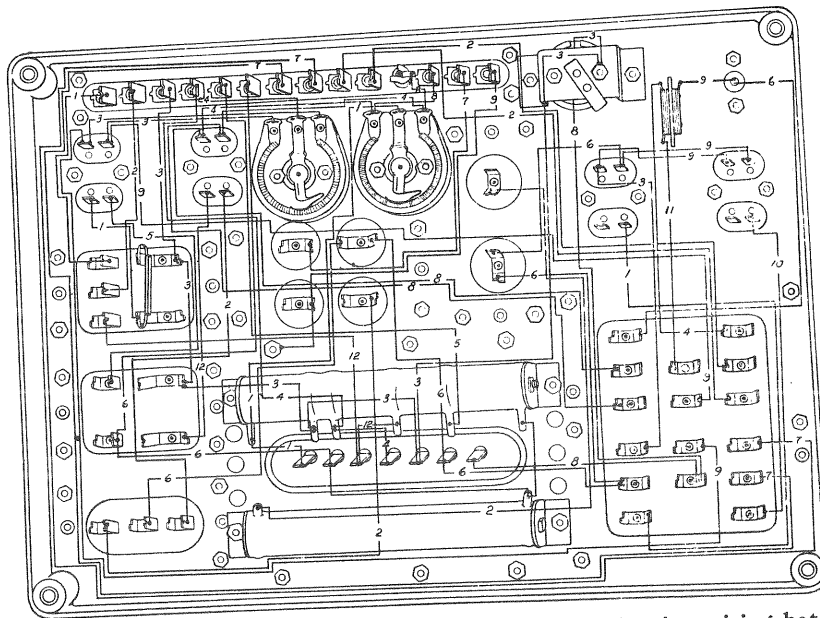


# Victor Model 9-16



Wiring Diagram Electrola Radiola 9-16



## Color Code

1. Brown
2. Blue
3. Yellow
4. Black with Red Tracer
5. Red and Maroon
6. Red
7. Black with Yellow Tracer
8. Green
9. Black
10. Light Brown
11. Red and Black
12. Maroon

Bottom of Power Amplifier Unit AP-736-B, showing wiring between terminals

## VICTOR RADIOLA 18

Used in Model 9-16

The Victor Radiola 18 used in the model 9-16 is similar to that used in the 7-11 and the 7-26, but is modified for power-amplifier operation. Three stages of tuned radio frequency amplification are used with the Radiotrons UX-226, and a detector with the UY-227. The two stages of audio amplification are used in the power-amplifier unit, AP-736-B.

The Radiola is designed for operation on 105 to 125 volts, 50 to 60 cycles alternating current. Special equipment is available for operation on 105 to 125 volts, 25 to 40 cycles.

### GENERAL TESTS

In making the Radiotron tests and the radio set tests described below, the use of a Weston Radio Set Tester Type 537 or 519 is recommended. The radio set tests can be made with a high resistance voltmeter of reliable manufacture such as the Weston Model 489, if the Radio Set Tester is not available. All voltage readings listed in this bulletin were made with the Weston Radio Set Tester Type 519, having a 0-8, 0-200 volt scale (high resistance type) with a line voltage of 110 volts; with the voltage switch of the socket power unit in the 110 volt position; and with all tubes in place. Readings will vary according to the meter used, the line voltage, and the condition of the tubes.

**1. RADIOTRON TESTS**—The tests for the Radiotrons should be made in accordance with the instructions furnished with the Radio Set Tester. Do not attempt to make a filament voltage reading unless the Type 537 Tester is used. A special adaptor is available from the Weston Electrical Instrument Co. for use in testing the UY-227 Radiotrons. Any Radiotrons which have been found to be defective in these tests should be replaced.

If the Weston Radio Set Tester is not available, each Radiotron should be replaced successively with a new one of the proper type, so that the poor ones can be located and permanently replaced.

A period of approximately 45 seconds must elapse each time the power switch is turned on; this interval is required for the UY-227 to heat properly.

**2. RADIOLA SOCKET TESTS**—Place the transfer switch in the "Radio" position and make the grid and plate tests according to the instructions furnished with the Radio Set Tester. It is important that the tests be made with all Radiotrons in position. Any open circuits or defects in the various voltage supplies can be found by these tests.

**IMPORTANT**—Before assuming that the trouble lies in the radio set, (1) examine the cable terminals, noting whether they are making proper contact and are properly spaced; and (2) make the terminal strip voltage tests described in Subject No. 3 below to determine whether the power-amplifier unit is delivering the proper voltages.

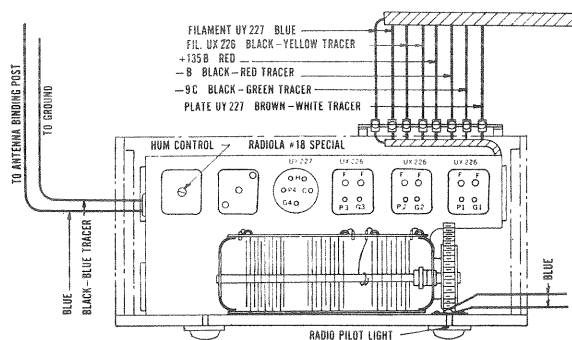


Fig. 1—Radiola Sockets and Terminal Strip

**A. FILAMENT TESTS**—Trouble in the filament circuit of the radio set can be traced to:

- Broken wire in cable.
- Poor or shorted contact on terminal strip.
- Poor socket contacts.

**B. GRID TESTS**—Using the "C" position of the Weston Radio Set Tester, or the high scale of the separate voltmeter, test the "C" voltage in all sockets except the detector. When using the separate voltmeter, place the negative lead in the "G" socket contact as shown in Fig. 1, and the positive

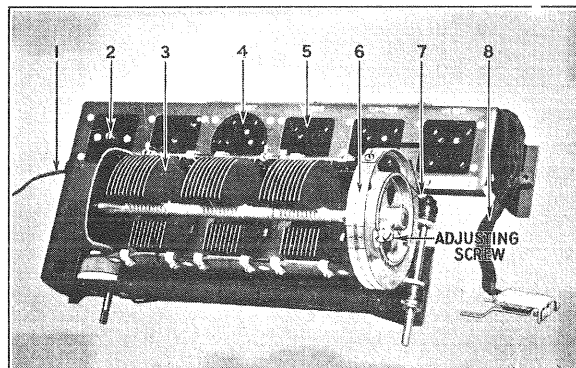


Fig. 2—Top View of Radiola

lead in either filament (F) contact. When testing the UY-227, place the positive lead in the "C" contact.

The "C" voltage readings listed below were made at a line voltage of 110 volts, with the voltage switch of the socket power unit in the 110 volt position and with all tubes in place. These readings will vary with different tubes, different meters, and different line voltages.

Normal	Faulty	Fault
G1 9 volts	0	Open volume control, poor contact, shorted, or broken wire.
G2 9 volts	0	Open 1st R. F. transformer secondary, shorted, or broken wire.
G3 9 volts	0	Open 2nd R. F. transformer secondary, shorted, or broken wire.

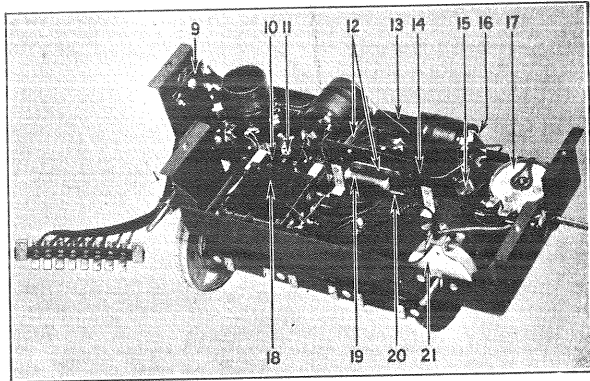


Fig. 3—Bottom View of Radiola

**C. PLATE TESTS**—Using the “B” scale of the Weston Radio Set Tester or the high voltage scale of the separate voltmeter, test the plate voltages in the various sockets with the tubes in place. When using the separate voltmeter, all tubes should be in place except the one under test. The positive lead of the meter should be placed in the “P” contact and the negative lead in either filament contact.

Normal	Faulty	Fault
P1 123 volts	0	Open primary of first R. F. transformer, broken, or shorted wire.
P2 122 volts	0	Open primary of second R. F. transformer, open concentrated coil (mounted inside of R. F. transformer), broken, or shorted wire.
P3 122 volts	0	Open primary of third R. F. transformer.
P4 45 volts	0	Open, or short circuit in wiring or connections between P terminal of UY-227 socket and Plate UY-227 on terminal strip) open circuit in wiring to transfer switch.

**3. TERMINAL STRIP TESTS**—If the voltage readings observed in the previous tests are not correct, make the following tests at the terminal strip before assuming that the fault lies in the radio set:

**A. FILAMENT TESTS**—Test the filament voltage across each of the two pairs of filament terminals shown in Fig. 1, using either the Weston Type 537 Tester or a separate A. C. voltmeter of the proper scale reading. The following are the correct readings which should be obtained:

UX-226	1.5 volts A. C.
UY-227	2.25 volts A. C.

A lack of filament voltage at these terminals may be caused by:

- Poor socket contact at A. C. outlet or in A. C. power supply line.
- Broken wires or connection in A. C. power supply or in power-amplifier unit wiring.
- Defective power transformer in power-amplifier unit.
- Broken wire in cable.

**B. PLATE SUPPLY**—Using the high range voltmeter binding posts of the Set Tester or the high range scale of the separate D. C. voltmeter, test between the —B and the +135B terminal (See Fig. 1) and between the —B and Plate UY-227 terminal. The following are the approximate readings which should be obtained:

Between —B and +135B	135 volts
Between —B and P-UY-227	45 volts

A lack of voltage at either of these points may be caused by:

- Burnt out or low emission UX-281 in power-amplifier.
- Poor socket contact in A. C. power supply line.
- Poor contact at power-amplifier terminal strip, or broken wire in cable.
- Open, or short circuit in wiring or internal parts or power-amplifier unit. (See Supplement to Service Bulletin No. 1, dated July 15, 1928.)

#### 4. SPECIAL TESTS—

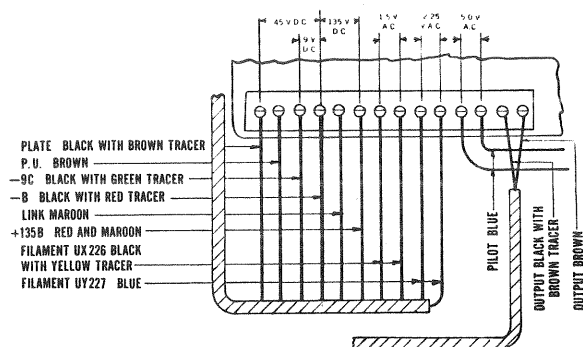
**A. EXCESSIVE HUM**—Excessive hum may be caused by:

- Reversed polarity of power plug. Remove plug and reverse the position of the prongs.
- Low emission Radiotron UX-281.
- Hum control potentiometers out of adjustment. See card, attached to inside of Electrola back panel, or instruction book for proper method of adjustment.
- Open ground connection to frame of Radiola.

**B. AUDIO HOWL**—This condition should be eliminated by one or more of the following:

- Replacing the detector Radiotron UY-227 with a new one.
- Interchanging the UX-226 Radiotrons.
- Adjusting compensating condenser, as shown in Fig. 4, by means of the neutralizing screw driver shown in Fig. 2 of Supplement to Service Bulletin No. 5-A. The following procedure should be used:

- Break the paper seal over the opening in the bottom of the tuning condenser assembly.
- Tune the Radiola to a broadcasting station on the lower wave lengths.
- Turn the volume control all the way to the right.
- Turn the condenser screw in a clockwise direction until the receiver goes into oscillation.

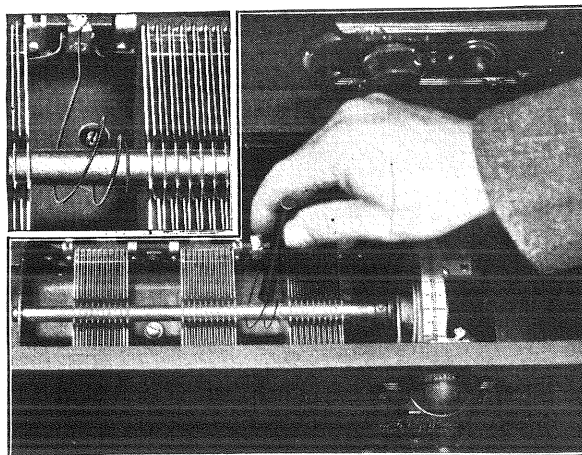


—Terminal Strip of Power Amplifier Unit AP-736-B—showing proper voltages across various terminals.

- 5 Turn the screw slightly in a counter-clockwise direction until the oscillation stops and the howl is eliminated.
6. Replace the paper seal to prevent tampering with the adjustment.

**C. CONDENSER TESTS**—*If the trouble has not yet been located, connect a 4½ volt "C" battery in series with the low voltage binding posts of the Radio Set Tester or the separate voltmeter, and proceed as follows:*

- a. Turn the power switch to the off position.
- 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.
- c. Turn the station selector knob, observing if any of the plates touch while they are being rotated. A short circuit in these condensers will cause a lack of reception.



**Fig. 4—Method of Adjusting  
Compensating Condenser**