Radiola VII-B

INTRODUCTION

Radiola VII-B is a complete receiving unit comprising a set with its batteries and loud speaker mounted within an attractive cabinet.

Electrically, Radiola VII-B consists of a highly selective two circuit tuner, with detector and radio-audio amplifier, using five UV-199 Radiotrons. These tubes are dry-cell operated and all necessary "A," "B" and "C" batteries are contained within the cabinet, and connected to the receiver by a multi-conductor cable. The amplifier supplies energy to a loud-speaker unit attached to the built in tone chamber. A jack is provided at the rear for use with phones which is occasionally desired for long distance reception. Local signals produce an extraordinary volume for dancing purposes.

The wave-length range of the Radiola VII-B covers the broadcasting band of 220 to 550 meters and through the use of specially designed radio frequency transformers practically equal sensitivity is secured over the entire wave-length band. Good results may be obtained with an indoor antenna, using the 18 foot silk-covered, single conductor wire supplied, which should be carried around the room on the picture moulding; or, where greater range is desired, an outdoor antenna of a single wire 20 ft. to 100 feet long, and 30 ft. to 50 ft. high may be employed. For local work, the indoor antenna is sufficient, but for long distance reception the outdoor antenna is preferable.

UNPACKING

Radiola VII-B is wrapped in wax paper as a protection against dust and moisture, and placed in a corrugated paper carton, which in turn is surrounded by excelsior in the wooden shipping case.

After the receiver is removed from the carton the lid should be lifted and the four machine screws removed from the top panel upon which the receiver is mounted. This panel can then be hinged back and held up by the side stops. The 6 UV-199 Radiotrons will be found packed around the horn. The cable with its battery connectors is also contained in this space already for connection to the batteries.

BATTERIES REQUIRED

(A) Refers to Filament Lighting or "A" Battery.
(B) " " Plate or "B" Battery.
(C) " " Negative Grid or "C" Battery.

(A) Six 1½ Volt Dry Cells, connected in two PARALLEL groups of three cells each in SERIES, such as:
6 Eveready Dry Cell Radio "A" Batteries No. 7111 (2½x6) or,
6 Burgess Radio "A" Dry Cells No. 6 (2½x6) or,
6 Manhattan Red Seal Dry Cells, No. 2445 or 2448 (2½x6½)

or,

6 Ray-O-Vac Radio "A" Dry Cells No. 1211 (2½x6½) or,
6 Columbia Ignitor No. 6 Dry Cells (2½x6½) or,
6 Ace Radio "A" Dry Cells No. 51 (2½x6) or,
6 Yale Radio Power Pak No. 101-R (2¾x6½)

OR EQUIVALENT

(B) Two 45-Volt Plate Batteries. NOTE: Though four 22½-volt units may be used two 45-volt units are preferred instead. Such as:
2 Eveready No. 767 Plate Batteries, EACH 45-Volts (8x6⅝x3)

or,

2 Burgess No. 2306 Plate Batteries, EACH 45-Volts (7⅞x6⅝x3) or,
2 Yale No. 3045 V Plate Batteries, EACH 45-Volts (8x6⅝x3)

OR EQUIVALENT

(C) One 4½ Volt Negative Grid Bias or "C" Battery. Such as:
1 Eveready No. 771 Negative Grid Bias Battery (4x3x1⅜) or,
1 Ray-O-Lite No. 231 R Negative Grid Bias Battery (4x3x1 7/16)

or,

1 Burgess No. 2370 Negative Grid Bias Battery (4x3x1⅜) or,
1 Yale No. 312 Negative Grid Bias Battery (4x3x1⅜) or,
1 Bright Star "B" 34-17 Negative Grid Bias Battery (4x3x1⅜)

or,

1 Novo No. 288 Negative Grid Bias Battery (4x3x1⅜)

OR EQUIVALENT

INSTALLATION

If the set is desired only for local work, the indoor antenna wire supplied with the set should be carried around the room on the picture moulding, or otherwise fastened. If an outdoor antenna is desired, a single wire 20 ft. to 100 ft. long, and 30 ft. to 50 ft. high, should be erected, properly insulated at both ends, and with a lead brought to the point where the Radiola VII-B is to be operated. In the case of an outside antenna, the wire should be kept at least 10 ft. away from trees and large objects, such as roofs and other structures. As a precaution, never have the antenna wire strung over or under electric light wires, for if by falling such wires should come in contact, the set and the operator might be endangered.

Whether an indoor or outdoor antenna is used, a ground connection must be made. This connection is preferably made to a water pipe, but if this is inconvenient, a radiator or steam pipe will usually serve the purpose. Do not connect the ground wire to a gas pipe. Care should be taken in the installation of antenna and ground to insure good and solid connections. The best method is to clean the piping well with a file and then solder securely. An approved form of ground clamp, properly installed, is satisfactory.

If an antenna of less than 40 ft. is used, the flexible lead on shunt condenser, Fig. 3, must be connected to the brown or antenna terminal on the terminal board of the Radiola VII-B. Should a longer antenna be used, this flexible lead should be connected to the black, or ground terminal on the terminal board, which throws the condenser out of circuit.

CAUTION:

Before making any battery installation, be sure that all the Radiotrons are removed from their sockets. Be sure also that the

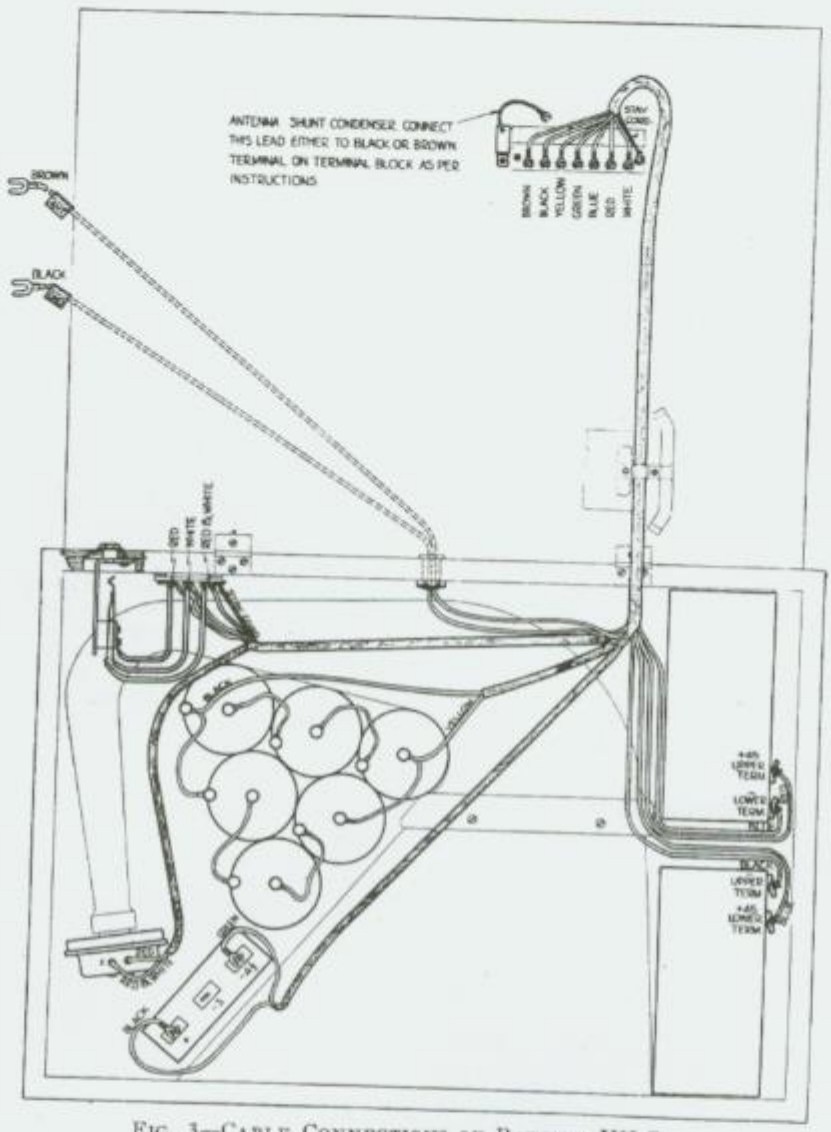

FIG. 3—CABLE CONNECTIONS OF RADIOLA VII-B
LOUD SPEAKER, JACK AND BATTERIES

cable is connected first to the receiver terminal board before it is connected to any batteries; otherwise the batteries may be short-circuited and their life materially reduced.

The "A" batteries must be placed in the cabinet with their terminals as shown in Fig. 3. Remove thumb screw and place the four special connectors on batteries as shown. This connects the batteries in three series groups, of two cells each in parallel. The yellow leads are connected to the center of positive terminal of the "A" battery and the black leads to the outside or negative terminal.

The method of connecting the "B" battery is clearly shown in Fig. 3. The leads are sufficiently long to permit making the connection outside the cabinet for convenience. The rear battery shown in Fig. 3 should be placed in the front of the cabinet first and pushed towards the rear, then the front battery shown in Fig. 3 can be lowered in its place as shown in Fig. 3.

The "C" battery fits in the space in front of the "A" battery. The wire with green terminal should be connected to the 4½ volt negative, or minus, clip on the battery and the black terminal to the positive, or plus, clip.

Great care should be taken to keep the battery connections tight, as failure to do so may result in objectionable noises or complete inoperation of the set.

OPERATION

1. Be sure that set is properly connected, as per diagram, Fig. 3.
2. Be sure filament control (Dial No. 1) is turned as far as it will go to the left or counter-clockwise direction. Start with all pointers at the left or zero mark.
3. Insert tubes in their bayonet sockets by pressing down slightly and turning to the right.
4. Advance the filament control to graduations 5 or 6 on its dial.
5. Choose approximate wave-length desired by use of Selector No. 2 with the aid of the chart below:

SERIAL No. .....

Wave Length	2 Selector	3 Secondary
250		
300		
350		
400		
450		
500		
550		

6. Place secondary tuning control (Dial No. 3) on corresponding graduation wave-length band, as shown on dial.
7. Swing antenna tuning control (Dial No. 4) through its range several times.
8. If signals are not heard bring up volume control (No. 5) until a click is heard. This is termed "the oscillation point." Now with this control held just below this point, Vernier controls 3 and 4 must be operated together to give best results, especially on long distance signals, or signals from weak stations.

On weak stations it is best to allow the set to oscillate, that is, bring control well beyond the click point and swing control 3 through its range determined by selector position. When a whistling sound, known as the "carrier beat" is heard, it should be brought to maximum by control 4, then control 5 should be reduced gradually until the oscillations cease, keeping whistling sound in tune at the same time by Vernier control 3. The carrier beat will then disappear and station will be heard without distortion.

To strengthen the signal, work the stabilizer as near the oscillation point as possible and retune with Vernier controls 3 and 4. Bear in mind that the stabilizer is an adjustment of sensitivity and not of tuning. Care should be taken that set is not left in oscillating condition. Better operation can sometimes be obtained by changing the tubes around in the several sockets until the best combination is found.

The filament control (Dial No. 1) should be advanced as the filament batteries are consumed. THIS CONTROL SHOULD, HOWEVER, BE KEPT ALWAYS AS LOW AS POSSIBLE CONSISTENT WITH GOOD RECEPTION, ELSE THE LIFE OF THE TUBES, AND TO SOME EXTENT ALSO THE LIFE OF THE BATTERIES, WILL BE SERIOUSLY SHORTENED.

REPLACEMENTS

Batteries and tubes are the only parts which require replacement.

"A" BATTERIES:

With average use, these batteries should last several months. They require replacement when the filament control Dial No. 1 must be kept at maximum (10) for good reception, and when the tubes light but dimly with the pointer in that location.

The old cells can be removed by disconnecting all wires from battery binding posts. Then cells may be taken out and new ones connected in their place. On each lead is color marking designating the point to which the lead is to be connected. Reference to figures will preclude the possibility of an error in connection, and will warrant careful attention. The carbon or center part of a standard dry cell is positive.

DON'T FORGET TO REMOVE TUBES FROM SOCKETS BEFORE CHANGING ANY BATTERIES. NEVER BURN TUBES MORE BRIGHTLY THAN REQUIRED FOR A SIGNAL OF REASONABLE VOLUME.

"B" BATTERIES:

"B" Batteries may be tested by a high resistance type of voltmeter which will indicate up to 100 volts at least. The meter should show at least 90 volts when across both batteries (new) and batteries are exhausted when total voltage falls below 70 volts.

To replace, lift battery unit out and unclip leads. The battery leads are long enough to permit the units to be lifted out of the cabinet, for their connection. DON'T FORGET TO REMOVE TUBES FROM SOCKETS BEFORE REPLACING ANY BATTERIES. Connect the new units exactly as shown in Fig. 3.

"C" BATTERIES:

These cells should be renewed every six months to insure proper functioning of Radiola VII-B.

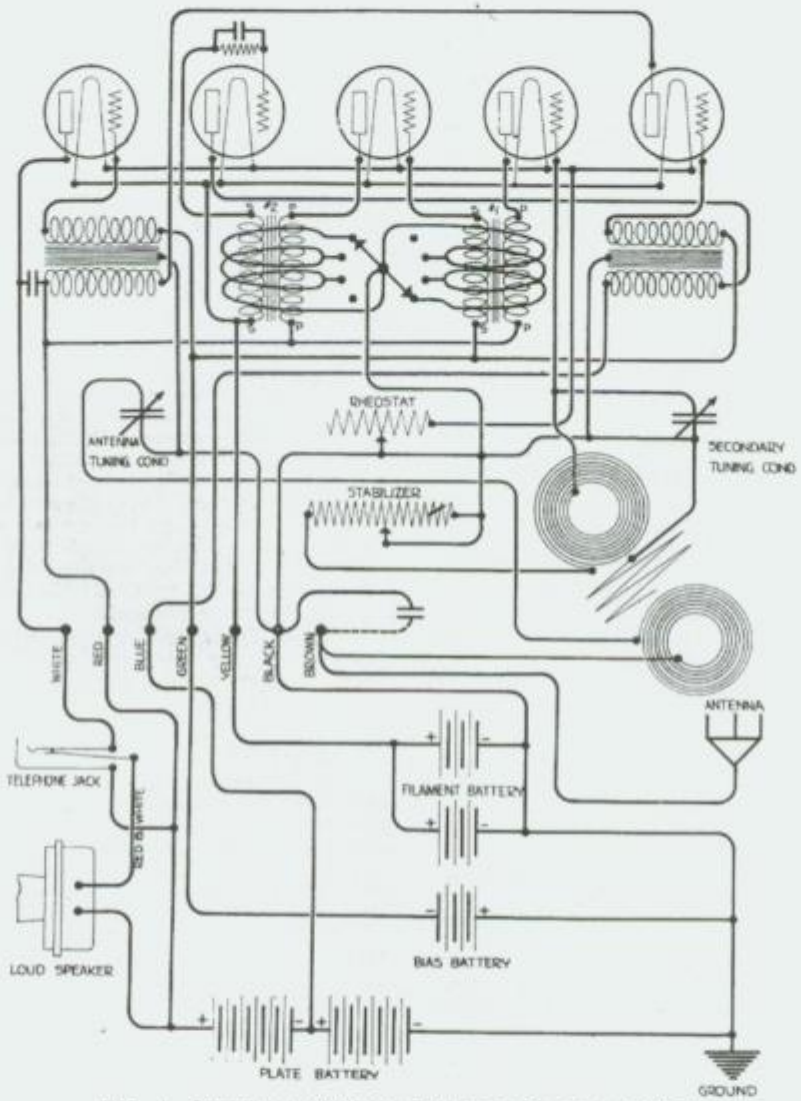

FIG. 4—SCHEMATIC WIRING DIAGRAM RADIOLA VII-B