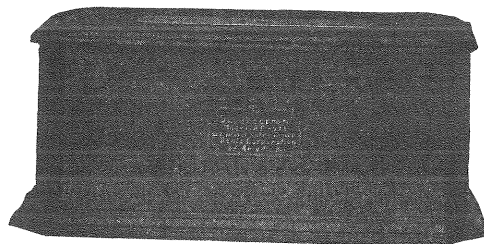


Use of RCA "B" Battery  
Eliminator *with* Radiolas  
Super-Heterodyne  
*and* Super VIII

DUO-RECTRON SERVICE NOTES

*Third Edition—5M—June, 1928*



RCA Duo-Rectron—Model AP-937

**Radio Corporation of America**

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## A WORD OR TWO ABOUT SERVICE

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Service goes hand in hand with sales. The well informed Radiola Dealer renders service at time of sale in affording information as to proper installation and upkeep. Subsequent service and repair may be required by reason of wear and tear and mishandling, to the end that Radiola owners may be entirely satisfied.

Obviously this service can best be rendered at point of contact and therefore Dealers and Distributors, who are properly equipped with a knowledge of the design and operation of Radiolas, occupy a favorable position to contract for this work.

To assist in promoting this phase of the Dealers' business the Service Division of the RCA has prepared a series of Service Notes—of which this booklet is a part—containing technical information and practical helps in servicing Radiolas.

This information has been compiled from experience with Radiola Dealers' service problems, and presents the best practice in dealing with them. A careful reading of these Service Notes will establish their value to Dealer and Distributor, and it is suggested they be preserved for ready reference.

In addition to supplying the Service Notes the RCA, through its Service Stations, has available to Dealer and Distributor the services of engineers who are qualified to render valuable help in solving service problems.

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# Use of RCA "B" Battery Eliminator with Radiolas Super-Heterodyne and Super VIII

(DUO-RECTRON—MODEL AP-937)

PREPARED BY RCA SERVICE DIVISION

## INTRODUCTION

These instructions cover the operation of RCA "B" Battery Eliminator (Duo-Rectron Model AP-937) in use with Radiolas Super-Heterodyne and Super VIII employing Radiotron UX-120 in the second stage of audio frequency amplification.

There are two ways in which the Duo-Rectron may be used to supply plate voltages to the Radiotrons of these two Radiolas. One method involves the use of an external "B" battery to supply the additional 45 volts required to make up the necessary 135 volts for the plate of Radiotron UX-120. This method is the most convenient one as it requires no changes in the panel wiring. A second method takes advantage of the 135-volt tap of the Duo-Rectron by making certain alterations in the panel wiring of the Radiolas, thus eliminating all "B" batteries.

As the first method is fully described in the Instruction Book supplied with the Duo-Rectron, the following instructions will be confined to the second method.

## PART 1

### RADIOLA SUPER-HETERODYNE—SECOND HARMONIC (Semi-Portable Model)

Figure 1 shows the alterations necessary in the Radiola Super-Heterodyne panel to take advantage of the 135-volt tap of the Duo-Rectron to supply the required plate voltage for Radiotron UX-120. A step by step procedure to effect the necessary changes is suggested as follows:

- (1) Tilt panel forward and release catch at right hand side permitting panel to be removed from cabinet.
- (2) Loosen screws on battery terminal strip allowing the latter to be removed.
- (3) Connect a short piece of wire between the +45 terminal and the -45 terminal of the UR-556 adapter.
- (4) Connect a 22½-volt "B" battery to the +22½ and -22½ "C" battery terminals of the UR-556 adapter. (This battery may be placed in one of the battery compartments.)

- (5) Remove switch plug. To do this, the small retaining split washer will first have to be removed with a small pair of pliers. The plug may then be readily pulled out.
- (6) Make the one wiring change shown by dotted line in Figure 1.
- (7) Solder an insulated wire to the switch frame (as indicated in Figure 1) and connect free end to the +135 terminal of Duo-Rectron.
- (8) Make other connections to the -B, +45 and +90 terminals of the Duo-Rectron in the usual manner as indicated in the Duo-Rectron Instruction Book No. 86996, Edition "C".

WHEN THE ABOVE ALTERATIONS HAVE BEEN MADE, THE STAGE CHANGE SWITCH WILL BECOME THE SECOND STAGE JACK AND THE PHONE JACK WILL BECOME THE FIRST STAGE JACK.

These changes apply to Radiola Super-Heterodyne *only*.

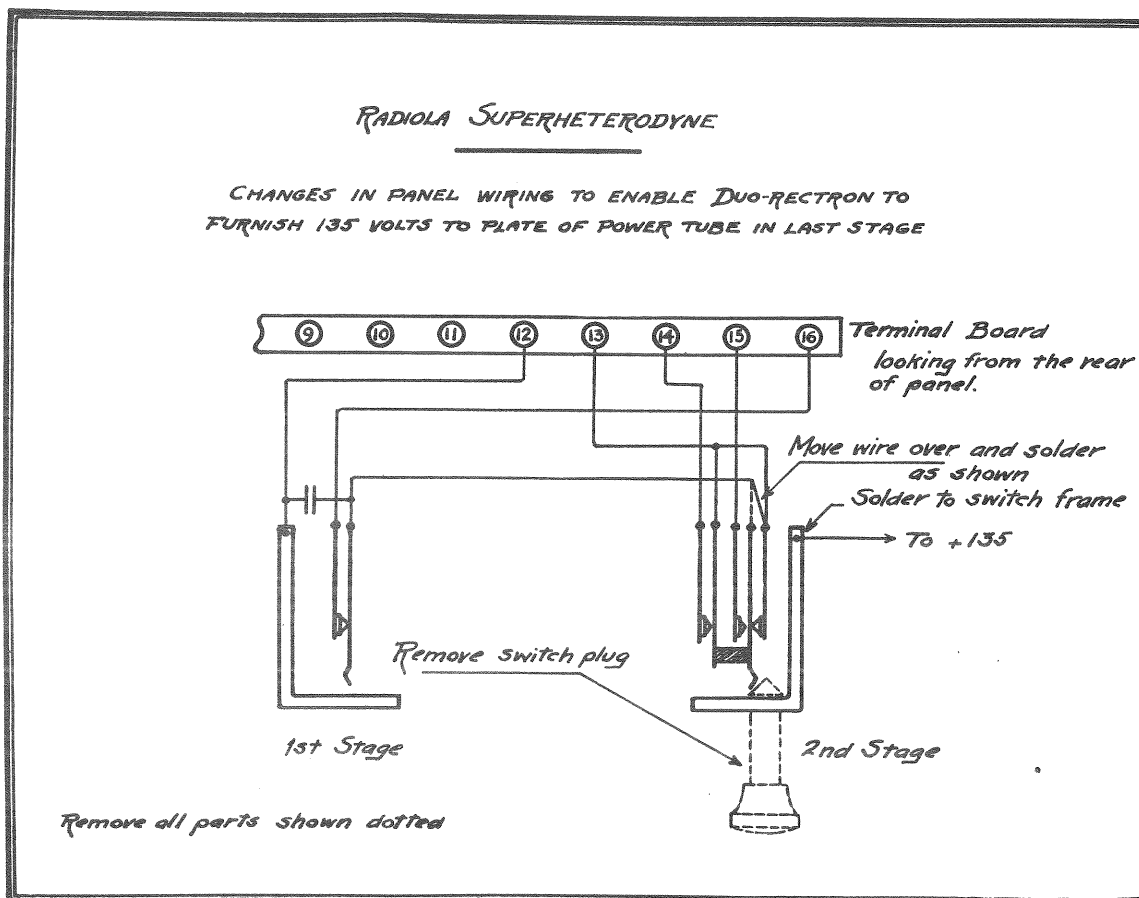


Figure 1

## PART 2 RADIOLA SUPER-VIII

Figure 2 shows the normal wiring connections from the terminal board to the jacks in Radiola Super-VIII. This diagram is included for purposes of comparison with, and to facilitate making the new connections shown in Figure 3.

Figure 3 clearly shows the revised panel wiring necessary to take advantage of the

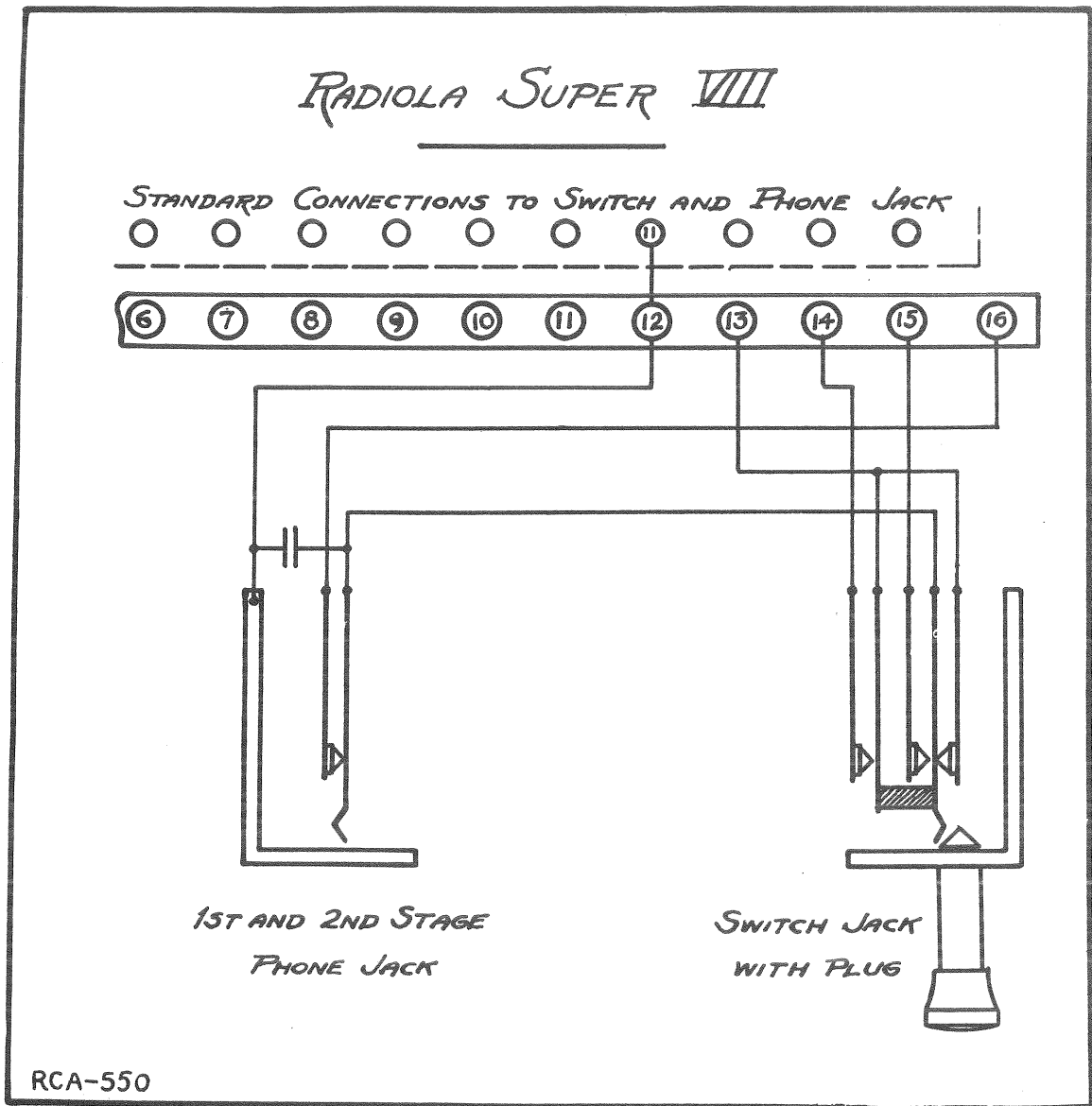


Figure 2

135-volt terminal of the Duo-Rectron to supply the proper plate voltage for Radiotron UX-120, used in connection with the UR-556 adapter.

The catacomb terminal board and catacomb "whiskers" (short, flexible leads from catacomb) are indicated just as they would appear looking at the panel from the rear. From this position the whiskers and terminals are numbered from left to right. (The second whisker hole on catacomb is blank, but counted.)

A step by step procedure for effecting the necessary changes is outlined as follows:

- (1) Remove panel and detach battery terminal strip as outlined in Part 1 of these instructions.
- (2) Connect a short piece of wire between the +45 and -45 terminals of UR-556 adapter.
- (3) Connect a 22½-volt "B" battery to the +22½ "C" and -22½ "C" terminals of the adapter. This battery supplies the proper negative bias for the grid of Radiotron UX-120. It may be conveniently placed in the location vacated by the old "B" batteries.

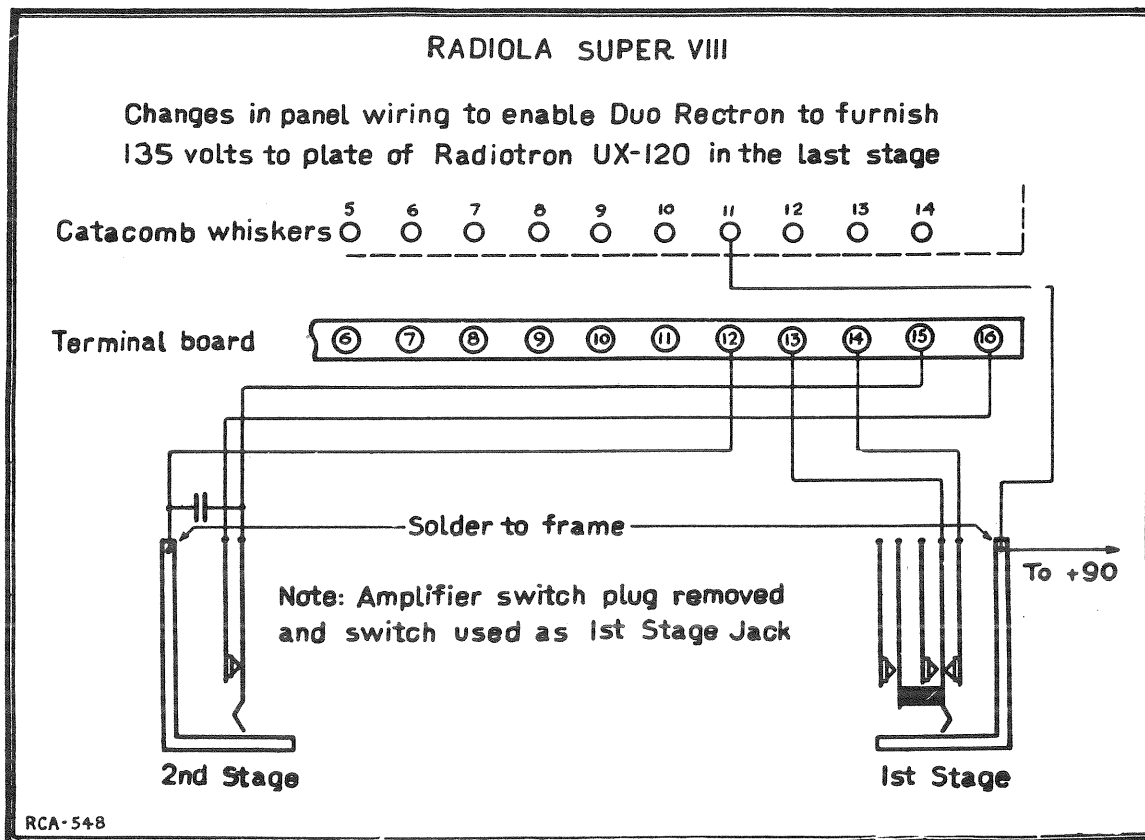


Figure 3

- (4) Remove amplifier switch plug as instructed in Part 1.
- (5) Referring to Figure 2, unsolder and remove wire running from terminal 15 to switch jack. Referring to Figure 3, make all other changes indicated in this diagram. Special attention is called to catacomb whisker number 11 (fourth from the right) which should be unsoldered from catacomb terminal number 12 and resoldered to the frame of the amplifier switch jack (1st stage). An extra length of insulated wire will be necessary to make this connection, soldering same to the whisker lead and carefully taping to avoid the possibility of it short-circuiting to any other terminal.
- (6) Solder an insulated wire to the frame of the amplifier switch jack (1st stage) and connect other end to the +90 terminal of Duo-Rectron.
- (7) Connect:
  - B lead in Super-VIII (lower battery tier) to —B of Duo-Rectron.
  - +B (lower battery tier) to +45 of Duo-Rectron.
  - B (upper battery tier) to be taped up (not used).
  - +B (upper battery tier) to +135 of Duo-Rectron.

Thus connected Duo-Rectron will supply the proper plate voltages for all the Radiotrons, including Radiotron UX-120. The PHONE JACK (Figure 2) becomes the SECOND STAGE JACK (Figure 3) and the AMPLIFIER SWITCH JACK (Figure 2) the FIRST STAGE JACK (Figure 3).

The output of Radiotron UX-120 goes through the built-in loudspeaker of Radiola Super-VIII and is also connected to the second stage jack so that an external loudspeaker can be employed if desired.

If RCA Loudspeaker Model 102 is installed at a later date, it will not be necessary to replace the original connections. Merely remove Radiotron UX-120 and adapter from the catacomb and insert the loudspeaker plug in the first stage jack (Figure 3).



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