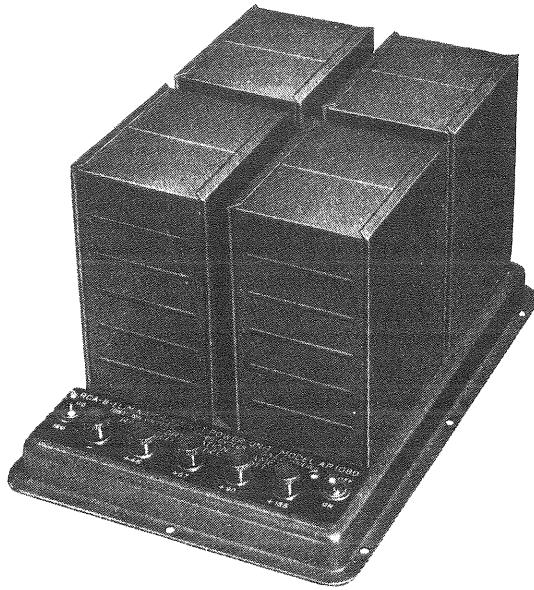


RCA

B-Eliminator

SERVICE NOTES



First Edition—1M
April, 1928

Radio Corporation of America

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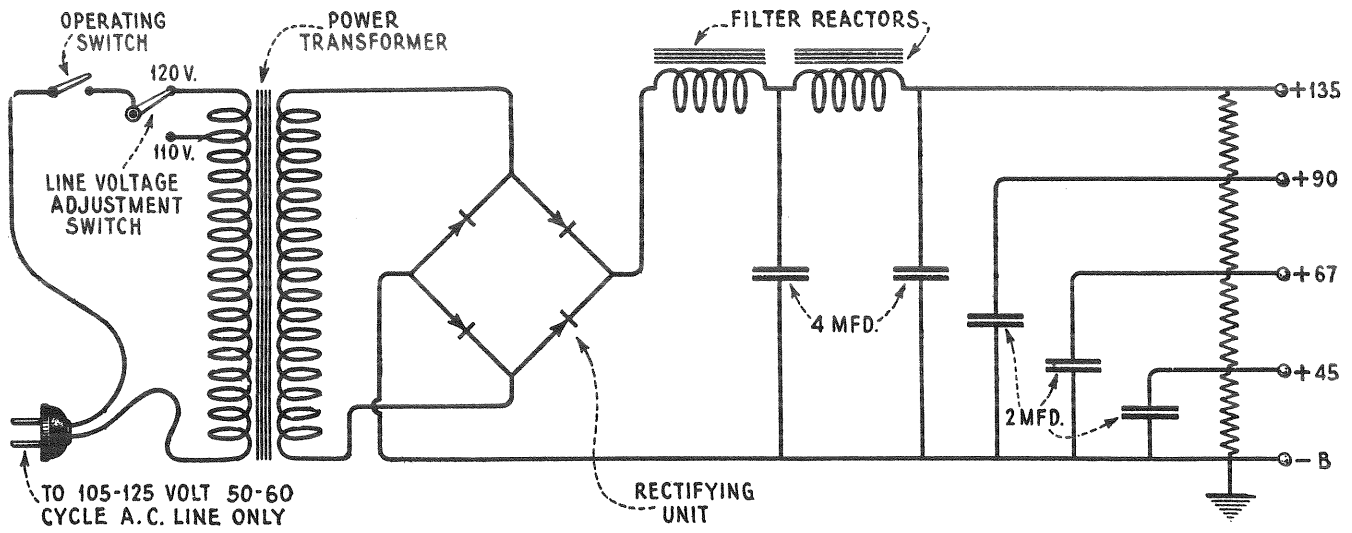


Figure 1—Schematic circuit diagram of RCA B-Eliminator

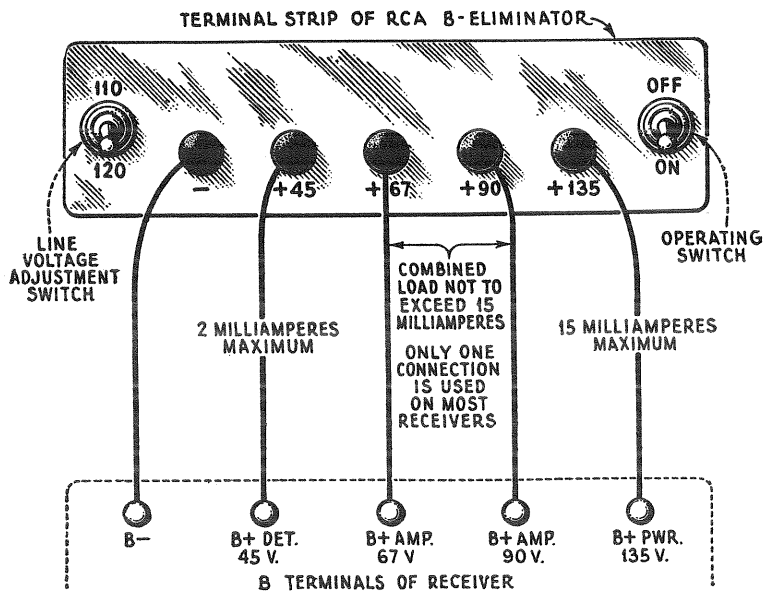


Figure 2—Connections from RCA B-Eliminator to a receiver

RCA B-ELIMINATOR (MODEL AP-1080)

SERVICE NOTES

Prepared by RCA Service Division

INTRODUCTION

The RCA B-Eliminator is a device for converting alternating current into direct current, suitable for use as plate supply to radio receiving sets. It is compact and operates consistently without any particular attention. The dry disc type of rectifier employed, makes unnecessary the use of tubes or liquid containing devices. The output is of sufficient capacity to operate any radio receiver using up to eight tubes or requiring a plate voltage up to 135 volts. Figure 1 illustrates the schematic circuit diagram. The following notes are presented for the information of those called upon to install or service the set.

The text is divided into two parts: Part I - Installation; and Part II - Service Data.

PART I - INSTALLATION

(1) LOCATION

The RCA B-Eliminator should be located in a place that is accessible for ready operation; has a free circulation of air; and is convenient for making connections to the receiver.

(2) CONNECTIONS TO RECEIVER

The leads from the receiver that ordinarily go to the "B" batteries are connected to the B-Eliminator. Figure 2 shows the correct connections to be made for practically any receiver. The maximum milliampere load of the B-Eliminator is 2 milliamperes for the detector or 45-volt tap; 15 milliamperes for the combined drain of the 67 and 90-volt tap; and 15 milliamperes for the 135-volt tap. These ratings are ample for practically all receivers and should never be exceeded.

The 135-volt plate supply for receivers using Radiotron UX-171A in the last audio stage is ample for good reproduction in conjunction with a 27-volt grid bias is used. Under such conditions the output will be of ample volume for all practical requirements and the tube life will be increased over that obtained when using the maximum of 180 volts.

(3) LINE VOLTAGE ADJUSTMENT SWITCH

A two-way switch is provided for adjustment to power line voltages ranging from 105 to 125 volts, 50 to 60 cycles. The switch should be kept at the 120-volt position unless it is definitely known that the line is always below 115 volts, in which case it may be set at the 110-volt position. It is a good plan to leave the switch at the 120-volt position provided the output voltages are high enough to give satisfactory operation of the receiver.

(4) POWER SUPPLY

After connecting the RCA B-Eliminator to a receiver, and adjusting the line switch to its correct position, the input plug should be connected to a lamp socket of 105-125 volt 50-60 cycle alternating current. Connection to D.C. supply or A.C. supply of different rating will result in damage to the B-Eliminator.

PART II - SERVICE DATA

(1) PRECAUTIONS

At the time of installing an RCA B-Eliminator the customer should be made fully aware of its operation and the procedure to take in case of inoperation. He should be advised to turn the power supply "off" immediately any trouble develops and not to operate the device until the cause of the failure is corrected. The failure of one unit may damage the other units if operation of the device is maintained. As an example of possible developments in case this precaution is not observed, consider the effects of operating the B-Eliminator with a shorted filter condenser. Such a short would increase the load on the rectifier and damage it. The damaged rectifier in turn would increase the load on the transformer and possibly cause a burn-out.

(2) VOLTAGE READINGS

Under normal load, the voltages obtained at the terminal strip should be those indicated at the binding posts. If the voltages are slightly high the load is probably light or the line switch is at the wrong position for the particular line voltage used. Various types of failure and the corresponding indication are listed below:-

High voltages at terminals-

- (a) High voltages at all terminals may be caused by open resistance section -B to 45V.
- (b) High voltages at one or more terminals and no voltages at the remaining terminals may be caused by open section between terminals where high and no readings are obtained.

No voltage at any terminal may be caused by-

- (a) Open winding in transformer.
- (b) Defective rectifier unit.
- (c) Shorted 4 mfd. filter condenser.
- (d) Open winding in filter reactor.

No voltage between some terminals and low at other terminals may be caused by-

- (a) Shorted 2 mfd. filter condenser.
- (b) Loose connections to binding posts.

(3) FILTER CONDENSERS (2 MFD.)

A defective filter condenser will cut out the section of the resistance strip across which it is connected and no voltage readings will be obtained across the output terminals at that point. To locate a defective condenser connect a voltmeter across the output binding posts and disconnect the condensers one at a time with the current turned "on". The release of the defective condenser will restore the normal output voltage readings across the terminals. If the ground or common connection is disconnected all the condensers will be released sufficiently to make this test across the 135-volt terminals. This will indicate whether or not any of the filter condensers are causing the trouble that may exist. If the trouble is in the condensers they should be tested individually, as already described, to locate the defective one.

(4) FILTER REACTOR

The filter reactor may be tested by releasing the connections to its terminals and making a "click test" from point to point. An open will give a "no click" indication.

(5) RECTIFIER UNIT

The rectifier unit may be tested by disconnecting all circuits from it, except the power transformer, and measuring the D.C. voltage of its output. This should be approximately 230 volts.

(6) POWER TRANSFORMER

A "click test" across each winding with all other connections removed will indicate the condition of the power transformer. An open of either winding will give a "no click" indication.

(7) MAKING REPLACEMENTS

Should it be necessary to replace any unit, except the terminal strip and resistance unit, use the following procedure:-

- (a) Drill out the six rivets that hold the bottom metal sheet of the B-Eliminator in place. Turn the unit upside down and remove this bottom piece. The connections and fastenings of all the units are now accessible.
- (b) Bend the tabs, holding the particular unit to be replaced, so they will slip out of their respective slots. Unsolder and release the connections to the defective unit. The unit may now be pulled clear of the base and the new unit placed in the position occupied by the old one.
- (c) Bend the tabs to secure the new unit to the base.
- (d) Resolder the connections that were removed. These are shown in Figure 3.
- (e) Replace the bottom metal sheet with small machine screws and nuts. Make sure the ground connection is connected under one of the screws.

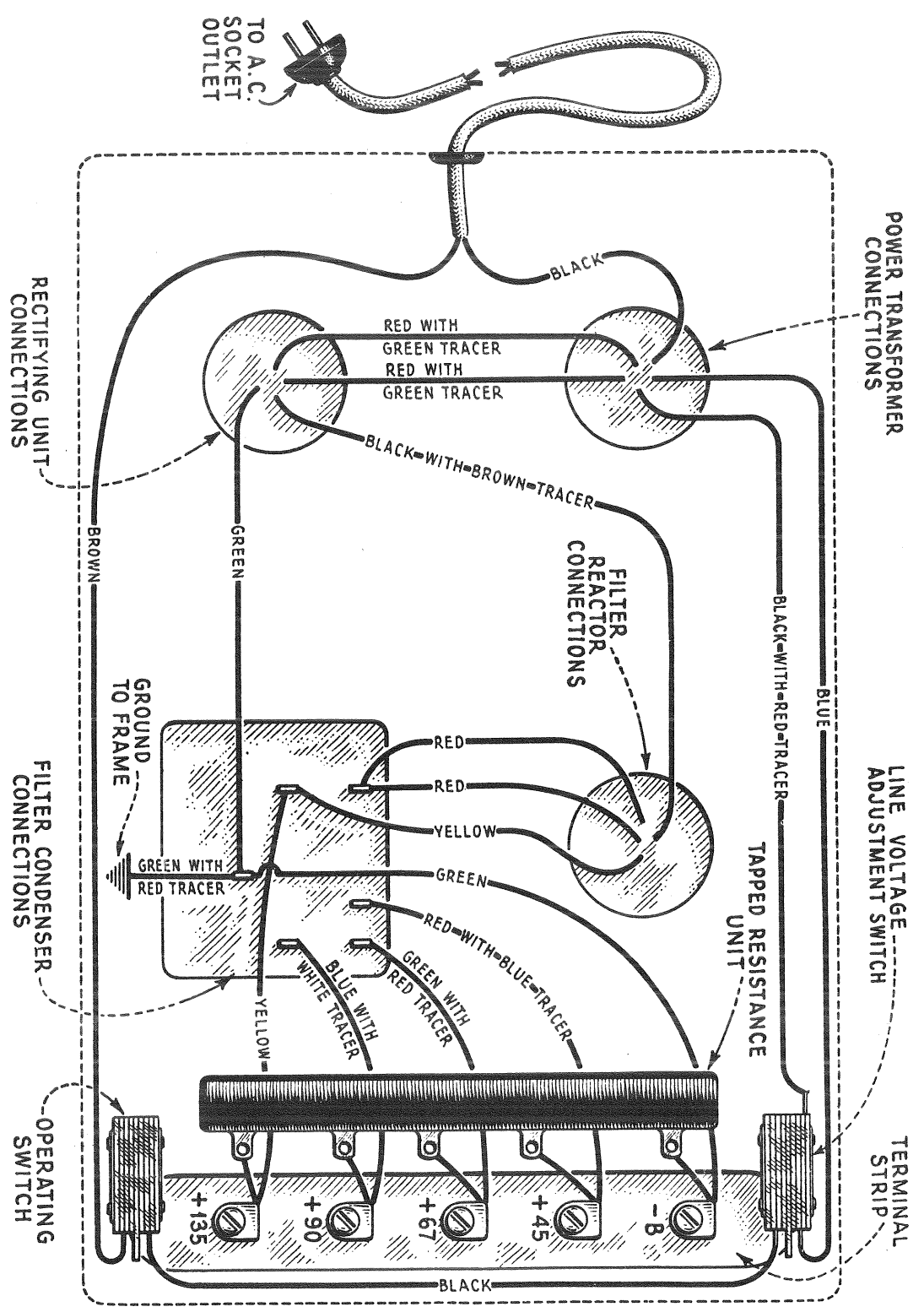


Figure 3—Sub-classis view of the RCA B-Eliminator showing color scheme of wiring and connections



Printed in U. S. A. 1928