



Regulated Power Unit

TMV-118-B



A Constant Source of "B" Voltage

FOR

Designers, Development Laboratories, Electrical Laboratories,
Experimenters, Engineers, Manufacturing Tests, Production
Inspection, Physical Laboratories, School Demonstration
Rooms, Scientific Service Organizations, Universities, etc., etc.

**Supplies pure D.C. voltage without ripples . . . Automati-
cally compensates for variation in load and in line voltage**

The Regulated Power Unit, No. 9560



Front view of RCA Regulated Power Unit shows accessible controls for 90-volt tap and a. c. line

A Constant "B" Supply

The RCA Regulated Power Unit is a product of our research engineering department, designed to meet the demands of our factory, test and engineering departments for self-regulated voltage power source for its test equipments.

RCA Victor, like other recognized manufacturers in the radio industry, tests and retests its products many times during their orderly movement from the design laboratories to final completion.

Nearly every type of test apparatus employs vacuum tubes and the plate or "B" voltage supplied to these tubes must not vary. If the apparatus is to be depended upon for any degree of accuracy, the test load on the tube must be constant. Batteries or other forms of unregulated "B" voltage supply devices have failed to meet these requirements.

The RCA Regulated Power Unit has answered demands for this service so successfully in our own factories and laboratories that it is certain to assume definite leadership

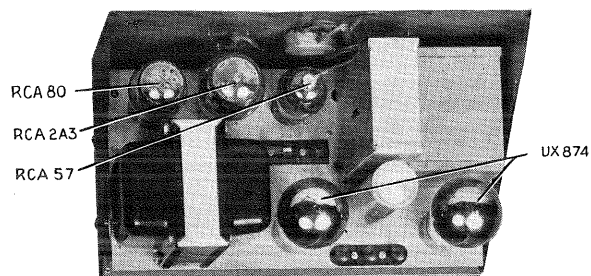
when its performance and possibilities become known to others. It will be found particularly valuable for—

1. Permanent installations of vacuum tube voltmeters, standard signal generators, beat frequency oscillators, field intensity meters, and comparable devices where it is necessary to have an automatically regulated "B" supply available.

2. Design laboratories which need a source of B current to use in the development of detector circuits, I. F. circuits, A. V. C. circuits or other portions of a receiver prior to the design of the power supply for the complete equipment.

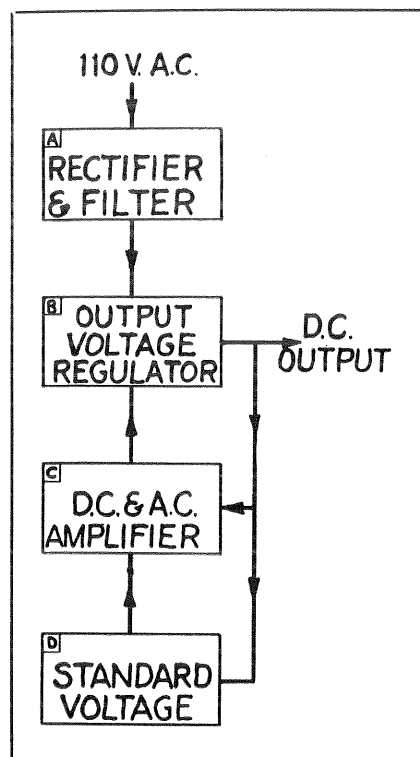
3. Test voltage services which must remain constant under varying conditions of line voltage or load.

4. Many scientific service organizations which operate on a scale comparable to that of the engineering laboratories of radio manufacturers. By means of the RCA Regulated S. P. U. they may isolate portions of circuits and study suspected difficulties independently instead of being forced to rely upon the associated power supply. Those who serve a territory where battery receivers are still in use will find the Regulated S. P. U. to be helpful in meeting the test requirements of varied circuits.



Power Unit from top with hinged cover removed to show compact design and sturdy construction

The RCA Regulated Power Unit



Block Diagram Regulated Power Unit

Circuit Description . . .

The block diagram at the left illustrates the method whereby the performance shown in the curves on page 4 is obtained. The Regulated Power Unit consists of a conventional rectifier and filter (A) and a means of governing the amplitude of this rectified voltage which is delivered to the output binding posts.

The regulator (B) which in this device is a tube, is placed in series with the output terminal. As the regulation is varied, the output voltage is changed so that the tube functions as an automatic rheostat, holding the d. c. output voltage constant with either variable line voltage, variable load current, or both. Reference to the diagram on this page shows that the d. c. output voltage is also balanced against a standard voltage (D) which in this case is a tube. The balanced voltage is applied to the grid of a d. c. amplifier (C). If the line voltage or load current is varied, the difference in voltage between the standard voltage at (D) and the output voltage will appear across the grid of the d. c. amplifier (C).

This amplified difference voltage is caused to actuate the regulator (B) by applying it to the grid of this tube. Thus any variations in the d. c. output voltage are amplified and the regulator (B) attempts to readjust to hold a constant difference between the output voltage and the standard voltage (D).

The block diagram indicates that the unit (C) is both a d. c. and an a. c. amplifier. Should any a. c. be present at the d. c. output terminals it is amplified by the unit (C), impressed on unit (B) in reversed phase and so tends to cancel.

In the Regulated Power Unit the standard voltage (D) is an 874 glow tube. A portion of the output voltage through the use of a potentiometer is compared with this voltage. By varying the position of the potentiometer arm the d. c. output regulated voltage may be varied.

Specifications

TUBES—RCA 80, Rectifier; RCA 2A3, Voltage Regulator; RCA 57, D. C.—A. C. Amplifier; RCA 874, Voltage Standard; RCA 874, Regulator for 90-Volt Tap.

The RCA Regulated Power Unit will deliver voltages between 135 volts and 180 volts d. c. at a current drain between 10 m. a. and 80 m. a. with line voltages of 110 volts $\pm 10\%$ or 120 volts $\pm 10\%$ with a load voltage variation of not over 2%. As illustrated by

the curves on page 4, even higher voltages may be obtained at reduced current drains.

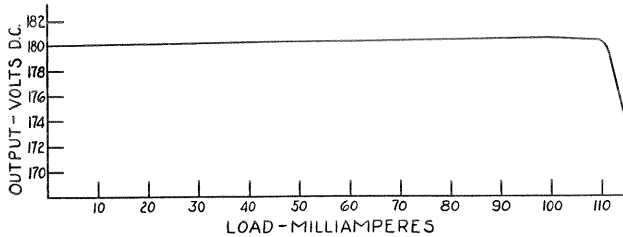
In addition, the RCA Regulated Power Unit will deliver both 90 volts and 135 volts for operation of equipment such as the TMV-180 RCA Signal Generator Type TMV-180 which required both of these voltages. The 90-volt tap will deliver up to 20 m. a. at 90 volts, while the output from the main section is 40 m. a. at 135 volts.

Net Price, F. O. B. Camden **\$39⁵⁰** (With Tubes)

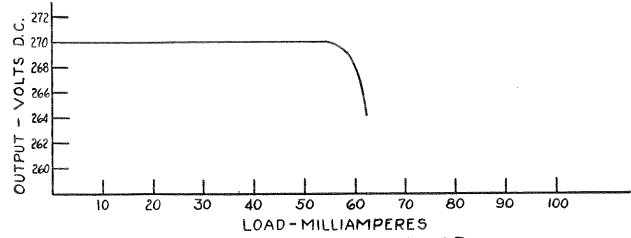
THE RCA PARTS DIVISION, Camden, N. J.

Performance Data—RCA Regulated Power Unit

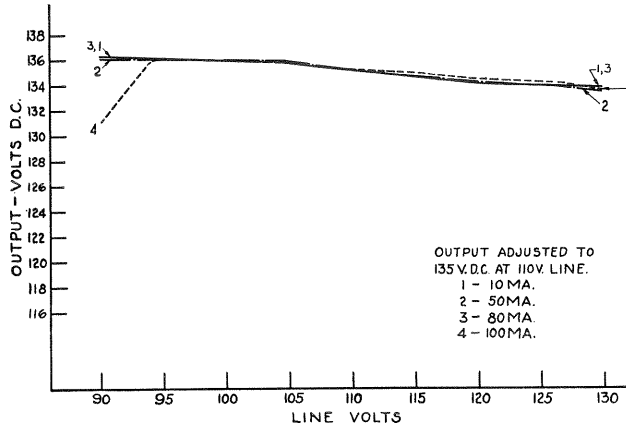
The accompanying curves indicate the remarkable regulation constancy of the RCA Regulated Power Unit under varying load conditions. Note the negligible variation in output voltage under operating fluctuations more severe than are usually encountered on most power circuits.



VOLTAGE REGULATION VS. LOAD
WITH CONSTANT LINE VOLTAGE (110V-60~)

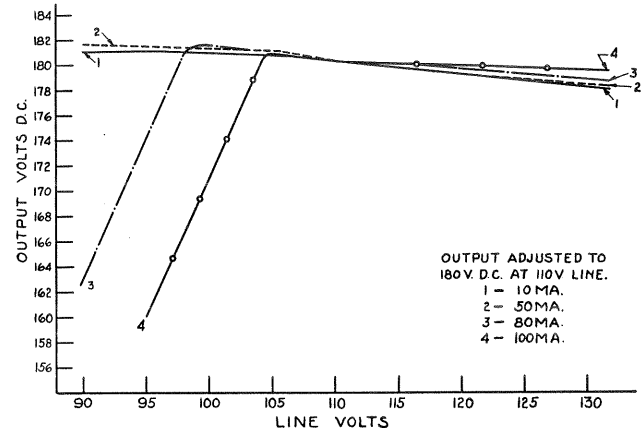


VOLTAGE REGULATION VS. LOAD
WITH CONSTANT LINE VOLTAGE (110V-60~)



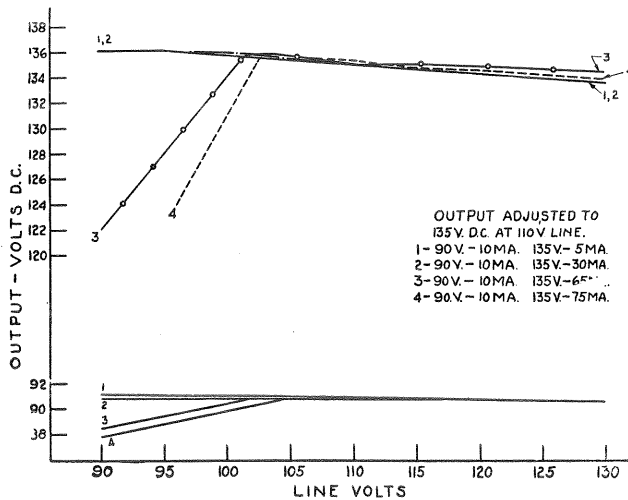
VOLTAGE REGULATION VS. LINE VOLTS

OUTPUT ADJUSTED TO
135V. D.C. AT 110V. LINE.
1 - 10 MA.
2 - 50 MA.
3 - 80 MA.
4 - 100 MA.



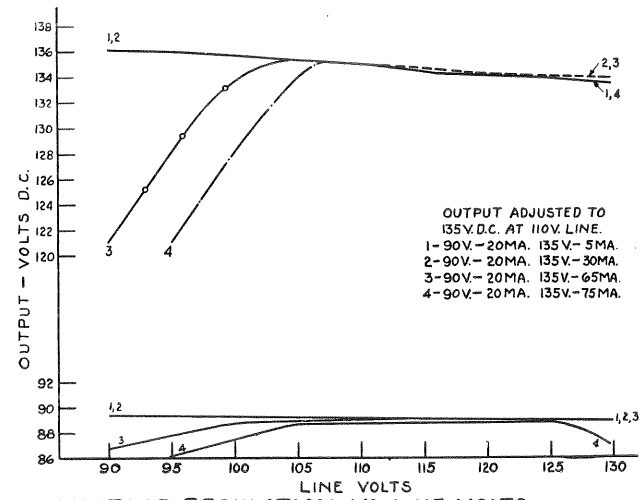
VOLTAGE REGULATION VS. LINE VOLTS

OUTPUT ADJUSTED TO
180V. D.C. AT 110V. LINE.
1 - 10 MA.
2 - 50 MA.
3 - 80 MA.
4 - 100 MA.



VOLTAGE REGULATION VS. LINE VOLTS

OUTPUT ADJUSTED TO
135V. D.C. AT 110V. LINE.
1 - 90V.-10MA. 135V.-5MA.
2 - 90V.-10MA. 135V.-30MA.
3 - 90V.-10MA. 135V.-65MA.
4 - 90V.-10MA. 135V.-75MA.



VOLTAGE REGULATION VS. LINE VOLTS

OUTPUT ADJUSTED TO
135V. D.C. AT 110V. LINE.
1 - 90V.-20MA. 135V.-5MA.
2 - 90V.-20MA. 135V.-30MA.
3 - 90V.-20MA. 135V.-65MA.
4 - 90V.-20MA. 135V.-75MA.