RADIOTRON HIGH POTENTIAL VALVE VOLTMETER

RANGE 0-2000 VOLTS

The ordinary type of valve voltmeter is limited to about 100 or 200 volts maximum reading, but occasionally there are circumstances requiring the measurement of higher voltages. For these purposes it is necessary to adopt an entirely different principle. One form which a high potential valve voltmeter may take is shown in Radiotron Circuit S110, which is based on a design by P. B. Weisz in an article entitled "High Potential Vacuum Tube Voltmeter" in the Proceedings of the I.R.E., June, 1944, page 338. The heater voltage of the indicating valve should be obtained from a source of constant voltage which might be either of D.C. or A.C. origin. The voltage applied to the control grid of the indicating valve is regulated by a voltage regulator type VR105/30 or OC3, so that it is independent of reasonable supply voltage variations. The indications are almost linear from about 200 to the full scale reading of 2,000 volts.

The neon bulb is used to indicate reversed polarity, the correct operation being when the plate is negative.

MINIATURE VALVES

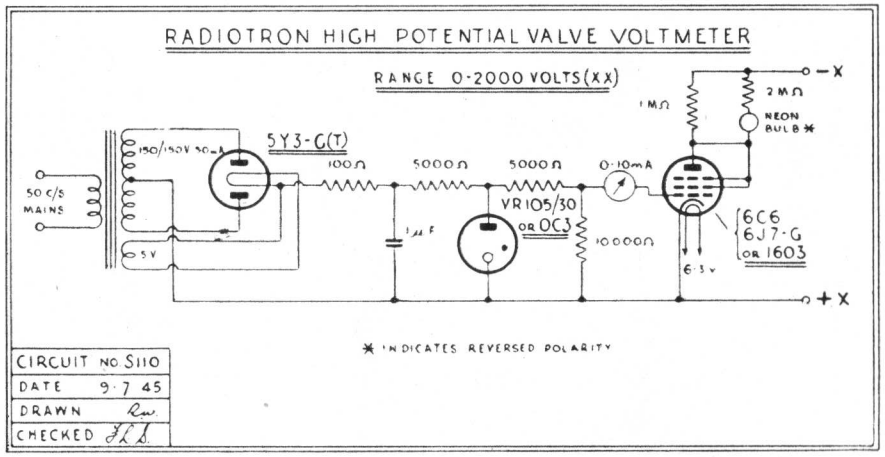
APPLICATION NOTES

Concurrently with this issue of Radiotronics Digest we release an Application Note on Radiotron Miniature Valve types—reprint from Application Note No. 106 released by the Radio Corporation of America.

RADIOTRONICS BINDERS

Stocks are available of binders to take Radiotronics Digest, Radiotronics Bulletins and Application Notes at the cost of one shilling (1/-) each, plus twopence (2d.) postage.

Published by the Wireless Press for
AMALGAMATED WIRELESS VALVE COMPANY PTY. LIMITED
G.P.O. Box 2516
47 York Street, Sydney



Printed by The Cloister Press (D. & W. Short), 45-49 George St., Redfern

RADIOTRONICS DIGEST

THE CONTENTS OF THIS ISSUE

NEW VOLTAGE REGULATORS NOW MANUFACTURED IN AUSTRALIA

Types OC3/VR105 and OD3/VR150

Type OC3/VR105 is a voltage regulator having an operating voltage of 105 with a maximum current of 40mA. It may be used as a replacement for type VR105/30 which it will eventually supersede and replace. The variation in voltage as the operating current is increased from 5 to 30 mA. is only one volt, while with an increase from 5 to 40mA. the change of voltage is only two volts.

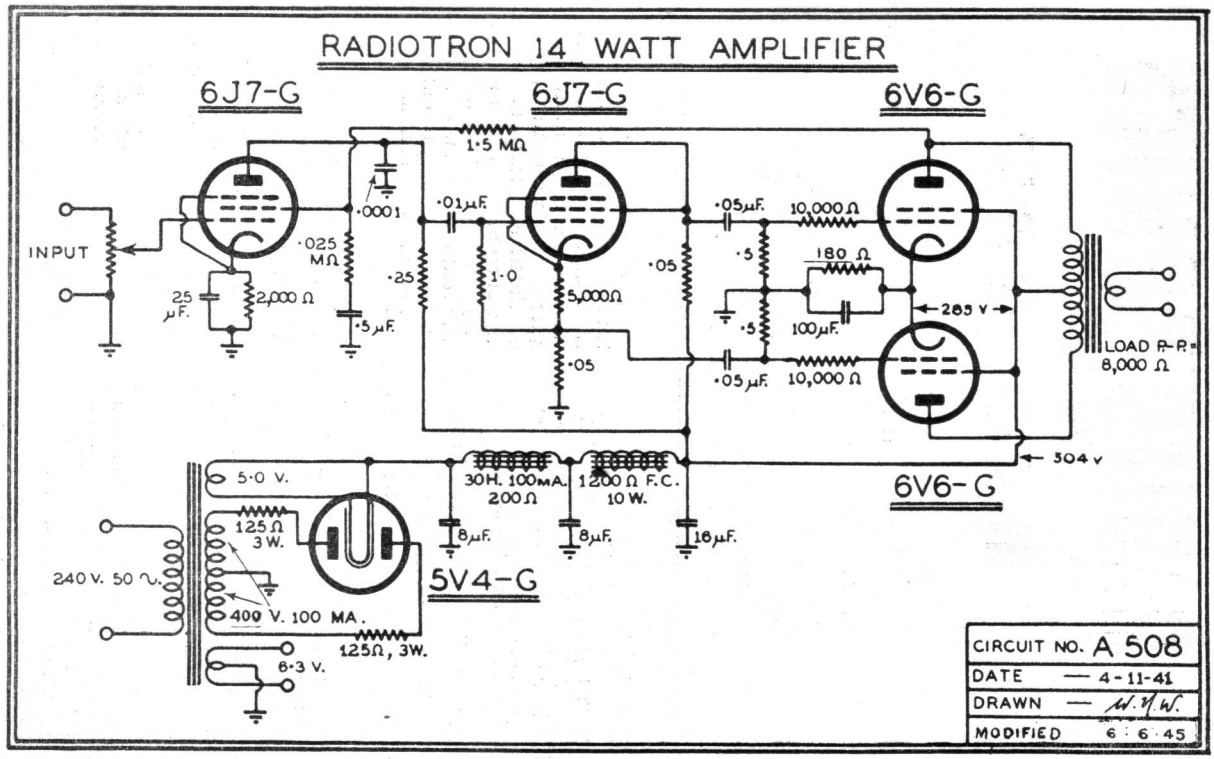
Type OD3/VR150 has an operating voltage of 150 volts with a maximum current of 40 mA. It will eventually supersede and replace type VR150/30 which is limited to a maximum current of 30 mA. The new type only varies in voltage by two volts as the operating current is increased from 5 to 30 mA., and four volts from 5 to 40 mA.

Both of these new voltage regulator tubes will find useful applications in Laboratory equipment of many kinds, for stabilising oscillators in high frequency receivers and for many similar applications within the limits of voltage and current. Two or more similar tubes may be connected in series, or two different types may be connected in series to give different voltage drops across the two sections of the regulator unit.

RADIOTRON 913 CATHODE RAY TUBE

This is the smallest of the large range of Radiotron cathode ray tubes, having a screen diameter of 1 inch and a metal envelope.

It is suitable for light-weight equipment and, in particular, for the servicing of radio receivers. Like the larger 2 inch type 902, it has electrostatic deflection and a green screen with medium persistance. The maximum anode voltage is 500 volts and the overall dimensions 4¾ inches long by 1 23/32 diameter.



RADIOTRON 14 WATT AMPLIFIER A508

USING PUSH-BELL TYPE 6V6-G VALVES

We have received frequent requests for an amplifier similar to Radiotron circuit A501, but capable of a higher power output without introducing the complications of separate plate and screen supplies as used in circuit A504 published in Radiotronics No. 112. Circuit A508 gives an output of 14 watts with an equal plate and screen voltages of 285 volts on the push-pull 6V6-G valves which are operating under class AB1 conditions. It will be noted that the cathode bias resistor is shown as 180 ohms which provides a bias of —19 volts at maximum signal, so that the voltage from plates and screens to earth is 304 volts. Owing to inevitable variations between commercial components it is necessary to check this voltage under working conditions with an accurate voltmeter so as to ensure that the maximum ratings are not exceeded. This condition of operation makes use of voltages and currents which are at the extreme limits for this type of valve and every care must therefore be taken that they are not exceeded.

The load resistance is 8,000 ohms plate to plate and the maximum power output 14 watts. In other respects the circuit is very similar to A501 and A504, both of which have been described in detail in previous issues of Radiotronics.

THE FILAMENT OF A LARGE MERCURY VAPOUR RECTIFIER

This illustration shows how the filament of a large mercury vapour rectifier valve is both crimped and wound in a helix to conserve heat and present the maximum surface for emission. By the use of this method the total power taken by the filament for a given emission is decreased, since there is less loss of heat caused by radiation.

The filament is surrounded by mercury vapour and consequently there is no necessity for the filament to be placed in close proximity to the plate as in the high-vacuum type. For the same reason, the emission is obtained from over the whole surface of the filament instead of being taken principally from the part nearest the annode

This type of construction is used for the filament of Radiotron 872A/872.