# Chapter 72

# POTENTIOMETERS, BERCO, V4 SERIES

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## LIST OF ILLUSTRATIONS



## LEADING PARTICULARS

| | |
|---|---|
| *Potentiometer, Berco, Type V4 series* ... ... ... ... | *see Table* 1 |
| *Reistance tolerance* ... ... ... ... ... ... | = ± 10 *per cent* |
| *Resistance element temperature rise* ... ... | ... 4 *watts at* 85 *deg. C* |
| *Hottest parts of outside of case* ... ... ... | ... 65 *deg. C (approx)* |
| *Rating in* 70 *deg. ambient temperature* ... ... ... ... | 1·5 *watts* |
| *Terminal connections* ... ... ... ... | 6 *B.A. screws and nuts* |
| *Angle of rotation* ... ... ... ... ... | 309 *deg., effective* 290 *deg.* |
| *Torque required for rotation* ... ... ... ... ... | 2½ *oz. in. (approx)* |
| *Weight of units* | |
| *single unit* ... ... ... ... ... ... ... ... ... | 3½ *oz.* |
| *double-ganged unit* ... ... ... ... ... ... ... | 6 *oz.* |
| *triple-ganged unit* ... ... ... ... ... ... ... ... | 9 *oz.* |

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### Introduction

**1.** The Berco Type V4 Rheostat is used as a low power, wire-wound potentiometer, fig. 1.

## DESCRIPTION

**2.** The element is wound on a laminated bakelite strip, bent into circular shape after winding. It has phosphor-bronze brush gear and collector mechanism, with a central insulated spindle. The assembly is totally enclosed in a dust and damp-proof moulding.

**3.** Nickel-copper wire, having a negligible temperature co-efficient, is used for resistance elements up to 1000 ohms and nickel-chromium, iron-free wire for elements up to 50,000 ohms.

**4.** V4 potentiometers are fitted with a single-pole switch, and vary in their IR rating as detailed in Table 1. The current in each case is a maximum for any position of the brush in an ambient temperature of 20 deg. C.

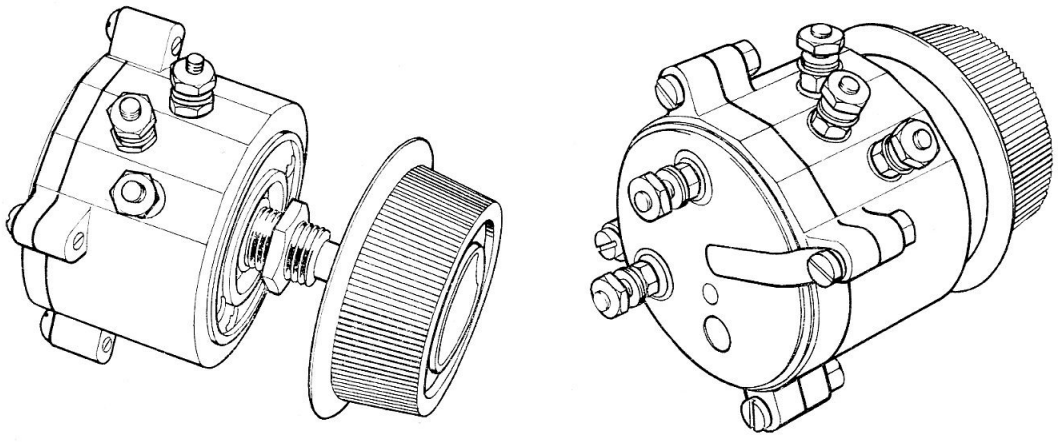

**Fig. 1. View of V4 potentiometer**

**5.** Units ganged together and operated by a common control knob through insulated couplings, have the suffix G added to the title V4, e.g. a double-ganged unit is V4/G2 and a triple-ganged unit is V4/G3, followed by the ohmic value of each resistance element for identification purposes.

**TABLE 1**

V4 potentiometers, IR rating

| Type No. | Resistance element (Ohms) | Current (amp) | Ref. No. 10W/ | Inter-Services No. 5905–99–900– |
|---|---|---|---|---|
| 12004 | 500 | 0·09 | 19842 | — |
| 10385 | 600 | 0·0815 | 19033 | — |
| 10384 | 1k | 0·063 | 19032 | — |
| — | 1·8k | 0·047 | 5CW/8105 | — |
| — | 2k | 0·045 | — | 2663 |
| — | 2k | 0·045 | — | 2662 |
| 5302 | 2·5k | 0·034 | 16785 | — |
| 5905 | 5k | 0·028 | — | 2665 |
| 10383 | 5k | 0·028 | 19031 | 2664 |
| 10590 | 5k | 0·028 | 19698 | — |
| 5367 | 10k | 0·02 | 16856 | — |
| 10918 | 10k | 0·02 | 19807 | — |
| 10040 | 20k | 0·014 | 18796 | — |
| 5036 | 5k + 5k (G2) | 0·028 | 16463 | — |
| 10041 | 20k + 20k (G2) | 0·014 | 18797 | — |

**7.** A standard control knob MOU.77 of $1\frac{11}{16}$ in. diameter is used for all V4 potentiometers, which may be fitted with either a plain or a slotted spindle to suit installation requirements.

## INSTALLATION

**8.** The V4 potentiometer is mounted by a central threaded bush and nut, with locking washer; it also has two holes, tapped 6 B.A. at 1 in. centres.

## SERVICING

**9.** This type of unit is usually a part of an electrical system and is tested for correct operation with its relevant assembly. These resistance units are of strong construction and normally require little servicing during their operational life. In the event of a burnt out winding, or mechanical damage, the potentiometer complete, should be replaced by a serviceable unit.