

## Chapter 72

## POTENTIOMETERS, BERCO, V4 SERIES

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## LEADING PARTICULARS

<i>Potentiometer, Berco, Type V4 series</i> ... ..	see Table 1
<i>Resistance tolerance</i> ... ..	= $\pm 10$ per cent
<i>Resistance element temperature rise</i> ... ..	4 watts at 85 deg. C
<i>Hottest parts of outside of case</i> ... ..	65 deg. C (approx)
<i>Rating in 70 deg. ambient temperature</i> ... ..	1.5 watts
<i>Terminal connections</i> ... ..	6 B.A. screws and nuts
<i>Angle of rotation</i> ... ..	309 deg., effective 290 deg.
<i>Torque required for rotation</i> ... ..	2½ oz. in. (approx)
<i>Weight of units</i>	
<i>single unit</i> ... ..	3½ oz.
<i>double-ganged unit</i> ... ..	6 oz.
<i>triple-ganged unit</i> ... ..	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.

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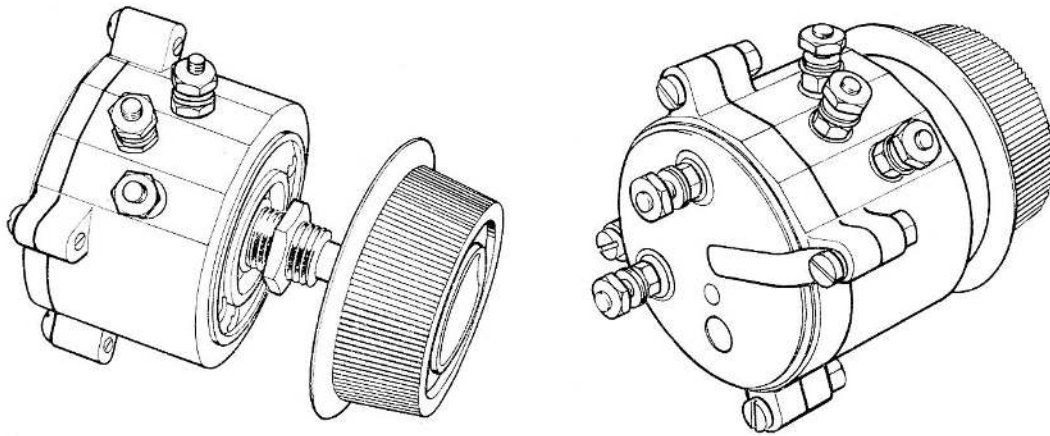


Fig. 1. View of V4 potentiometer

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	—

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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.

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