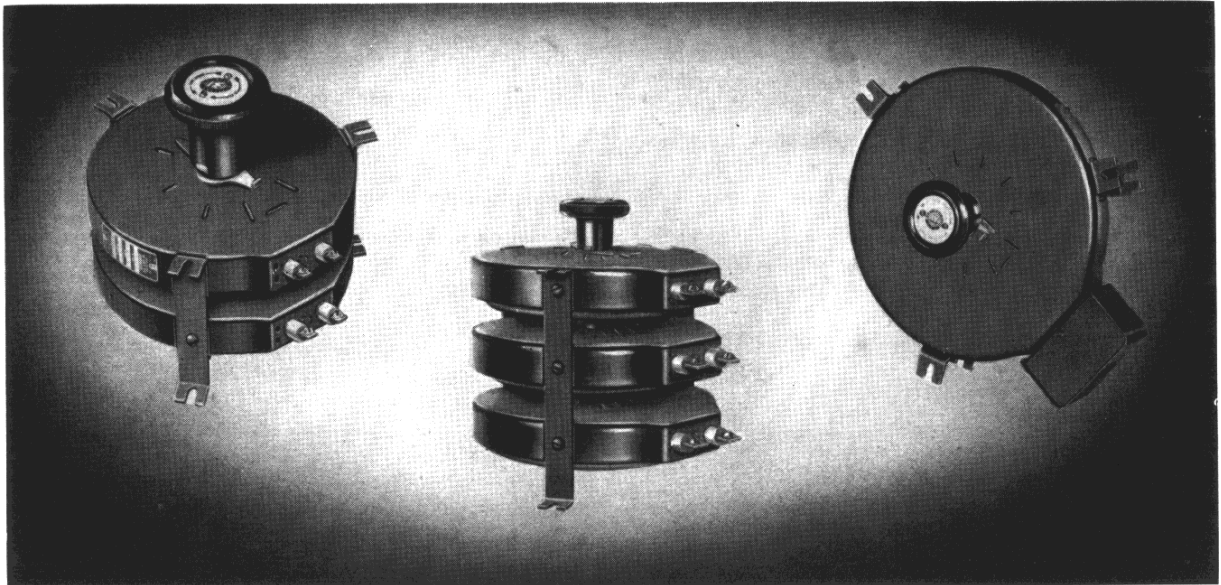


Instructions for D-C Field Rheostats Types LK and LR



I.L. 14-515-1A



INTRODUCTION

Types LK and LR Rheostats, are used for adjusting the speeds of direct-current motors up to approximately 200 hp, for regulating the voltage of exciters and generators up to approximately 300 kw, and for synchronous motors.

RATING

The ampere rating stamped on the nameplate is calculated on the basis that the hottest spot temperature on the enamel does not exceed 300 degrees C rise, which is the NEMA standard for imbedded resistors. It is permissible to use a rheostat on voltages lower than the nameplate rating provided the maximum current is not exceeded. It is also permissible to use a rheostat on a higher voltage provided the minimum current rating is not exceeded. For voltages above 600 volts, special insulation is provided.

DESCRIPTION

Types LK and LR rheostats have a rigid and durable base consisting of a light-weight pressed steel plate. The entire surface is sand blasted to remove foreign particles and the thoroughly cleaned plate is covered with a ground coat which protects the surface of the plate and forms an electrical-insulating, heat-conducting surface upon which

the resistance elements of approximately zero temperature coefficient wire are mounted. Heavy block type contacts are fastened to these wires by a patented process which gives a mechanically and electrically perfect joint. Vitrohm insulation is applied over the resistance wire. It holds the wire and contacts securely and protects them against corrosion and mechanical injury.

The movable contact supplied as standard is made from copper graphite, and is Style No. 1554 689. A special silver-tipped movable contact Style No. 1554 690 can be supplied where atmospheric conditions require a minimum of oxidation, or where the rheostat application requires that the arm remain in one position for long periods of time.

The terminals with bushings made from Steartite, the movable contact arm with its bearing, together with the back cover and handwheel, form a complete plate.

Three sizes of plates (6-inch, 8-inch, and 13-inch diameter) are listed. The LK and LR plates differ essentially in their number of steps. Table No. 1 shows the number of steps for the respective type and size.

The plates can be assembled in multiple combinations mechanically connected so that all of the plates may be operated by a single handwheel or in two groups, each operated by an independent handwheel. When multiple

plates are used, they are mounted so that the contacts on adjacent plates are staggered, which practically doubles the number of control points. Five plates is the maximum listed for any rheostat.

Electrically, the plates may be connected in series or in parallel or both. All standard plates, except equal ohms per step rheostat, have both the resistance and capacity tapered and it is dangerous to make any changes in connections between plates without expert knowledge of the design and application.

When looking at the handwheel side, the all-out or high-capacity step is reached by turning the handwheel counterclockwise. Clockwise rotation cuts resistance into the circuit.

ADJUSTABLE STOP

The rheostat arm travel can be limited by means of an adjustable stop which is part of the handle assembly. The adjustment is made for wall-mounted rheostats by loosening the screws in the handle and moving the stop to the desired position. Similarly, the stop adjustment can be made for the rheostat when mounted on a switchboard by loosening the two screws that fasten the coupling plate. The coupling plate is included with the switchboard mounting.

INSTALLATION

Mount the rheostats on a wall or panel so that the plates are in a vertical plane and have sufficient air space around them to permit good ventilation.

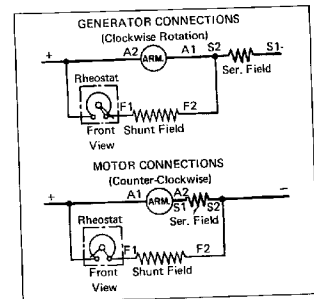


Fig. 1. Connection Diagram, D-C Generators and Motors

When installing on the rear of a panel with the operating handwheel on the front, various types of mountings are available as illustrated on pages 1 and 3 of Dimension Sheet 16-740. If a rheostat is desired for back-of-board installation, the proper style of mounting should be ordered with it.

Covers to fit over the terminal block to provide for conduit connections can be supplied. The covers are made from sheet steel with concentric knockout punchings conveniently located for 1/2-inch or 3/4-inch diameter conduit. A rheostat, so fitted, is completely enclosed with no live parts exposed. Safety codes and installation rules frequently call for such construction. Conduit covers for the various sizes of rheostats are listed in Table No. 1.

TABLE NO. 1

Plate Size (Diameter in inches)	Steps Per Plate		Conduit Cover			
	Type LK	Type LR	One Plate	Two Plates	Three Plates	Four Plates
6	40	71	S#1550 374	S#1550 377	S#1550 380	S#1550 382
8	40	104	S#1550 375	S#1550 378	S#1550 381	S#1550 383
13	66	160	S#1550 376	S#1550 379		

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