

## TYPE KN-2 DOUBLE POLE OVERLOAD RELAYS

### RENEWAL PARTS DATA

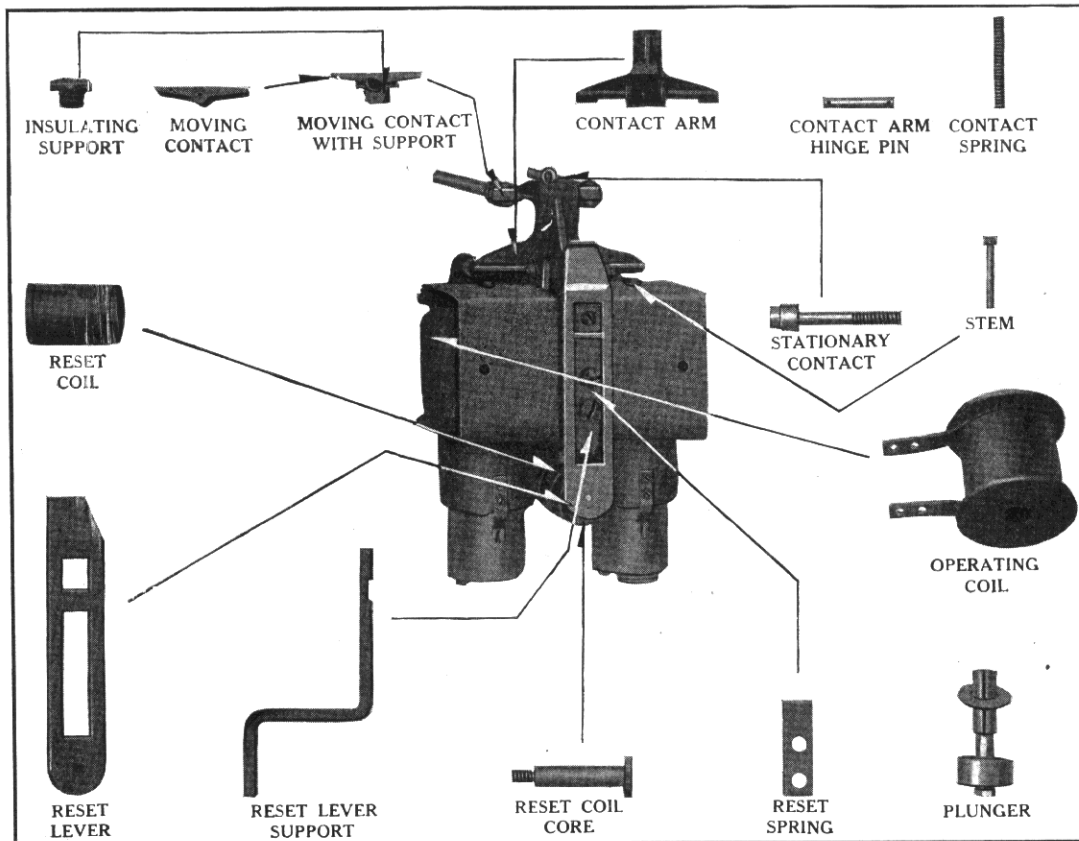


FIG. 3—RENEWAL PARTS FOR TYPE KN-2 OVERLOAD RELAY

#### RECOMMENDED STOCK OF RENEWAL PARTS

Style Number of Relay	379366,A,B,C	No. Per Relay	Relays in Use	
Ø Description of Part	Style Number of Part		1	5
Moving Contact with Support	197 383	1	1	2
Moving Contact	266 584	1	1	2
Insulating Support	187 250	1	1	2
Contact Arm	266 600	1	0	0
Contact Spring	194 510	1	0	1
Contact Arm Hinge Pin	662 207	1	0	0
Stationary Contact	705 233	2	2	4
Reset Lever	379 595	1	0	0
Reset Lever Support	379 596	1	0	0
Reset Spring	379 597	1	0	1
Reset Coil Core	379 598	1	0	0
Plunger Core	273 340	2	0	0
Plunger	370 611	2	0	1
Plunger Stem	273 341	2	0	0
Piston	266 597	2	0	0
Valve Washer	22 106	2	0	0
Segment Washer	242 090	2	0	0
Stem	266 595	2	0	1
Dash Pot	263 933	2	0	0
Dash Pot Sleeve	263 934	2	0	0
Spring Lock	247 440	2	0	1
Dash Pot Oil in Can	229 296	2	0	1
Reset Coil	†	1	0	1
Operating Coil	†	2	0	0

° Not illustrated.

† Not part of relay. (Stock one coil if wire wound)

‡ When ordering, specify identification number stamped on coil.

Ø Parts indented are included in the part under which they are indented.

This is a list of the Renewal Parts and the quantities of each that we recommend should be stocked by the user of this apparatus to minimize interrupted operation caused by breakdowns. The parts recommended are those most subject to wear in normal operation or those subject to damage or breakage due to possible abnormal conditions.

This list of Renewal Parts is given only as a guide. When continuous operation is a primary consideration, additional insurance against shut-downs is desirable. Under such conditions more renewal parts should be carried, the amount depending upon the severity of the service and the time required to secure renewals.

#### Ordering Instructions

Name the part and give the complete name plate reading. State whether shipment is desired by express, freight or by parcel post. Send all orders or correspondence to nearest Sales Office of the Company. Small orders should be combined so as to amount to a value of at least \$1.00 net; where the total of the sale is less than this, the material will be invoiced at \$1.00.

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Westinghouse Electric Corporation  
East Pittsburgh, Pa.

## TYPE KN-2 DOUBLE POLE OVERLOAD RELAYS

### INSTRUCTIONS

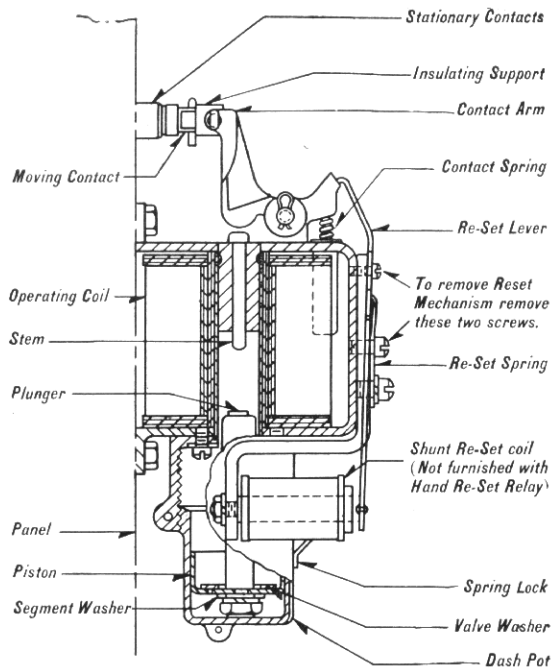


FIG. 1—TYPE KN-2 RELAY

#### Construction

The type KN-2 relay is a two-pole oil dashpot type overload relay, with an electric reset attachment used in poly-phase alternating-current circuits. Inverse time element is obtained by the operation of two plungers, operating in two dashpots, used to break the control circuits, which are actuated by trip coils when the current in either or both of the trip coils exceeds a predetermined figure. A by-pass for the oil in the dash pot wall, at a suitable height, permits an increase in the speed of the plunger during the last part of the stroke thus giving a quick opening of the control circuit contacts. Quick return of the plunger after the overload is cleared, is obtained by means of a flat washer, carried in the piston cup, which acts as check valve to allow free motion downward but not upward.

The electric reset attachment includes a reset lever which engages with a projection on the contact arm, and prevents its return after the relay has tripped. A shunt reset coil mounted between the dashpots of the relay allows the latch to be depressed magnetically. Thus the relay may be reset by the operator at a remote pushbutton station.

#### Application

The type KN-2 relay is chiefly used in type AF magnetic auto-starters. It is also occasionally used on other control where the special features of electric re-

set, described above, are desired.

Electric reset (and hand reset) relays must be used on "low voltage release" service, where the resetting of the relay will automatically reenergize the controller. This occurs when the relay is used on full magnetic control apparatus, which is started by an automatic master switch, such as a float switch or pressure gauge master switch, or even a manually-operated master switch, that maintains its contact until released by the operator.

The type KN-2 relay may be converted into the ordinary type KN relay, having automatic reset, by removing the complete reset mechanism. This may be accomplished by removing the two upper screws from the reset lever. The relay with automatic reset may be used on "low voltage protection" service, where the resetting of the relay will not automatically reenergize the controller. This occurs when the relay is used on magnetic controllers started by a momentary contact push-button, or a master switch which does not maintain the starting contact in the running position, or on manually-operated auto-starters.

#### Installation

Before putting the relay in operation, the dashpots must be removed to receive the special dashpot oil supplied with the relay. The can of oil supplied with the relay contains sufficient oil for two dashpots.

To avoid air pockets, remove the pistons and fill the dashpots half full of oil. Replace the pistons and try the suction by pulling on the plunger. If the suction seems weak or unreliable, inspect the condition of the check valve surfaces to see whether the washer is being held away from its seat by particles of dirt. Great care should be taken to keep the interior of the dashpots clean, as dirt will spoil the valve action and will also change the time settings.

Replace the dashpots and screw up to the current setting

desired as indicated by markings on the dashpot, as shown in Fig. 2. The correct indicating point for the current setting is the lower edge of the lug on the bottom of the stationary casting, and not the spring clip. The dashpots have three calibration lines marked with tripping current values and any intermediate current values may be estimated from the marked points.

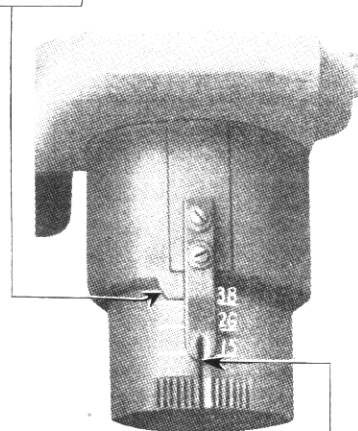
The time element depends upon the number of holes covered by the segment washer on the bottom of the piston. Relays are usually shipped with all holes closed giving a maximum time element. To decrease the time element, move the washer so that one or more holes are uncovered.

#### Maintenance

Inspection of the relays should be made regularly to see that the current limit setting has not been changed, that there is sufficient oil in the dashpot and that the contacts are in good condition.

The oil furnished with these relays is specially adapted for this purpose and will give satisfactory operation at all ordinary temperatures. Relays subjected to temperatures below freezing require a lighter oil. If temperatures are so high that the relay does not give sufficient time element, a heavier oil should be used.

To adjust overload setting turn Dashpot until proper calibration line coincides with lug on bottom of upper casting.



The clip is only to prevent turning of Dashpot and consequent change of setting due to vibration.

FIG. 2—DASHPOT FOR TYPE KN-2 RELAYS.

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