

TYPE KP TIME ELEMENT ACCELERATING RELAYS

RENEWAL PARTS DATA

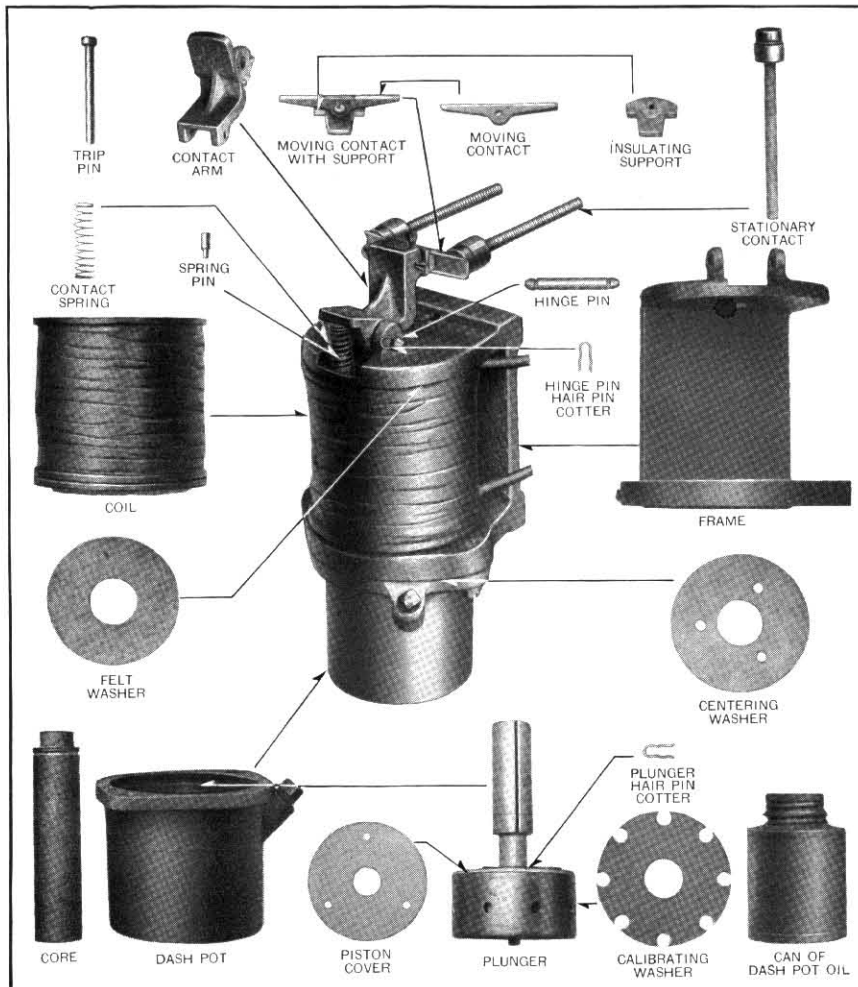


FIG. 3—RENEWAL PARTS FOR TYPE KP RELAYS

Style Numbers of Relays.....	$\left\{ \begin{array}{l} \frac{1}{2}'' \text{ Mounting} \\ 2'' \text{ Mounting} \end{array} \right.$	460658 460659
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For Relays in use up to and including.....		1		5	Style No. of Part
Name of Part	No. Per Relay	Recommended for Stock			
Moving Contact with Support.....	1	0	0	0	197383
Moving Contact.....	1	1	1	2	266584
Insulating Support.....	1	0	0	1	187250
Contact Arm.....	1	0	0	0	476253
Contact Spring.....	1	0	0	1	272770
Spring Pin.....	1	0	0	0	685141
Hinge Pin.....	1	0	0	0	662207
Trip Pin.....	1	0	0	0	476248
Plunger.....	1	0	0	0	479946
Piston Cover.....	1	0	0	0	476250
Calibrating Washer.....	1	0	0	0	476246
Hair Pin Cotter.....	1	0	0	1	187294
Stationary Contact.....	2	2	2	4	705233
Felt Washer.....	1	0	0	0	476254
†Gasket.....	1	0	0	0	476255
Core.....	1	0	0	0	476249
Dash Pot.....	1	0	0	0	476252
Frame.....	1	0	0	0	476251
Centering Washer.....	1	0	0	0	476247
Can of Dash Pot Oil.....	1	1	1	1	460281
Operating Coil.....	1	1	1	1	‡

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

†Not listed on illustration. ‡When ordering specify identification number stamped on Coil.
See table at top of this page for commonly used operating Coils.

TABLE OF OPERATING COILS

Volts	Cycles	Style Number
220	25	434482
440	25	434483
550	25	434484
220	60	434477
440	60	434478
550	60	434479



FIG. 4—NAME PLATE

ORDERING INSTRUCTIONS

When ordering Renewal Parts, always specify the name and style number of the part wanted as shown on the illustration in this Instruction Leaflet, giving Style or Shop Order Number, and the type of apparatus as shown on the name plate.

To avoid delays and misunderstandings, note carefully the following points:

1. Send all correspondence and orders to the nearest Sales Office of the Company.

2. State whether shipment is to be made by freight, express or parcel post. In the absence of instructions, goods will be shipped at our discretion. Parcel post shipments will be insured only on request. All shipments are at purchaser's risk.

3. 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.

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 shutdowns 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.

Westinghouse Electric & Manufacturing Company

TYPE KP TIME ELEMENT ACCELERATING RELAYS

INSTRUCTIONS

Application

The Type KP Relay is used on the Type "AF" Auto Starters as a definite time limit accelerating relay to limit the time during which the starter will remain in the start position.

The relay is intended for intermittent service and should not be connected in such a way that the coil will be energized continuously. The construction is very rugged and the relay should require no attention except occasional inspection of the contacts and the oil level.

A modification of the relay shown in Fig. 1, which uses "make" contacts instead of "break" contacts is supplied for some uses. All instructions apply for the modified relay including the remarks in regard to intermittency of service.

Construction

The relay is a simple solenoid type relay with a vertical plunger which is retarded by means of an oil dashpot and which opens a single circuit in the final operating position. The stationary part consists of a cast iron frame which acts as the magnetic return circuit and carries a shunt coil and tubular guide for the moving part. An oil dashpot is bolted to the bottom of the frame and makes an oil-tight joint with it. The moving part consists of an iron plunger which works inside the coil and extends downward into the dashpot where it operates a piston. The piston is immersed in oil and the speed of its upward travel is limited by the amount of oil which can leak through one or two small leakage ports. When the plunger has been pulled up almost to the end of its travel, by-passes in the dashpot walls are opened and relieve the suction of

the piston. The piston then completes its stroke rapidly and strikes a stem which extends from the top of the relay into the plunger space, and the stem transmits the motion of the plunger to the contact arm. The contacts are thus opened very rapidly. The contacts are of the bridging type and do not require any shunt. There are two stationary contacts of graphalloy and the moving contact is a simple piece of sheet copper which is held against them by a spring on the contact lever. The calibrating washer carried in the piston acts also as a check valve to allow rapid return to the off position.

Installation

Before putting relay in operation for the first time, the dashpot should be removed to receive the special dashpot oil supplied with the relay. To avoid air pockets, remove the piston and pour in one can of dashpot oil Style No. 460281. Lower piston into dashpot slowly to avoid spilling. The dashpot will be filled to a height about $\frac{1}{8}$ inch

above the piston cover, which is the correct level. Try the suction of the piston by pulling on the plunger to be sure that a reasonably large retarding force is exerted. If the suction seems too weak or unreliable, inspect the condition of the check valve surface 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 dashpot perfectly clean, as dirt will spoil the valve action and will change the time settings.

Replace dashpot, being sure that the gasket is in place and that the joint is clean. Tighten the screws as much as possible with a wrench or a large screw driver and no trouble will be experienced on account of oil leakage. A filling plug is provided in the dashpot, so that sufficient oil to compensate for evaporation may be added without disturbing the relay adjustments.

Operation

The relays are adjusted at the factory to give a time delay which is correct for the apparatus with which the relay is to be used. If it is desired to change the time adjustment it can be done as follows: Remove the piston from the dashpot and release piston cover by removing hairpin cotter. The calibrating washer in the piston cup may be lifted out of engagement with the guide pins and turned to a new position. The relative times to be expected for different positions may be determined by reference to the detail view of the piston. The relay may be used to obtain definite time delays of 4 to 15 seconds when the coil is used at its rated voltage and frequency.

The oil used with these relays is especially adapted for this purpose and will give satisfactory operation at all ordinary temperatures. If the relay is subjected to an average temperature which is higher or lower than the temperature at which it was first adjusted, it may be necessary to recalibrate the relay.

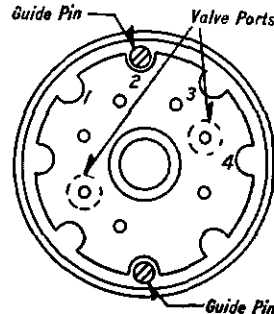


FIG. 2—PLAN VIEW OF CALIBRATING WASHER IN PISTON

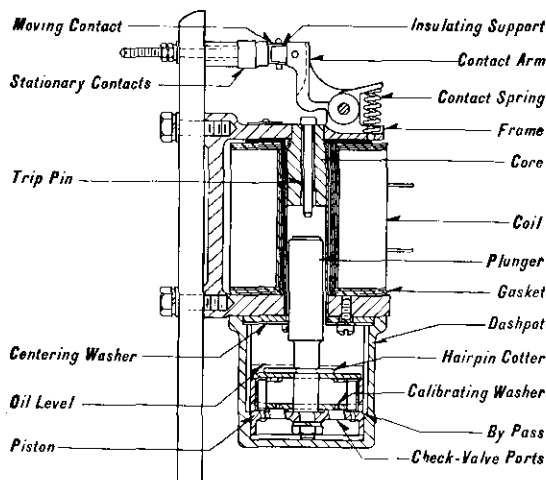


FIG. 1—SECTIONAL VIEW OF RELAY AND PARTS