TYPE KI INTERLOCKING RELAYS

INSTRUCTIONS

Description

The type KI is an alternating current limit relay used on high voltage circuits, in which the operating coil is connected in series with the main contacts of the high voltage contactor under which it is mounted.

Operation

When the contactor, under which the relay is mounted, is closed, the operating coil of the relay is in series with the main contact. At the instant the contactor is closed, the mechanical interlock lever on the relay is depressed which permits the electrical interlock reset device to be released. When the depress cap is released, the spring concealed in the cap forces the lift rod upward. The lift rod is attached to the armature which has a lever attached to the lower end and operates the interlock disc.

De-energizing the contactor coil and opening the main contact, permits the mechanical interlock lever on the top of the relay to release and depress the cap by means of a spring operating against the lever. This mechanically releases the armature and leaves it free to drop just as soon as the arc is extinguished and current has reached the value of the drop-out setting. The safe value at which the relay operates is approximately 10 to 15% full load current.

Rating—Insulation

Relay coils are designed for voltages up to 3300. Interlock will carry 5 amperes continuously and 15 amperes arc rupturing capacity. The relay is insulated for 3300 volts between frame and control circuit contacts. In the normal operation, frame will be alive.

Magnet Frame

The magnet frame is made from laminated punchings securely riveted together. The front portion of the magnet frame is made adjustable in order to introduce air gaps in the magnet circuit, thus providing a range in the dropout current setting. The settings are made by adjusting the screw at the top of the frame and, after the adjustment is made, it is held secure by two lock nuts on the screw.

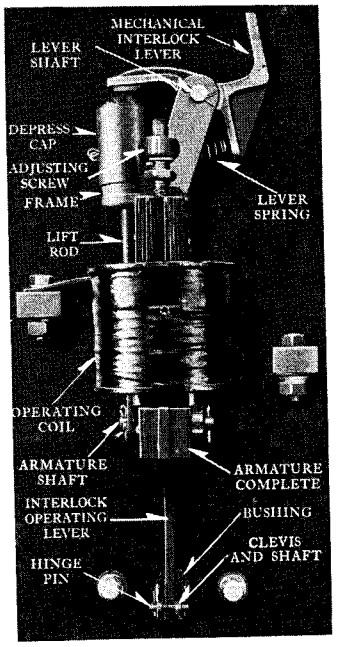


FIG. 1—TYPE KI INTERLOCKING RELAY (Front of panel mounting)

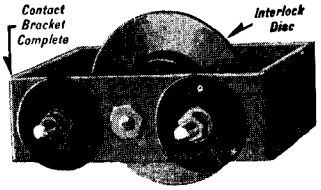


FIG. 2—TYPE KI INTERLOCKING RELAY (Rear of panel mounting)

Armature

The armature is attached to the lower portion of the magnet frame with a hinge pin and has a lever projecting down which actuates the interlock mechanism for making and breaking the control circuits to the opposite reverser. When the armature is in the closed position, the interlock is opened and will remain open until the current in the relay has dropped to a pre-determined value which permits the armature to drop.

Interlock

The interlock is mounted on the rear of the panel. The push rod which actuates it, passes through the panel and is attached to the lower end of the armature lever of the relay. The moving member has a disc which is insulated from the rest of the relay. The disc bridges two stationary contact studs. It is provided with a contact pressure spring of sufficient compression so that, when the armature closes the interlock, there will be sufficient pressure to insure good contact.

Reset Mechanism

The reset mechanism consists of a rod attached to the armature, which carries the depress cap at the upper end. This mechanism holds the armature in the closed position by means of a compression spring concealed inside the cap.

Stationary Contacts

The stationary contacts are made of a high grade graph-alloy and are assembled to a mounting bracket on the rear of the panel. These contacts are insulated from the relay frame.

Adjustments

The current drop-out setting is effected by changing the air gap in the core of the relay coil. To change the setting, loosen the lock nuts on the adjusting screw at the top of the frame. Lowering the core will hold the armature closed to a lower current dropout value, thus giving longer time. Raising the core increases the air gap in the coil and allows the armature to drop at higher current values, thus giving a shorter time.

Maintenance

Use no oil or other lubricant on the relay or relay interlock. Oil collects dust and, unless parts are frequently cleaned, will interfere with operation, also will cut down the insulation value which may cause serious damage. Inspection should be made periodically to see that the reset mechanism is free to operate. In case it should get sluggish, remove the cotter pins in the cap, remove the cap and clean thoroughly all the dust which may have collected. Examine the lift rod to see that it has freedom.

The contact discs should be examined frequently to see that there is no interference to good contact.

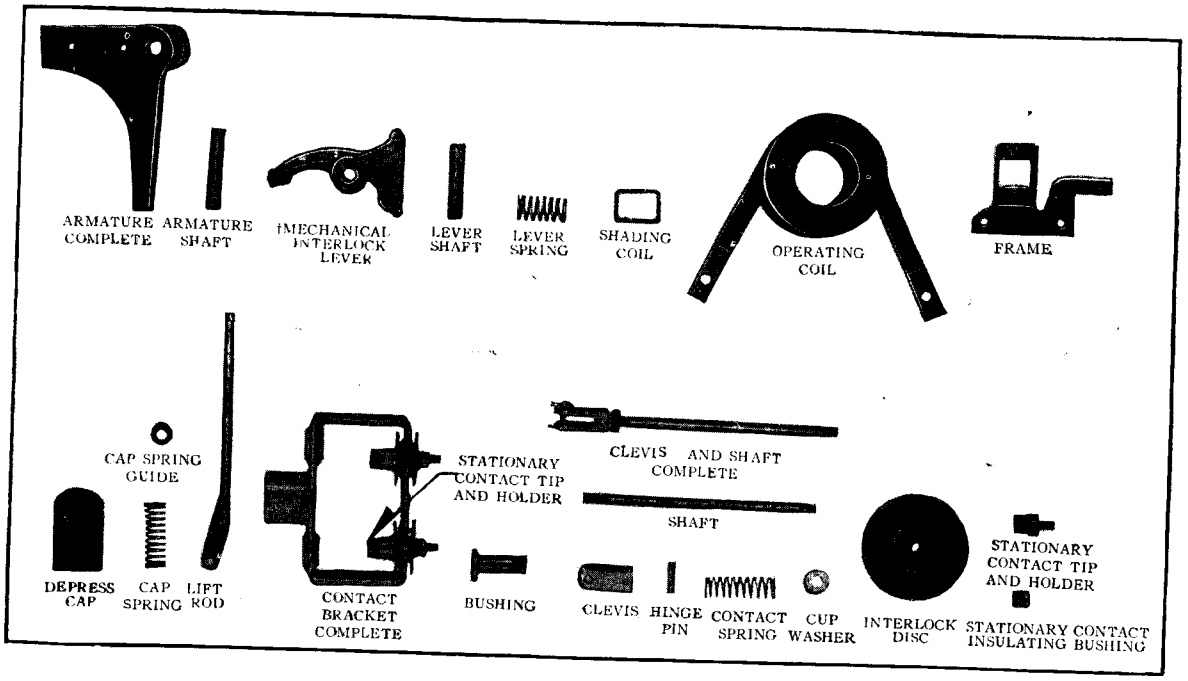
Examine the interlock and stationary contact tips to see that they have not burned away beyond their usefulness.

Examine the push rod to see that it is free to operate.

*To be filed as an Instruction Leaflet and as Renewal Parts Data; for Renewal Parts Data, see reverse side of this sheet.

TYPE KI INTERLOCKING RELAYS

RENEWAL PARTS DATA



RECOMMENDED STOCK OF RENEWAL PARTS

Style Numbers of Relays				204 341,A,B,C,D 493 752,A,B
Relays in use up to and including		1	5	
Name of Part	No. Per Relay	Recommended For Stock		Style Number of Part
Interlock Disc	1	1	2	163 772
Contact Spring	1	0	1	210 729
Cup Washer	2	0	0	177 352
Contact Bracket Complete	1	0	0	242 239
Stationary Contact Tip and Holder	2	2	4	705 232
Stationary Contact Insulation Bushing	2	0	0	370 607
†Insulation Washer—Large	4	0	0	370 605
†Insulation Washer—Small	4	0	0	370 606
†Stationary Contact Support	2	0	1	370 604
Clevis and Shaft Complete	1	0	0	403 782
Clevis	1	0	0	242 240
Hinge Pin	1	0	0	63 586
Shaft	1	0	0	242 244
Bushing	1	0	0	242 243
Armature Complete	1	0	0	403 781
Armature Shaft	1	0	0	77 480
Lift Rod	1	0	0	219 256
Depress Cap	1	0	0	540 358
Cap Spring	1	0	1	549 759
Cap Spring Guide	1	0	0	215 078
†Lift Rod Collar	1	0	0	245 129
°Mechanical Interlock Lever	1	0	0	370 609
* Mechanical Interlock Lever	1	0	0	574 380
Lever Shaft	1	0	0	845 340
Lever Spring	1	0	1	370 610
†Interlock Lever Bracket	1	0	0	969 211
†Stationary Core	1	0	0	959 210
Shading Coil	1	0	1	222 338
Frame	1	0	0	403 780
Operating Coil	1	1	1	‡

Parts indented are included in part under which they are indented.
†Not illustrated.
°Used only on Relay Style No. 204341.
* Used only on Relay Style No. 493752.
‡When ordering, specify identification number stamped on Coil.

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.

ORDERING INSTRUCTIONS

Name the part and give its style number. Give the complete nameplate 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.

*To be filed as Renewal Parts Data and as an Instruction Leaflet; for Instructions, see reverse side of this sheet.

Westinghouse Electric & Manufacturing Company
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