Installation

Inspect the relay carefully for damage done in shipment. If dust or packing material has entered the case, or if the glass cover is found broken, shake and blow out all particles thoroughly.

The relay should be mounted vertically by means of the terminal studs.

Before putting protective relays into service, remove all blocking which may have been inserted for the purpose of securing the parts during shipment, make sure that all moving parts operate freely, inspect the contacts to see that they are clean and make properly, and operate the relay to check the settings and electrical connections.

Coils

The coils are able to stand continuous service at the voltage or current marked on the nameplate.

See Table 1 for coil data.

Adjustment

The armature spring serves two purposes. It is primarily for the purpose of holding the armature in the open position when the coil is not energized, and in combinations having back contacts, it also serves the purpose of introducing enough tension into the back contact spring so that the back contacts will not chatter when they are made.

Refer to Fig. 2. Set the armature back-stop screw to give approximately three-eighths of an inch contact separation when armature is resting against stop. Then energize the coil and adjust the armature spring so that the armature will be attracted, or in other words so that the relay will operate at the minimum operating value of excitation as given in Table 1. The contact separation may be varied somewhat if necessary but should never be made less than three-sixteenths of an inch.

Back Contact Action

The action of the back contact should then be noted. If the tension of the armature spring is too small the back contacts will chatter for an instant after they are made. If such is found to be the case the tension on the armature spring should be increased until the back contact makes positively and does not tend to chatter. Increasing the tension of this spring will raise the minimum voltage at which the relay will operate, so in order to restore this to the given value the back-stop should be so adjusted as to shorten the air gap, thus lowering the minimum operating voltage. After these adjustments the screw-mounted back contact should be adjusted to restore good contact.

The back-stop screw should never allow the armature to drop open far enough to cause the contact block to strike the cover.

Maintenance

The construction of the Type MC relay is so simple and rugged that after it is once properly installed little attention is necessary. As with any apparatus, however, when performing an important function in any scheme of relays, it should be inspected at frequent intervals, special attention being given to the condition of the contacts. These contacts move through a radius sufficient to give them considerable wiping action when closing. This action tends to keep the contact clean at all times unless they are subject to an excessive heavy duty or very frequent operation. In case the moving or the stationary contacts become pitted, they should be smoothed up with a fine file so that good contact is assured.

The contacts are pure silver and tarnish quickly when in the presence of sulphurous gases. The layer of silver sulphide is a non-conductor and greatly injures the action of the contact. This fact should be remembered; if relays are located in places where they are subject to exposure to sulphurous gases, such as soft coal smoke, the cover should be kept on at all times. Frequent cleaning of the contact may also be necessary in such cases.
The relays are given an insulation test of 2000 volts between all terminals and the case, and between all circuits. Periodic inspection should include the removal of all accumulated dust or dirt, as this accumulation sometimes may be great enough to cause a circuit to be grounded to the case.

**Current-Carrying and Rupturing Capacity**

The contact fingers which make when the relay is energized are large enough to carry ten or fifteen amperes continuously without overheating. However, due to small contact travel and absence of means for extinguishing arcs, these relays should never be required to break more than five amperes at 125 volts d-c, or ten amperes at 110 volts a-c.

The contacts which make when the relay is de-energized have less of the wiping action than the front contacts. They are not intended to break as heavy a current as the front contacts, which fact should be remembered in making installation. These smaller contact fingers must not carry more than 5 amperes continuously.

**Renewal Parts**

All parts of these relays are carried in stock and can be furnished without delay. In ordering parts, give the relay nameplate marking, and also the name of the part according to the sectional drawings, Fig. 3.

**Repairing**

Repairing can be done most satisfactorily at our Works or at one of our Service Shops. Interchangeable renewal parts can be furnished, however, and customers equipped for doing repair work will find that the construction of the relay facilitates this.

---

**TABLE I**

**COMBINATIONS AND RATINGS**

**TYPE MC MULTIPLE-CONTACT AUXILIARY RELAYS**

<table>
<thead>
<tr>
<th>Four Independent Circuits</th>
<th>Volts</th>
<th>Volts</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>External Series</th>
<th>Coil Resistor Style No.</th>
<th>Style No.</th>
<th>1-Make</th>
<th>2-Make</th>
<th>3-Make</th>
<th>1-Break</th>
<th>2-Break</th>
<th>3-Break</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>4-Make</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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**Six Independent Circuits**

The coil data and external resistance are the same as given above for the 4-circuit MC relays having the same name plate rating.

<table>
<thead>
<tr>
<th>Volts</th>
<th>Volts</th>
</tr>
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<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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**STYLE NO**

**INCLUDES RELAY AND EXTERNAL RESISTOR IF REQUIRED**

<table>
<thead>
<tr>
<th>6-Make</th>
<th>5-Make</th>
<th>4-Make</th>
<th>3-Make</th>
<th>2-Make</th>
<th>1-Make</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-Break</td>
<td>2-Break</td>
<td>3-Break</td>
<td>4-Break</td>
<td>5-Break</td>
<td></td>
</tr>
</tbody>
</table>
Westinghouse Type MC Auxiliary Multi-Contact Relays

Fig. 2—Front and Side Cross-Section View of Type MC Relay (Two Front and Two Back Contacts)

Fig. 3—Type MC Relay—Outline and Drilling Plan—Four Independent Contact Circuits

Fig. 4—Type MC Relay—Outline and Drilling Plan—Six Independent Contact Circuits

Fig. 5—External Series Resistor—2-Spool Size
Westinghouse Type MC Auxiliary Multi-Contact Relays

INTERNAL CONNECTION DIAGRAMS
(REAR VIEW)

- Operating Coil
- Make contact closes when coil is energized
- Break contact opens when coil is energized
- Case stud for ground

Type MC Relays

A
4-Make

B
3-Make
1-Break

C
2-Make
2-Break

D
1-Make
3-Break

E
6-Make

F
5-Make
1-Break

G
4-Make
2-Break

H
3-Make
3-Break

I
2-Make
4-Break

J
1-Make
5-Break

WESTINGHOUSE ELECTRIC CORPORATION

Meter Division, Newark, N. J.