

# Westinghouse

## Type MC Auxiliary Multi-Contact Relays

### INSTRUCTIONS

I. L. 41-320\*

10/21/46

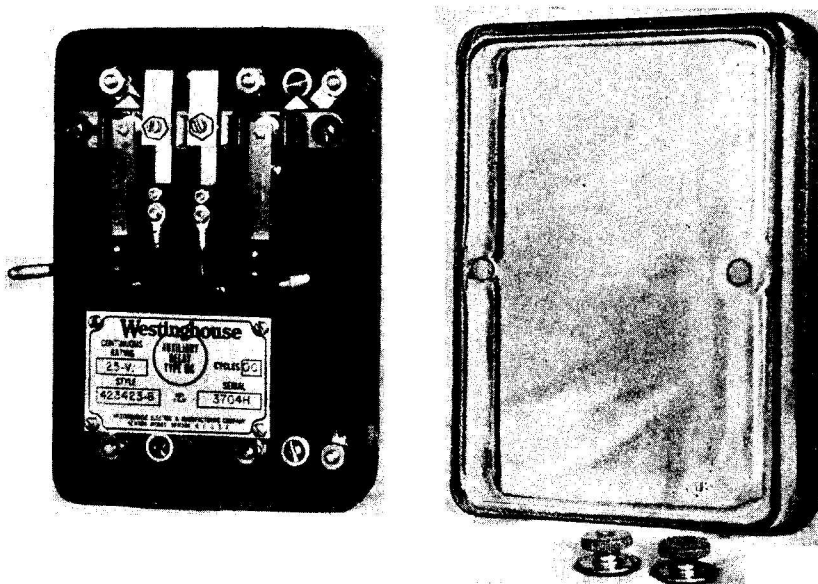


FIG. 1—WESTINGHOUSE TYPE MC MULTI-CONTACT RELAY AND GLASS COVER

#### 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.

EVERY HOUSE NEEDS WESTINGHOUSE

\*Supersedes Instruction Leaflet 2251-B

## Westinghouse Type MC Auxiliary Multi-Contact Relays

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 continu-

ously 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**

#### Four Independent Circuits

COIL DATA							STYLE NO.				
NAME PLATE RATING		STAND. MIN. OPER. SETTING		Volt-Amperes at Pickup	Resis. 25°C., Ohms.	Coil Style No.	External Series Resis. Style No.	INCLUDES RELAY AND EXTERNAL RESISTOR IF REQUIRED			
Amp.	Freq., Cycles	Amp.	Freq. Cycles					4-Make	3-Make 1-Break	2-Make 2-Break	1-Make 3-Break
8	d-c.	5.6	d-c.	....	0.007	372 517	.....	423 387	423 403	423 419	423 435
Volts		Volts									
8	d-c.	5.6	d-c.	....	7.3	476 903	.....	423 388	423 404	423 420	423 436
12	d-c.	8.4	d-c.	....	26	372 518	.....	423 389	423 405	423 421	423 437
16	d-c.	12	d-c.	....	36	372 519	.....	423 390	423 406	423 422	423 438
25	d-c.	18	d-c.	....	81	476 906	.....	423 391	423 407	423 423	423 439
32	d-c.	23	d-c.	....	143	333 370	.....	477 263	477 264	477 265	477 266
50	d-c.	35	d-c.	....	410	333 364	.....	423 392	423 408	423 424	423 440
62	d-c.	44	d-c.	....	650	476 908	.....	477 267	477 268	477 269	477 270
110	d-c.	80	d-c.	....	1700	476 909	.....	477 271	477 272	477 273	477 274
125	d-c.	90	d-c.	....	2450	374 893	.....	423 393	423 409	423 425	423 441
250	d-c.	180	d-c.	....	2450	374 893	78 894-C	477 275	477 276	477 277	477 278
62	25	44	25	3.5	81	476 906	.....	477 279	477 280	477 281	477 282
110	25	80	25	3.5	250	476 907	.....	423 394	423 410	423 426	423 442
130	25	90	25	3.5	410	333 364	.....	477 283	477 284	477 285	477 286
220	25	155	25	3.5	1700	476 909	.....	423 397	423 413	423 429	423 445
440	25	310	25	3.5	2450	374 893	78 897-C	423 400	423 416	423 432	423 448
62	50	44	50	4.9	26	372 518	.....	477 287	477 288	477 289	477 290
110	50	80	50	4.9	81	476 906	.....	423 395	423 411	423 427	423 443
130	50	90	50	4.9	143	333 370	.....	477 291	477 292	477 293	477 294
220	50	155	50	4.9	410	333 364	.....	423 398	423 414	423 430	423 446
440	50	310	50	4.9	1700	476 909	.....	423 401	423 417	423 433	423 449
62	60	44	60	6.2	16	476 904	.....	477 295	477 296	477 297	477 298
110	60	80	60	6.2	57	476 905	.....	423 396	423 412	423 428	423 444
130	60	90	60	6.2	81	476 906	.....	477 299	477 300	477 301	477 302
220	60	155	60	6.2	250	476 907	.....	423 399	423 415	423 431	423 447
440	60	310	60	6.2	1025	333 360	.....	423 402	423 418	423 434	423 450

#### 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.

NAME PLATE RATING		STYLE NO.					
Volts	Freq. Cycles	INCLUDES RELAY AND EXTERNAL RESISTOR IF REQUIRED					
		6-Make	5-Make 1-Break	4-Make 2-Break	3-Make 3-Break	2-Make 4-Break	1-Make 5-Break
125	d-c.	703 749	703 752	703 753	703 756	703 757	703 760
130	60	703 750	703 751	703 754	703 755	703 758	703 759

Westinghouse Type MC Auxiliary Multi-Contact Relays

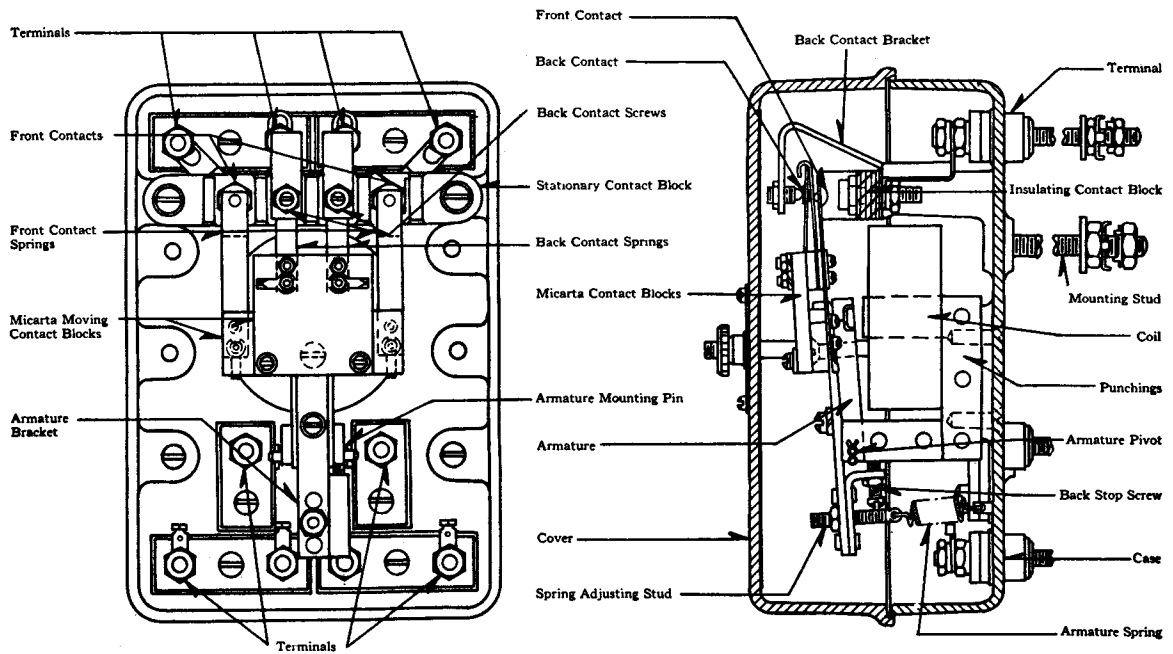


FIG. 2—FRONT AND SIDE CROSS-SECTION VIEW OF TYPE MC RELAY (TWO FRONT AND TWO BACK CONTACTS)

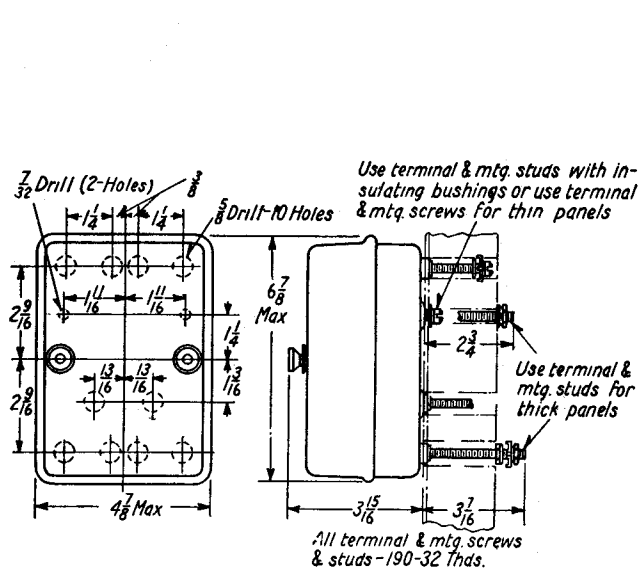


FIG. 3—TYPE MC RELAY—OUTLINE AND DRILLING PLAN—FOUR INDEPENDENT CONTACT CIRCUITS

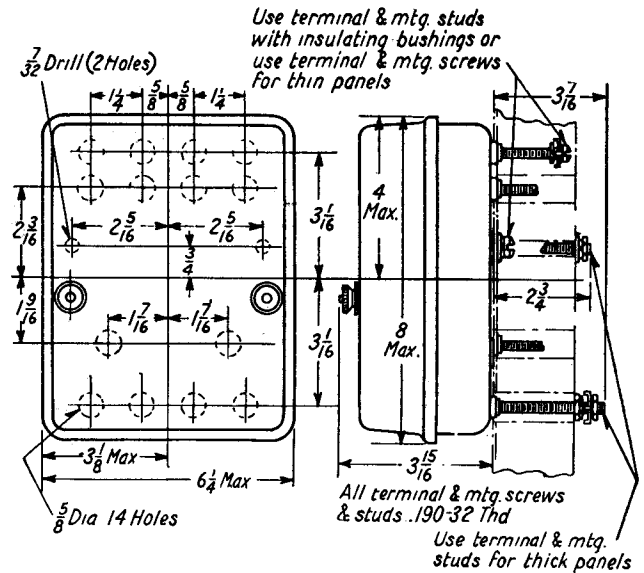


FIG. 4—TYPE MC RELAY—OUTLINE AND DRILLING PLAN—SIX INDEPENDENT CONTACT CIRCUITS

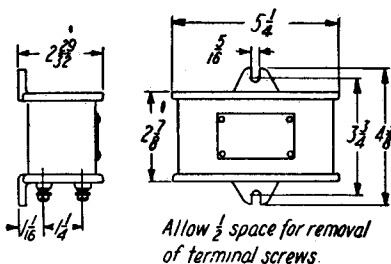
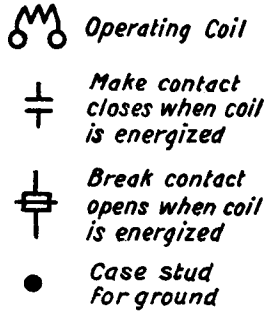


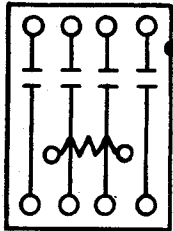
FIG. 5—EXTERNAL SERIES RESISTOR—2-SPOOL SIZE

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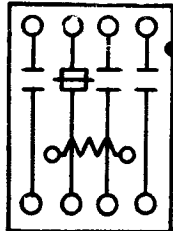
INTERNAL CONNECTION DIAGRAMS  
(REAR VIEW)



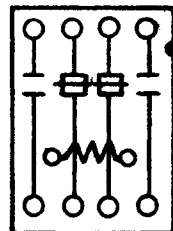
Type MC Relays



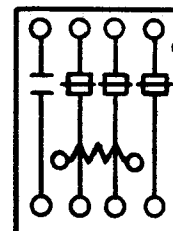
*A*  
4-Make



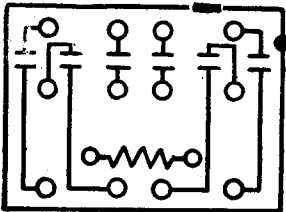
*B*  
3-Make  
1-Break



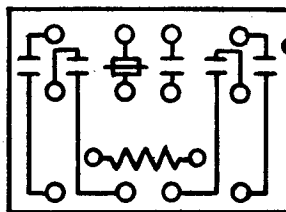
*C*  
2-Make  
2-Break



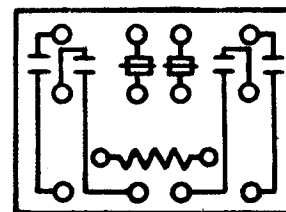
*D*  
1-Make  
3-Break



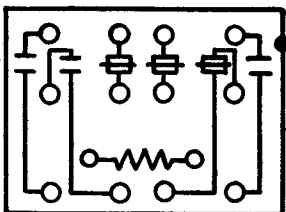
*E*  
6-Make



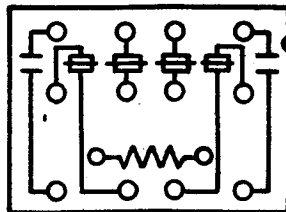
*F*  
5-Make  
1-Break



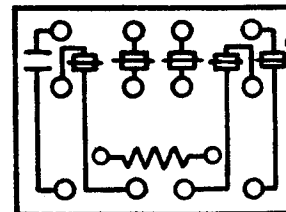
*G*  
4-Make  
2-Break



*H*  
3-Make  
3-Break



*I*  
2-Make  
4-Break



*J*  
1-Make  
5-Break

WESTINGHOUSE ELECTRIC CORPORATION

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