INSTALLATION • OPERATION • MAINTENANCE

INSTRUCTIONS

TYPE MG-6 MULTI-CONTACT AUXILIARY RELAY

CAUTION Before putting 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 close properly, and operate the relay to check the settings and electrical connections.

APPLICATION

The type MG-6 relay is designed for applications where several independent circuits must be energized or de-energized upon the operation of a single primary relay contact, or where the capacity of the primary relay contact is inadequate for the energy required in a control circuit. In certain applications these relays may be used directly as primary relays. Since the stationary contacts can readily be reversed so as to be suitable for either circuit opening or circuit closing service (although readjustment may be required on the D-C MG-6 relay - see "ADJUSTMENTS AND MAINTENANCE") it is unnecessary to predetermine the arrangements of the circuits for which the relay is to be used.

In the usual application of the relay, the armature resets when the operating coil is de-energized. However, the relays may be supplied with a latching mechanism which holds the armature in the operated position until the latch is tripped, either by hand or electrically.

CONSTRUCTION AND OPERATION

The operating electromagnet is at the lower end of the relay, as shown in Fig. 1. The stationary iron circuit is built up of U-shaped punchings, These are slotted at the outer end of the lower leg to receive the copper lag loops used to obtain quiet operation on A-C. The operating coil is mounted on this leg of the punchings. In order to improve the performance of the relay on D-C, the pole face area is increased by means of an iron plate. This plate is assembled at the end of the coil and the corners of the lamination side plates are bent outward, serving to hold the plate in place. The inner end of the upper leg of the punching assembly is shaped so that the lower end of the armature restraining spring can be hooked over it.

The armature is made of high-silicon steel. Projecting sections on the sides, near the center, act as knife-edge bearings and rest on suitably shaped supports which are a part of the moulded base. A stud attached to the lower leg of the electromagnet extends through a hole in the lower end of the armature, and a stop-nut on the outer end of this stud is used to limit and adjust the travel of the armature in the de-energized direction. The special stop nut used will remain at any position in which it is placed without additional locking means.

The upper end of the armature carries an adjusting screw to which one end of the armature restraining spring is attached. In the hand or electrically reset relays, a latch screw is mounted at the extreme end of the armature. In the self-reset relays this screw is replaced by a set screw which serves to separate the locking plate (see Fig. 1) slightly from the armature. Between the spring adjusting screw and the latch screw (or set screw), there is a third screw which when tightened applies pressure to the threads of the former screws and effectively locks them against turning.

The moving contact fingers are mounted on moulded insulation which is fastened to the armature by two screws. Silver contact buttons are welded on both sides of these fingers so that they can be used for either a circuit-opening or a circuit-closing contact.

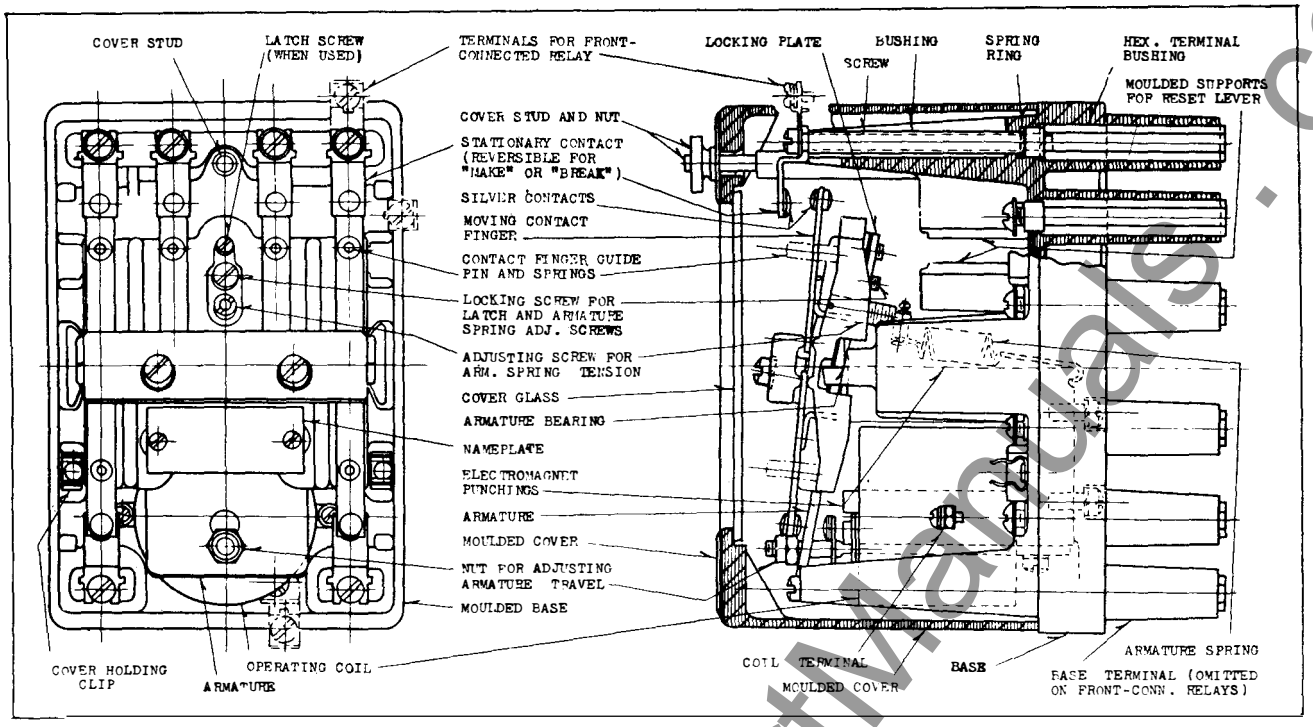


Fig. 1—Front View (Cover Omitted) and Side View of the Type MG-6 Relay in the Molded Case, Without Latch or Reset.

The fingers are assembled on guide pins, between two springs in such a way that definite spring compression and contact wipe is assured for either contact-closing or contact-opening service. Flexible leads are welded to the contact fingers. Since the armature assembly has contact fingers both above and below the bearing points, the armature weight is partially balanced about the bearings and there is less tendency for severe shocks to move the armature.

The stationary contacts consist of large silver buttons welded to brackets which can be assembled so that they close with the moving contacts when the armature is in either the energized or de-energized position. The stationary contact brackets are connected directly to the terminal inserts by means of long screws which pass through brass tubes. These tubes are of such length that the moulded material of the base is not under direct compression when the screws are tightened. Therefore, there is always a tight connection from contact to terminal regardless of possible shrinkage or other variation in the moulded base material. The contact bracket is held against its seat by means of a spring ring which is compressed between shoulders in the base and on the hexagonal terminal insert.

The construction of the latch and electrical reset is shown in Fig. 2, in which the lower portion is a partial front view of the relay in the moulded case, and the upper portion a top view. In the latter view, the latch screw (in the main armature) is in the energized position, and the reset armature is free to be moved to the right by the tension spring until the hardened latch plate on the reset armature rests against the tip of the latch screw. When the operating coil is de-energized, the latch screw will move slightly so that its shoulder rests on the edge of the latch plate. When the reset coil is energized its armature moves to the left, thus permitting the main armature to return to its open position. Pressing the reset push rod, which extends through the cover stud, will also release the latch through the medium of the reset lever shown in the figure.

In some applications of the relay with latch and electrical reset, it may be desirable to have the operating and reset coils deenergized automatically as soon as they have performed

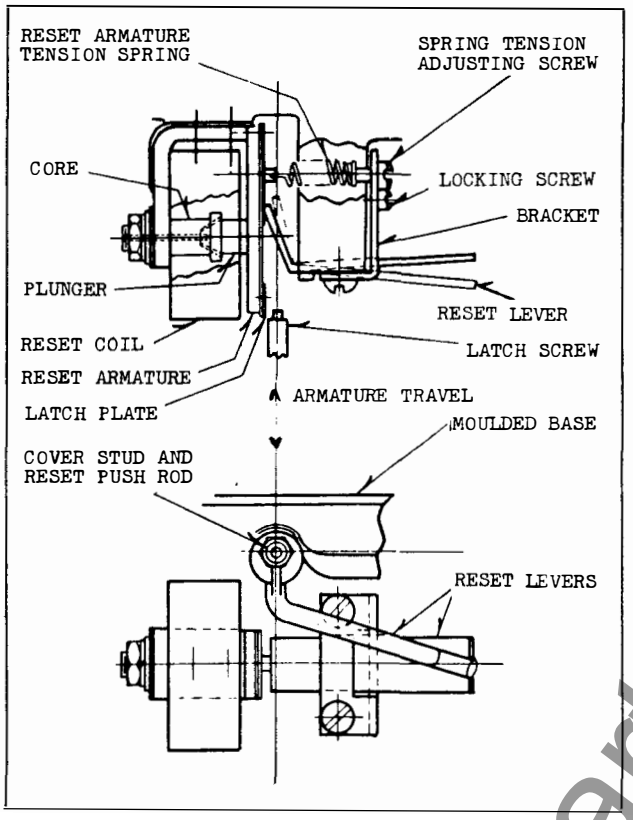
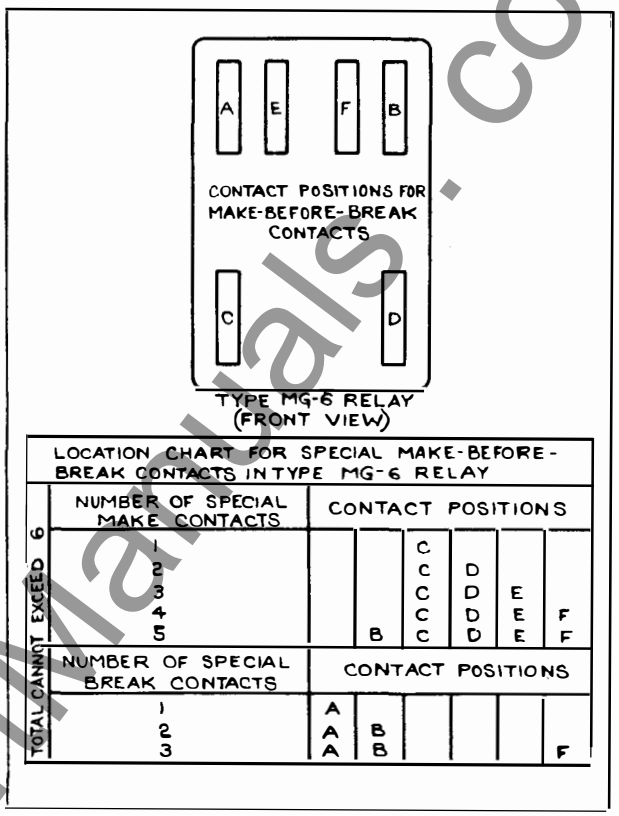


Fig. 2—Front and Top Detail Views of the Latch and Electrical Reset for Type MG-6 Relay.



LOCATION CHART FOR SPECIAL MAKE-BEFORE-BREAK CONTACTS IN TYPE MG-6 RELAY

TOTAL CANNOT EXCEED 6

NUMBER OF SPECIAL MAKE CONTACTS	CONTACT POSITIONS					
1			C			
2			C	D		
3			C	D	E	
4			C	D	E	F
5		B	C	D	E	F

NUMBER OF SPECIAL BREAK CONTACTS	CONTACT POSITIONS					
1	A					
2	A	B				
3	A	B				F

Fig. 3—Physical Contact Positions for Combinations of Make-Before-Break Contacts in the Type MG Relay.

their functions. In the case of the reset coil this can be accomplished by connecting the coil through one of the relay "make" contacts. An auxiliary contact is required to open the operating coil circuit. This contact, when provided, is assembled on the lower right-hand side of the relay, and is held in position by the terminal screw to which the right-hand coil lead ordinarily connects. The coil lead is connected to the stationary contact stud of the auxiliary contact, and the end of the moving contact spring is in contact with the head of the terminal screw. The auxiliary contact is closed when the main armature is open. When the armature approaches the closed position, the moulded insulation block strikes the end of the auxiliary contact spring and causes the contacts to part with a gap which is appreciably greater than the travel of the armature block at the point where it strikes the spring. When this auxiliary contact is used, a weight is screwed to the lower end of the armature to increase its mass and stabilize contact action. This contact will interrupt the coil current at any rated coil voltage, but it is not intended for use in applications where several times rated voltage is applied to the operating coil in order to reduce the operating time.

In certain applications of the type MG-6 relay, it may be desirable to have one or more of the contacts close before other contacts on the same relay open. A special armature assembly is required to obtain such operation, and the number of special make and break contacts desired must be known when the relay is built. The special moving contacts have longer follow than the standard contacts and greater armature spring tension is required for full deflection of the break contacts. Consequently, it is preferable to limit the number of special break contacts to two. A maximum of three may be used, although the increased armature spring tension needed may raise the minimum pick-up voltage above the standard value. As many as five contacts may be special make contacts, with the total of

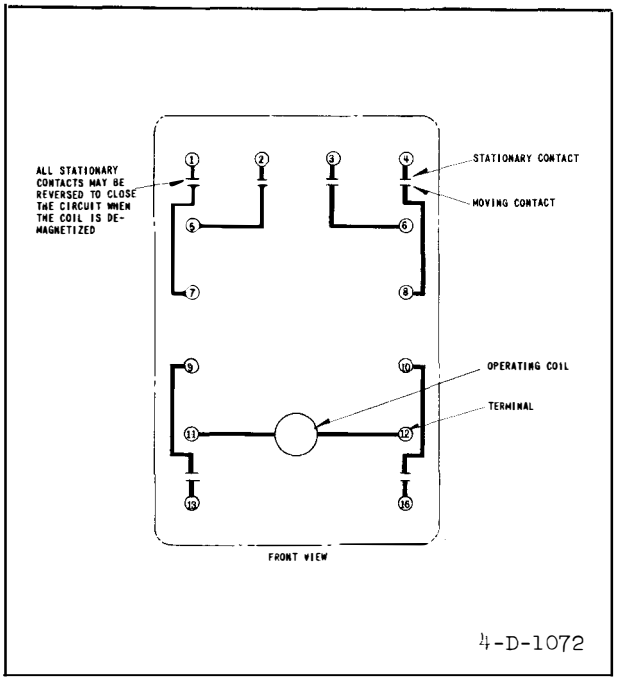


Fig. 4—Internal Schematic of the Type MG-6 Relay Without Electrical Reset in the Molded Case.

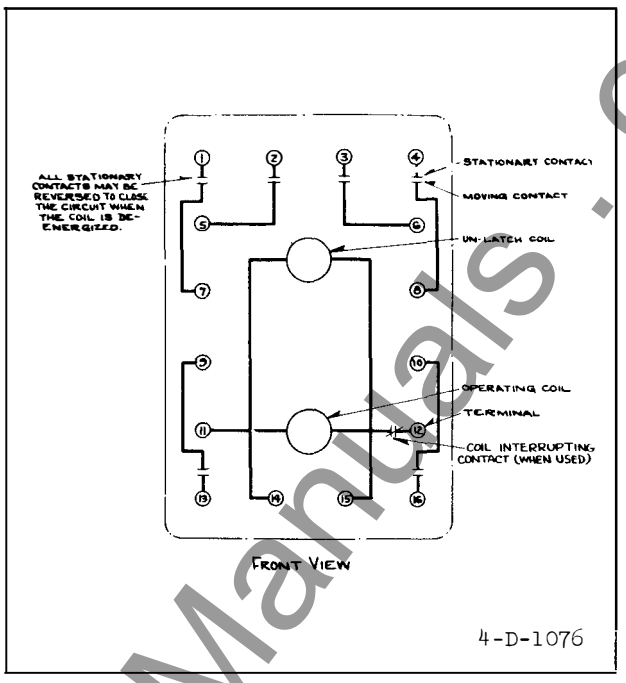


Fig. 5—Internal Schematic of the Type MG-6 Relay with Electrical Reset in the Molded Case.

special make and break contacts limited to six, of course. The locations of the make and break contacts for any combination of these special contacts are shown in Fig. 3. This figure indicates the physical location of the contacts in the relay, and can be used in conjunction with the internal schematic diagram for the type of case involved to determine the corresponding terminal locations.

The type MG-6 relay may be provided without cover, for front connection, or in a variety of completely closed cases, for rear connection. The moulded base for rear connection is shown in Fig. 1. The base for front connection is similar except that there are no terminals projecting in the rear. This same base is also used as a sub-base when the relays are supplied in standard or FT relay cases for projection or semi-flush mountings.

CHARACTERISTICS

The type MG-6 relay has an operating time of approximately 2 cycles on a-c and 5 cycles on d-c (on a 60 cycle basis) when energized at the rated voltage. If faster operation is desired and if the application requires only intermittent energization of the relay, the operating coils may be energized at higher than rated voltage. Twice rated voltage will give an operating time of approximately 1 cycle on a-c, and the coil will stand this voltage safely for over two minutes if 60 cycles or 4 minutes if 25 cycles. The time of the d-c relay can be reduced to slightly over 1 cycle if the coil is energized at five times rated voltage and there is not more than one back contact. The coil will stand this voltage for one minute. If faster time is desired on a d-c relay which must be energized continuously, the use of a low voltage coil with a series resistor will reduce the time. With 10% of the line voltage across the relay coil and the balance across a series resistor, the reduced inductance of the circuit results in an operating time of approximately 2 cycles.

Reset coils are for intermittent duty only and should not be energized longer than one minute.

The relay contacts will close circuits carrying 30 amperes. They will carry this current for 1 minute, and will carry 12 amperes continuously.

The contacts will interrupt the following currents, in non-inductive circuits, at the voltages listed:

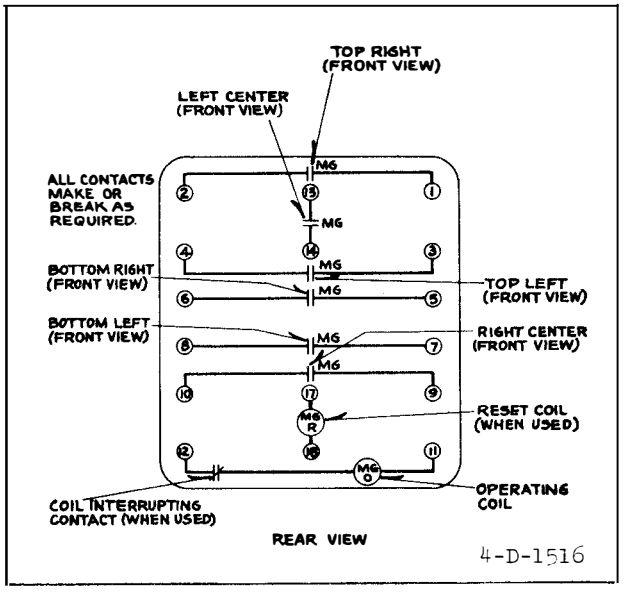


Fig. 6—Internal Schematic of the Type MG-6 Relay in the Standard Case.

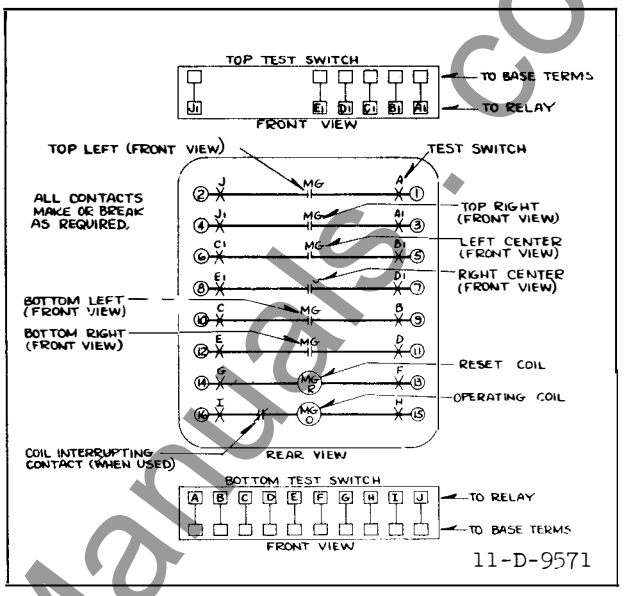


Fig. 7—Internal Schematic of the Type MG-6 Relay in the Type FT Case.

Current	Volts A-C
30	115
20	230
15	460
10	575
Current	**Volts D-C**
30	12
15	24
10	32
8	48
3	125
1	250

The type MG-6 relay for a-c can be used with any combination of contacts, but the d-c relay cannot have more than four circuit-opening contacts if the normal contact pressures and armature travel are maintained.

* INSTALLATION

The relays should be mounted on switchboard panels or their equivalent in a location free from dirt, moisture, excessive vibration and heat. Mount the relay vertically by means of the two mounting studs for the standard cases and the type FT projection case or by means of the four mounting holes on the flange for the semi-flush type FT case. Either of the studs or the mounting screws may be utilized for grounding the relay. The electrical connections may be made direct to the terminals by means of screws for steel panel mounting or to terminal studs furnished with the relay for ebony-asbestos or slate panel mounting. The terminal studs may be easily removed or inserted by locking the two nuts on the studs and then turning the proper nut with a wrench.

Relays in the rear-connected moulded cases should be mounted and electrically connected similar to the other projection cases. The lower mounting stud may be used to ground the electromagnet iron. The hexagon-shaped terminal inserts are slightly loose in the base but this does not affect the electrical connections. Only the two mounting studs should be used to secure the relay to the panel. Removal of terminal insert end-play (in the case of thick-panel mounting) by turning a nut on the terminal stud tightly against a large diameter washer (not supplied) at the rear of the panel should not be attempted as this may distort the relay base and affect the adjustments, or possibly damage the relay. Relays in the front-connected moulded cases should be mounted by four screws through the sides of the base as indicated in the drilling plan.

ADJUSTMENTS AND MAINTENANCE

The relays are shipped from the factory correctly adjusted for armature travel and for

contact follow and pressure, and it should not be necessary to disturb these adjustments. The relays normally are shipped with all contacts assembled for circuit-closing operation. To convert them for circuit-opening operation, it is necessary merely to loosen the mounting screw for the stationary contact bracket, turn this bracket over, and tighten the screw. After reversing the position of the contact brackets, it may be necessary to bend them slightly to obtain contact follows approximately as stated in the fourth paragraph of this section. On a d-c relay not more than four contacts can be assembled in the circuit-opening position if normal contact pressure and travel are maintained.

If a relay has been dismantled and is being reassembled, the following adjustments should be made or checked. Reference should be made to Figs. 1 and 2 for identification of the parts mentioned in these instructions.

The armature stop nut should be adjusted so that when the armature is in contact with it the lower edge of the armature is 7/16" above the position which it assumes when the relay is energized. When adjusting the armature spring tension, the locking screw for the spring adjusting screw is loosened, and this adjusting screw is turned (inward, to reduce the spring tension) until the spring barely holds the armature against the stop nut. The relay must be in its normal vertical position when this adjustment is made, with all contacts assembled as circuit-closing. The armature spring should then be tightened by turning the adjusting screw 4 turns counter-clockwise for a-c relays or 2 turns for d-c relays, (except 4 turns for d-c relays with coil-interrupting contacts) and the locking screws should be tightened. If the relay is being used with a number of break contacts, it may be necessary to increase the spring tension to obtain full follow on the break contacts. The adjusting screw should be turned just enough farther to obtain full follow.

The follow of the moving contact fingers should be 3/32" for the make contacts and 1/16" for the break contacts, measured at the contacts. This can be checked more conveniently by measuring the travel of the lower edge of the armature after the contacts touch. This should be approximately 1/8" for the make contacts and 3/32" for the break contacts. In case moving contact fingers have been removed from their guide pins, it is important that the coil springs on the two sides of the fingers be replaced correctly. The springs which are compressed by circuit-closing contacts are approximately three times as strong as the ones compressed by circuit-opening contacts and thus they can be readily distinguished. The positions of the two springs are reversed at the two ends of the relay.

When special contacts are supplied for make-before-break operation, the stationary members of the special contacts are bent equally toward their respective moving contacts to obtain "make" at the point where the "break" moving contact has approximately 1/16" follow before parting from its stationary contact.

If an a-c relay is to be used with a series resistor so that the relay can be dropped out by shorting the coil, either the resistance value must be such that the watt consumption with the coil shorted will be quite high or the relay armature spring tension must be reduced to about 1-1/2 turns and the follow of the stationary make contacts must be reduced (by bending) to about 1/16". With the reduced armature spring tension, not more than two of the contacts can be used as break contacts. Because of the low relay impedance with armature open as compared to the impedance with armature closed, it is not advantageous to use a resistor in series with a coil rated at less than line voltage, as in the case of d-c applications. For the contact and spring adjustments specified above, a 60 cycle MG relay with voltage rating equal to the line voltage can be used with a series resistor which will take about 90 watts when directly across the line. Of course, if the coil will be shorted only momentarily or if a higher watt consumption is not objectionable, it may be unnecessary to reduce the spring tension or contact follow.

If the complete armature assembly is to be removed from the relay, the screws which

fasten the lower ends of the moving contact leads to the terminals should be removed, the armature spring tension adjusting screw should be turned in as far as possible, and the armature stop nut should be removed. The upper end of the armature spring should then be slipped off of the grooved member at the lower end of the adjusting screw, and the armature should be lifted off of its bearing carefully so as to avoid distortion of the coiled leads. The leads to the upper center moving contacts are not coiled but the coiling of the four other moving contact leads should be such that when the relay base is horizontal and the armature is on its bearings and approximately at its mid position, the lead terminals will just touch the base terminal inserts or be within about 1/8" of that position. A pair of tweezers on which the ends are bent at a right angle to the body, or a similar tool, is useful in replacing the upper end of the spring in the groove of the adjusting member. Such a tool is particularly helpful on relays which have an electrical reset assembly.

On latch-type relays the latch screw is adjusted so that with the armature latched and the operating coil de-energized, there will be a gap of between .005 and .010 inch between the electromagnet pole face and the raised section of the armature which strikes the pole face. The locking screw should be tightened securely after making this adjustment. There is a small amount of clearance between the armature and its supporting posts, and in order to insure proper operation allowance must be made for this in the following manner. With the armature held against its left-hand support and nearly closed, the latch spring or reset armature should be moved to the left as far as it will go by means of the hand reset. To assure that the latch will always release the armature the resulting space between the latch and the latch screw should be at least .005 inch, and should not be more than about 1/64". This should also be checked electrically if electrical reset is provided. Some change of this gap can be made by loosening the mounting screws in the relay base and moving the latch support in the desired direction. The gap also can be changed by loosening the two screws which hold the moving contact insulation block to the armature and shifting the armature in the desired direction.

On electrical reset relays, the tension of the spring which draws the reset armature toward the latch screw must be adjusted if these parts are being reassembled. The locking screw (Fig. 2) is screwed out until its head clears the head of the adjusting screw. The main armature is then held completely closed and against its right hand support, and the latch spring tension adjusting screw is turned until the latch barely touches the stop projecting from the center of the latch screw. Then the latch spring tension should be increased by turning the screw clockwise 5 turns, and the locking screw should be tightened.

If either the core nut of the electrical reset assembly or the screws which mount its armature have been loosened, the relative positions of the core and plunger may shift sufficiently to cause the plunger to strike on the side of the conical core opening. To assure correct alignment of these parts, .042 diameter holes are provided through the center of the core and about 1/16" deep in the center of the plunger. After tightening the core nut, a close fitting pin should be inserted through the core and into the plunger. With the pin in place, and plunger pressed firmly against the core, and the mounting end of the armature centrally located with respect to the electromagnet, the two armature mounting screws should be tightened. The pin then should be removed.

A slight amount of medium viscosity slushing oil is supplied at the factory to the polished and hardened surfaces of the latch screw and the latch plate to minimize wear and as protection against corrosion. Oil should be reapplied after any cleaning and reassembling of these parts, and it is desirable also to renew this at the regular maintenance periods.

If the relay is provided with a coil-interrupting contact, the following points must be observed to assure satisfactory operation. The latch screw should be adjusted so that with the armature in the latched position and the operating coil deenergized, the gap

between the armature and the lower pole face of the electromagnet is only .005 inch. With the armature in this position the coil interrupting contact should be open by about 1/16 inch. This gap is adjusted at the factory by varying the number of slotted shims used between the relay base and the contact supporting bracket. The two main contacts at the lower end of the base should be assembled as circuit-opening contacts, and the main armature restraining spring should have 4 turns tension (see 3rd paragraph of this section) for DC as well as for AC relays. It is necessary also that the L-shaped spring which carries the moving member of the coil-interrupting contact have its sides approximately straight before assembly with the supporting bracket, and that the angle between the sides be approximately 80°.

All contacts should be periodically cleaned with a fine file. S#1002110 file is recommended for this purpose. The use of abrasive material for cleaning contacts is not recommended, because of the danger of embedding small particles in the face of the soft silver and thus impairing the contact.

REPAIRS AND RENEWAL PARTS

Repair work can be done most satisfactorily at the factory. However, interchangeable parts can be furnished to the customers who are equipped for doing repair work. When ordering parts, always give the complete nameplate data.

ENERGY REQUIREMENTS

Operating Coil Burdens at Rated Voltage

Frequency (cycles)	Closed Gap Watts	Closed Gap Volt-Amps	Open Gap Watts	Open Gap Volt-Amps
25	6.8	23	19.6	53
50	9.8	31	17.4	78
60	12.	37	17.6	92
D-C	7.8 cold--		7.8 cold-	
D-C	6.5 hot --		6.5 hot -	

Reset Coil Burdens at Rated Voltage

Frequency (Cycles)	Closed Gap Watts	Closed Gap Volt-Amps	Open Gap Watts	Open Gap Volt-Amps
25	23	26	24	27
50	18	23	20	25
60	23	32	26	36
D-C	31 cold --		31 cold --	

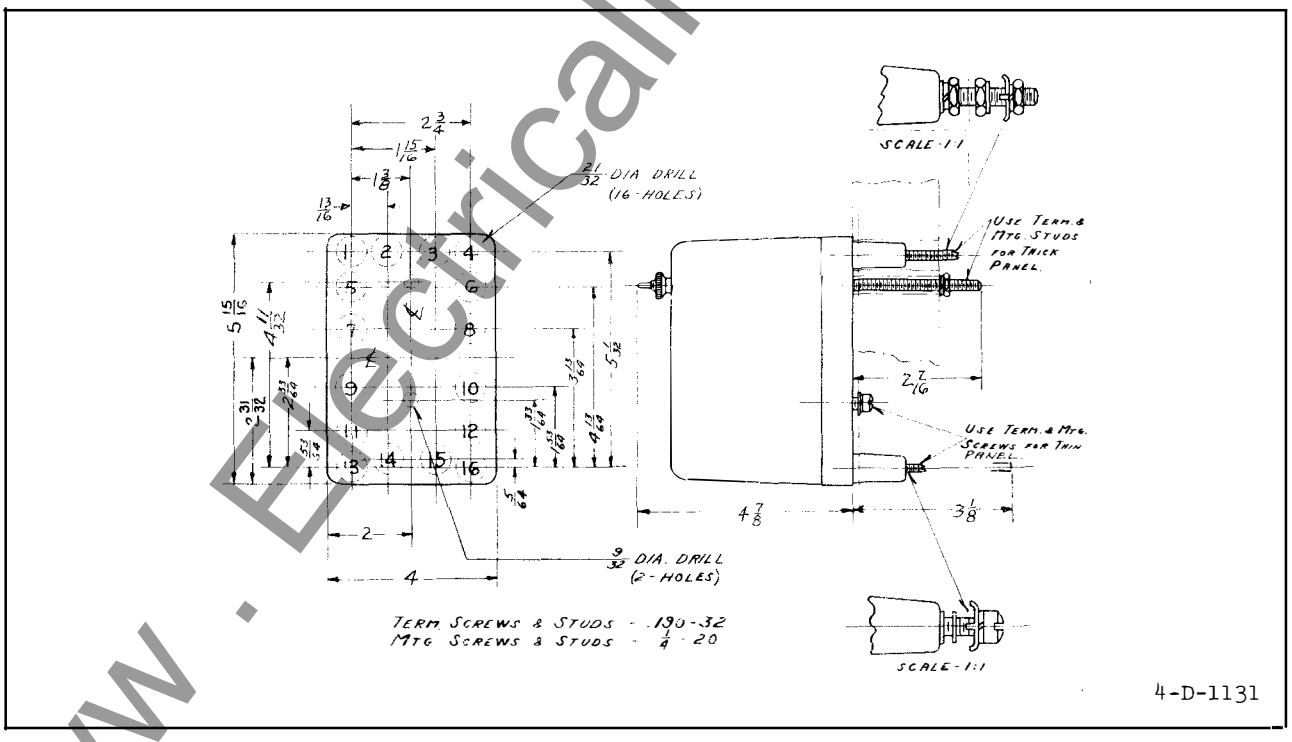


Fig. 8—Outline and Drilling Plan for the Type MG-6 Relay in the Rear Connected Molded Case. See the Internal Schematic for the Terminals Supplied. For Reference Only.

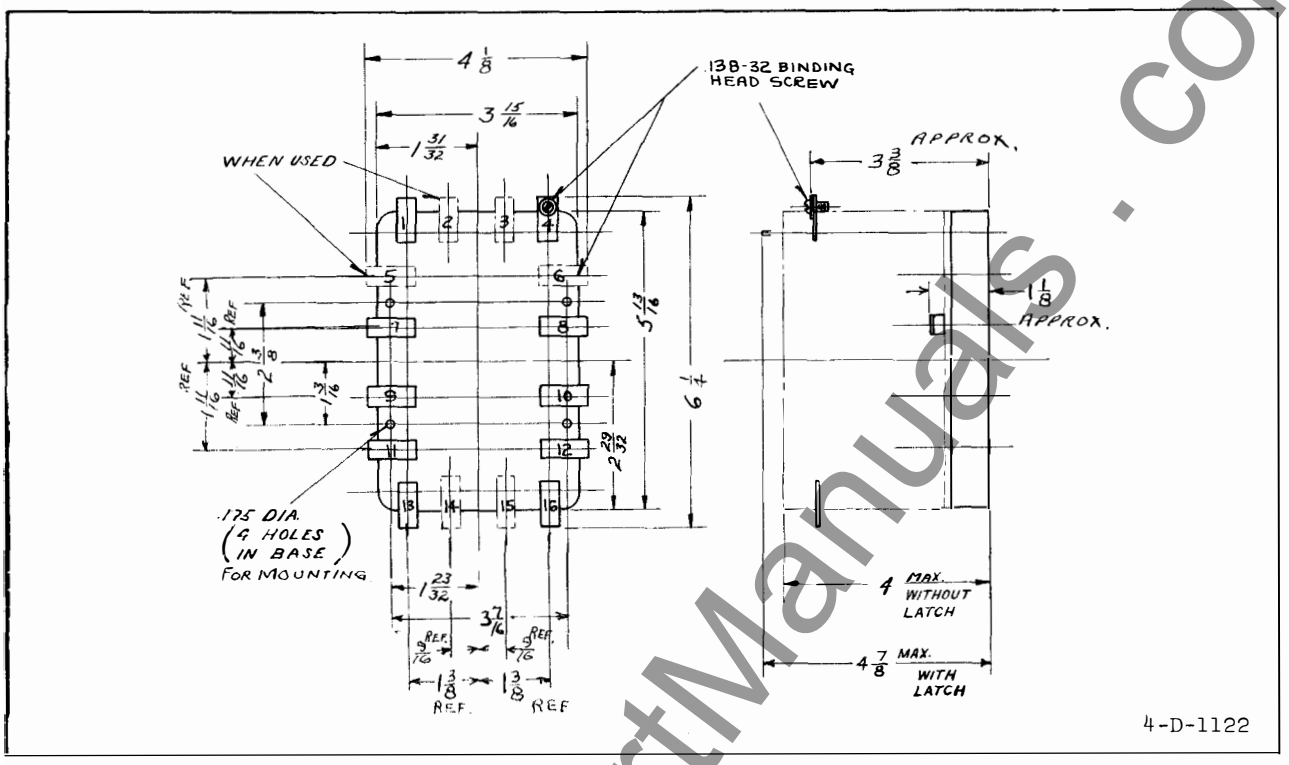


Fig. 9—Outline and Drilling Plan for the Type MG-6 Relay in the Front Connected Molded Case. See the Internal Schematic for the Terminals Supplied. For Reference Only.

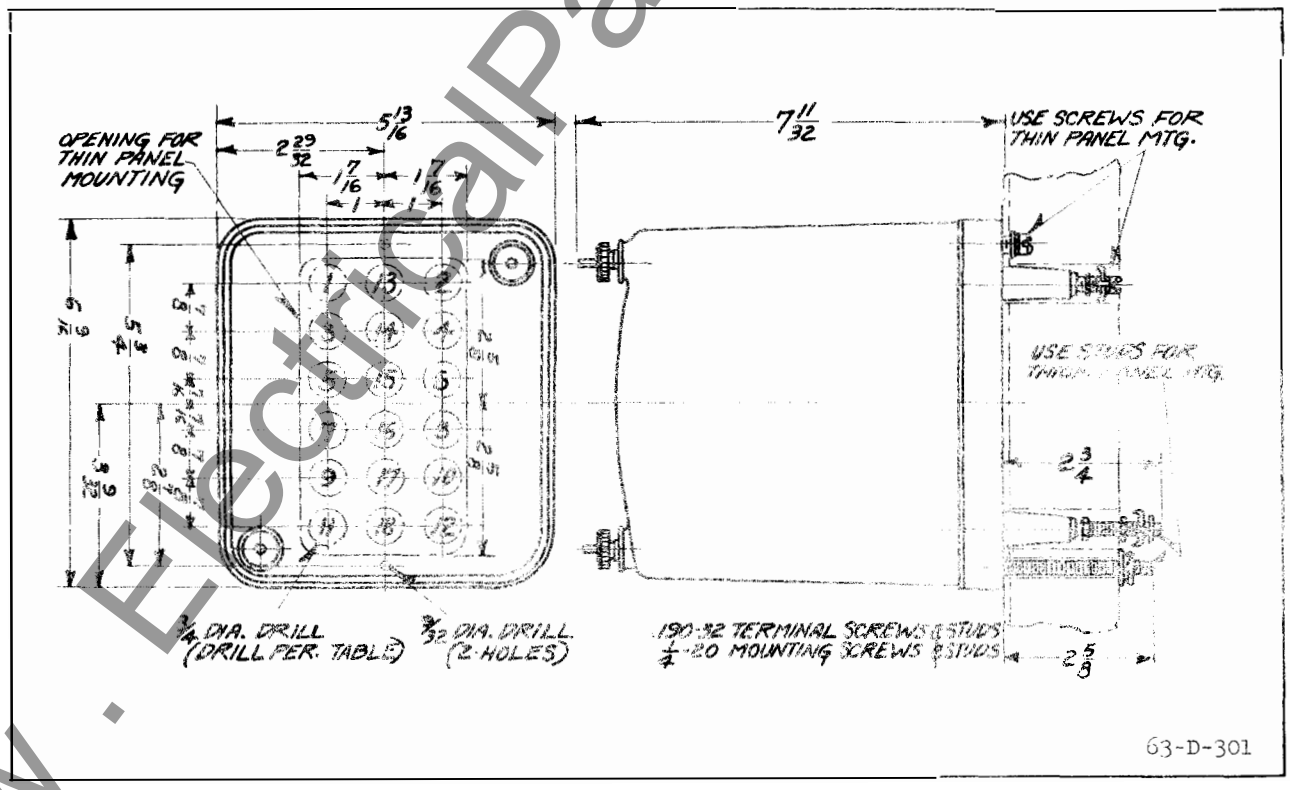


Fig. 10—Outline and Drilling Plan for the Type MG-6 Relay in the Standard Projection Case. See the Internal Schematics for the Terminals Supplied. For Reference Only.

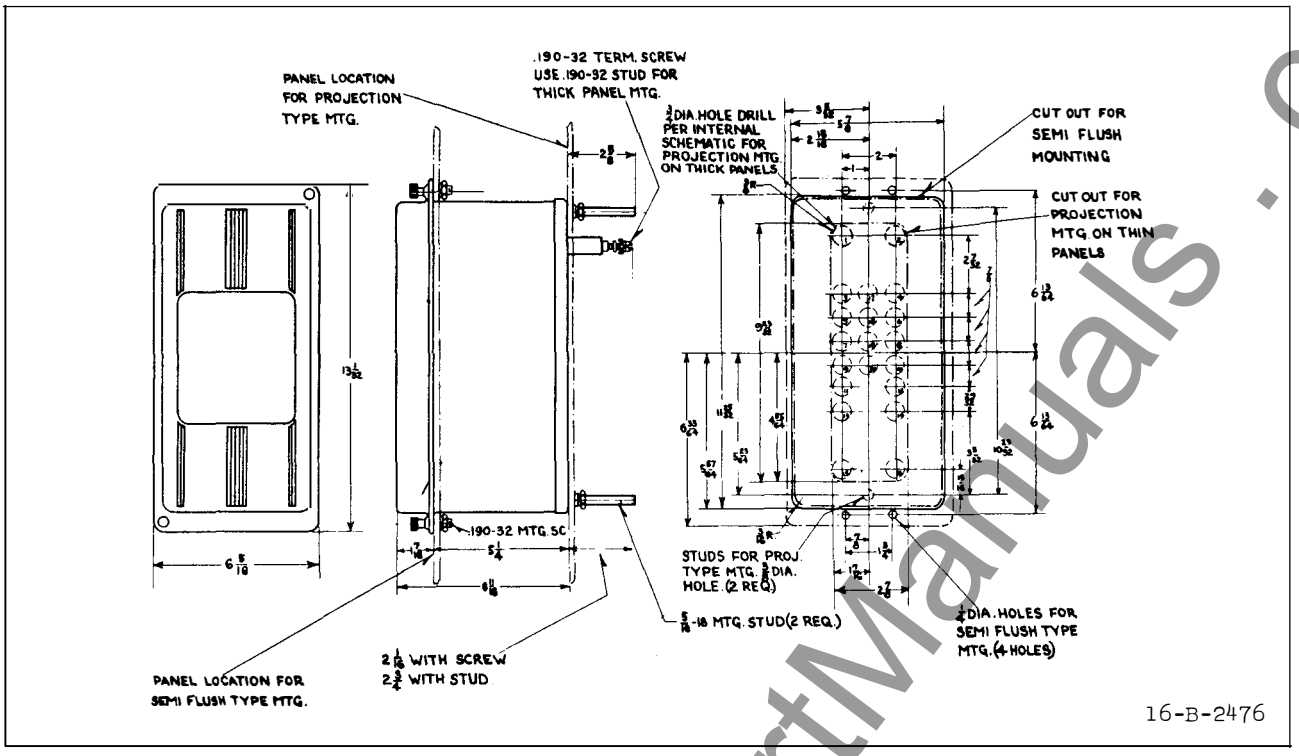


Fig. 11—Outline and Drilling Plan of the S20 Projection or Semi-Flush Type FT Flexitest Case. See the Internal Schematics for the Terminals Supplied. For Reference Only.

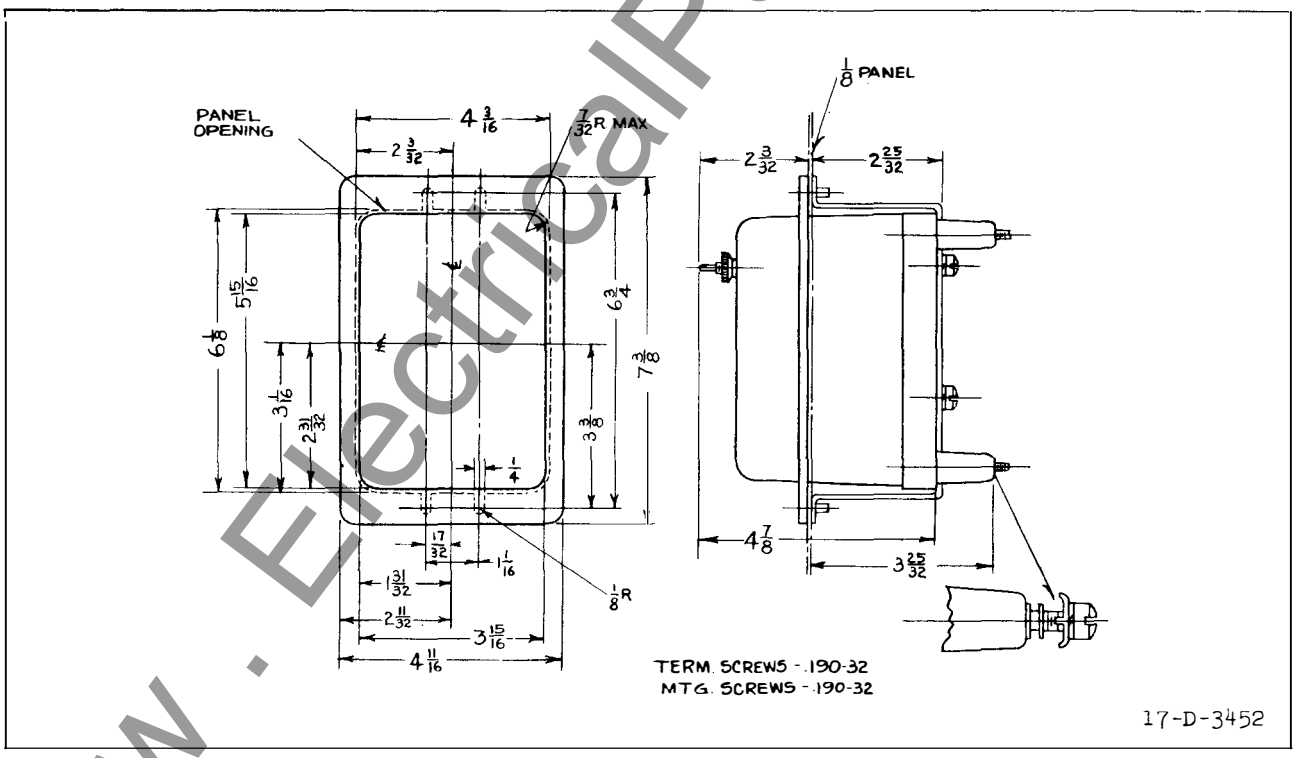


Fig 12—Outline & Drilling Plan for the Moulded Semi-flush Type Case. For Reference Only.

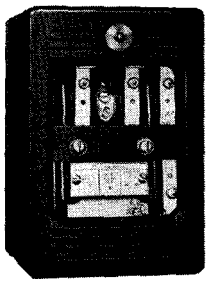
WESTINGHOUSE ELECTRIC CORPORATION

METER DIVISION • **NEWARK, N.J.**

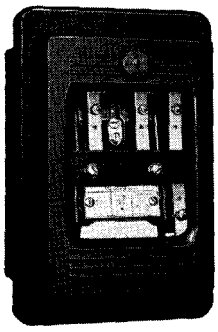
Printed in U. S. A.

general and specific purpose relay
type MG-6

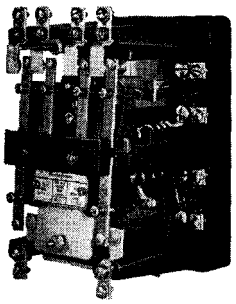
auxiliary multi-contact
self-reset • electric and hand reset



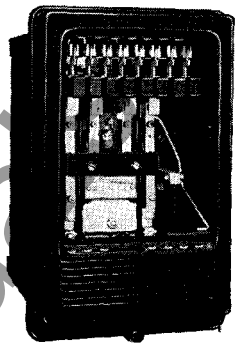
molded projection case



molded flush case



open type



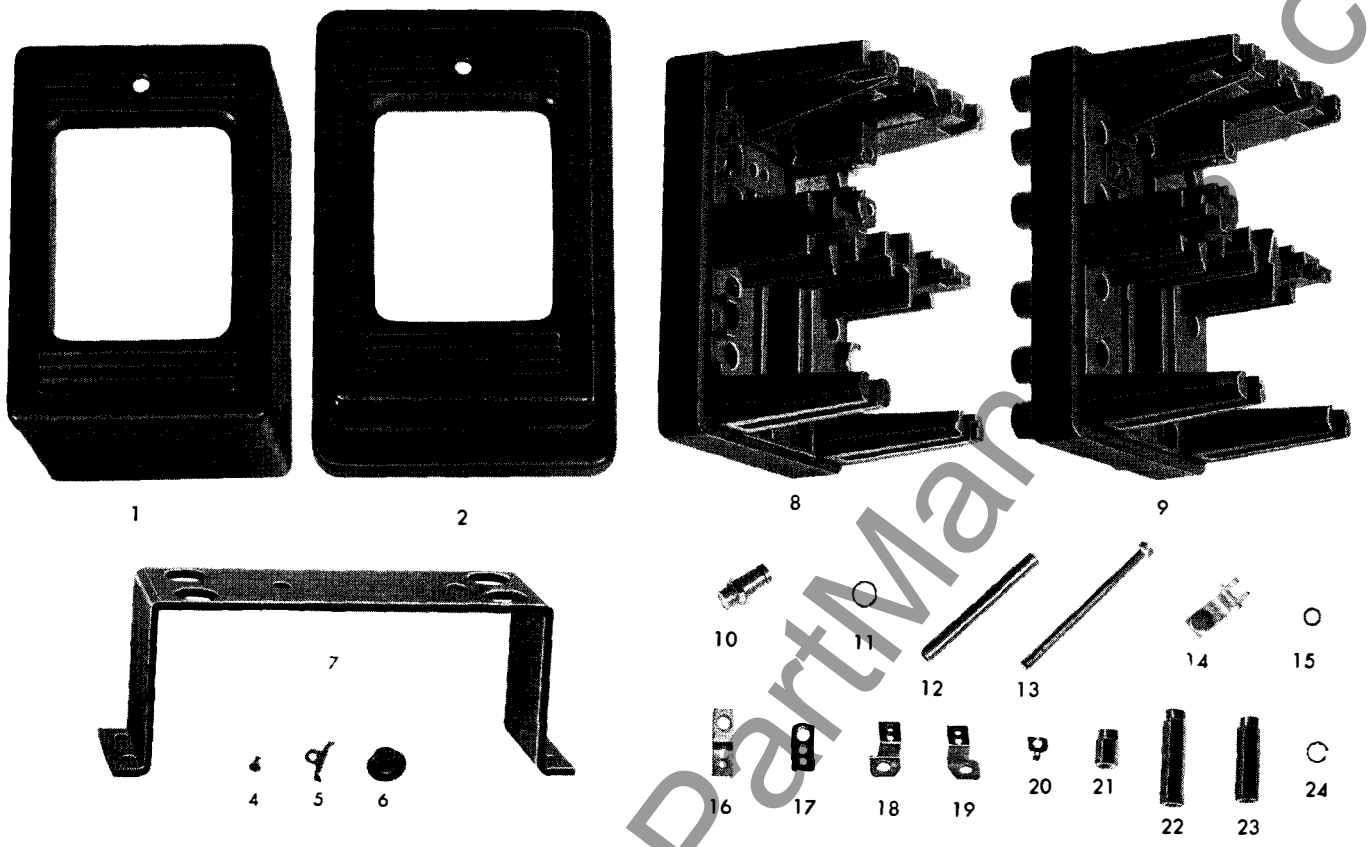
Flexitest® FT-22 case △

rating	frequency (cycles)	style number of relay				coil style numbers	
		molded projection case	molded flush case	open type	Flexitest FT-22 case	operating coil ref. 21, page 3	reset coil ref. 10, page 4
self-reset							
1 amp	d-c	289B359A09	289B360A09	1163 792	288B977A30	**880A351G09**	....
2 amps	d-c	289B359A10	289B360A10	1956 264	288B977A10	**880A351G08**	....
3 amps	d-c	289B359A11	289B360A11	1163 793	288B977A11	**880A351G07**	....
4 amps	d-c	289B359A12	289B360A12	1956 992	288B977A31	**880A351G06**	....
5 amps	d-c	289B359A13	289B360A13	1163 794	288B977A12	**880A351G05**	....
6 volts	d-c	289B359A14	289B360A14	1163 795	288B977A13	**880A351G09**	....
12 volts	d-c	289B359A15	289B360A15	1163 796	288B977A14	**880A351G10**	....
24 volts	d-c	289B359A16	289B360A16	1163 797	288B977A15	**880A351G11**	....
32 volts	d-c	289B359A17	289B360A17	1163 798	288B977A16	**880A351G13**	....
48 volts	d-c	289B359A18	289B360A18	1163 799	288B977A17	**880A351G16**	....
62.5 volts	d-c	289B359A19	289B360A19	1163 800	288B977A18	**880A351G17**	....
125 volts	d-c	289B359A20	289B360A20	1163 801	288B977A19	**880A351G19**	....
250 volts	d-c	289B359A21	289B360A21	1163 802	288B977A20	**880A351G22**	....
115 volts	60	289B359A22	289B360A22	1163 803	288B977A21	**632F619G08**	....
208 volts	60	289B359A23	289B360A23	1544 277	288B977A22	**632F619G10**	....
230 volts	60	289B359A24	289B360A24	1163 804	288B977A23	**632F619G11**	....
460 volts	60	289B359A25	289B360A25	1163 805	288B977A24	**632F619G13**	....
575 volts	60	289B359A26	289B360A26	1163 806	288B977A25	**632F619G14**	....
115 volts	50	289B359A27	1962 472	289B475A27	288B977A26	**632F619G09**	....
230 volts	50	289B359A29	....	289B475A29	288B977A28	**632F619G12**	....
460 volts	50	289B359A30	....	289B475A30	288B977A29	**632F619G14**	....
575 volts	50	289B359A31	....	289B475A31	288B977A30	**632F619G15**	....
electric and hand reset							
6 volts	d-c	289B361A09	289B362A09	1163 822	288B978A09	**880A351G09**	**1875 717**
12 volts	d-c	289B361A10	289B362A10	1163 823	288B978A10	**880A351G10**	**1875 720**
24 volts	d-c	289B361A11	289B362A11	1163 824	288B978A11	**880A351G11**	**1875 723**
32 volts	d-c	289B361A12	289B362A12	1163 825	288B978A12	**880A351G13**	**1875 724**
48 volts	d-c	289B361A13	289B362A13	1163 826	288B978A13	**880A351G16**	**1875 726**
62.5 volts	d-c	289B361A14	289B362A14	1163 827	288B978A14	**880A351G17**	**1875 727**
125 volts	d-c	289B361A15	289B362A15	1163 828	288B978A15	**880A351G19**	**1875 730**
250 volts	d-c	289B361A16	289B362A16	1163 829	288B978A16	**880A351G22**	**1875 733**
115 volts	60	289B361A17	289B362A17	1163 830	288B978A17	**632F619G08**	**1875 728**
208 volts	60	289B361A18	289B362A18	1544 278	288B978A18	**632F619G10**	**1955 387**
230 volts	60	289B361A19	289B362A19	1163 831	288B978A19	**632F619G11**	**1875 731**
460 volts	60	289B361A20	289B362A20	1163 832	288B978A20	**632F619G13**	**1875 735**
575 volts	60	289B361A21	289B362A21	1163 833	288B978A21	**632F619G14**	**1875 735**
115 volts	50	.....	.....	....	288B978A22	**632F619G09**	**1875 729**
230 volts	50	.....	.....	....	288B978A24	**632F619G12**	**1875 732**
460 volts	50	.....	.....	....	288B978A25	**632F619G14**	**1875 735**
575 volts	50	.....	.....	....	288B978A26	**632F619G15**	**1875 736**
electric and hand reset with operating coil cutoff contact							
24 volts	d-c	289B473A09	289B473A20	289B363A09	289B364A09	**880A351G11**	**1875 723**
48 volts	d-c	289B473A10	289B473A21	289B363A10	289B364A10	**880A351G16**	**1875 726**
125 volts	d-c	289B473A11	289B473A22	289B363A11	289B364A11	**880A351G19**	**1875 730**
250 volts	d-c	289B473A12	289B473A23	289B363A12	289B364A12	**880A351G22**	**1875 733**
115 volts	60	289B473A13	289B473A24	289B363A13	289B364A13	**632F619G08**	**1875 728**
208 volts	60	289B473A14	289B473A25	289B363A14	289B364A14	**632F619G10**	**1955 387**
230 volts	60	289B473A15	289B473A26	289B363A15	289B364A15	**632F619G11**	**1875 731**
460 volts	60	289B473A16	289B473A27	289B363A16	289B364A16	**632F619G13**	**1875 734**
575 volts	60	289B473A17	289B473A28	289B363A17	289B364A17	**632F619G14**	**1875 735**
115 volts	50	.....	671B460A22	.....	289B364A18	**632F619G09**	**1875 729**
230 volts	50	.....	.....	.....	289B364A20	**632F619G12**	**1875 732**
460 volts	50	.....	.....	.....	289B364A21	**632F619G14**	**1875 736**

△ Refer to RPD 41-076A1 for parts information on Flexitest FT-22 cases.

See page 4 for ordering information.

March, 1971
supersedes rpd 41-753A2 dated April, 1968
mailed to: E, D, C/2787/PL, DB



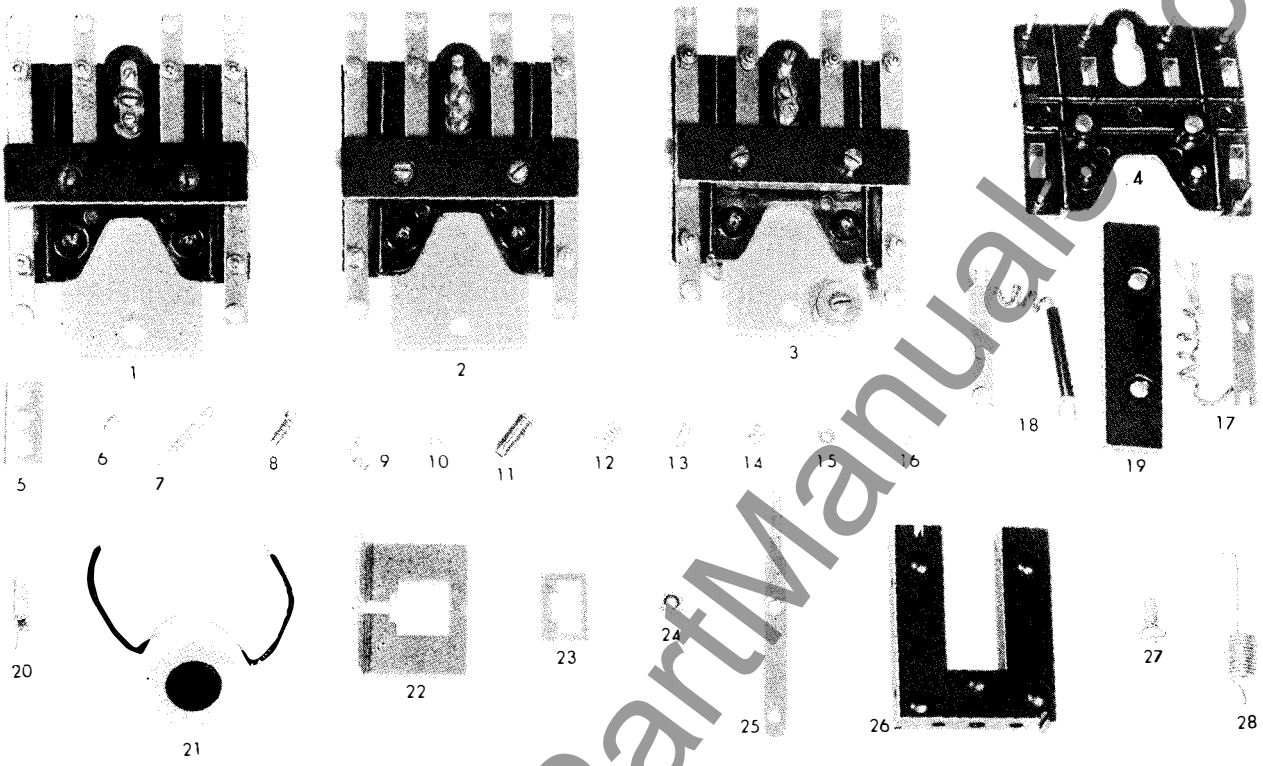
reference number	description of part (parts indented are included in the part under which they are indented)	style number of part: molded projection	molded flush	open type	Flexitest FT-22
1	cover complete	03B1954G03	....	....	see note △ page 1
2	cover complete	....	03B1954G04	....	....
□3	glass only	1202 048	1202 048	....	....
4	#4 x 3/16 round head type "B" steel TF screw (required 2) ◉	std. hdwr.	std. hdwr.	....	....
5	clip for glass (required 2)	184A258H01	184A258H01	....	....
6	cover nut	242 574	242 574	....	....
7	bracket for flush mounting	....	1340 847	....	....
8	base—front connection type	....	....	O7A4194HO2	O7A4194HO2
9	base—for relay without coil cutoff contacts ◆	540D436H01	540D436H01	....	....
9	base with insert—for relay with coil cutoff contacts ◆	540D436G01	540D436G01	....	....
10	terminal or base	1201 154	1201 154	....	....
11	ring to hold terminal (reference 9) in base	1202 201	1202 201	....	....
12	tube to support stationary contacts	1269 895	1269 895	1269 895	1269 895
13	.190-32 x 2¾ fillister head brass machine screw to hold stationary contacts (required 6)	std. hdwr.	std. hdwr.	std. hdwr.	std. hdwr.
★14	stationary contacts (required 6)	01B2706G07	01B2706G07	01B2706G07	01B2706G07
15	washer for stationary contact connection	1276 894	1276 894	....	....
16	connector for terminal (required 8) front connected only	....	....	1204 658	....
17	connector for stationary contacts	....	....	1204 657	
18	connector (electric and hand reset only) left hand	....	....	1275 880	1275 880
19	connector (electric and hand reset only) right hand	....	....	1204 659	1204 659
20	terminal clip	....	....	1072 864	1072 864
21	terminal—9/16" long			1201 103	1201 103
22	terminal—1.515" long	04D1038H08	04D1038H08	....	....
23	terminal—1.328" long	04D1038H09	04D1038H09	....	....
24	terminal spring	1102 940	1102 940	1102 940	1102 940

★ recommended for stock

◆ customer to knockout holes #5-6-9-10

◉ nickel finish 22AA03

□ not illustrated



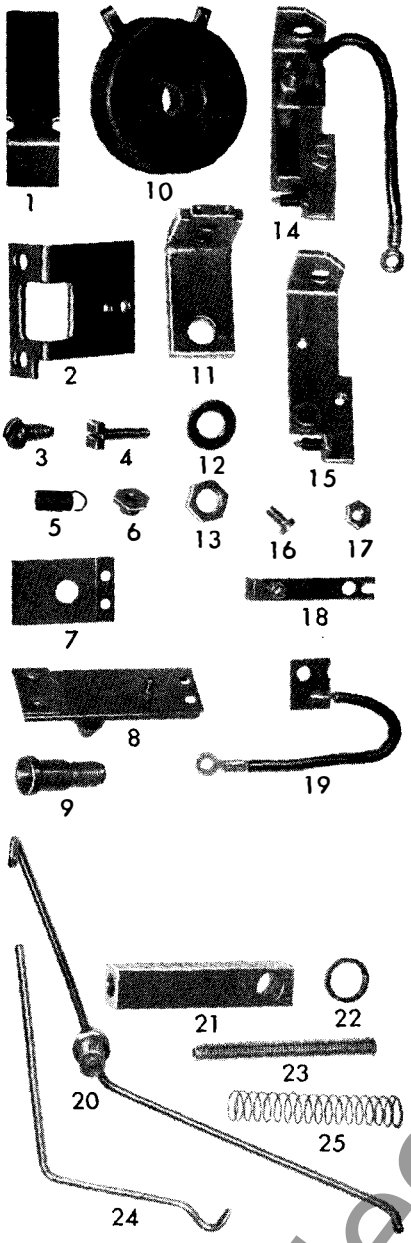
If any one of these obsolete parts are required, order a set of superseding parts consisting of refs. 9-10-11.

reference number	description of part (parts indented are included in the part under which they are indented)	style number
1	armature assembly complete—(for self-reset relays) ac only	1337 347
1	armature assembly complete—(for self reset relays) dc only	04A9185G08
2	armature assembly complete—(for electric and hand-reset relays) ac only	1337 348
2	armature assembly complete—(for electric and hand-reset relays) dc only	04A9185G09
3	armature assembly complete—(for relays with coil cutoff contact) ac only	04A9185G01
3	armature assembly complete—(for relays with coil cutoff contact) dc only	04A9185G07
4	insulation and pins assembly—(for relays without coil cutoff contact)	541D155G01
4	insulation and pins assembly—(for relays with coil cutoff contact)	541D155G02
5	locking plate	1204 647
6	.164-32 x 3/8 cup point headless set screw (self-reset only) ◉	std. hdwr.
7	latch screw (for electric and hand-reset relays)	184A572H01
8	.164-32 x 3/8 fillister head steel machine screw ◉	std. hdwr.
9-10-11	link, "U" shaped washer and adjusting screw kit	04A9185G06
12	springs—required 6 per relay (4 behind upper contact—2 in front of lower moving contacts)	1202 043
13■	bushing—required 6 per relay	1204 646
14	springs—required 6 per relay (4 in front of upper contacts—2 behind lower moving contacts)	1202 044
15	cup washer	1000 824
16	washer "U" shaped (for cup washer—spring retainer)	1545 665
★17	contact and lead assembly (upper) required 4	01B2706G06
★18	contact and lead assembly—with insulation (lower) required 2	01B2706G05
19	insulation block	1158 855
20	spring (rear of armature) for coil cutoff contacts only	183A271H01
★21	operating coil	see page 1
22	loop (for d-c relay)	1204 641
23	loop (for a-c relay)	1204 640
24	stop nut	1204 653
25	stud for stop nut	04D1273H01
26	magnetic circuit (ac only)	1204 639
26	magnetic circuit (dc only) with pin	01B2799G03
27	screw—to hold magnetic circuit to base	1339 208
28	spring—armature to magnetic circuit	1204 649

★ recommended for stock ◉ finish 23AB07

■ For special make before break contact arrangement: order similar to above armature (reference 1-2-3) except "make" bushing style number 1340 787 and "break" bushing style number 1537 748 in positions as required.

general and specific purpose relay
type MG-6



parts for electric reset (references 1 to 19)

reference number	description of part (parts indented are included in the part under which they are indented)	style number
1	reset lever	1204 631
2	bracket to hold lever	1204 632
3	*8 x 3/8 round head type "Z" steel sheet metal screw—to hold lever bracket to base ◉	std. hdwr.
4	square head screw for armature bushing	1202 189
5	spring for armature reset	1955 349
6	bushing to hold reset spring	1202 047
7	spring for reset	1204 651
8	armature assembly for reset	1204 628
9	core and pin for reset coil	1204 627
★10	coil	see page 1
11	bracket to mount reset coil	1204 650
12	1/4" standard steel washer ◉	std. hdwr.
13	nut for core and pin	877 557
14	snap-action switch (for d-c use only)	183A262G03
14	snap-action switch (for a-c use only)	183A262G04
★15	bracket, roller and contact assembly (for d-c use only)	183A261G01
★15	bracket, roller and contact assembly (for a-c use only)	183A261G02
16	adjustment screw	11D9467H05
17	nut to lock adjustment screw	1099 186
★18	moving contact and spring assembly	183A254G01
19	plate and lead assembly	183A672G01

parts for hand reset (references 20 to 25)

reference number	description of part	style number of part		
		molded: flush and proj.	open type	Flexitest FT-22
20	reset arm assembly	....	....	183A312G01
21	post for reset arm	....	....	183A309H01
22	locking ring	....	....	1878 392
23	bushing for reset push rod	1204 638	1723 456	....
24	push rod	1729 949	1729 950	....
25	spring	1732 007	1732 007	....

★ recommended for stock

◉ finish 23AA02

ordering information:

- Give style number and name of part.
- Give the complete nameplate reading.
- State method of shipment desired.
- Send all orders or correspondence to nearest sales office of the company.