INSTRUCTIONS

GEI-38980B
SUPERSEDES GEI-38980A

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INSTANTANEOUS D-C AUXILIARY TRIPPING RELAYS

HGA14AL
and
HGA14AM

LOW VOLTAGE SWITCHGEAR DEPARTMENT

GENERAL ELECTRIC

PHILADELPHIA, PA.

INSTANTANEOUS D-C AUXILIARY TRIPPING RELAYS HGA14AL AND HGA14AM

DESCRIPTION

INTRODUCTION

The relays covered by these instructions are double pole, hinged armature type relays that are designed for use in series with various target combinations as auxiliary tripping relays.

* The HGA14AL relay is surface mounted, front connected and has a cover. The HGA14AM is back connected with a cover. This relay is available for either surface or semi-flush mounting.

OPERATING CHARACTERISTICS

* These relays have short armature gaps, intermittently rated coils and extra strong contact springs. These features permit the pick-up time to be reduced to 1/2 cycle (8 ms) or less. Both relays have two normally-open contacts and only one normally-closed contact.

RATINGS

Current closing rating of the contacts is 30 amperes. The current carrying rating is 12 amperes continuously or 30 amperes for one minute. Interrupting ratings (non-inductive) circuits for the various voltages are as follows:

	D-C				A-C	
Volts	24	48	125	250	115	230
Amps	3	1.5	0.6	0.25	20	10

BURDENS

Resistance of the operating coils are given in Table I.

TABLE I

Types	Form No.	Intermittent D.C. Volts	Coil Resistance in Ohms	Intermittent Rating in Seconds	For use in series with the following combinations of target connected in parallel			
					Three 2 amp	Three 1 amp	One 2 amp **	One 1 amp+
HGA14AL HGA14AM	1	250	22.50	2	X			
	2	125	9.00	4	X			
	3	48	4.30	10	X			
	5	24	0.95	8	X			
	6	250	35.00	3		X		
	7	125	22.50	10		X		
	9	32	4.30	20		X		
	10	24	0.95	8		X		
	11	250	56.00	6			X	
	12	125	22.50	10			X	
	13	48	9.00	25			X	
	15	24	4.30	30			X	
	16	250	130.00	10				X
	17	125	56.00	20				X
	18	48	14.00	30				X
	19	32	9.00	60				X
	20	24	4.30	30				X
	25 ‡	250	.950	20				
	26 ‡	125	.950	40				

** May also be used in series with three 0.6 amp or three 0.6 plus two 0.2 amp targets.

\+ May also be used in series with three 0.2 amp or 0.2 amp target.

‡ For GCX distance, or GCX or GCY carrier application.

These instructions do not purport to cover all details or variations in equipment nor to provide for every possible contingency to be met in connection with installation, operation or maintenance. Should further information be desired or should particular problems arise which are not covered sufficiently for the purchaser's purposes, the matter should be referred to the General Electric Company.

* Denotes change from superseded book.

CONSTRUCTION

The contact circuits of these auxiliary relays are opened or closed by moving contact arms controlled by a hinge-type armature, which in turn is actuated by the operating coil and restrained by an adjustable control spring. Lengths of the contact and armature gaps are adjusted by a screw contact and locknut in the right-hand front contact position. Armature gap (and back contact wipe) can also be controlled by the screws and locknuts located on the moving contact arms.

INSTALLATION

LOCATION

The location should be clean and dry, free from dust and excessive vibration, and well lighted to facilitate inspection and testing.

* MOUNTING

Relays should be mounted on a vertical surface. The outline and panel drilling diagrams and internal connections for HGA14AL, HGA14AM and HGA-14AM(-)F are given in Figs. 1, 2 and 3 respectively. The external resistor outline is shown in Fig. 4.

CONNECTIONS

Internal connection diagram for Type HGA14AL relay is given in Fig. 1 and for Type HGA14AM relay is given in Fig. 2.

MAINTENANCE

CONTACT CLEANING

For cleaning fine silver contacts, a flexible burnishing tool should be used. This consists of a flexible strip of metal with an etched roughened surface, resembling in effect a superfine file. The polishing action is so delicate that no scratches are left, yet corroded material will be removed rapidly and thoroughly. The flexibility of the tool insures the cleaning of the actual points of contact.

Fine silver contacts should not be cleaned with knives, files, or abrasive paper or cloth. Knives or files may leave scratches which increase arcing and deterioration of the contacts. Abrasive paper or cloth may leave minute particles of insulating abrasive material in the contacts and thus prevent closing.

The burnishing tool described above can be obtained from the factory.

INSPECTION AND ADJUSTMENTS

PICKUP

These relays are adjusted at the factory to pickup at 80 percent or less of the rating. In checking or making adjustments of pickup, the coil should not be energized longer than the time given in TABLE I for the particular relay. The coil should be allowed to cool to room temperature between readings.

When an external resistor is listed on the nameplate, it must be used when checking pick-up or applying rating volts to the relay.

CONTACT WIPE AND GAP

The minimum recommended normally-open contact wipe is 0.005-inch as measured with a feeler gage between the projections on the moulded contact support and the ends of the wipe adjusting screws. Both normally open contacts should make simultaneously.

Minimum recommended contact gap is 1/16-inch. This adjustment can be conveniently obtained by turning the screw contact in the right-hand front contact position in until the normally open contacts are just making, and then backing it off 3-3/4-turns. The contact screw should be locked securely in place by means of the locknut.

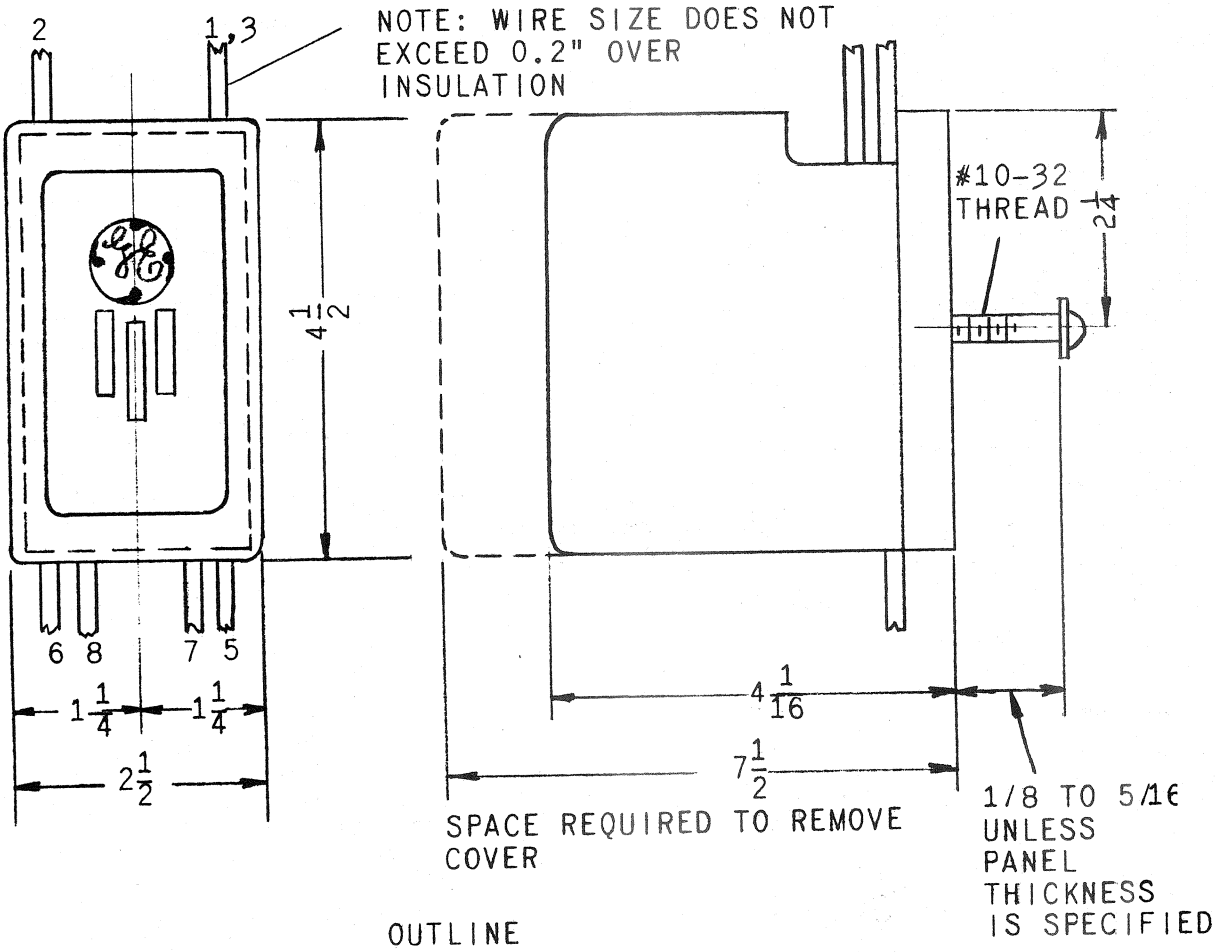
It should be noted that these adjustments are for minimum recommended contact gap and wipe. If the contact gaps are made shorter, the interrupting ratings listed will no longer apply.

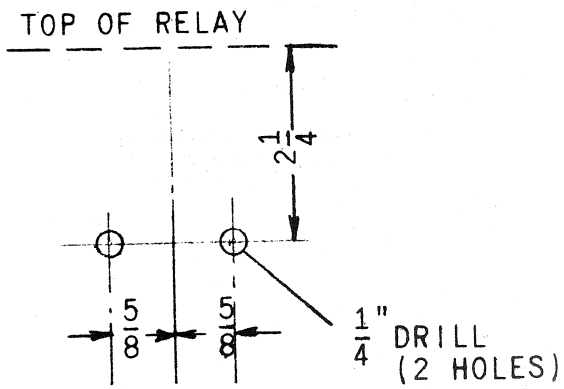
RENEWAL PARTS

It is recommended that sufficient quantities of renewal parts be carried in stock to enable the prompt replacement of any that are worn, broken, or damaged.

When ordering renewal parts, address the nearest Sales Office of the General Electric Company, specifying the quantity required and describing the parts by catalogue numbers as shown in Renewal Parts Bulletin No. GEF-2623.

* Denotes change from superseded book.





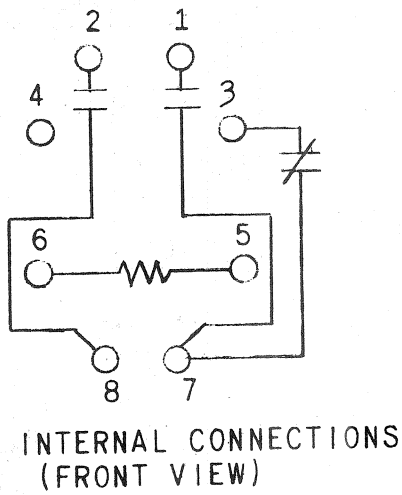
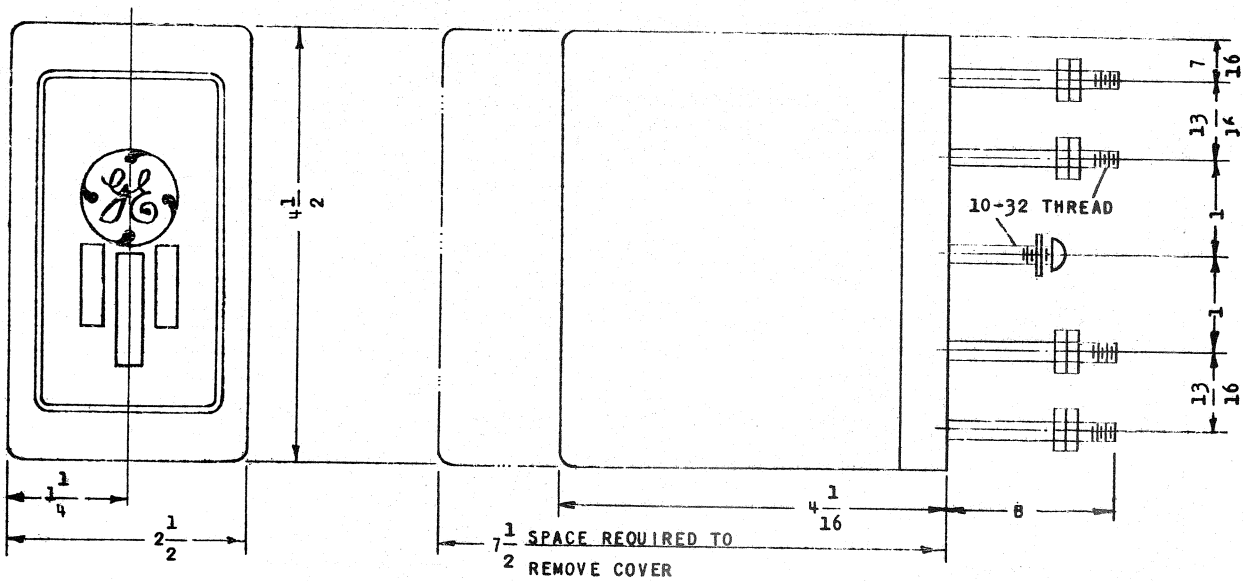
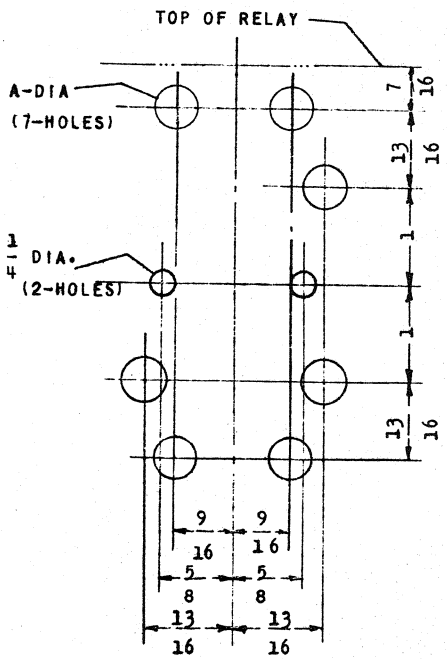


Fig. 1 (377A139-2)

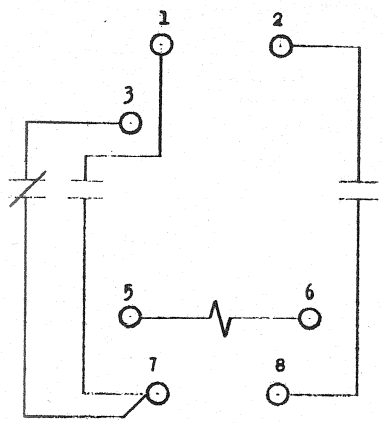
Fig. 1 Outline, Panel Drilling And Internal Connections For HGA14AL Relay



OUTLINE



PANEL DRILLING
(FRONT VIEW)



INTERNAL CONNECTIONS
(BACK VIEW)

TYPE OF PANEL	A	B
INSULATING	7/16	2-13/16
STEEL	9/16	1-3/8

Fig. 2 (6400533-2)

Fig. 2 Outline, Panel Drilling And Internal Connections For HGA14AM Relay

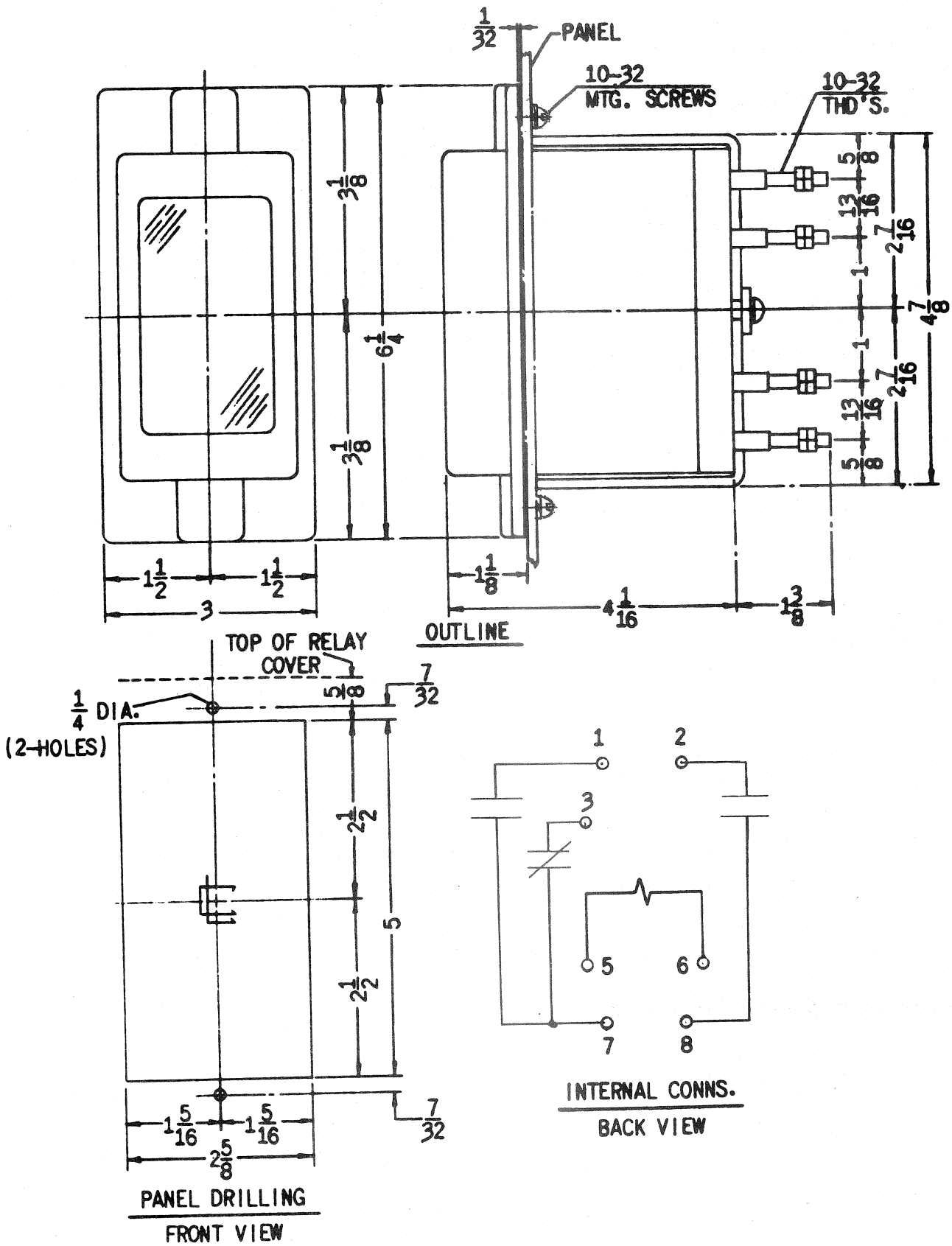
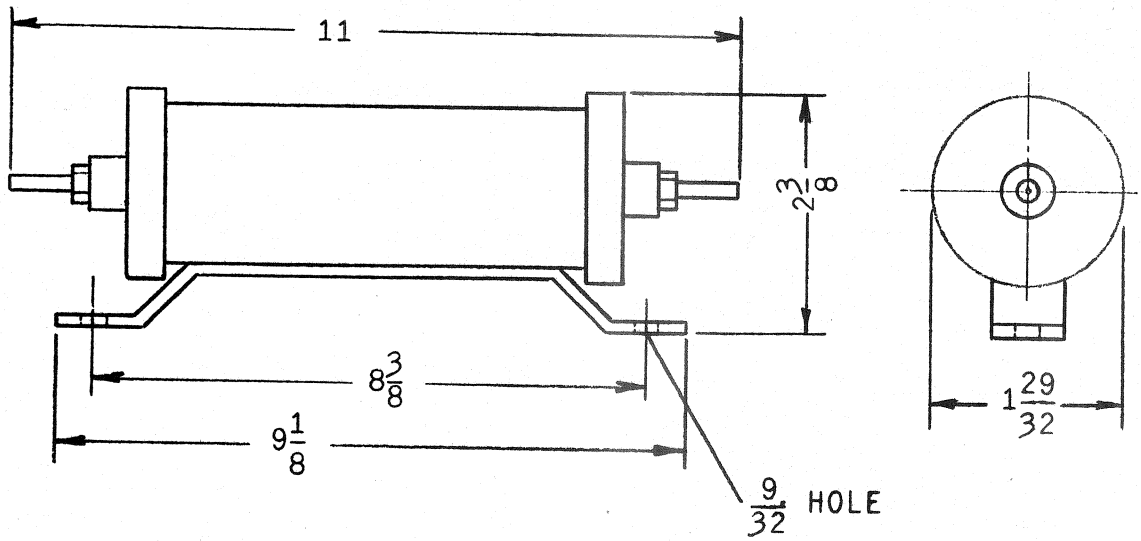


Fig. 3 (104A8558-2)

* Fig. 3 Outline, Panel Drilling And Internal Connections For HGA14AM(-)F Relay

* Denotes change from superseded book.



* Fig. 4 Outline of External Resistor used with Forms 25 and 26 of these Relays

Fig. 4 (389A752-0)

* Denotes change from superseded book.

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