



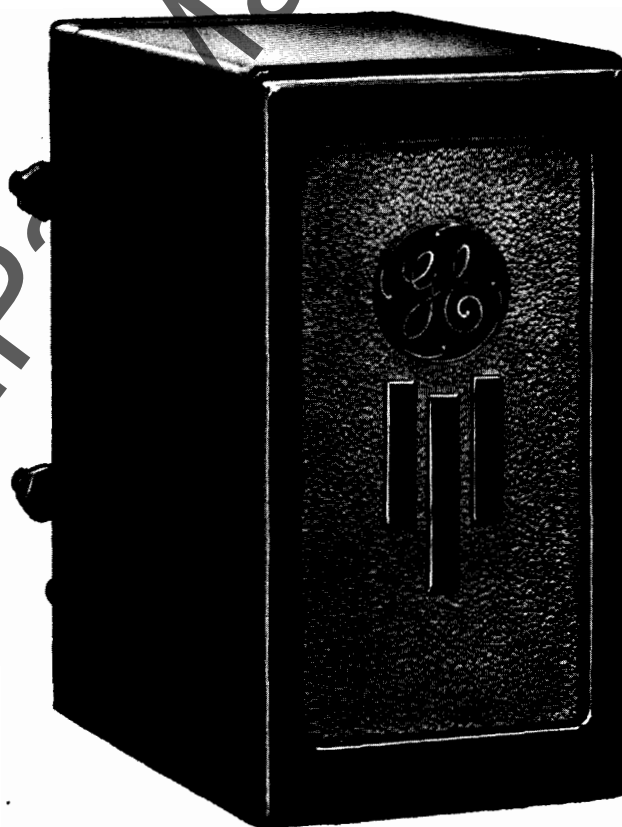
INSTRUCTIONS

GEI-30912D
SUPERSEDES GEI-30912C

INSTANTANEOUS AUXILIARY RELAYS

Types

HGA14A HGA14AF
HGA14AD HGA14AV
HGA14AE HGA14BE
HGA14BF



LOW VOLTAGE SWITCHGEAR DEPARTMENT
GENERAL  **ELECTRIC**
PHILADELPHIA, PA.

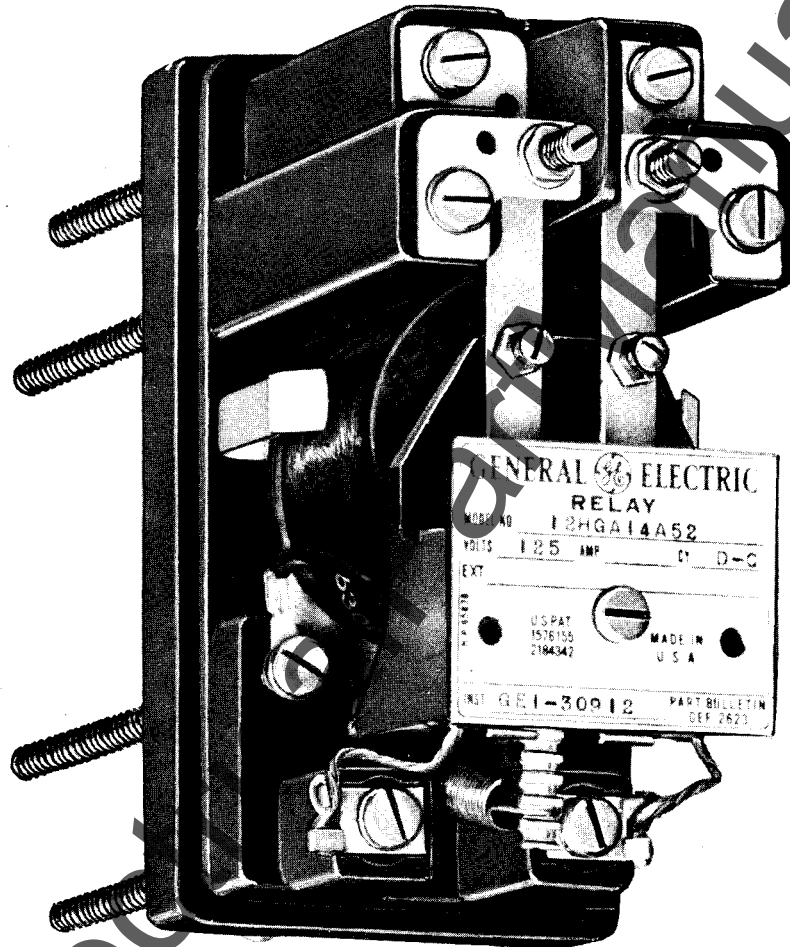


Fig. 1 Type HGA14A Relay With Cover Removed

Fig. 1 (8009113)

Cover (851505)

INSTANTANEOUS AUXILIARY RELAYS TYPE HGA

INTRODUCTION

* RELAY	MAIN FEATURES †
HGA14A HGA14A(-)F	Back connected with cover Back connected with cover; semi-flush mounted
HGA14AD HGA14AE	Front connected without cover Front connected with cover; strong control spring for mounting on circuit breaker
HGA14AF HGA14AV	Front connected with cover Front connected with shock proof cover.
HGA14BE	Front connected, front mounted, with cover.
HGA14BF	Front connected, with cover and provisions for front mounting.

† All relays are surface mounted except as noted.

These relays are double-pole, hinged armature type relays suitable for application wherever a high-speed, low energy device is required. Details of construction of these relays are given in the paragraphs entitled DESCRIPTION.

RATINGS

These relays are available with coil ratings for standard voltages up to 575 volts at 25, 50 or 60 cycles AC and up to 250 volts DC. The relays are also available with coil current ratings up to 5 amperes DC and up to 15 amperes AC.

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

	D-C				A-C		
Volts	24	48	125	250	115	230	460
Amps.	3	1.5	0.6	0.25	20	10	

BURDENS

D-C COILS				A-C COILS			
Coil Rating		R Ohms	Watts	Coil Rating		Z † Ohms	Volt-Amps.
Volts	Amps.			Volts	Cycles		
250		12000	4.84	575	60	22000	15.0
125		3250	4.82	460	60	14200	14.9
48		500	4.61	230	60	3800	13.9
32		205	4.97	115	60	1000	13.2
24		130	4.43	575	50	26700	12.4
12		35	4.11	460	50	17000	12.4
6		9	4.00	230	50	4250	12.4
	1	4.43	4.43	115	50	1020	13.0
	2	1.10	4.40	575	25	33500	9.87
	3	0.46	4.14	460	25	28300	7.50
	4	0.244	3.90	230	25	7070	7.50
	5	0.16	4.00	115	25	1768	7.45

† Impedance measured with relay in picked-up position.

DESCRIPTION

The contact circuits of these auxiliary relays are closed or opened 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. The length of contact gap is adjustable by means of screw contacts and lock-nuts in the front contact positions. The armature gap and back-contact wipe can be controlled by the screws and locknuts located on the moving contact arms. These latter features make it possible to

reduce the pickup energy and pickup time to relatively low values. When these relays are adjusted for short gap and low pickup only one normally closed contact may be used. If two normally closed contacts are required it will be necessary to re-adjust the relay to standard gap operation as described under MAINTENANCE. The HGA14AV relay has a thumb nut on its cover to prevent the cover from coming off when the relay is subjected to shock.

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 since superseded issue.

INSTALLATION

LOCATION

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

MOUNTING

The relay should be mounted on a vertical surface. The figures showing the outline and panel drilling dimensions are given in the following table:

RELAY	OUTLINE	PANEL DRILLING
HGA14A	FIG. 2	FIG. 8
* HGA14A(-)F	FIG. 3	FIG. 9
HGA14AD	FIG. 4	FIG. 7
HGA14AE	FIG. 5	FIG. 7
HGA14AF	FIG. 5	FIG. 7
HGA14AV	FIG. 5	FIG. 7
HGA14BE	FIG. 10	FIG. 14
HGA14BF	FIG. 11	

CONNECTIONS

The internal connection diagram for these relays is shown in Fig. 6.

ADJUSTMENTS

PICKUP

These relays have been adjusted at the factory to pickup at 30 percent of rating (cold) if for DC, or 40 percent of rating if for AC.

* When the relays are shipped from the factory they are provided with only one "b", or normally closed, contact circuit and two "a" or normally open contacts. The left-hand (front view) screw contact is backed out of engagement with its moving contact. This is necessary since the low control spring tension does not give sufficient pressure on two "b" contacts. Both "b" contacts can be utilized if the control spring tension is increased sufficiently to raise the pickup to

60 percent of rating DC or 80 percent of rating AC. This can be done by the following procedure. The control spring should be anchored in the rear hole of the spring post. The adjusting screws in the contact arms should be backed off to a position where they will no longer engage the molded contact support and should be locked in this position. Both screw contacts should be backed off to a point where they project approximately 3/32 inch beyond the contact plates and securely locked. There must be from 1/32 inch to 1/16 inch wipe on the normally open contacts; this should be adjusted, if necessary, by bending the contact arms. The pickup should now be set by shifting the position of the spring on the matched armature tailpiece.

It is not recommended that the Type HGA14AE relay or those relays using current coils be readjusted to have two normally closed contacts.

CONTACT WIPE

With the "short gap" adjustments the minimum recommended contact wipe is one full turn of the screw in each moving contact arm. In setting the wipe the armature should be closed by hand and the screws turned in until they just touch the projections on the molded contact support. They should then be backed off one turn and locked securely in position by means of the locknuts. The minimum recommended contact gap is 3-3/4 turns of the back contact screw. This adjustment is made by turning the right-hand contact screw in until the normally open contacts are just making, and then backing it off 3-3/4 turns and locking it securely in position by means of the locknut. Note that the left-hand contact screw should be set far enough back so that it clears the left moving contact with the relay dropped out. It should be noted that adjustments are for minimum recommended contact gap and wipe. If the contact gaps are made shorter the interrupting ratings listed will no longer apply.

MAINTENANCE

PERIODIC TESTING

Auxiliary relay equipment should be checked for operation of regular intervals, preferably at the same time the associated devices are inspected.

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 burnishing tool described is included in the standard relay tool kit obtainable from the factory.

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, specify quantity required, name of part wanted, and give complete nameplate data. If possible, give the General Electric Company requisition number on which the relay was furnished. Refer to GEF-2623 for a list of renewal parts.

* Denotes change since superseded issue.

Fig. 3 (104A8557-1)



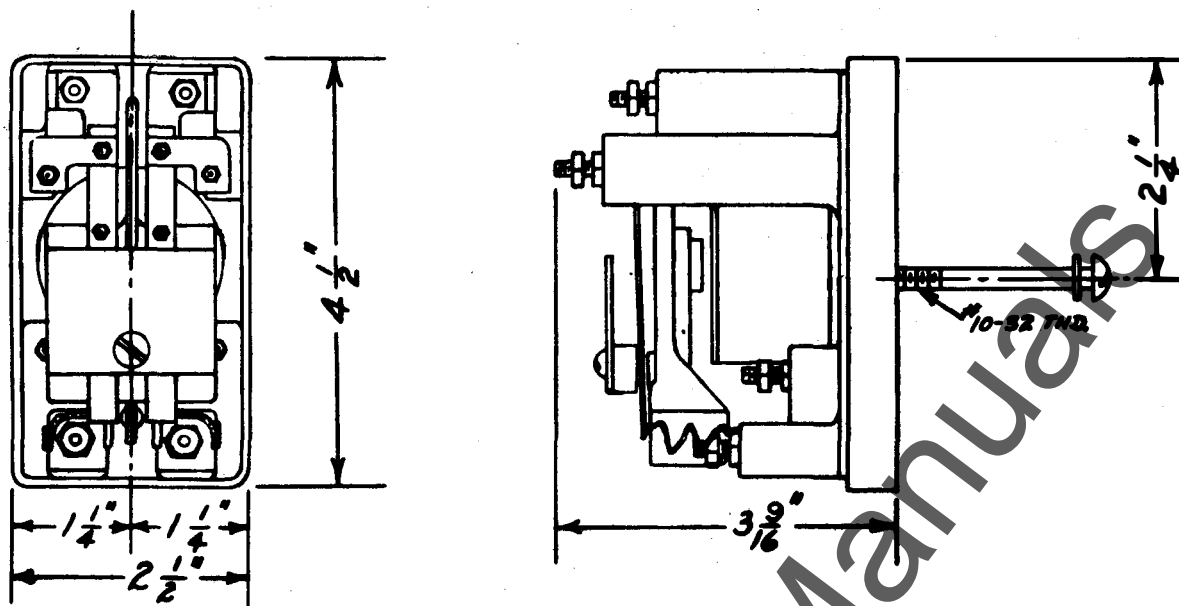


Fig. 4 Outline Dimensions for the HGA14D Relay

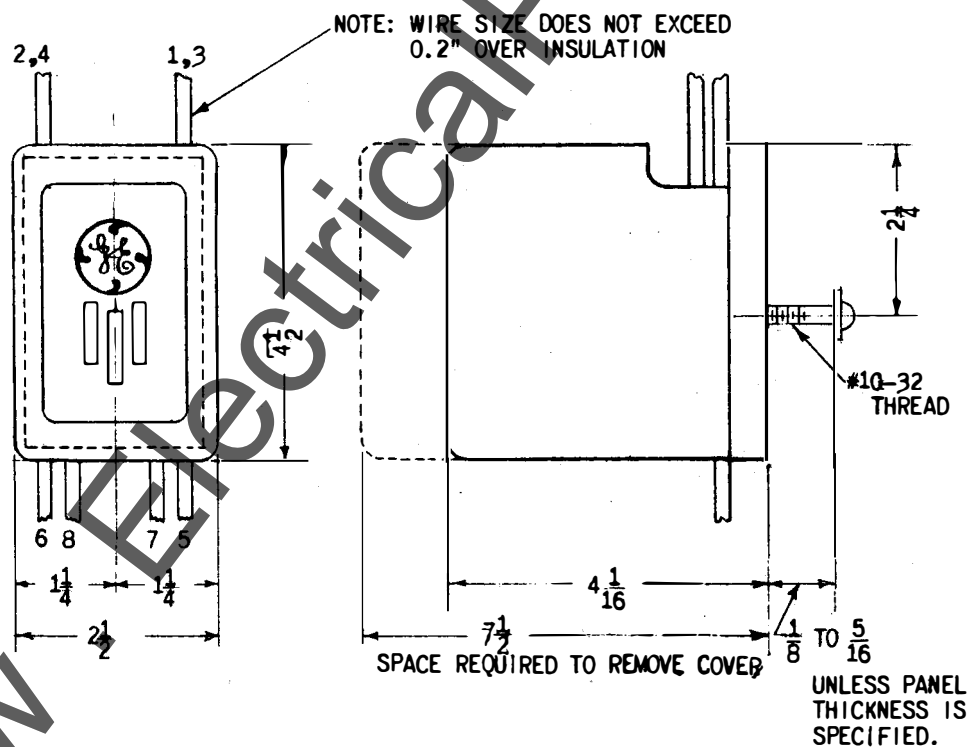
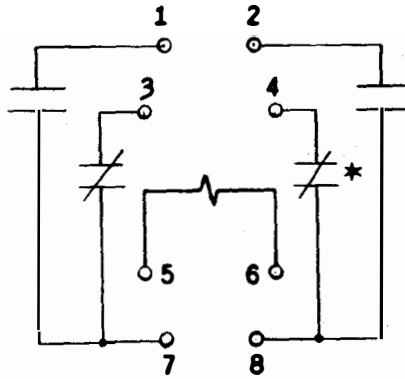


Fig. 5 Outline Dimensions for the HGA14AE, HGA14AF and HGA14AV Relays

Fig. 5 (6375628-2)



*
CONTACT 4
IS NOT USED UNLESS PICK-UP
IS RAISED TO 60% (DC) OR 80%
(AC) OF RATING..

Fig. 6 Internal Connection Diagram for HGA14 Relays

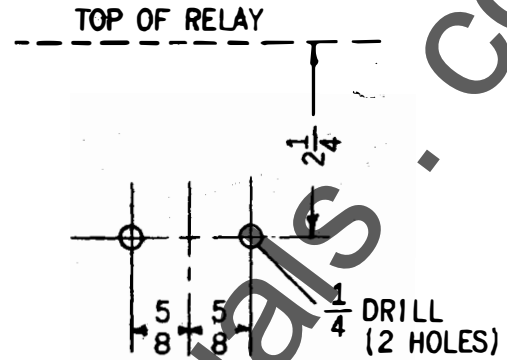
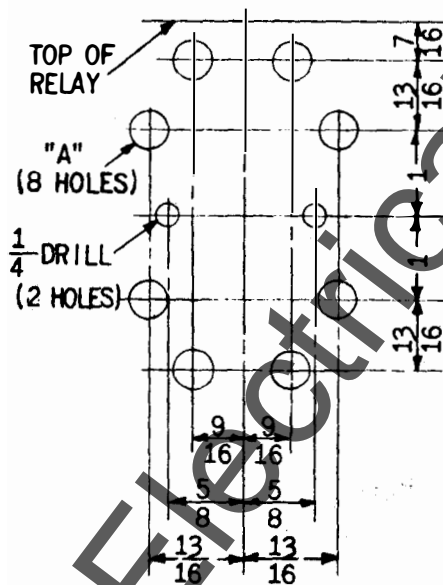


Fig. 7 Panel Drilling Diagram for HGA14AD, HGA14AE, HGA14AF and HGA14AV Relays (Front View)



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

Fig. 8 Panel Drilling Diagram for HGA14A Relay (Front View)

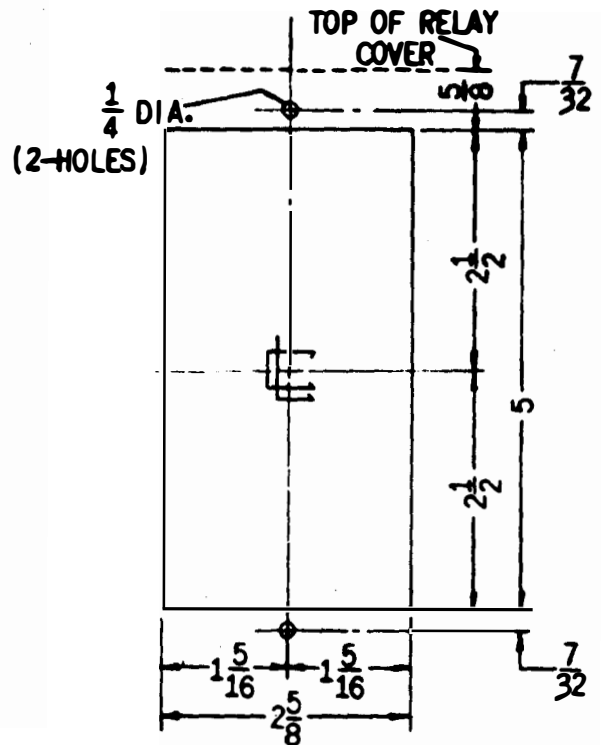


Fig. 9 Panel Drilling Diagram for HGA14A(-)F Relay (Front View)

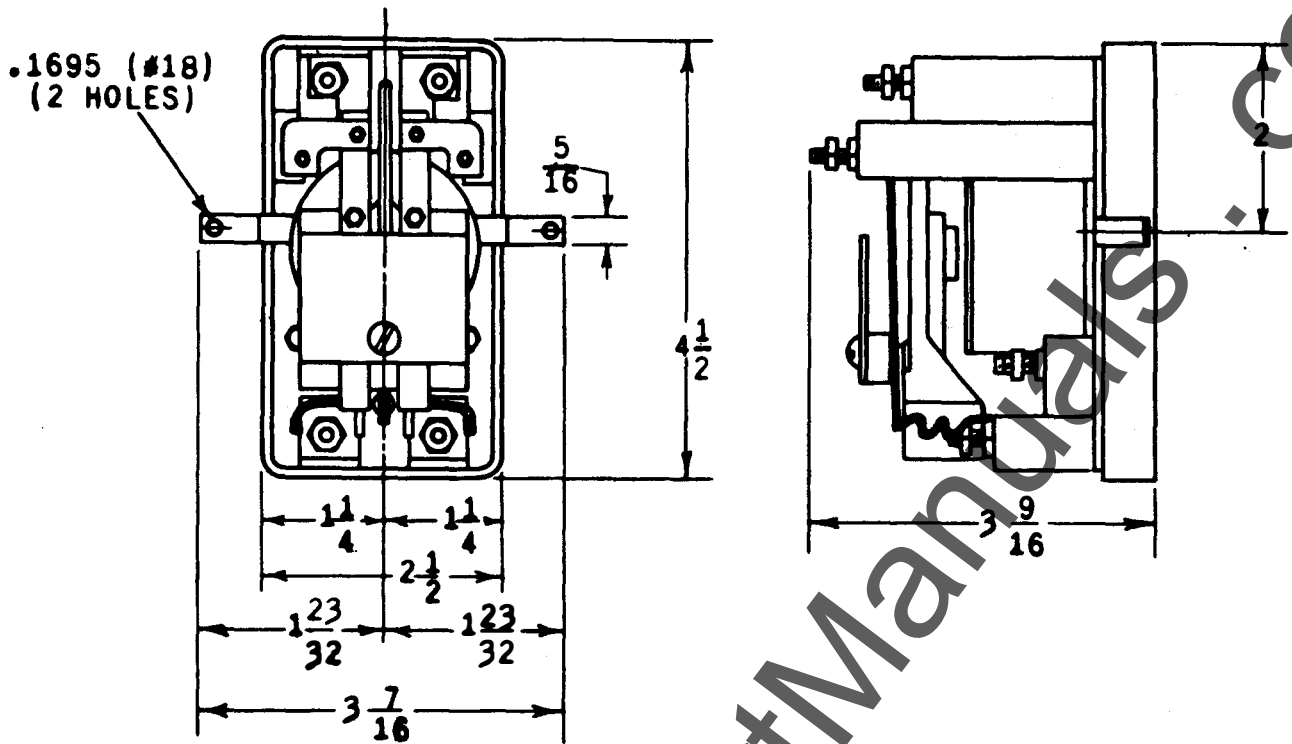


Fig. 10 Outline Dimensions for the HGA14BE Relay

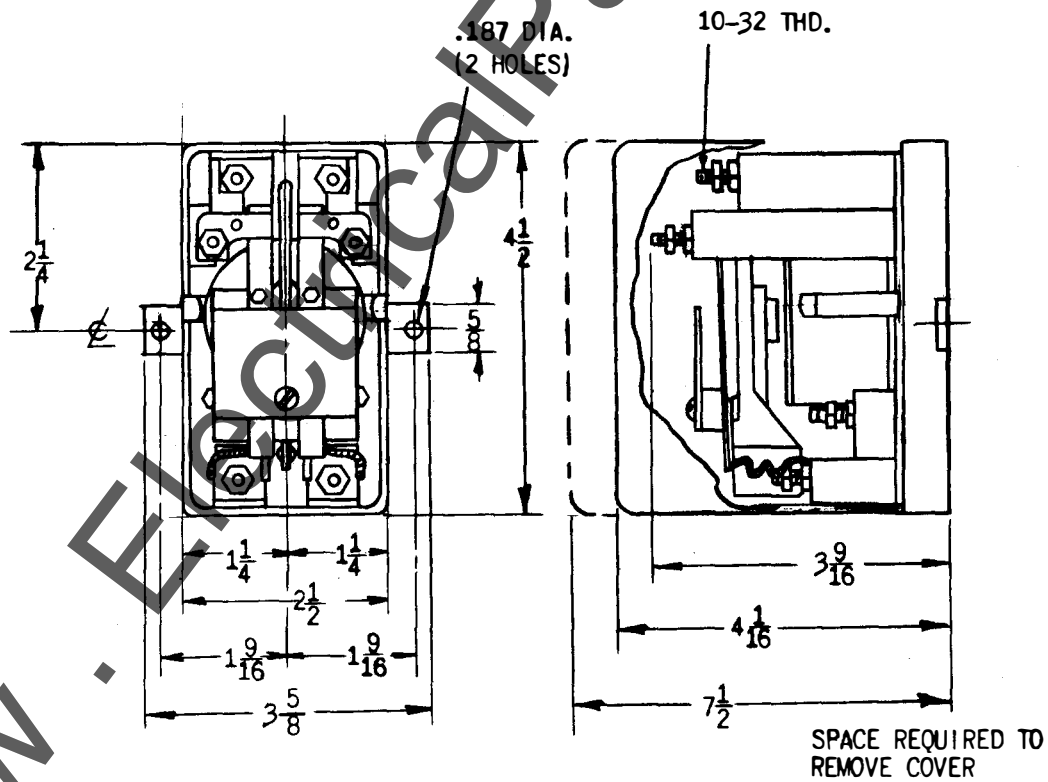


Fig. 11 Outline Dimensions for the HGA14BF Relay

Fig. 10 (0148A4037-0)

Fig. 11 (0165A7757-2)

Fig. 12 (0148A4037-0)

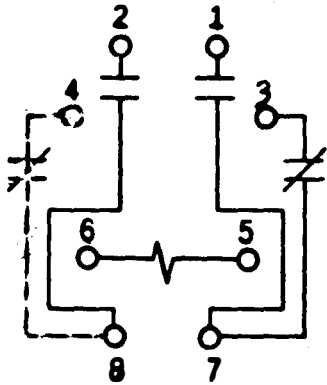


Fig. 12 Internal Connection Diagram for HGA14BE Relay (Front View)

Fig. 13 (0165A7757-2)

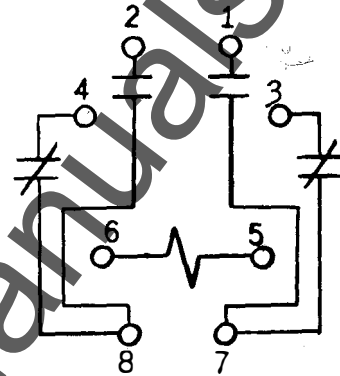


Fig. 13 Internal Connection Diagram for HGA14BF Relay (Front View)

Fig. 14 (0148A4037-0)

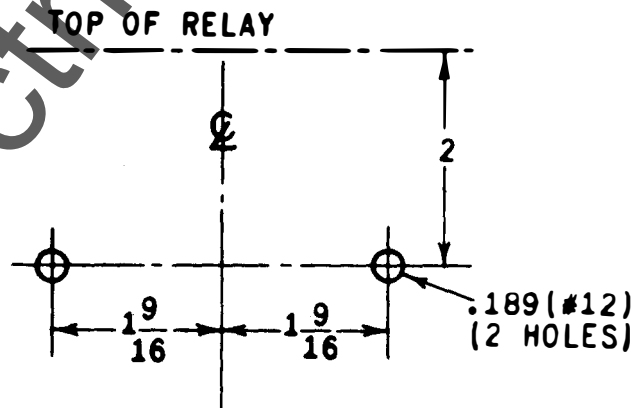


Fig. 14 Panel Drilling Diagram for HGA14BE Relay

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