



# INSTRUCTIONS

GEH-2024A  
SUPERSEDES GEH-2024

# MULTICONTACT AUXILIARY RELAY

## Type HFA 51

## DESCRIPTION

### INTRODUCTION

The HFA51A and HFA51B relays are instantaneous, hinged armature, multi-contact, auxiliary relays. They have six electrically separate contact circuits adaptable for either circuit opening or circuit closing application. This arrangement permits a number of operations to be performed simultaneously.

The HFA51A and HFA51B relays are available for front or back connection. The front connected relays are suitable for surface mounting only.

The back connected relays are suitable for either surface mounting or semi-flush mounting; a steel flange is necessary for the latter. There are two types of flanges available: one provides mounting with normal cover; one provides mounting with the drawout-case type cover.

### CHARACTERISTICS

The HFA51A relay is self reset and has an instantaneous dropout.

The HFA51B relay is hand reset by means of a plunger assembly installed through the transparent cover.

Unless the relays are ordered with a specific contact arrangement, they will be shipped with six circuit closing contacts (Code 60). The contact arrangement can be easily changed to provide any of the combinations shown in Table I.

### RATINGS

The Type HFA relays are available with coil ratings for standard voltages up to 575 volts at 25, 50, or 60 cycles and up to 250 volts d-c.

The current closing rating of each contact is 30 amperes. The current carrying rating is 12 am-

peres continuous or 30 amperes for one minute. Table II lists the non-inductive interrupting capacity of each contact.

TABLE I

Code No.	60	51	42	33	24	15	06
Position No.	Contact Arrangement						
1	a	a	a	a	a	a	b
2	a	a	a	a	b	b	b
3	a	a	b	b	b	b	b
4	a	b	b	b	b	b	b
5	a	a	a	b	b	b	b
6	a	a	a	a	a	b	b

Note: a = Normally Open b = Normally Closed

TABLE II

DC		AC	
Volts	Amperes	Volts	Amperes
12	30	115	30
24	15	230	20
32	10	460	15
48	8	575	10
125	3		
250	1		

### BURDENS

The burdens are measured with the relay in the picked up position and at rated voltage are listed in Table III.

TABLE III

DC COILS		AC COILS		
Watts		Freq. Cycles	Volt-Amperes	Watts
Cold	Hot			
7.8	6.0	25	10	4
		50	23	9
		60	32	12

*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.*

LOW VOLTAGE SWITCHGEAR DEPARTMENT



PHILADELPHIA, PA.

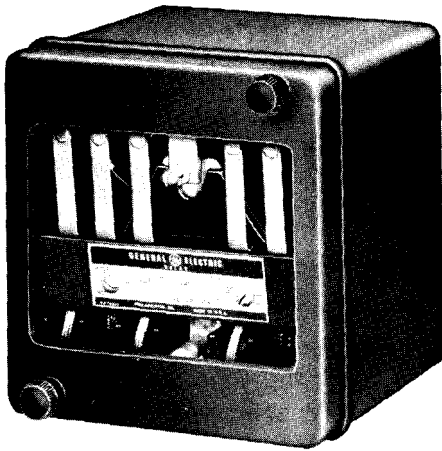


Fig. 1 HFA51 Back Connected Relay in Standard Case (Front View)

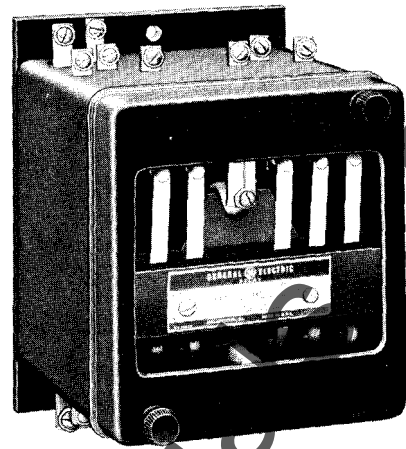


Fig. 2 HFA51 Front Connected Relay in Standard Case (Front View)

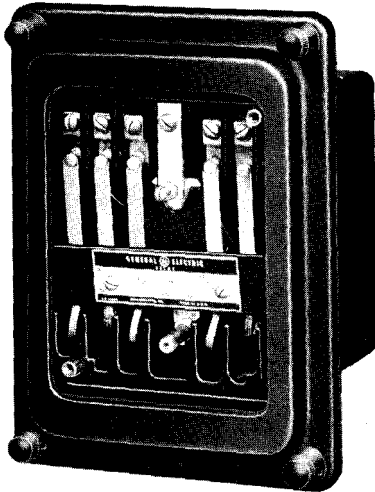


Fig. 3 HFA51 Back Connected Relay with Flange for Semi-flush Mounting to Line-up with Cover of Drawout Case (Front View)

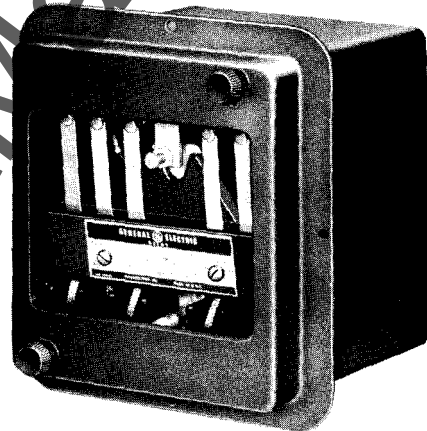


Fig. 4 HFA51 Back Connected Relay with Flange for Semi-flush Mounting (Front View)

## INSTALLATION

### MOUNTING AND CONNECTIONS

The Type HFA relays should be mounted on a vertical surface. The outline and panel drilling diagrams are shown in Figs. 6, 7, 8 and 9. Surface mounting on steel panels requires an insulating bushing for each terminal.

The internal connection diagram for Type HFA relays is shown in Fig. 5.

### ADJUSTMENTS

#### PICKUP

The relays are adjusted at the factory to pickup at 80 percent of rating for a-c coils and 60 percent

of rating for d-c coils. Normally these adjustments should not change; if it is necessary to readjust the relay the knurled adjusting nut should be lifted 1/16 inch, turned clockwise to raise pickup or counterclockwise to lower pickup, and then resealed in the hexagonal groove in the armature tailpiece.

After the relay has been mounted it should be operated a few times to be certain that the mechanism operates freely, and that the contact surfaces align properly and open quickly when the coil is de-energized.

#### CONTACTS

The contacts should not require readjustment since they are self-aligning.

Fig. 1 (8025536)

Fig. 2 (8025264)

Fig. 3 (8025535)

Fig. 4 (8025537)

Any contact circuit can be changed from circuit opening to circuit closing, or vice versa, by removing the fixed contact, turning it over, and replacing it. After the change the contacts should be checked to see that all circuit closing contacts make simultaneously when the relay is operated by hand, and that all circuit opening contacts reclose simultaneously when the relay is allowed to drop out. All moving contacts should have at least 3/64 inch wipe when in their operated position. It may be necessary to bend the moving contact arms to realize these requirements.

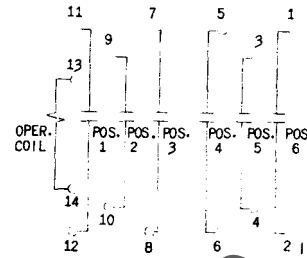


Fig. 5 Internal Connection Diagram for Type HFA Relays (Front View)

## MAINTENANCE

### CONTACT CLEANING

In 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.

Fine silver contacts should not be cleaned with knives, files or abrasive paper or cloth.

The burnishing tool described is included in the standard XRT11A relay tool kit obtainable from the factory.

### RENEWAL PARTS

When ordering renewal parts, address the nearest State's office of the General Electric Company, specify quantity required, name of part wanted, and give complete nameplate data. The renewal parts publication is GEF-2757.

Fig. 5 (104A8526-1)

Fig. 6 (6375766-0)

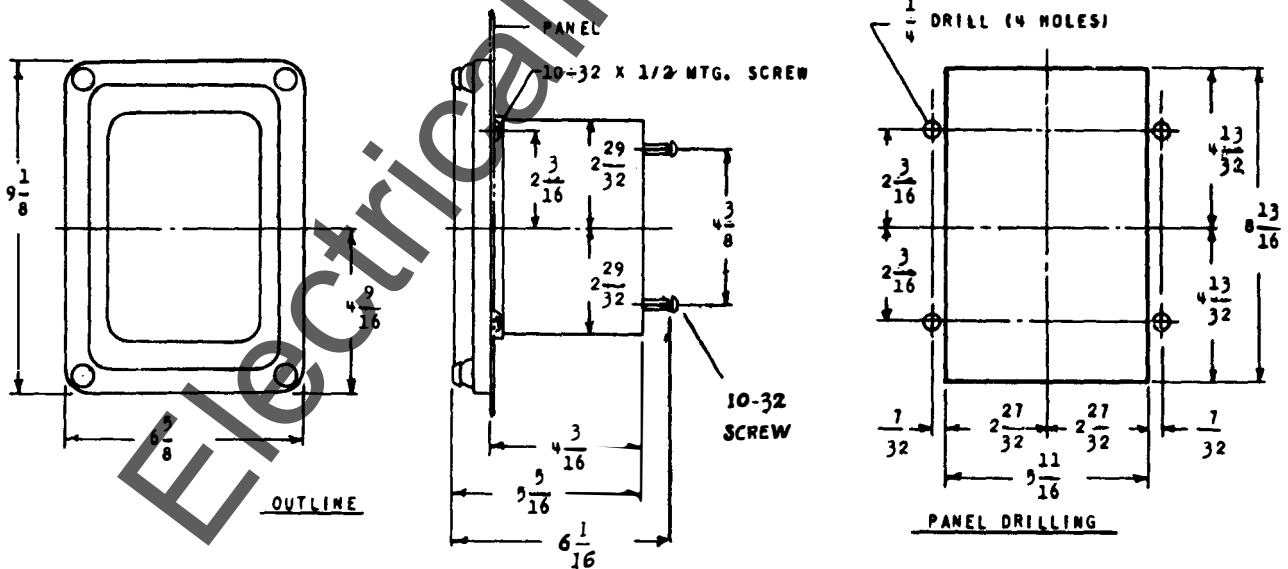
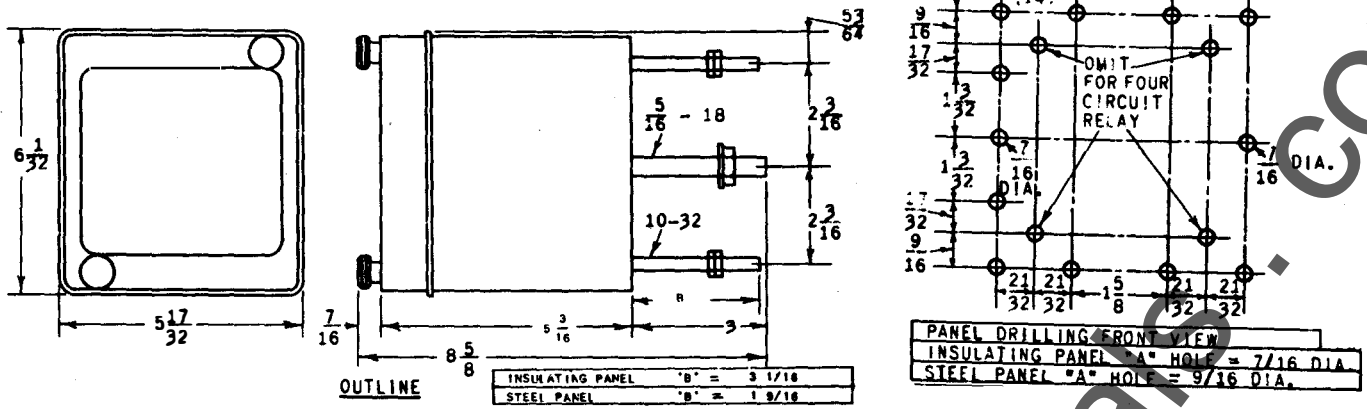


Fig. 6 Outline and Panel Drilling for Semi-flush Mounted Type HFA Relays that Line Up with Draw-out Type Cases (Typical Model Number is HFA51A(-)E)



\* Fig. 7 Outline and Panel Drilling for Surface Mounted Type HFA Relays (Typical Model Number is HFA51A(-))

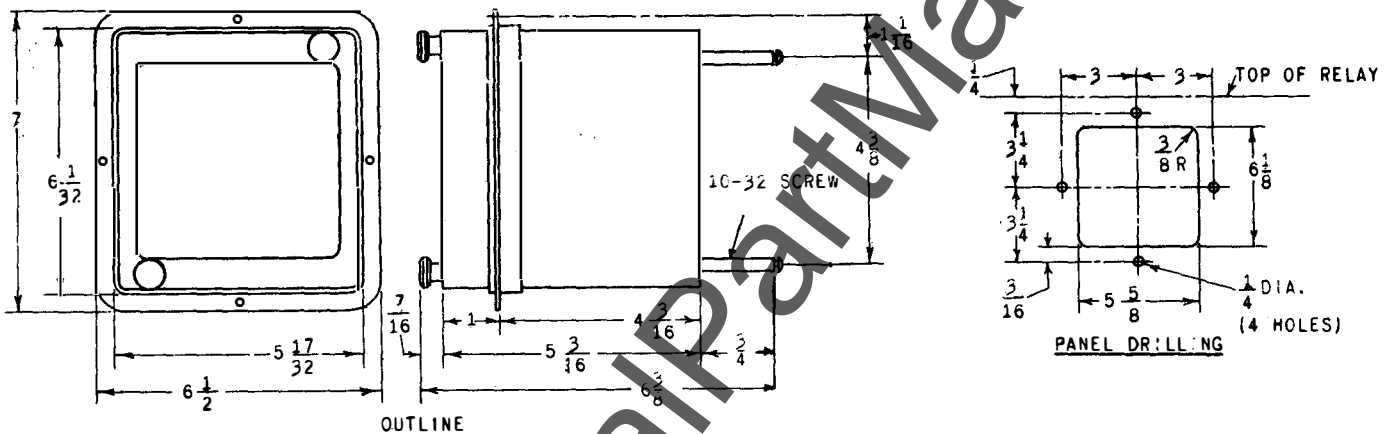


Fig. 8 Outline and Panel Drilling for Semi-flush Mounted Type HFA Relays (Typical Model Number is HFA51(-)F)

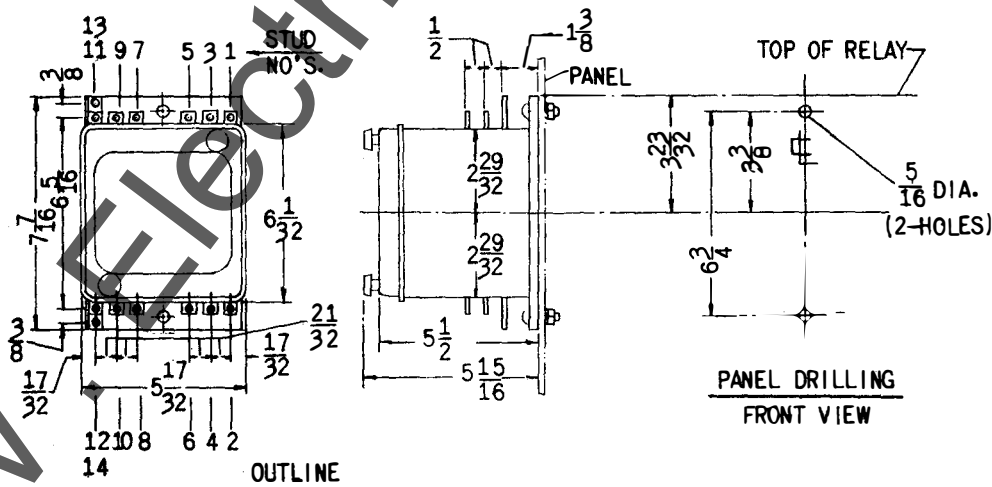


Fig. 9 Outline and Panel Drilling for Front Connected Type HFA Relay (Typical Model Number is HFA51A(-)H)

\* Denotes change from superseded book.