GEI-44068A

INSTRUCTIONS

Switchgear

Type HGA33A

TIME DELAY CONTROL RELAY

LOW VOLTAGE SWITCHGEAR DEPARTMENT

GENERAL ELECTRIC

PHILADELPHIA, PA.

TIME DELAY CONTROL RELAY
TYPE HGA33A

INTRODUCTION

Type HGA33A relay is a time delay, hinged armature type relay having single pole, single throw, double break contacts. It is designed for use as a control relay in a motor elevating circuit with motor P-6517087.

RATINGS

This relay is available with intermittent coil ratings of 5 minutes at 125 and 250 volts d-c. It can also be supplied with an external rectifier for intermittent use on 230 volts, 25/60 cycles a-c.

The contacts will make, carry for 5 minutes, and interrupt the stalled rotor current of motor P-6517087 at its rated voltage.

BURDENS

The d-c rated relays have a burden of approximately 45 watts. The a-c rated relays have a burden of approximately 23 volt-amperes and 11 watts including the external rectifier and capacitor.

RECEIVING, HANDLING AND STORAGE

These relays, when not included as a part of a control panel will be shipped in cartons designed to protect them against damage. Immediately upon receipt of a relay, examine it for any damage sustained in transit. If injury or damage resulting from rough handling is evident, file a damage claim at once with the transportation company and promptly notify the nearest General Electric Apparatus Sales Office.

Reasonable care should be exercised in unpacking the relay in order that none of the parts are injured or the adjustments disturbed.

If the relays are not to be installed immediately, they should be stored in their original cartons in a place that is free from moisture, dust and metallic chips. Foreign matter collected on the outside of the case may find its way inside when the cover is removed and cause trouble in the operation of the relay.

DESCRIPTION

The contact circuit of this control relay is 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 armature, magnet and contact assemblies are all mounted on a compact moulded compound base. The relay is front connected and is provided with a moulded compound cover. The base is suitably notched to provide for the entrance of the connecting leads.

On d-c relays, small horseshoe permanent magnets are mounted in grooves in the base and are held in place by the stationary contact brackets. The contact buttons are elkonite.

The coil is wound on a copper spool which also acts as a damping ring and provides time delay on dropout when the coil is de-energized.

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.

INSTALLATION

LOCATION

The location should be cleaned 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 outline and panel drilling dimensions of the relay are given in Fig. 1. The outline of the external rectifier for the a-c rated relay is given in Fig. 2.

CONNECTIONS

The internal connection diagram for this relay is shown in Fig. 1. Note that terminal two of the relay must be connected to the positive side of the control power supply in order to obtain the correct magnetic blowout effect.

ADJUSTMENTS

The relays have been adjusted at the factory to operate at 60 percent of rating (cold) for d-c relays or 80 percent of rating for a-c relays. This adjustment can be restored, if necessary, by shifting the control spring to a different notch in the armature tail piece. A coarser adjustment may be obtained by shifting the control spring to a different hold in the anchor pin.

As shipped from the factory, the relay has a time delay dropout of approximately 0.24 seconds. This time delay feature results from the dampening effect of the copper spool. It may be adjusted over a small range by regulating the control spring tension. This adjustment, of course, affects the pickup adjustment.

MAINTENANCE

PERIODIC TESTING

Auxiliary relay equipment should be checked for operation at 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 flexibility of the tool insures the cleaning of the actual points of contact. Sometimes an ordinary file cannot reach the actual points of contact because of some obstruction from some other part of the relay.

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.

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, including serial number. If possible, give the General Electric Company requisition number on which the relay was furnished.

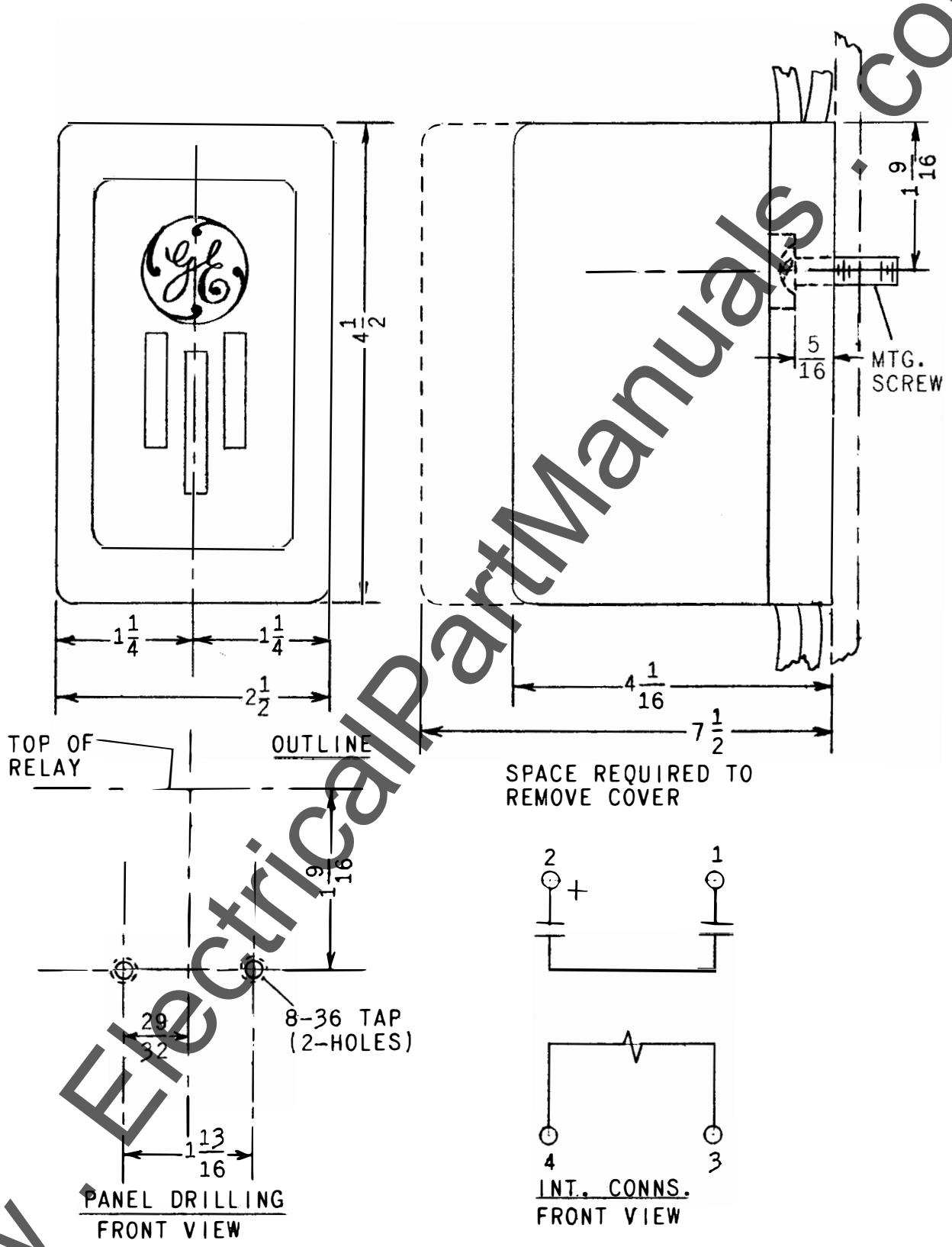


Fig. 1 (389A707)

Fig. 1 Outline, Panel Drilling And Internal Connection Dimensions For Type HGA33A Relay

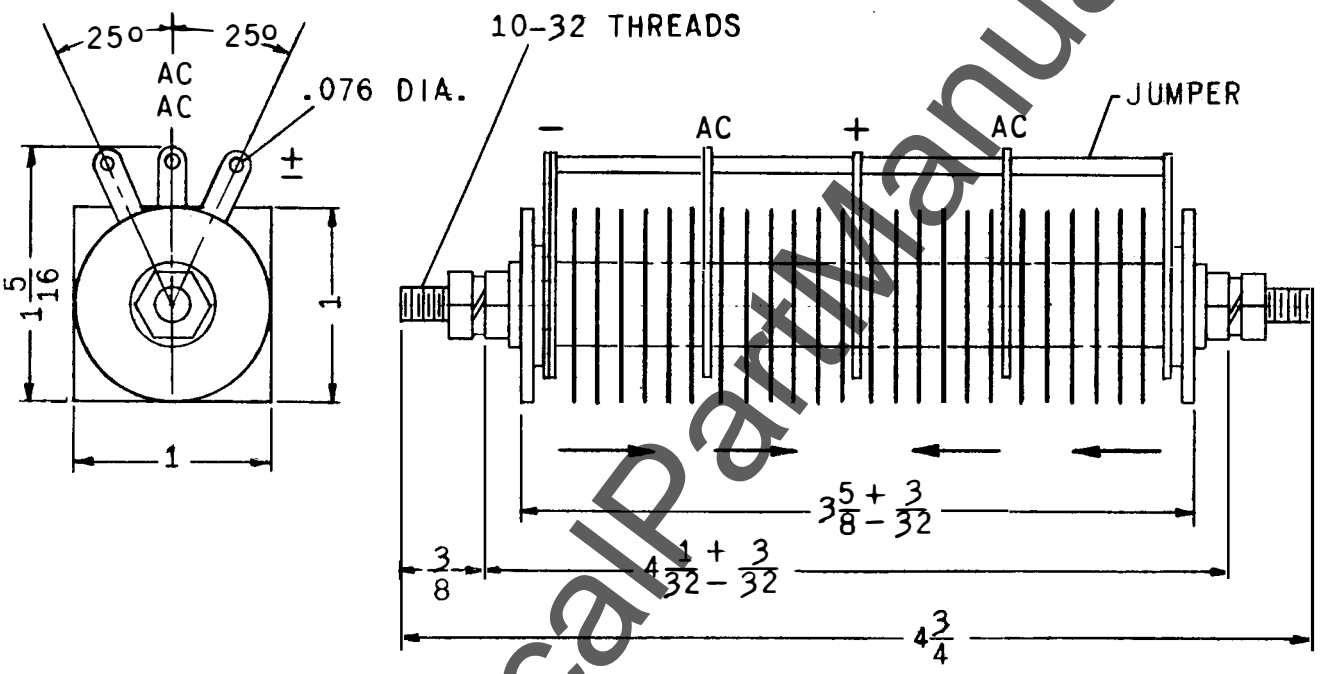
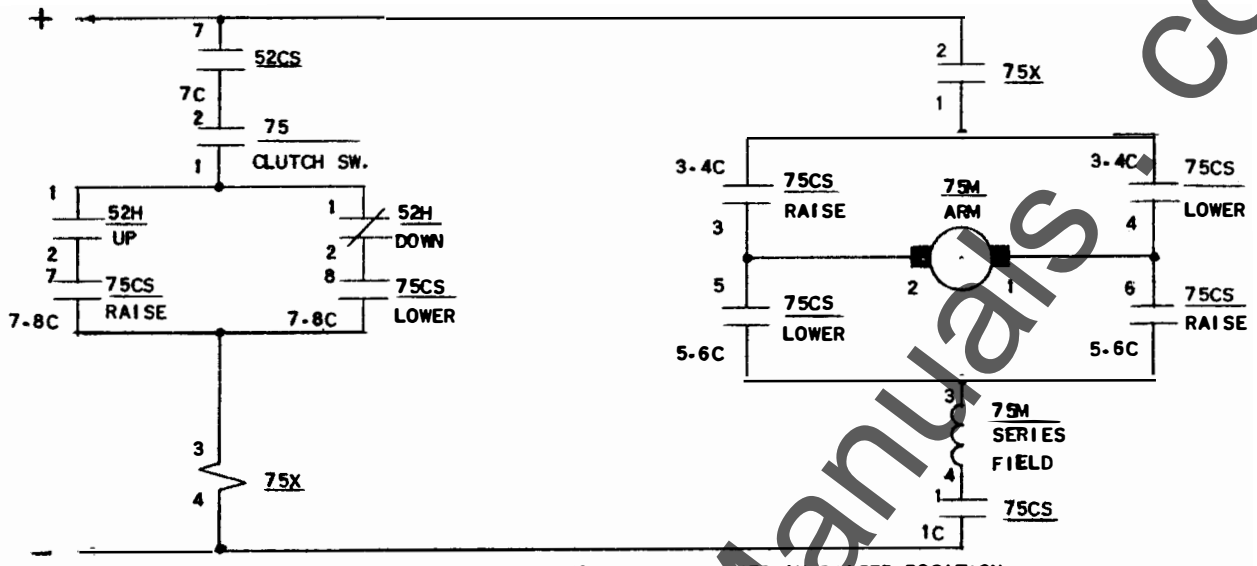


Fig. 2 (402A922)

Fig. 2 Outline Of External Rectifier For Type HGA33A Relay



NOTE: LIMIT SWITCHES 52H SHOWN WITH BREAKER IN RAISED POSITION.

Fig. 3 (389A708)

CONTROL SWITCH 52CS
MODEL 16SB1B10

CONTACT HANDLE END	NO.	POSITIONS CLOSE	NORM. AFTER CLOSE	NORM. AFTER TRIP	TRIP
1 1-2C 2	1				X
	2				X
3 3C 4C 4	3		X	X	
	4	X			
5 5C 6C 6	5	X	X		
	6	X	X		
7 7C 8C 8	7			X	X
	8			X	X

SPRING RETURN TO NORMAL
X DENOTES CONTACT CLOSED

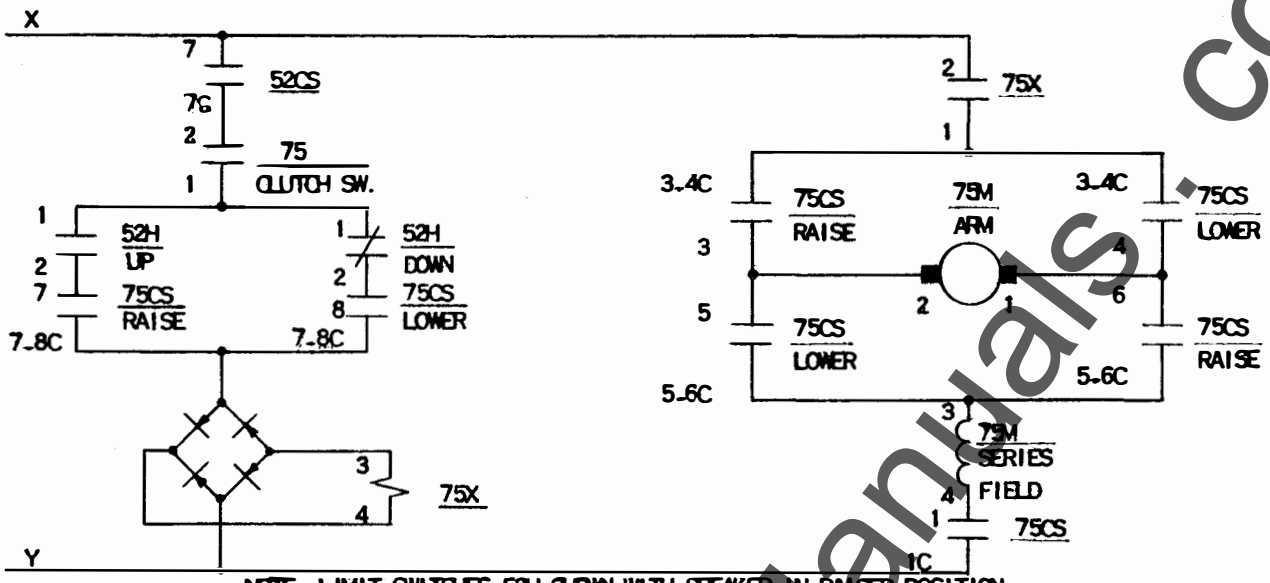
RAISE-LOWER SWITCH 75CS
MODEL 16SB1A4

CONTACT HANDLE END	NO.	POSITIONS LOWER	NORM.	RAISE
1 1C 2C 2	1	X		X
	2		X	
3 3-4C 4	3			X
	4	X		
5 5-6C 6	5	X		
	6			X
7 7-8C 8	7			X
	8	X		

X DENOTES CONTACT CLOSED.

LEGEND		
SYMBOL	DEVICE	DESCRIPTION
52CS	16SB1B10	CIRCUIT BREAKER CONTROL SWITCH
52H		MOTOR LIMIT SWITCH
75CS	16SB1A4	RAISE-LOWER SWITCH
75M	P.6517087	ELEVATING MOTOR
75X	HGA33A	CONTROL RELAY

Fig. 3 Typical External Connections For Type HGA33A Relay When Used In Elevating Mechanism Circuit



NOTE: LIMIT SWITCHES 52H SHOWN WITH BREAKER IN RAISED POSITION.

CONTROL SWITCH 52CS
MODEL 16SB1B10

CONTACT HANDLE END	NO	POSITIONS CLOSE	NORM. AFTER CLOSE	NORM. AFTER TRIP	TRIP
1 1-2C 2	1				X
	2				X
3 3C 4C 4	3		X	X	
	4	X			
5 5C 6C 6	5	X	X		
	6	X	X		
7 7C 8C 8	7			X	X
	8			X	X

SPRING RETURN TO NORMAL
X DENOTES CONTACT CLOSED

RAISE-LOWER SWITCH 75CS
MODEL 16SB1A4

CONTACT HANDLE END	NO	POSITIONS LOWER	NORM.	RAISE
1 1C 2C 2	1	X		X
	2		X	
3 3-4C 4	3			X
	4	X		
5 5-6C 6	5	X		
	6			X
7 7-8C 8	7			X
	8	X		

X DENOTED CONTACT CLOSED.

LEGEND		
SYMBOL	DEVICE	DESCRIPTION
52CS	16SB1B10	CIRCUIT BREAKER CONTROL SWITCH
52H		MOTOR LIMIT SWITCH
75CS	16SB1A4	RAISE-LOWER SWITCH
75M	P-6517087	ELEVATING MOTOR
75X	HGA33A	CONTROL RELAY

Fig. 4 (402A923)

Fig. 4 Typical External Connections For Type HGA33 Relay When Used In Elevating Mechanism Circuit (For A-C Control Circuits)

AEP

GENERAL ELECTRIC

Supersedes GEI-44068