



GE VERNOVA

RELAYS

AUXILIARY VOLTAGE RELAY

TYPE HAA16B, HAA16C

GEK-7354J

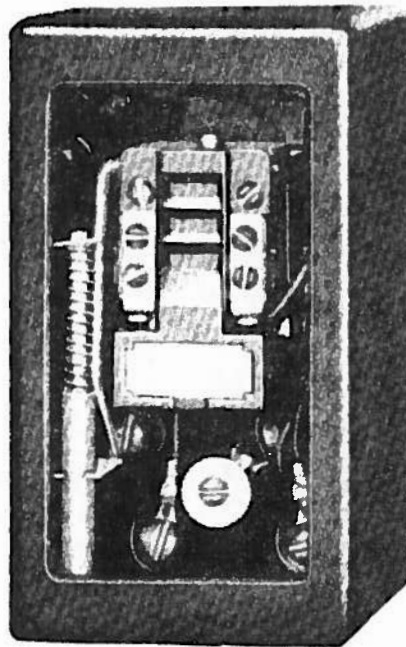


FIG. 1 (8038617) RELAY TYPE HAA16B IN CASE (FRONT VIEW)

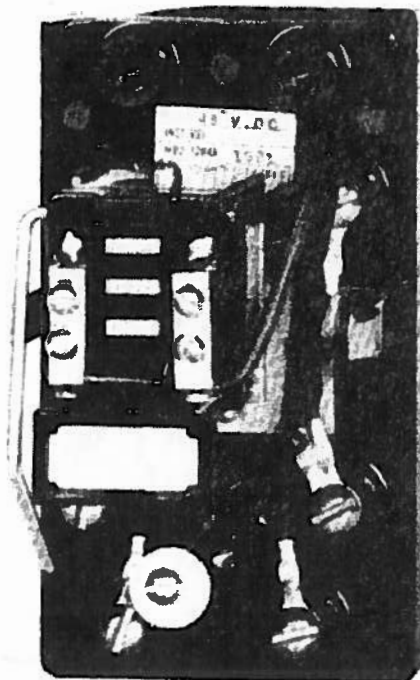


FIG. 2 (8038618) RELAY TYPE HAA16B REMOVED FROM CASE (FRONT VIEW)

AUXILIARY VOLTAGE RELAY

TYPE HAA16B, HAA16C

INTRODUCTION

The HAA relays covered by this Instruction Book consist of one target unit mounted in a molded plastic case with a glass window. These relays have two normally open contacts, electrically separate from the coil circuit, which operates when the target coil is energized. The coil circuit of the HAA16 is designed for d-c voltage operation. The available voltage ratings are given in Table A. The internal connection is provided in Fig. 3. Fig. 4. illustrates the outline of the external resistor when required.

TABLE "A"

MODEL	COIL RATING
	250 VOLTS DC
	125 VOLTS DC
HAA16B	48 VOLTS DC
HAA16C	32 VOLTS DC
	24 VOLTS DC

The Type HAA16 relay may be used as an interposing relay with transformer pressure relays to increase the security of such relaying schemes. Typical external connections of the relay for such an application are shown in Fig., 8. Note that a normally closed contact of the pressure relay is connected across the HAA coil. This prevents a false trip, should a voltage surge cause arcing across the normally open contacts of the pressure relay. The HAA relay also introduces a short time delay (approximately 1 cycle on a 60 cycle basis) to prevent a misoperation in the event that the pressure relay contact closes momentarily from shock or from a pressure wave.

The pick-up time of the HAA16 is shown in Figure 9 in milliseconds Vs percent of rated voltage.

The contacts will make and carry 30 amperes momentarily and will carry 6 amperes continuously.

The resistance values, the maximum operating voltage and continuous rating of the operating coils are given in Table "B". Pickup occurs at or below the maximum operating voltage.

CONSTRUCTION

The HAA relays contain a target unit which is a small hinged armature type relay with a "U" shaped magnet frame, a fixed pole piece, an armature, which operates the normally open contacts and the target, and an operating coil.

The HAA16B is mounted in a small molded case which can be either projection mounted, Fig. 5 or semi-flush mounted, Fig. 6. The HAA16C is similar to the HAA16B except that it is front connected surface mounted as shown by Fig. 7.

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.

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.

To the extent required the products described herein meet applicable ANSI, IEEE and NEMA standards; but no such assurance is given with respect to local codes and ordinances because they vary greatly.

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.

TABLE "B"

COIL RATING	PICKUP VOLTS LESS THAN	CONTINUOUS RATING	EXT. RESISTOR	COIL RESISTANCE	R1 RESISTOR
250 VOLT D.C.	200 VOLT	250 VOLT	1650	95	350
125 VOLT D.C.	100 VOLT	125 VOLT	650	95	350
48 VOLT D.C.	38.4 VOLT	48 VOLT	0	95	350
32 VOLT D.C.	25.6 VOLT	32 VOLT	0	14	100
24 VOLT D.C.	19.2 VOLT	24 VOLT	0	14	75

PERIODIC CHECKS AND ROUTINE MAINTENANCE

In view of the vital role of relays in the operation of a power system it is important that a periodic test program be followed. It is recognized that the interval between periodic checks will vary depending upon environment, type of relay and the user's experience with periodic testing. Until the user has accumulated enough experience to select the test interval best suited to his individual requirements it is suggested that the pickup voltage and condition of the contacts be checked at an interval of from one to two years.

CONTACT CLEANING

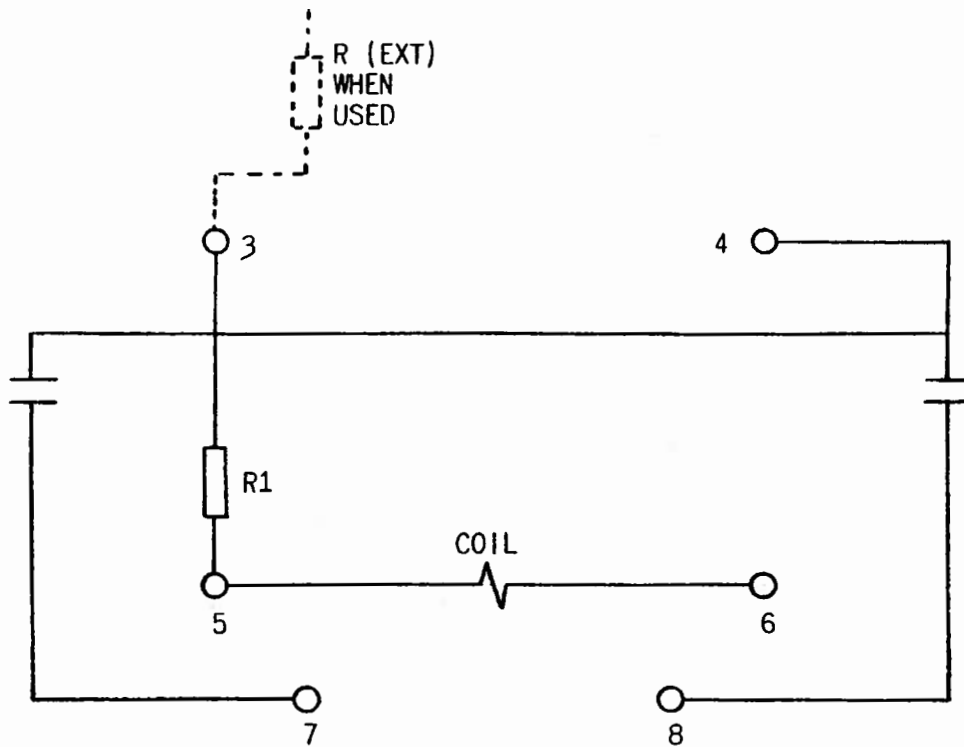
For cleaning relay contacts, a flexible burnishing tool should be used. This consists of a flexible strip of metal with an etched-roughened surface resembling in effect a superfine file. The polishing action is so delicate that no scratches are left, yet it will clean off any corrosion thoroughly and rapidly. Its flexibility insures the cleaning of the actual points of contact. Do not use knives, files, abrasive paper or cloth of any kind to clean relay contacts.

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 the part wanted, and the complete model number of the relay for which the part is required.

Since the last edition, Figures 4 and 6 have been changed.



VOLTS	OHMS		
	COIL	R1	R (EXT)
24 DC	14	75	—
32 DC	14	100	—
48 DC	95	350	—
125 DC	95	350	650
250 DC	95	350	1.65K
240 AC	140	350	1.65K

FIG. 3 (0207A7822-3) Internal Connections Diagram and Table of Resistance Values for the HAA16 Relay (Rear View)

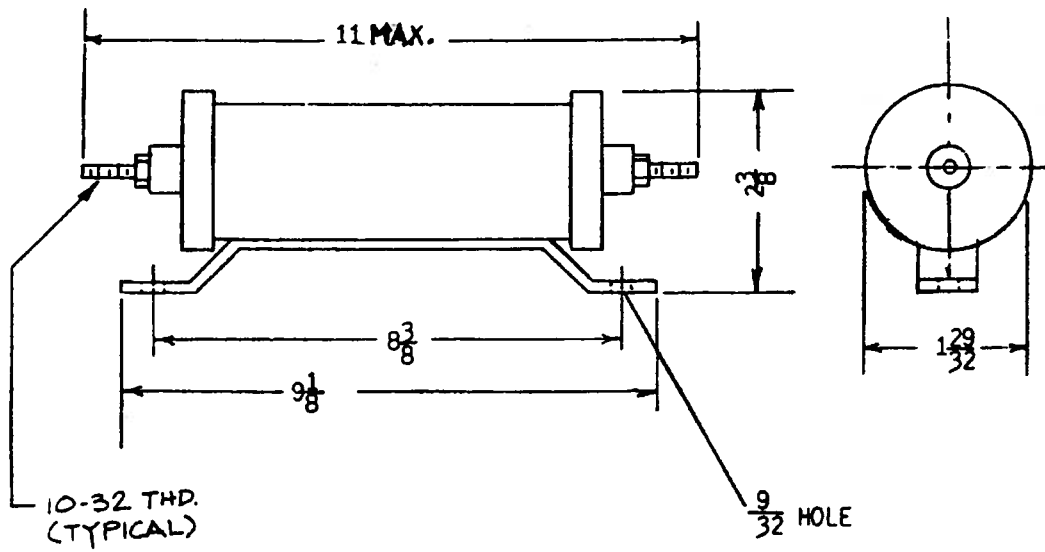


FIG. 4 (389A752 [3]) Outline of External Resistor -- When Required

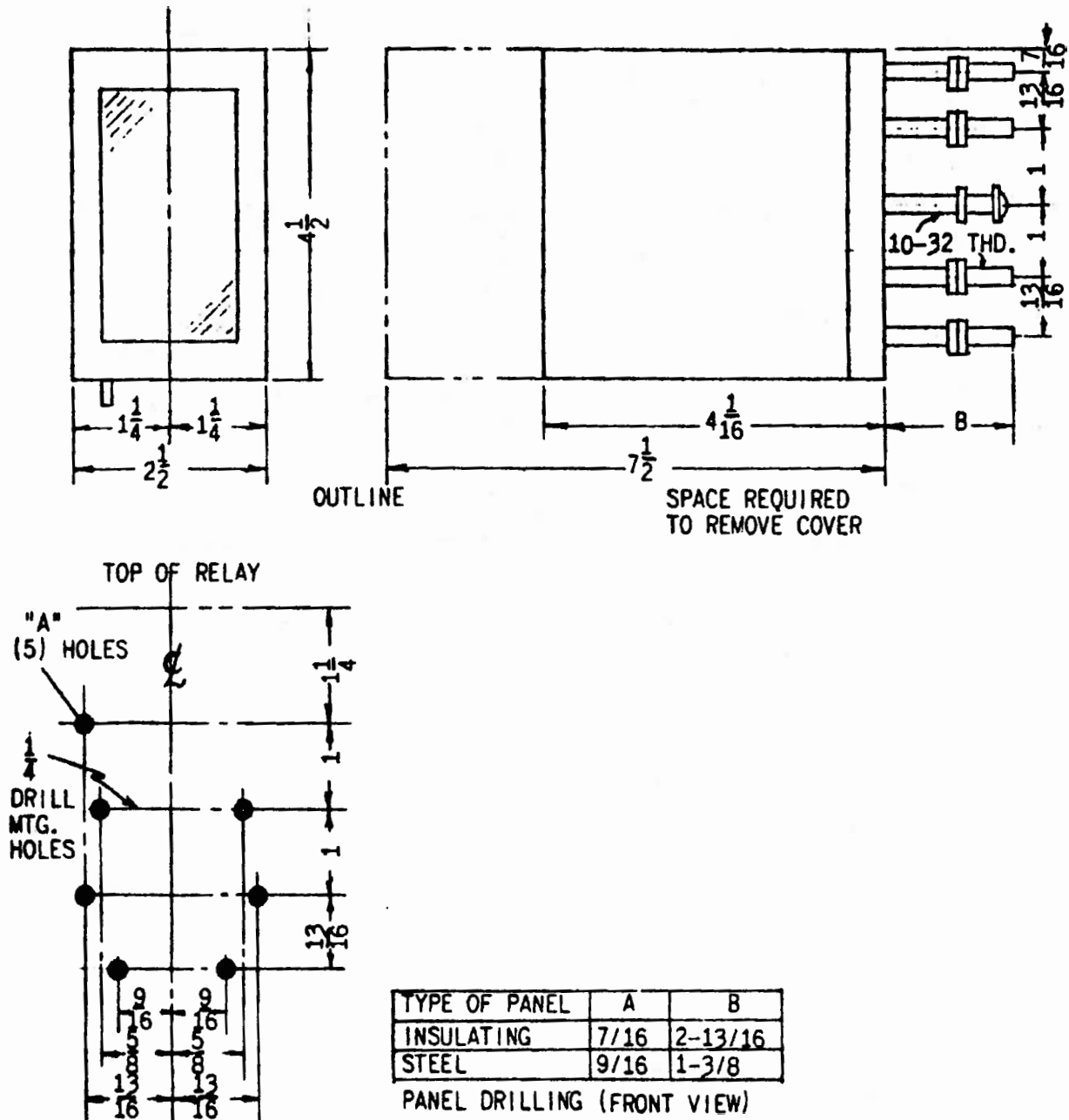


FIG. 5 (0165A6003-3) Outline and Panel Drilling Dimensions for the Projection Mounted HAA16B Relay

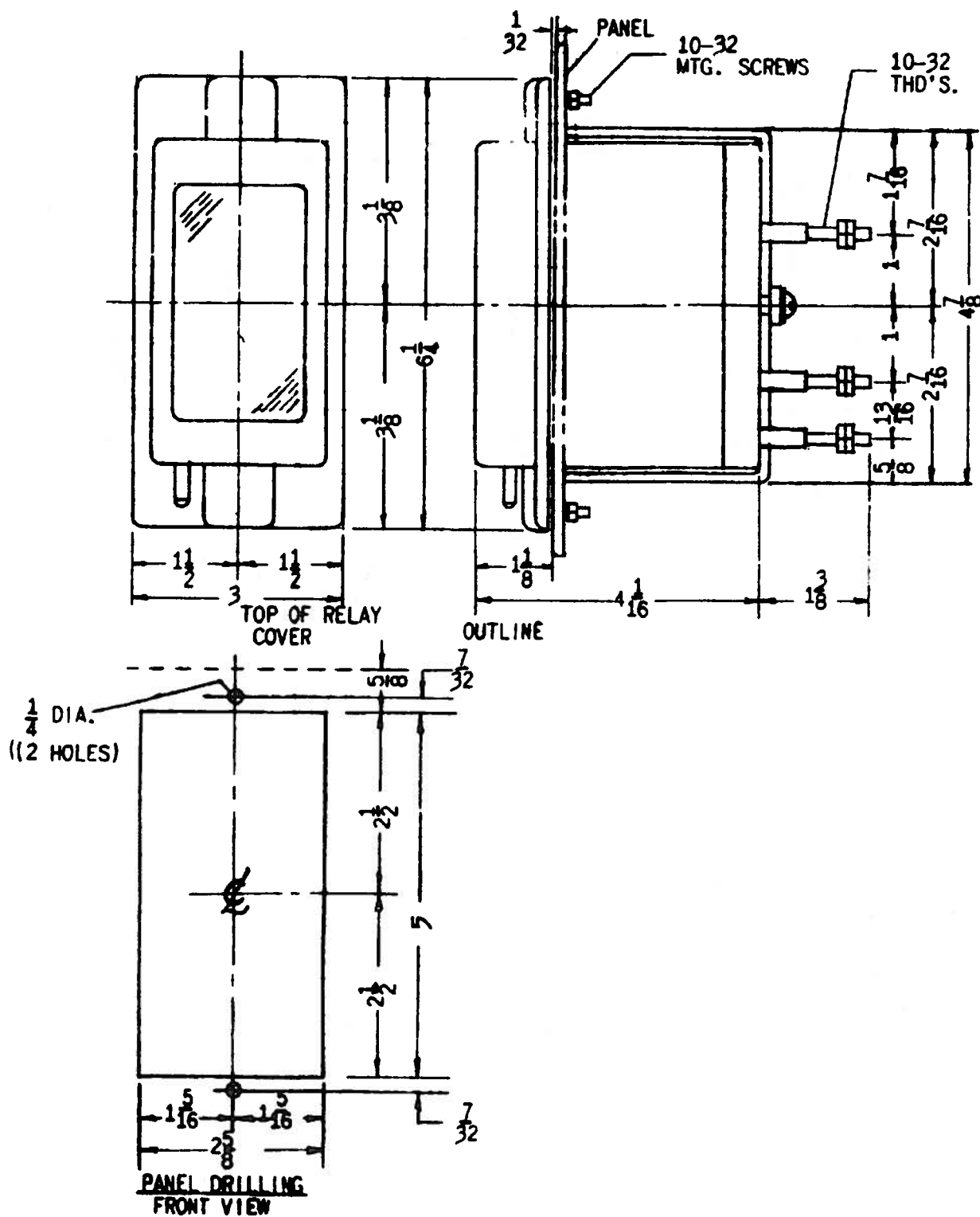


FIG. 6 (0127A9555 [3]) Outline and Panel Drilling Dimensions for the Semi-Flush Mounted HAA16B Relay

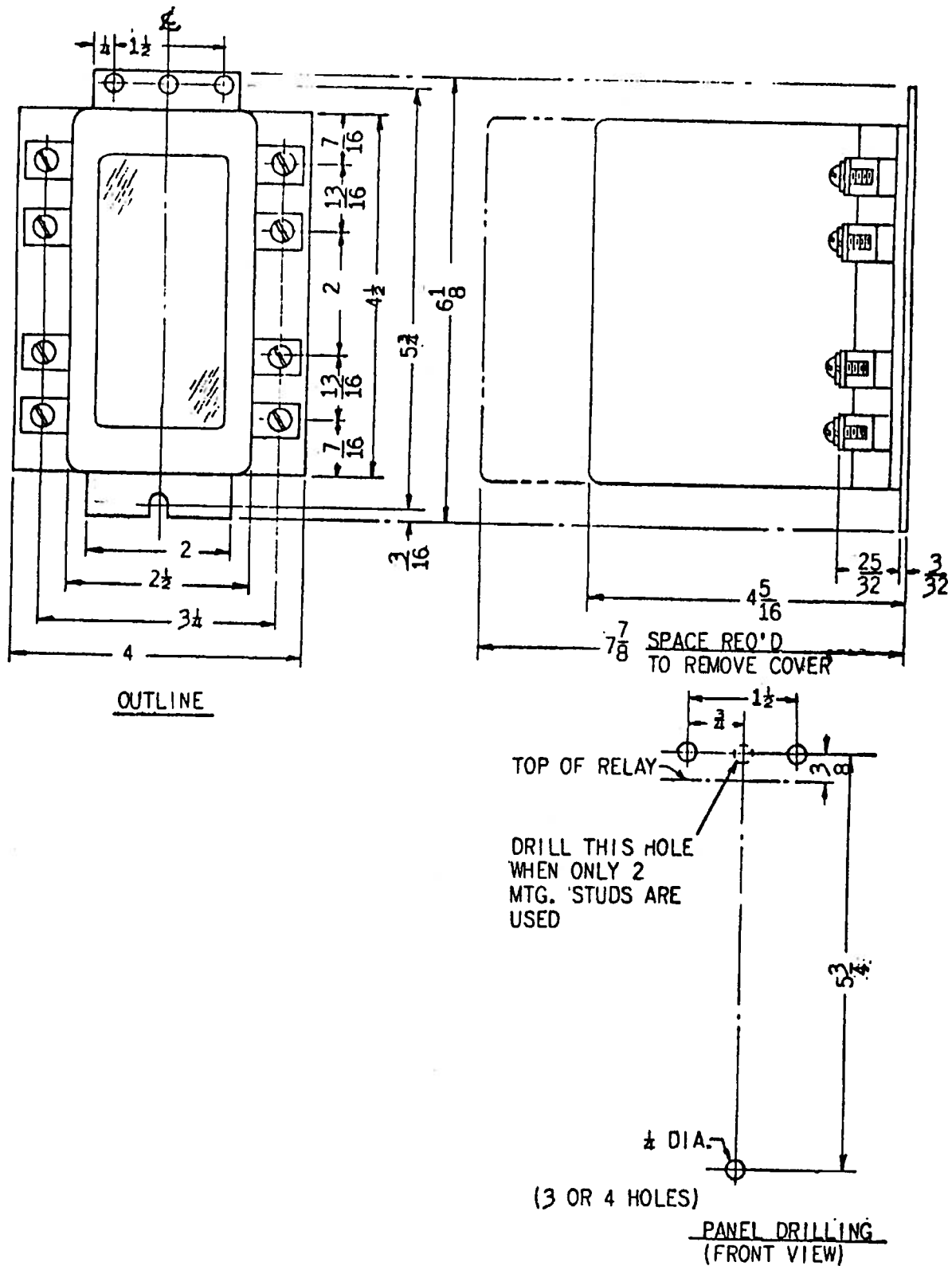


FIG. 7 (0208A3773) Outline And Panel Drilling Dimensions For The Front Connected, Surface Mounted HAA16C Relay

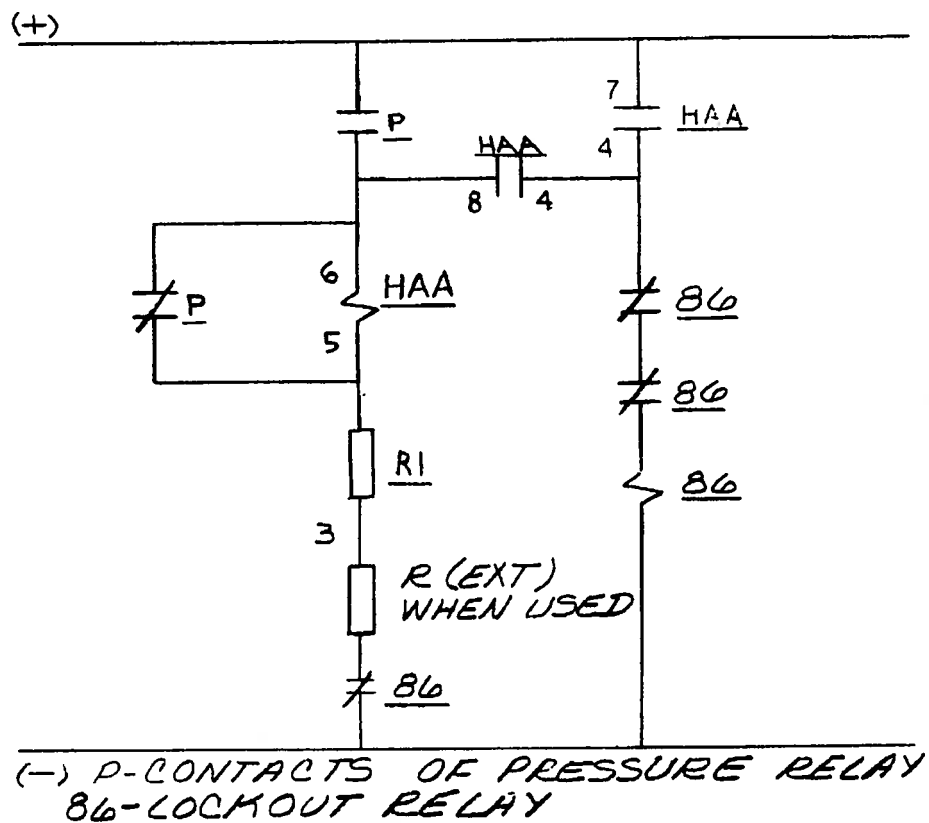
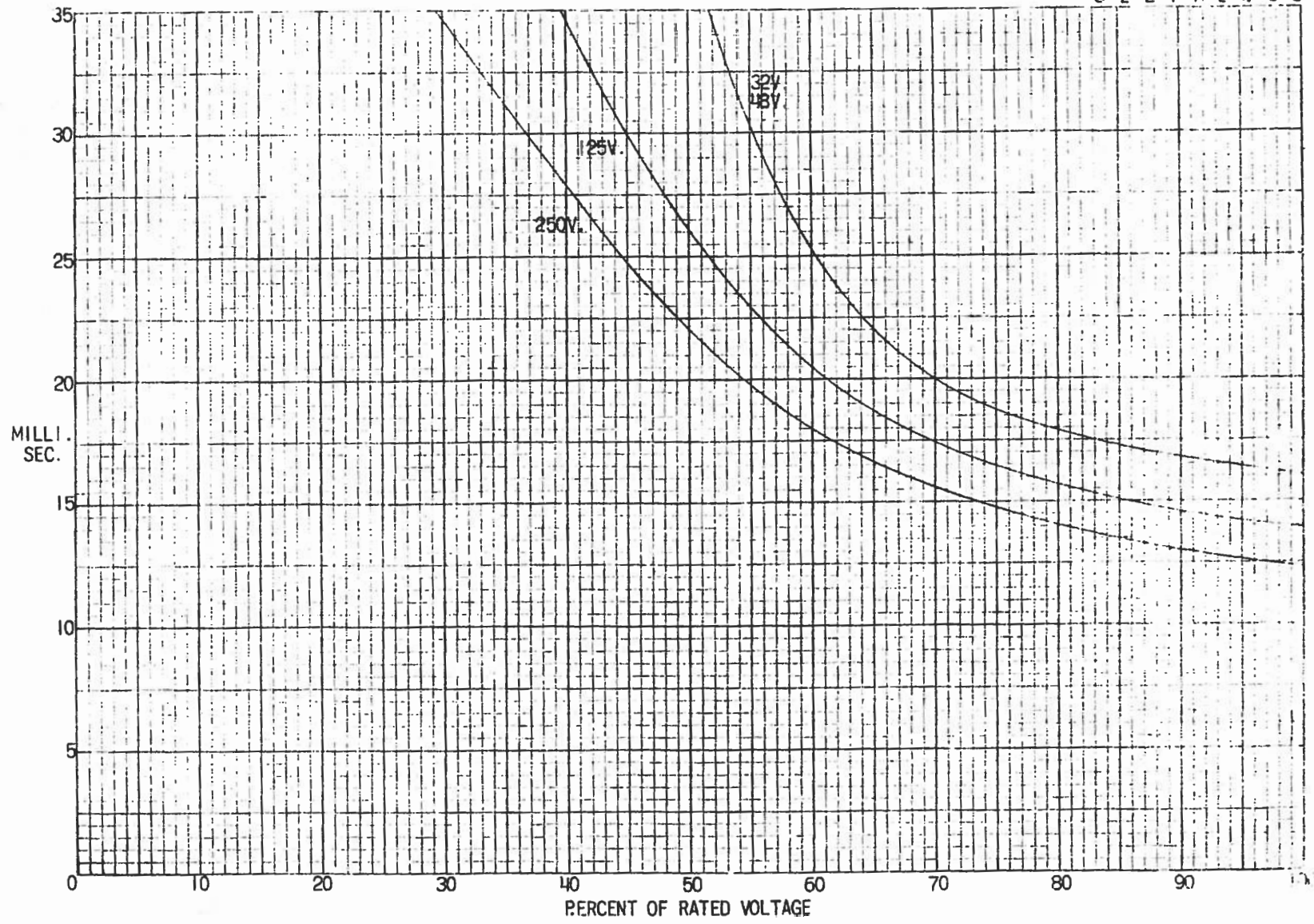


FIG. 8 (0208A2318-3) Schematic Of Typical Application For The HAA16B And HAA16C Relays

HAA16B OPERATING TIME CURVE

0 2 2 7 A 2 3 3 5



GEK-7354

FIG. 9 (0227A2335-0) Typical Operating Time Curve For The HAA16 Relay



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