INSTRUCTIONS

MULTI-CONTACT AUXILIARY RELAYS

TYPE HFA73K

GE Protection and Control
205 Great Valley Parkway
Malvern, PA 19355-1337

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Cover Photo (8042299)

MULTI-CONTACT AUXILIARY RELAYS

TYPE HFA73K

DESCRIPTION

The Type HFA73K is a high-speed, multi-contact, hinged armature auxiliary relay. It has a one-half cycle pickup time. The relay is mounted in a double end, S-2 size case. Internal connections for Type HFA73K relays are shown in Figure 1; outline and panel drilling dimensions are shown in Figure 2.

APPLICATION

The Type HFA73K is a high-speed auxiliary tripping relay. When applying this relay, refer to Table I for the number of targets that may be dropped.

TABLE I

NUMBER OF TARGETS DROPPED

RELAY	APPLIED VOLTAGE	TARGET RATING	NUMBER OF TARGETS DROPPED
HFA73K1A	125 VDC	0.2 amp 0.6 amp 1.0 amp	3 1 1
HFA73K2A	250 VDC	0.2 amp 0.6 amp	2 1
HFA73K3A	48 VDC	0.2 amp 0.6 amp	3 3

CHARACTERISTICS

The HFA73K relays are designed to obtain a pickup time of nine milliseconds or less. They are only available with the contact code shown in Table IV. The operating principle is as follows:

Initially, the coil current is limited only by the resistance of the coil, because position 4 is a normally closed, long wipe contact. After the relay picks up, the

contact in position 4 opens, and inserts the internal resistor in series with the coil, thereby reducing the coil current. This allows the coil circuit to be rated for continuous operation.

RATINGS

The HFA73K relays are available with coil ratings for 48, 125 and 250 volts DC. The current closing rating of each contact is 30 amperes. The contact current carrying rating is 12 amperes continuous. Table II lists the non-inductive interrupting capacity of each contact.

TABLE II

NON-INDUCTIVE INTERRUPTING CAPACITY OF EACH CONTACT

VOLTS DC	AMPERES
48	8
125	3
250	1

PICKUP

The relays are adjusted at the factory to pick up at 50 percent of rating or less. Normally, these adjustments should not change. If it does become 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 reseated in the hexagonal groove in the armature tail piece.

The relay should be operated a few times to be certain that the mechanism operates freely, that the contact surfaces align properly, and that the contacts open quickly when the coil is de-energized. When 110 percent of rated voltage is applied, the arc on the normally closed, long wipe (b1) contact should extinguish as soon as the relay picks up.

TABLE III

BURDEN AND PICKUP AND DROPOUT VOLTAGE

MODEL NO.	VOLTAGE	COIL RESISTANCE	INTERNAL RESISTOR
HFA73K1A	125 VDC	21 ohms	500 ohms
HFA73K2A	250 VDC	82 ohms	2000 ohms
HFA73K3A	48 VDC	2.9 ohms	75 ohms

The temperature rise within the relay case due to the heat dissipated by the internal resistor and the coil is approximately 25°C above the ambient temperature.

PICKUP TIME

HFA73K relays should pick up in not more than nine milliseconds when rated voltage is applied across the resistor and relay coil combination. This pickup time may be altered by adjustment of the armature stop screw, which increases or decreases the air gap, and thus increases or decreases operating time. It should be recognized that any change which significantly reduces the air gap to obtain times less than nine milliseconds will also reduce the interrupting ratings of the contacts.

TABLE IV

CONTACT CODE

RELAY	CODE	CONTACT ARRANGEMENT POSITION					
		1	2	3	4	5	6
HFA73K	1	a	a	a	b1	a	a

a = normally open contact
b1 = normally closed contact, long wipe

INSTALLATION

MOUNTING AND CONNECTIONS

The Type HFA relays should be mounted on a vertical surface. The outline and panel drilling diagrams are shown in Figure 2. After the relay has been mounted, it should be operated a few times to be certain that the mechanism operates freely.

MAINTENANCE

CONTACT ADJUSTMENT

The relays are shipped from the factory with all adjustments made. If the relays should need adjustment, proceed as follows: The relay has FIVE standard wipe, normally open (a) contacts, and one long-wipe, normally closed (b1) contact. It is not necessary for the "a" and the "b1" contacts to overlap. All standard wipe, normally open contacts should be set for a wipe of 1/32 inch to 3/64 inch when the armature is fully picked up. All standard wipe, normally open (a) contacts should make within 1/64 inch of each other. Using the stop screw, adjust the standard wipe, normally open contact gap to be 5/64 inch. Adjust the moving contact of the long-wipe, normally closed (b1) contacts in position 4, so that when the armature is fully picked up. the "b1" contact gap is 3/16 to 1/4 inch.

If any contact adjustment is made, the pickup voltage, the pickup time and the current interrupting rating of the relay may be affected. See PICKUP and PICKUP TME sections of this instruction book.

CONTACT CLEANING

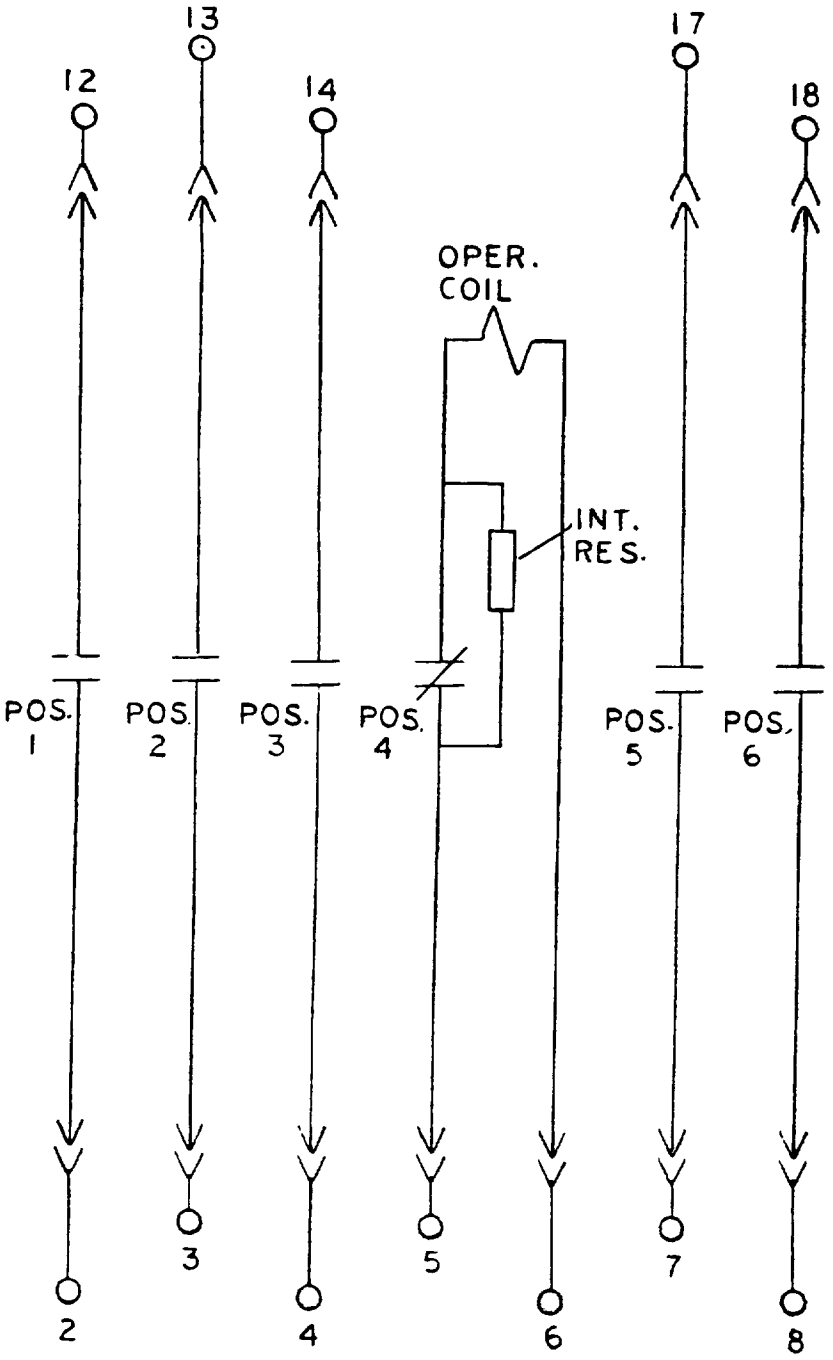
A flexible burnishing tool should be used for cleaning relay contacts. This is a flexible strip of metal with an etched-roughened surface, which in effect resembles a superfine file. The polishing action of this tool is so delicate that no scratches are left on the contacts, yet it cleans off any corrosion thoroughly and rapidly. The flexibility of the tool insures the cleaning of the actual points of contact. Fine silver contacts should never be cleaned with knives, files, or abrasive paper or cloth.

RENEWAL PARTS

Sufficient quantities of renewal parts should be kept in stock for 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 the name of the part wanted, quantity required, and complete nameplate data.

Since the last edition, Figure 2 has been changed.



a ⊥	b ⊥
CODE NO.	1
POS. NO. 1	a
2	a
3	a
4	b1
5	a
6	a

a= NORMALLY OPEN CONTACT
a1= NORMALLY OPEN CONTACT, LONG WIPE
b= NORMALLY CLOSED CONTACT
b1= NORMALLY CLOSED CONTACT, LONG WIPE

Figure 1 (0246A6960-0) Internal Connections Diagram for HFA73K Relays (Front View)

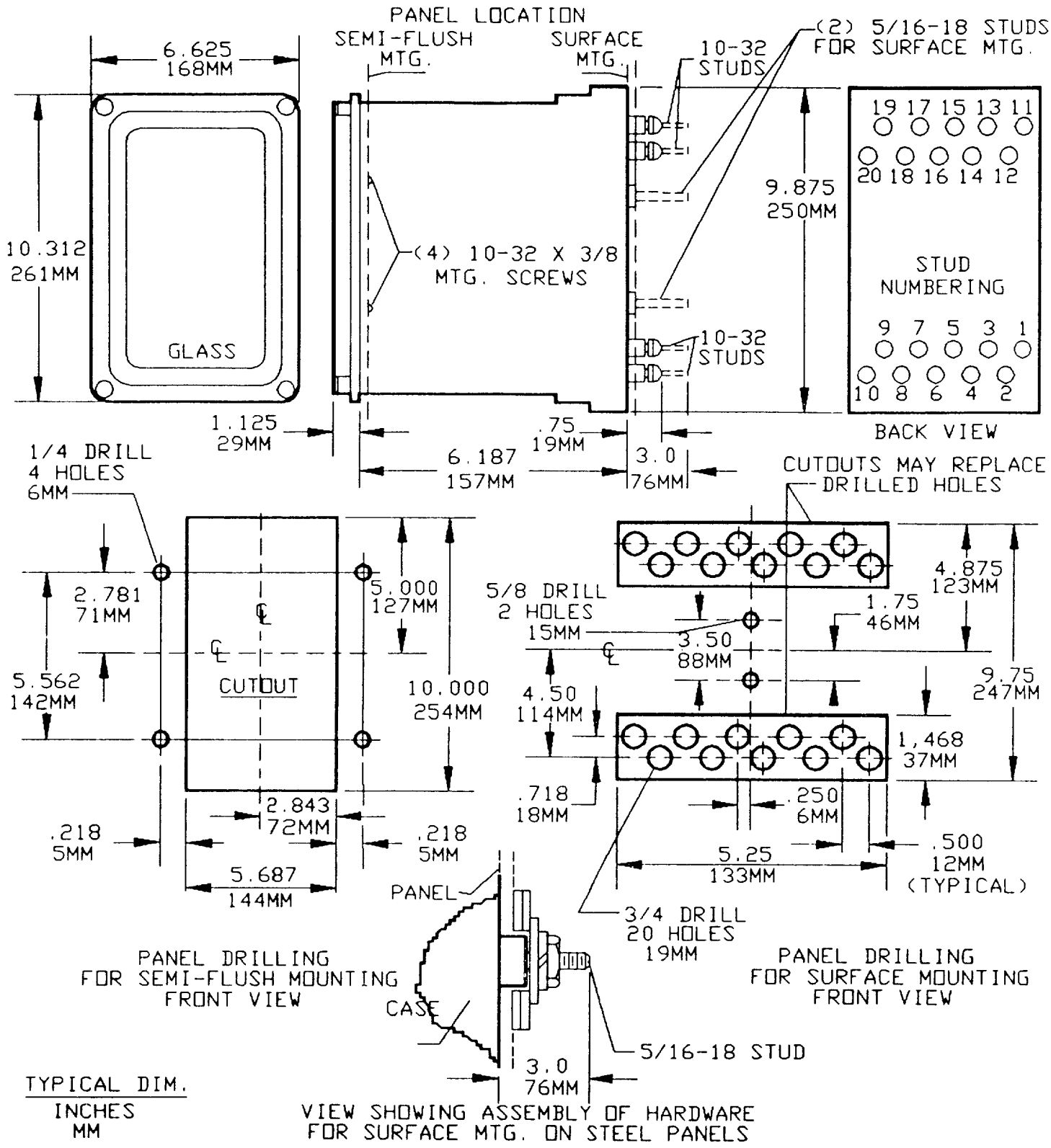


Figure 2 (K-6209272 [7]) Outline and Panel Drilling Diagram for Type HFA73K Relays