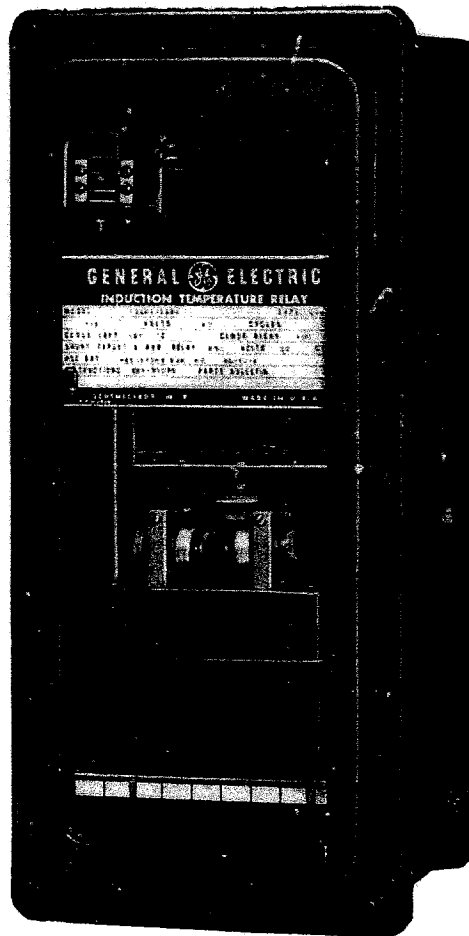


INSTRUCTIONS

Switchgear

TEMPERATURE RELAYS



Types

- CFT13A**
- CFT13B**
- CFT13C**
- CFT13D**

GENERAL  **ELECTRIC**

TEMPERATURE RELAYS

TYPE CFT

INTRODUCTION

These instructions are a supplement to instruction book GEI-14490 which is included in this book. The combination forms complete instructions for Types CFT13A, 13B, 13C, and 13D temperature relays.

These types function in exactly the same manner as Type CFT12A and CFT12B overtemperature protective devices. The Type CFT13A and CFT13C relays are used in the same way as the Type CFT12A relay - - for the protection of a-c machinery. The Type CFT13B and CFT13D relays are used in the same way as the Type CFT12B relay - - for transformer protection.

BURDENS

The burdens on the potential transformer of relay types CFT13A and CFT13B are the same as the burdens for Types CFT12A and CFT12B. The control circuits of relay types CFT13C and CFT13D impose an additional burden as follows (left (hot) contact closed):

VOLTS	CYCLES	AMPS	VOLT AMPS.	WATTS
115	60	0.053	6.1	6.0
230	60	0.068	15.6	15.3

DESCRIPTION

The Types CFT13A, 13B, 13C, and 13D include an auxiliary circuit which provides a four cycle time delay on pickup and a target indication regardless of external circuit connections. The auxiliaries may be operated from the d.c. control bus (Types CFT13A and 13B) or from the a.c. supply to the bridge and cup unit circuits through internal connections (Types CFT13C and 13D).

The control circuits of both a-c and d-c forms have been designed to operate satisfactorily on a supply voltage variation of plus 10 percent to minus 20 percent. The rating is continuous with the left contact of the cup unit open. With these contacts closed, the short-time rating is sufficient to permit the apparatus to cool and open the contact.

INSTALLATION

MOUNTING AND CONNECTIONS

The CFT13 types require two unit case mounting space. The outline and panel drilling is shown in Fig. 7 of this supplement.

The internal connections are shown in Figs. 1 and 2 of this supplement. External connections are given in Figs. 5 and 6. These are the same as for other models except for the auxiliary control and trip circuits.

The bridge resistor values (see Table I) corresponding to the closing temperatures indicated (at 30°C ambient temperature for Types CFT13A and 13C). The temperature given is minimum for the resistance listed. An adjustment of the cup unit may be made to cover the range of temperature up to the

next bridge resistance value. The resistances given apply to resistor number 1 in the diagrams of Figs. 5 & 6. Resistors 2 and 3 should be tapped at the value called for in Fig. 3, or otherwise, the same as resistor 1.

TABLE I

Min. Closing Temperature °C	Bridge Resistance Ohms
38	10.5
51	11.0
64	11.5
77	12.0
90	12.5
103	13.0
116	13.5

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.

OPERATION

The relay Type CFT13 operates in a manner identical to the Type CFT12 except for target indication, holding coil action, and pickup time.

The target indicator is a shunt coil which operates either from the d.c. tripping bus or from the a.c. supply to the bridge circuit. It is controlled by an auxiliary telephone relay connected internally.

The holding coils are used to give a "snap" action to the closing of the left or right hand contacts of the induction cup unit. The torque exerted on the moving contact arm is small enough to allow the opening of the left hand contacts at a cup unit

torque level below that necessary to close the right contacts. Holding coil action does not decrease the pickup time. Its function is to prevent pitting of the contact surfaces due to the slow rate of at which the bridge becomes unbalanced, and the light initial pressure between contacts.

The time delay pickup is obtained by a copper slug telephone relay. The amount of delay varies with the applied voltage, but at rated voltage is approximately four cycles. The purpose of the delay is to prevent false operation of the control circuit due to a mechanical shock of the panel on which it is mounted.

SOLID CONNECTIONS FOR 125 VOLT CONTROL
 DOTTED CONNECTIONS FOR 250 VOLT CONTROL

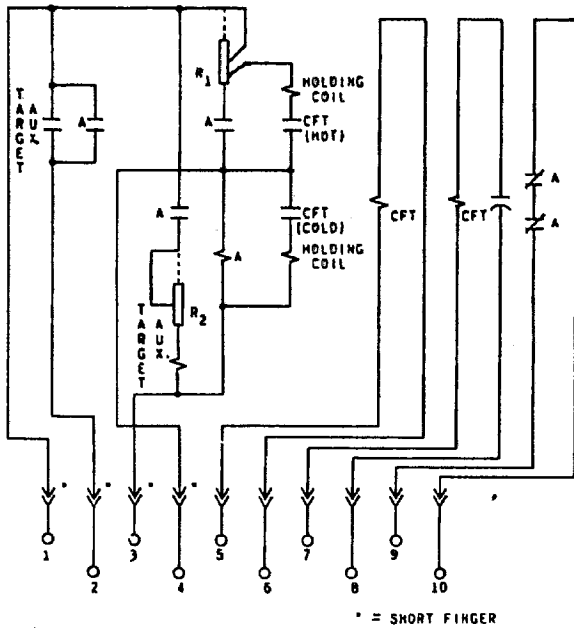


Fig. 1 Internal Connections for Relay Types CFT13A and CFT13B (Front View)

SOLID CONNECTIONS FOR 115 VOLT CONTROL
 DOTTED CONNECTIONS FOR 230 VOLT CONTROL

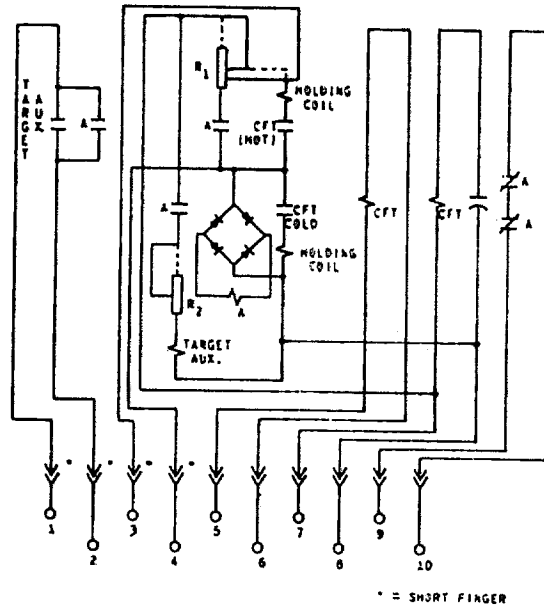


Fig. 2 Internal Connections for Relay Types CFT13C and CFT13D (Front View)

(K-6375812) Fig. 2

(K-6375811) Fig. 1

(H-66707) Fig. 3

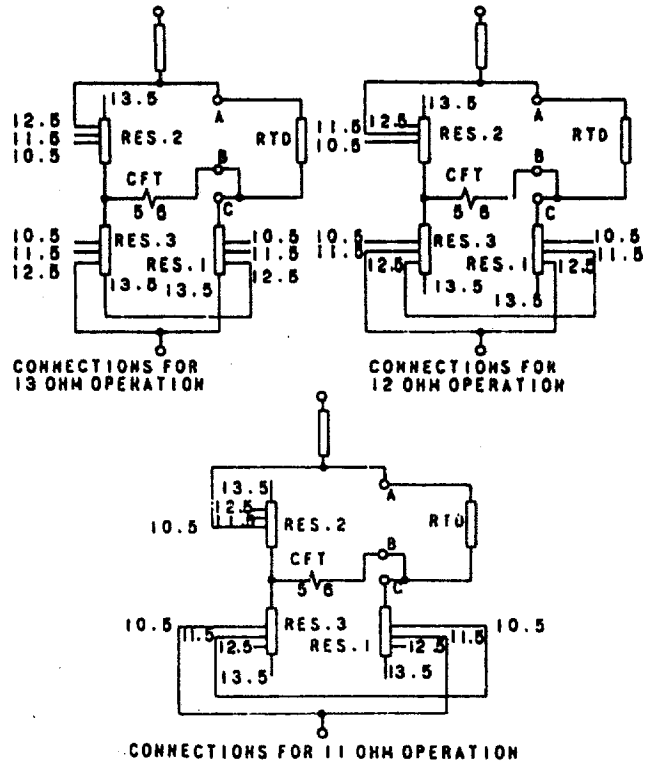


Fig. 3 Bridge Resistor Connections For Extended Calibration Range of Type CFT Relays.

(801044) Fig. 4

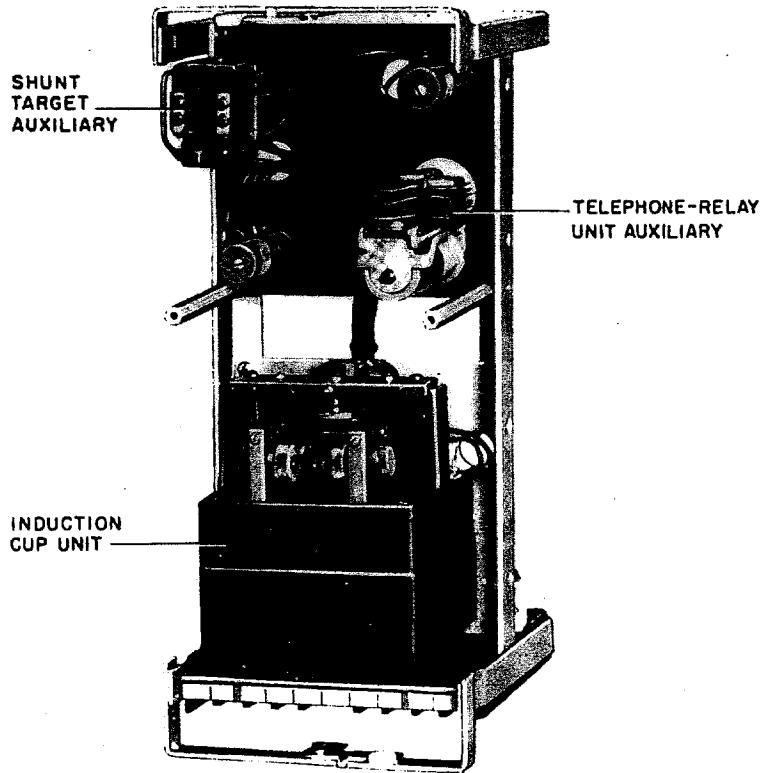


Fig. 4 Type CFT13B Relay Mounted in Cradle with Nameplate Removed (Front View)

GEI-31035 Type CFT Temperature Relays

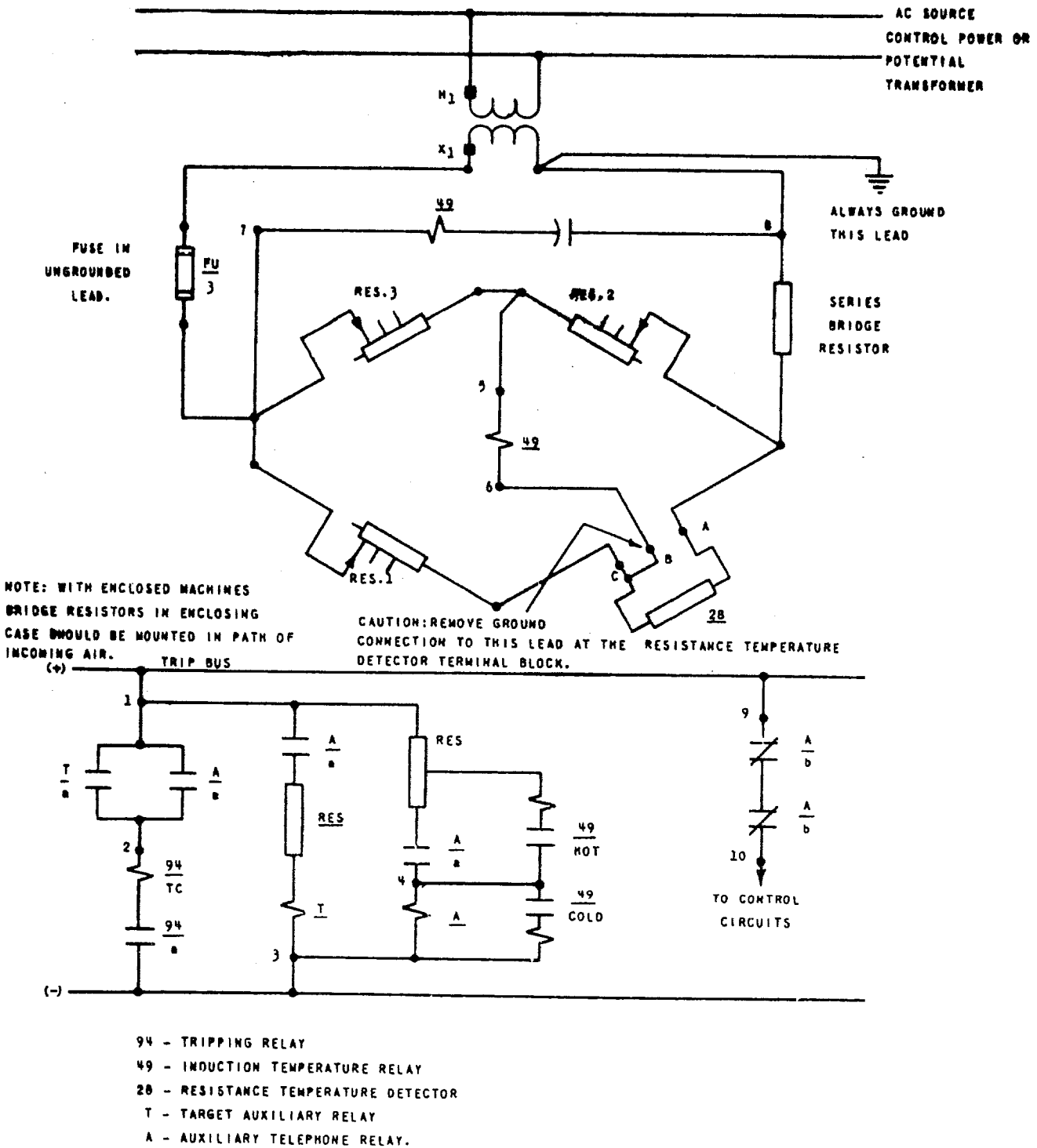


Fig. 5 External Connections for Relay Types CFT13A and CFT13B

(6-6378814)

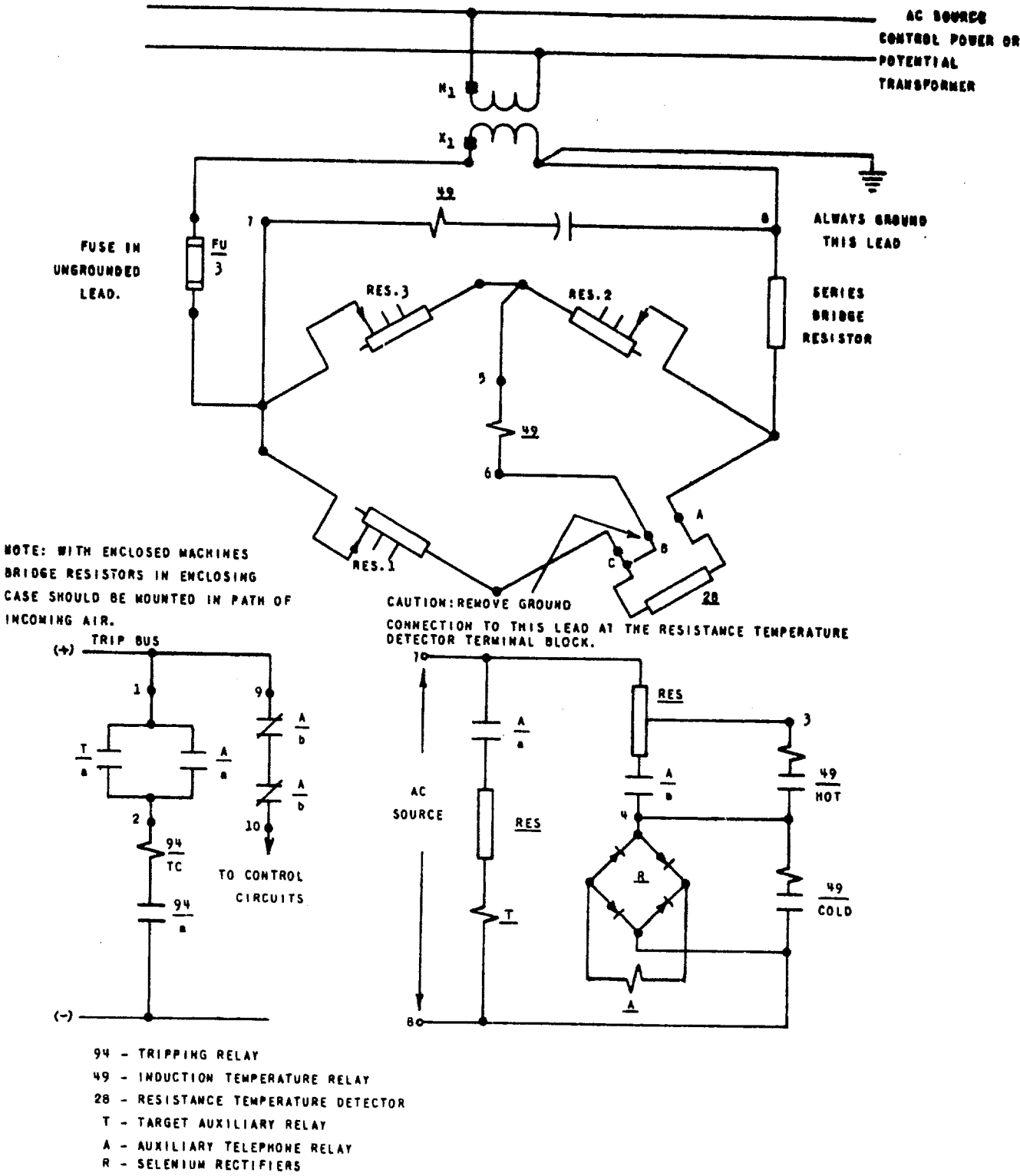


Fig. 6 External Connections for Relay Types CFT130 and CFT13D

(E-0270016)

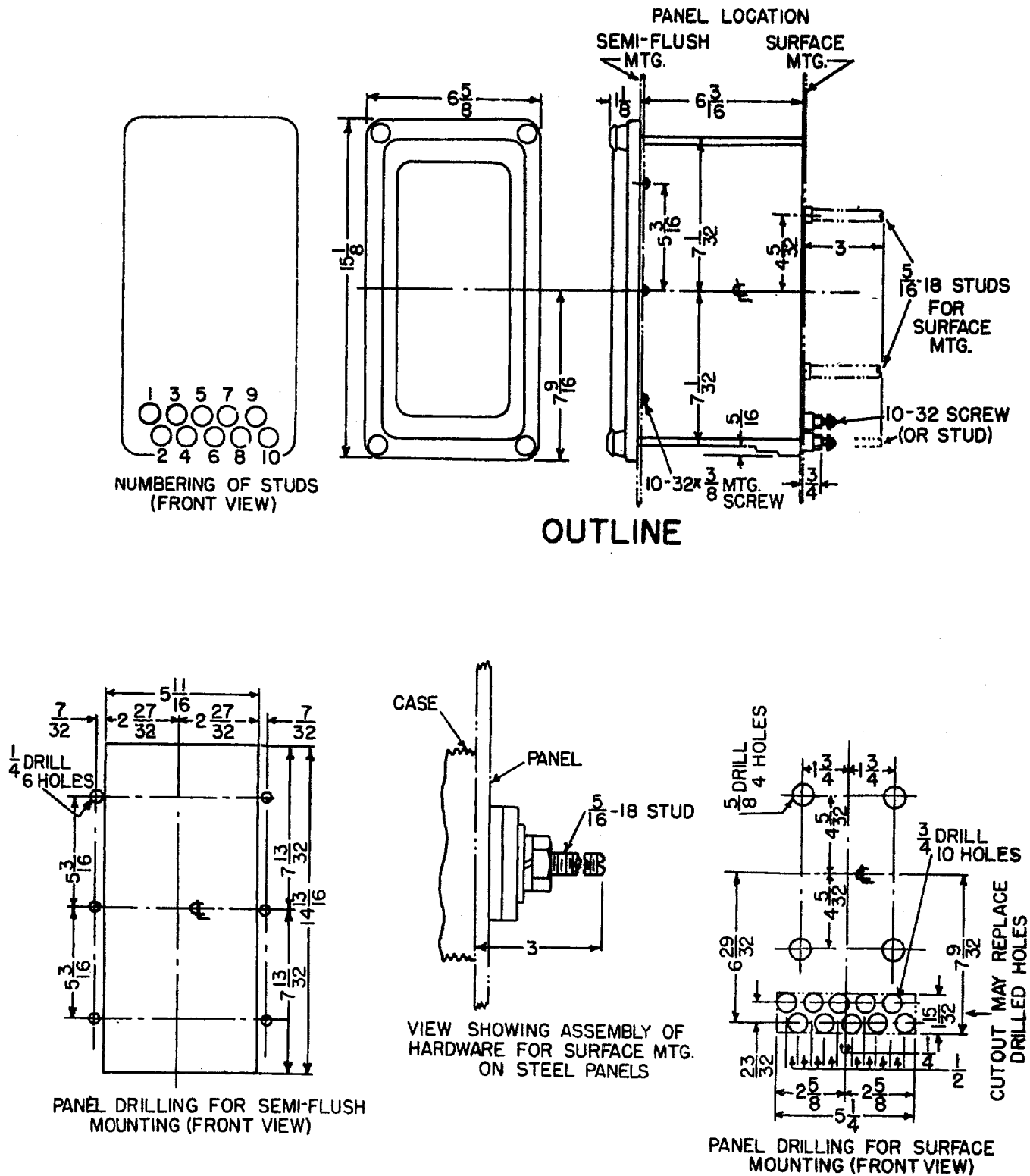


Fig. 7 Outline and Panel Drilling for Relay Types CFT13A, CFT13B, CFT13C, and CFT13D

GENERAL ELECTRIC COMPANY, SCHENECTADY, N. Y.