INSTRUCTIONS

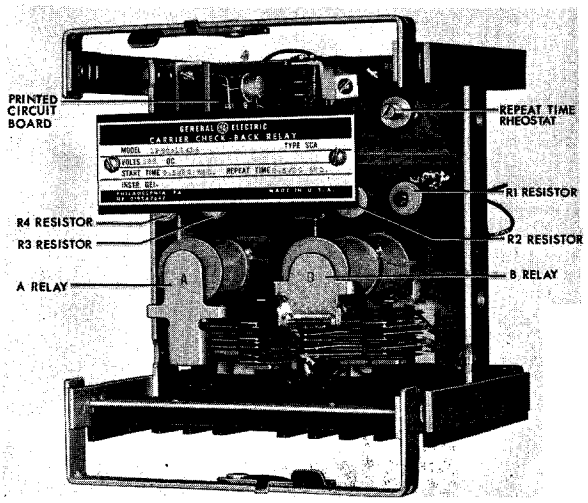
GEK-6884

Semi-Automatic Carrier Check Back Relay

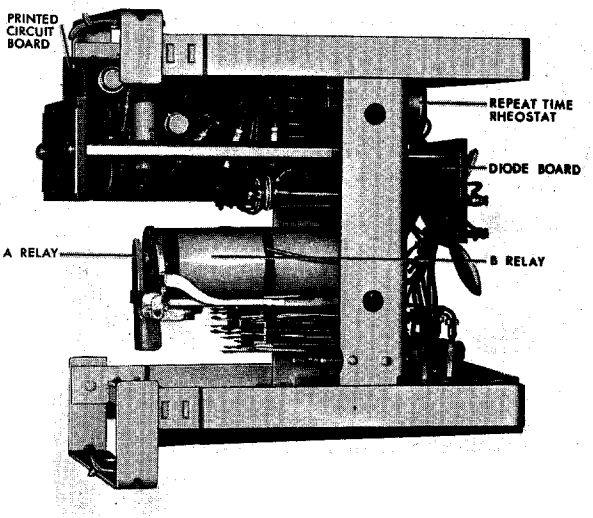
Type SCA11A

POWER SYSTEMS MANAGEMENT DEPARTMENT

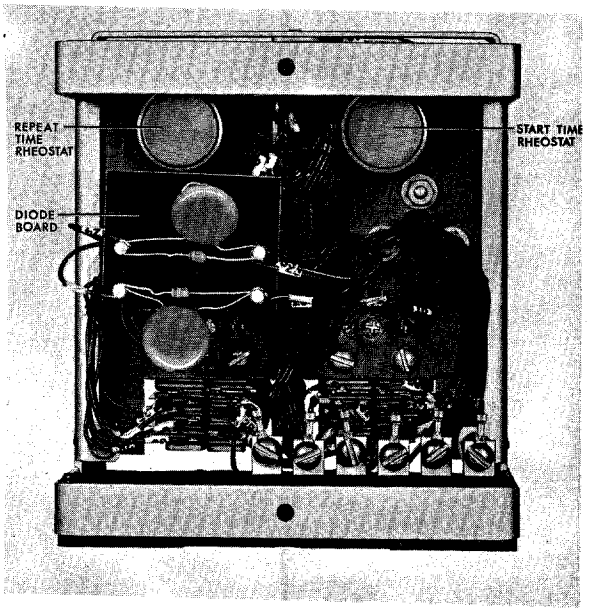
GENERAL ELECTRIC



A. Type SCA11A Relay Removed from its case (3/4 Front View) (8038082)



B. Type SCA11A Relay Removed from its case. (Side View) (8038081)



C. Type SCA11A Relay Removed from its case. Rear View (8038083)

Figure 1. Type SCA11A Relay Removed From its Case

SEMI-AUTOMATIC CARRIER CHECK BACK RELAY TYPE SCA11A

INTRODUCTION

The Type SCA11A relay consists of two telephone type relay units with their associated static timing and regulating circuits all mounted in a size S-1 drawout case.

APPLICATION

The Type SCA11A relay is designed to provide the automatic check back of a carrier current channel from a remote unattended station. Operation is started at the unattended station by the manual transmission of a carrier signal by means of the channel test switch, (CTS) in the SEND position. This carrier being received at the unattended station for a predetermined length of time will pick up a unit of the SCA relay which will then hold until the received carrier stops. After about one-half second delay, carrier transmission is started at the unattended terminal. It continues for a preset time and then automatically shuts off. The operator is thus able to observe the carrier signal strength as sent back from the remote station. The relay is intended for application to two terminal lines only. Multi-terminal lines require more complex timing and interlocking.

DESCRIPTION

The SCA relay contains two timing circuits made of static components to insure long life and consistent operation. Each timer has its own rheostat to permit easy and continuous adjustment. Two telephone type relay units are included to initiate and terminate the check back carrier signal.

BURDENS

The SCA is a D.C. operated device and resistance values of relay coils and associated resistors are given in Fig. 3.

RATINGS

The relay contacts will interrupt the currents given above in Table A.

TABLE A

	CURRENT INDUCTIVE*	CURRENT NON-INDUCTIVE
48 V.D.C.	1.0	3.0
125 V.D.C.	0.5	1.5
250 V.D.C.	0.25	0.75

*Induction of average trip coil

The relay contacts will make and carry 30 amperes for tripping duty and carry 1 ampere continuously.

The SCA relay will operate in ambient temperatures of -20°C to 60°C with maximum time variation of 8%.

The SCA relay's static timers can be adjusted to provide times of 1/2 to twenty seconds. The start and repeat times adjustments are entirely independent of one another.

CHARACTERISTICS

Both timers in the SCA11 relay measure the time it takes to charge a capacitor through an adjustable resistor after the initiating contact closes. A zener regulator keeps the voltage across the resistor-capacitor combinations constant to produce a charging time that varies directly with the resistance in the charging circuit. When the capacitor charge reaches a definite voltage level it triggers a control rectifier, by means of an unijunction, and this picks up a telephone type unit when the "start time" timer initiates the operation and shorts down the same unit when the "repeat time" timer operates. See Fig. 2 for relay connections.

The relay contains a discharge rectifier which provides a low resistance discharge path for the capacitor charge the instant that the initiating contact opens the timing circuit. This permits the SCA11 relay to be completely reset as soon as the initiating contact opens. When a carrier signal is started by a protective relay, the "start time" timer is energized. It is important that

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.

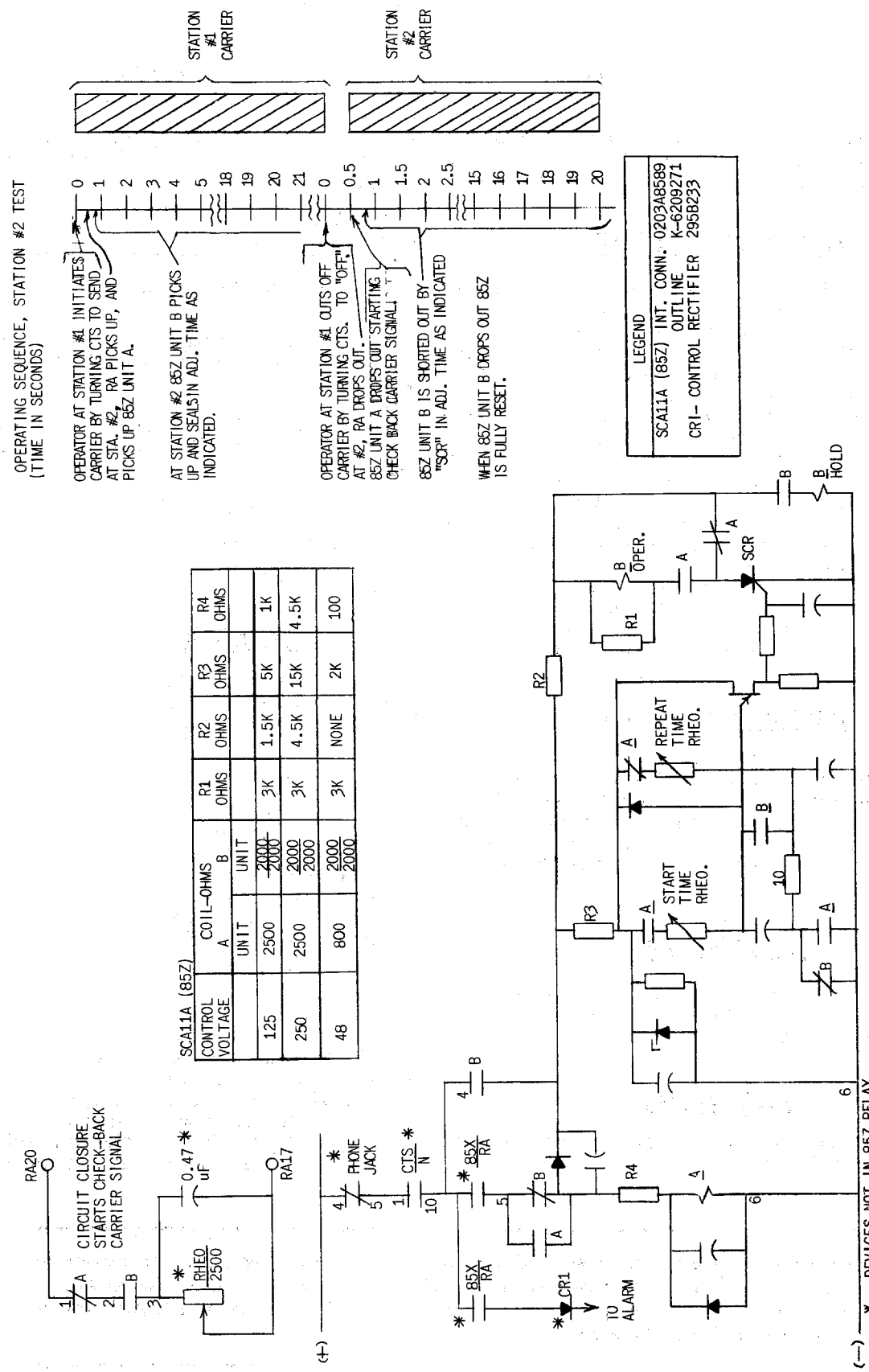
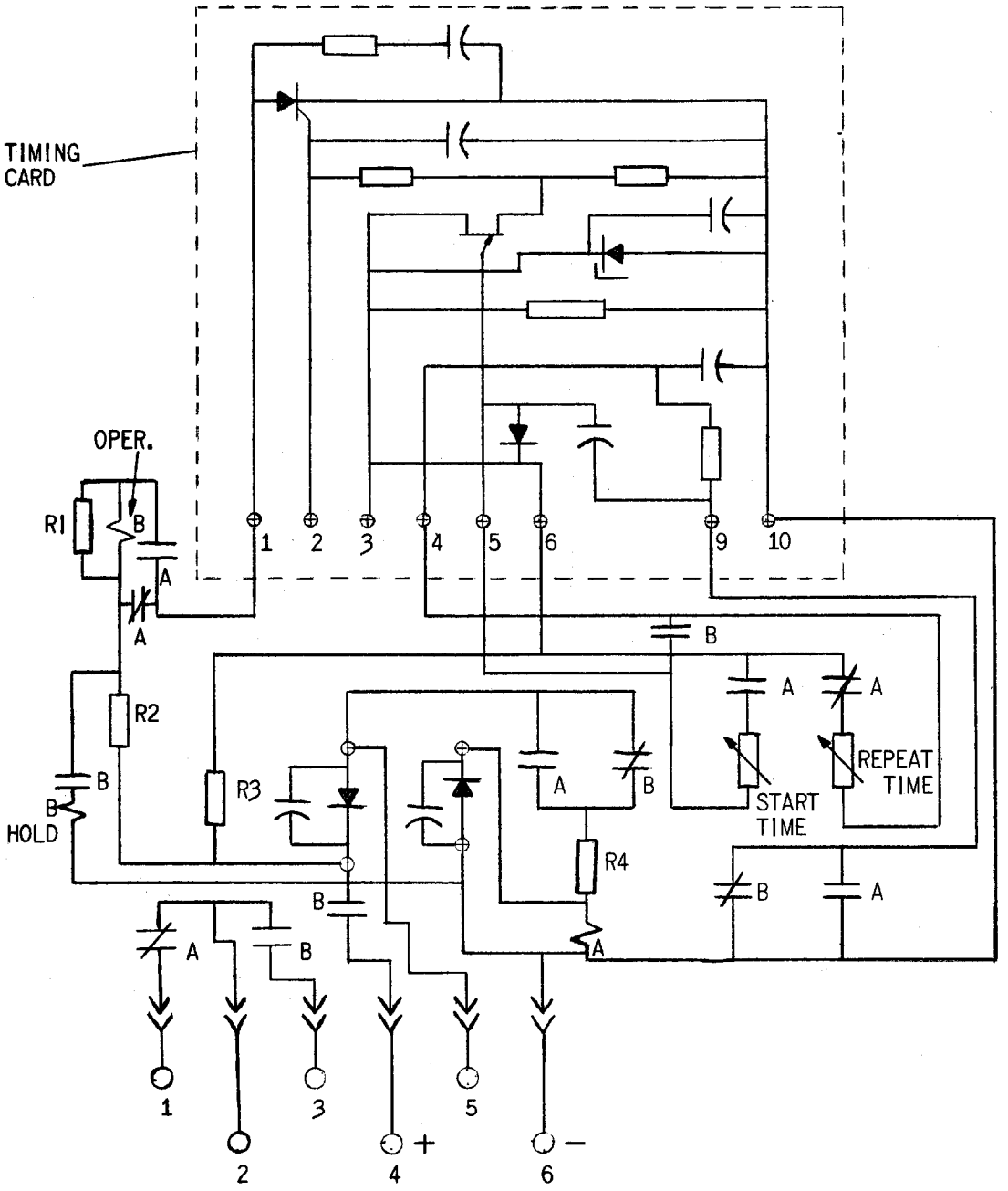


Fig. 2 (0137B9691-0) Elementary Diagram For Semi-Automatic Carrier Check-Back On Two Terminal Lines Using SCA11A Check-Back Relay With CS-27 Carrier.



RELAY MODEL	RATING VOLTS	OHMS						
		R1	R2	R3	R4	"A" COIL	"B" OPER	"B" HOLD
12SCA11A1A	125	3,000	1,500	5,000	1,000	2,500	2,000	2,000
12SCA11A2A	250	3,000	4,500	18,000	4,500	2,500	2,000	2,000
12SCA11A3A	48	3,000	100	2,000	NONE	800	2,000	2,000

Fig. 3 (0203A8589 Sh. 1-0, S2-1) Internal Connection Diagram For The Type SCA11A Relay (Front View).

this timer be quickly reset when this signal is terminated.

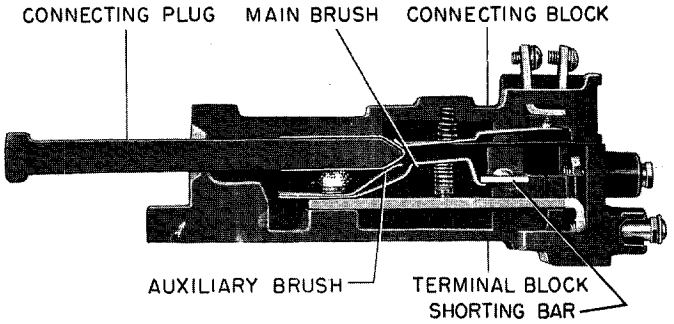
Under identical conditions the relay will repeat its operation as accurately as the relay can be set or within one percent of its original setting. An electronic timer must be used in making relay settings.

The SCA11 relay has practically no overtravel.

CONSTRUCTION

The relay components are mounted in a cradle assembly which is latched into a drawout case when the relay is in operation but it can be easily removed when desired. To do this, the relay is first disconnected by removing the connection plug which complete the electrical connections between the case block and the cradle block. To test the relay in its case this connection block can be replaced by a test plug. The cover, which is attached to front of the relay case, contains an interlock arm which prevents the cover from being replaced until the connection plugs have been inserted.

The relay case is suitable for either semi-flush or surface mounting on all panels up to 2 inches thick and appropriate hardware is available. However, panel thickness must be indicated on the relay order to insure that proper hardware will be included. For outline and drilling dimensions, see Fig. 6. Every circuit in the drawout case has an auxiliary brush, as shown in Fig. 4



NOTE: AFTER ENGAGING AUXILIARY BRUSH, CONNECTING PLUG TRAVELS 1/4 INCH BEFORE ENGAGING THE MAIN BRUSH ON THE TERMINAL BLOCK

Fig. 4 (8025039) Cross Section Of Case & Cradle Showing Auxiliary Brush And Shorting Bar.

to provide adequate overlap when the connecting plug is withdrawn or inserted. Some circuits are equipped with shorting bars (see Fig. 3) and on these circuits it is especially important that the auxiliary brush makes contact as indicated in Fig. 4 with adequate pressure to prevent the opening of important interlock circuits.

RECEIVING, HANDLING AND STORAGE

These relays, when not included as 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 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. 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.

Also check the nameplate stamping to insure that the model number and the rating of the relay received agree with the requisition. Check the operation manually and check that the contact gap and wipe agree with values given under the section on ADJUSTMENTS AND INSPECTION.

ADJUSTMENT AND INSPECTION

MECHANICAL CHECK

Before installation, the relay units should be checked mechanically to see that it operates smoothly and that the contacts are correctly adjusted.

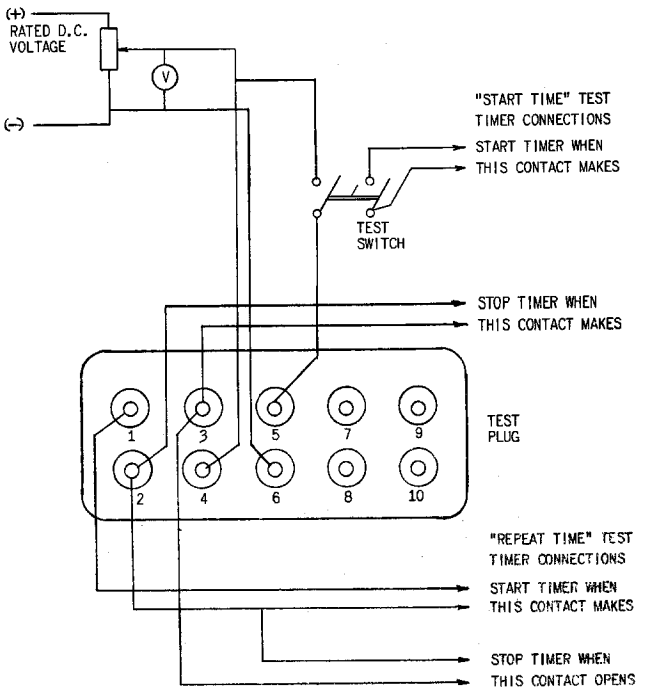


Fig. 5 (0203A8662-0) Field Test Connections For Type SCA11A Relays.

With the relay de-energized each normally open contact should have a gap of .010" - .015". Observe the wipe on each normally closed contact by deflecting the stationary contact member towards the frame. Wipe should be approximately .005".

The wipe on each normally open contact should be approximately .005". This can be checked by inserting a .005" shim between the residual screw and the pole piece and operating the armature by hand. The normally open contacts should make before the residual screw strikes the shim.

ELECTRICAL TEST

The relay should be tested before installation and periodically thereafter by connecting a variable source of D-C voltage to the relay as shown in Fig. 5. The relay should be adjusted by means of the two variable resistors to the times required at its final location (see Fig. 1). An electronic timer should be used in making these settings.

SERVICING

For cleaning relay contacts a flexible burnishing tool should be used. This consists of an etched roughened strip of flexible metal, resembling a superfine file which removes corroded material quickly without scratching the surface. The flexibility of the tool insures the cleaning of the actual points of contact. Never use knives, files, abrasive paper or cloth to clean relay contacts. A burnishing tool as 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. If possible, give the General Electric requisition number on which the relay was furnished.

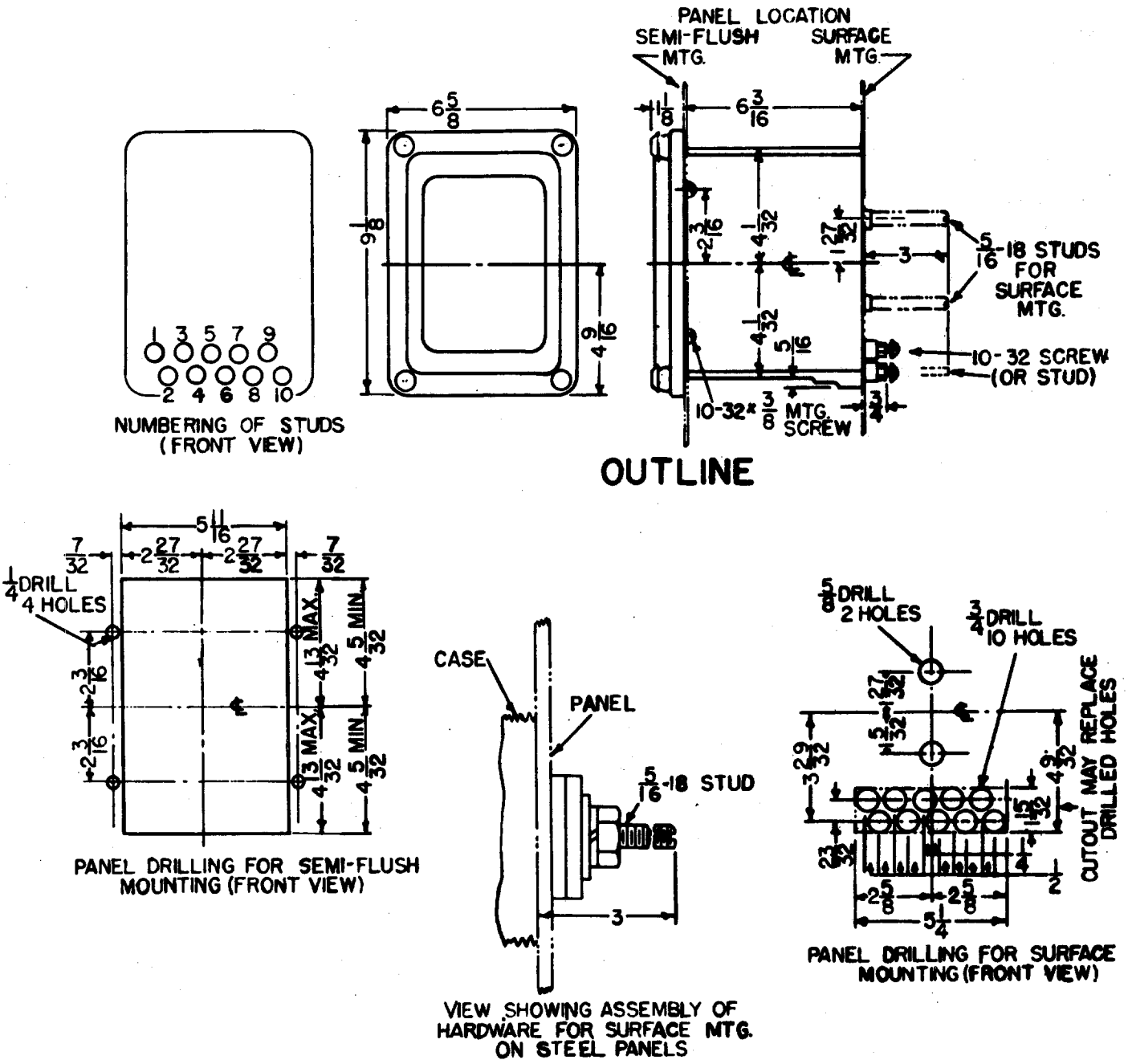


Fig. 6 (6209271-3) Outline & Panel Drilling Dimensions For The Type SCA11A Relays.